GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

Job No: 13372/3
Our Ref: 13372/3-AA
10 November 2015

Zhinar Architects Pty Ltd
Suite 1, Level 2
2 Rowe Street
EASTWOOD NSW 2122
Email: chanwoo@zhinar.com.au

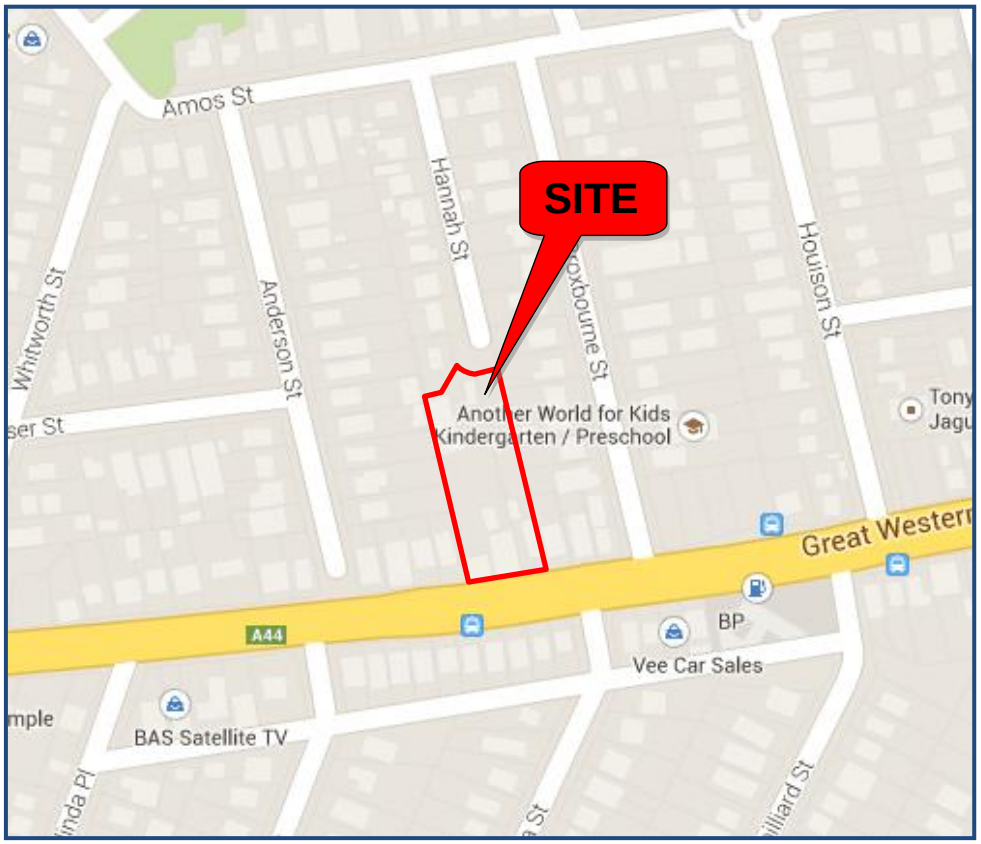
Attention: Mr C Lee

Dear Sir

re: **Proposed Residential Development**
Lot 10 in DP629009 and Lots 1 & 2 in DP594691
158-162 Great Western Highway, Westmead
Additional Contamination Assessment

Further to the phase 1 preliminary contamination assessment (PCA) Report No 13372/1-AA dated 31 March 2015 and Limited phase 2 contamination assessment (CA) Report No 13372/2-AA dated 27 August 2015, prepared by Geotechnique Pty Ltd (Geotechnique); this letter report presents the results of an additional contamination assessment (ACA) for the property registered Lot 10 in DP629009, and Lots 1 and 2 in DP594691, located at 158-162 Great Western Highway, Westmead, as indicated on Figure 1 below. The assessment focused on contamination assessment within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park area.

FIGURE 1



Map Data ©2015 Google

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We understand that the proposed development at the site involves demolition of existing structures and construction of a multi-storey residential building, with one to three levels of basement car park.

Based on the ACA, remediation and validation will be required to make the site suitable for the proposed residential development.

The objectives of the ACA were to ascertain if the soil within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park area present a risk of harm to human health and/or the environment.

In order to achieve the objectives of this assessment, the following scope of work was conducted:

- Soil sampling within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park by using a drilling rig equipped with Geoprobe, aimed at ascertaining the presence of soil contaminants in the sampling area.
- Screening the recovered samples for volatile organic compounds (VOC) using a calibrated Photo-Ionised Detector (PID).
- Chemical analysis by *National Association of Testing Authorities (*NATA) accredited testing laboratories, in accordance with chains of custody prepared by Geotechnique.
- Implementation of industry standard quality assurance (QA) and quality control (QC) measures. QC samples were also forwarded to the testing laboratories.
- Assessment of field and laboratory QA and QC.
- Assessment of the laboratory analytical results against current applicable guidelines.
- Preparation of this letter report.

SITE INFORMATION

The site is located at 158-162 Great Western Highway, Westmead, in the local government area of Holroyd and is registered as Lot 10 in DP629009 (No.158), Lot 1 in DP594691 (No.162) and Lot 2 in DP594691 (No.160). Reference may be made to Drawing No 13372/3-AA1 for the lot layout.

As shown on Drawing No 13372/3-AA1, the site is irregular in shape, measuring about 41m along the Great Western Highway frontage, with an average depth of about 105m, and covering an area of approximately 4,232m^2.

A Field Engineer from Geotechnique made the following observations during the sampling on 23 September 2015 as a part of ACA, which was almost the same as those observed during site inspection for the phase 1 PCA (January 2015) and Limited Phase 2 CA (August 2015). Site features observed, as detailed below, are indicated on Drawing No 13372/3-AA1. Based on the available information from WorkCover NSW, an approximate location of previous underground fuel tank and drum store area (depot) was also shown on the drawing.

- The front portion of the site was occupied by two brick shop buildings with a metal and concrete roof, and a residential brick cottage with a metal roof. The shops were for displaying commercial refrigerators for sale. A fibro shed and a metal carport were observed to the west of the brick cottage. The rear portion of the shops could be accessed from either Great Western Highway via a bitumen and concrete driveway, or from Hannah Street via gates at the northern boundary of the site. A brick storage shed with a galvanised iron (GI) roof, two shipping containers and a besser block shed (former workshop) with a metal roof were observed at the rear portion of the site. Two engine oil drums were located next to the shipping containers.

- The ground surface at the rear of the shops was covered by concrete with minor cracks. The ground surface at the rear of the cottage was covered by grass and gravel.
- The shops were rented to a refrigerator business. Different brands of refrigerators and freezers were stored at the rear portion of the site on the concrete. The floor of the shops was covered by tile and carpet.
- There were no obvious features associated with any underground storage tanks (bowser, breather pipe, inlet valve and piping) or odour that would indicate the potential for contamination.
- There were no visible or olfactory indicators of potential contamination.

The site is bound to the north by residential land and Hannah Street, to the east and west by residential land, and to the south by Great Western Highway.

FIELD SAMPLING AND LABORATORY TESTING

On 23 September 2015 drilling was carried out at eight borehole locations (BH5 to BH12) using a drilling rig equipped with Geoprobe. The borehole locations are shown on Drawing No 13372/3-AA1 in Attachment A. A Field Engineer from Geotechnique carried out soil sampling in accordance with Geotechnique standard sampling procedures.

Reference should be made to Table 1 in Attachment B, for descriptions of the soils encountered during sampling for this assessment, and to Drawing No 13372/3-AA1 for borehole locations. Based on information obtained from the boreholes, the sub-surface profile within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park area is generalised as follows:

Hardstand	100mm to 350mm thick concrete at all borehole locations.
Fill	Type 1: 50mm to 300mm thick, gravelly sand, medium grained, dark grey, was encountered at BH5, BH10, BH11 and BH12, underlain by type 2 fill or natural shaley clay. Type 2: 400mm to 650mm thick, silty clay, medium plasticity, brown and grey, with inclusion of sandstone gravel, was encountered at BH7 to BH12, underlain by type 3 fill or natural shaley clay. Type 3: 200mm to 2.1m thick, clayey sand, medium grained, dark grey, was encountered at BH3, underlain by natural shaley clay. Based on the contents of the fill materials, the natural soil profiles and regional geological information, it appears that all the fill materials could have been imported to the site.
Natural Soil	Shaley clay, medium plasticity, grey, was encountered below the fill material. Natural shaley clay was also encountered on the surface layer at BH6.

No fibro-cement pieces were observed in any borehole locations.

The soil sampling procedures were as follows:

- Undisturbed soil samples were collected using the Geoprobe sampling system. The Geoprobe uses a "direct push" technique, which inserts sampling tools of about 57mm diameter directly into the ground. This enables accurate sampling, with minimal disturbance to the sub-surface soil profile.
- Push tube soil samples were obtained continuously from ground level. The use of dedicated acetate sample liners during the sampling process minimises the possibility of cross contamination of samples from different horizons, as well as minimising potential loss of readily volatile compounds.
- At each sampling depth, two soil samples were recovered using a stainless steel liner cutter to make a lengthwise opening of the liner, and a stainless steel knife to cut the recovered soil sample longitudinally into two halves. One half was used for laboratory analysis, the other half for head space screening using a calibrated PID to screen for the presence of VOC. The PID readings are summarised in the Table 1 in Attachment B. The PID was calibrated in-house the day before use. The knife was decontaminated prior to use to prevent cross contamination. The PID calibration is included in Attachment C of this report. The stainless steel knife was decontaminated prior to use, in order to prevent cross contamination. Decontamination of the knife involved the following;
  - Removal of soils adhering to the knife by scrubbing with a brush
  - Washing the knife thoroughly in a solution of phosphate free detergent (Decon 90) using brushes and disposable towels
  - Rinsing the knife thoroughly with distilled water
  - Repeating the washing / rinsing steps and rinsing with water
  - Drying the knife with a clean cloth.
- To prevent the potential loss of any VOC, the laboratory soil sample was immediately transferred using disposable gloves to a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight, Teflon screw top lid or to resealable plastic bag for asbestos testing. The fully filled jar was then placed in a chilled container. Plastic bag was placed inside a larger plastic bag.

In order to ensure the analytical performance of the primary laboratory, duplicate and split samples were prepared for analyses. Samples were kept in labelled laboratory supplied glass jars (acid-washed and solvent-rinsed) and sealed with airtight Teflon screw top lids. The fully filled jars were placed in a chilled container.

A rinsate water sample was collected and placed in a glass bottle supplied by the laboratory at completion of sampling. The fully filled bottle and vial were labelled and placed in a chilled container.

At completion of field sampling, the chilled container and large plastic bag were transported to our Penrith office. The chilled container was then transferred to a refrigerator where the temperature was maintained below 4°C.

The chilled containers with the trip spike sample and large plastic bag, were forwarded to the primary laboratory SGS Environmental Services (SGS) and the secondary laboratory, Envirolab Services Pty Ltd (Envirolab), both NATA accredited. COCs were then forwarded to the laboratories.

On receipt of the samples and COC, the laboratories returned the Sample Receipt Confirmation, verifying the integrity of all samples received.

The soil profile encountered did not reveal any visual (staining, dying) or olfactory indicators of potential contaminants, or fibro-cement pieces in the fill profile. As a result and generally based on the potential for contamination identified in the phase 1 PCA, the following laboratory analysis plan was implemented:

- Discrete fill and surface natural soil samples, recovered from besser block shed (former workshop) were analysed for Metals (arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, titanium and zinc), Total Petroleum Hydrocarbons (TPH), BTEX (Benzene, Toluene, Ethyl Benzene and Xylenes), Polycyclic Aromatic Hydrocarbons (PAH), Phenols and volatile organic compounds (VOC). The samples were also analysed for beryllium, boron, Organochlorine Pesticides (OCP) and Polychlorinated Biphenyls (PCB) for screening purposes.
- Discrete fill samples, recovered from concrete car park, were analysed for lead, TPH, BTEX, PAH and Phenols. The samples were also analysed for other Metals (arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, manganese, mercury, nickel, selenium, titanium and zinc), OCP and PCB for screening purposes.
- Discrete fill samples, recovered from former underground petrol storage tank area, were analysed for lead, TPH and BTEX. The samples were also analysed for other Metals (arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, manganese, mercury, nickel, selenium, titanium and zinc), TPH, BTEX, Phenols, OCP and PCB for screening purposes. One fill sample was also analysed for VOC for screening purposes.
- Discrete fill samples, recovered from former drum store (depot) were analysed for Metals (arsenic, barium, cadmium, chromium, cobalt, lead, manganese, mercury, selenium, titanium and zinc), TPH, BTEX, PAH, Phenols and VOC. The samples were also analysed for beryllium, boron, copper, nickel, OCP and PCB for screening purposes.
- All fill samples were also analysed for asbestos for screening purposes.

Reference may be made to “Field & Laboratory Test Results, Assessment & Discussion” in this report for a summary of the laboratory test results.

FIELD QUALITY ASSURANCE & QUALITY CONTROL (QA & QC)

The following QA/QC procedures were implemented for the sampling and analytical program. Reference may be made to Attachment E for the actual test results certificates from the laboratories for the QA & QC samples.

Rinsate Sample

One rinsate water sample (Rinsate R1) was recovered at the end of the field works, in order to identify possible cross contamination between the sampling locations. The rinsate water sample was analysed for Metals (arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, titanium and zinc). The test results for the rinsate water sample are summarised in Table A in Attachment D.

As indicated in Table A, all concentrations in the rinsate blank sample were less than laboratory limits of reporting (LOR), which indicates that adequate decontamination had been carried out in the field.

As indicated in Table A, all concentrations in the rinsate blank samples were all below the laboratory limits of reporting (LOR), which indicates that adequate decontamination had been carried out successfully in the field.

Trip Spike Sample

Trip spike samples are obtained from the laboratory on a regular basis, prior to conducting field sampling where volatile substances are suspected. The samples are held in the Penrith office of Geotechnique, at less than 4°C, for a period of no more than seven days. During the field work, the trip spike samples are kept in the chilled container with soil samples recovered from the site. The trip spike sample is then forwarded to the primary laboratory together with the soil samples recovered from the site.

The laboratory prepares the trip spike by adding a known amount of pure petrol standard to a clean sand sample. The sample is mixed thoroughly to ensure a relatively homogenous distribution of the spike throughout the sample. When the sample is submitted for analysis, the same procedure is adopted for testing as for the soil samples being analysed from the site.

The purpose of the trip spike is to detect any loss or potential loss of volatiles from the soil samples during field work, transportation, sample extraction or testing.

One trip spike sample (TS1) was forwarded to the primary analytical laboratory with the samples collected from the site, and was tested for BTEX. The test results for the trip spike sample, reported as a percentage recovery of the applied and known spike concentrations, are shown in Table B in Attachment D.

As indicated in Table B, the results show a good recovery of the spike concentrations. Furthermore, all BTEX results were less than laboratory detection limits and there were no visible or olfactory indications of hydrocarbon contamination.

Based on the above, it is considered that any loss of volatiles from the recovered samples that might have occurred would not affect the outcome / conclusions of this report.

Duplicate Sample

In order to ensure reliable analytical results from the laboratory, one duplicate soil sample was prepared and submitted blind to the laboratory for analysis. The test results for the duplicate sample were compared with the test results of the corresponding original sample and are summarised in Table C in Attachment D.

The duplicate sample was prepared on the basis of sample numbers recovered during the field work.

A comparison was made and the Relative Percentage Differences (RPD) was computed to assess the difference between the originals and the duplicates. RPD within 30% are generally considered acceptable. However, this variation can be higher for organic analysis than for inorganics and for low concentrations of analytes.

As indicated in Table C, the comparisons between the duplicates and corresponding original samples indicated generally acceptable RPD, with the exception of higher RPD for some metals mainly due to heterogeneity of samples. Therefore, the variations are not considered to be critical and the test results provided by SGS are deemed to be adequately accurate and reliable for this assessment.

Split Sample

Split samples provide a check on the analytical performance of the primary laboratory. A split sample was submitted for analysis to a secondary laboratory Envirolab.

The split sample was prepared on the basis of sample numbers recovered during the field work.

The split sample test results are summarised in the attached Table D in Attachment D.

Based on Schedule B3 "*Guideline on Laboratory Analysis of Potentially Contaminated Soils*" of the Amendment NEPM 2013 the difference in the results between the split samples should generally be within 30% of the mean concentration determined by both laboratories, i.e., RPD should be within 30%. However, this variation can be higher for organic analysis than for inorganics and for low concentrations of analytes.

As shown in Table D, the comparisons between the split and corresponding original sample generally indicated acceptable RPD, with the exception of higher RPD for some metals mainly due to heterogeneity of samples. Therefore, the variations are not considered to be critical and the laboratory test data provided by the primary laboratory are deemed reliable for this assessment.

LABORATORY QA & QC

Geotechnique uses only laboratories accredited by the National Association of Testing Authorities (NATA) for chemical analyses. The laboratory must also incorporate quality laboratory management systems to ensure that trained analysts using validated methods and suitably calibrated equipment produce reliable results.

In addition to the quality control samples, the laboratory must also ensure that all analysts receive certification as to their competence in carrying out the analysis and participate in national and international proficiency studies.

SGS and Envirolab are accredited by NATA and operate Quality Systems designed to comply with ISO / IEC 17025.

The recovered discrete soil samples were analysed generally within the allowable holding times, detailed in Schedule B(3) of The *NEPM* by the National Environment Protection Council (NEPC). The rinsate sample was analysed within the allowable holding times for water detailed in Standard Methods for the Examination of Water and Wastewater (APHA).

The test methods adopted by the laboratory are indicated with the laboratory test results certificates in Attachment E. As part of the analytical run for the project the laboratory included laboratory blanks, duplicate samples, laboratory control samples, matrix spikes and/or surrogate spikes.

We have checked the QA/QC procedures and results adopted by the laboratory against the appropriate guidelines. The quality control sample numbers adopted by SGS are considered adequate for the analyses undertaken.

The methods used by SGS have been validated as recommended in the NEPM and ANZECC guidelines and endorsed by NATA.

The samples analysed for TPH (C6–C9) and/or BTEX were extracted by the purge and trap method recommended by the NSW EPA.

All reported laboratory Limits of Reporting (LOR) / Practical Quantitation Limits (PQL) were less than the assessment criteria adopted for each analyte or analyte group.

Overall, the quality control elements adopted by SGS indicate that the analytical data falls within acceptable levels of accuracy and precision for analysis of soil. The analytical data provided is therefore considered to be reliable and useable for this assessment.

ASSESSMENT CRITERIA

Investigation levels and screening levels developed in the NEPM 2013 were used in this assessment for soil samples, as follows:

- Risk-based Health Investigation Levels (HIL) for a broad range of metals and organic substances. The HIL are applicable for assessing human health risk via all relevant pathways of exposure. The HIL as listed in Table 1A (1) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" are provided for different land uses.

  It is understood that the proposed development of the site includes the demolition of existing structures and construction of a multi-storey residential building with one to three levels of basement car park. Therefore, with regard to human health, analytical results will be assessed against risk based HIL for residential with minimal opportunities for soil access (HIL B).

- Health Screening Levels (HSL) for TPH fractions and Naphthalene are applicable for assessing human health risk via inhalation and direct contact pathways. The HSL depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. The HSL listed in Table 1A(3) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" apply to different soil types and depths below surface to >4 m.

  For this assessment, the analytical results were assessed against the available HSL for *high density residential soil* (HSL B) for sand and clay to depth of 0m to <1m.

- Ecological Screening Levels (ESL) for selected petroleum hydrocarbon compounds, TPH fractions and Benzo(a)Pyrene are applicable for assessing the risk to terrestrial ecosystems. ESL listed in Table 1B(6) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" broadly apply to coarse and fine-grained soils and various land uses and are generally applicable to the top 2m of soil.

  The analytical result was assessed against the available ESL for *urban residential soil* for coarse-grained soil (sand) and fine-grained soil (clay).

- Ecological Investigation Levels (EIL), a specific type of Soil Quality Guidelines (SQG) for selected metals, is applicable for assessing the risk to terrestrial ecosystems. EIL listed in Table 1B(1-5) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil. For arsenic and lead, generic EIL are adopted, for *urban residential* land use for aged contamination. For other metals, where available, EIL are calculated using the EIL calculator developed by CSIRO for NEPC. Otherwise, where available, EIL are calculated using 30% effect concentration (EC30) or lowest observed effect concentrations (LOEC) toxicity data. EIL are the sum of the added contaminant limit (ACL) and the ambient background concentration (ABC).

  For this assessment the analytical results were assessed against the available SQG / EIL for *urban residential* land use for aged contamination in soil for low traffic volume.

- Due to a lack of EIL for cadmium and mercury, the available Provisional Phytotoxicity Based Investigation Levels (PIL) published in the *Guidelines for the NSW Site Auditor Scheme* (NSW EPA, 2006) and EIL published in the NEPM 1999 were used, with regard to protection of the environment and impact on plant growth.

For discrete soil samples the individual concentrations of analytes were assessed against the HIL B/ HSL B / ESL / EIL. Individual concentrations of cadmium and mercury were also assessed against the PIL and HIL B.

For asbestos assessment, the site must be free of asbestos-cement pieces and no asbestos fibre detected in the soils.

The site (or study area) will be deemed contaminated or containing contamination "hot spots" if the above criteria are unfulfilled. Further investigation, remediation and/or management will be recommended if the investigation area is found to be contaminated or contain contamination "hot spots".

FIELD & LABORATORY TEST RESULTS, ASSESSMENT & DISCUSSION

Field Results

Details of the sub-surface conditions encountered during field work for this assessment are presented in Table 1 in Attachment B of this report. As discussed in "Field Sampling and Laboratory Testing" section, imported fill materials underlain by natural shaley clay were encountered within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park area.

The soil profile encountered did not reveal any visual (staining, dying) or olfactory indicators of potential contaminants, or fibro-cement pieces in the fill profile.

The PID readings on all the recovered samples ranged from 0.0ppm to 1.5ppm, as presented in Table 1 in Attachment B. No petroleum hydrocarbon odour was detected in the soil samples or the boreholes.

Analytical Results

Reference may be made to Attachment E for the actual test results certificates from the laboratories. The test results are also presented in Tables E1 to E4 and F to I in Attachment D together with the assessment criteria adopted. Discussion of the test data is presented in the following sub-sections.

Metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn)

The Metals test results for discrete fill and surface natural soil samples are presented in Tables E1 to E4, and as shown, all concentrations of Metals were below the available relevant EIL and HIL B, with the exception of few elevated copper (Cu), nickel and zinc (Zn) concentrations. Concentrations of cadmium (Cd) and mercury (Hg) were also below the relevant PIL.

Elevated Cu, Ni and Zn concentrations exceeded the relevant EIL but were below the relevant HIL B. The Cu concentration (110mg/kg), Ni concentrations (ranging from 27mg/kg to 170mg/kg) and Zn concentrations (ranging from 290mg/kg to 1100mg/kg) in imported fill samples might impact on terrestrial ecosystems but would not present a risk of harm to human health. However, as all boreholes locations were located within the proposed basement excavation area of the site, the fill materials will not be used for any landscaping purposes. Therefore, EIL values are not applicable for this site. Therefore, metal concentrations are not a concern for the site. The proposed basement plan (Drawing No 8349-DA-04), prepared by Zhinar Architects, is included in Attachment A of the report.

TPH and BTEX

The TPH and BTEX test results are presented in Table F. As shown, the concentrations of F1 (TPH C6-C10 less BTEX), F2 (TPH >C10-C16 less Naphthalene), F3 (TPH >C16-C34), F4 (TPH >C34-C40) and BTEX were below the relevant HSL B and / or ESL adopted. Moreover, all test results were below the laboratory limits of reporting (LOR).

Polycyclic Aromatic Hydrocarbons (PAH)
The PAH test results are presented in Table G and as shown, concentrations of Benzo(a)pyrene (TEQ), Naphthalene, Benzo(a)pyrene and Total PAH were below the relevant HIL B / ESL / HSL B / EIL adopted. Moreover, most of the test results were below the laboratory LOR.

Organochlorine Pesticides (OCP)
The OCP test results are presented in Table H and as indicated, all concentrations of OCP were well below the relevant HIL B. Concentrations of DDT were also below the EIL. All test results were below the laboratory LOR.

Polychlorinated Biphenyls (PCB)
The PCB test results are presented in Table H and as indicated; the concentrations of PCB were below the HIL B adopted, as well as below the laboratory LOR.

Phenols
The Phenols test results are presented in Table H and as indicated, the concentrations of Phenols were below the HIL B adopted, as well as below the laboratory LOR.

Volatile Organic Compounds (VOC)
The VOC test results of selected fill samples and surface natural soil sample are presented in the SGS Laboratory Analytical Report (Ref: SE144060) in Attachment E and as indicated, the concentrations of all VOC were below the laboratory LOR.

Asbestos
The asbestos test results for the recovered fill samples are presented in Table I and as indicated, friable Chrysotile Asbestos was found in three fill samples, which potentially present a risk of harm to human health.

CONCLUSION & RECOMMENDATIONS
Based on this additional contamination assessment, it is concluded that soil within the within the former underground petrol storage tank area, former depot area, within besser block shed (former workshop) and concrete car park area, do not pose a risk of hazard to human health or the environment under a "residential with minimal opportunities" form of development such as high-rise buildings and apartments, with the exception of the presence of friable Chrysotile Asbestos in three fill samples which potentially present a risk of harm to human health, as indicated and tabulated on Drawing No 13372/3-AA2 in Attachment A.

The site is considered suitable for the proposed residential development subject to the following:

- After removal of concrete hardstand, detailed sampling and testing in the vicinity of BH7, BH9 and BH12, as shown on Drawing No 13372/3-AA2, to delineate the extent of asbestos contaminated fill materials.
- Sampling and testing of soils beneath the brick shops, brick cottage, carport, sheds, shipping containers and old refrigerators and freezer after removal.
- Development of a remedial action plan (RAP) to remediate friable asbestos contaminated fill, plus any other contamination identified through the recommended additional sampling and testing, followed by appropriate validation.

It is considered reasonable for conditional development consent to be issued to require remediation and validation of the site. We consider that the site can be made suitable for the proposed residential development following appropriate remediation and validation.

For any materials to be excavated and removed from the site, it is recommended that waste classification of the materials, in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA 2014 and NSW EPA guidelines for the resource recovery exemptions under the Protection of the Environment Operations (Waste) Regulation 2005, is undertaken prior to disposal at an appropriately licensed landfill or potential re-use at other sites.

If any suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets(s)/pieces(s)/pipe(s), ash material, etc.) are encountered during any stage of future earthworks/site preparation/demolition/remediation, we recommend that this office is contacted for assessment. In the event of contamination, additional contamination assessment, remediation and validation will be necessary.

Any imported fill should be tested, or validation certificates provided by a qualified consultant, to ensure suitability for the proposed residential use. In addition, the imported fill must be free from asbestos, ash and odour, not be discoloured and not acid sulphate soil. The imported soil should either be virgin excavated natural materials (VENM) or excavated natural material (ENM).

LIMITATIONS

The services performed by Geotechnique were conducted in a manner consistent with the level of quality and skill generally exercised by members of the profession and consulting practice.

This report has been prepared for Westmead Building Group Pty Ltd through Zhinar Architects Pty Ltd for the purposes stated within. Holroyd City Council may rely on the report for development and/or building application determinations. Any reliance on this report by other parties shall be at such parties' sole risk as the report might not contain sufficient information for other purposes.

This report shall only be presented in full and may not be used to support any objective other than those set out in the report, except where written approval is provided by Geotechnique.

The information in this report is considered accurate at completion of field sampling (23 September 2015) in accordance with current site conditions. Any variations to the site form or use beyond this date might nullify the conclusions stated.

Reference should be made to the "Environmental Notes" in Attachment F for details of the limitations of this assessment.

If you require further information, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

ANWAR BARBHUYIA
Associate
B.E (Civil), MEngSc (Enviro), MIEAust

Attachment A	Drawing Nos 13372/3-AA1 (Borehole Locations), 8349-DA-04 (Basement Plan) & 13372/3-AA2 (Locations of Concern)
Attachment B	Table 1 –Borehole Logs
Attachment C	PID Calibration
Attachment D	Laboratory Analytical Results Summary Tables (Tables A to I)
Attachment E	Laboratory Test Results Reports/Certificates
Attachment F	Environmental Notes

LIST OF REFERENCES

Contaminated Land Management Act 1997

Contaminated Land Management Regulation 1998

Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd Edition) – Department of Environment and Conservation NSW 2006

Guidelines for the Laboratory Analysis of Contaminated Soils - Australian and New Zealand Environment and Conservation Council (ANZECC) 1996

Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land – Department of Urban Affairs and Planning / NSW Environment Protection Authority 1998

Contaminated Land Management Act 1997

National Environmental Protection (Assessment of Site Contamination) Amendment Measures 2013

National Environmental Protection (Assessment of Site Contamination) Measures – National Environmental Protection Council 1999

Protection of the Environment Operations Act – 1997

Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A – The Excavated Natural Material Exemption and Order 2014

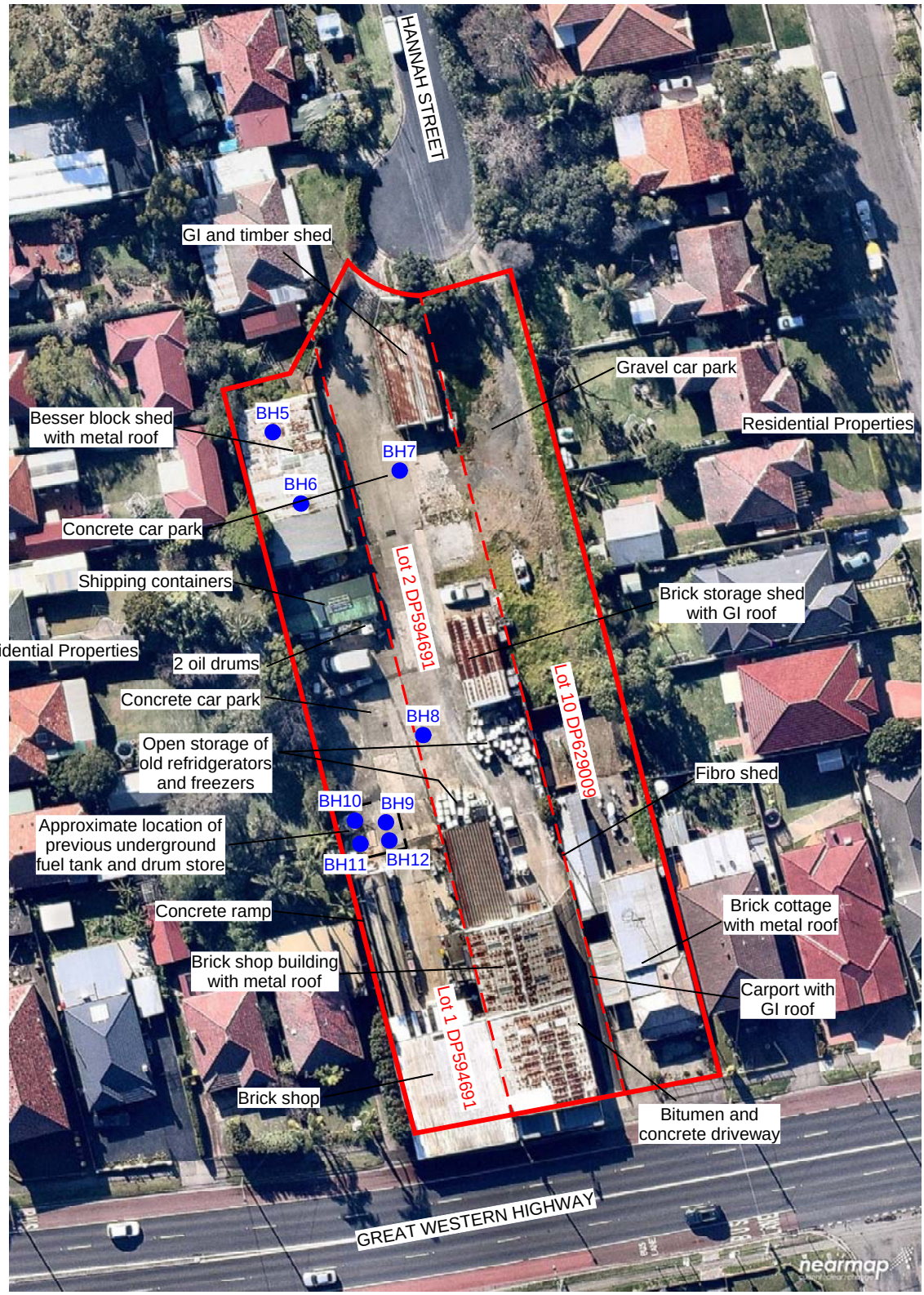
Waste Classification Guidelines, Part 1: Classifying Waste, EPA, NSW (November 2014)

ATTACHMENT A

DRAWING NO 13372/3-AA1
(BOREHOLE LOCATIONS)

DRAWING NO 8349-DA-04
(BASEMENT PLAN)

DRAWING NO 13372/3-AA2
(LOCATIONS OF CONCERN)



Imagery ©2015 NearMap.com

N

LEGEND

● Borehole

0 8 16 24 32 40m

Scale 1:800

PREPARED BY:

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Zhinar Architects Pty Ltd
Lots 1 & 2 DP594691 & Lot 10 DP629009
158-162 Great Western Highway
Westmead

Borehole Locations

Drawing No: 13372/3-AA1
Job No: 13372/3
Drawn By: MH
Date: 13 October 2015
Checked By: AB

File No: 13372-2
Layers: 0, AA1

GROUND FLOOR

1 : 200 @ A1 sheet
1 : 400 @ A3 sheet

CHANGES MADE FROM PREVIOUS REVISION:
- INCREASED THE SIZE OF THE COMMERCIAL WASTE STORAGE ROOM

NOTE: ABOVE LISTED ITEMS ARE CLOUDED IN EACH INDIVIDUAL DRAWING SHEET TO SHOW CHANGES.

NOTE:
C : GARBAGE CHUTE
G : GARBAGE HOLDING AREA
HL : HIGHLIGHT WINDOW

BASEMENT 1

1 : 200 @ A1 sheet
1 : 400 @ A3 sheet

ISSUE	AMENDMENT	DATE	DRAWN	CHECK
E	DRAWINGS AMENDED	12/10/2015	JA, CWL	NS
D	DRAWINGS AMENDED	16/09/2015	JA	NS
C	DRAWINGS AMENDED TO REPONSE COUNCIL LETTER DATED 28/05/2015	02/07/2015	JA, CWL	NS
B	OVERAND FLOW SWALE ADDED, COMMERCIAL FLOOR LEVEL ADJUSTED	09/04/2014	JA, CWL	NS
A	DA SUBMISSION	08/12/2014	JA, CWL	NS

12/10/2015 2:05:51 PM

Drawing is NOT VALID or issued for use, unless checked

DIAL BEFORE YOU DIG www.1100.com.au

GENERAL NOTES
Figured dimensions shall be taken in preference to scaling. Drawing to be read in conjunction with information on first page. Check all dimensions and levels on site before commencing work or ordering materials. All existing ground lines & trees location are approximate, therefore to be verified on-site by the builder. Any discrepancies to be verified back to Zhinar Architects before proceeding. All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufactures instructions. Unless noted 'issued for construction' drawing not to be used for construction.

TRUE NORTH

PROJECT STATUS :
DEVELOPMENT APPLICATION

SHEET TITLE:
BASEMENT PLAN

DESIGNED:	DRAWN:	COMMENCED:	SCALE	PRINT:
NS	JA, CWL		1 : 200	A1 SHEET

L.G.A.: HOLROYD COUNCIL

zhinar ARCHITECTS
ZHINAR ARCHITECTS
Zhinar Architects Pty Ltd ABN 28 495 869 790
SUITE 1,LEVEL 2 / 2 ROWE STREET, EASTWOOD 2122
TEL:(02)8893 8888 FAX:(02)8893 8833 WEB:www.zhinar.com.au

Proposed Mixed Development

No.160 Great Western Highway
Mays Hill, NSW 2145

JOB No. 8349
DRAWING No. DA 04
ISSUE: E

Imagery ©2015 NearMap.com

Borehole Location	Depth (m)	Contaminant
BH7	0.1-0.5	Friable Chrysotile Asbestos
BH9	0.35-1.0	Friable Chrysotile Asbestos
BH12	0.4-0.8	Friable Chrysotile Asbestos

LEGEND

● Borehole

0 8 16 24 32 40m

Scale 1:800

PREPARED BY:

GEOTECHNIQUE® PTY LTD

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Zhinar Architects Pty Ltd
Lots 1 & 2 DP594691 & Lot 10 DP629009
158-162 Great Western Highway
Westmead

Locations of Concern

Drawing No: 13372/3-AA2
Job No: 13372/3
Drawn By: MH
Date: 13 October 2015
Checked By: AB

File No: 13372-2
Layers: 0, AA2

ATTACHMENT B

TABLE 1
BOREHOLE LOGS

GEOTECHNIQUE PTY LTD

Project	**Proposed Residential Development**	**Job No**	**13372/3**
Location	**Lots 1 & 2 in DP594891 and Lot 10 in DP629009**	**Refer to Drawing No**	**13372/3-AA1**
	158-162 Great Western Highway, Westmead	**Logged & Sampled by**	**LY**

TABLE 1

Borehole	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
BH5	0.0-0.1	NS	23/09/2015		Concrete	
	0.1-0.4	0.1-0.4			FILL: Gravelly Sand, medium grained, dark grey	PID=0.5ppm
	0.4-1.0	0.45-0.55			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
BH6	0.0-0.2	NS	23/09/2015		Concrete	
	0.2-1.0	0.2-0.3			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
BH7	0.0-0.1	NS	23/09/2015		Concrete	
	0.1-0.5	0.1-0.4			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.3ppm
	0.5-1.5	0.55-0.65			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
BH8	0.0-0.15	NS	23/09/2015		Concrete	
	0.15-0.5	0.15-0.45			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.2ppm
	0.5-1.5	0.55-0.65			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
BH9	0.0-0.35	NS	23/09/2015		Concrete	
	0.35-1.0	0.35-0.65			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.2ppm
	1.0-3.1	1.0-1.3			FILL: Clayey Sand, medium grained, dark grey	PID=1.2ppm
		2.0-2.3				PID=1.3ppm
		3.0-3.1				PID=1.5ppm
	3.1-3.3	3.15-3.25			(CI) Shaley CLAY, medium plasticity, grey	PID=0.8ppm
	3.3	NS			Shale	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

GEOTECHNIQUE PTY LTD

Project	**Proposed Residential Development**	**Job No**	**13372/3**
Location	**Lots 1 & 2 in DP594891 and Lot 10 in DP629009**	**Refer to Drawing No**	**13372/3-AA1**
	158-162 Great Western Highway, Westmead	**Logged & Sampled by**	**LY**

TABLE 1

Borehole	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
BH10	0.0-0.33	NS	23/09/2015		Concrete	
	0.33-0.5	0.33-0.5			FILL: Gravelly Sand, medium grained, dark grey	PID=0.2ppm
	0.5-1.0	0.5-0.8			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.3ppm
	1.0-1.2	1.05-1.15			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
	1.2	NS			Shale	
BH11	0.0-0.15	NS	23/09/2015		Concrete	
	0.15-0.2	0.15-0.2			FILL: Gravelly Sand, medium grained, dark grey	PID=0.1ppm
	0.2-0.8	0.2-0.5			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.2ppm
	0.8-1.1	0.85-0.95			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
	1.1	NS			Shale	
BH12	0.0-0.15	NS	23/09/2015		Concrete	
	0.15-0.4	0.15-0.4			FILL: Gravelly Sand, medium grained, dark grey	PID=0.0ppm
	0.4-0.8	0.4-0.7			FILL: Silty Clay, medium plasticity, brown and grey, with inclusion of sandstone gravel	PID=0.0ppm
	0.8-1.0	0.8-1.0			FILL: Clayey Sand, medium grained, dark grey	PID=0.0ppm
	1.0-1.2	1.05-1.15			(CI) Shaley CLAY, medium plasticity, grey	PID=0.0ppm
	1.2-1.4	NS			Shale	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

ATTACHMENT C

PID CALIBRATION

GEOTECHNIQUE
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PID CALIBRATION

CLIENT	Zhinar Architects Pty Ltd	JOB NO	13372/3
PROJECT	Proposed Rsidential Development	DATE	22/09/15
ADDRESS	158-162 Great Western Highway, Westmead	CHECKED BY	SS
PID MODEL	**PID MODEL: PGM – 7600 MINIRAE 2000**	CALIBRATED BY	LY
SERIAL NO	**SERIAL NO: 110 – 005380**		

This performance of this PID has been checked and calibrated as follows:

☒ **Charged***

☒ **Calibrate** **0.0ppm** **Reading:** 0.0 **ppm**

100ppm **Isobutylene** **Reading:** 100 **ppm**

Gas Bottle Number 31 **Lot No** 934758

Signed & Approved Date: 22/09/2015

Note: * Should be between 5.V and 6.2V

ATTACHMENT D

LABORATORY ANALYTICAL RESULTS SUMMARY TABLES A TO I

Table A	*Rinsate Sample*
Table B	*Trip Spike Sample*
Table C	*Duplicate Sample*
Table D	*Split Sample*
Tables E1 to E4	*Metals, Cation Exchange Capacity (CEC) & pH Test Results – Discrete Samples*
Table F	*Total Petroleum Hydrocarbons (TPH) and BTEX Test Results – Discrete Samples*
Table G	*Polycyclic Aromatic Hydrocarbons (PAH) Test Results – Discrete Samples*
Table H	*Organochlorine Pesticides (OCP), Polychlorinated Biphenyls (PCB) & Phenols Test Results – Discrete Samples*
Table I	*Asbestos Test Results – Discrete Fill Samples*

TABLE A
RINSATE SAMPLE
(Ref No: 13372/3-AA)

ANALYTES	Rinsate R1
METALS	**(mg/L)**
Arsenic	<0.02
Barium	<0.005
Beryllium	<0.005
Boron	<0.05
Cadmium	<0.001
Chromium	<0.005
Cobalt	<0.01
Copper	<0.005
Lead	<0.02
Manganese	<0.005
Mercury	<0.0001
Nickel	<0.005
Selenium	<0.05
Titanium	<0.005
Zinc	<0.01

TABLE B
TRIP SPIKE SAMPLE
(Ref No: 13372/3-AA)

ANALYTES	Trip Spike TS1
BTEX	
Benzene	93%
Toluene	96%
Ethyl Benzene	98%
Xylenes	97%

Note : results are reported as percentage recovery of known spike concentrations

TABLE C
DUPLICATE SAMPLE
(Ref No: 13372/3-AA)

ANALYTES	BH9 1.0-1.3m mg/kg	Duplicate D2 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	8	4	67
Barium	120	110	9
Beryllium	<0.5	<0.5	-
Boron	<5	<5	-
Cadmium	0.3	<0.3	-
Chromium	6.8	5.1	29
Cobalt	4.3	3.5	21
Copper	16	12	29
Lead	52	32	48
Manganese	94	83	12
Mercury	0.03	0.02	40
Nickel	7.1	4.8	39
Selenium	<3	<3	-
Titanium	15	28	60
Zinc	120	120	0
TOTAL PETROLEUM HYDROCARBONS (TPH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	<25	<25	-
F3 (>C16-C34)	<90	<90	-
F4 (>C34-C40)	<120	<120	-
BTEX			
Benzene	<0.1	<0.1	-
Toluene	<0.1	<0.1	-
Ethyl Benzene	<0.1	<0.1	-
Xylenes	<0.3	<0.3	-
POLYCYCLIC AROMATIC HYDROCARBONS			
Benzo(a)Pyrene TEQ	<0.3	<0.3	-
Total PAH	<0.8	<0.8	-
Naphthalene	<0.1	<0.1	
Benzo(a)Pyrene	<0.1	<0.1	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.15	-
Endrin	<0.2	<0.2	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	<0.1	-
Endosulfan (alpha, beta & sulphate)	<0.5	<0.5	-
DDD+DDE+DDT	<0.6	<0.6	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<1	<1	-
PHENOLS			
Phenols	<5	<5	-

TABLE D
SPLIT SAMPLE
(Ref No: 13372/3-AA)

ANALYTES	BH11 0.15-0.2m mg/kg (SGS)	Split Sample S1 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	<3	5	-
Barium	24	88	114
Beryllium	<0.5	<1	-
Boron	<5	<3	-
Cadmium	0.7	0.8	13
Chromium	14	17	19
Cobalt	55	36	42
Copper	62	64	3
Lead	13	81	145
Manganese	680	450	41
Mercury	0.02	0.1	133
Nickel	170	110	43
Selenium	<3	<2	-
Titanium	390	270	36
Zinc	110	290	90
TOTAL PETROLEUM HYDROCARBONS (TPH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	<25	<50	-
F3 (>C16-C34)	<90	<100	-
F4 (>C34-C40)	<120	<100	-
BTEX			
Benzene	<0.1	<0.2	-
Toluene	<0.1	<0.5	-
Ethyl Benzene	<0.1	<1	-
Xylenes	<0.3	<3	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
Benzo(a)Pyrene TEQ	<0.3	<0.5	-
Total PAH	<0.8	<1.6	-
Naphthalene	<0.1	<0.1	-
Benzo(a)Pyrene	<0.1	<0.05	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.2	-
Endrin	<0.2	<0.1	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	-	-
Endosulfan (alpha (I), beta (II) & sulphate)	<0.5	<0.3	-
DDD+DDE+DDT	<0.6	<0.3	-
Chlordane (alpha & gamma)	<0.2	0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<1	<0.7	-
PHENOLS			
Phenols	<5	<5	-

TABLE E1
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

		METALS (mg/kg)																
Sample Location	Depth (m)	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CHROMIUM (Total)	COBALT	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	TITANIUM	ZINC	CEC (cmol/kg)	pH
BH5	0.1-0.4	<3	37	<0.5	<5	<0.3	7.0	4.2	5.9	14	110	<0.01	4.6	<3	160	170	3.0	7.8
BH6	0.2-0.3	7	53	<0.5	<5	<0.3	12	1.5	15	12	35	<0.01	1.9	<3	<10	8.5	15	5.6
BH10	0.33-0.5	<3	40	<0.5	<5	1.0	11	42	52	17	470	0.02	100	<3	400	63	-	-
BH11	0.15-0.2	<3	24	<0.5	<5	0.7	14	55	62	13	680	0.02	170	<3	390	110	-	-
BH11 (Split S1)	0.15-0.2	5	88	<1	<3	0.8	17	36	64	81	450	0.1	110	<2	270	290		
BH12	0.15-0.4	3	250	<0.5	<5	<0.3	6.6	2.6	14	17	58	0.01	6.2	<3	<10	18	15	5.4
Limits of Reporting (LOR)		3	0.5	0.5	5	0.3	0.3	0.5	0.5	1	1	0.01	0.5	3	10	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																		
Health-based Investigation Levels (HIL)[a] B - Residential B		500	-	90	40000	150	500[c]	600	30000	1200	14000	30[d]	1200	1400	-	60000		
Ecological Investigation Levels (EIL)[b] Urban residential		100[e]	-	-	-	-	190[f]	-	70	1100[g]	-	-	15	-	-	230		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)																		
Provisional Phytotoxity-Based Investigation Levels (PIL)						3						1						

Notes: a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; the lowest CEC=3 cmolc/kg and pH=7.8 were selected for derivation of EIL.

EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.

c: Chromium (VI)

d: Methyl Mercury

e: Generic EIL for aged arsenic

f: Chromium (III), clay content was assumed =1%, a conservative assumption

g: Generic EIL for aged lead

TABLE E2
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CHROMIUM (Total)	COBALT	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	TITANIUM	ZINC	CEC (cmol+/kg)	pH
BH7	0.1-0.4	7	240	0.6	<5	<0.3	13	6.4	19	17	100	0.05	11	<3	17	26	13	6.6
BH9	0.35-0.65	<3	7.7	<0.5	<5	<0.3	7.3	3.0	4.1	6	41	<0.01	8.7	<3	<10	9.5	3.6	6.6
BH10	0.5-0.8	6	87	0.6	<5	0.3	9.7	2.3	9.7	15	100	0.03	2.0	<3	<10	55	-	-
BH11	0.2-0.5	7	160	0.6	<5	0.9	19	24	110	470	290	0.11	27	<3	210	1100	-	-
BH12	0.4-0.7	<3	47	<0.5	<5	0.7	14	35	49	20	540	0.04	130	<3	300	100	-	-
Limits of Reporting (LOR)		3	0.5	0.5	5	0.3	0.3	0.5	0.5	1	1	0.01	0.5	3	10	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																		
Health-based Investigation Levels (HIL)[a] B - Residential B		500	-	90	40000	150	500[c]	600	30000	1200	14000	30[d]	1200	1400	-	60000		
Ecological Investigation Levels (EIL)[b] - Urban residential		100[e]	-	-	-	-	400[f]	-	85	1100[g]	-	-	20	-	-	260		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)																		
Provisional Phytotoxity-Based Investigation Levels (PIL)						3						1						

Notes:
a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; the lower CEC=3.6 cmolc/kg and pH=6.6 were selected for derivation of EIL.

EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.

c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III), clay content was assumed =10%, a conservative assumption
g: Generic EIL for aged lead

TABLE E3
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLE
(Ref No: 13372/3-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CHROMIUM (Total)	COBALT	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	TITANIUM	ZINC	CEC (cmol+/kg)	pH
BH8	0.15-0.45	19	140	<0.5	<5	0.5	9.9	7.5	28	68	170	0.06	10	<3	53	350	15	6.6
Limits of Reporting (LOR)		3	0.5	0.5	5	0.3	0.3	0.5	0.5	1	1	0.01	0.5	3	10	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																		
Health-based Investigation Levels (HIL)[a] B - Residential B		500	-	90	40000	150	500[c]	600	30000	1200	14000	30[d]	1200	1400	-	60000		
Ecological Investigation Levels (EIL)[b] - Urban residential		100[e]	-	-	-	-	400[f]	-	220	1100[g]	-	-	220	-	-	630		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)																		
Provisional Phytotoxity-Based Investigation Levels (PIL)						3						1						

Notes: a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; an individual CEC=15 cmolc/kg and pH=6.6 were selected for derivation of EIL.
EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.

c: Chromium (VI)

d: Methyl Mercury

e: Generic EIL for aged arsenic

f: Chromium (III), clay content was assumed =10%, a conservative assumption

g: Generic EIL for aged lead

TABLE E4
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CHROMIUM (Total)	COBALT	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	TITANIUM	ZINC	CEC (cmol/kg)	pH
BH9	1.0-1.3	8	120	<0.5	<5	0.3	6.8	4.3	16	52	94	0.03	7.1	<3	15	120	6.4	7.1
BH9	2.0-2.3	12	410	<0.5	<5	0.7	11	5.5	67	300	120	0.12	8.8	<3	<10	900	-	-
BH9	3.0-3.1	4	170	<0.5	<5	<0.3	4.7	1.1	15	23	27	0.03	1.3	<3	<10	43	-	-
BH12	0.8-1.0	5	140	<0.5	<5	0.5	12	11	23	110	170	0.02	27	<3	19	120	-	-
Limits of Reporting (LOR)		3	0.5	0.5	5	0.3	0.3	0.5	0.5	1	1	0.01	0.5	3	10	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																		
Health-based Investigation Levels (HIL)[a] B - Residential B		500	-	90	40000	150	500[c]	600	30000	1200	14000	30[d]	1200	1400	-	60000		
Ecological Investigation Levels (EIL)[b] - Urban residential		100[e]	-	-	-	-	190[f]	-	140	1100[g]	-	-	65	-	-	360		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)																		
Provisional Phytotoxity-Based Investigation Levels (PIL)						3						1						

Notes: a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; an individual CEC=6.4 cmolc/kg and pH=7.1 were selected for derivation of EIL.

EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.

c: Chromium (VI)

d: Methyl Mercury

e: Generic EIL for aged arsenic

f: Chromium (III), clay content was assumed =1%, a conservative assumption

g: Generic EIL for aged lead

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PTY LTD

TABLE F
TOTAL PETROLEUM HYDROCARBONS (TPH) AND BTEX TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

												NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																	
			TPH (mg/kg)					BTEX (mg/kg)				Health Screening Levels (HSL) B High density residential						Ecological Screening Levels for fine-grained soil Urban residential								Ecological Screening Levels for coarse-grained soil Urban residential							
Sample Location	Depth (m)	Soil type	F1	F2*	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2*	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
BH5	0.1-0.4	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH6	0.2-0.3	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH7	0.1-0.4	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH8	0.15-0.45	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH9	0.35-0.65	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH9	1.0-1.3	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	70	240	0.5	220	NL	60	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH9	2.0-2.3	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	110	440	0.5	310	NL	95	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH9	3.0-3.1	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	110	440	0.5	310	NL	95	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH10	0.33-0.5	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH10	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH11	0.15-0.2	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH11	0.2-0.5	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH12	0.15-0.4	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
BH12	0.4-0.7	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
BH12	0.8-1.0	sand	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	45	110	0.5	160	55	40	-	-	-	-	-	-	-	-	180	120	300	2800	50	85	70	105
Limits of Reporting (LOR)			25	-	25	90	120	0.1	0.1	0.1	0.3																						

Notes:
F1: C6-C10 less BTEX
F2*: >C10-C16 less Naphthalene
F2**: >C10-C16
F3: >C16-C34
F4: >C34-C40
NL: Not Limiting

TABLE G
POLYCYCLIC AROMATIC HYDROCARBONS (PAH) TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

			PAH (mg/kg)				NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
							Health-based Investigation Levels (HIL) B[a] Residential B		Health Screening Level (HSL) B - High density residential	Generic Ecological Investigation Level (EIL) - Urban residential	Ecological Screening Level (ESL) - Urban residential
Sample Location	Depth (m)	Soil type	BaP TEQ	TOTAL PAHs	NAPHTHALENE	BENZO(a)PYRENE (BaP)	BaP TEQ	TOTAL PAHs	NAPHTHALENE	NAPHTHALENE	BENZO(a)PYRENE (BaP)
BH5	0.1-0.4	sand	<0.3	<0.8	<0.1	<0.1	4	400	3	170	0.7
BH6	0.2-0.3	clay	<0.3	<0.8	<0.1	<0.1	4	400	5	170	0.7
BH7	0.1-0.4	clay	<0.3	<0.8	<0.1	<0.1	4	400	5	170	0.7
BH8	0.15-0.45	clay	0.4	1.9	<0.1	0.2	4	400	5	170	0.7
BH9	0.35-0.65	clay	<0.3	<0.8	<0.1	<0.1	4	400	5	170	0.7
BH9	1.0-1.3	sand	<0.3	<0.8	<0.1	<0.1	4	400	NL	170	0.7
BH9	2.0-2.3	sand	<0.3	<0.8	<0.1	<0.1	4	400	NL	170	0.7
BH9	3.0-3.1	sand	<0.3	<0.8	<0.1	<0.1	4	400	NL	170	0.7
BH10	0.33-0.5	sand	<0.3	<0.8	<0.1	<0.1	4	400	3	170	0.7
BH10	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	4	400	5	170	0.7
BH11	0.15-0.2	sand	<0.3	<0.8	<0.1	<0.1	4	400	3	170	0.7
BH11	0.2-0.5	clay	0.6	3.9	<0.1	0.4	4	400	5	170	0.7
BH12	0.15-0.4	sand	<0.3	<0.8	<0.1	<0.1	4	400	3	170	0.7
BH12	0.4-0.7	clay	<0.3	<0.8	<0.1	<0.1	4	400	5	170	0.7
BH12	0.8-1.0	sand	<0.3	<0.8	<0.1	<0.1	4	400	3	170	0.7
Limits of Reporting (LOR)			0.3	0.8	0.1	0.1					

Notes: a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
NL: Not Limimting

TABLE H
ORGANOCHLORINE PESTICIDES (OCP), POLYCHLORINATED BIPHENYLS (PCB) & PHENOLS TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13372/3-AA)

Sample Location	Depth (m)	OCP (mg/kg)										PCB (mg/kg)	Phenols (mg/kg)
		HEXACHLOROBENZENE (HCB)	HEPTACHLOR	ALDRIN+DIELDRIN	ENDRIN	METHOXYCHLOR	MIREX	ENDOSULFAN (alpha, beta & sulphate)	DDD+DDE+DDT	DDT	CHLORDANE (alpha & gamma)		
BH5	0.1-0.4	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH6	0.2-0.3	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH7	0.1-0.4	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH8	0.15-0.45	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH9	0.35-0.65	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH9	1.0-1.3	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH9	2.0-2.3	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH9	3.0-3.1	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH10	0.33-0.5	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH10	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH11	0.15-0.2	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH11	0.2-0.5	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH12	0.15-0.4	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH12	0.4-0.7	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
BH12	0.8-1.0	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1	<5
Limits of Reporting (LOR)		0.1	0.1	0.15	0.2	0.1	0.1	0.5	0.6	0.2	0.2	1	5
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)													
Health-based Investigation Levels (HIL) [a] B - Residential B		15	10	10	20	500	20	400	600		90	1	45000
Ecological Investigation Levels (EIL) - Urban residential										180 [b]			

Notes: a: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

b: Generic EIL for DDT

TABLE I

ASBESTOS TEST RESULTS

DISCRETE FILL SAMPLES

(Ref No: 13372/3-AA)

Sample Location	Depth (m)	ASBESTOS
BH5	0.1-0.4	No asbestos found at the limit of reporting of 0.001% w/w
BH7	0.1-0.4	**Friable Chrysotile Asbestos found (0.002% w/w)**
BH8	0.15-0.45	No asbestos found at the limit of reporting of 0.001% w/w
BH9	0.35-0.65	**Friable Chrysotile Asbestos found (0.063% w/w)**
BH9	1.0-1.3	No asbestos found at the limit of reporting of 0.001% w/w
BH9	2.0-2.3	No asbestos found at the limit of reporting of 0.001% w/w
BH9	3.0-3.1	No asbestos found at the limit of reporting of 0.001% w/w
BH10	0.33-0.5	No asbestos found at the limit of reporting of 0.001% w/w
BH10	0.5-0.8	No asbestos found at the limit of reporting of 0.001% w/w
BH11	0.15-0.2	No asbestos found at the limit of reporting of 0.001% w/w
BH11	0.2-0.5	No asbestos found at the limit of reporting of 0.001% w/w
BH12	0.15-0.4	No asbestos found at the limit of reporting of 0.001% w/w
BH12	0.4-0.7	**Friable Chrysotile Asbestos found (0.002% w/w)**
BH12	0.8-1.0	No asbestos found at the limit of reporting of 0.001% w/w

ATTACHMENT E

LABORATORY TEST RESULTS REPORTS
(SGS REPORT REF SE14460 & SE14460A
AND
ENVIROLAB REPORT NO 134807)

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

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Project	**13372-3 - Westmead**
Order Number	(Not specified)
Samples	17

LABORATORY DETAILS

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SGS Reference	**SE144060 R0**
Date Received	24/9/2015
Date Reported	2/10/2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique as per AS 4964-2004.

Sample #3: Asbestos found in 2x2mm cement sheet fragment and loose in sample, in >2 to <7mm fraction.
Sample #5: Asbestos found in 6x4mm cement sheet fragments in >2 to <7mm fraction.
Sample #14: Asbestos found in 3x2mm cement sheet fragment and loose in sample, in >2 to <7mm fraction.

Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

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Metals/Inorganics Team Leader

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VOC's in Soil [AN433/AN434] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	<1	-	-	-
Chloromethane	mg/kg	1	<1	<1	-	-	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromomethane	mg/kg	1	<1	<1	-	-	-
Chloroethane	mg/kg	1	<1	<1	-	-	-
Trichlorofluoromethane	mg/kg	1	<1	<1	-	-	-
Acetone (2-propanone)	mg/kg	10	<10	<10	-	-	-
Iodomethane	mg/kg	5	<5	<5	-	-	-
1,1-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
Acrylonitrile	mg/kg	0.1	<0.1	<0.1	-	-	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	<0.5	-	-	-
Allyl chloride	mg/kg	0.1	<0.1	<0.1	-	-	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	-	-
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1-dichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Vinyl acetate	mg/kg	10	<10	<10	-	-	-
MEK (2-butanone)	mg/kg	10	<10	<10	-	-	-
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromochloromethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chloroform	mg/kg	0.1	<0.1	<0.1	-	-	-
2,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,1-trichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
Carbon tetrachloride	mg/kg	0.1	<0.1	<0.1	-	-	-
Dibromomethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	<0.1	-	-	-
2-nitropropane	mg/kg	10	<10	<10	-	-	-
Bromodichloromethane	mg/kg	0.1	<0.1	<0.1	-	-	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	<1	-	-	-
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,2-trichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chlorodibromomethane	mg/kg	0.1	<0.1	<0.1	-	-	-
2-hexanone (MBK)	mg/kg	5	<5	<5	-	-	-
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	<0.1	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromoform	mg/kg	0.1	<0.1	<0.1	-	-	-
cis-1,4-dichloro-2-butene	mg/kg	1	<1	<1	-	-	-
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,3-trichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
trans-1,4-dichloro-2-butene	mg/kg	1	<1	<1	-	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
n-propylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
2-chlorotoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
4-chlorotoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
tert-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
sec-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,4-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
p-isopropyltoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
n-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Total VOC*	mg/kg	24	-	-	-	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	-	-	<1	<1
Chloromethane	mg/kg	1	<1	-	-	<1	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Bromomethane	mg/kg	1	<1	-	-	<1	<1
Chloroethane	mg/kg	1	<1	-	-	<1	<1
Trichlorofluoromethane	mg/kg	1	<1	-	-	<1	<1
Acetone (2-propanone)	mg/kg	10	<10	-	-	<10	<10
Iodomethane	mg/kg	5	<5	-	-	<5	<5
1,1-dichloroethene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Acrylonitrile	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	-	-	<0.5	<0.5
Allyl chloride	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Carbon disulfide	mg/kg	0.5	<0.5	-	-	<0.5	<0.5
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1-dichloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Vinyl acetate	mg/kg	10	<10	-	-	<10	<10
MEK (2-butanone)	mg/kg	10	<10	-	-	<10	<10
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Bromochloromethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Chloroform	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
2,2-dichloropropane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2-dichloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1-dichloropropene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Carbon tetrachloride	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Dibromomethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2-dichloropropane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
2-nitropropane	mg/kg	10	<10	-	-	<10	<10
Bromodichloromethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	-	-	<1	<1
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,3-dichloropropane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Chlorodibromomethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
2-hexanone (MBK)	mg/kg	5	<5	-	-	<5	<5
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Chlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Bromoform	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	<1	<1
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2,3-trichloropropane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	<1	-	-	<1	<1

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Bromobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
n-propylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
2-chlorotoluene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
4-chlorotoluene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
tert-butylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
sec-butylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,3-dichlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
p-isopropyltoluene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
n-butylbenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Hexachlorobutadiene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	-	-	<0.1	<0.1
Total VOC*	mg/kg	24	-	-	-	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	<1	-	-	-
Chloromethane	mg/kg	1	<1	<1	-	-	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromomethane	mg/kg	1	<1	<1	-	-	-
Chloroethane	mg/kg	1	<1	<1	-	-	-
Trichlorofluoromethane	mg/kg	1	<1	<1	-	-	-
Acetone (2-propanone)	mg/kg	10	<10	<10	-	-	-
Iodomethane	mg/kg	5	<5	<5	-	-	-
1,1-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
Acrylonitrile	mg/kg	0.1	<0.1	<0.1	-	-	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	<0.5	-	-	-
Allyl chloride	mg/kg	0.1	<0.1	<0.1	-	-	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	-	-
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1-dichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Vinyl acetate	mg/kg	10	<10	<10	-	-	-
MEK (2-butanone)	mg/kg	10	<10	<10	-	-	-
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromochloromethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chloroform	mg/kg	0.1	<0.1	<0.1	-	-	-
2,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,1-trichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
Carbon tetrachloride	mg/kg	0.1	<0.1	<0.1	-	-	-
Dibromomethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	<0.1	-	-	-
2-nitropropane	mg/kg	10	<10	<10	-	-	-
Bromodichloromethane	mg/kg	0.1	<0.1	<0.1	-	-	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	<1	-	-	-
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,2-trichloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3-dichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chlorodibromomethane	mg/kg	0.1	<0.1	<0.1	-	-	-
2-hexanone (MBK)	mg/kg	5	<5	<5	-	-	-
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	<0.1	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
Chlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromoform	mg/kg	0.1	<0.1	<0.1	-	-	-
cis-1,4-dichloro-2-butene	mg/kg	1	<1	<1	-	-	-
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	<0.1	-	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,3-trichloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
trans-1,4-dichloro-2-butene	mg/kg	1	<1	<1	-	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	<0.1	-	-	-
Bromobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
n-propylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
2-chlorotoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
4-chlorotoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
tert-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
sec-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,3-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,4-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
p-isopropyltoluene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
n-butylbenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	<0.1	<0.1	-	-	-
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	-	-	-
Total VOC*	mg/kg	24	-	-	-	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016	Tripspike TS1 SOIL - 23/9/2015 SE144060.017
Benzene	mg/kg	0.1	<0.1	[93%]
Toluene	mg/kg	0.1	<0.1	[96%]
Ethylbenzene	mg/kg	0.1	<0.1	[98%]
m/p-xylene	mg/kg	0.2	<0.2	[97%]
o-xylene	mg/kg	0.1	<0.1	[99%]
Total Xylenes*	mg/kg	0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	-
Dichlorodifluoromethane (CFC-12)	mg/kg	1	-	-
Chloromethane	mg/kg	1	-	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	-	-
Bromomethane	mg/kg	1	-	-
Chloroethane	mg/kg	1	-	-
Trichlorofluoromethane	mg/kg	1	-	-
Acetone (2-propanone)	mg/kg	10	-	-
Iodomethane	mg/kg	5	-	-
1,1-dichloroethene	mg/kg	0.1	-	-
Acrylonitrile	mg/kg	0.1	-	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	-	-
Allyl chloride	mg/kg	0.1	-	-
Carbon disulfide	mg/kg	0.5	-	-
trans-1,2-dichloroethene	mg/kg	0.1	-	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	-	-
1,1-dichloroethane	mg/kg	0.1	-	-
Vinyl acetate	mg/kg	10	-	-
MEK (2-butanone)	mg/kg	10	-	-
cis-1,2-dichloroethene	mg/kg	0.1	-	-
Bromochloromethane	mg/kg	0.1	-	-
Chloroform	mg/kg	0.1	-	-
2,2-dichloropropane	mg/kg	0.1	-	-
1,2-dichloroethane	mg/kg	0.1	-	-
1,1,1-trichloroethane	mg/kg	0.1	-	-
1,1-dichloropropene	mg/kg	0.1	-	-
Carbon tetrachloride	mg/kg	0.1	-	-
Dibromomethane	mg/kg	0.1	-	-
1,2-dichloropropane	mg/kg	0.1	-	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	-	-
2-nitropropane	mg/kg	10	-	-
Bromodichloromethane	mg/kg	0.1	-	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	-	-
cis-1,3-dichloropropene	mg/kg	0.1	-	-
trans-1,3-dichloropropene	mg/kg	0.1	-	-
1,1,2-trichloroethane	mg/kg	0.1	-	-
1,3-dichloropropane	mg/kg	0.1	-	-
Chlorodibromomethane	mg/kg	0.1	-	-
2-hexanone (MBK)	mg/kg	5	-	-
1,2-dibromoethane (EDB)	mg/kg	0.1	-	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	-	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	-	-
Chlorobenzene	mg/kg	0.1	-	-
Bromoform	mg/kg	0.1	-	-
cis-1,4-dichloro-2-butene	mg/kg	1	-	-
Styrene (Vinyl benzene)	mg/kg	0.1	-	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	-	-
1,2,3-trichloropropane	mg/kg	0.1	-	-
trans-1,4-dichloro-2-butene	mg/kg	1	-	-

VOC's in Soil [AN433/AN434] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016	Tripspike TS1 SOIL - 23/9/2015 SE144060.017
Isopropylbenzene (Cumene)	mg/kg	0.1	-	-
Bromobenzene	mg/kg	0.1	-	-
n-propylbenzene	mg/kg	0.1	-	-
2-chlorotoluene	mg/kg	0.1	-	-
4-chlorotoluene	mg/kg	0.1	-	-
1,3,5-trimethylbenzene	mg/kg	0.1	-	-
tert-butylbenzene	mg/kg	0.1	-	-
1,2,4-trimethylbenzene	mg/kg	0.1	-	-
sec-butylbenzene	mg/kg	0.1	-	-
1,3-dichlorobenzene	mg/kg	0.1	-	-
1,4-dichlorobenzene	mg/kg	0.1	-	-
p-isopropyltoluene	mg/kg	0.1	-	-
1,2-dichlorobenzene	mg/kg	0.1	-	-
n-butylbenzene	mg/kg	0.1	-	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	-	-
1,2,4-trichlorobenzene	mg/kg	0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	-	-
1,2,3-trichlorobenzene	mg/kg	0.1	-	-
Total VOC*	mg/kg	24	-	-

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH C10-C40 Total	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.3**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<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	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	<0.2	**0.3**	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	**0.4**	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	**0.3**	<0.2
Total PAH	mg/kg	0.8	<0.8	<0.8	<0.8	**1.9**	<0.8

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<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	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<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	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	<0.1	**0.1**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.7**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.7**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.4**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.5**	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.4**	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	**0.5**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	**0.6**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	**0.5**	<0.2	<0.2	<0.2
Total PAH	mg/kg	0.8	<0.8	**3.9**	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2
Total PAH	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1

PCBs in Soil [AN400/AN420] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN400/AN420] Tested: 29/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Arochlor 1016	mg/kg	0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1

Total Phenolics in Soil [AN289] Tested: 1/10/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Total Phenols	mg/kg	5	<5	<5	<5	<5	<5

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Total Phenols	mg/kg	5	<5	<5	<5	<5	<5

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Total Phenols	mg/kg	5	<5	<5	<5	<5	<5

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Total Phenols	mg/kg	5	<5

pH in soil (1:5) [AN101] Tested: 2/10/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
pH	pH Units	-	7.8	5.6	6.6	6.6	6.6

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013
pH	pH Units	-	7.1	5.4

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 30/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Exchangeable Sodium, Na	mg/kg	2	19	350	150	51	110
Exchangeable Sodium, Na	meq/100g	0.01	0.08	1.5	0.66	0.22	0.47
Exchangeable Sodium Percentage*	%	0.1	2.8	10.0	5.0	1.5	13.1
Exchangeable Potassium, K	mg/kg	2	29	190	190	210	64
Exchangeable Potassium, K	meq/100g	0.01	0.07	0.48	0.49	0.54	0.16
Exchangeable Potassium Percentage*	%	0.1	2.5	3.2	3.7	3.7	4.6
Exchangeable Calcium, Ca	mg/kg	2	500	1100	1000	2200	390
Exchangeable Calcium, Ca	meq/100g	0.01	2.5	5.4	5.2	11	1.9
Exchangeable Calcium Percentage*	%	0.1	84.1	35.7	39.0	74.8	54.1
Exchangeable Magnesium, Mg	mg/kg	2	39	940	850	360	120
Exchangeable Magnesium, Mg	meq/100g	0.02	0.32	7.7	6.9	2.9	1.0
Exchangeable Magnesium Percentage*	%	0.1	10.6	51.1	52.3	20.0	28.2
Cation Exchange Capacity	meq/100g	0.02	3.0	15	13	15	3.6

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013
Exchangeable Sodium, Na	mg/kg	2	48	170
Exchangeable Sodium, Na	meq/100g	0.01	0.21	0.73
Exchangeable Sodium Percentage*	%	0.1	3.3	4.7
Exchangeable Potassium, K	mg/kg	2	110	230
Exchangeable Potassium, K	meq/100g	0.01	0.27	0.58
Exchangeable Potassium Percentage*	%	0.1	4.2	3.8
Exchangeable Calcium, Ca	mg/kg	2	1000	1700
Exchangeable Calcium, Ca	meq/100g	0.01	5.0	8.4
Exchangeable Calcium Percentage*	%	0.1	77.8	55.0
Exchangeable Magnesium, Mg	mg/kg	2	110	680
Exchangeable Magnesium, Mg	meq/100g	0.02	0.94	5.6
Exchangeable Magnesium Percentage*	%	0.1	14.7	36.5
Cation Exchange Capacity	meq/100g	0.02	6.4	15

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 30/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Arsenic, As	mg/kg	3	<3	7	7	19	<3
Beryllium, Be	mg/kg	0.5	<0.5	<0.5	0.6	<0.5	<0.5
Boron, B	mg/kg	5	<5	<5	<5	<5	<5
Barium, Ba	mg/kg	0.5	37	53	240	140	7.7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.5	<0.3
Chromium, Cr	mg/kg	0.3	7.0	12	13	9.9	7.3
Cobalt, Co	mg/kg	0.5	4.2	1.5	6.4	7.5	3.0
Copper, Cu	mg/kg	0.5	5.9	15	19	28	4.1
Lead, Pb	mg/kg	1	14	12	17	68	6
Manganese, Mn	mg/kg	1	110	35	100	170	41
Nickel, Ni	mg/kg	0.5	4.6	1.9	11	10	8.7
Zinc, Zn	mg/kg	0.5	170	8.5	26	350	9.5
Selenium, Se	mg/kg	3	<3	<3	<3	<3	<3
Titanium, Ti	mg/kg	10	160	<10	17	53	<10

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Arsenic, As	mg/kg	3	8	12	4	<3	6
Beryllium, Be	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	0.6
Boron, B	mg/kg	5	<5	<5	<5	<5	<5
Barium, Ba	mg/kg	0.5	120	410	170	40	87
Cadmium, Cd	mg/kg	0.3	0.3	0.7	<0.3	1.0	0.3
Chromium, Cr	mg/kg	0.3	6.8	11	4.7	11	9.7
Cobalt, Co	mg/kg	0.5	4.3	5.5	1.1	42	2.3
Copper, Cu	mg/kg	0.5	16	67	15	52	9.7
Lead, Pb	mg/kg	1	52	300	23	17	15
Manganese, Mn	mg/kg	1	94	120	27	470	100
Nickel, Ni	mg/kg	0.5	7.1	8.8	1.3	100	2.0
Zinc, Zn	mg/kg	0.5	120	900	43	63	55
Selenium, Se	mg/kg	3	<3	<3	<3	<3	<3
Titanium, Ti	mg/kg	10	15	<10	<10	400	<10

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Arsenic, As	mg/kg	3	<3	7	3	<3	5
Beryllium, Be	mg/kg	0.5	<0.5	0.6	<0.5	<0.5	<0.5
Boron, B	mg/kg	5	<5	<5	<5	<5	<5
Barium, Ba	mg/kg	0.5	24	160	250	47	140
Cadmium, Cd	mg/kg	0.3	0.7	0.9	<0.3	0.7	0.5
Chromium, Cr	mg/kg	0.3	14	19	6.6	14	12
Cobalt, Co	mg/kg	0.5	55	24	2.6	35	11
Copper, Cu	mg/kg	0.5	62	110	14	49	23
Lead, Pb	mg/kg	1	13	470	17	20	110
Manganese, Mn	mg/kg	1	680	290	58	540	170
Nickel, Ni	mg/kg	0.5	170	27	6.2	130	27
Zinc, Zn	mg/kg	0.5	110	1100	18	100	120
Selenium, Se	mg/kg	3	<3	<3	<3	<3	<3
Titanium, Ti	mg/kg	10	390	210	<10	300	19

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 30/9/2015 (continued)

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Arsenic, As	mg/kg	3	**4**
Beryllium, Be	mg/kg	0.5	<0.5
Boron, B	mg/kg	5	<5
Barium, Ba	mg/kg	0.5	**110**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**5.1**
Cobalt, Co	mg/kg	0.5	**3.5**
Copper, Cu	mg/kg	0.5	**12**
Lead, Pb	mg/kg	1	**32**
Manganese, Mn	mg/kg	1	**83**
Nickel, Ni	mg/kg	0.5	**4.8**
Zinc, Zn	mg/kg	0.5	**120**
Selenium, Se	mg/kg	3	<3
Titanium, Ti	mg/kg	10	**28**

Mercury in Soil [AN312] Tested: 30/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
Mercury	mg/kg	0.01	<0.01	<0.01	0.05	0.06	<0.01

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
Mercury	mg/kg	0.01	0.03	0.12	0.03	0.02	0.03

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Mercury	mg/kg	0.01	0.02	0.11	0.01	0.04	0.02

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
Mercury	mg/kg	0.01	0.02

Moisture Content [AN002] Tested: 29/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH6 0.2-0.3 SOIL - 23/9/2015 SE144060.002	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005
% Moisture	%w/w	0.5	8.1	24	21	17	11

PARAMETER	UOM	LOR	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010
% Moisture	%w/w	0.5	15	29	21	12	18

PARAMETER	UOM	LOR	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
% Moisture	%w/w	0.5	12	15	20	11	11

PARAMETER	UOM	LOR	Duplicate D2 SOIL - 23/9/2015 SE144060.016
% Moisture	%w/w	0.5	17

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 30/9/2015

PARAMETER	UOM	LOR	BH5 0.1-0.4 SOIL - 23/9/2015 SE144060.001	BH7 0.1-0.4 SOIL - 23/9/2015 SE144060.003	BH8 0.15-0.45 SOIL - 23/9/2015 SE144060.004	BH9 0.35-0.65 SOIL - 23/9/2015 SE144060.005	BH9 1.0-1.3 SOIL - 23/9/2015 SE144060.006
Total Sample Weight*	g	1	**1220**	**721**	**795**	**990**	**110**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	**0.0160**	<0.0001	**0.621**	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	**0.002**	<0.001	**0.063**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	**0.002**	<0.001	**0.063**	<0.001
Fibre Type*	No unit	-	-	CRY	-	CRY	-

PARAMETER	UOM	LOR	BH9 2.0-2.3 SOIL - 23/9/2015 SE144060.007	BH9 3.0-3.1 SOIL - 23/9/2015 SE144060.008	BH10 0.33-0.5 SOIL - 23/9/2015 SE144060.009	BH10 0.5-0.8 SOIL - 23/9/2015 SE144060.010	BH11 0.15-0.2 SOIL - 23/9/2015 SE144060.011
Total Sample Weight*	g	1	**115**	**105**	**840**	**995**	**1100**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	-	-	-	-	-

PARAMETER	UOM	LOR	BH11 0.2-0.5 SOIL - 23/9/2015 SE144060.012	BH12 0.15-0.4 SOIL - 23/9/2015 SE144060.013	BH12 0.4-0.7 SOIL - 23/9/2015 SE144060.014	BH12 0.8-1.0 SOIL - 23/9/2015 SE144060.015
Total Sample Weight*	g	1	**900**	**1165**	**995**	**1130**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	**0.0206**	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.002**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.002**	<0.001
Fibre Type*	No unit	-	-	-	CRY	-

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: ESP < 6% non-sodic ESP 6-15% sodic ESP >15% strongly sodic Method is refernced to Rayment and Higginson, 1992, sections 15D3 and 15N1.-
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN605	This technique gravimetrically determines the mass of Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free fibres which are only observed by standard trace analysis as per AN 602.
AN605	AMO = Amosite CRY = Chrysotile CRO = Crocidolite
AN605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE144060 R0

CLIENT DETAILS

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Client	Geotechnique
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Facsimile	02 4722 6161
Email	james.ngu@geotech.com.au
Project	**13372-3 - Westmead**
Order Number	(Not specified)
Samples	17

LABORATORY DETAILS

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SGS Reference	**SE144060 R0**
Date Received	24 Sep 2015
Date Reported	02 Oct 2015

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Mercury in Soil	1 item
	Total Recoverable Metals in Soil by ICPOES	1 item
	Total Recoverable Metals in Soil by ICPOES	3 items

SAMPLE SUMMARY

Sample counts by matrix	17 Soils	Type of documentation received	COC
Date documentation received	25/9/15@9.11am	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE144060 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086249	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086283	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	02 Oct 2015

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086254	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086255	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086255	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086255	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086255	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015
Duplicate D2	SE144060.016	LB086255	23 Sep 2015	24 Sep 2015	21 Oct 2015	30 Sep 2015	21 Oct 2015	01 Oct 2015

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH6 0.2-0.3	SE144060.002	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH7 0.1-0.4	SE144060.003	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH8 0.15-0.45	SE144060.004	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH9 0.35-0.65	SE144060.005	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH9 1.0-1.3	SE144060.006	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH9 2.0-2.3	SE144060.007	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH9 3.0-3.1	SE144060.008	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH10 0.33-0.5	SE144060.009	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH10 0.5-0.8	SE144060.010	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH11 0.15-0.2	SE144060.011	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH11 0.2-0.5	SE144060.012	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH12 0.15-0.4	SE144060.013	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH12 0.4-0.7	SE144060.014	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015
BH12 0.8-1.0	SE144060.015	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015

HOLDING TIME SUMMARY

SE144060 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Duplicate D2	SE144060.016	LB086199	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	04 Oct 2015	30 Sep 2015

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE144060 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

pH in soil (1:5) (continued)

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH6 0.2-0.3	SE144060.002	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH7 0.1-0.4	SE144060.003	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH8 0.15-0.45	SE144060.004	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH9 0.35-0.65	SE144060.005	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH9 1.0-1.3	SE144060.006	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015
BH12 0.15-0.4	SE144060.013	LB086412	23 Sep 2015	24 Sep 2015	30 Sep 2015	30 Sep 2015	01 Oct 2015	30 Sep 2015

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086343	23 Sep 2015	24 Sep 2015	07 Oct 2015	01 Oct 2015	07 Oct 2015	01 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086402	23 Sep 2015	24 Sep 2015	07 Oct 2015	02 Oct 2015	07 Oct 2015	02 Oct 2015

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086233	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086234	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086234	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086234	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086234	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015
Duplicate D2	SE144060.016	LB086234	23 Sep 2015	24 Sep 2015	21 Mar 2016	30 Sep 2015	21 Mar 2016	01 Oct 2015

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

HOLDING TIME SUMMARY

SE144060 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH12 0.4-0.7	SE144060.014	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086193	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Tripspike TS1	SE144060.017	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5 0.1-0.4	SE144060.001	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH6 0.2-0.3	SE144060.002	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH7 0.1-0.4	SE144060.003	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH8 0.15-0.45	SE144060.004	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 0.35-0.65	SE144060.005	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 1.0-1.3	SE144060.006	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 2.0-2.3	SE144060.007	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH9 3.0-3.1	SE144060.008	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.33-0.5	SE144060.009	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH10 0.5-0.8	SE144060.010	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.15-0.2	SE144060.011	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH11 0.2-0.5	SE144060.012	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.15-0.4	SE144060.013	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.4-0.7	SE144060.014	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
BH12 0.8-1.0	SE144060.015	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Duplicate D2	SE144060.016	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015
Tripspike TS1	SE144060.017	LB086186	23 Sep 2015	24 Sep 2015	07 Oct 2015	29 Sep 2015	08 Nov 2015	02 Oct 2015

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	94
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	100
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	105
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	121
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	117
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	99
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	98
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	101
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	102
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	97
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	101
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	108
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	109
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	104
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	121
	Duplicate D2	SE144060.016	%	60 - 130%	106

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH5 0.1-0.4	SE144060.001	%	70 - 130%	78
	BH6 0.2-0.3	SE144060.002	%	70 - 130%	74
	BH7 0.1-0.4	SE144060.003	%	70 - 130%	70
	BH8 0.15-0.45	SE144060.004	%	70 - 130%	74
	BH9 0.35-0.65	SE144060.005	%	70 - 130%	74
	BH9 1.0-1.3	SE144060.006	%	70 - 130%	74
	BH9 2.0-2.3	SE144060.007	%	70 - 130%	70
	BH9 3.0-3.1	SE144060.008	%	70 - 130%	74
	BH10 0.33-0.5	SE144060.009	%	70 - 130%	72
	BH10 0.5-0.8	SE144060.010	%	70 - 130%	70
	BH11 0.15-0.2	SE144060.011	%	70 - 130%	70
	BH11 0.2-0.5	SE144060.012	%	70 - 130%	72
	BH12 0.15-0.4	SE144060.013	%	70 - 130%	76
	BH12 0.4-0.7	SE144060.014	%	70 - 130%	72
	BH12 0.8-1.0	SE144060.015	%	70 - 130%	74
	Duplicate D2	SE144060.016	%	70 - 130%	70
d14-p-terphenyl (Surrogate)	BH5 0.1-0.4	SE144060.001	%	70 - 130%	110
	BH6 0.2-0.3	SE144060.002	%	70 - 130%	108
	BH7 0.1-0.4	SE144060.003	%	70 - 130%	98
	BH8 0.15-0.45	SE144060.004	%	70 - 130%	98
	BH9 0.35-0.65	SE144060.005	%	70 - 130%	96
	BH9 1.0-1.3	SE144060.006	%	70 - 130%	102
	BH9 2.0-2.3	SE144060.007	%	70 - 130%	94
	BH9 3.0-3.1	SE144060.008	%	70 - 130%	98
	BH10 0.33-0.5	SE144060.009	%	70 - 130%	102
	BH10 0.5-0.8	SE144060.010	%	70 - 130%	92
	BH11 0.15-0.2	SE144060.011	%	70 - 130%	104
	BH11 0.2-0.5	SE144060.012	%	70 - 130%	106
	BH12 0.15-0.4	SE144060.013	%	70 - 130%	102
	BH12 0.4-0.7	SE144060.014	%	70 - 130%	96
	BH12 0.8-1.0	SE144060.015	%	70 - 130%	98
	Duplicate D2	SE144060.016	%	70 - 130%	98
d5-nitrobenzene (Surrogate)	BH5 0.1-0.4	SE144060.001	%	70 - 130%	90
	BH6 0.2-0.3	SE144060.002	%	70 - 130%	88
	BH7 0.1-0.4	SE144060.003	%	70 - 130%	74
	BH8 0.15-0.45	SE144060.004	%	70 - 130%	78
	BH9 0.35-0.65	SE144060.005	%	70 - 130%	80
	BH9 1.0-1.3	SE144060.006	%	70 - 130%	84
	BH9 2.0-2.3	SE144060.007	%	70 - 130%	74
	BH9 3.0-3.1	SE144060.008	%	70 - 130%	80
	BH10 0.33-0.5	SE144060.009	%	70 - 130%	80
	BH10 0.5-0.8	SE144060.010	%	70 - 130%	74

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH11 0.15-0.2	SE144060.011	%	70 - 130%	78
	BH11 0.2-0.5	SE144060.012	%	70 - 130%	84
	BH12 0.15-0.4	SE144060.013	%	70 - 130%	84
	BH12 0.4-0.7	SE144060.014	%	70 - 130%	76
	BH12 0.8-1.0	SE144060.015	%	70 - 130%	78
	Duplicate D2	SE144060.016	%	70 - 130%	76

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	94
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	100
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	105
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	121
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	117
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	99
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	98
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	101
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	102
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	97
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	101
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	108
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	109
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	104
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	121
	Duplicate D2	SE144060.016	%	60 - 130%	106

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	85
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	88
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	101
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	103
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	106
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	91
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	101
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	103
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	92
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	89
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	87
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	86
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	103
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	100
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	102
	Duplicate D2	SE144060.016	%	60 - 130%	102
	Tripspike TS1	SE144060.017	%	60 - 130%	105
d4-1,2-dichloroethane (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	92
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	87
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	96
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	96
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	94
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	96
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	95
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	89
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	92
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	91
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	92
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	91
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	94
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	93
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	93
	Duplicate D2	SE144060.016	%	60 - 130%	92
	Tripspike TS1	SE144060.017	%	60 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	85
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	85
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	91
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	90
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	86
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	91
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	90
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	87
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	89
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	87
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	89
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	89
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	89
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	89
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	90
	Duplicate D2	SE144060.016	%	60 - 130%	89
	Tripspike TS1	SE144060.017	%	60 - 130%	97
Dibromofluoromethane (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	79
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	78
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	84
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	84
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	81
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	84
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	83
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	78
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	82
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	81
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	80
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	80
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	82
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	81
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	82
	Duplicate D2	SE144060.016	%	60 - 130%	80
	Tripspike TS1	SE144060.017	%	60 - 130%	79

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	85
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	88
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	101
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	103
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	106
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	91
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	101
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	103
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	92
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	89
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	87
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	86
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	103
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	100
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	102
	Duplicate D2	SE144060.016	%	60 - 130%	102
d4-1,2-dichloroethane (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	92
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	87
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	96
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	96
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	94
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	96
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	95
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	89

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH10 0.33-0.5	SE144060.009	%	60 - 130%	92
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	91
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	92
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	91
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	94
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	93
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	93
	Duplicate D2	SE144060.016	%	60 - 130%	92
d8-toluene (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	85
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	85
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	91
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	90
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	86
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	91
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	90
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	87
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	89
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	87
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	89
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	89
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	89
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	89
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	90
	Duplicate D2	SE144060.016	%	60 - 130%	89
Dibromofluoromethane (Surrogate)	BH5 0.1-0.4	SE144060.001	%	60 - 130%	79
	BH6 0.2-0.3	SE144060.002	%	60 - 130%	78
	BH7 0.1-0.4	SE144060.003	%	60 - 130%	84
	BH8 0.15-0.45	SE144060.004	%	60 - 130%	84
	BH9 0.35-0.65	SE144060.005	%	60 - 130%	81
	BH9 1.0-1.3	SE144060.006	%	60 - 130%	84
	BH9 2.0-2.3	SE144060.007	%	60 - 130%	83
	BH9 3.0-3.1	SE144060.008	%	60 - 130%	78
	BH10 0.33-0.5	SE144060.009	%	60 - 130%	82
	BH10 0.5-0.8	SE144060.010	%	60 - 130%	81
	BH11 0.15-0.2	SE144060.011	%	60 - 130%	80
	BH11 0.2-0.5	SE144060.012	%	60 - 130%	80
	BH12 0.15-0.4	SE144060.013	%	60 - 130%	82
	BH12 0.4-0.7	SE144060.014	%	60 - 130%	81
	BH12 0.8-1.0	SE144060.015	%	60 - 130%	82
	Duplicate D2	SE144060.016	%	60 - 130%	80

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB086254.001	Mercury	mg/kg	0.01	<0.01
LB086255.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB086193.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.05	<0.05
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	77

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB086193.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	96
		d14-p-terphenyl (Surrogate)	%	-	130

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB086193.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	77

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB086343.001	Total Phenols	mg/kg	5	<5
LB086402.001	Total Phenols	mg/kg	5	<5

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB086233.001	Arsenic, As	mg/kg	3	<3
	Beryllium, Be	mg/kg	0.5	<0.5
	Barium, Ba	mg/kg	0.5	<0.5
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Cobalt, Co	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Manganese, Mn	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
	Selenium, Se	mg/kg	3	<3
	Titanium, Ti	mg/kg	10	<10
LB086234.001	Arsenic, As	mg/kg	3	<3
	Beryllium, Be	mg/kg	0.5	<0.5
	Barium, Ba	mg/kg	0.5	<0.5
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Cobalt, Co	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Manganese, Mn	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
	Selenium, Se	mg/kg	3	<3
	Titanium, Ti	mg/kg	10	<10

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB086193.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB086186.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1
		1,2-dichloropropane	mg/kg	0.1	<0.1
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1
		1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB086186.001	Halogenated Aliphatics	Chloromethane	mg/kg	1	<1
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
		Bromomethane	mg/kg	1	<1
		Chloroethane	mg/kg	1	<1
		Trichlorofluoromethane	mg/kg	1	<1
		Iodomethane	mg/kg	5	<5
		1,1-dichloroethene	mg/kg	0.1	<0.1
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5
		Allyl chloride	mg/kg	0.1	<0.1
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1
		1,1-dichloroethane	mg/kg	0.1	<0.1
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1
		Bromochloromethane	mg/kg	0.1	<0.1
		1,2-dichloroethane	mg/kg	0.1	<0.1
		1,1,1-trichloroethane	mg/kg	0.1	<0.1
		1,1-dichloropropene	mg/kg	0.1	<0.1
		Carbon tetrachloride	mg/kg	0.1	<0.1
		Dibromomethane	mg/kg	0.1	<0.1
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1
		1,1,2-trichloroethane	mg/kg	0.1	<0.1
		1,3-dichloropropane	mg/kg	0.1	<0.1
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
		cis-1,4-dichloro-2-butene	mg/kg	1	<1
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
		1,2,3-trichloropropane	mg/kg	0.1	<0.1
		trans-1,4-dichloro-2-butene	mg/kg	1	<1
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1
		Hexachlorobutadiene	mg/kg	0.1	<0.1
	Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
		Bromobenzene	mg/kg	0.1	<0.1
		2-chlorotoluene	mg/kg	0.1	<0.1
		4-chlorotoluene	mg/kg	0.1	<0.1
		1,3-dichlorobenzene	mg/kg	0.1	<0.1
		1,4-dichlorobenzene	mg/kg	0.1	<0.1
		1,2-dichlorobenzene	mg/kg	0.1	<0.1
		1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
		1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
		Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
		n-propylbenzene	mg/kg	0.1	<0.1
		1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
		tert-butylbenzene	mg/kg	0.1	<0.1
		1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
		sec-butylbenzene	mg/kg	0.1	<0.1
		p-isopropyltoluene	mg/kg	0.1	<0.1
		n-butylbenzene	mg/kg	0.1	<0.1
	Nitrogenous Compounds	Acrylonitrile	mg/kg	0.1	<0.1
		2-nitropropane	mg/kg	10	<10
	Oxygenated Compounds	Acetone (2-propanone)	mg/kg	10	<10
		MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1
		Vinyl acetate	mg/kg	10	<10
		MEK (2-butanone)	mg/kg	10	<10
		MIBK (4-methyl-2-pentanone)	mg/kg	1	<1
		2-hexanone (MBK)	mg/kg	5	<5
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB086186.001	Sulphonated	Carbon disulfide	mg/kg	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	106
		d4-1,2-dichloroethane (Surrogate)	%	-	121
		d8-toluene (Surrogate)	%	-	107
		Bromofluorobenzene (Surrogate)	%	-	99
	Totals	Total BTEX*	mg/kg	0.6	<0.6
	Trihalomethanes	Chloroform	mg/kg	0.1	<0.1
		Bromodichloromethane	mg/kg	0.1	<0.1
		Chlorodibromomethane	mg/kg	0.1	<0.1
		Bromoform	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB086186.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	91
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	100

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.002	LB086254.014	Mercury	mg/kg	0.01	<0.01	<0.01	200	0
SE144060.011	LB086254.024	Mercury	mg/kg	0.01	0.02	0.02	200	0
SE144081.004	LB086255.014	Mercury	mg/kg	0.01	0.0057712641	0.0053681891	200	0
SE144081.014	LB086255.024	Mercury	mg/kg	0.01	0.0067344204	0.0065211466	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.001	LB086199.011	% Moisture	%w/w	0.5	8.1	7.5	43	8
SE144060.011	LB086199.022	% Moisture	%w/w	0.5	12	13	38	7
SE144063.001	LB086199.030	% Moisture	%w/w	0.5	20.701168614	39.523809523	35	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086193.012		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.05	<0.05	<0.05	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.16	30	9
SE144060.016	LB086193.023		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.05	<0.05	<0.05	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.016	LB086193.023		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086193.011		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	17
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	10
SE144060.016	LB086193.021		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086193.011		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	9
SE144060.016	LB086193.021		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144029.001	LB086343.004	Total Phenols	mg/kg	5	2.10387596892.3851550387		19	13
SE144060.008	LB086402.004	Total Phenols	mg/kg	5	<5	<5	35	20

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.002	LB086233.014	Arsenic, As	mg/kg	3	7	6	45	7
		Beryllium, Be	mg/kg	0.5	<0.5	<0.5	185	0
		Boron, B	mg/kg	5	<5	<5	200	0
		Barium, Ba	mg/kg	0.5	53	52	31	1
		Cadmium, Cd	mg/kg	0.3	<0.3	0.3	130	5
		Chromium, Cr	mg/kg	0.3	12	10	35	15
		Cobalt, Co	mg/kg	0.5	1.5	1.5	63	1
		Copper, Cu	mg/kg	0.5	15	14	34	6
		Lead, Pb	mg/kg	1	12	11	39	5
		Manganese, Mn	mg/kg	1	35	36	33	3
		Nickel, Ni	mg/kg	0.5	1.9	1.9	56	0
		Zinc, Zn	mg/kg	0.5	8.5	8.1	54	5
		Selenium, Se	mg/kg	3	<3	<3	200	0
		Titanium, Ti	mg/kg	10	<10	<10	200	0
SE144060.011	LB086233.024	Arsenic, As	mg/kg	3	<3	<3	200	0
		Beryllium, Be	mg/kg	0.5	<0.5	<0.5	200	0
		Boron, B	mg/kg	5	<5	<5	200	0
		Barium, Ba	mg/kg	0.5	24	27	32	10
		Cadmium, Cd	mg/kg	0.3	0.7	0.8	70	4
		Chromium, Cr	mg/kg	0.3	14	14	34	4
		Cobalt, Co	mg/kg	0.5	55	48	31	14
		Copper, Cu	mg/kg	0.5	62	60	31	4
		Lead, Pb	mg/kg	1	13	16	37	20
		Manganese, Mn	mg/kg	1	680	670	30	1
		Nickel, Ni	mg/kg	0.5	170	160	30	6
		Zinc, Zn	mg/kg	0.5	110	110	32	1
		Selenium, Se	mg/kg	3	<3	<3	200	0
		Titanium, Ti	mg/kg	10	390	400	33	2
SE144081.004	LB086234.014	Arsenic, As	mg/kg	3	8.02579237287.6571907412		43	5
		Boron, B	mg/kg	5	0.74415911010.6712007757		200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144081.004	LB086234.014	Cadmium, Cd	mg/kg	0.3	0.227506059	30.2139798465	166	0
		Chromium, Cr	mg/kg	0.3	6.32965042	376.2652732102	38	1
		Copper, Cu	mg/kg	0.5	3.37484957	623.2782001011	45	3
		Lead, Pb	mg/kg	1	10.3215868	6449.6687431486	40	7
		Nickel, Ni	mg/kg	0.5	6.28632627	116.0642824015	38	4
		Zinc, Zn	mg/kg	0.5	30.0770974	5768.8178176912	37	4
		Selenium, Se	mg/kg	3	-0.270885847	40.0921211527	200	0
SE144081.014	LB086234.024	Arsenic, As	mg/kg	3	0.691189339	40.3665200302	200	0
		Boron, B	mg/kg	5	0.891191387	51.0412332510	200	0
		Cadmium, Cd	mg/kg	0.3	0.224442484	90.2342116384	161	0
		Chromium, Cr	mg/kg	0.3	12.1327404	9343.3840304332	34	10
		Copper, Cu	mg/kg	0.5	6.53682183	147.3678621058	37	12
		Lead, Pb	mg/kg	1	9.99486958	4811.1888555236	39	11
		Nickel, Ni	mg/kg	0.5	4.78850523	775.4888134106	40	14
		Zinc, Zn	mg/kg	0.5	34.8600897	8938.3065747629	35	9
		Selenium, Se	mg/kg	3	-0.175550247	00.1015498713	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086193.011		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE144060.016	LB086193.021		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086186.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	50	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.3	50	10
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.2	50	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5.1	50	0
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
SE144060.016	LB086186.026	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.4	50	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.9	50	7

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.016	LB086186.026	Surrogates	d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5.1	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE144060.007	LB086186.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	30	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.3	30	10
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.2	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5.1	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE144060.016	LB086186.026		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.4	30	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.9	30	7
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5.1	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086249.002	Exchangeable Sodium, Na	mg/kg	2	NA	160	80 - 120	108
	Exchangeable Potassium, K	mg/kg	2	NA	330	80 - 120	91
	Exchangeable Calcium, Ca	mg/kg	2	NA	4347	80 - 120	92
	Exchangeable Magnesium, Mg	mg/kg	2	NA	1578	80 - 120	88

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086254.002	Mercury	mg/kg	0.01	0.23	0.2	70 - 130	115
LB086255.002	Mercury	mg/kg	0.01	0.23	0.2	70 - 130	115

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086193.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	81
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	82
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	83
		Dieldrin	mg/kg	0.05	0.16	0.2	60 - 140	79
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	76
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	75
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086193.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100
		Pyrene	mg/kg	0.1	3.7	4	60 - 140	92
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	106
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086193.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	94

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086412.001	pH	pH Units	-	7.4	7.415	98 - 102	99

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086343.002	Total Phenols	mg/kg	5	<5	2.5	70 - 130	88
LB086402.002	Total Phenols	mg/kg	5	<5	2.5	70 - 130	81

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086233.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Beryllium, Be	mg/kg	0.5	55	50	80 - 120	111
	Boron, B	mg/kg	5	47	50	80 - 120	95
	Barium, Ba	mg/kg	0.5	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	96
	Chromium, Cr	mg/kg	0.3	47	50	80 - 120	94
	Cobalt, Co	mg/kg	0.5	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	46	50	80 - 120	93
	Lead, Pb	mg/kg	1	49	50	80 - 120	99

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086233.002	Manganese, Mn	mg/kg	1	48	50	80 - 120	95
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	47	50	80 - 120	94
	Selenium, Se	mg/kg	3	48	50	80 - 120	96
	Titanium, Ti	mg/kg	10	50	50	80 - 120	100
LB086234.002	Arsenic, As	mg/kg	3	48	50	80 - 120	97
	Beryllium, Be	mg/kg	0.5	54	50	80 - 120	108
	Boron, B	mg/kg	5	47	50	80 - 120	95
	Barium, Ba	mg/kg	0.5	48	50	80 - 120	95
	Cadmium, Cd	mg/kg	0.3	47	50	80 - 120	94
	Chromium, Cr	mg/kg	0.3	46	50	80 - 120	93
	Cobalt, Co	mg/kg	0.5	49	50	80 - 120	98
	Copper, Cu	mg/kg	0.5	46	50	80 - 120	91
	Lead, Pb	mg/kg	1	49	50	80 - 120	97
	Manganese, Mn	mg/kg	1	47	50	80 - 120	94
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	46	50	80 - 120	92
	Selenium, Se	mg/kg	3	48	50	80 - 120	96
	Titanium, Ti	mg/kg	10	49	50	80 - 120	98

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086193.002		TRH C10-C14	mg/kg	20	36	40	60 - 140	90
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	93
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086186.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	2.1	2.56	60 - 140	84
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.6	2.56	60 - 140	102
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	2.3	2.56	60 - 140	89
	Halogenated	Chlorobenzene	mg/kg	0.1	2.7	2.56	60 - 140	105
	Monocyclic	Benzene	mg/kg	0.1	2.9	2.9	60 - 140	101
	Aromatic	Toluene	mg/kg	0.1	2.6	2.9	60 - 140	89
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	81
		m/p-xylene	mg/kg	0.2	4.6	5.8	60 - 140	80
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	71
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
	Trihalomethan	Chloroform	mg/kg	0.1	2.6	2.56	60 - 140	102

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086186.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	97
		TRH C6-C9	mg/kg	20	20	23.2	60 - 140	88
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	128

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144029.001	LB086254.004	Mercury	mg/kg	0.01	0.40	0.37282123561	0.2	13 ④
SE144060.012	LB086255.004	Mercury	mg/kg	0.01	0.30	0.11	0.2	92

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.002	LB086193.006		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	93
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	95
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	84
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.05	0.18	<0.05	0.2	91
			Endrin	mg/kg	0.2	<0.2	<0.2	0.2	83
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	81
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	-	101

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.002	LB086193.005		Naphthalene	mg/kg	0.1	3.9	<0.1	4	97
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	102
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.5	<0.1	4	87
			Anthracene	mg/kg	0.1	3.8	<0.1	4	96
			Fluoranthene	mg/kg	0.1	3.8	<0.1	4	96
			Pyrene	mg/kg	0.1	3.5	<0.1	4	88
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	100
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	4.0	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.2	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.1	<0.2	-	-
			Total PAH	mg/kg	0.8	30	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	74

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.002	LB086193.005	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.002	LB086193.005		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	103
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	99

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.007	LB086343.017	Total Phenols	mg/kg	5	<5	<5	2.5	80
SE144063.001	LB086402.014	Total Phenols	mg/kg	5	<5	0.25977684210	2.5	83

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144029.001	LB086233.004	Arsenic, As	mg/kg	3	53	9.55427143587	50	87
		Cadmium, Cd	mg/kg	0.3	44	0.72941776846	50	87
		Chromium, Cr	mg/kg	0.3	59	16.1704122889	50	86
		Copper, Cu	mg/kg	0.5	70	28.7073608979	50	82
		Lead, Pb	mg/kg	1	120	37.49472710817	50	72
		Nickel, Ni	mg/kg	0.5	53	9.19374877031	50	87
		Zinc, Zn	mg/kg	0.5	220	86.4728977295	50	57 ④
SE144060.012	LB086234.004	Arsenic, As	mg/kg	3	55	7	50	96
		Beryllium, Be	mg/kg	0.5	3.0	0.6	2.5	97
		Boron, B	mg/kg	5	11	<5	10	73
		Barium, Ba	mg/kg	0.5	230	160	50	142 ④
		Cadmium, Cd	mg/kg	0.3	46	0.9	50	89
		Chromium, Cr	mg/kg	0.3	67	19	50	96
		Cobalt, Co	mg/kg	0.5	70	24	50	94
		Copper, Cu	mg/kg	0.5	160	110	50	106
		Lead, Pb	mg/kg	1	520	470	50	103
		Manganese, Mn	mg/kg	1	350	290	50	128
		Nickel, Ni	mg/kg	0.5	72	27	50	89
		Zinc, Zn	mg/kg	0.5	1100	1100	50	54 ④
		Selenium, Se	mg/kg	3	8	<3	10	78
		Titanium, Ti	mg/kg	10	240	210	50	63 ④

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060.002	LB086193.005		TRH C10-C14	mg/kg	20	42	<20	40	105
			TRH C15-C28	mg/kg	45	45	<45	40	113
			TRH C29-C36	mg/kg	45	<45	<45	40	90
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	120	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	43	<25	40	108
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	43	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	108
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144029.001	LB086186.004	Monocyclic	Benzene	mg/kg	0.1	2.8	0.01	2.9	98
		Aromatic	Toluene	mg/kg	0.1	3.1	0.02	2.9	108
			Ethylbenzene	mg/kg	0.1	3.3	0.03	2.9	112
			m/p-xylene	mg/kg	0.2	5.7	0.04	5.8	97
			o-xylene	mg/kg	0.1	2.7	0.03	2.9	91
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.04	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.05	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.69	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.63	-	99
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.98	-	101
		Totals	Total Xylenes*	mg/kg	0.3	8.4	0.07	-	-
			Total BTEX*	mg/kg	0.6	18	0.13	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144029.001	LB086186.004		TRH C6-C10	mg/kg	25	<25	0.16	24.65	99
			TRH C6-C9	mg/kg	20	21	0	23.2	89
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.05	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	4.69	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.63	-	99
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.98	-	101
		VPH F	Benzene (F0)	mg/kg	0.1	2.8	0.01	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	0.03	7.25	94

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

COC received 29/9/15 @ 12.59pm

SGS Alexandria Environmental

SE144060 COC
Received: 24 – Sep – 2015

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: LY
Job No: 13372/3
Project:
Project Manager: AB/JN
Location: Westmead

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Be, B, Ba, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Zn, Se & Ti	TPH* & BTEX	PAH	OCP & PCB	PHENOLS	VOC	pH, CEC	ASBESTOS 0.001% ww	KEEP SAMPLE
1	BH5	0.1-0.4	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓	✓	✓	✓	YES
	BH5	0.45-0.55	23/09/2015	-	SG										YES
2	BH6	0.2-0.3	23/09/2015	-	SG		✓	✓	✓	✓	✓	✓	✓		YES
3	BH7	0.1-0.4	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓		✓	✓	YES
	BH7	0.55-0.65	23/09/2015	-	SG										YES
4	BH8	0.15-0.45	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓		✓	✓	YES
	BH8	0.55-0.65	23/09/2015	-	SG										YES
5	BH9	0.35-0.65	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓		✓	✓	YES
6	BH9	1.0-1.3	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓	✓	✓	✓	YES
7	BH9	2.0-2.3	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓			✓	YES
8	BH9	3.0-3.1	23/09/2015	-	SG/SP		✓	✓	✓	✓	✓			✓	YES
	BH9	3.15-3.25	23/09/2015	-	SG										YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
JAMES NGU	J Ngu	25/09/2015	Erin Atkins	E. At	24/9/15 2v

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: LY Job No: 13372/3

Project:

Project Manager: AB/JN Location: Westmead

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Sample type: Soil	Sample type: Water	Metals As, Be, B, Ba, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Zn, Se & Ti	BTEX	TPH* & BTEX	PAH	OCP & PCB	PHENOLS	VOC	pH, CEC	ASBESTOS 0.001% ww	KEEP SAMPLE
9	BH10	0.33-0.5	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓	✓		✓	YES
10	BH10	0.5-0.8	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓	✓		✓	YES
	BH10	1.05-1.15	23/09/2015	-	SG											YES
11	BH11	0.15-0.2	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓	✓		✓	YES
12	BH11	0.2-0.5	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓	✓		✓	YES
	BH11	0.85-0.95	23/09/2015	-	SG											YES
13	BH12	0.15-0.4	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓		✓	✓	YES
14	BH12	0.4-0.7	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓			✓	YES
15	BH12	0.8-1.0	23/09/2015	-	SG/SP		✓		✓	✓	✓	✓			✓	YES
	BH12	1.05-1.15	23/09/2015	-	SG											YES
	Duplicate D1		23/09/2015	-	SG											YES
16	Duplicate D2		23/09/2015	-	SG		✓		✓	✓	✓	✓	✓			YES
	Rinsate R1		23/09/2015	-		WG/Vial										YES
17	Tripspike TS1							✓								YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
JAMES NGU	J Ngu	25/09/2015	Gin Alley	G.A	24/9/15

Legend:

WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

SAMPLE RECEIPT ADVICE

SE144060

CLIENT DETAILS

Contact	James Ngu
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	james.ngu@geotech.com.au
Project	**13372-3 - Westmead**
Order Number	(Not specified)
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 24/9/2015
Report Due	Fri 2/10/2015
SGS Reference	**SE144060**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Thursday 24/9/2015. Results are expected to be ready by Friday 2/10/2015. Please quote SGS reference SE144060 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	17 Soils	Type of documentation received	COC
Date documentation received	25/9/15@9.11am	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

8 samples have been placed on hold.

SAMPLE RECEIPT ADVICE

SE144060

CLIENT DETAILS

Client Geotechnique

Project 13372-3 - Westmead

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	pH in soil (1:5)	Total Phenolics in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH5 0.1-0.4	28	25	11	1	1	10	79	8
002	BH6 0.2-0.3	28	25	11	1	1	10	79	8
003	BH7 0.1-0.4	28	25	11	1	1	10	12	8
004	BH8 0.15-0.45	28	25	11	1	1	10	12	8
005	BH9 0.35-0.65	28	25	11	1	1	10	12	8
006	BH9 1.0-1.3	28	25	11	1	1	10	79	8
007	BH9 2.0-2.3	28	25	11	-	1	10	12	8
008	BH9 3.0-3.1	28	25	11	-	1	10	12	8
009	BH10 0.33-0.5	28	25	11	-	1	10	79	8
010	BH10 0.5-0.8	28	25	11	-	1	10	79	8
011	BH11 0.15-0.2	28	25	11	-	1	10	79	8
012	BH11 0.2-0.5	28	25	11	-	1	10	79	8
013	BH12 0.15-0.4	28	25	11	1	1	10	12	8
014	BH12 0.4-0.7	28	25	11	-	1	10	12	8
015	BH12 0.8-1.0	28	25	11	-	1	10	12	8
016	Duplicate D2	28	25	11	-	1	10	12	8
017	Tripspike TS1	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE144060

CLIENT DETAILS

Client Geotechnique

Project 13372-3 - Westmead

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content	Total Recoverable Metals in Soil by ICPOES
001	BH5 0.1-0.4	13	9	1	1	14
002	BH6 0.2-0.3	13	-	1	1	14
003	BH7 0.1-0.4	13	9	1	1	14
004	BH8 0.15-0.45	13	9	1	1	14
005	BH9 0.35-0.65	13	9	1	1	14
006	BH9 1.0-1.3	13	9	1	1	14
007	BH9 2.0-2.3	-	9	1	1	14
008	BH9 3.0-3.1	-	9	1	1	14
009	BH10 0.33-0.5	-	9	1	1	14
010	BH10 0.5-0.8	-	9	1	1	14
011	BH11 0.15-0.2	-	9	1	1	14
012	BH11 0.2-0.5	-	9	1	1	14
013	BH12 0.15-0.4	13	9	1	1	14
014	BH12 0.4-0.7	-	9	1	1	14
015	BH12 0.8-1.0	-	9	1	1	14
016	Duplicate D2	-	-	1	1	14

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	James Ngu
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	james.ngu@geotech.com.au
Project	**13372-3 - Westmead - Additional**
Order Number	(Not specified)
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE144060A R0**
Date Received	24/9/2015
Date Reported	9/10/2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

Metals in Water (Dissolved) by ICPOES [AN320/AN321] Tested: 8/10/2015

PARAMETER	UOM	LOR	Rinsate R1 WATER - 23/9/2015 SE144060A.018
Arsenic, As	mg/L	0.02	<0.02
Beryllium, Be	mg/L	0.005	<0.005
Boron, B	mg/L	0.05	<0.05
Barium, Ba	mg/L	0.005	<0.005
Cadmium, Cd	mg/L	0.001	<0.001
Chromium, Cr	mg/L	0.005	<0.005
Cobalt, Co	mg/L	0.01	<0.01
Copper, Cu	mg/L	0.005	<0.005
Lead, Pb	mg/L	0.02	<0.02
Manganese, Mn	mg/L	0.005	<0.005
Nickel, Ni	mg/L	0.005	<0.005
Zinc, Zn	mg/L	0.01	<0.01
Selenium, Se	mg/L	0.05	<0.05
Titanium, Ti	mg/L	0.005	<0.005

Mercury (dissolved) in Water [AN311/AN312] Tested: 8/10/2015

PARAMETER	UOM	LOR	Rinsate R1 WATER - 23/9/2015 SE144060A.018
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN320/AN321	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320/AN321	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE144060A R0

CLIENT DETAILS

Contact	James Ngu
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	james.ngu@geotech.com.au
Project	**13372-3 - Westmead - Additional**
Order Number	(Not specified)
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE144060A R0**
Date Received	24 Sep 2015
Date Reported	09 Oct 2015

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	1 Water	Type of documentation received	Email
Date documentation received	7/10/15@12:26pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15°C
Sample container provider	SGS	Turnaround time requested	Two Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE144060A R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Rinsate R1	SE144060A.018	LB086752	23 Sep 2015	24 Sep 2015	21 Oct 2015	08 Oct 2015	21 Oct 2015	08 Oct 2015

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Rinsate R1	SE144060A.018	LB086715	23 Sep 2015	24 Sep 2015	21 Mar 2016	08 Oct 2015	21 Mar 2016	08 Oct 2015

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB086752.001	Mercury	mg/L	0.0001	<0.0001

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR	Result
LB086715.001	Arsenic, As	mg/L	0.02	<0.02
	Barium, Ba	mg/L	0.005	<0.005
	Beryllium, Be	mg/L	0.005	<0.005
	Boron, B	mg/L	0.05	<0.05
	Cadmium, Cd	mg/L	0.001	<0.001
	Chromium, Cr	mg/L	0.005	<0.005
	Cobalt, Co	mg/L	0.01	<0.01
	Copper, Cu	mg/L	0.005	<0.005
	Lead, Pb	mg/L	0.02	<0.02
	Manganese, Mn	mg/L	0.005	<0.005
	Nickel, Ni	mg/L	0.005	<0.005
	Selenium, Se	mg/L	0.05	<0.05
	Titanium, Ti	mg/L	0.005	<0.005
	Zinc, Zn	mg/L	0.01	<0.01

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Original	Duplicate	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Metals in Water (Dissolved) by ICPOES — **Method: ME-(AU)-[ENV]AN320/AN321**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB086715.002	Arsenic, As	mg/L	0.02	2.0	2	80 - 120	101
	Barium, Ba	mg/L	0.005	2.1	2	80 - 120	104
	Beryllium, Be	mg/L	0.005	2.0	2	80 - 120	101
	Boron, B	mg/L	0.05	2.0	2	80 - 120	98
	Cadmium, Cd	mg/L	0.001	2.1	2	80 - 120	105
	Chromium, Cr	mg/L	0.005	2.0	2	80 - 120	101
	Cobalt, Co	mg/L	0.01	2.1	2	80 - 120	103
	Copper, Cu	mg/L	0.005	2.1	2	80 - 120	106
	Lead, Pb	mg/L	0.02	2.1	2	80 - 120	103
	Manganese, Mn	mg/L	0.005	2.1	2	80 - 120	104
	Nickel, Ni	mg/L	0.005	2.1	2	80 - 120	103
	Selenium, Se	mg/L	0.05	2.0	2	80 - 120	98
	Titanium, Ti	mg/L	0.005	1.9	2	80 - 120	97
	Zinc, Zn	mg/L	0.01	2.1	2	80 - 120	104

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water — Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060A.01	LB086752.004	Mercury	mg/L	0.0001	0.0078	<0.0001	0.008	98

Metals in Water (Dissolved) by ICPOES — Method: ME-(AU)-[ENV]AN320/AN321

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE144060A.01	LB086715.004	Arsenic, As	mg/L	0.02	2.0	<0.02	2	99
8		Barium, Ba	mg/L	0.005	2.1	<0.005	2	105
		Beryllium, Be	mg/L	0.005	0.10	<0.005	0.1	103
		Boron, B	mg/L	0.05	0.42	<0.05	0.4	95
		Cadmium, Cd	mg/L	0.001	2.1	<0.001	2	103
		Chromium, Cr	mg/L	0.005	2.0	<0.005	2	101
		Cobalt, Co	mg/L	0.01	2.0	<0.01	2	102
		Copper, Cu	mg/L	0.005	2.1	<0.005	2	105
		Lead, Pb	mg/L	0.02	1.9	<0.02	2	95
		Manganese, Mn	mg/L	0.005	2.1	<0.005	2	104
		Nickel, Ni	mg/L	0.005	2.0	<0.005	2	102
		Selenium, Se	mg/L	0.05	0.37	<0.05	0.4	92
		Titanium, Ti	mg/L	0.005	0.40	<0.005	0.4	97
		Zinc, Zn	mg/L	0.01	2.1	<0.01	2	105

MATRIX SPIKE DUPLICATES

SE144060A R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

COC received 7/10/15 @ 12:26 p.m

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: LY
Job No: 13372/3
Project:
Project Manager: AB/JN
Location: Westmead

Results required by: 9 October 2015 (2 Days Turnaround Time)
SGS Ref No: SE144060

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Water	Metals As, Be, B, Ba, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Zn, Se & Ti	BTEX	TPH* & BTEX	PAH	OCP & PCB	PHENOLS	VOC	pH, CEC	ASBESTOS 0.001% ww	KEEP SAMPLE
BH10	0.33-0.5	23/09/2015	-	SG/SP											YES
BH10	0.5-0.8	23/09/2015	-	SG/SP											YES
BH10	1.05-1.15	23/09/2015	-	SG											YES
BH11	0.15-0.2	23/09/2015	-	SG/SP											YES
BH11	0.2-0.5	23/09/2015	-	SG/SP											YES
BH11	0.85-0.95	23/09/2015	-	SG											YES
BH12	0.15-0.4	23/09/2015	-	SG/SP											YES
BH12	0.4-0.7	23/09/2015	-	SG/SP											YES
BH12	0.8-1.0	23/09/2015	-	SG/SP											YES
BH12	1.05-1.15	23/09/2015	-	SG											YES
Duplicate D1		23/09/2015	-	SG											YES
Duplicate D2		23/09/2015	-	SG											YES
18 Rinsate R1		23/09/2015	-		WG/Vial	✓									YES
Tripspike TS1															YES

SGS Alexandria Environmental
SE144060A COC
Received: 24 – Sep – 2015

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	7/10/2015	Emily Yin		7/10/15 @ 1226p

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

SAMPLE RECEIPT ADVICE

SE144060A

CLIENT DETAILS

Contact	James Ngu
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	james.ngu@geotech.com.au
Project	**13372-3 - Westmead - Additional**
Order Number	(Not specified)
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 24/9/2015
Report Due	Fri 9/10/2015
SGS Reference	**SE144060A**

SUBMISSION DETAILS

This is to confirm that 18 samples were received on Thursday 24/9/2015. Results are expected to be ready by Friday 9/10/2015. Please quote SGS reference SE144060A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Water	Type of documentation received	Email
Date documentation received	7/10/15@12:26pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15°C
Sample container provider	SGS	Turnaround time requested	Two Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

SAMPLE RECEIPT ADVICE

SE144060A

CLIENT DETAILS

Client Geotechnique

Project 13372-3 - Westmead - Additional

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES
018	Rinsate R1	1	14

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

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 134807

Client:
Geotechnique Pty Ltd
PO Box 880
Penrith
NSW 2751

Attention: James Ngu

Sample log in details:

Your Reference:	**13372/3, Westmead**
No. of samples:	1 Soil
Date samples received / completed instructions received	24/09/2015 / 24/09/2015

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:	1/10/15 / 1/10/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

VOCs in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	 134807-1 S1 23/09/2015 Soil
Date extracted	-	25/09/2015
Date analysed	-	25/09/2015
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1
1,2,3-trichloropropane	mg/kg	<1

VOCs in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ---------- 	134807-1 S1 23/09/2015 Soil
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	100
Surrogate aaa-Trifluorotoluene	%	84
Surrogate Toluene-d_8	%	100
Surrogate 4-Bromofluorobenzene	%	100

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date extracted	-	25/09/2015
Date analysed	-	25/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	84

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date extracted	-	25/09/2015
Date analysed	-	27/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Surrogate o-Terphenyl	%	84

PAHs in Soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date extracted	-	25/09/2015
Date analysed	-	25/09/2015
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	93

Organochlorine Pesticides in soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date extracted	-	30/09/2015
Date analysed	-	1/10/2015
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	0.1
alpha-chlordane	mg/kg	0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	91

PCBs in Soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date extracted	-	30/09/2015
Date analysed	-	1/10/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	91

Acid Extractractable metals in soil		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date prepared	-	25/09/2015
Date analysed	-	25/09/2015
Arsenic	mg/kg	5
Beryllium	mg/kg	<1
Boron	mg/kg	<3
Barium	mg/kg	88
Cadmium	mg/kg	0.8
Chromium	mg/kg	17
Cobalt	mg/kg	36
Copper	mg/kg	64
Lead	mg/kg	81
Manganese	mg/kg	450
Mercury	mg/kg	0.1
Nickel	mg/kg	110
Zinc	mg/kg	290
Selenium	mg/kg	<2
Titanium	mg/kg	270

Misc Soil - Inorg		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date prepared	-	25/09/2015
Date analysed	-	25/09/2015
Total Phenolics (as Phenol)	mg/kg	<5

Moisture		
Our Reference:	UNITS	134807-1
Your Reference	----------	S1
Date Sampled	----------	23/09/2015
Type of sample		Soil
Date prepared	-	25/09/2015
Date analysed	-	28/09/2015
Moisture	%	19

Method ID	Methodology Summary
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing 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 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. 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-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 VOCs in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2015	[NT]	[NT]	LCS-6	25/09/2015
Date analysed	-			25/09/2015	[NT]	[NT]	LCS-6	25/09/2015
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	100%
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	98%
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	120%
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	99%
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	90%
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	103%
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	98%
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	LCS-6	93%
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%		Org-014	100	[NT]	[NT]	LCS-6	98%
Surrogate aaa-Trifluorotoluene	%		Org-014	80	[NT]	[NT]	LCS-6	87%
Surrogate Toluene-d_8	%		Org-014	100	[NT]	[NT]	LCS-6	100%
Surrogate 4-Bromofluorobenzene	%		Org-014	99	[NT]	[NT]	LCS-6	103%

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	-			25/09/2015	[NT]	[NT]	LCS-6	25/09/2015
Date analysed	-			25/09/2015	[NT]	[NT]	LCS-6	25/09/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-6	101%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-6	101%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-6	101%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-6	100%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-6	102%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-6	101%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-6	103%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	80	[NT]	[NT]	LCS-6	87%

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	-			25/09/2015	[NT]	[NT]	LCS-6	25/09/2015
Date analysed	-			27/09/2015	[NT]	[NT]	LCS-6	27/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-6	111%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-6	103%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-6	83%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-6	111%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-6	103%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-6	83%
Surrogate o-Terphenyl	%		Org-003	86	[NT]	[NT]	LCS-6	123%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2015	[NT]	[NT]	LCS-3	25/09/2015
Date analysed	-			25/09/2015	[NT]	[NT]	LCS-3	25/09/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	89%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	85%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	99%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	91%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-3	93%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-3	108%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	[NT]	[NT]	LCS-3	73%

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	-			30/09/2015	[NT]	[NT]	LCS-7	30/09/2015
Date analysed	-			1/10/2015	[NT]	[NT]	LCS-7	1/10/2015
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-7	101%
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-7	87%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
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-7	91%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-7	88%
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-7	89%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-7	118%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-7	107%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-7	99%
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-7	89%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	91	[NT]	[NT]	LCS-7	93%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/09/2015	[NT]	[NT]	LCS-7	30/09/2015
Date analysed	-			1/10/2015	[NT]	[NT]	LCS-7	1/10/2015
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-7	111%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	91	[NT]	[NT]	LCS-7	101%
QUALITY CONTROL Acid Extractractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/09/2015	[NT]	[NT]	LCS-4	25/09/2015
Date analysed	-			25/09/2015	[NT]	[NT]	LCS-4	25/09/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-4	105%
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	96%
Boron	mg/kg	3	Metals-020 ICP-AES	<3	[NT]	[NT]	LCS-4	117%
Barium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	106%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-4	99%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	103%
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	98%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	105%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	99%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	114%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-4	113%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	98%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	99%
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	[NT]	[NT]	LCS-4	94%
Titanium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	125%

QUALITY CONTROL Misc Soil - Inorg	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/09/2015	[NT]	[NT]	LCS-1	25/09/2015
Date analysed	-			25/09/2015	[NT]	[NT]	LCS-1	25/09/2015
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	LCS-1	102%

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.

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

Job No: 134807

Date Received: 24/9/15
Time Received: 16:45
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: ENVIROLAB SERVICES PTY LD
12 ASHLEY STREET
CHATSWOOD NSW 2067

PH: 02 9910 6200 **FAX:** 02 9910 6201

ATTN: MS AILEEN HIE

Sampling By: LY **Job No:** 13372/3

Project:

Project Manager: AB/JN **Location:** Westmead

Results required by: Standard Turnaround Time

Sampling details				Sample type										
Location	Depth (m)	Date	Time	Soil	Water	Metals As, Be, B, Ba, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Zn, Se & Ti	TPH* & BTEX	PAH	PHENOLS	VOC	OCP & PCB				KEEP SAMPLE
S1		23/09/2015	-	SG		✓	✓	✓	✓	✓	✓				YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
JAMES NGU	J Ngu	24/09/2015			24/9/15

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

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	Geotechnique Pty Ltd
Attention	James Ngu

Sample Login Details	
Your Reference	13372/3, Westmead
Envirolab Reference	134807
Date Sample Received	24/09/2015
Date Instructions Received	24/09/2015
Date Results Expected to be Reported	01/10/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on receipt (°C)	2.3
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 soil*	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Organochlorine Pesticides in soil*	*PCBs in Soil*	*Acid Extractractable metals in soil*	*Misc Soil - Inorg*
S1	✓	✓	✓	✓	✓	✓	✓	✓

ATTACHMENT F

ENVIRONMENTAL NOTES

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

These notes have been prepared by Geotechnique Pty Ltd, using guidelines prepared by the ASFE (Associated Soil and Foundation Engineers). The notes are offered to assist in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre-acquisition assessment on behalf of a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has changed, e.g. from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of e.g. a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible quantify the risks that unrecognised contamination poses to the ongoing proposed activity. Such risks may be financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment might not detect all contamination within a site. Contaminants could be present in areas that were not surveyed or sampled, or migrate to areas that did not show signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant that may occur; only the most likely contaminants are screened.

AN ENVIRONMENTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

In the following events and in order to avoid cost problems, you should ask your consultant to assess any changes in the conclusion and recommendations made in the assessment:

- When the nature of the proposed development is changed e.g. if a residential development is proposed, rather than a commercial development
- When the size or configuration of the proposed development is altered e.g. if a basement is added
- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientists and opinions are drawn about the overall sub-surface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason site owners should retain the services of their consultants throughout the development stages of the project in order to identify variances, conduct additional tests that may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by Geotechnique Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data that may have been affected by time. The consultant should be requested to advise if additional tests are required.

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs of specific individuals e.g. an assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another consulting civil engineer.

An assessment should not be used by other persons for any purpose or by the client for a different purpose. No individual, other than the client, should apply an assessment, even for its intended purpose, without first conferring with the consultant. No person should apply an assessment for any purpose other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

Costly problems can occur when design professionals develop plans based on misinterpretation of an environmental site assessment. In order to minimise problems, the environmental consultant should be retained to work with appropriate design professionals, to explain relevant findings and to review the adequacy of plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists, based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these would not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. Should this occur, delays and disputes, or unanticipated costs may result.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of sub-surface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations, such as contractors.

READ RESPONSIBILITY CLAUSES CLOSELY

An environmental site assessment is based extensively on judgement and opinion; therefore, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. In order to aid in prevention of this problem, model clauses have been developed for use in written transmittals. These are definitive clauses, designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment and you are encouraged to read them closely. Your consultant will be happy to give full and frank answers to any questions you may have.