Report on Supplementary Contamination Assessment

Stage 5-14 Radcliffe, Wyee Residential Subdivision

82219014

Prepared for Wyee Land Pty Ltd C/- Northrop Consulting Engineers

24 October 2018





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1 Introduction

1.1 Background

Cardno (NSW/ACT) Pty Ltd (Cardno) were engaged by Northrop Consulting Engineers (Northrop) on behalf of Wyee Land Pty Ltd, to undertake a Supplementary Contamination Assessment (SCA) for the proposed Radcliffe, Wyee residential development, located at Lot 173 DP 1212974 & Lot 212 DP 866437, off Bushells Ridge Road, Wyee. The assessment area and site boundaries are shown on **Figure 1**, attached in **Appendix A**.

The site was the subject of a previous Douglas Partners *Preliminary Geotechnical and Contamination Assessment* report ("DP Report") (JN. 41810, date. July 2009) [1] and is discussed in more detail in in Section 2.

The current investigation was undertaken to address issue previous identified in the DP Report [1] and was targeted to the following:

- > Proposed Stage 5 and Stages 6-14 of the Site which typically comprised open pasture with limited development; and
- > Former 'Quarried Area' identified in previous DP Report [1] and located within titled Lot 212 DP866437.

The DP Report [1] included a preliminary contamination assessment on larger parcels of land within the area, which included the current investigation area, however no intrusive sampling was undertaken within the current investigation area.

The current SCA utilises information provided within the previous DP Report [1] and other publicly available data, along with the results of limited intrusive sampling with the investigation area.

The SCA was carried out in general accordance with the Cardno's fee proposal 48980519-003.2, dated 1st August, 2018.

1.2 Purpose and Objectives

The assessment was undertaken to assess the potential for contamination to constrain the proposed development of the site into a low-density residential subdivision.

The objective of the SCA was to:

- > Provide additional environmental data to assess potential contamination issues previously identified in the DP Report [1].
- > Interviews with individuals familiar with the site.
- > Assess potential contamination not considered by the DP Report [1].
- > Assess potential contamination and contaminating activities, if any, that have occurred since the release of the DP Report [1].
- > Assess the requirement; if any, for further environmental works required to make the site suitable for the proposed use.

1.3 Scope

Cardno carried out the following tasks to confirm currency of information provided within the previous DP Report [1] and satisfy the purpose and objectives of this assessment.

Defined the Site, Features & Surrounds:

- > Defined the site boundaries based on title information, available data and established a site base plan.
- > Identified the site features including main structures, associated infrastructure and other services.

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- > Defined the topography, surface water drainage of the site and its proximity to the nearest surface water body and any associated potentially sensitive aquatic ecosystems.
- > Identified the location of nearby sensitive environments and receptors such as residential areas, wetlands, streams or rivers.
- > Identified the zoning of the site under the local Planning Scheme.
- > Reviewed previous contamination assessment and classification of the Site.

Hydrogeology & Groundwater Resource Use

> Ascertained the actual utilisation of groundwater at and in the vicinity of the site through a search of the NSW Groundwater Database at NSW Office of Water website.

Review of Public Records on Site History

- > Publicly available documents relevant to the site (to the extent readily available):
 - Historical imagery available
 - Historical and current maps of the area
- > Selected historical aerial photos presented in previous DP Report [1] (additionally available from the Department of Lands).
- > Public registers such as provided below to identified any sites (this and nearby sites):
 - NSW EPA Contaminated Lands Register

Site Inspection & Surrounds

- > Confirmed the site features and identified any visible evidence of fuel storage tanks (above or below ground) and other infrastructure with potential to cause contamination of soil and/or groundwater.
- > Checked for evidence of soil type and evidence of site cutting and filling or subsidence or placement of solid wastes.
- > Assessed the surrounding area (to a radius of about 200 m and to the extent possible) for potential sources of contamination of soil or groundwater at the site.

Intrusive Site Investigation Sampling & Testing

- > Performed intrusive investigation of soil conditions at the site by excavation, sampling at selected locations and applying methods set out in the following sections of this report.
- > Tested selected soil samples for a broad range of analytes (by a National Association of Testing Authorities (NATA) accredited laboratory).

Reporting

- > Prepared this SCA to document the assessment activities and results to provide findings and recommendations relevant to the objectives of the assessment.
- > Compiled a Conceptual Site Model (CSM) for the site, identifying complete and potential pathways between known and potential sources and receptors. This CSM is incorporated in this investigation report.

2 **Previous Investigations**

2.1 Preliminary Site Investigation and Contamination Assessment

A previous DP Report [1] was undertaken within the proposed Stages 1-14 and immediate surrounds of the Radcliffe, Wyee site. The report was preliminary in nature and included the following:

- > Twenty-four (24) test bores advanced across the site using a Ute mounted continuous push tube sampling rig. Systematic environmental samples were taken at select locations.
- > Identification of potentially contaminating activities that are currently or had previously been undertaken on site.
- > Identification of potential contaminant concerns.
- > Production of preliminary site contamination assessment.
- > Assessment of need for further contamination specific investigations.

The DP Report [1] concluded that the contamination risk across the Site was generally 'low'. However, though anecdotal evidence, it was suggested that several areas of concern existed within the Stage 1-4 area.

A majority of the risks were identified as being outside the Stage 5-14 area, with the exception of 0.4ha area within Lot 212 DP866437 flagged as an 'area of concern'. The area was flagged due to geomorphic features resembling that of a former small-scale quarry.

Further contamination assessment was recommended at Lot 212 DP 866437, with the purpose being to quantify the level of contamination (if any) and delineate contaminated areas in order to facilitate the preparation of a Remediation Action Plan (RAP) if required.

Areas of environmental concern associated with Stages 1-4, were assessed and remediated separate to the current assessment presented herein.

3 Site Inspection and Surrounding Environment

3.1 Site Identification

The subject site details are presented in Table 3-1. For site location, please refer to Figure 1 in Appendix A.

| Table 3-1Site Details | |
|--|--|
| | |
| Site Address | Hue Hue Road & Bushells Ridge Road, Wyee |
| Lot Number and Deposited Plan | Lot 173 DP 1212974 & Lot 212 DP 866437 |
| Site Area | Approx. 94ha |
| Local Government Area | Lake Macquarie |
| Relative Zoning (LZN_007) (Lake Macquarie Local Environmental Plan [2]) | Lot 173 DP 1212974 zoned as: E2 Environmental Conservation; E3 Environmental Management; and R2 Low Density Residential Lot 212 DP 866437 zoned as: E2 Environmental Conservation R2 low Density Residential |

3.2 Site Features and Observations

Table 3-2Site features and Observations

| Item | Observations |
|----------------------------------|--|
| Site use | Residential and agricultural (grazing) land uses. |
| Weather condition | Sunny, showers the previous night. Significant dry spell spanning 6-8 weeks prior to investigation. |
| Site slope and drainage features | Topographically the site is located within regionally hilly terrain, locally characterized by predominantly north and east facing slopes. The dominant north and east facing slopes fall from an east west trending ridgeline on which Bushells Ridge Road has been constructed. A less dominant west facing slope is located in the eastern portion of the site and falls from the site boundary towards the Unnamed Creek. Slopes within the site generally fall to the north and |
| | east towards Manning Creek and an Unnamed Creek respectively. The Site has slight hills predominantly ranging from 1-6%, with slopes decreasing to the north. |
| | Drainage across the site appears to be comprised of infiltration and / or surficial runoff following the existing contours of the site towards Manning Creek in the north, the Unnamed Creek to the east and several rural dams within the western portion of the site. |
| | The highest point of the Site was located along the southern boundary, where existing residential building within Lot 212 DP866437 is located. |
| | Lake Macquarie Council's Catchment and Flood Study Map [3] indicates that the Site is not affected by flooding. However, due to presence of two creek lines |

| ltem | Observations |
|--|--|
| | some localized flooding may occur in proximity to these water bodies. |
| Nearby Water Bodies | Mannering Creek traverses east to west within the northern portion of the Site. |
| | The unnamed creek traverses south to north through the eastern third of the Site. |
| | Three temporary dams are located within proposed Stages 8 and 9. The dams range in size from 0.05ha to 0.12 ha and all contained varying amounts of standing water at time of investigation. |
| | A fourth temporary dam was located in the northern portion of the site. The dam was approximately 0.02 ha in size and contained no standing water at the time of investigation. |
| | Potential dam or waterhole in the former stockyard located in the southeastern corner of the Site. Possibly linked to the southern point of the unnamed creek. |
| Site surface coverings | Areas of open pasture hroughout the Site. |
| | Woodland/shrub region around the unnamed creek. |
| | Approx. 10ha of open woodland surrounding existing residence in southwest portion of the site. |
| Surface soils | Natural sandy topsoil over the majority of the Site. |
| Site cut and fill | Cutting has occurred in the excavated area in former Lot 212 DP 866437. |
| Buildings | Rural residential property, three storage containers, and approx. four storage sheds within former Lot 212 DP 866437.Storage containers were constructed of steel while sheds comprised predominantly of metal cladding and timber frames. |
| | A recently constructed water facility within the northern portion of the Site. |
| Potential asbestos in building materials | None evident |
| Manufacturing, industrial or chemical processes and infrastructure | None evident |
| Fuel storage tanks (USTs/ASTs) | None evident |
| Dangerous goods | None evident |
| Solid waste deposition | Solid waste present within former Lot 212 DP 866327. Solid waste comprised predominantly of recycled building materials and automotive vehicles / parts. Solid waste appeared to be inert. |
| Liquid waste disposal features | None evident |
| Evidence of previous site contamination investigations | Area of concern presented in DP Report as Lot 212 DP 866437, thought to be quarried area. |
| Evidence of land contamination (staining or odours) | None evident |
| Evidence of groundwater contamination | None evident |
| Groundwater use | None evident |

| Item | Observations |
|-----------------------------------|--|
| Vegetation | Primarily grasses and reeds. Mature trees and shrubs located around the unnamed creek. |
| Site fencing | Rural wire fencing along the boundaries of the Site. Former agricultural stockyard in the south eastern corner of the site, bordered by rural fencing. |
| Additional Notes and Observations | Excavated area (area of concern) was deemed to be a borrow pit rather than a former quarried area based on site knowledge decreasing the likelihood of contamination. Solid waste (as above) including old vehicles/machinery in Lot 212 DP 866437. |

3.3 Surrounding Environment and Land Uses

The site is located in the semi-rural area of Wyee. Land uses around the site are detailed in Table 3-3.

| Table 3-3 | Surrounding Land Use |
|-----------|--|
| Direction | Land Use or Activity |
| North | Construction of Stage 1-4, Mannering Creek and residential properties. |
| West | Bushland with intermittent cleared areas and residential properties. |
| East | Some bushland and higher density residential properties. |
| South | Bordered by Bushells Ridge Road, with bushland opposite. |

4 Published Data

4.1 Regional Geology

Reference to the Gosford-Lake Macquarie 1:100 000 Geology Map indicates that the Site is directly underlain by rocks of the Tuggerah Formation (Rnu). The Tuggerah Formation comprises of Early Triassic deposits of grey to green-grey laminate, red-brown claystone and siltstone, interbedded with fine-to-medium-grained green-grey sandstone and soils derived from the weathering of these rock types. The eastern portion of the site (DP [1] identified area of 'weak soil' shown in **Figure 1** attached in **Appendix A**) is directly underlain by quaternary gravel and sand (Qa).

Reference to the Central Coast Area Coastal Quaternary Geology Map 1:100 000 indicates that the site is predominantly underlain by The Narrabeen Group, with some minor quaternary valley fill (Qav) seams associated with previously mentioned creek lines.

4.2 Acid Sulfate Soils

Review of the Department of Land and Water Conservation Acid Sulfate Soil Risk Maps indicated that the site is situated within an area of no known occurrence.

Further review of Lake Macquarie Council Environmental Plan (LEP) 2014 [4] Acid Sulfate Soils Risk Map shows the site is situated within Class 5 Acid Sulfate Soils (ASS). Class 5 soils indicate and ASS soils assessment is required for works within 500 m of a Class 1, 2, 3 or 4 land that is below 4m AHD and by which the water table is likely to be lowered below 1.0 m.

While the site does not trigger an ASS based on council guidelines, preliminary testing presented in previous DP Report [1], indicated potential for presence of ASS within the topsoil materials across the site. As such,

detailed ASS testing of selected topsoil material across was undertaken to quantify potential presence (if present) of ASS.

4.3 Hydrogeology

A search of the NSW Groundwater Database from Department of Primary Industries – Office of Water NSW, identified one (1) bore within a 1 km radius of the Site. The bore is summarised in **Table 4-1**.

| Table 4-1 | Registered Groundwater Bore Search Summary |
|-----------|--|
|-----------|--|

| Well Number | Intended Purpose | Coordinates (UTM) | Depth of Bore (m) | SWL (m) | Water Bearing Zone (m) | Proximity to Site (m) |
|------------------|---------------------|----------------------------|-------------------------|------------|---------------------------|-----------------------|
| GW064662. 1.1 | Water Supply | 359443.13 E 6327027.6 N | 24.00 | - | - | 900 m south east |

4.4 EPA Records Search

4.4.1 Contaminated land Record of Notices

A search of NSW EPA Record of Notices on 19th September 2018 revealed no notices listed within 1 km of the site.

4.4.2 PoEO Public Register

The PoEO Public Register under Section 308 of the Protection of the Environment Operations (PoEO) Act 1997 contains Environment Protection Licences (EPLs), applications and notices issued by the EPA.

The Public Register was searched on the 19th September 2018 to identify any issues of relevance to the Site. The search revealed no licensed activities within a 1 km radius of the site.

5 Site History

The site history comprised the review of available published data and information presented previous DP Report [1]. Reiteration of data presented in previous Report [1] and additional site history review is detailed herein.

5.1 Personnel Familiar with the Site

As part of the site history interviews with individuals familiar with the site were conducted.

5.1.1 Interview with Mr George Salvestro 14th August 2018

The site owner Mr George Salvestro was interviewed onsite as he is the current resident of the Dwelling on Lot 212. Mr Salvestro indicated that apart from the use of chemicals for normal residential gardening and maintenance activities no broad scale use or application of chemicals or storage of fuels was conducted on the site. Mr Salvestro indicated that he had previously operated a development and construction business prior to retiring

5.1.2 Interview with Mr Ian Piper (Cardno) 1st October 2018

Discussions with Mr Piper confirmed that the excavation areas in Lot 212 of weathered rock was undertaken to win material for the purposed surfacing of existing onsite tracks and use as imported filling on a Saltro development project in Jilliby in the mid 1990's. As such the "quarried area" described by the DP Report was not a commercial quarry with a minor risk of contamination. The excavation process involved the removal of surficial soils to stockpile, which were still evident prior to excavation of the underlying weathered rock profile.

5.2 Review of the Historical Aerial Photos

Cardno has conducted a review of the descriptions and available historical aerial photograph data presented in previous DP Report [1]. Overall, Cardno's historical aerial review was generally consistent with the interpretation and conclusions associated with the data presented in DP Report [1].

Date Reference **Observations** 1954 Black and Onsite: white The 1954 aerial photograph indicates that the site is predominantly vegetated with photography bushland. Offsite: The majority of the properties to the north adjacent to Hue Hue Road appeared to be partially cleared of the bushland vegetation with rural (orchard) land uses identified. Areas adjacent Gorokan Road had been partially cleared of the bushland vegetation, although no orchard or intensive agricultural land use were identified. The area identified as the "Former Cricket Pitch" was cleared and appeared to have a grass surface cover. A dam was identified between the "Former Cricket Pitch" and Gorokan Road. 1965 Black and **Onsite:** white An overview of the 1965 aerial photograph indicates that clearing of bushland photography within the site has occurred compared to the 1954 photograph. Offsite: An orchard land use in the area off Gorokan Road between Warapara and Pirama Roads. Surrounding land uses appeared to have remained relatively unchanged although the density of development in surrounding areas has continued to increase. 1975 Black and **Onsite:** white Further clearing of bushland has occurred compared to the 1961 photograph within Lot 17 DP 870597 (now Lot 173 DP 1212974), and appearing to have a photography grass surface cover (similar to its current condition). Offsite: Several large buildings including four elongated shed were identified to the north west (part of Lot 17 DP870597). The aerial photographs and anecdotal information indicated this property had poultry farm land use. The density of development in surrounding areas has continued to be increase. 1985 Black and Onsite: white An overview of the 1985 aerial photograph indicates that the site had similar photography physical features to the 1975 photograph, Offsite: Additional buildings (probably dwellings) are visible in areas adjacent to Gorokan and Hue Hue Roads. The formerly identified orchard land uses appeared to have generally ceased, although a small number of trees were visible on two of the previously identified parcels of land. 1994 Colour Onsite: photography Generally consistent with the 1985 photograph. Offsite: Generally consistent with the 1985 photograph, although additional buildings (probably dwellings) are visible in areas adjacent to Gorokan and Hue Hue Roads. There is an overall increase in density of development around the site. 2007 Colour Onsite: photography Generally consistent with the 1994 photograph. Offsite: Generally consistent with the 1994 photograph with the exception of the construction of greenhouses to the north of Stage 5-14.

Table 5-1 Douglas Partners Historical Aerial Photos (2007)

The DP review of the available historical aerial photographs and data indicated that no major disturbance was noted within the subject Site with the exception of an excavation area located within Lot 212 DP866437, referred to as "quarried area".

As the DP aerial review was restricted to 2007, Cardno have undertaken aerial review of available Google Earth and Nearmap Imagery post 2007. A summary of the observed site features detailed in the Cardno reviewed aerial imagery are summarised below.

| Table 5-2 | Aerial Imagery Review | |
|-----------|-----------------------|--|
| Date | Reference | Observations Stages 5-14 |
| 2010 | Colour | Onsite: |
| | Nearmap | Stage 5-14 generally consists of undeveloped agricultural land. Bushland is located within the southern western portion of the site. Two dams of similar size (0.1 ha) are present along the western boundary of the site, north of the bushland. Trees and shrubs are present along the Mannering Creek line which runs east to west across the northern portion of the site. A concentration of trees and shrubs are also present along the Unnamed Creek that runs south to north through the eastern portion of the site. An internal road runs from the southern boundary of the site to the northern boundary in a north-north west direction. |
| | | Lot 212 DP 866437 comprises of open woodland, with a residential building located in the central area. A cleared area (1.5 ha) exists directly north west of the residential building. Bushells Ridge Road borders the southern boundary of the site. |
| | | Offsite: |
| | | The area predominantly comprises low-density residential development. The Paper Subdivision can be seen situated to the west. |
| 2014 | Colour | Onsite: |
| | Nearmap | Generally consistent with the 2010 photograph detailed above. With the exception of an access track off Bushells Ridge Road from the south to the northern boundary. |
| | | Offsite: |
| | | Generally consistent with the 2010 photograph detailed above. |
| 2016 | Colour | Onsite: |
| | Nearmap | Generally consistent with the 2014 photograph detailed above. With the exception of the construction of the waste water management station. Offsite: |
| | | Generally consistent with the 2014 photograph detailed above. With the exception buildings to the north demolished to accommodate Stage 1-4 road pavements and residential lots. |

5.3 Summary of Site History

Based on the available data and review of the Douglas Partners report [1], the subject Site has been predominately used for agricultural (i.e. grazing) purposes and no major disturbance was present with the exception of an excavation area located within Lot 212 DP866437, identified as "quarried area" within the Douglas Partners report [1]. Excluding the identified "quarried area", the areas of concern detailed within the DP report are outside the subject Site.

Historical review indicates that subject site is not located within areas of potential contamination sources and the subject site has a low risk of contamination due to the identified areas located beyond the subject site.

For further information regarding past assessments and available data, refer to the DP Report [1].

6 Criteria for Contamination Assessment

The soil assessment criteria used to evaluate soil analytical results are based on the National Environment Protection Measure (NEPM) Assessment of Site Contamination, 2013 [5]. Table 5A of NEPM Schedule B(1) provides Tier I screening values for contaminants based on the protection of human and environmental health for various land uses.

Based on the proposed use of the site and the proximity of the existing creek, the following criteria have been adopted:

- > Health Investigation Levels (HIL's) "Residential A", includes residential with gardens/accessible soils;
- > Soil Health Screening Levels (HSL) for vapour intrusion recommended for Residential (HSL A);
- Ecological Screening Levels (ESLs) for TPH fractions F1-F4, Benzo(a)Pyrene in soil for Urban Residential and Public Open Space; and
- Ecological Investigation Levels (EILs) for Urban Residential/Public Open Space limits. The thresholds adopted are from Table 1(B)(1) to 1(B)3 NEPM 2013 and are based on pH results of the site soils (4.1), CEC (0.63) and/or % clay content testing (15%). EILs were calculated using 25th percentiles of the ABC data for the 'old suburbs' of Olszowy et al. (1995) as recommended by NEPM (schedule B5c)
- > Aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. Sites that have been assessed as being acceptable from a human health perspective may still contain such foreign material.

"Investigation levels" or "screening levels" presented in the NEPM are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels", rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur to an extent that could cause harm or detriment for users of the land. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the "investigation levels" or "screening level" are generally set at conservatively low levels, they are often taken to be the acceptable levels.

A conservative approach was adopted as stipulated by NEPM [2]. Soils identified during the Site inspection and sampling were silty / sandy clays, silts and sands. Based on the observed soil type/s, the ESL's for coarse soils and HIL's for sand soils have been adopted to follow NEPM [2] guidelines.

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| Chemical | Unit | HIL A & HSL A | EIL UR/POS & ESL UR/POS |
|---|-------|---------------|-------------------------|
| Arsenic – As | mg/kg | 100 | 100 |
| Chromium III – Cr III | mg/kg | - | 410 ¹ |
| Cadmium – Cd | mg/kg | 20 | |
| Copper – Cu | mg/kg | 6000 | 30 ¹ |
| Lead – Pb | mg/kg | 300 | 1100 |
| Nickel – Ni | mg/kg | 400 | 5 ¹ |
| Zinc – Zn | mg/kg | 7400 | 95 ¹ |
| Mercury – Hg | mg/kg | 40 | - |
| Endrin | mg/kg | 10 | - |
| Heptachlor | mg/kg | 6 | - |
| Hexachlorobenzene | mg/kg | 10 | - |
| Methoxychlor | mg/kg | 300 | - |
| Chlorpyrifos | mg/kg | 160 | - |
| Mirex | mg/kg | 10 | - |
| DDT | mg/kg | - | 180 |
| Total PAH's | mg/kg | 300 | - |
| Naphthalene | mg/kg | 3 | 170 |
| Benzene | mg/kg | 0.5 | 50 |
| Toluene | mg/kg | 160 | 85 |
| Ethylbenzene | mg/kg | 55 | 70 |
| Xylene total | mg/kg | 40 | 105 |
| $C_{10} - C_{14}$ | mg/kg | - | 120 |
| C ₁₀ -C ₁₆ | mg/kg | - | 120 |
| $C_{16} - C_{34}$ | mg/kg | - | 300 |
| C ₃₄ -C ₄₀ | mg/kg | - | 2800 |
| $F1 > C_6 - C_{10}$ (less BTEX) | mg/kg | 45 | 180 |
| $F2 > C_{10} - C_{16}$ (less naphthalene) | mg/kg | 110 | - |
| Benzo(a)pyrene | mg/kg | - | 0.7 |

Table 6-1 Health-based and Ecological Assessment Criteria

¹ Values have been adjusted for EIL UR / POS based on tested pH, CEC and clay content values, calculations can be found in **Appendix C.**

7 Investigation Methodology

7.1 Supplementary Contamination Assessment

The site investigation relevant to the SCA was conducted on the 24th of August 2018 by a Geotechnical Engineer from Cardno.

Cardno's contamination assessment comprised the following:

- > A site walkover and visual inspection by a geotechnical engineer from Cardno including site mapping and logging of significant site features.
- Excavation of ten (10) test pits (TP101 TP110) across Stage 5-14 utilising a 3.5 tonne excavator fitted with a 400 mm toothed bucket. Test pits were excavated to a target depth of 0.6 m.
- Excavation of five (5) test pits (TP201- TP205) within the excavated area (0.4 ha) of former Lot 212 DP 866437 utilising a 3.5 tonne excavator fitted with a 400 mm toothed bucket. Test pits were excavated to a target depth of 0.6 m.
- > Samples were collected at three (3) interval depths (0.10 m, 0.25 m & 0.50 m bsl) at each test location
- Samples were collected via a stainless steel trowel following the preparation of a fresh side wall of each test pit and all sampling equipment decontaminated using Decon 90 solution between each sampling event.

7.2 Laboratory Testing

Laboratory testing on selected samples recovered during fieldwork comprised the following:

- Ten (10) samples from Stage 5-14 and five (5) from Lot 212 DP866437 were analysed for Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethyl-benzene, Xylenes and Napthalene) BTEXN, Polyaromatic Hydrocarbons (PAH), organochlorides pesticides (OC), organophosphates (OP), Polychlorinated Biphenyls (PCB) and eight metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn).
- > Two (2) sample from Stage 5-14 and five (5) samples from former Lot 212 DP866437 were analysed for the presence of asbestos.
- > One (1) sample from Stage 5-14 to be tested for pH, clay content (%) and CEC.
- > Two (2) duplicate samples were taken from the Site, with one (1) from the Stage 5-14 area and one (1) from the excavated area of former Lot 212 DP866437 were analysed for TRH, BTEX, PAH, OC, OP, PCB and eight heavy metals.
- > One (1) rinsate sample analysed for TRH and BTEX.

Laboratory analysis and testing was carried out on soil samples by SGS Australia Pty Ltd, which holds current accreditation with the National Association of Testing Authorities, Australia (NATA) for the analysis performed.

Results of laboratory testing are in the laboratory reports attached in Appendix C.

7.3 Sampling Methodology and Decontamination Procedures

Environmental sampling was performed according to Cardno standard operating procedures with sampling data recorded on Chain of Custody sheets.

The methodology utilised is as follows:

- > The use and changing of disposable gloves between each sampling event to prevent cross contamination;
- Decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and distilled water prior to each sample being taken;

- > The environmental samples from test pits were collected either, by hand where possible or collected using a stainless steel trowel.
- > Soil samples were placed into glass jars with a Teflon lined lid supplied by SGS laboratories;
- > To minimise the potential for volatile contaminants loss, the glass jars were filled to have zero headspace;
- > Collection of a blind duplicate sample at a frequency of 20% for quality assurance and control (QA/QC);
- > Samples were sent to the laboratory with recommended holding times; and
- > The sample jars were preserved in a chilled esky containing ice immediately after sampling and during transport to the laboratory. Samples were shipped to the laboratory under Chain-of-custody (COC) protocols. The completed COC accompanied the samples during shipment to the laboratory and copy of is provided in **Appendix C**).

The samples were collected at the intrusive testing locations as shown on **Figure 1**, attached in **Appendix A**.

7.4 Quality Control/Quality Assurance

A critical aspect of site investigation is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process, which includes a review of the following aspects of the data collection process as detailed in QA/QC Report, attached in **Appendix D**.

- > Project Quality Objectives and Plans.
- > Data Representativeness.
- > Data Precision and Accuracy.
- > Laboratory Performance.
- > Data Comparability.
- > Data Set Completeness.

1.1 Laboratory QC and QCI Report Summary

The laboratory selected for undertaking the analysis SGS is NATA accredited for the analysis required, and undertook certain QA/QC requirements to demonstrate the suitability of the data that is obtained. The laboratory is required to undertake and report internal laboratory Quality Control (QC) procedures for all chemical analysis undertaken. The QC testing is required to include:

- > Laboratory duplicate sample analysis at the rate of one duplicate analysis per twenty samples;
- > Method blank at the rate of one method blank analysis per 20 samples;
- > Laboratory control sample at the rate of one laboratory control sample analysis per 20 samples; and
- > Spike recovery analysis at the rate of one spike recovery analysis per 20 samples.

Compliance with the laboratory QA/QC requirements and non-conformance details are discussed in the internal Laboratory QA/QC reports included with the certificates of analysis in Appendix C.

The QA/QC Report received by SGS (in **Appendix C**) highlights outliers flagged in the Quality Control Report and Holding Time breaches and breaches in the Frequency of Quality Control Samples. Review of the QA/QC documentation provided by SGS, indicates that two outliers existed which are summarised in **Table 7-1**.

Table 7-1 Laboratory QA/QC Outlier Summary

| Sample ID | Analyte | Description |
|-----------|---------|---|
| TP103 0.1 | Soil pH | Exceeded holding time – Extraction due 31 st August, 2018. Extracted 3 rd September, 2018. See lab report in Appendix C . |

These times are recommendations only and as samples were refrigerated/chilled adequately at all stages between sampling and analysis this non-compliance is not considered significant. Cardno concludes that the data reported by the NATA accredited SGS as presented in this SCA is suitable for interpretative purposes and to make conclusions/recommendations regarding Site contamination.

It was considered that the field and laboratory QA/QC criteria were generally within acceptable limits indicating field sampling, storage, handling, and decontamination procedures and laboratory preparation and analysis procedures were adequate for the purposes of the environmental investigation. Therefore, the data set used as the basis for the soil assessment is considered valid and complete.

8 Areas and Contaminants of Potential Concern

The assessment has identified several potential sources of contamination (and related Contaminants of Potential Concern – COPC), which are summarised in **Table 8-1**. The locations of these areas of interest on the site are identified in **Appendix A**.

| Fable 8-1 Site Activities and Potential Contaminants of Concern | | | | |
|---|---|--|--|--|
| Environmental Assessment Area | Site Activity/Potential Source | Contaminants of Potential Concern | Comments | |
| | Excavation/borrow pit (0.4 ha area within Lot 212 DP866437) | Total Petroleum Hydrocarbons (TPHs). BTEX (benzene, toluene, ethyl benzene, and xylenes). Polyaromatic Hydrocarbons (PAHs). 8 heavy metals. | Potential for contamination from extraction activities/machinery use. | |
| | Vehicle/machinery use | Total Petroleum Hydrocarbons (TPHs). BTEX (benzene, toluene, ethyl benzene, and xylenes). Polyaromatic Hydrocarbons (PAHs). | Potential for contamination from the transport of extracted materials from the excavated site. | |
| Lot 212 DP 866437 | Storage structures | Organochlorine and Organophosphate Pesticides (OCP/OPP), Herbicides | Potential for contamination from leaks of pesticides/fuels for vehicles machinery | |
| | | Total Petroleum Hydrocarbons (TPHs). BTEX (benzene, toluene, ethyl benzene, and xylenes). Polyaromatic Hydrocarbons (PAHs). Foreign materials Asbestos | Old vehicles/machinery around the site. | |
| | Solid waste | Foreign materialsAsbestos | Potential building and household refuse scattered throughout surrounding bushland. | |
| | Historic farming practices using herbicides and pesticides | Organochlorine and Organophosphate Pesticides (OCP/OPP/Nutrients/Fertilizers), Herbicides | Previous agricultural activities on-site. Surficial soils would most likely be affected. | |
| Stage 5-14 (part of Lot 173 DP1212974) | Agriculture operation and maintenance | Total Petroleum Hydrocarbons (TPHs). BTEX (benzene, toluene, ethyl benzene, and xylenes). Polyaromatic Hydrocarbons (PAHs). 8 heavy metals. Asbestos | Potential exists for fuels and chemicals used in the operation and maintenance of agricultural operations. The presence of contamination would likely be associated with localised spills associated with farm vehicles and road traffic. | |

9 Laboratory Analytical Results

9.1 Analytical Tables

Analytical testing was carried out on soil samples using SGS Australia Pty Ltd, which holds current accreditation with the National Association of Testing Authorities, Australia (NATA) for all testing undertaken. All testing was undertaken within the terms of their accreditation. Copies of the testing laboratory reports are shown in **Appendix C**. The results of laboratory analysis for inorganic and organic contaminants in the soil samples are summarised in the analytical comparison tables attached in **Appendix C**.

9.2 8 Heavy Metals

The concentration of metals within the samples tested were below the Residential A (HILs) threshold limits, with the exception of TP203 0.4-0.5.

Results at TP203 0.4-0.5 indicated an exceedance of zinc (Zn) (150 mg/kg) above the calculated threshold limits (95mg/kg) as detailed in NEPM for the Assessment of Site Contamination, 2013 [4] for Urban Residential/Public Open Space (EILs). In accordance with NEPM [2], the following was calculated:

- > TP201-TP205 UCLmean = 102.1 mg/kg
- > TP201-TP205 standard deviation = 48.5 mg/kg

Summary statistics can be found in Table 9-1.

| Table 9-1 | TP201-TP205 Zinc Summary Statistics | |
|-------------|-------------------------------------|-------------|
| Zn | | Results |
| Number o | f Samples | 6 |
| Investigati | ion Level | 95 mg/kg |
| Minimum | | 11 mg/kg |
| Maximum | | 150 mg/kg |
| Range | | 139 mg/kg |
| Arithmetic | Mean | 62.1 mg/kg |
| 95% Uppe | er Confidence Level | 102.1 mg/kg |
| Standard | Deviation | 48.5 mg/kg |
| | | |

9.3 Total Petroleum Hydrocarbons (TPH)

TPH concentrations in all samples were below the Residential A (HSLs) and Urban Residential and Public Open Space (ESLs) threshold limits.

9.4 Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN)

BTEXN concentrations in all samples were below the Residential A (HSLs) and Urban Residential and Public Open Space (ESLs) threshold limits.

9.5 Polycyclic Aromatic Hydrocarbon (PAH)

PAH's concentrations in all samples were below the Residential A and Urban Residential and Public Open Space (ESLs) threshold limits.

9.6 Organophosphorous and Organochlorine (OP/OC) & Polychlorinated Biphenyls (PCB) Compounds

OC/OP/PCB concentrations returned values below the reporting limits in all samples and were below the Residential A (HSLs) and Urban Residential and Public Open Space (EILs) threshold limits.

9.7 Asbestos Identification in Soils

No asbestos fibres were detected in any sample analysed. Potential asbestos bearing materials were not observed during the Site inspection or within intrusive field investigation.

10 Conceptual Site Model

10.1.1 General

Generally, a conceptual site model (CSM) provides an assessment of the fate and transport of COPCs relative to site-specific subsurface conditions with regard to their potential risk to human health and the environment. The CSM takes into account site-specific factors including:

- > Source(s) of contamination,
- Identification of contaminants of potential concern (COPCs) associated with past (and present) source(s),
- > Vertical, lateral and temporal distribution of COPCs,
- > Actual or potential receptors considering both current and future land use for both the site and adjacent properties, and any sensitive ecological receptors.

10.1.2 Source of Contamination

A small (approx. 7 m³) stockpile of material in the borrow pit area within Lot 212 DP 866437 (onsite).

10.1.3 Media Potentially Impacted

The media impacted by contamination includes:

> Soil.

10.1.4 Summary of Contaminated Exposures

A summary of the potential source-pathway-receptor (pollutant) linkages with respect to ecological health is found in **Table 10-1**. This indicates the potentially active pathways of exposure of people to contamination at the site.

| Table 10-1 | Summary of Contaminated Exposures |
|------------|-----------------------------------|
|------------|-----------------------------------|

| Sources | Pathways | Receptors |
|--|---|--|
| Zn concentration in stockpile (Lot 212 | Leaching from stockpile to surrounding soil | Ecological/natural resources |
| DP 866437) | Dispersion via erosion | Ecological/natural resources |
| | Dispersion via wind | Ecological/natural resources |

10.1.5 Data Gaps and Uncertainties

Based on the inspection, intrusive sampling, comparison of the analytical testing undertaken to threshold limits detailed in NEPM [5], the potential contamination at this site is not considered to present a significant constraint on the proposed development of the site. However, it must be noted that the number of sampling locations recommended by the NSW EPA Sampling Design Guidelines (1995) for a site of this size was reduced with limited intrusive sampling undertaken to support the results or conclusions of the previous DP Report.

The following data gaps and uncertainties regarding the assessment are detailed below:

> Limited intrusive sampling was undertaken;

> No groundwater samples were collected however; groundwater contamination is considered unlikely.

11 Discussions

This report presents the findings of the SCA undertaken on Stage 5-14 (part of Lot 173 DP1212974) and Lot 212 866437, Bushells Ridge Road, Wyee, NSW. The assessment aimed to address the objectives outlined in **Section 1.2** of this report and are listed below:

- Provide additional environmental data to assess potential issues previously identified in Douglas Partners Preliminary Site Investigation and Contamination Assessment Report (JN. 41810, date. July 2009) [1].
- > The potential for the previous site activities or activities on adjacent sites to act as a source of contamination.
- > The nature and location of contamination of soil on-site and potential for contamination extending off-site.
- > Determine the sites suitability for the proposed use (urban residential)
- > Assess the need for any further assessment or remedial works before definitive conclusions could be made on the suitably of the site for use.

11.1 Potential Acid Sulfate Soil

Douglas Partners undertook a preliminary ASS assessment (DP Report [1]) and concluded that ASS soils were unlikely to be present within the greater Radcliffe, Wyee development and more specifically Stages 5-14 and Lot 212 DP 866437. The conclusion was based on field screening results, risk maps and existing site elevations.

11.2 Soil Contamination

A limited intrusive sampling and testing regime has been undertaken to provide this supplementary assessment to the DP Report [1] and assess potential issues identified by the desktop study.

11.2.1 Borrow Pit Area (Lot 212 DP 866437)

As the Site was not subject to commercial quarrying activities described by the DP Report [1], risk of contamination was considered to be decreased.

No indication of staining or olfactory indication of contamination, nor fibrous sheeting or foreign materials were observed within the test pits or the surface of the Site at the time of inspection.

With the exception of Foreign materials were found in one test pit (TP203) within Lot 212 DP 866437, which was comprised of fill material. Small amounts (<12% of the sample) of metal tubing, tile and brick fragments were present. However, no olfactory indication nor fibrous sheeting was noted. Appraisal of the laboratory results indicates the absence of asbestos fibres within the samples analysed.

Based on the findings of this SCA, site conditions and comparison of the analytical results of the testing undertaken to HSL and HIL threshold limits (Residential A) detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 [5] no indication of gross contamination has been identified on the site.

Screening values for EILs were calculated according to site specific conditions in accordance with NEPM [5]) for Urban Residential and Public Open Space guidelines. With the exception of one (1) exceedance at sample location TP203 0.4-0.5 (150 mg/kg), which exceeded the calculated threshold of 95 mg/kg.

In accordance with NEPM [5] the 95%UCL_{mean} (102.1 mg/kg) and standard deviation (48.5 mg/kg) were calculated. As the standard deviation is more than 50% of the calculated EIL Zn level (95 mg/kg), the - stockpile is considered to be non-representative of site conditions and should be removed prior to development.

Based on the field assessment, and laboratory results, following removal of this stockpile and exclusion of the associated data from the analysis, Cardno considers that Lot 212 DP 866437 does not represent a risk to human or environmental health, however it is recommended that if redevelopment is to occur at the site, the

soil located at TP203 is classified and transported off-site to a licenced landfill or re-used on-site at a depth of greater than 2 m.

11.2.2 Stage 5-14 (Lot 173 DP 1212974)

No indication of staining or olfactory indication of contamination, nor fibrous sheeting or foreign materials were observed within the test pits or the surface of the Site at the time of inspection.

Based on the findings of this SCA, site conditions and comparison of the analytical results of the testing undertaken to HSL and HIL threshold limits (Residential A) detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 [5] no indication of gross contamination has been identified on the site.

Based on the findings of this SCA, site conditions and comparison of the analytical results of the testing undertaken to ESL and EIL threshold limits (Urban Residential/Public Open Space) detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 [5] no indication of gross contamination has been identified on the site. Cardno considers that Lot 173 DP 1212974 has no evidence of contamination that should preclude the site from the proposed development in Stages 5-14.

12 Conclusions and Recommendations

12.1 Conclusions

Following on from the original DP report, broad scale testing was undertaken across the Site. Based on site history, current site inspection, knowledge of the site and the limited site investigation, no indication of gross contamination was identified. The isolated stockpile located at Lot 212 DP 866437 appears to be the only source of contamination on the Site. Therefore, the Site is considered to be low risk of potential contamination based on investigation findings and the identified data gaps.

12.2 Recommendations

Based on the conclusions above, Cardno recommends:

- > Any soil proposed to be excavated and transported off site for disposal should be classified in accordance with the NSW EPA Waste Classification Guidelines.
- If construction occurs at Lot 212 DP 866437, it is recommended that the contaminated stockpile (Figure 1, Appendix A) should be classified and transported off site for disposal in accordance with the NSW EPA Waste Classification Guidelines.
- > Minor inert foreign materials were observed across the site. The removal of these materials can be undertaken at a stage by stage basis.
- > Validation soil sampling may be required if deemed necessary
- > An unexpected finds protocol should be developed and adopted to address any potential contamination that may arise during development.
- > Confirmation testing of asbestos within structures or a hazardous material assessment be conduct prior to any demolition.

13 Limitations

This investigation has been undertaken in general accordance with the current "industry standards" for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- National Environment Protection Council (NEPC) (1999) National Environment Protection (Assessment of Site Contamination) Measure, as amended (registered on 15 May 2013) [5]. This is referred to from here on as "the NEPM" or "NEPM (2013)".
- > Standards Australia (2005) AS4482.1- 2005: Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds. [6].
- > NSW EPA "Guidelines for Consultants Reporting on Contaminated Sites" [7].

The agreed scope of this investigation has been limited for the current purposes of the Client. The investigation may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This site investigation report is not any of the following:

- > An Environmental Audit Report as defined under NSW Site Auditor Scheme [8].
- > A detailed site investigation (DSI) report sufficient for an Environmental Auditor to be able to conclude a statutory or non-statutory environmental audit.
- > A geotechnical report, and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice.
- > A detailed hydrogeological assessment or an assessment of groundwater contaminants potentially arising from other sites or sources nearby.
- > A waste classification report of soil analytical results from the Site.
- > A total assessment of the site to determine suitability of the entire parcel of land at the site for one or more of the beneficial uses of land set out in State Environmental Protection Policy (Prevention and Management of Contamination of Land) and its variation.

14 References

- [1] Douglas Partners, "Report on Preliminary Geotechnical and Contamination Assessment," July 2009.
- [2] NSW Government, "Lake Macquarie Local Environmental Plan Land Zoning," 2014.
- [3] NSW Government, "Lake Macquarie Local Environmental Plan Flood Planning," 2014.
- [4] NSW Government, "Lake Macquarie Local Environmental Plan Acid Sulfate Soils Risk map," 2014.
- [5] National Environment Protection (Assessment of Site Contamination) Measure 1999, "Schedule B1 Guidelines on Investigation Levels For Soil and Groundwater," National Environment Protection Council (NEPC), 16 May 2013.
- [6] Standards Australia, "Australian Standard Guide to the investigation and sampling of sites with potentially contamainted soils PArt one: Non-volatile and semi-volatile compounds," Standards Australia, 2005.
- [7] NSW EPA, ""Contaminated Sites: Guidelines for Consults on Contaminated Sites," NSW Environmental Protection Authority, 1997.
- [8] NSW DEC, "Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition)," Department of Environment and Conservation NSW, 2017.



FIGURES





APPENDIX



LOGS AND EXPLANATORY NOTES





Explanatory Notes

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. Material descriptions are deduced from field observation or engineering examination, and may be appended or confirmed by in situ or laboratory testing. The information is dependent on the scope of investigation, the extent of sampling and testing, and the inherent variability of the conditions encountered.

Subsurface investigation may be conducted by one or a combination of the following methods.

| Method | |
|--------------------|---|
| Test Pitting: exc | avation/trench |
| BH | Backhoe bucket |
| EX | Excavator bucket |
| R | Ripper |
| Н | Hydraulic Hammer |
| Х | Existing excavation |
| Ν | Natural exposure |
| Manual drilling: I | hand operated tools |
| HA | Hand Auger |
| Continuous sam | ple drilling |
| PT | Push tube |
| PS | Percussion sampling |
| SON | Sonic drilling |
| Hammer drilling | |
| AH | Air hammer |
| AT | Air track |
| Spiral flight auge | er drilling |
| AS | Auger screwing |
| AD/V | Continuous flight auger: V-bit |
| AD/T | Continuous spiral flight auger: TC-Bit |
| HFA | Continuous hollow flight auger |
| Rotary non-core | drilling |
| WB | Washbore drilling |
| RR | Rock roller |
| Rotary core drilli | ing |
| PQ | 85mm core (wire line core barrel) |
| HQ | 63.5mm core (wire line core barrel) |
| NMLC | 51.94mm core (conventional core barrel) |
| NQ | 47.6mm core (wire line core barrel) |
| DT | Diatube (concrete coring) |

Sampling is conducted to facilitate further assessment of selected materials encountered.

Sampling method Soil sampling В Bulk disturbed sample D Disturbed sample С Core sample ES Environmental soil sample SPT Standard Penetration Test sample U Thin wall tube 'undisturbed' sample Water sampling WS Environmental water sample

Field testing may be conducted as a means of assessment of the in situ conditions of materials.

|--|

| SPT | Standard Penetration Test | | |
|-----------|---------------------------|-----------------------------------|--|
| HP/PP | Hand/Pocket Penetrometer | | |
| Dynamic F | Penetrome | eters (blows per noted increment) | |
| | DCP | Dynamic Cone Penetrometer | |
| | PSP | Perth Sand Penetrometer | |
| MC | Moisture | Moisture Content | |
| VS | Vane Shear | | |
| PBT | Plate Bearing Test | | |
| IMP | Borehole Impression Test | | |
| PID | Photo Ionization Detector | | |

If encountered, refusal (R), virtual refusal (VR) or hammer bouncing (HB) of penetrometers may be noted.

The quality of the rock can be assessed by the degree of natural defects/fractures and the following.

| Rock q | Rock quality description | | |
|--------|--|--|--|
| TCR | Total Core Recovery (%) | | |
| | (length of core recovered divided by the length of core run) | | |
| RQD | Rock Quality Designation (%) | | |
| | (sum of axial lengths of core greater than 100mm long divided by the length of core run) | | |
| | | | |

Notes on groundwater conditions encountered may include.

| Groundwater | |
|-----------------|--------------------------------------|
| Not Encountered | Excavation is dry in the short term |
| Not Observed | Water level observation not possible |
| Seepage | Water seeping into hole |
| Inflow | Water flowing/flooding into hole |

Perched groundwater may result in a misleading indication of the depth to the true water table. Groundwater levels are also likely to fluctuate with variations in climatic and site conditions.

Notes on the stability of excavations may include.

| Excavation conditions | | |
|-----------------------|---|--|
| Stable | No obvious/gross short term instability noted | |
| Spalling | Material falling into excavation (minor/major) | |
| Unstable | Collapse of the majority, or one or more face of the excavation | |



Explanatory Notes: General Soil Description

The methods of description and classification of soils used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. In practice, a material is described as a soil if it can be remoulded by hand in its field condition or in water. The dominant component is shown in upper case, with secondary components in lower case. In general descriptions cover: soil type, plasticity or particle size/shape, colour, strength or density, moisture and inclusions.

In general, soil types are classified according to the dominant particle on the basis of the following particle sizes.

| Soil Classification | | Particle Size (mm) |
|---------------------|--------|--------------------|
| CLAY | | < 0.002 |
| SILT | | 0.002 0.075 |
| SAND | fine | 0.075 to 0.21 |
| | medium | 0.21 to 0.6 |
| | coarse | 0.6 to 2.36 |
| GRAVEL | fine | 2.36 to 6.7 |
| | medium | 6.7 to 19 |
| | coarse | 19 to 63 |
| COBBLES | | 63 to 200 |
| BOULDERS | | > 200 |

Soil types may be qualified by the presence of minor components on the basis of field examination methods and/or the soil grading.

| Terminology | In coarse | In fine soils | |
|-------------|-----------|---------------|----------|
| reminology | % fines | % coarse | % coarse |
| Trace | ≤5 | ≤15 | ≤15 |
| With | >5, ≤12 | >15, ≤30 | >15, ≤30 |

The strength of cohesive soils is classified by engineering assessment or field/lab testing as follows.

| Strength | Symbol | Undrained shear strength |
|------------|--------|--------------------------|
| Very Soft | VS | ≤12kPa |
| Soft | S | 12kPa to ≤25kPa |
| Firm | F | 25kPa to ≤50kPa |
| Stiff | St | 50kPa to ≤100kPa |
| Very Stiff | VSt | 100kPa to ≤200kPa |
| Hard | Н | >200kPa |

Cohesionless soils are classified on the basis of relative density as follows.

| Relative Density | Symbol | Density Index |
|------------------|--------|---------------|
| Very Loose | VL | <15% |
| Loose | L | 15% to ≤35% |
| Medium Dense | MD | 35% to ≤65% |
| Dense | D | 65% to ≤85% |
| Very Dense | VD | >85% |

The plasticity of cohesive soils is defined by the Liquid Limit (LL) as follows.

| Plasticity | Silt LL | Clay LL |
|-------------------|---------|-------------|
| Low plasticity | ≤ 35% | ≤ 35% |
| Medium plasticity | N/A | > 35% ≤ 50% |
| High plasticity | > 50% | > 50% |

The moisture condition of soil (*w*) is described by appearance and feel and may be described in relation to the Plastic Limit (PL), Liquid Limit (LL) or Optimum Moisture Content (OMC).

| Moistu | Moisture condition and description | | |
|--------|--|--|--|
| Dry | Cohesive soils: hard, friable, dry of plastic limit. Granular soils: cohesionless and free-running | | |
| Moist | Cool feel and darkened colour: Cohesive soils can be moulded. Granular soils tend to cohere | | |
| Wet | Cool feel and darkened colour: Cohesive soils usually weakened and free water forms when handling. Granular soils tend to cohere | | |

The structure of the soil may be described as follows.

| Zoning | Description |
|--------|---|
| Layer | Continuous across exposure or sample |
| Lens | Discontinuous layer (lenticular shape) |
| Pocket | Irregular inclusion of different material |

The structure of soil layers may include: defects such as softened zones, fissures, cracks, joints and root-holes; and coarse grained soils may be described as strongly or weakly cemented.

The soil origin may also be noted if possible to deduce.

| Soil origin and description | | | |
|------------------------------------|--|--|--|
| Fill | Anthropogenic deposits or disturbed material | | |
| Topsoil | Zone of soil affected by roots and root fibres | | |
| Peat | Significantly organic soils | | |
| Colluvial | Transported down slopes by gravity/water | | |
| Aeolian | Transported and deposited by wind | | |
| Alluvial | Deposited by rivers | | |
| Estuarine | Deposited in coastal estuaries | | |
| Lacustrine | Deposited in freshwater lakes | | |
| Marine | Deposits in marine environments | | |
| Residual soil | Soil formed by in situ weathering of rock, with no structure/fabric of parent rock evident | | |
| Extremely weathered material | Formed by in situ weathering of geological formations, with the structure/fabric of parent rock intact but with soil strength properties | | |

The origin of the soil generally cannot be deduced solely on the appearance of the material and the inference may be supplemented by further geological evidence or other field observation. Where there is doubt, the terms 'possibly' or 'probably' may be used



Explanatory Notes: General Rock Description

The methods of description and classification of rocks used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. In practice, if a material cannot be remoulded by hand in its field condition or in water, it is described as a rock. In general, descriptions cover: rock type, grain size, structure, colour, degree of weathering, strength, minor components or inclusions, and where applicable, the defect types, shape, roughness and coating/infill.

Rock types are generally described according to the predominant grain or crystal size, and in groups for each rock type as follows.

| Rock type | Groups |
|-------------|---|
| Sedimentary | Deposited, carbonate (porous or non), volcanic ejection |
| Igneous | Felsic (much quartz, pale), Intermediate, or mafic (little quartz, dark) |
| Metamorphic | Foliated or non-foliated |
| Duricrust | Cementing minerology (iron oxides or hydroxides, silica, calcium carbonate, gypsum) |

Reference should be made to AS1726 for details of the rock types and methods of classification.

The classification of rock weathering is described based on definitions in AS1726 and summarised as follows.

| Term and symbol | | Definition |
|-------------------------|----|---|
| Residual Soil | RS | Soil developed on rock with the mass structure and substance of the parent rock no longer evident |
| Extremely weathered | XW | Weathered to such an extent that the rock has 'soil-like' properties. Mass structure and substance still evident |
| Distinctly weathered | DW | The strength is usually changed and may be highly discoloured. Porosity may be increased by leaching, or decreased due to deposition in pores. May be distinguished into MW (Moderately Weathered) and HW (Highly Weathered). |
| Slightly weathered | SW | Slightly discoloured; little or no change of strength from fresh rock |
| Fresh Rock | FR | The rock shows no sign of decomposition or staining |

The rock material strength can be defined based on the point load index as follows.

| Term and symbol | | Point Load Index I₅50 (MPa) | |
|-----------------|----|--------------------------------|--|
| Very Low | VL | 0.03 to 0.1 | |
| Low | L | 0.1 to 0.3 | |
| Medium | Μ | 0.3 to 1.0 | |
| High | Н | 1.0 to 3 | |
| Very High | VH | 3 to 10 | |
| Extremely High | EH | > 10 | |

It is important to note that the rock material strength as above is distinct from the rock mass strength which can be significantly weaker due to the effect of defects. A preliminary assessment of rock strength may be made using the field guide detailed in AS1726, and this is conducted in the absence of point load testing.

The defect spacing measured normal to defects of the same set or bedding, is described as follows.

| Definition | Defect Spacing (mm) | |
|---------------------|---------------------|--|
| Thinly laminated | < 6 | |
| Laminated | 6 to 20 | |
| Very thinly bedded | 20 to 60 | |
| Thinly bedded | 60 to 200 | |
| Medium bedded | 200 to 600 | |
| Thickly bedded | 600 to 2000 | |
| Very thickly bedded | > 2000 | |

Terms for describing rock and defects are as follows.

| Defect Terms | | | |
|-----------------|----|----------------|----|
| Joint | JT | Sheared zone | SZ |
| Bedding Parting | BP | Seam | SM |
| Foliation | FL | Vein | VN |
| Cleavage | CL | Drill Lift | DL |
| Crushed Seam | CS | Handling Break | HB |
| Fracture Zone | FZ | Drilling Break | DB |

The shape and roughness of defects in the rock mass are described using the following terms.

| Planarity | | Roughness | |
|---------------|-----|--------------|-----|
| Planar | PR | Very Rough | VR |
| Curved | CU | Rough | RF |
| Undulose | UN | Smooth | S |
| Irregular | IR | Slickensided | SL |
| Stepped | ST | Polished | POL |
| Discontinuous | DIS | | |

The coating or infill associated with defects in the rock mass are described as follows.

| Infill and Coating | J | |
|--------------------|-----|------------------------|
| Clean | CN | |
| Stained | SN | |
| Carbonaceous | Х | |
| Minerals | MU | Unidentified mineral |
| | MS | Secondary mineral |
| | KT | Chlorite |
| | CA | Calcite |
| | Fe | Iron Oxide |
| | Qz | Quartz |
| Veneer | VNR | Thin or patchy coating |
| Coating | СТ | Infill up to 1mm |



Graphic Symbols Index



| Cardno [®] | | | TEST PIT LOG SHEE |
|--|---|--|---|
| Client: Wyee Land Pty Ltd Project: Radcliffe, Wyee Deve | lopement | | Hole No: TP00 ² |
| Location: Bushells Ridge Road | , Bushells | Job No: 82219014 | Sheet: 1 of |
| Bidge Position: See attached plan | | Angle from Horizontal: -90° | Surface Elevation: |
| Machine Type: 5 tonne Excavator Excavation Dimensions: | | Excavation Method: 400mm to | Contractor: Cardno |
| Date Excavated: 23/8/18 | | Logged By: HS | Checked By: GA |
| Excavation Sampling & Tes | ting | Material Descriptio | |
| | DCP Ê | ç | |
| | DCP (blows per 150 mm) 1 3 6 12 | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | With the second |
| D 0.10 - 0.20 m | لد علد علد علد علد ع لد علد علد علد علد علد علد علد علد علد علد علد علد علد علد | Silty SAND: fine to medium grained, brown, low plasticity silt, trace rootlets | M TOPSOIL |
| | | CL | M (>PL) VSt to H |
| D 2.40 - 2.50 m | - - - - ++++-2.5 | 2.00m SAND: fine to medium grained, yellow-brown, trace low plasticity silt SW 2.50m TERMINATED AT 2.50 m Target depth | * M M W |
| METHOD PENETI EX Excavator bucket VE R Ripper HA Hand auger F FI PT Push tube H SON Sonic drilling H AH Air hammer WATER AD/V Solid flight auger: V-Bit VE AD/V Solid flight auger: TC-Bit IFA | I I I | HP - Hand/Pocket Penetrometer D - I DCP Dynamic Cone Penetrometer U - ES - PSP Perth Sand Penetrometer U - I MC Moisture Content MOISTUR PBT Plate Bearing Test D - I IMP Borehole Impression Test M - I PID Photoionisation Detector W - V VS Vane Shear; P=Peak, PL - FL | Bulk disturbed sample VS - Very Soft Disturbed sample S - Soft Environmental sample F - Firm Thin wall tube 'undisturbed' St - Stiff RE VSt - Very Stiff Dry RELATIVE DENSITY Moist VI - |
| Refer to explanatory notes for details of abbreviations and basis of descriptions | CAR | DNO (NSW/ACT) PTY LTD | |
| (| |) C | arc | lno° | | | | | | | ΤE | ST PIT LOG SHEET | |
|---|--|---|--|---|--|--|---|----------------|--|-----------------------|------------------------------------|-----------------------------------|--|
| Clie Pro | | | | e Land Pty Ltd liffe, Wyee De | | nent | | | | | Η | ole No: TP002 | |
| Loc | atio | on: | Bush | ells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 | |
| | | | | ched plan onne Excavato | | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: | |
| | | | | sions: |)(| | | | Excavation method. 400min too | | | ctor: Cardno | |
| | | | | 3/8/18 | | | | | Logged By: HS | | | ed By: GA | |
| E> | kcava | ation | | Sampling & | Festing | | | | Material Description | | | I | |
| Method | Resistance | Stability | Water | Sample or Field Test | DCP (blows per 150 mm | · | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | |
| | | | | | | - | لك علك علك علك علك ع لك علك علك علك علك ع | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | | | TOPSOIL | |
| | | | | D 0.20 - 0.30 m | | - | لله عله عله عله عله عله عله عله عله عله لله عله عله عله عله عله | | | м | | - | |
| | | | | | | - 0.5 - | | | 0.30m Silty CLAY: low to medium plasticity, brown-grey mottled orange | | | ALLUVIUM - - | |
| | | | | B 0.80 - 1.10 m | | - 1.0 | | CL- CI | | M (>PL) | VSt to H | - | |
| EX | | Stable | | | VR | - 1.5 | | | | | | - | |
| | | | | | | - | | CL | Sandy CLAY: low plasticity, pale grey mottled orange, fine to medium grained sand | M (>PL) | н | | |
| | | | 2.4m | | | - 2.0 - - - | | SC | Clayey SAND: fine to medium grained, grey mottled orange, low plasticity clay | M | D | | |
| | | | inflow encountered at 2 | | | 2.5- - - - | <u> </u> | | 2.50m TERMINATED AT 2.50 m Target depth | | | - | |
| X∃ WE EX R HAA PTC AH PSC | F F N S S V V S S V V S S V V S S V V S S V V S S V V S S V V S S V V S S V V S S V S S V S S V S S V S S V S S V S S V S S S V S S S V S S S V S S S V S | Excavato Ripper Hand au Push tub Sonic dr Air hamr Percussi Short sp Solid flig | ger be lling ner on sam iral aug ht aug ht aug ight au re drillir | et VE F H VH er xr: V-Bit ger | Easy Firm Hard Very Hard (R TER Water shown water i | sy (No Resistance) SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer MC - Moisture Content Wn B - Bulk disturbed sample D - Disturbed sample S - Environmental sample U - Thin wall tube 'undisturbed' VS - Very Soft S - Soft F - Firm VS - Very Soft S - Soft H - Hard trd (Refusal) PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test WN MOISTURE D - Dry M - Moist VS - Very Soft S - Soft VS - Very Stiff H - Hard trd Level on Date Wn IMP - Borehole Impression Test WN M - Moist W - Wet Moist VL - Very Loose L - Loose | | | | | | | |
| Ref abb | fer to e previati | explanator ions and b | y notes f asis of d | or details of escriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | 1 | |

| | | Ca | aro | lno° | | | | | | | TE | ST PIT LOG SHEET | | | |
|--|--|---|--|---|--|---------------------------------|--|------------------|---|---|------------------------------------|-----------------------------------|--|--|--|
| Clier Proj∉ | ect: | I | Radc | Land Pty Ltd liffe, Wyee De | velopen | | | | | | Η | ole No: TP003 | | | |
| Loca Rida | | 1: I | Bush | ells Ridge Ro ched plan | ad, Busl | nells | | | Job No: 82219014 | | | Sheet: 1 of 1 | | | |
| | | | | ched plan onne Excavate | | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: | | | |
| | | | | sions: | <i>"</i> | | | | Excavation Method. 400min too | | | ctor: Cardno | | | |
| | | | | 3/8/18 | | | | | Logged By: HS | | | ed By: GA | | | |
| Exc | avati | ion | | Sampling & | Festing | | | | Material Description | | | - | | | |
| q | lce | ~ | | | DCP (blows | E E | υ | tion | SOIL TYPE, plasticity or particle characteristic, | | c c | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | 1 3 6 12 | · | Graphic Log | Classification | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | | |
| | | | | | | - | لك على على على على على لك على على على على على لك على على | | Sitty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets 0.15m | м | | TOPSOIL | | | |
| | | | | | | - | | sw | SAND: fine to medium grained, orange-yellow | м | L | ALLUVIUM | | | |
| | | | | | | - - 0.5 - - | | CL | 0.40m Sandy Silty CLAY: low plasticity, brown-grey, fine to medium sand | M (>PL) | St | | | | |
| | | | | | | - 1.0 | | | 0.90m Sandy CLAY: medium plasticity, pale grey mottled red, fine to medium grain sand | | | RESIDUAL SOIL | | | |
| EX | | Stable | t Encountered | | | | | | | | St | | | | |
| | | S | Not | | | - 1.5 | | СІ | | M (>PL) | | | | | |
| | | | | | | -2.0 | | | As above, becomes pale grey mottled yellow | | н | | | | |
| | | | | | | - - 2.5- | | | 2.50m TERMINATED AT 2.50 m | | | | | | |
| | | | | | | - | | | Target depth | | | | | | |
| MET EX R HA PT SON AB PS AS AD/1 HFA WB RR | Rip Ha Pu Air Pe Sh / So Hc Wa | cavator pper and aug ish tub pnic dril hamm ercussic port spir blid fligh | ler e er on sam ral auge of auge of auge ght auge ght auge | tt VE F H VH pler WA er X- r: V-Bit r: TC-Bit ger | IETRATION Very Easy (N Easy Firm Hard Very Hard (R TER Water shown water i water o | ^{tefusal)} Level on | | S F M F | PT - Standard Penetration Test B - B IP - Hand/Pocket Penetrometer D - D ICP - Dynamic Cone Penetrometer U - T SP - Perth Sand Penetrometer U - T IC - Moisture Content MOISTUR BT - Plate Bearing Test D - D ID - Plotoionisation Detector W - W S - Vane Shear; P=Peak, L - D | Denetrometer D - Disturbed sample Penetrometer ES - Environmental sample netrometer U - Thin wall tube 'undisturbed' ent MOISTURE Test D - Dry ession Test M - Moist n Detector W - Wet =Peak, PL - Plastic limit upcarrende (PD) LL - Liquid limit | | | | | |
| Refer abbre | to exp viation | planatory ns and ba | notes fo | or details of escriptions | | | CAR | RDI | NO (NSW/ACT) PTY LTD | | | VD - Very Dense | | | |

| | | | | | | | | | | | | ST PIT LOG SHEET |
|----------------------------------|--------------------------------------|--|--|---------------------------------------|--|-----------|---|------------------|--|---|------------------------------------|--|
| | ject: | | Rado | E Land Pty Ltd Liffe, Wyee De | velopeme | | | | | | H | ole No: TP004 |
| | ation | 1: • See | Busr | nells Ridge Ro ched plan | ad, Busne | lis | | | Job No: 82219014 Angle from Horizontal: -90° | | Surfac | Sheet: 1 of 1 e Elevation: |
| | | | | onne Excavato | or | | | | Excavation Method: 400mm tool | | | |
| Exc | avati | ion D | imer | nsions: | | | | | | | Contra | ctor: Cardno |
| | | | ed: 2 | 23/8/18 | | | | | Logged By: HS | | Check | ed By: GA |
| Ex | cavati | ion | | Sampling & T | | - | | - | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | DCP (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | | ليد عليد عليد عليد عليد ع ليد عليد عليد عليد عليد ع عليد عليد عليد عليد عليد ع | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | м | | TOPSOIL |
| | | | | | | | | sw | 0.20m SAND: fine to medium grained, orange-yellow | м | L to MD | ALLUVIUM |
| | | | | B 0.60 - 0.90 m | | -0.5 | | | 0.40m Silty CLAY: medium plasticity, brown-orange mottled red | | | RESIDUAL SOIL |
| | | | | | | | | | | | St | |
| | | | | | | - 1.0 | | | As above, becomes pale grey with lithorelics (siltstone) | | | |
| EX | | Stable | Not Encountered | | | | | | | | | |
| | | Sta | Not E | | | | | | | | | |
| | | | | | | - 1.5 | | СІ | | M (>PL) | | |
| | | | | | | | | | | | VSt | |
| | | | | | | -2.0 | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| ¥ | | | | | - - | -2.5 | | | 2.50m TERMINATED AT 2.50 m Target depth | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| ex R HA PT SO AH | Rij Ha Pu N So Air | cavato pper and aug ish tub nic dril | ger e ling ier | et VE E F H VH | ETRATION Very Easy (No F Easy Firm Hard Very Hard (Refu | | ce) | S F F N | IP - Hand/Pocket Penetrometer D - District Signal DCP - Dynamic Cone Penetrometer ES - Er VSP - Perth Sand Penetrometer U - Th MC - Moisture Content MOISTURE | ilk disturb sturbed sa ivironmen in wall tul | ample tal sampl | e S - Soft F - Firm |
| PS AD AD HF WB RR | Sh /V So /T So A Ho S Wa | | ral aug nt auge nt auge ght au e drillir | ler er: V-Bit er: TC-Bit ger | Water Le water inflo water out | DW | Date | F | B=Baadwal (uncertracted kDa) LL - Lic | bist | ntent | RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| | | | | or details of lescriptions | | | CAF | RD | NO (NSW/ACT) PTY LTD | | | |

| C | | C | arc | Ino ° | | | | | | | ΤE | ST PIT LOG SHEET |
|---|----------------------|---|--|---|--|---|--|------------------|--|-----------------------|------------------------------------|-----------------------------------|
| Clie Pro | | | | e Land Pty Ltd liffe, Wyee De | | nent | | | | | Η | ole No: TP005 |
| Loc | atio | n: I | Bush | nells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | n r | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | isions: | л | | | | | | | ctor: Cardno |
| Date | e Ex | cavat | ed: 2 | 23/8/18 | | | | | Logged By: HS | | Check | ed By: GA |
| Ex | cava | tion | | Sampling & | Testing | | | | Material Description | | | 1 |
| Method | Resistance | Stability | Water | Sample or Field Test | DCP (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | | | | | | - | لك علك علك علك علك ع لك علك علك علك علك علك علك علك علك علك علك علك | | Sitty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | | | B 0.40 - 0.70 m D 0.40 - 0.70 m | | | | CL | 0.30m Sandy CLAY: low plasticity, brown-orange, fine to medium grain sand | M (>PL) | St | RESIDUAL SOIL |
| EX | | Stable | Not Encountered | | | - - 1.0 - | | | 1.20m Silty CLAY: medium plasticity, pale grey mottled red | | | - |
| | | | | D 1.40 - 1.60 m | | - 1.5 - - | | CI | As above, becomes with lithorelics (siltstone) | M (>PL) | VSt | - |
| | | | | | | - - 2.0 - - | | | 2.50m | | | - |
| <u> </u> | | | | | | 2.5- - - - | <u>, , , , , , , , , , , , , , , , , , , </u> | | 2.50m TERMINATED AT 2.50 m Target depth | | | |
| ME EX R HA PT SO AD AD AD HF R R | RHPSAPSSSH NV/TAS | Excavator Ripper land aug Push tub conic dril conic dri conic dri co | ger e ling ler on sam ral aug nt aug ght au ght au | et VE F H VH VH er V-Bit er: V-Bit ger | IETRATION Very Easy (N Easy Firm Hard Very Hard (Re TER Water I Shown water ir water o | ^{efusal)} ∟evel on nflow | | S F M F | IP - Hand/Pocket Penetrometer D - Di ICP Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Di ID - Plate Bearing Test D - Di ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, L - Lit | y pist | ample tal sampl be 'undist | le F - Firm |
| Refe abb | er to e reviatio | xplanatory ons and ba | notes t asis of c | or details of lescriptions | | | CAR | 2 DI | NO (NSW/ACT) PTY LTD | | | 1 |

| C | \square | C | aro | lno° | | | | | | | TE | ST PIT LOG SHEET | | |
|---|--|--|--|---|---|------------------------------|---|------------------|--|---|------------------------------------|-----------------------------------|--|--|
| Clie Pro | | | | Land Pty Ltd liffe, Wyee De | velopem | ent | | | | | Η | ole No: TP006 | | |
| Loc | atio | n: I | Bush | ells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 | | |
| | | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: | | |
| | | | | onne Excavato sions: | r | | | | Excavation Method: 400mm too | | | ctor: Cardno | | |
| | | | | 3/8/18 | | | | | Logged By: HS | | | ed By: GA | | |
| Ex | cavat | tion | | Sampling & T | esting | | | | Material Description | | | • | | |
| Method | Resistance | Stability | Water | Sample or Field Test | DCP (blows per 150 mm) 1 3 6 12 | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | |
| | | | | | | - | لله عله عله عله عله ع له عله عله عله عله عله له عله عله | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | | | TOPSOIL | | |
| | | | | | | - | | | 0.35m Sandy CLAY: low plasticity, brown-orange, fine to | м | | RESIDUAL SOIL | | |
| | | | | | | - 0.5 - | | | medium grain sand, trace rootlets As above, absent rootlets | | | - | | |
| | | | | | | - - | | CL | | M (>PL) | St | | | |
| EX | | Stable | Not Encountered | | | - | | | 1.10m Sitty CLAY: medium plasticity, pale grey mottled red, with lithorelics (sittstone) | | | | | |
| | | | | | | - - 1.5 - | | СІ | | M (>PL) | VSt | | | |
| | | | | | | - 2.0 - - | | | | | | | | |
| <u> </u> | | | | | | -2.5- - - - | | | 2.50m TERMINATED AT 2.50 m Target depth | | | | | |
| ME EX R HA PT SO AD SO AD HF WE RR | Ri Pr N So Ai SI VV So VV So VV So A Ho SI W | xcavator ipper and aug ush tub onic dril r hamm ercussion hort spir olid fligh | ger ling ler on sam ral auge nt auge nt auge ght auge ght auge | tt VE E F H VH Pler er: V-Bit r: TC-Bit ger | ETRATION Very Easy (Ne Easy Firm Hard Very Hard (Re ER Water L shown water in water o | efusal) ∟evel on nflow | | S F F F | IP - Hand/Pocket Penetrometer D - Ditter ICP Dynamic Cone Penetrometer U - The SP - Perth Sand Penetrometer U - The IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr ID - Plate Bearing Test D - Dr ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, L - Lit | Bulk disturbed sample VS - Very Soft Disturbed sample S - Soft Environmental sample F - Firm Thin wall tube 'undisturbed' St - Stiff VSt - Very Soft - Very Soft JRE VSt - Very Soft Dry RELATIVE DENSITY Moist VI - Very Losse | | | | |
| Ref | er to ex | planatory | notes f | or details of escriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | | | |

| C | | Cá | arc | lno° | | | | | | | ΤE | ST PIT LOG SHEET | | | |
|--|---|------------------------|---|------------------------------|--|-----------------------------|----------------|-----------------------|---|---|------------------------------------|-----------------------------------|--|--|--|
| Clien Proje | | | | Land Pty Ltd | | ent | | | | | Η | ole No: TP007 | | | |
| Loca | tion | n: I | Bush | ells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 | | | |
| | | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: | | | |
| | | | | onne Excavato Isions: | or | | | | Excavation Method: 400mm toot | | | ctor: Cardno | | | |
| | | | | 3/8/18 | | | | | Logged By: HS | | | ed By: GA | | | |
| | avati | | | Sampling & | Testing | | | | Material Description | | | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | | |
| | | | | | | - | | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | D to M | | TOPSOIL | | | |
| | | | | | | - 0.5 | | CL | Sandy CLAY: low plasticity, brown-orange, fine to medium grain sand, trace rootlets | M (>PL) | St | RESIDUAL SOIL | | | |
| EX | | Stable | Not Encountered | | | - 1.0 - 1.0 | | CI | 2.50m | M (>PL) | VSt | | | | |
| | | | | | | - | | | TERMINATED AT 2.50 m Target depth | | | | | | |
| MET EX R HA PT SON AH PS AS AD/V HFA WB RR | Exe Rip Ha Pu: Sol Air Pe Sol Sol Ho Wa | | ger e ling er on sam ral auge nt auge ght auge ght auge | er ger | IETRATION Very Easy (No Easy Firm Hard Very Hard (Re TER Water L Shown water in water on | efusal) .evel on flow | | S F F F F | IP - Hand/Pocket Penetrometer ICP - Dynamic Cone Penetrometer SP - Perth Sand Penetrometer IC - Moisture Content BT - Plate Bearing Test IP - Borehole Impression Test ID - Photoionisation Detector S - Vane Shear; P=Peak, Beadual (uncorrented IPD) LL | Bulk disturbed sample Disturbed sample Environmental sample Thin wall tube 'undisturbed' STURE Dry Moist Wet Plastic limit Liquid limit VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose Dense | | | | | |
| Refer abbre | to exp viation | blanatory is and ba | notes f asis of d | or details of escriptions | | | CAR | D | NO (NSW/ACT) PTY LTD | | | | | | |

| | \square | | | dno [°] | | | | | | | TE | ST PIT LOG SHEET | | | | |
|--|---|--|---|--|--|--|--|----------------------------|---|--|---|-----------------------------------|--|--|--|--|
| | ject: | : | Rado | e Land Pty Lto cliffe, Wyee Do | evelopeme | | | | | | Н | ole No: TP008 | | | | |
| | atio αe | n: | Bush | nells Ridge Ro | oad, Bush | ells | | | Job No: 82219014 | | | Sheet: 1 of 1 | | | | |
| | | | | ched plan | or | | | | Angle from Horizontal: -9 Excavation Method: 400r | | | e Elevation: | | | | |
| | | | | isions: | 01 | | | | | | | actor: Cardno | | | | |
| | | | | 23/8/18 | | | | | Logged By: HS | | | ed By: GA | | | | |
| E | kcavat | tion | | Sampling & | Testing | | | | Material De | escription | | | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) 1 3 6 12 | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle charact colour, secondary and minor compone ROCK TYPE, grain size and type, colo fabric & texture, strength, weatherin defects and structure | teristic, ients bi lour, iso ig, W | Condition Consistency Relative Density | STRUCTURE & Other Observations | | | | |
| | | | | D 0.10 - 0.20 m | | - | لله علم علم علم علم علم لله علم علم علم علم علم علم علم علم علم علم علم ع | | SAND: fine to medium grained, grey-brown low plasticity silt, trace rootlets | vn, trace | | TOPSOIL | | | | |
| | | | | | | - | | | 0.25m CLAY: medium plasticity, yellow-brown mo orange | ottled | | RESIDUAL SOIL | | | | |
| | | | | | | - - 0.5 - - | | | | | St | | | | | |
| — EX — | | Stable | Not Encountered | | | - - 1.0 - - | | СІ | As above, becomes pale grey mottled red, lithorelics (siltstone) | | VSt | | | | | |
| | | | | | R | - - 1.5 - - - - 2.0 - - - - | | CI | | M (> | H | | | | | |
| <u> </u> | | | | | | 2.5 - | | | 2.50m TERMINATED AT 2.50 m Target depth | | | | | | | |
| | | | | | | - - - | | | | | | | | | | |
| EX R HAPTC APS ADD HF WE RF | Ri Pri DN Si I Ai S Pri S Si S Si D/V Si D/V Si SA Hi 3 W | xcavato ipper and au ush tub onic dri ir hamm ercussio hort spi olid fligi | ger lling her on sam ral aug ht aug ght au ght au e drillin | et VE F H VH VH ger V-Bit er: V-Bit er: TC-Bit ger | Very Easy (No Easy Firm Hard Very Hard (Ref TER Water Le shown water inf water ou | ^{usal)} evel on low | | S H D M N I | PT Standard Penetration Test E P Hand/Pocket Penetrometer E CP Dynamic Cone Penetrometer E SP Perth Sand Penetrometer E C Moisture Content M BT Plate Bearing Test E IP Borehole Impression Test D D Photoionisation Detector V S Vane Shear; P=Peak, E | D - Disturber ES - Environm U - Thin wall MOISTURE D - Dry M - Moist W - Wet PL - Plastic lir LL - Liquid lin | Bulk disturbed sample VS - Very Soft Disturbed sample S - Soft Environmental sample F - Firm Thin wall tube 'undisturbed' St - Stiff URE VS - Very Stiff Dry RELATIVE DENSITY Wet VL - Very Loose Plastic limit Loose | | | | | |
| Ref abb | fer to ex previatio | planator | y notes t asis of c | for details of lescriptions | | | CAR | | NO (NSW/ACT) PTY LT | D | | 1 | | | | |

| Project: Location | | Radeli | | | | | | | | H | ole No: TP009 |
|--|-----------|----------------------------|------------------------------|-----------------------|---|---|-------------------------|---|-----------------------|------------------------------------|-----------------------------------|
| 3idge osition | | | ffe, Wyee De Ils Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 2 |
| | | | | , | | | | Angle from Horizontal: -90° | 5 | Surfac | e Elevation: |
| viacnine | | | nne Excavato | or | | | | Excavation Method: 400mm toot | hed bu | cket | |
| Excavati | on D | imens | ions: | | | | | | | | ctor: Cardno |
| Date Exc | | ed: 23 | | | | | | Logged By: HS | (| Check | ed By: GA |
| Excavati | on | | Sampling & T | Testing | | | | Material Description | 1 | | |
| Method Resistance | Stability | Water | Sample or Field Test | (blow per 150 m | . Dept Dm) (mr | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | | | | لك على على على على على لك على على على على على على على على لك على على | | SAND: fine to medium grained, yellow-brown, trace low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | | | | į | ىلىر غاير ب باير غاير غاير مەر مەر مەر م | | 0.25m | | | |
| | | | | | -0.5 | | sw | SAND: fine to medium grained, yellow-brown | D | L | ALLUVIUM |
| | | | | | | | CL- CI | 0.55m Sandy CLAY: low to medium plasticity, yellow-brown mottled orange, fine to medium grain sand, trace fine to medium sub-angular gravel .070m | M (■PL) | VSt | RESIDUAL SOIL |
| | | | | | 1.0 | | | Sitty CLAY: low to medium plasticity, pale grey mottled red, with lithorelics (sittstone) | | VSt | |
| EX | Stable | | | | -1.5 | | CL- CI | | M (>PL) | Н | |
| • | | inflow encountered at 2.2m | | | - - - - - - - - - | | | 2.50m TERMINATED AT 2.50 m Target depth | | | |
| METHOD PENETRATION EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/T Solid flight auger: V-Bit HFA Holow flight auger: V-Bit HFA Washbore drilling RR Rock roller | | | | | | | SI H P M PI | P - Hand/Pocket Penetrometer D - Dis CP Dynamic Cone Penetrometer U - Thi SP Perth Sand Penetrometer U - Thi C Moisture Content MOISTURE ST Plate Bearing Test D - Dry IP Borehole Impression Test M - Mo D - Photoionisation Detector W - We S - Vane Shear; P=Peak, L - Liq | / ist | imple al sampl be 'undist | e S - Soft F - Firm |

| | | | no° | | | | | | | | ST PIT LOG SHEET |
|--|----------------------|--|--|---------------------------------------|----------------------------------|--|----------------------------|---|--|------------------------------------|---|
| Client: Project: | F | Radcl | Land Pty Ltd liffe, Wyee De | | | | | | | H | ole No: TP010 |
| Location Ridge | | | ells Ridge Roa ched plan | ad, Bushe | ells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | ched plan onne Excavato | - | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| Excavation | | | | 1 | | | | Excavation Method. 400min too | | | ctor: Cardno |
| Date Exc | | | | | | | | Logged By: HS | | | ed By: GA |
| Excavatio | on | | Sampling & T | esting | | | | Material Description | 1 | | |
| Method Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | لله عله عله عله عله عله لله عله عله عله عله عله عله عله عله لله عله عله | 0 | SAND: fine to medium grained, yellow-brown, trace low plasticity silt, trace rootlets | D to M | | TOPSOIL |
| | | | | | -0.5 | | CL- CI | 0.25m Sandy CLAY: low to medium plasticity, yellow-brown mottled orange, fine to medium grain sand, trace fine to medium sub-angular gravel | M (>PL) | St | RESIDUAL SOIL |
| EX | Stable | Not Encountered | B 0.65 - 0.95 m | | - 1.0 | | CL- CI | 3.65m Sitty CLAY: low to medium plasticity, pale grey mottled red, with lithorelics (sittstone) | M (>PL) | St | |
| | | | | | - 1.5 | | sw | 1.50m SAND: medium to coarse grained, pale grey mottled red, with shell fragments | м | H | EXTREMELY WEATHERED |
| . | | | | | | | | 1.90m TERMINATED AT 1.90 m Virtual Refusal | | | 1.90 m: Residual soil transitioning to extremely weathered sandstone |
| | | | | | | | | | | | |
| R Rip HA Har PT Pus SON Sor AH Air PS Per AS Sho AD/V Sol AD/T Sol HFA Hol WB Wa | llow flig ashbore | er ing er n samp al auge t auger t auger ght auger ght aug | t VE E F VH VH VH CH VH | IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII | ^{isal)} vel on ow | | S H D M P M | P - Hand/Pocket Penetrometer D - D CP - Dynamic Cone Penetrometer ES - EE CP - Perth Sand Penetrometer U - TI CP - Moisture Content D - D TP Plate Bearing Test D - D P - Borehole Impression Test M - M O - Photoionisation Detector W - W Q - Vane Shear; P=Peak, L - L | ulk disturbe isturbed sa nvironment nin wall tub E ry oist | imple al sampl be 'undist | e S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| RR Roo | ck rolle | | r details of | | | | | IO (NSW/ACT) PTY LTD | | | VD - Very Dense |

| ne Ty ation | Bus e atta be: 5 Dime | cliffe, Wyee I hells Ridge F ached plan tonne Excava nsions: 23/8/18 Sampling Sample or | Road, Bus | hells | | | Job No: 82219014 Angle from Horizontal: -90° Excavation Method: 400mm t | | Surfac | Sheet: 1 of e Elevation: |
|--|---|--|--|---|--|---|---|---|---|---|
| ne Ty ation xcava ation | be: 5 Dime ited: | tonne Excava nsions: 23/8/18 Sampling | | | | | | | Surfac | e Elevation: |
| ation xcava ation | Dime Ited: | nsions: 23/8/18 Sampling | | | | | Exception Mothod: 400mm t | | | |
| xcava ation | ited: | 23/8/18 Sampling | & Testing | | | | Excavation Method: 400mm | bothed b | | · • • |
| ation | | Sampling | & Testing | | | | | | | ctor: Cardno |
| | Water | | | 1 | | | Logged By: HS Material Descript | | Check | ed By: GA |
| Stability | Water | Sample or | | - | | _ | | | | |
| | | Field Test | (blows per 150 mm | Dept (i | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | - | لك علك عك علك عك عك يك عك عك عك عك عك يك عك عك يك عك عك | | SAND: fine to medium grained, yellow-brown, trac low plasticity silt, trace rootlets | e D | | TOPSOIL |
| | | | | - | | | 0.30m Clayey SAND: fine to medium grained, yellow-brown, low to medium plasticity clay, trace fine to eredium cub agendre gravel | | | COLLUVIUM |
| | | | | - 0.5 | | sc | ine to metuuri, sub-anguar graver | м | St | |
| Stable | encountered at 1.0m | - | | - 1.0 - - | | | 1.00m Silty CLAY: low to medium plasticity, pale grey mottled red, with lithorelics (siltstone) | | | RESIDUAL SOIL |
| 0 | inflow e | | | - - 1.5 - | | CL- | | | | |
| | | | | - - 2.0 - - | | CI | | M (>PL |) St to VSt | |
| + | _ | | | 2.5 | μM | | 2.50m TERMINATED AT 2.50 m | | | |
| | | | | - | | | | | | |
| Ripper Hand a Push tu Sonic d Air ham Percus Short s Solid fli Solid fli Hollow | uger be rilling mer sion sar biral au ght aug ght aug flight au | ket V E F H V mpler V ger ger V ger V J Bit ger C-Bit ger | E Very Easy (f Easy Firm Hard H Very Hard (F VATER Water shown water i | No Resistar Refusal) Level on nflow | | S F F M F | SPT Standard Penetration Test B IP Hand/Pocket Penetrometer D VCP Dynamic Cone Penetrometer U VSP Perth Sand Penetrometer U VR Moisture Content MOIST VBT Plate Bearing Test D VIP Borehole Impression Test M VID Photoionisation Detector W VS Vane Shear, P=Peak, PL | Bulk disturi Disturbed s Environmen Thin wall tu JRE Dry Moist Wet Plastic limit Liquid limit | sample htal sampl ibe 'undis | le F - Firm |
| | Excavat Ripper Push tu Sonic di Vir ham Percuss Short sp Solid flig Hollow f Vashbo Rock ro | D C C C C C C C C C C C C C | D P Excavator bucket Vipper tand auger Vash tube Fercussion sampler short spiral auger Shold flight auger: TC-Bit Solid flight auger: V-Bit Solid flight auger Vashbore drilling | Image: | Image: State of the state | a) a) a) b) | and additional and a second | 9000 0.00m SC 9000 0.00m 0.00m 1 -1.0 0.00m 1 -2.0 0.00m 0 0.00m 0.00m 0 | 00000 00000 SC M 100000 100000 100000 SINCLAY: tow to medium plasticity, pale grey motified red, with lithoretics (silistone) M 1000000000000000000000000000000000000 | 0000 00000 0000 0000 0000 |

| Clier | | | | ino ° e Land Pty Ltd | 1 | | | | | | | ST PIT LOG SHEET |
|--|--|---|---|--|--|-----------------------------|--|--------------------------------------|--|--|------------------------------------|-----------------------------------|
| Proje Loca | ect: | I | Rado | liffe, Wyee De | evelopem | | | | | | H | ole No: TP012 |
| | | | | nells Ridge Ro Iched plan | au, bush | lens | | | Job No: 82219014 Angle from Horizontal: -90° | | Surfac | Sheet: 1 of 1 e Elevation: |
| | | | | onne Excavate | or | | | | Excavation Method: 400mm too | | | |
| Exca | avati | on D | imer | nsions: | | | | | | (| Contra | ctor: Cardno |
| | | | ed: 2 | 23/8/18 | | <u> </u> | | | Logged By: HS | | Check | ed By: GA |
| Exc | cavati | on | | Sampling & | Testing | | | | Material Descriptior | | 1 | |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | - | للد علم علم علم علم علم للد علم علم علم علم علم علم علم علم علم علم ع | | SAND: fine to medium grained, yellow-brown, trace low plasticity silt, trace rootlets | м | | TOPSOIL |
| | | | | | | - | | SC | 0.20m Clayey SAND: fine to medium grained, yellow-brown, low to medium plasticity clay, trace fine to medium, sub-angular gravel 0.50m | D to M | L | COLLUVIUM |
| | | | | B 0.50 - 0.80 m | | - 0.5 | | | Sandy Silty CLAY: low plasticity, red-brown, fine to medium grain sand, trace lithoretics (siltstone) | | | RESIDUAL SOIL |
| | | ble | Not Encountered | | | - 1.0 - | | CL | As above, becomes with cobble sized lithorelics (sittstone) | M (>PL) | VSt | |
| EX | | Stable | Not E | | | - - - 1.5 | | | 1.50m CLAY: medium plasticity, pale grey mottled red, with lithorelics (siltstone) | | | |
| v | | | | | | - 2.0 | | CI | 2.50m | M (>PL) | VSt | |
| - | | | | | | -2.5- | | | TERMINATED AT 2.50 m Target depth | | | |
| | 110- | | | | | - | | - | | | | |
| MET EX R HA PT SON AH PS AS AD/7 HFA WB RR | Riµ Ha Pu N Sc Air Pe Sh V Sc T Sc A Hc Wa | cavator oper ind aug ish tub nic dril hamm rcussic ort spir lid fligh | jer e ling er on sam ral aug at aug at aug oft aug ght au e drillin | et VE F H VH ver er: V-Bit er: TC-Bit ger | IETRATION Very Easy (No Easy Firm Hard Very Hard (Re TER Water L shown water in d water or | efusal) .evel on flow | | S H D P M P I P | IP - Hand/Pocket Penetrometer D - D ICP Dynamic Cone Penetrometer U - TI SP - Perth Sand Penetrometer U - TI IC - Moisture Content D - D BT - Plate Bearing Test D - D - D ID - Borehole Impression Test M - M M ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, L - L | ulk disturbe isturbed sa nvironment nin wall tub E ry oist | ample al sampl be 'undist | e S - Soft F - Firm |
| | | | | | | | CAF | | | | | |

| | / | | | no° | | | | | | | | ST PIT LOG SHEET | | |
|-------------------------------------|--|--|--|--|---|--|----------------|--------------------------------------|--|---|------------------------------------|-----------------------------------|--|--|
| Client Projec | ct: | F | Radc | Land Pty Ltd liffe, Wyee De | evelopem | | | | | | H | ole No: TP013 | | |
| Locati Ridae | | | | ells Ridge Ro | oad, Bush | ells | | | Job No: 82219014 | | | Sheet: 1 of 1 | | |
| | | | | ched plan onne Excavate | or | | | | Angle from Horizontal: -90° Excavation Method: 400mm to | | | e Elevation: | | |
| Excav | | | | | 01 | | | | Excavation Method. 400mm to | | | ctor: Cardno | | |
| Date E | | | | | | | | | Logged By: HS | | | ed By: GA | | |
| Exca | vatior | 1 I | | Sampling & | Testing | | | | Material Description | | | • | | |
| | | | ľ | | | Ê | | E | | | | | | |
| Method | Kesistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations | | |
| | | | | | | _ | | | Sitty SAND: fine to medium grained, brown, low plasticity sitt, trace rootlets | D | | TOPSOIL | | |
| | | | | | | - | | | 0.30m | | | RESIDUAL SOIL | | |
| | | | | | | - 0.5 | | | Sandy Sitty CLAY: low plasticity, red-brown, fine to medium grain sand, trace lithorelics (sittstone) | | St | | | |
| EX | | Stable | Not Encountered | | | - - 1.0 - - - - 1.5 - - | | CL | 1.80m | M (>PL) | VSt | | | |
| | | | | | | - - 2.0 - - - - | | СІ | CLAY: medium plasticity, pale grey mottled red, wit lithorelics (siltstone) 2.50m | л М (>PL) | н | | | |
| | | | | | | -2.3— | | | TERMINATED AT 2.50 m Target depth | | | | | |
| | | | | | | - | | | | | | | | |
| PT SON AH PS AS AD/V | Exca Ripp Hand Push Sonid Air h Perc Shor Solid Solid Hollo Was | er d aug tube c drilli amme ussion t spira l fligh l fligh w flig | ing er al auge t auge t auge ht auge drillin | t VE E F H VH VH tr: V-Bit r: TC-Bit eer | NETRATION Very Easy (No Easy Firm Hard Very Hard (Ref TER Water Lo Shown water inf water ou | ^{fusal)} evel on flow | | S H D P M P I P | P Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer ES SP Perth Sand Penetrometer U IC Moisture Content MOISTUI BT Plate Bearing Test D ID Photoionisation Detector M S Vane Shear; P=Peak, LL | Bulk disturbed sample VS - Very Soft Disturbed sample S - Soft Environmental sample F - Firm Thin wall tube 'undisturbed' St - Stiff JRE H - Hard | | | | |
| Refer to abbrevia | o expla ations a | natory and ba: | notes fo sis of de | or details of escriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | I | | |

| | | | | | 4.4 | | | | | | | ST PIT LOG SHEET |
|--|--|-----------|--|---|--|---|--|------------------|---|---|------------------------------------|-----------------------------------|
| Clien Proje | ect: | E E | Radc | Land Pty I liffe, Wyee | Develop | pement | | | | | H | ole No: TP014 |
| Loca Ridq | | | | ells Ridge ched plan | Road, B | ushells | | | Job No: 82219014 | | 0 | Sheet: 1 of 1 |
| | | | | cned plan onne Excav | ator | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | sions: | | | | | | | | ctor: Cardno |
| Date | Exc | cavat | ed: 2 | 3/8/18 | | | | | Logged By: HS | | Checke | ed By: GA |
| Exc | avati | on | | Sampling | & Testing | I | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample o Field Tes | r `p t 150 | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | | م علد علد علد علد م علد علد علد علد علد علد علد علد علد علد علد علد ع | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | υ | Not Encountered | | | | | sc | 0.25m Clayey SAND: fine to medium grained, orange-brown, low plasticity clay | м | L to MD | COLLUVIUM |
| EX- | | Stable | Not Enc | | | - - - - - - - - | | CI | 0.80m Silty CLAY: medium plasticity, pale grey mottled red | M (>PL) | F | RESIDUAL SOIL |
| | | | | | R | - -1.5 | | | 1.50m SILTSTONE, pale grey mottled red, thinly laminated, extremely weathered, extremely low strength | | | WEATHERED ROCK |
| | | | | | | -2.0 -2.0 -2.0 -2.1 - -2.5 -2.5 -1 -2.5 -1 -1 | | | TERMINATED AT 1.60 m Virtual Refusal | | | |
| MET EX R HA PT SON AH PS AD/V AD/V HFA WB RR | Ex Rip Ha Pu Air Pe Sh So T So T So Wa | | ler er on saml ral auge at auge at auge ght auge ght auge | t pler er f: V-Bit r: TC-Bit ger | E Easy F Firm H Hard VH Very H WATER Wash | TON asy (No Resista ard (Refusal) ater Level o own tter inflow tter outflow | | F F F F | P Hand/Pocket Penetrometer D - Director CP Dynamic Cone Penetrometer U - Tr SP Perth Sand Penetrometer U - Tr CC Moisture Content MOISTURI BT Plate Bearing Test D - Dir ID Photoionisation Detector M - Mit ID Photoionisation Detector W - W Vane Shear; P=Peak, PL - Pit | ulk disturb sturbed sa wironmen nin wall tul Sy oist | ample tal sampl be 'undist | e S - Soft F - Firm |
| | | | | or details of escriptions | | | CAF | RDI | NO (NSW/ACT) PTY LTD | | | 1 |

| Olianti | / | aro | | | | | | | | | ST PIT LOG SHEET |
|---|--|-----------------|--------------------------------|--------------------------|-----------------------------|---|------------------|---|-----------------------|------------------------------------|-----------------------------------|
| Client: Projec | :t: | Radc | Land Pty Ltd liffe, Wyee De | evelopem | | | | | | H | ole No: TP015 |
| Locati Ridge | | | ells Ridge Ro ched plan | ad, Bush | ells | | | Job No: 82219014 | | 0 | Sheet: 1 of 1 |
| | | | cned plan onne Excavate | or | | | | Angle from Horizontal: -90° Excavation Method: 400mm toot | | | e Elevation: |
| | | | isions: | | | | | | | | ctor: Cardno |
| Date E | | | | | | | | Logged By: HS | | | ed By: GA |
| Excav | ation/ | | Sampling & | Testing | | | | Material Description | | | |
| ď | U | | | | Ê | | Б | | | | |
| Method Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | - | لك علك عك علك علك ع لك علك علك علك علك عك لك علك علك | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | | | TOPSOIL |
| | | | | | - | على على على م لك على على على على على لك على على على على على ع | | | D | | |
| | | | | | | | 80 | 0.30m Clayey SAND: fine to medium grained, yellow-brown, low plasticity clay, with fine to coarse, sub-angular gravel | м | MD | COLLUVIUM |
| | | | | | - | | SC | 1.00m | M | MD | |
| EX | Stable | Not Encountered | | | - | | | Sandy CLAY: low to medium plasticity, pale grey mottled red, fine to medium grain sand, with lithorelics (siltstone) | | | RESIDUAL SOIL |
| | | | | | - 1.5 | | CL- CI | 2.00m | M (>PL) | н | |
| | | | | | - 2.0 | | sw | SAND: fine to medium grained, pale grey mottled red, with shell fragments | м | VD | EXTREMELY WEATHERED |
| <u> </u> | | | | | -2.5- | | | 2.50m TERMINATED AT 2.50 m | | | |
| | | | | | - | | | Target depth | | | |
| EX R HA PT SON AH PS AD/V AD/T HFA WB | Ripper A Hand auger Y Push tube SON Sonic drilling W Air hammer S Percussion sampler S Short spiral auger: V-Bit M/X Solid flight auger: TC-Bit HFA Hollow flight auger W B Washbore drilling | | | | efusal) .evel on flow | | S F F F | IP - Hand/Pocket Penetrometer D - Display ICP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE D - Display BT - Plate Bearing Test D - Dr IID - Photoionisation Detector W - We S - Vane Shear; P=Peak, PL - Plate | y bist | ample tal sampl be 'undist | le F - Firm |
| | explanato | ory notes f | or details of escriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | |

| | \supset | Cá | ard | no° | | | | | | | TE | ST PIT LOG SHEE |
|---|--|--|-----------------------------|------------------------------|---|-------|--|---|--|---------------------------------|---|--|
| Clie Proj | | I | Rádcl | Land Pty Lto iffe, Wyee D | evelopem | nent | | | | | Η | ole No: TP016 |
| | | | | ells Ridge Ro | oad, Bush | nells | | | Job No: 82219014 | | | Sheet: 1 of |
| | | | | hed plan | | | | | Angle from Horizontal: -90° | 5 | Surfac | e Elevation: |
| Mac | hine | е Туре | e: 5 to | onne Excavat | or | | | | Excavation Method: 400mm toot | hed bu | cket | |
| | | | | sions: | | | | | | | | ictor: Cardno |
| | | | ed: 23 | | | - | | | Logged By: HS | (| Check | ed By: GA |
| Ex | cavati | ion | | Sampling & | Testing | 4 | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | - | لله علم علم علم علم علم لله علم علم لله علم علم علم علم علم علم علم علم | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | | | | | | | | 0.30m Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grain sand, trace lithorelics (sittstone) | | St | RESIDUAL SOIL |
| EX- | | Stable | Not Encountered | | | - 1.0 | | CL- CI | As above, becomes pale grey mottled orange, with lithorelics (siltstone) | M (>PL) | VSt to H | |
| | | | | | VR | - 1.5 | | sw | 1.40m SAND: medium to coarse grained, pale grey mottled orange, with shell fragments | м | VD | EXTREMELY WEATHERED |
| | | | | | | | | | 1.80m SANDSTONE, medium to coarse grained, pale grey, extremely weathered, extremely low strength 2.00m | | | WEATHERED ROCK |
| | | | | | | - 2.5 | | | TERMINATED AT 2.00 m Virtual Refusal | | | |
| EX R HA PT SOI AH PS AD/ AD/ HFA | METHOD FENETRATION XE Excavator bucket Ripper VE VeryEasy (N EX Base YE VeryEasy (N VE VeryEasy (N E Easy F Firm VH Air harmer YS Percussion sampler SON Short spiral auger VD/V Solid flight auger: V-Bit VD/V Solid flight auger VB< | | | | ^{efusal)} ∟evel on nflow | | S H P M I | P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi CP - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr. ID - Photoionisation Detector M - Moisture ID - Photoportation Detector W - Weight Presenting Upgerstreach (PR) | / ist et astic limit uid limit | ample tal sampl be 'undis | te S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Densk | |
| WB RR | A Ho Wa Ro er to exp | pllow flig ashbor ock rolle planatory | ght aug e drilling er | er 🗖 | water o | | | | B-Besdual (uncorrected kBa) | | ntent | MD - Medium Dens D - Dense VD - Very Dense |

| Client | t: | | Vvee I | Land Pty Ltd | | | | | | | | U | ST PIT LOG SHEE |
|---|---|---|----------------------------|-------------------------|--------------------------|------------------------------|---|---------------------------------|---|---|---------------------------------------|---|-----------------------------------|
| Proje Locat | ct: | F | Radcli | ffe, Wyee De | velopem | ent | | | | | | Η | ole No: TP017 |
| | | | | hed plan | au, busi | lelis | | | Job No: 82219014 | 0° | | Surfac | Sheet: 1 of e Elevation: |
| | | | | | ~ | | | | Angle from Horizontal: -90 Excavation Method: 400m | | | | e Elevation: |
| | | | imens | nne Excavato | Dr | | | | Excavation Method: 400m | im tootn | | | ctor: Cardno |
| | | | ed: 23 | | | | | | Logged By: HS | | | | ed By: GA |
| Exca | | | 50. 25 | Sampling & | Focting | | | | Material Des | scription | | SHECK | eu by. OA |
| | Ivalic | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | - | Sampling & | | | | | | Scription | | 1 | |
| Method | Kesistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle character colour, secondary and minor componer ROCK TYPE, grain size and type, colou fabric & texture, strength, weathering, defects and structure | ents our, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | - | لك علك علك علك علك ع لك علك علك علك علك ع لك علك علك علك علك ع | | Sitty SAND: fine to medium grained, grey-bro plasticity sitt, trace rootlets | rown, low | D | | TOPSOIL |
| | | | | | | - | الد علم علم علم علم علم علم علم علم علم علم علم علم علم علم | | 0.30m | with alove | | | ALLUVIUM |
| | | | | | | | | | SAND: fine to medium grained, pale grey, wi | Mith clay | М | L | |
| | | | red at 0.6m | | | - | | | | - | | | _ |
| EX | | Stable | inflow encountered at 0.6m | | | - - 1.0 | | sw | | | W | MD | |
| | | St | | | | - | | | | | | | |
| | | | | | | - 1.5 | | | 1.40m Sandy CLAY: low to medium plasticity, pale g mottled red, fine to coarse grain sand, with lithorelics (siltstone) | grey | | | RESIDUAL SOIL |
| | | | | | | - | | CL- CI | | | M (>PL) | VSt | |
| | | | | | | - | | sw | 1.80m SAND: medium to coarse grained, pale grey orange, with shell fragments | ey mottled | w | D | EXTREMELY WEATHERED |
| | | | | | | -2.0 | | | 2.00m SANDSTONE, medium to coarse grained, p | pale | | | WEATHERED ROCK |
| ♥ | | | | | | - | | | 2.10m grey, extremely weathered, extremely low str | strength | | | |
| | | | | | | - - 2.5 | | | TERMINATED AT 2.10 m Virtual Refusal | | | | |
| | | | | | | - | | | | | | | |
| METH EX R HA PT SON AH PS AS AD/V AD/T HFA WB | THOD PENETRATION Excavator bucket VE Ripper Bada auger Push tube VE N Sonic drilling Hada auger Air hammer Percussion sampler Percussion sampler Short spiral auger: V-Bit VS Solid flight auger: TC-Bit Hollow flight auger: C-Bit A Hollow flight auger: water inflow Washbore drilling water outflow | | | | | efusal) ∟evel on nflow | | S H D P N I N | PT - Standard Penetration Test B P - Hand/Pocket Penetrometer D CP - Dynamic Cone Penetrometer U SP - Perth Sand Penetrometer U C - Moisture Content MC BT - Plate Bearing Test D IP - Borehole Impression Test M D - Photoionisation Detector W S - Vane Shear; P=Peak, PL | S - Distu S - Envi - Thin IOISTURE - Dry I - Mois V - Wet L - Plas | urbed sa ronment wall tub st | ed sample ample al sampl e 'undist | e S - Soft F - Firm |
| RR | | k rolle | | | | | | | R=Resdual (uncorrected kPa) | - Mois | sture cor | itent | VD - Very Dense |
| | | | | | | | | | | | | | |

| | \square | C | arc | dno | | | | | | | ΤE | ST PIT LOG SHEET |
|---|---|-----------|--|--|---|---|--|-------------------|--|-----------------------|------------------------------------|---|
| Clie | ent: ject: | , | Nye Rado | e Land Pty Lto cliffe, Wyee D | eveloper | nent | | | | | Η | ole No: TP018 |
| Loc | atio | n: | Busl | nells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | tonne Excavat nsions: | or | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 23/8/18 | | | | | Logged By: HS | | | ed By: GA |
| E> | xcavat | tion | | Sampling & | Testing | | | | Material Description | | | • |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm | <i>.</i> | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | D 0.10 - 0.20 m | | - | لله عله عله عله عله عله لله عله عله عله عله عله لله عله عله عله عله ع | _ | Sitty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | | | B 0.50 - 0.80 m | | - - - 0.5 - | | | 0.30m Silty CLAY: medium plasticity, grey mottled orange red, with sand, trace lithorelics (siltstone) | | St | RESIDUAL SOIL |
| EX | | Stable | Not Encountered | | | - 1.0 | | СІ | | M (>PL) | St to VSt | |
| | | | | | | - - - - - 2.0 - - - | | | As above, becomes pale grey mottled orange, absent sand and lithorelics | | н | |
| ┞╨ | | | | | | -2.5- | <u>FXXX</u> | | 2.50m TERMINATED AT 2.50 m | | | |
| EX | | xcavato | r buck | et _{VE} | I I I I I I I I I I I I I I I I I I I | | nce) | s | | lk disturb | | |
| R HA PT SC AH PS AS AD HF WE RF | A H PN Si A Ai S SI S/V Si S/V Si S/T Si B W | | e Iling Ier on san ral aug nt aug nt aug ght au ght au | npler W4 ger 7 ger: V-Bit - er: TC-Bit 9 ger 9 | Easy Firm Hard Very Hard (F TER Water shown water i water o | efusal) Level on nflow | | P P IN P | CP - Dynamic Cone Penetrometer ES - Er SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr IP - Borehole Impression Test M - Mu ID - Photoionisation Detector W - Wk S - Vane Shear; P=Peak, PL - Pk BE-Bodulu (uncorrented (ID)) LL - Lic | y bist | tal sampl | le S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Ref abb | fer to ex previatio | planatory | / notes asis of (| for details of descriptions | | | CAR | 2 D | NO (NSW/ACT) PTY LTD | | | |

| | \square | C | arc | Ino ° | | | | | | | ΤE | ST PIT LOG SHEET |
|---|------------|-----------------------------------|-------------|----------------------------------|--------------------------|---|---|------------------|---|-----------------------|------------------------------------|--|
| Clie Pro | | | | e Land Pty Ltd liffe, Wyee De | | nent | | | | | Η | ole No: TP019 |
| Loc | atio | n: | Bush | nells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | onne Excavato | or | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 23/8/18 | | | | | Logged By: HS | | | ed By: GA |
| | cavat | | | Sampling & | Testing | | | | Material Description | | | , |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| A | | | | | 1 3 6 12 | | لله عليه عليه عليه عليه ع لله عليه عليه عليه عليه ع | 0 | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, trace rootlets | | | TOPSOIL |
| | | | | D 0.10 - 0.20 m | | - | لك على على على على على على على على على لك على على على على على | | | D to M | | |
| | | | | | | - | | sw | 0.30m SAND: fine to medium grained, grey-brown 0.50m | м | MD | ALLUVIUM |
| | | | | | | - 0.5 - | | | Silty CLAY: medium plasticity, grey mottled orange | | | RESIDUAL SOIL |
| | | | | | | - | | | | | St | |
| | | 0 | Encountered | | | - 1.0 | | | | | | |
| EX- | | Stable | Not Enc | | | - | | | | | | |
| | | | | | | - - | | СІ | As above, becomes grey mottled red | M (>PL) | | |
| | | | | | | - - 2.0 | | | | | VSt | |
| V | | | | | | - - 2.5- | | | 2.50m | | | |
| | | | | | | - | | | TERMINATED AT 2.50 m Target depth | | | |
| METHOD PENETRATION EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/V Solid flight auger: C-Bit HFA Hollow flight auger | | | | | | ^{efusal)} ∟evel on nflow | | S F F F | IP - Hand/Pocket Penetrometer D - Di ICP - Dynamic Cone Penetrometer ES - Er SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr ID - Photoionisation Detector M - Mit VS - Vane Shear; P=Peak, PL - PL | y pist | ample tal sampl | e burbed' turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose L - Loose |
| WE RR Ref | er to ex | /ashbor ock rolle planatory | notes t | rg — | - water o | uliow | CAR | | | Disture cor | ntent | D - Dense VD - Very Dense |

| 5 |) C | arc | lno [°] | | | | | | | TE | ST PIT LOG SHEET |
|--|---|----------------------------|-----------------------------------|--------------------------|-------------------------------|---|---|---|-----------------------|------------------------------------|-----------------------------------|
| Client: Project | | | e Land Pty Ltd cliffe, Wyee De | veloper | nent | | | | | Η | ole No: TP020 |
| Locatio | on: | Bush | nells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | ched plan | | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| Excava | | | onne Excavato | И | | | | Excavation Method. 400mm too | | | ctor: Cardno |
| Date Ex | | | | | | | | Logged By: HS | | | ed By: GA |
| Excava | ation | | Sampling & T | Festing | | | | Material Description | | | |
| Method Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | D 0.10 - 0.20 m | | - | لك على على على على على يلك على على يلك على على يلك على على يلك على على | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, with clay, trace rootlets | w | | TOPSOIL |
| | | | B 0.60 - 1.00 m | | | | | 0.30m Sandy CLAY: low plasticity, grey mottled brown-orange, fine to medium grain sand, with lithorelics (sittstone) | | St | RESIDUAL SOIL |
| EX | Stable | | | | - 1.0 | | CL | | M (>PL) | VSt | |
| | | inflow encountered at 1.6m | | | - 1.5 - - - 2.0 - | | CI | 1.60m Sitty CLAY: medium plasticity, pale grey mottled orange | M (>PL) | VSt to H | |
| ¥ | | | | | - 2.5- | | | 2.50m TERMINATED AT 2.50 m Target depth | | | |
| EX E R HA H PT F SON S AH A PS F AD/V S AD/V S AD/T S HFA H WB N | R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit HFA Hollow flight auger: W-Bit Water Level Water Level Water Inflow WB Washbore drilling | | | | | | S H D P M P I N P | IP - Hand/Pocket Penetrometer D - Dit ICP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr IID - Photoionisation Detector W - W S - Vane Shear; P=Peak, LL - LL | y pist | ample tal sampl be 'undist | e S - Soft F - Firm |
| Refer to | explanator tions and b | y notes t asis of c | or details of lescriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | 1 |

| | D | C | arc | dno° | | | | | | | TE | ST PIT LOG SHEET |
|--|--|--|---|---|-----------------|---|--|--------------------|--|--|---|-----------------------------------|
| Clie Pro | nt: ject: | 1 | Nye | e Land Pty L cliffe, Wyee | td Developen | nent | | | | | Н | ole No: TP021 |
| Loc | atio | n: | Busl | nells Ridge I | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | | Angle from Horizontal: | | | e Elevation: |
| | | | | tonne Excava nsions: | ator | | | | Excavation Method: 4 | 00mm toothed | | actor: Cardno |
| | | | | 23/8/18 | | | | | Logged By: HS | | | ed By: GA |
| Ex | cavat | ion | | Sampling | & Testing | | | | | I Description | | |
| Method | Resistance | Stability | Water | Sample or Field Test | 150 mm | <i>.</i> | Graphic Log | Classification | SOIL TYPE, plasticity or particle cha colour, secondary and minor com ROCK TYPE, grain size and type, fabric & texture, strength, weath defects and structure | racteristic, ponents colour, ering, | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | | | | - | للد علد علد علد علد ع للد علد علد علد علد ع | | Clayey Silty SAND: fine to medium gra brown, low plasticity clay, trace rootlet | | | TOPSOIL |
| | | | | D 0.10 - 0.20 m | | _ | للد علد علد علد علد ع للد علد علد | | | М | | |
| | | | | D 0.50 - 0.60 m | | - - 0.5 - - | | sc | 0.30m Clayey SAND: fine to medium grained plasticity clay | l, grey, low | MD | ALLUVIUM |
| EX | | Stable | | | | - - 1.0 - - - - - - - - - - - | | | 0.90m Sandy CLAY: low to medium plasticity, mottled orange, fine to coarse grain s | , pale grey and | | RESIDUAL SOIL |
| | | | inflow encountered at 2.2m | PP 2.00 m =350 kPa PP 2.50 m =300 kPa PP 2.70 m =300 kPa | | 2.0 - - - - 2.5 - - | | CL- CI | | M (>1 | PL) VSt | |
| | | | | | | - | | | 3.00m | | | |
| <u> </u> | | | | | | 3.0 - - - | | | TERMINATED AT 3.00 m Target depth | | | |
| EX R HA PT SO AH PS AD AD HF WE R | Ri Ha Pu St St /V So /T So A Ho 3 Ro | ccavato pper and aug ush tub pric dri r hammercussion fr hammercussion fold flig blid flig blid flig blid flig bliow flig ashbor bck roll | ger e lling ner on san ral aug nt aug ght au ght au e drilli er | et v et v er v per er: V-Bit er: TC-Bit ger ng | Firm | efusal) Level on nflow | ı Date | S F C F N F II F V | ELD TESTS PT Standard Penetration Test P Hand/Pocket Penetrometer CP Dynamic Cone Penetrometer SP Perth Sand Penetrometer IC Moisture Content BT Plate Bearing Test IP Borehole Impression Test ID Photoionisation Detector S Vane Shear; P=Peak, R=Resdual (uncorrected kPa) | SAMPLES B - D - Disturbec ES - ENvironm U - Thin wall MOISTURE D - D - Moist W - Wet PL PL - LL - Liquid lim | I sample ental samp tube 'undis nit nit | le F - Firm |
| Ref abb | er to ex reviatio | planator | / notes asis of (| for details of descriptions | | | CAR | RDI | NO (NSW/ACT) PTY L | TD | | |

| (| | | | | lno [°] | | | | TEST PIT LOG SHEET |
|---|---|--------------|-----------|----------------------|--|--|--|----------------|---|
| | ent: ject atic | | F | Rado | e Land Pty Ltd cliffe, Wyee Develope nells Ridge Road, Bus | ment shells | | | Job No: 82219014 Hole No: TP022 Sheet: 1 of |
| | | | ee | atta | ched plan | | | | Angle from Horizontal: -90° Surface Elevation: |
| | | | | | onne Excavator | | | | Excavation Method: 400mm toothed bucket |
| Exc | ava | tior | n Di | mer | nsions: | | | | Contractor: Cardno |
| Dat | e Ex | kcav | /ate | ed: 2 | 23/8/18 | | | | Logged By: HS Checked By: GA |
| E | cava | ation | | | Sampling & Testing | | | | Material Description |
| Method | Resistance | Ctobility | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure |
| | | | | | D 0.10 - 0.20 m | + | لير علير علير علير علير ع لير علير علير علير علير علير علير علير علير لير علير علير | | Clayey Silty SAND: fine to medium grained, dark brown, low plasticity clay, trace rootlets W |
| | | | | | D 0.60 - 0.70 m | 0.5 | | SP | 0.30m Clayey Sity SAND: fine to medium grained, brown, low plasticity clay W L 0.50m W L SAND: fine to medium grained, pale grey I |
| | | | | sred | D 0.00 - 0.70 m | - | | sw | V MD |
| EX | Stable | Not Encounte | | - 1.0 - - - | | sc | Clayey SAND: fine to medium grained, pale grey, low plasticity clay | | |
| | | | | | PP 1.60 m =400 kPa | - - 1.5 - - | | CL | Sandy CLAY: low plasticity, pale grey mottled orange, fine to medium grain sand RESIDUAL SOIL M (>PL) VSt to H |
| | | | | | PP 1.90 m =450 kPa | - 2.0 | | | 2.00m H SANDSTONE, medium to coarse grain, pale grey WEATHERED ROCK |
| V | | | | | | - | | | mottled orange, trace shell, extremely weathered, extremely low strength 2.20m TERMINATED AT 2.20 m Virtual Refusal |
| | | | | | | - 2.5 | | | |
| | | | | | | - | | | |
| EX R HA PT SC AH PS AD AD HF WE | METHOD PENETRATION EX Excavator bucket Ripper HA Hand auger Easy PT Push tube Firm SON Sonic drilling HA AH Air hammer F PS Percussion sampler AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Holow flight auger WB Washbore drilling R Rock roller | | | | | (No Resistar (Refusal) r Level or n · inflow | | F F | FIELD TESTS SAMPLES SOIL CONSISTENCY SPT - Standard Penetration Test B - Bulk disturbed sample VS - Very Soft LP - Hand/Pocket Penetrometer D - Disturbed sample S Soft F DCP - Dynamic Cone Penetrometer D - Disturbed sample S S St Stiff PSP - Perth Sand Penetrometer U - Thin wall tube 'undisturbed' St Stiff VSt Very Stiff PBT - Plate Bearing Test D D D's RELATIVE DENSITY H - Hard PID - Photoionisation Detector W Wet U - Very Loose L Loose VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) LL Liquid limit D - Dense W W Weisture content WD - Very Dense VD - Very Dense |
| Ref | er to e | explana | atory | notes f | or details of lescriptions | | CAF | | NO (NSW/ACT) PTY LTD |

| | | | arc | lno° | | | | | | TE | ST PIT LOG SHEET |
|--|--|-----------|-----------------|---|---|--|---|---|------------------------|------------------------------------|-----------------------------------|
| Pro | ent: oject catio | : n: | Rádo Busł | Land Pty Ltd liffe, Wyee De ells Ridge Ro | evelopement | | | Job No: 82219014 | | Η | ole No: TP023 Sheet: 1 of 1 |
| Big | ige sitio | n: See | atta | ched plan | , | | | Angle from Horizontal: -90° | | Surfac | e Elevation: |
| | | | | onne Excavato | or | | | Excavation Method: 400mm t | | | |
| Exc | cava | tion D | imer | isions: | | | | | | | ctor: Cardno |
| Dat | te Ex | cavat | ed: 2 | 3/8/18 | | | | Logged By: HS | | Check | ed By: GA |
| E | xcava | tion | | Sampling & | - | | | Material Descrip | ion | | 1 |
| Method | Resistance | Stability | Water | Sample Field Te | or Depth (J | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | د علد علد علد علد ع د علد علد علد علد ع د علد علد | L L | Sitty SAND: fine to medium grained, brown, low plasticity silt, trace rootlets | D | | TOPSOIL |
| | | | | D 0.20 - 0.30 m | -0.5 | | sc | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine to coarse, sub-angular gravel | D to M | MD | COLLUVIUM |
| EX | | Stable | Not Encountered | | - - - -1.0 | | | 0.80m Silty CLAY: low to medium plasticity, brown-orang | le | | RESIDUAL SOIL |
| | | | | | | | CL- CI | 1.30m SILTSTONE, pale grey mottled red, extremely 4.40m weathered, extremely low strength | M (>PL) | St | WEATHERED ROCK |
| | | | | | | | | 1.40m weathered, extremely low strength TERMINATED AT 1.40 m Virtual Refusal | | | |
| | | | | | 1.5 - - - - - - 2.0 - - - - - - - - - - - - - - - - - - - | | | | | | |
| | | | | | - 2.5 - - - - | | | | | | - |
| E) R H/ P1 S0 AP AS AL AL HI W RF | Ripper VL Very Lasy (in Ness A. Hand auger Easy F Push tube F DN Sonic drilling H Hair hammer VH S Percussion sampler VH ON Solid flight auger: V-Bit Water Level D/T Solid flight auger: C-Bit water inflow B Washbore drilling water outflow | | | n Date | S F F II F | IP - Hand/Pocket Penetrometer D ES ICP - Dynamic Cone Penetrometer U ES ISP - Perth Sand Penetrometer U U IC - Moisture Content MOIST IBT - Plate Bearing Test D - IP - Borehole Impression Test M - ID - Photoionisation Detector W - IS - Vane Shear; P=Peak, PL - | Bulk disturb Disturbed sa Environmeni Thin wall tut URE Dry Moist | ample tal sampl be 'undist | e S - Soft F - Firm | | |

| | \square | C | arc | lno° | | | | | | TE | ST PIT LOG SHEET |
|---|---|--|--|--|--|--|------------------|---|-------------------------------|------------------------------------|-----------------------------------|
| | ent: oject: | 1 | Nyee | e Land Pty Ltd liffe, Wyee Develope | ment | | | | | Η | ole No: TP024 |
| Loc | atio | n: | Busł | ells Ridge Road, Bu | shells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm toot | | | atom. Conduc |
| | | | | nsions: 23/8/18 | | | | Logged By: HS | | | ctor: Cardno ed By: GA |
| | xcavat | | | Sampling & Testing | | | | Material Description | | | , |
| | ۵ | | | | Ê | | E | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | - | لد علد علد علد علد ع لد علد علد علد علد ع علد علد علد علد علد ع لد علد علد | | Sity SAND: fine to medium grained, brown, low plasticity sit, trace rootlets | D to M | | TOPSOIL |
| | | | | | - - 0.5 | | sc | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine to coarse, sub-angular gravel | м | MD | COLLUVIUM |
| EX | | Stable | Not Encountered | PP 1.00 m =250 kPa | - - - | | CL- CI | 0.60m Sitty CLAY: low to medium plasticity, pale brown mottled orange, with lithorelics (sittstone) | M (>PL) | VSt | RESIDUAL SOIL |
| | | | | PP 1.30 m =350 kPa | - | | | 1.40m SILTSTONE, pale grey mottled red, extremely | | | - - WEATHERED ROCK |
| | | | | | - 1.5 | | | sic random, pare grey induced red, extremely weathered, extremely low strength | | | - |
| | | | | | - | | | TERMINATED AT 1.60 m Virtual Refusal | | | |
| | | | | | -2.0 | | | | | | - |
| | | | | | - | | | | | | |
| | | | | | - 2.5 | | | | | | - |
| | | | | | - | | | | | | · · · · · · |
| | | | | | | | | | | | |
| EX R HA PT SC AH PS AS | Ri Pi DN So A Ai S Pi S Si S Si S Si S A A FA Ho B W | kcavato pper and aug ush tub onic dril r hamm ercussio nort spi olid fligl | ger e ling ler on sam ral auge nt auge nt auge ght au e drillir | pler er er: V-Bit ger | (No Resistar (Refusal) er Level on | | S F F F | P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr ID - Photoionisation Detector M - Mu ID - Photoionisation Detector W - We ID - Paradual (uncommetaria (UD)) - Paradual (uncommetaria (UD)) | / ist et astic limit | imple tal sampl be 'undist | e F - Soft |
| Ret | fer to ex | planatory | notes f | or details of escriptions | | CAF | | NO (NSW/ACT) PTY LTD | | | |

10 2.016 LIB GLB Log CARDNO NON-CORED 82219014 RADCLIFFE, WYEE DEVELOPMENT.GPJ <</ r>

| | \square | C | arc | dno [°] | | | | | | | ST PIT LOG SHEET |
|--|---|-----------------|-----------------|---|---------------------------|---|-------------------|--|--------------------------------|------------------------------------|-----------------------------------|
| Clie Pro | ent: ject: | | Rado | e Land Pty Ltd cliffe, Wyee Develope | | | | | | H | ole No: TP025 |
| | atio | n: | Busł | nells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan tonne Excavator | | | | Angle from Horizontal: -90° Excavation Method: 400mm toot | | | e Elevation: |
| | | | | nsions: | | | | Excavation Method. 400min tool | | | ctor: Cardno |
| | | | | 23/8/18 | | | | Logged By: HS | | | ed By: GA |
| Ex | cavat | ion | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | D 0.10 - 0.20 m | + | لد علد علد علد علد ع لد علد علد علد علد ع لد علد علد | | Silty SAND: fine to medium grained, brown, low plasticity silt, trace rootlets | | | TOPSOIL |
| | | | | | + | على على على على لا على على على على على لا على على على على على لا على على | | 0.30m | D | | |
| EX | | Stable | Not Encountered | | - - 0.5 - - - | | sc | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine to coarse, sub-angular gravel | м | MD | COLLUVIUM |
| | | Sta | Not | | - 1.0 - - | | CL- | 1.00m Sitty CLAY: low to medium plasticity, pale brown mottled orange, with lithorelics (sittstone) | | | RESIDUAL SOIL |
| | | | | PP 1.50 m =400 kPa | - 1.5 - | | CI | 1.70m | M (>PL) | VSt to H | |
| | | | | | - | | | SILTSTONE, pale grey mottled red, extremely weathered, extremely low strength | | | WEATHERED ROCK |
| | | | | | | <mark></mark> | | 1.90m TERMINATED AT 1.90 m Virtual Refusal | | | |
| | | | | | - 2.0 - - | | | | | | |
| | | | | | - - 2.5 - - | | | | | | |
| ME EX R HA | Ri | kcavato pper | | E Easy | | nce) | S H | P - Hand/Pocket Penetrometer D - Dis | sturbed sa | eed sampl ample tal sampl | S - Soft |
| PT SC AH PS AD AD HF WE | HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller | | | | | Date | F N F II | CP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer MOSTURE C - Moisture Content MOSTURE BT - Plate Bearing Test D - Dn ID - Photoionisation Detector W - We S - Vane Shear; P=Peak, PL - Pla D - Dn Plate Bearing test | in wall tul : vist et | be 'undisl | |
| | | | | for details of descriptions | | CAF | RD | NO (NSW/ACT) PTY LTD | | | |

| (| |) | C | arc | Ino ° | | | | | | | TE | ST PIT LOG SHEET |
|--------|---------------------------------|----------------------------|-------------------------------------|---|--------------------------------|---|-----------------|---|------------------|--|---|------------------------------------|---|
| P | | nt: ect: ation | | Rådo | e Land Pty cliffe, Wye | y Ltd ee Developer je Road, Bus | nent | | | Job No. 82240044 | | H | ole No: TP026 |
| | | | | | ched plar | | lielis | | | Job No: 82219014 Angle from Horizontal: -9 | 0° | Surface | Sheet: 1 of 1 e Elevation: |
| | | | | | onne Exc | | | | | Excavation Method: 400n | | | |
| | | | | | nsions: | | | | | | | | ctor: Cardno |
| | | | | ed: 2 | 23/8/18 | | | | | Logged By: HS | | Checke | ed By: GA |
| | Exc | avati | on | | Sampl | ing & Testing | | | - | Material De | scription | | |
| Method | | Resistance | Stability | Water | | ample or ield Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characte colour, secondary and minor compone ROCK TYPE, grain size and type, colo fabric & texture, strength, weathering defects and structure | bur, tā jā | Consistency Relative Density | STRUCTURE & Other Observations |
| A | • | | | | D 0.10 - 0.2 | 0 m | _ | لد علد علد علد علد ع لد علد علد علد علد ع لد علد علد علد علد ع | | Silty SAND: fine to medium grained, brown, plasticity silt, trace rootlets | , low M | | TOPSOIL - |
| | | | | | | | + | له علم علم علم علم ع له علم علم | | 0.25m | | | |
| | | | | Ţ | | | - - - 0.5 | | | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine coarse, sub-angular gravel | to | | COLLUVIUM |
| EX | i | | Stable | Not Encountered | | | - | | SC | | D to M | MD | - |
| | | | | | | | - | | | 0.90m | | | RESIDUAL SOIL |
| 2000 | | | | | | | - 1.0 | | CL- CI | Silty CLAY: low to medium plasticity, pale bu mottled orange, with lithorelics (siltstone) | M (>PL) | VSt | - |
| | | | | | PP 1.10 m : | =320 kPa | | | | 1.20m | | | |
| | | | | | | | - | | | SILTSTONE, pale grey mottled red, extrem weathered, extremely low strength | nely | | WEATHERED ROCK |
| | | | | | | | | <u> </u> | | 1.40m TERMINATED AT 1.40 m Refusal | | | |
| 5 | | | | | | | - 1.5 | | | | | | - |
| 200 | | | | | | | F | | | | | | - |
| 2 | | | | | | | - | | | | | | - |
| | | | | | | | - | | | | | | - |
| | | | | | | | F | | | | | | - |
| 2 | | | | | | | -2.0 | | | | | | - |
| 20 | | | | | | | - | | | | | | - |
| 5 | | | | | | | | | | | | | - |
| | | | | | | | - | | | | | | - |
| | | | | | | | | | | | | | - |
| | | | | | | | -2.5 | | | | | | - |
| Î | | | | | | | F | | | | | | - |
| | | | | | | | - | | | | | | - |
| | | | | | | | F | | | | | | - |
| 5 | | | | | | | ŀ | | | | | | - |
| | | | | | | DENIETDATION | | | | | | | |
| | EX R HA PT SON | Rip Ha Pu N So | per nd aug sh tub nic dril | e ling | et | PENETRATION VE Very Easy (* E Easy F Firm H Hard VH Very Hard (F | No Resistar | nce) | S H C F | SPT - Standard Penetration Test B HP - Hand/Pocket Penetrometer D DCP - Dynamic Cone Penetrometer E PSP - Perth Sand Penetrometer U | Disturbed sa S - Environment | ample tal sample | e S - Soft F - Firm |
| Ϊ I | AH PS AS | Pe | | er on sam al aug | | WATER | Level on | Date | F | PBT - Plate Bearing Test | - Dry | | RELATIVE DENSITY |
| | AD/\ AD/1 HFA WB RR | V Sol T Sol Ho Wa | id fligh id fligh low fli | nt auge nt auge ght au e drillir | er: V-Bit er: TC-Bit ger | water i | nflow | Dale | F | MP - Borehole Impression Test PID - Photoionisation Detector /S - Vane Shear; P=Peak, R=Resdual (uncorrected kPa) | / - Wet L - Plastic limit L - Liquid limit | ntent | VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| | Refer | r to exp | lanatory | notes f | for details of lescriptions | | | CAF | RD | NO (NSW/ACT) PTY LTI |) | | |

0/0.2.01.6.LIB.G.L.B.G. CARDNO NON-CORED 2219014 RADCLIFFE, WYEE DEVELOPMENT GPJ <- Chrawingfile>> 1209/2018/0.12 10.0.000 Dagel AGS RTA, Photo

| Clie | | 1 | Nve | e Land Pty Ltd | | | | | | | | ST PIT LOG SHEE |
|---|--|--|---|---|---|---|----------------|---|---|---|------------------------------------|---|
| Proj Loca | atior | n: I | Busl | cliffe, Wyee Developer hells Ridge Road, Bus | nent hells | | | Job No: 82219014 | L | | | Sheet: 1 of |
| 3ido Sosi | tion | : See | atta | iched plan | | | | Angle from Horizo | | : | Surfac | e Elevation: |
| | | | | tonne Excavator | | | | Excavation Metho | d: 400mm too | | | |
| | | | | nsions: | | | | Longood Dyn. US | | | | ictor: Cardno |
| | cavati | | ea: z | 23/8/18 Sampling & Testing | | | | Logged By: HS | aterial Description | | Спеск | ed By: GA |
| | Javau | | | Sampling & resulig | | | _ | IV | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | DIL TYPE, plasticity or partic colour, secondary and mino ROCK TYPE, grain size an fabric & texture, strength, defects and struc | r components d type, colour, weathering, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | D 0.10 - 0.20 m | _ | لد علد علد علد علد ع لد علد علد علد علد علد لد علد علد علد علد ع | - | Silty SAND: fine to medium gra plasticity silt, trace rootlets | ined, brown, low | м | | TOPSOIL |
| | | | ntered | | - 0.5 | | SC | Clayey SAND: fine to medium brown-orange, low plasticity ck coarse, sub-angular gravel | grained, y, trace fine to | M | MD | COLLUVIUM |
| EX | | Stable | Not Encountered | PP 1.30 m =250 kPa | - - - 1.5 - - - - - - - - | | CL-CI | Silty CLAY: low to medium plas mottled orange, with lithorelics | (siltstone) | M (>PL) | VSt | RESIDUAL SOIL |
| • | | | | | - - - 2.5 - | | | TERMINATED AT 2.30 m Virtual Refusal | rea, extremely gth | | | |
| EX R HA PT SOI AH PS AD/ AD/ HF/ | Rip Ha Pu N So Air Pe Sh V So T So A Ho | cavator oper ind aug ish tub nic dril hamm rcussic iort spin lid fligh lid fligh lid fligh | ger e ling ler on san ral aug nt aug ght aug | ppler ger er: V-Bit grger | No Resistar Refusal) Level on nflow | | S H C | ESTS Standard Penetration Test Hand/Pocket Penetrometer Dynamic Cone Penetrometer Moisture Content Plate Bearing Test Borehole Impression Test Photoionisation Detector Vane Shear; P=Peak, | P - Di ES - Er U - Tr MOISTURI D - Di M - M W - W PL - Pi | ulk disturb isturbed sa nvironmen nin wall tul E ry oist et astic limit | ample tal sampl | te S - Soft turbed' St - Stiff VSt - Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Denset |
| R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit AD/V Solid flight auger: V-Bit AD/V Solid flight auger: TC-Bit HFA Holow flight auger WB Washbore drilling RR Rock roller | | | | | | | | Dynamic Cone Penetromet Perth Sand Penetrometer Moisture Content Plate Bearing Test Borehole Impression Test Photoionisation Detector | er ES - Er U - Tr MOISTURI D - D M - M W - M PL - Pi LL - Li W - M | nvironmen hin wall tul E ry oist 'et | tal sampl | le F - Firm turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose |

| Clie Proi | nt: ect: | ١ | Nyee | e Land Pty Ltd cliffe, Wyee Developen | nent | | | | | | | | ST PIT LOG SHEE ole No: TP02 |
|--|-------------|-----------|-----------------|--|--|--|------------------------|--|--|--|-------------------------------|------------------------------------|--|
| Loca | atio | n: I | Busł | nells Ridge Road, Busl | nells | | | | Job No: 82219014 | | | | Sheet: 1 of |
| | | | | iched plan | | | | | Angle from Horizontal: | | | | e Elevation: |
| | | | | tonne Excavator | | | | | Excavation Method: 400 | imm tootn | | | ctor: Cardno |
| | | | | 23/8/18 | | | | | Logged By: HS | | | | ed By: GA |
| Ex | cavat | ion | | Sampling & Testing | | | | | Material D | escription | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | | DIL TYPE, plasticity or particle charac colour, secondary and minor compo ROCK TYPE, grain size and type, cc fabric & texture, strength, weatheri defects and structure | nents plour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| • | £ | | | | | للد عليہ عليہ عليہ عليہ ع عليہ عليہ عليہ | Ö | | Sitty SAND: fine to medium grained, brov plasticity sitt, trace rootlets | | D to M | 0 | TOPSOIL |
| | | | | D 0.10 - 0.20 m | Ŧ | | | 0.20m | Clayey SAND: fine to medium grained, | | | | COLLUVIUM |
| | | υ | Not Encountered | | - - 0.5 - - - - - - - 1.0 | | SC | | brown-orange, low plasticity clay, trace fi coarse, sub-angular gravel | ne to | М | MD | |
| Ś | | Stable | Not Enc | PP 1.50 m =250 kPa | - - 1.5 - - | | | | Silty CLAY: low to medium plasticity, pale mottled orange, with lithorelics (siltstone) | | | | RESIDUAL SOIL |
| | | | | | - - 2.0 - - - | | CL- CI | | | | M (>PL) | VSt | |
| ME" | ТНОД | | - huck | PENETRATION | -2.5- | | | FIELD TE | TERMINATED AT 2.50 m Target depth STS Standard Penetration Test | SAMPLES B - Bulk | dicturb | ad came! | e VS - Very Soft |
| EX Excavator bucket VE Very Easy (No Resistance) R Ripper E Easy HA Hand auger F Firm PT Push tube H Hard SON Sonic drilling VH Very Hard (Refusal) AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit Mashbore drilling Water Level on Date HFA Hollow flight auger: TC-Bit water inflow water inflow WB Washbore drilling water outflow Image: Water outflow | | | | | | | F F F II F | HP - DCP - PSP - MC - PBT - MP - PID - /S - | Hand/Pocket Penetrometer Dynamic Cone Penetrometer Perth Sand Penetrometer Moisture Content Plate Bearing Test Borehole Impression Test Photoionisation Detector Vane Shear: P=Peak | D - Distu ES - Envir U - Thin MOISTURE D - Dry M - Moist W - Wet PL - Plast LL - Liqui | rbed sa onment wall tub | imple al sample be 'undist | e turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dens D - Dense |
| | Ro | ock rolle | er | for details of | | | | | NSW/ACT) PTY LT | | ure con | iterit | |

| lient | | Wy | r dno ° ee Land F | Pty Ltd | | | | | | | | | TE H | ole No: TP02 |
|---|---|--------|-----------------------------|------------------|-------------------------|-------------------------------|---|--------------------------------------|---|---|---|-----------------------|------------------------------------|-----------------------------------|
| Projec .ocati | | Ra | dcliffe, W shells Ric | yee De | velopen ad. Busl | nent hells | | | | Job No: 82219014 | | | | Sheet: 1 of |
| | | | tached pl | | | | | | | Angle from Horizontal | · -90° | | Surfac | e Elevation: |
| | | | 5 tonne Ex | | r | | | | | Excavation Method: 4 | | | | |
| | | - | ensions: | | - | | | | | | | | | ctor: Cardno |
| | | | : 24/8/18 | | | | | | | Logged By: HS | | | | ed By: GA |
| | vation | | - | pling & T | esting | | | | | | al Description | | | |
| Method | Ctability | Mator | Sam | ple or I Test | (blows per 150 mm | (Depth (m) | Graphic Log | Classification | s | OIL TYPE, plasticity or particle cha colour, secondary and minor com ROCK TYPE, grain size and type fabric & texture, strength, weath defects and structure | ponents , colour, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| ▲ | r | | | | 1 3 6 12 | : | ليد عليد عليد عليد عليد ع | ö | | Silty SAND: fine to medium grained, g | grey, low | | | TOPSOIL |
| | | | D 0.10 - 0 |).20 m | | - | له علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم | | | plasticity silt, with rootlets | | D to M | | |
| | | | D 0.30 - 0 |).40 m | | - | | | 0.30m | Clayey SAND: fine to medium grainer | d, | | | COLLUVIUM |
| | | | | | | - - 0.5 - - - | | SC | | yeliow-brown, low plasticity clay | | М | MD | |
| EX | or to | | | | | - 1.0 - - - | | | 1.00m | Silty CLAY: low to medium plasticity, g orange, with lithorelics (siltstone) | grey mottled | | | RESIDUAL SOIL |
| | | | | | | - 1.5 - - - - 2.0 | | CL- CI | | | | M (>PL) | St | |
| | | | | | | - | | | 2.20m | | | | | |
| | | • •••• | | | | ľ | | | £.£VIII | SILTSTONE, pale grey mottled red, e | extremely | | | WEATHERED ROCK |
| ♥ | | 1 | 5 | | + | | | | 2.30m | weathered, extremely low strength TERMINATED AT 2.30 m | | | | |
| | | | | | | - - 2.5 - - | | | | Virtual Refusal | | | | |
| METH EX R HA PT SON AH PS AD/V AD/T HFA WB | R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger AD/V Solid flight auger KAD/V Solid flight auger KAD/V Solid flight auger KAD/V Solid flight auger | | | | | | | S H D P M P I P | IELD T PT - PCP - SP - IC - BT - MP - ID - 'S - | ESTS Standard Penetration Test Hand/Pocket Penetrometer Dynamic Cone Penetrometer Perth Sand Penetrometer Moisture Content Plate Bearing Test Borehole Impression Test Photoionisation Detector Vane Shear; P=Peak, R=Resdual (uncorrected kPa) | D - Dis ES - En U - Thi MOISTURE D - Dry M - Mo W - We PL - Pla LL - Liq | ist | ample tal sampl be 'undist | le F - Firm |

| Cation: Businelis Ridge Road, Businelis Job Nr. 8221901 Shert More: See attacked plan Angle from Horizontal: Contractor: Contr | |) C | ar | dno° | | | | | | | TE | ST PIT LOG SHEE |
|--|----------------------------|----------------------|--------------------|----------------------------------|----------------|------------------|--|---------------|---|--|------------------------------------|-------------------------------------|
| Station: Angle from Horizontal: Surface Elevation: Uniter Type: Storme Excavation Method: 400m toothed backet Io: Excavation Method: 400m toothed backet Io: Excavation Method: Contractor: Io: Excavation Method: Contractor: Io: Excavation Method: Sampling & Testing Io: Excavation Method: Io: Excavation Method: Io: Excavation Method: Io: Excavation Method: | lient: roject: | : | Wye Rad | e Land Pty Lto cliffe, Wyee D | d eveloperr | nent | | | | | H | ole No: TP03 |
| Chine Type: 5 tome Ecavator Ecavation Method: 400mm todhed bucket Caration Dimension: Contractor: Cardno Contractor: 248/18 Checked By: CA Sampling & Samplin | | on: | Bus | hells Ridge Ro | | | | | | | | Sheet: 1 of |
| Constructor: Cardino to Excavator: 248/19 Constructor: Cardino to Excavator: 248/19 Constructor: Cardino to Excavator: 248/19 Support Sampling & Testing Fed Test Sam | | | | | | | | | • | | | e Elevation: |
| Legged By: HS Checked By: GA Scowelton Sampling & Testing By By B | | | | | or | | | | Excavation Method: 400r | | | ctor: Cardno |
| Sampling & Testing Sample of Field Test Sample of Field Test Bit does not an | | | | | | | | | Loaged By: HS | | | |
| all or all or all or all or all all< | | | | 1 | Testing | | | | | | | , |
| all or all or all or all or all all< | 0 | | | | | Ê | | E | | | | |
| Bit Start Product gramed gr | Resistance | Stability | Water | | `per 150 mm | <i>′</i> | Graphic Log | Classificatic | colour, secondary and minor compone ROCK TYPE, grain size and type, col fabric & texture, strength, weatherin | teristic, nents entry lour, signed ng, WO | Consistency Relative Density | STRUCTURE & Other Observations |
| embody above < | | | | D 0.10 - 0.20 m | 1 1 1 1 | - | علت علت ع للت علت علت علت علت ع للت علت علت | | | | | TOPSOIL |
| Big Big <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>له علم علم علم علم ع</td> <td></td> <td></td> <td>М</td> <td></td> <td></td> | | | | | | - | له علم علم علم علم ع | | | М | | |
| 9 0.60 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>علد علد ع</td><td></td><td></td><td></td><td></td><td></td></t<> | | | | | | | علد علد ع | | | | | |
| B B <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Clayey SAND: fine to medium grained, yellow-brown, low plasticity clay</td> <td></td> <td></td> <td>COLLUVIUM</td> | | | | | | | | | Clayey SAND: fine to medium grained, yellow-brown, low plasticity clay | | | COLLUVIUM |
| B B <td></td> | | | | | | | | | | | | |
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| 9 9 1 <td></td> <td></td> <td></td> <td></td> <td></td> <td>$\left \right$</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | $\left \right $ | | | | | | |
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| Image: Statistic state | | | | | | - | | | | M (>PL) | | |
| ETHOD PENETRATION SILTSTONE. pale grey motified red, extremely weathered, | | | | | | - | | | | | | |
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| Image: Provide diffing the three description of the three descri | | | | | | | | | | | | |
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| Image: Solution of the state of the st | | | | | liii | | | | | | | |
| NETHOD VE Very Easy (No Resistance) FIELD TESTS SAMPLES SOIL CONSIST X Excavator bucket IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII | | | | | | -2.5 | | | | | | |
| X Excavator bucket VE Very Easy (No Resistance) SPT SPT Standard Penetration Test B B Bulk disturbed sample VS Very Fright A Hand auger F Firm HDP Hand/Pocket Penetrometer D Disturbed sample S Soft Soft Soft Soft Soft Firm F Firm D Disturbed sample Soft Soft Soft Soft Soft Soft Soft F Firm D Disturbed sample Soft | | | | | | F | | | | | | |
| X Excavator bucket VE Very Easy (No Resistance) SPT SPT Standard Penetration Test B B Bulk disturbed sample VS Very Fright A Hand auger F Firm HDP Hand/Pocket Penetrometer D Disturbed sample S Soft Soft Soft Soft Soft Firm F Firm D Disturbed sample Soft Soft Soft Soft Soft Soft Soft F Firm D Disturbed sample Soft | | | | | | \mathbf{F} | | | | | | |
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| X Excavator bucket VE Very Easy (No Resistance) SPT SPT Standard Penetration Test B B Bulk disturbed sample VS Very Fright A Hand auger F Firm HDP Hand/Pocket Penetrometer D Disturbed sample S Soft Soft Soft Soft Soft Firm F Firm D Disturbed sample Soft Soft Soft Soft Soft Soft Soft F Firm D Disturbed sample Soft | | | | | | | | | | | | |
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| t Ripper VL Very Lasy (No Resistance) HP - Hand/Pocket Penetrometer D - Disturbed sample S - Soft A Hand auger F Firm DCP Dynamic Cone Penetrometer D - Disturbed sample S - Soft T Push tube H Hard PSP Perth Sand Penetrometer U - Thin wall tube 'undisturbed' S - Stift ON Sonic drilling VH Very Hard (Refusal) PSP Perth Sand Penetrometer MOISTURE MOISTURE S - Stiff S Percussion sampler S Short spiral auger Water Level on Date PBT Plate Bearing Test D - Dry RELATIVE DEI D/V Solid flight auger: V-Bit Shown PID Photoionisation Detector W Wet VL Very | METHOD | D | | PE | NETRATION | 1 | | F | ELD TESTS S | SAMPLES | I | SOIL CONSISTENCY |
| A Hand auger F Firm DCP Dynamic Cone Penetrometer U - Es - Environmental sample F - F - Stiff ON Sonic drilling H Hard PSP Perth Sand Penetrometer WOISTURE WOISTURE S S S S Nonis tail auger MOISTURE MOISTURE H H Hard D/V Solid flight auger: V-Bit Vater Level on Date IMP - Plotoionisation Detector M - Dry RELATIVE DEI D/V Solid flight auger: V-Bit - - PID - Photoionisation Detector W Wet L - Very | R Ri | Ripper | | *- | | lo Resistar | ice) | | P - Hand/Pocket Penetrometer | D - Disturbed sa | ample | |
| H Air hammer MC - Moisture Content MOISTURE H - Hard S Percussion sampler S Short spiral auger PBT - Plate Bearing Test D - Dry RELATIVE DEI D/V Solid flight auger: V-Bit Shown PID - Borehole Impression Test M - Moist VL - Very D/T Solid flight auger: V-Bit Shown PID - Photoionisation Detector W - Wet L - Loss | HA Ha PT Pu | land au Push tu | ibe | F | Firm Hard | | | D | CP - Dynamic Cone Penetrometer | ES - Environmen | tal sample | e F - Firm turbed' St - Stiff |
| S Short spiral auger D D Dry RELATIVE DEI D/V Solid flight auger: V-Bit Shown IMP - Brochole Impression Test M - Moist VL - Very D/T Solid flight auger: TC-Bit - PID - Photoionisation Detector W - Wet - Loss | AH Ai | Nir hamı | mer | | | efusal) | | M | C - Moisture Content | MOISTURE | | |
| D/T Solid light auger TC-Bit snown PID - Photoionisation Detector W - Wet L - Loose | AS SI | Short sp | piral au | ger | Vater I | | Date | | | M - Moist | | RELATIVE DENSITY VL - Very Loose |
| IFA Hollow flight auger / F- water inflow / VS - Vane Shear: P=Peak. / PL - Plastic limit / MD - Mediu | AD/T So | Solid flig | ght aug | er: TC-Bit | | | | P | ID - Photoionisation Detector | W - Wet PL - Plastic limit | | L - Loose |
| R undowing agent agent water outflow R=Residual (uncorrected kPa) LL Liquid limit D - Dens | WB W | Vashbo | ore drill | ng - | | | | | B-Resdual (uncorrected kPa) | LL - Liquid limit | ntent | D - Dense |
| | | | | | | | | | | | | |
| efer to explanatory notes for details of obreviations and basis of descriptions CARDNO (NSW/ACT) PTY LTD | Refer to ex abbreviatio | explanato ons and | bry notes basis of | for details of descriptions | | | CAR | RDI | NO (NSW/ACT) PTY LT | D | | |

| | G | arc | lno [°] | | | | | | | TE | ST PIT LOG SHEET |
|---|---|------------------------|----------------------------------|---------------------------|-----------------|---|---|---|----------------------------------|------------------------------------|-----------------------------------|
| Client: Project: | ١ | Nyee Rado | e Land Pty Ltd liffe, Wyee De | evelopem | ent | | | | | Η | ole No: TP031 |
| Locatior | n: I | Busł | nells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | onne Excavat | or | | | | Excavation Method: 400mm | | | · • • |
| Excavati Date Exc | | | | | | | | Logged By: HS | | | ed By: GA |
| Excavati | | <u></u> | Sampling & | Testina | | | | Material Descrip | | Oneck | |
| | | - | | | Ê | | c | | | | |
| Method Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | D 0.10 - 0.20 m | | - | لله علم علم علم علم علم علم علم علم علم علم علم لله علم علم | | Sitty SAND: fine to medium grained, grey, low plasticity sit, with rootlets | | | TOPSOIL |
| | | | | | - | على على على ع لي على على على على على ع لي على على | | | D | | |
| | | | | | | | | 0.30m Clayey SAND: fine to medium grained, yellow-brown, low plasticity clay | | | COLLUVIUM |
| | | | | | -0.5 | | sc | | D to M | MD | |
| | | | | | - | | | 0.70m Silty CLAY: low to medium plasticity, grey mottler orange, with lithorelics (siltstone) | t t | | RESIDUAL SOIL |
| | | | | | - | | | orange, munitionence (anatorie) | | St | - |
| EX - | Stable | | | | - 1.0 | | | | | | |
| | | | | | | | CL- | | M (>PL) | | |
| | | | | vR | | | CI | | | VSt to H | |
| | | | | | - 1.5 - - | | | | | | |
| | | ► | | | - | | | 1.90m SILTSTONE, pale grey mottled red, extremely | | | WEATHERED ROCK |
| * | | at 1.9m | | | -2.0- | | | 2.00m weathered, extremely low strength TERMINATED AT 2.00 m | | | |
| | | inflow encountered at | | | | | | Virtual Refusal | | | |
| | | | | | - | | | | | | |
| R Rip HA Ha PT Pu SON So AH Air PS Pe AS Sh AD/V So AD/T So HFA Ho | EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger: V-Bit AD/V Solid flight auger: TC-Bit HFA Hollow flight auger W Water Level on shown W water inflow W aver outflow | | | | | S F F F | P Hand/Pocket Penetrometer D CP Dynamic Cone Penetrometer U SP Perth Sand Penetrometer U IC Moisture Content MOIST BT Plate Bearing Test D ID Borehole Impression Test M ID Photoionisation Detector W S Vane Shear; P=Peak, PL | Bulk disturb Disturbed s Environmen Thin wall tu TURE Dry Moist Wet Plastic limit Liquid limit | ample ital sampl be 'undis | Ie S - Soft F - Firm | |
| RR Ro | ock rolle | er | | | | | | · · · · · · · · · · · · · · · · · · · | Moisture co | nient | VD - Very Dense |
| Refer to exp | planatory | / notes f asis of d | or details of lescriptions | | | CAF | RDI | NO (NSW/ACT) PTY LTD | | | |

| | | dno | | | | | | | | ST PIT LOG SHEET |
|--|--|--|---|--|---|---|--|--|---|--|
| :: ct: | Rade | cliffe, Wyee I | Developem | ent | | | | | H | ole No: TP032 |
| | | | Road, Bush | ells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | tor | | | | - | | | e Elevation: |
| | | | | | | | | | | ctor: Cardno |
| Exca | vated: | 24/8/18 | | | | | Logged By: HS | (| Checke | ed By: GA |
| vation | | Sampling 8 | & Testing | | | | Material Description | ı | | |
| Resistance | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | - | على . | | Silty SAND: fine to medium grained, grey, low plasticity silt, with rootlets | D | | TOPSOIL |
| | | | | - - 0.5 - - | | SC | Clayey SAND: fine to medium grained, yellow-brown, low plasticity clay | D to M | MD | COLLUVIUM RESIDUAL SOIL |
| Charle | Violation Not Encountered | | | - - 1.0 - - - - 1.5 | | 27 | | M (>PL) | St | |
| | | | | - - - 2.0 - - | | G | 2.50m | | VSt to H | |
| | | | | 2.5 - - | | | TERMINATED AT 2.50 m Target depth | | | |
| R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Head | | | | | | SI H D P M P I N P | PT - Standard Penetration Test B - B P - Hand/Pocket Penetrometer D - D CP - Dynamic Cone Penetrometer U - TI SP - Perth Sand Penetrometer U - TI C - Moisture Content D - D BT - Plate Bearing Test D - D IP - Borehole Impression Test M - M D - Photoionisation Detector W - W S - Vane Shear, P=Peak, PL - Li | ulk disturbd isturbed sa nvironment nin wall tub E ry oist /et lastic limit quid limit | ample tal sampl be 'undist | e S - Soft F - Firm |
| | Children Construction Construct | CD CD CD CD CD CD CD CD CD CD | Ct: Radcliffe, Wyee I ion: Bushells Ridge F on: See attached plan ne Type: 5 tonne Excava ation Dimensions: Excavated: 24/8/18 vation Sampling A attack Sampling A attack | Rádcliffe, Wyée Developemu ion: See attached plan ne Type: 5 tonne Excavator ation Dimensions: Excavated: 24/8/18 vation Sampling & Testing and the sample or Field Test (blows per 150 mm) 1 3 6 12 age of the sample or Field Test (blows per 150 mm) 1 3 6 12 age of the sample or Field Test (blows per 150 mm) 1 3 6 12 age of the sample or Field Test (blows per 150 mm) 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Cit: Radcliffe, Wyee Developement Bushells Ridge Road, Bushells cn: Bushells Ridge Road, Bushells cn: Sample or Field Test (i) ation Dimensions: Excavated: 24/8/18 Sample or Field Test (i) (ii) ation Dimensions: Excavated: 24/8/18 Sample or Field Test (b)ows per 150 mm) (ii) (ii) ation Dimensions: Excavated: 24/8/18 Sample or Field Test (b)ows per 150 mm) (ii) (ii) ation Dimensions: Excavate Sample or Field Test (b)ows per 150 mm) (ii) (ii) ation Dimensions: Excavate Sample or Field Test (b)ows per 150 mm) (iii) (iii) ation Dimensions: Excavate Base (iii) Base (iii) Field Test (iii) (iii) ation Dimensions: Excavate Base (iii) Base (iii) Base (iii) (iii) (iii) (iii) ation Dimensions: Excavate Base (iii) Base (iii) Base (iii) Base (iii) Excavate ation Dimensions: Excavate Base (iii) Base (iii) Base (iii) Excavate Excavate ation Dimensions: Excavate Base (iiii) Excavate Excavate < | Et: Radcliffe, Wyée Development Bushells Ridge Road, Bushells on: See attached plan ne Type: 5 tonne Excavator atton Dimensions: Excavated: 24/8/18 vation Sample or Field Test (blows per 150 mm) g g g g g g g g g g g g g g g g g g g | Radcliffe, Wyże Developement ion: Bushells Ridge Road, Bushells on: See attached plan ine Type: 5 tonne Excavator atton Dimensions: Excavated: 24/8/18 vation Sample or Field Test ing Der 150 mm) (Der 2000 Signed Signe | Badcilife, Wyse Development ion: Buschalls Ridge Road, Bushells Job No: 8221914 On: See attached plan Angle from Horizontal: -90° Excavation Dimensions: Excavated: 24/8/18 Excavation Method: 400mm too attom Dimensions: Excavated: 24/8/18 Image: Semple or Field Test (Done for for for for for for for for for for | City Exacle life, Wyee Developmentition: Job No: 82219014 cor: Bushells Job No: 82219014 cor: Excavator Excavator attion Dimensions: Excavation Method: 400mm toothed: bushells attion Sampling & Testing Logged By: HS attion Sampling & Testing Use of the second secon | Image: Search Study Excession Job No: 82219014 on: Sea ratached plan Angle from Horizontal: -90* Surface on: Search Studye Road, Bushells Job No: 82219014 Surface on: Search Studye Road, Bushells Angle from Horizontal: -90* Surface on: Search Studye Road, Bushells Job No: 82219014 Concertance on: Search Studye Road, Bushells Job No: 82219014 Concertance or Systematic Attract Studye Road, Bushells Job No: 82219014 Concertance or Systematic Attract Studye Road, Bushells Job No: 82219014 Concertance or Systematic Attract Studye Road, Bushells Job No: 82219014 Concertance or Systematic Attract Studye Road, Bushells Logged By: HS Concertance or Systematic Attract Studye Road Substance Notes Substance or Systematic Attract Studye Road Substance Substance Substance or Systematic Attrace Substance Substance |

| Projection Said (Iffe, Wyke Development Job No: 82219014 Surface Elevation: Section: Surface Searched plan Angle from Morizontal: 40° Surface Elevation: | \square | | | dno [°] | | | | | | | | ST PIT LOG SHEET |
|--|--|---|----------|----------------------|----------------|------------------------------|---|------------------|---|--|------------------------------------|--|
| Bit Monito Type: Solution Linear L | | t: | Rado | cliffe, Wyee De | evelopem | | | | | | Η | |
| Machine Type: 5 tome Eccavator Excavator Method: 400m toolfed buckt Securation Method: 400m toolfed buckt Contractor: Cardio Date Eccavator: Samping & Tesma Contractor: Cardio Date Securation Method: 400m toolfed by: HS Conclude By: HS Conclude By: HS Conclude By: HS Demonstration Samping & Tesma Securation Method: 400m toolfed by: HS Conclude By: HS Conclude By: HS Conclude By: HS Securation Method: 400m toolfed by: HS Samping & Tesma Securation Method: 400m toolfed by: HS Conclude By: HS Conclusions Conclusions Securation Method: 400m toolfed by: HS | | | | | ad, Bush | nells | | | | | 0 | Sheet: 1 of ' |
| Excervation Dimensions: Cardino Dimensions: Contractor: Cardino Dimensions: Checked By: HS Checked By: CA Check | | | | | or | | | | - | | | e Elevation: |
| Date Excautor Sampling & Techny Excautor Material Description yes ge ge <t< th=""><th></th><th></th><th></th><th></th><th><i>.</i></th><th></th><th></th><th></th><th></th><th></th><th></th><th>ctor: Cardno</th></t<> | | | | | <i>.</i> | | | | | | | ctor: Cardno |
| Excervite Sampling | | | | | | | | | Logged By: HS | | | |
| 2 2 0 - - 0 30 - - 0 37 4 4 5 5 5 5 5 5 5 5 5 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 6 6 6 6 6 | Excava | ation | | Sampling & | Testing | | | | | n | | |
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| A Str. 5400 fm contexts Str. 5400 fm contexts Dite 5400 fm co | Method Resistance | Stability | Water | | per 150 mm) | Depth (| Graphic Log | Classificati | colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, | Moisture Condition | Consistency Relative Density | |
| Method B 0.00 - 0.00 m Image: set of | | | | | 1 1 1 1 | - | علد علد ع لله عله عله عله عله ع لله عله عله عله عله ع | | | D | | TOPSOIL |
| METHOD PENEWOK | | | | | | - | علد علد ع | | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine to | | | COLLUVIUM |
| METHOD PONCTASUM I BAT - | | | | | | - 0.5 - | | SC | | м | MD | |
| METHOD PONCTASUM I BAT - | | | | B 1 00 1 20 m | | - - 1.0 | | | Silty CLAY: medium plasticity, grey mottled red, with | | | RESIDUAL SOIL |
| MEHOO PENETRATION FELD TESTS SAMPLES NETHOO 250m TERMINATED AT 2.50 m VSR to H NETHOO 11111 11111 11111 11111 11111 225 250m VSR to H NETHOO 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111 <td>EX</td> <td>stable</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>St</td> <td></td> | EX | stable | | | | - | | | | | St | |
| METHOD PENETRATION 2.5 m V 1000 monometry 1000 monometry V V Vectory V Vectory Vectory V Vectory Vectory V Vectory Vectory Vectory Vectory <t< td=""><td></td><td>05</td><td></td><td></td><td></td><td>- - 1.5</td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | | 05 | | | | - - 1.5 | | | | | | |
| METHOD PENETRATION 2.50m METHOD PENETRATION TERMINATED AT 2.50 m METHOD PENETRATION FIELD TESTS R Ripper H Herd (Refusal) Standard Penetration Test HP B METHOD EXecution bucket F PENETRATION FIELD TESTS SON< Sonic chilling AH WTER Standard Penetration Test HP B B Build disturbed sample DCP Solic CONSISTENCY VS VS | | | at 1.7 | | | - | | CI | | M (>PL) | | |
| METHOD PENETRATION FIELD TESTS SAMPLES SOIL CONSISTENCY METHOD VE Very Easy (No Resistance) FIELD TESTS B - Builk disturbed sample VS - Very Soft R Ripper Firm H H and auger F Firm B - Builk disturbed sample VS VS Very Soft PT Push tube VH Very Hard (Refusal) VF - Dry Matter PSP - Perth Sand Penetrometer D - Dry St. Stiff PAL/V Soft flight auger: V-Bit Water Level on Date MP Borehole Impression Test D - Dry M RELATIVE DENSITY WATER Water Level on Date IMP Borehole Impression Test M W Werd VE Very Loose | | | inflow e | | | - 2.0 - - - | | | | | VSt to H | |
| EX Excavator bucket VE Very Easy (No Resistance) SPT Standard Penetration Test B - Bulk disturbed sample VS - Very Soft R Ripper E Easy HP - Hand/Pocket Penetrometer D D Disturbed sample S - Soft PT Push tube F Firm DCP Dynamic Cone Penetrometer D - Disturbed sample S - Soft SON Sonic drilling VH Very Hard (Refusal) PSP Perth Sand Penetrometer U - Thin wall tube 'undisturbed' St - Stiff AH Air hammer WATER PBT Plate Bearing Test D - Dry Moist No Noist AD/V Soft flight auger: V-Bit Met Water Level on Date IMP Borehole Impression Test M - Moist VL Very Loose | V | | | | | -2.5- | | | TERMINATED AT 2.50 m | | | |
| EX Excavator bucket VE Very Easy (No Resistance) SPT Standard Penetration Test B - Bulk disturbed sample VS - Very Soft R Ripper E Easy HP - Hand/Pocket Penetrometer D D Disturbed sample S - Soft PT Push tube F Firm DC Dynamic Cone Penetrometer D - Disturbed sample S - Soft SON Sonic drilling VH Very Hard (Refusal) VH Very Hard (Refusal) PSP Perth Sand Penetrometer U - Thin wall tube 'undisturbed' St - Stiff PS Percussion sampler WATER PBT Plate Bearing Test D - Dry RELATIVE DENSITY AD/V Soft flight auger: V-Bit Water Level on Date IMP Borehole Impression Test M - Moist VL - Very Loose | | | | | | - | | | | | | |
| ADF - Solid light adger. - water inflow VS - Vane Shear; P=Peak, PL - Plastic limit MD - Medium Dense HFA Hollow flight auger - water outflow R=Resdual (uncorrected kPa) LL - Liquid limit D - Dense | EX ER R HA H PT P SON S AH A PS P AD/V S AD/V S AD/T S WB V | EX Excavator bucket R Ripper AH Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger AD/V Solid flight auger AD | | | | efusal) _evel on nflow | | S F F F | PT - Standard Penetration Test B - E IP - Hand/Pocket Penetrometer D - E IP - Dynamic Cone Penetrometer U - T ISP - Perth Sand Penetrometer U - T ISP - Perth Sand Penetrometer U - T IG - Moisture Content MOISTUR IBT - Plate Bearing Test D - E MP - Borehole Impression Test M - M ID - Photoionisation Detector W - V IS - Vane Shear; P=Peak, L - E | Bulk disturb Disturbed sa Environmen Thin wall tul RE Dry Moist Vet Plastic limit iquid limit | ample tal sampl be 'undis | le VS - Very Soft S - Soft turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Dense D - Dense |
| RR Rock roller VD - Very Dense Refer to explanatory notes for details of abbreviations and basis of descriptions CARDNO (NSW/ACT) PTY LTD | | | | for details of | | | 0.4 5 | | | | | vu - very Dense |

| ine | : I See | Bush | liffe, Wyee De ells Ridge Ro | | ionit | | | | | | •• | ole No: TP034 |
|--|---|---|--|---|--|--|---|---|--|--|---|---|
| ine vati | | | | ad, Bush | nells | | | Job No: 82219014 | | | | Sheet: 1 of |
| vati | Type | | ched plan | | | | | Angle from Horizontal: -90 | | | | e Elevation: |
| | | | onne Excavato | or | | | | Excavation Method: 400m | nm tooth | | | |
| EXC | | | sions: | | | | | Longood Dyn. US | | | | ctor: Cardno |
| a cati | | ea: 24 | | Testing | 1 | | | Logged By: HS | orintian | | Спеске | ed By: GA |
| avatio | | - | Sampling & | | - | | | Material Des | | | | |
| Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle character colour, secondary and minor componer ROCK TYPE, grain size and type, colou fabric & texture, strength, weathering defects and structure | nts ur, | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | 103 L | - | لله عله عله عله عله عله لله عله عله عله عله عله عله عله عله لله عله عله | | Silty SAND: fine to medium grained, grey, lo plasticity silt, with rootlets | w | D | | TOPSOIL |
| | | | | | | | | 0.30m Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine coarse, sub-angular gravel | to | | | COLLUVIUM |
| | | | | | - | | SC | | | М | MD | |
| | able | | | | - 1.0 | | | 1.00m Silty CLAY: medium plasticity, grey mottled r lithorelics (siltstone) | red, with | | | RESIDUAL SOIL |
| | Sta | | | R | - 1.5 | | | | | | | |
| | | untered at 2.1m | | | - - 2.0 - | | СІ | | | M (>PL) | VSt to H | |
| | | inflow enco | | | - 2.5 | | | 2.50m TERMINATED AT 2.50 m | | | | |
| | | | | | - | | | | | | | |
| Rip Hai Pu: Soi Air Pei Soi Soi Soi Hoi | per nd aug sh tub nic dril hamm ccussic ort spii id fligh id fligh llow flig | ler e ling er on samp al auge at auge at auge ot auge | t VE F H VH VH er : V-Bit r: TC-Bit er | Very Easy (N Easy Firm Hard Very Hard (R TER Water I shown water ir | efusal) ∟evel on nflow | | S F M F | SPT - Standard Penetration Test B HP - Hand/Pocket Penetrometer D DCP - Dynamic Cone Penetrometer U DSP - Perth Sand Penetrometer U VC - Moisture Content M PBT - Plate Bearing Test D MP - Borehole Impression Test M VID - Photoionisation Detector W V/S - Vane Shear; P=Peak, PL | - Bulk - Distr S - Envi - Thin OISTURE - Dry - Mois - Wet L - Plas - Liqu | urbed sa ronment wall tub st st itic limit id limit | ample tal sample be 'undist | e S - Soft F - Firm |
| | HOD Exipation Solution Air Pussion Solution Hold War Ro | Part and auge of the second and auge of the second auge of the se | | Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: Solution of the system Image: So | ■ 1 3 6 12 ■ ■ | OD Exceeded of this is a constrained of this constrained of this is a constrained of this constraine | Image: Constraint of the second sec | B I 1 3 6 1 I | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td>0 0 0 0 0 0 0 Sky SAVD: fine to medium grained, grey, low pasticity sky, with rocotins 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>9 90 90 90 90 90 90 90 90 90 90 90 90 90</td> <td>Open Durckt Right anger Boot and ming Boot Boot Boot Boot Boot Boot Boot Boot</td> | 0 0 0 0 0 0 0 Sky SAVD: fine to medium grained, grey, low pasticity sky, with rocotins 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 9 90 90 90 90 90 90 90 90 90 90 90 90 90 | Open Durckt Right anger Boot and ming Boot Boot Boot Boot Boot Boot Boot Boot |

| | | Cá | arc | lno° | | | | | | | TE | ST PIT LOG SHEET |
|---|--|-----------|----------------------------|----------------------------------|--------------------------|---------------|--|-----------------------|---|--|------------------------------------|-----------------------------------|
| Clien Proje | | \ I | Nyee Rado | e Land Pty Ltd liffe, Wyee De | veloperr | nent | | | | | Η | ole No: TP035 |
| Locat | tion | : 1 | Busł | ells Ridge Ro | | | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | onne Excavato | r | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | | Logged By: HS | | | ed By: GA |
| Exca | avatio | on | | Sampling & T | esting | | | | Material Description | | | • |
| Method | Resistance | Stability | Water | Sample or Field Test | (blows per 150 mm) | | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | D 0.10 - 0.20 m | | - | لله عله عله عله عله عله لله عله عله عله عله عله عله عله عله عله عله عله | | Silty SAND: fine to medium grained, grey, low plasticity silt, with rootlets | D | | TOPSOIL |
| | | | | | | - - 0.5 | | sc | 0.25m Clayey SAND: fine to medium grained, brown-orange, low plasticity clay, trace fine to coarse, sub-angular gravel | м | L to MD | COLLUVIUM |
| | | ۵ | | | | - | | | Sitty CLAY: medium plasticity, grey mottled red, with lithorelics (siltstone) | | St | RESIDUAL SOIL |
| EX- | | Stable | | | | - 1.5 | | СІ | | M (>PL) | | |
| | | | inflow encountered at 1.7m | | | - 2.0 | | | 2.50m | | VSt | |
| | | _ | | | | - | | | TERMINATED AT 2.50 m Target depth | | | |
| METH EX R HA PT SON AH PS AD/V AD/T HFA WB RR | R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AD/V Solid flight auger: V-Bit HFA Hollow flight auger WB Washbore drilling Water Level of water inflow water outflow | | | | | | | S F F M F | P Hand/Pocket Penetrometer D - CP Dynamic Cone Penetrometer U - SP Perth Sand Penetrometer U - CC Moisture Content D - BT Plate Bearing Test D - ID Photoionisation Detector W - VB Vane Shear; P=Peak, V - | ulk disturb isturbed sa nvironmen nin wall tul E ry oist | ample tal sampl be 'undist | e S - Soft F - Firm |
| Refer t | to expl | anatory | notes f | for details of lescriptions | | | CAR | | NO (NSW/ACT) PTY LTD | | | |

| | |) C | arc | Ino ° | | | | | | TE | ST PIT LOG SHEET |
|--|---|--|---|---|---|--|------------------------|--|--|------------------------------------|---|
| | ent: ject | : | Nyee Rado | Land Pty Ltd liffe, Wyee Developer | nent | | | | | Η | ole No: TP101 |
| Loc | atio | on: | Bush | ells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| E | xcava | ation | | Sampling & Testing | | | | Material Description | ۱ | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | ES 0.10 m | - | لك علك علك علك علك ع لك علك علك علك علك ع لك علك علك | | Sitty SAND: fine to medium grained, grey, low plasticity sit, with rootlets | м | | TOPSOIL |
| EX | | Stable | Not Encountered | ES 0.25 m ES 0.50 m | - - - 0.5 | | sc | 0.15m Clayey SAND: fine to coarse grained, brown-orange, low to medium plasticity clay, trace fine to coarse, sub-angular gravel | м | MD | COLLUVIUM |
| . | | | | | - | | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - 1.0 | | | | | | |
| | | | | | - 1.5 - - - - - - - - - - - - - - - - - - | | | | | | |
| | | | | | - - - 2.5 - - - | | | | | | - - - - - - - - - - - |
| EP RH PT SC AH SC AS AD RF RF | FA F PDN SA FA F SO/V SO/V SO/V SO/V SO/V SO/V SO/T S FA F B V fer to e | Excavatc Ripper Hand au Push tub Sonic dri Vir hamn Percussi Short sp Solid flig Solid flig Solid flig Solid flig Hollow flig Rock roll | ger e lling her on sam ral augo nt augo nt augo ght au e drillin er | pler er er. V-Bit ger ↓ Log / | No Resistar Refusal) Level on | Date | S F F II F | IP - Hand/Pocket Penetrometer D - ES - ES - ES - ES - ES - ES - T VSP - Perth Sand Penetrometer V - T V - T VG - Moisture Content D - D MOISTUR VBT - Plate Bearing Test D - D M VID - Photoionisation Detector W - W VG - Vane Shear; P=Peak, L - L | ulk disturb isturbed si nvironmen hin wall tu | ample ital sampl be 'undist | e S - Soft F - Firm |

| | \square | C | arc | no | | | | | | TE | ST PIT LOG SHEET |
|---|--|---|---|---|--|--|-----------------------|---|--|------------------------------------|-----------------------------------|
| Clie Pro | ent: ject: | | Nye Rado | e Land Pty Ltd liffe, Wyee Develope | ment | | | | | Η | ole No: TP102 |
| Loc | atio | n: | Busł | ells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | onne Excavator | | | | Excavation method: 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| E> | cavat | tion | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | ES 0.10 m | - | لك علك علك علك علك ع لك علك علك علك علك ع لك علك علك | | Silty SAND: fine to medium grained, grey, low plasticity silt, with rootlets | м | | TOPSOIL - |
| EX | | Stable | Not Encountered | ES 0.25 m ES 0.50 m | - - - 0.5 | | sc | 0.15m Clayey SAND: fine to coarse grained, brown-orange, low to medium plasticity clay, trace fine to coarse, sub-angular gravel | м | L to MD | COLLUVIUM |
| * | | | | | | | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| ME EX R HAA P T S AD H F W R R R R t AD | | | | | - 1.0 - 1.0 | | | | | | |
| ME EX PT SC AD H F R AD H F R R | R P N S S S V V S S V V S S V V S S V V S S V V S R V R N S R V S R | xcavato ipper and augush tub onic dri r hammercussie hort spi olid flig olid flig olid flig oliow fli 'ashbor ock roll | ger e lling ner on san ral aug nt aug ght au ght au e drilli er | pler er er. V-Bit ger ↓ Leasy F Firm H Hard VH Very Hard (WATER water shown water | No Resistar Refusal) Level on 1 inflow | Date | S F F F V | $\begin{array}{rcl} \mbox{IP} & - & \mbox{Hand}/Pocket Penetrometer} & D & - & D \\ \mbox{CP} & - & Dynamic Cone Penetrometer} & U & - & TT \\ \mbox{CP} & - & Perth Sand Penetrometer} & U & - & TT \\ \mbox{CP} & - & Moistruer Content} & & U & - & TT \\ \mbox{ID} & - & Moistruer Content} & & & MOISTURI \\ \mbox{BT} & - & Plate Bearing Test} & & D & - & DI \\ \mbox{ID} & - & Photoionisation Detector} & & W & - & W \\ \mbox{ID} & - & Photoionisation Detector} & & V & - & PL \\ \mbox{CP} & - & Paredular (VPA) & LL & - & Li \\ \mbox{PERCentral (VPA)} & & LL & - & Li \\ \end{tabular}$ | ulk disturb sturbed sa nvironmen nin wall tu Y oist | ample tal sampl be 'undist | e S - Soft F - Firm |
| | ect: | F | Rådo | e Land Pty Ltd :liffe, Wyee Developen | nent | | | | | Η | ole No: TP10 |
|---|--|-----------------------------------|---|---|---------------------------------|---|----------------------------|--|-----------------------|------------------------------------|--|
| .oc | atior | n: B | Busł | ells Ridge Road, Bust | nells | | | Job No: 82219014 | | | Sheet: 1 of |
| | | | | ched plan | | | | Angle from Horizontal: -90° | | | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm toot | | | stam. Osudas |
| | | | | nsions: 24/8/18 | | | | Logged By: HS | | | ctor: Cardno ed By: GA |
| | cavati | | eu. z | Sampling & Testing | 1 | | | Material Description | | CHECK | eu by. GA |
| | cavau | | | Sampling & resurg | | | _ | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ed | ES 0.10 m | - | له عله عله عله عله عله له عله عله عله عله عله له عله عله عله عله ع | | Sitty SAND: fine to medium grained, grey, low plasticity sitt, with rootlets | м | | TOPSOIL |
| EX - | | Stable | Not Encountered | ES 0.25 m | - - - 0.5 | | sc | 0.20m Clayey SAND: fine to coarse grained, brown-orange, low to medium plasticity clay, trace fine to coarse, sub-angular gravel | м | L to MD | COLLUVIUM |
| | | | | ES 0.50 m | -0.5 | | | | | | |
| V. | | | | | - | <u> </u> | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - 1.0 - | | | | | | |
| | | | | | - - 1.5 - | | | | | | |
| | | | | | - 2.0 - | | | | | | |
| | | | | | - - -2.5 | | | | | | |
| | | | | | - | | | | | | |
| EX R HA PT SO AD AD/ AD/ HF/ WB | Rip Ha Pu Air Pe Sh V Sol T Sol A Ho Wa | lid fligh llow flig ashbore | ger e ling er on sam ral auge nt auge ght au ght au | pler er er: v-Bit ger v- v- v- v- v- v- v- v- v- v | ^{tefusal)} Level on | | S H D P N I | P Hand/Pocket Penetrometer D Display CP Dynamic Cone Penetrometer U Th SP Perth Sand Penetrometer U Th CF Moisture Content MOISTURE BT Plate Bearing Test D Dr ID Photoionisation Detector M Mc V Vane Shear; P=Peak, PL Plate | / iist | ample tal sampl be 'undist | e S - Soft urbed' St - Stiff VSt - Stiff H - Hard RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Den: D - Dense |
| WB RR | Wa Ro | ashbore ck rolle | e drillir er | ior details of | | 045 | | B=Boodual (upporrected kBa) LL - Liq | | ntent | |

| | \square | C | arc | lno° | | | | | | TE | ST PIT LOG SHEET |
|--|---|-----------|-----------------|--------------------------------------|----------------------------------|--|----------------|--|-----------------------|------------------------------------|-----------------------------------|
| Clie | ent: ject: | | | Land Pty Ltd liffe, Wyee Develope | ment | | | | | Η | ole No: TP104 |
| Loc | atio | n: | Bush | ells Ridge Road, Bus | shells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 4/8/18 | | | | Logged By: HS | | | ed By: GA |
| E> | cavat | tion | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | p | ES 0.10 m | - | لى على على على على على لى على على على على على لى على على | | Sitty SAND: fine to medium grained, grey-brown, low plasticity sitt, with fine to medium, sub angular gravel, trace rootlets | D | | TOPSOIL |
| EX | | Stable | Not Encountered | ES 0.25 m ES 0.50 m | - - 0.5 | | CL- CI | 0.20m Silty CLAY: low to medium plasticity, orange-brown mottled red | M (>PL) | F to St | RESIDUAL SOIL |
| | | | | | | | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| ME EX HAA PSC AD HFW RR R | | | | | - 1.0 - 1.0 1.5 2.0 | | | | | | |
| ME EX HA PT SC AH PS AD AD HF WE RR | HA Hand auger F F F PT Push tube F F F F PT Push tube F F F F SON Sonic drilling H Hand DCP Dynamic Cone Penetrometer AH Air nammer PSP Perth Sand Penetrometer WO MolSTURE PS Percussion sampler MATER PBT Plate Bearing Test D D AD/T Solid flight auger Water Level on Date shown IMP Borehole Impression Test D D Dry RELATIVE DENSITY HF A Hollow flight auger Water inflow VS Vane Shear, P=Peak, PL Plastic limit L - Loose WB Washbore drilling water outflow R R R Resedual (uncorrected kPa) | | | | | | | | | | |
| Ref | er to e | planatory | / notes t | or details of escriptions | | CAF | | NO (NSW/ACT) PTY LTD | | | |

| | | C | arc | lno [°] | | | | | | ΤE | ST PIT LOG SHEET |
|--|--------------------------|--|--|---|---------------|---|----------------|--|-------------------------------------|------------------------------------|---|
| Pro | ent: ject | : | Rádo | e Land Pty Ltd liffe, Wyee Developer | ment | | | | | Η | ole No: TP105 |
| | atio | | | ells Ridge Road, Bus ched plan | nells | | | Job No: 82219014 | | D | Sheet: 1 of 1 |
| | | | | onne Excavator | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | isions: | | | | Excavation method. 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| E | xcava | tion | | Sampling & Testing | | | | Material Description | | | |
| | | 1 | 1 | | Ē | | c | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ed | ES 0.10 m | - | لد علد علد علد علد ع لد علد علد علد علد ع لد علد علد علد علد ع | - | Sitty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | D | | TOPSOIL . |
| - EX | | Stable | Not Encountered | ES 0.25 m | - | | sc | 0.20m Clayey SAND: fine to medium grained, grey-brown, low plasticity clay | м | L to MD | COLLUVIUM |
| | | | | ES 0.50 m | | | СІ | 0.40m Silty CLAY: medium plasticity, orange-brown mottled red, trace lithorelics (siltstone) | M (>PL) | St | RESIDUAL SOIL |
| * | | | | | | | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - | | | | | | |
| | | | | | - 1.0 | | | | | | - |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | - |
| | | | | | - 1.5 - | | | | | | - |
| | | | | | - | | | | | | - |
| | | | | | -2.0 | | | | | | - |
| | | | | | - | | | | | | |
| | | | | | -2.5 | | | | | | - |
| ME EX R HAA PT SC AA AD HF WW RF Retabl | | | | | - | | | | | | |
| ME EX R | | D xcavato | r buck | | | nce) | s | | Ik disturb | | le VS - Very Soft S - Soft |
| HA PT SC AH PS AS | N S N S N S S S | land au ush tub onic dri ir hamm ercussi hort spi | e Iling Ier on sam ral aug | er Water | Level on | Date | F N F | CP - Dynamic Cone Penetrometer ES - Er | ivironmen iin wall tul E y | tal sampl | e F - Firm turbed' St - Stiff VSt - Very Stiff H - Hard RELATIVE DENSITY |
| AD AD HF WE RF | D/T S ≅A H B W | | nt auge ght au e drillir | | inflow | | F | ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, PL - Pl B=Boodual (uncorrected kBa) LL - Liu | | ntent | VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Ret abb | fer to e previation | xplanator ons and b | / notes f asis of c | or details of escriptions | | CAF | RDI | NO (NSW/ACT) PTY LTD | | | |

| | | C | arc | lno [°] | | | | | | ΤE | ST PIT LOG SHEET |
|--|--------------------------|---|--|---|------------|---|----------------|--|-----------------------|------------------------------------|---|
| Pro | ent: ject | : | Rádo | e Land Pty Ltd liffe, Wyee Developer | nent | | | | | Η | ole No: TP106 |
| | atio | | | ells Ridge Road, Bus ched plan | nelis | | | Job No: 82219014 Angle from Horizontal: -90° | | | Sheet: 1 of 1 |
| | | | | onne Excavator | | | | Excavation Method: 400mm too | | | e Elevation: |
| | | | | isions: | | | | | | | ctor: Cardno |
| - | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| E | xcava | tion | | Sampling & Testing | | | | Material Description | | | • |
| | | | 1 | | Ê | | E | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | pə. | ES 0.10 m | - | لك علك علك علك علك ع لك علك علك علك علك علك لك علك علك علك علك ع | - | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | м | | TOPSOIL - |
| - EX | | Stable | Not Encountered | ES 0.25 m | - | | sc | 0.20m Clayey SAND: fine to medium grained, grey-brown, low plasticity clay | м | L to MD | COLLUVIUM |
| | | | | ES 0.50 m | - 0.5 | | СІ | 0.40m Silty CLAY: medium plasticity, orange-brown mottled red, trace lithorelics (siltstone) | M (>PL) | St | RESIDUAL SOIL |
| | | | | | | | | 0.60m TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - | | | | | | - |
| | | | | | - 1.0 | | | | | | - |
| | | | | | - | | | | | | - |
| | | | | | | | | | | | - |
| | | | | | - 1.5 - | | | | | | - |
| MI E2 R H4 PT SC A9 AL HF W RF | | | | | - | | | | | | - |
| | | | | | - 2.0 | | | | | | - |
| | | | | | - | | | | | | |
| | | | | | -2.5 | | | | | | - |
| i | | | | | - | | | | | | - |
| ME E> | | xcavato | r buck | | | nce) | s | | Ik disturb | | SOIL CONSISTENCY |
| R HA PT SC AF AS AS | N S N S N S S S | tipper land aug ush tub onic dri ir hamm ercussio hort spi olid flig | e Iling Ier on sam ral aug | er Water | Level on | Date | F F F | CP - Dynamic Cone Penetrometer ES - EI SP - Perth Sand Penetrometer U - Tt IC - Moisture Content MOISTURI BT - Plate Bearing Test D - Di IP - Borehole Impression Test M - M | y pist | tal sampl | |
| AL AE HF WI RF | D/T S ≅A H B W | | nt auge ght au e drillir | er: TC-Bit ger water | inflow | | | ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, PL - Pl LL - Liu | | ntent | MD - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense |
| Re abl | fer to e previation | xplanator ons and b | / notes f asis of c | or details of escriptions | | CAF | RDI | NO (NSW/ACT) PTY LTD | | | |

| Clie Proj | nt: ject: | 1 | Rádo | e Land Pty Ltd cliffe, Wyee Developer | nent | | | | | Η | ole No: TP10 |
|-------------------------------|---|--|-------------------------|---|------------|---|---------------------|--|-------------------------------------|------------------------------------|--|
| .oc | atior | n: I | Busł | ells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of |
| | | | | ched plan | | | | Angle from Horizontal: -90° | | | e Elevation: |
| lac | hine | Тур | e: 5 t | onne Excavator | | | | Excavation Method: 400mm toot | hed bu | icket | |
| | | | | nsions: | | | | | | | ctor: Cardno |
| Date | e Exc | avat | ed: 2 | 24/8/18 | | | | Logged By: HS | | Check | ed By: GA |
| Ex | cavati | on | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | ber | ES 0.10 m | - | لد علد علد علد علد ع لد علد علد علد علد علد لد علد علد علد علد ع | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | м | | TOPSOIL |
| | | Ð | Not Encountered | ES 0.25 m | - | | | 0.20m Clayey SAND: fine to medium grained, grey-brown, low plasticity clay | - | | COLLUVIUM |
| - EX | | Stable | Not En | ES 0.25 M | F | | | low pasificity day | | | |
| | | | | FC 0 50 m | | | sc | | м | L to MD | |
| v | | | | ES 0.50 m | _ | | | 0.60m | | | |
| | | | | | - | | | TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - | | | | | | |
| | | | | | - 1.0 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | |
| | | | | | F | | | | | | |
| | | | | | - 1.5 - | | | | | | |
| | | | | | - | | | | | | |
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| | | | | | - | | | | | | |
| | | | | | -2.5 | | | | | | |
| | | | | | - | | | | | | |
| | | | | | - | | | | | | |
| ME EX | THOD Ex | cavato | r bucke | PENETRATION et VE Very Easy (1 | | | | ELD TESTS SAMPLES PT - Standard Penetration Test B - Bu | Ik disturh | ed sampl | SOIL CONSISTENCY |
| R HA PT SO AH | Rip Ha Pu N So Air | oper nd aug sh tub nic dril hamm | ger e ling ier | E Easy F Firm H Hard VH Very Hard (F | | | HI Di Pi M | D - Hand/Pocket Penetrometer D - Dis CP Dynamic Cone Penetrometer ES - En SP Perth Sand Penetrometer U - Th C - Moisture Content MOISTURE | sturbed s vironmen in wall tu | | e S - Soft F - Firm |
| PS AS AD/ AD/ HF/ | /T Solid flight auger: TC-Bit A Hollow flight auger water inflow | | | | | Date | | S - Vane Shear; P=Peak, PL - Pla | ist | | RELATIVE DENSITY VL - Very Loose L - Loose MD - Medium Den Doose |
| WB RR | | ashbor ck rolle | | water | JULIIOW | | | R=Resdual (uncorrected kPa) | isture co | ntent | D - Dense VD - Very Dense |

| Card | dno° | | | | | | TE | ST PIT LOG SHEET |
|--|---|---|--|---|---|--|--|---|
| Rado | cliffe, Wyee Developen | nent | | | lab No. 82240044 | | Η | ole No: TP108 |
| | | liens | | | | | Surface | Sheet: 1 of 1 e Elevation: |
| | | | | | | | | |
| | | | | | | | | ctor: Cardno |
| | | | | | Logged By: HS | | | ed By: GA |
| | Sampling & Testing | | | | Material Description | | | |
| | | Ê | | c | · | | | |
| Stability Water | Sample or Field Test | Depth (r | Graphic Log | Classificatio | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| red | ES 0.10 m | - | لك علك علك علك علك علك لك علك علك علك علك علك علك علك علك ال علك علك ع | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | D to M | | TOPSOIL |
| Stable Not Encounte | ES 0.25 m | - | | sc | Clayey SAND: fine to medium grained, grey-brown, low plasticity clay | м | L to MD | COLLUVIUM |
| | ES 0.50 m | - 0.5 | | СІ | Silty CLAY: medium plasticity, orange-brown mottled red and grey, trace lithorelics (siltstone) | M (>PL) | St | RESIDUAL SOIL |
| | | - | илл | | 0.60m TERMINATED AT 0.60 m | | | |
| | | - - - - - - - - - - - - - - - - - - - | | | | | | |
| er auger tube c drilling ammer ussion san spiral aug flight aug flight aug w flight aug | npler ger er: V-Bit iger | Refusal) Level on nflow | | S H D P M P IN P | PT - Standard Penetration Test B - Bu P - Hand/Pocket Penetrometer D - Dis CP - Dynamic Cone Penetrometer U - Thi SP - Perth Sand Penetrometer U - Thi C - Moisture Content MOISTURE BT - Plate Bearing Test D - Dry IP - Borehole Impression Test M - Moi ID - Photoionisation Detector W - We S - Vane Shear; P=Peak, PL - Pla | turbed sa vironment n wall tub ist ist stic limit uid limit | imple al sampl be 'undist | e S - Soft F - Firm |
| | Autor buck rator | Wyee Land Pty Ltd Radcliffe, Wyee Developen Bushells Ridge Road, Busing isee attached plan ype: 5 tonne Excavator important is in the second of the sec | Wyee Land Pty Ltd Radcliffe, Wyee Developement Bushells Ridge Road, Bushells ise attached plan ype: 5 tonne Excavator n Dimensions: vated: 24/8/18 Image: Sample or Field Test (ii) age ES 0.10 m - big Sample or Field Test - age ES 0.25 m - ES 0.50 m - - age ES 0.50 m - age - - bind - - age - - age - - bind - - age - - </td <td>Wyee Land Pty Ltd Radcliffe, Wyee Developement Bushells Ridge Road, Bushells ise attached plan ype: 5 tonne Excavator Dimensions: vated: 24/8/18 Sampling & Testing (E) ing Sample or Field Test (E) age ES 0.10 m - ES 0.25 m - - -</td> <td>Wyee Land Pty Ltd Radcliffe, Wyee Developement Bushells Ridge Road, Bushells iee attached plan ype: 5 tonne Excavator n Dimensions: rated: 24/8/18 iege ieger ieger</td> <td>Wyse Land Pty Ltd Radciffe, Wyse Development Bushells Rtdg Road, Bushells Job No: 8221901 ise attached plan pye: 5 tone Excavation Method: 400mm tool 1Dimensions: rated: 24/8/18 Angle from Horizontal: -90° Excavation Method: 400mm tool Excavation Method: 400mm tool Received and Statistics rated: 24/8/18 isg Sampling & Testing isg isg Isg isg Sampling & Testing isg isg Material Description Rock TPC; gin nice and Npo, obur, family and the case isg isg Statistics isg isg isg Sampling & Testing isg isg isg Soli, TPTE; plasticity or particle characteristic. Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg Soli 0 m isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg So 10 m isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg So 0 m -0.5 isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg So 0 m -0.5 isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC;</td> <td>Wyce Land Pty Ltd Radcliffe, Wyce Development Bushalis Ridge Road, Bushalis Job No: 82219014 Bushalis Ridge Road, Bushalis Job No: 82219014 Point Status Angle from Horizontal: -90° Point Status Excavator Excavator Excavator Dimensions: Comparison atad: 24/8/15 Logged By: HS Sampling A Testing Pisud Test Image Status Big Bob Chick TryE: planticity or partice characteristic. Float C transmitter and type. Colour, fator & transmitter and type. Co</td> <td>Wyse Land Pty Lid Backinffe, Wyse Development Bushols Ridge Road, Eustehels Job Nr. 82219014 de attached plan Angle from Horizontal: -90° Surface pres: 5 tom Excavator Excavator Method: 400m toched bucket Contra Table Ridge Road, Eustehels Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Dimensions: 000 Sample or Field Test 000 Big Big Big Big Big Big Big Big Big Big</td> | Wyee Land Pty Ltd Radcliffe, Wyee Developement Bushells Ridge Road, Bushells ise attached plan ype: 5 tonne Excavator Dimensions: vated: 24/8/18 Sampling & Testing (E) ing Sample or Field Test (E) age ES 0.10 m - ES 0.25 m - - - | Wyee Land Pty Ltd Radcliffe, Wyee Developement Bushells Ridge Road, Bushells iee attached plan ype: 5 tonne Excavator n Dimensions: rated: 24/8/18 iege ieger ieger | Wyse Land Pty Ltd Radciffe, Wyse Development Bushells Rtdg Road, Bushells Job No: 8221901 ise attached plan pye: 5 tone Excavation Method: 400mm tool 1Dimensions: rated: 24/8/18 Angle from Horizontal: -90° Excavation Method: 400mm tool Excavation Method: 400mm tool Received and Statistics rated: 24/8/18 isg Sampling & Testing isg isg Isg isg Sampling & Testing isg isg Material Description Rock TPC; gin nice and Npo, obur, family and the case isg isg Statistics isg isg isg Sampling & Testing isg isg isg Soli, TPTE; plasticity or particle characteristic. Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg Soli 0 m isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg isg So 10 m isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg isg So 0 m -0.5 isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg isg So 0 m -0.5 isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; gin nice and Npo, obur, family isg isg Statistics Rock TPC; | Wyce Land Pty Ltd Radcliffe, Wyce Development Bushalis Ridge Road, Bushalis Job No: 82219014 Bushalis Ridge Road, Bushalis Job No: 82219014 Point Status Angle from Horizontal: -90° Point Status Excavator Excavator Excavator Dimensions: Comparison atad: 24/8/15 Logged By: HS Sampling A Testing Pisud Test Image Status Big Bob Chick TryE: planticity or partice characteristic. Float C transmitter and type. Colour, fator & transmitter and type. Co | Wyse Land Pty Lid Backinffe, Wyse Development Bushols Ridge Road, Eustehels Job Nr. 82219014 de attached plan Angle from Horizontal: -90° Surface pres: 5 tom Excavator Excavator Method: 400m toched bucket Contra Table Ridge Road, Eustehels Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Contra Contra Ridge Road, Eustehel Dimensions: Dimensions: 000 Sample or Field Test 000 Big Big Big Big Big Big Big Big Big Big |

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|---|---|--|--|---|---|--|------------------|---|---|------------------------------------|-----------------------------------|
| Pro | ent: oject | : | Rádo | e Land Pty Ltd liffe, Wyee Developer | nent | | | | | Η | ole No: TP109 |
| | catio | on: | Bush | ells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan onne Excavator | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | isions: | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| E | xcava | ation | | Sampling & Testing | | | | Material Description | | | • |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | ~ | | | | | له عله عله عله عله ع له عله عله عله عله عله | ö | Sity SAND: fine to medium grained, grey-brown, low plasticity sitt, with rootlets | | 0 | TOPSOIL |
| | | e | Not Encountered | ES 0.10 m ES 0.25 m | - | | | 0.25m | м | | - COLLUVIUM |
| EX | | Stable | Not En | ES 0.50 m | | | sc | Clayey SAND: fine to medium grained, brown-orange, low plasticity clay | м | L to MD | |
| | | | | E3 0.50 m | | | | 0.60m | | | |
| | | | | | - - - - - - - - - - - - - - - - - - - | | | TERMINATED AT 0.60 m Target depth | | | |
| E> R H/ PT SC AF AS AE | F F DN S H A S S S D/V S D/V S D/V S F A H B V | Excavato Ripper Hand aug Push tub Sonic dri Nir hamm Percussio Short spi Solid fligi | ger e lling her on sam ral aug nt aug ght au ght au e drillin | pler er er. V-Bit ger | No Resistar Refusal) Level on | | S F F F | P Hand/Pocket Penetrometer D D CP Dynamic Cone Penetrometer ES Er SP Perth Sand Penetrometer U T CF Moisture Content MOISTURE BT Plate Bearing Test D D ID Borehole Impression Test M M ID Photoionisation Detector W W Vane Shear; P=Peak, PL PL | sturbed sa ovironmen in wall tu s y pist | tal sampl | e S - Soft F - Firm |
| Re abl | fer to e | explanator | / notes t | or details of escriptions | | CAR | | NO (NSW/ACT) PTY LTD | | | |

| | | C | arc | lno° | | | | | | TE | ST PIT LOG SHEET |
|--|-----------------------|--------------|------------------------|--|--------------------|--|----------------|--|-----------------------|------------------------------------|-----------------------------------|
| | ent: ject: atio | : | Rado | e Land Pty Ltd liffe, Wyee Developen nells Ridge Road, Bus | nent hells | | | Job No: 82219014 | | Η | ole No: TP110 Sheet: 1 of 1 |
| | | 1. 1. Soc | atta | ched plan | | | | Angle from Horizontal: -90° | | Surfac | e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm too | | | |
| | | | | nsions: | | | | | | | ctor: Cardno |
| Date | e Ex | cavat | ed: 2 | 24/8/18 | | | | Logged By: HS | | Checke | ed By: GA |
| E× | cava | tion | | Sampling & Testing | | | | Material Description | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | ES 0.10 m | - | للد علد علد علد علد ع للد علد علد علد علد علد علد علد علد علد علد علد | | Silty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | м | | TOPSOIL - |
| EX | | Stable | Not Encountered | ES 0.25 m ES 0.50 m | - - - 0.5 | | sc | 0.20m Clayey SAND: fine to medium grained, brown-orange, low plasticity clay | M to W | L to MD | COLLUVIUM |
| | | | | | - | | СІ | 0.60m Silty CLAY: medium plasticity, orange-brown mottled red, trace lithorelics (siltstone) 0.80m | M (>PL) | F to St | RESIDUAL SOIL |
| | | | | | - 1.0 - 1.0 | | | TERMINATED AT 0.80 m Target depth | | | |
| TOTOLOGICAL Control of the second procession of the second proce | | | | | | | | IP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content BT - Plate Bearing Test MP - Borehole Impression Test MD - Photoionisation Detector VS - Vane Shear, P=Peak, | y bist | ample tal sampl be 'undist | e S - Soft F - Firm |
| Ref abb | er to ex previatio | xplanator | / notes t asis of c | for details of lescriptions | | CAF | , D | NO (NSW/ACT) PTY LTD | | | 1 |

| | - | | arc | Ino ° | | | | | | TE | ST PIT LOG SHEET |
|--|--|--|---|--|---|---|------------------|--|-----------------------|------------------------------------|---|
| | ject | : | Rado | e Land Pty Ltd cliffe, Wyee Developer | nent | | | | | Η | ole No: TP201 |
| | atio | on: | Busi | nells Ridge Road, Bus Iched plan | nells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | cned plan | | | | Angle from Horizontal: -90° Excavation Method: 400mm too | | | e Elevation: |
| | | | | nsions: | | | | | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| | kcava | | | Sampling & Testing | | | | Material Description | | | j : |
| | | | | | - | | - | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | pe | ES 0.10 m | - | لد علد علد علد علد ع لد علد علد علد علد ع لد علد علد علد علد ع | - | Sitty SAND: fine to medium grained, grey-brown, low plasticity silt, with rootlets | D | | TOPSOIL 0.00 m: Eastern side of 'quarried area' |
| – EX – | | Stable | Not Encountered | ES 0.25 m | - | | | 0.20m Silty CLAY: medium plasticity, orange-brown | | | RESIDUAL SOIL |
| | | | | ES 0.50 m | 0.5 | | СІ | | M (>PL) | St | |
| | | | | | + | XXX/ | 1 | 0.60m TERMINATED AT 0.60 m | | | |
| | | | | | - - - - - - - - - - - - - - - - - - - | | | Target depth | | | |
| ME EX RATIONAL PROVINCIAL PROVINC | R H PON S I A S P S V/V S S V/T S A H B V | Excavato Ripper land au Push tub conic dri ir hamn Percussi chort spi colid flig | ger lling her on san ral aug ht aug ght aug ght au | ppler er er: V-Bit ger triteri | No Resistar Refusal) Level on I | | S F F F | IP - Hand/Pocket Penetrometer D - Dit ICP - Dynamic Cone Penetrometer U - Th SP - Perth Sand Penetrometer U - Th IC - Moisture Content MOISTURE BT - Plate Bearing Test D - Dr ID - Photoionisation Detector W - W S - Vane Shear; P=Peak, LL - LL | y bist | ample tal sampl be 'undist | e S - Soft F - Firm |
| Ref abb | fer to e previatio | xplanator | y notes asis of o | for details of lescriptions | | CAF | RDI | NO (NSW/ACT) PTY LTD | | | |

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|------------|---------------------|-----------------------|-----------------|---|-------------|--|----------------|--|---------------------------|------------------------------------|--|
| | nt: ect: atio | 1 | Rádo | e Land Pty Ltd liffe, Wyee Develope nells Ridge Road, Bus | ment | | | Job No. 82240044 | | H | ole No: TP202 |
| | | | | ched plan | liens | | | Job No: 82219014 Angle from Horizontal: -90° | | Surfac | Sheet: 1 of e Elevation: |
| | | | | onne Excavator | | | | Excavation Method: 400mm tool | | | |
| | | | | nsions: | | | | | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| Ex | cavat | ion | | Sampling & Testing | | | | Material Description | | | |
| | | | | | - F | | ç | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| 1 | | | | ES 0.10 m | - | لله علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم علم ع | | Sitty SAND: fine to medium grained, grey-brown, low plasticity sitt, with rootlets | D | | TOPSOIL 0.00 m: Southern side of 'quarried area' |
| | | | Not Encountered | ES 0.25 m | - | | | 0.20m Silty CLAY: medium plasticity, pale brown mottled orange | | | RESIDUAL SOIL |
| - EX- | | Stable | Not Enco | ES 0.50 m | 0.5 | | сі | | M (>PL) | St to VSt | |
| | | | | ES 0.50 m | - | | | 0.70m | | | |
| | | | | | [| | | SILTSTONE, pale grey, thinly laminated, extremely | | | WEATHERED ROCK |
| 1 | | | | | + | | | TERMINATED AT 0.80 m | | | |
| | | | | | F | | | Target depth | | | |
| | | | | | - 1.0 | | | | | | |
| | | | | | - 1.0 | | | | | | |
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| | | | r buel: | PENETRATION | | | | IELD TESTS SAMPLES PT - Standard Penetration Test B - Bu | lk diot | od co | SOIL CONSISTENCY |
| EX R | Ri | cavato | | E Easy | No Resistar | ice) | F | P - Hand/Pocket Penetrometer D - Dis | Ik disturb sturbed sa | ample | S - Soft |
| HA PT | Ρι | and aug ush tub | e | F Firm H Hard | | | | U - Th | vironmen in wall tul | | turbed' St - Stiff |
| SOI AH | Ai | onic dril r hamm | ner | VH Very Hard (| Refusal) | | | SP - Perth Sand Penetrometer IC - Moisture Content MOISTURE | | | VSt - Very Stiff H - Hard |
| PS AS | Sh | ercussio nort spi | ral aug | er Vater | · Level on | Date | | BT - Plate Bearing Test D - Dr IP - Borehole Impression Test M - Mr | y viet | | RELATIVE DENSITY |
| AD/ AD/ | V So | olid flig | nt aug | er: V-Bit show | ۱ | 2010 | F | ID - Photoionisation Detector W - W | et | | VL - Very Loose L - Loose |
| HF/ WB | A Ho | ollow fli ashbor | ght au | ger water | | | V | B=Beadual (uncorrected kBa) LL - Lic | astic limit Juid limit | | MD - Medium Dense |
| RR | | ock roll | | | 2001011 | | | R=Resoluti (uncorrected kPa) w - Mo | isture co | ntent | VD - Very Dense |
| Refe | er to ex | planator | / notes | or details of | | | יח | | | | 1 |
| abbr | eviation | planatory ns and b | asis of o | or details of lescriptions | | CAR | νDI | NO (NSW/ACT) PTY LTD | | | |

| | | \supset | Cá | arc | ino ° | | | | | | | | | | TE | ST PIT | LOG SHEET |
|-------------|----------------|------------------------|-----------------------------|--------------------|-------------------------------|---------------------------|------------|----------------|----------------|---------------|--|---|--|-------------------------|------------------------------------|---------------|---|
| F | | ect: | I | Rado | e Land Pt liffe, Wy | ee Developer | nent | | | | | | | | Η | ole N | o: TP203 |
| | .oc ≩ido | atior | 1: I | Busr | ched pla | ge Road, Bus | nells | | | | Job No: 8 | | . 00° | | fo o | e Elevatio | Sheet: 1 of 1 |
| | | | | | onne Exc | | | | | | - | n Horizontal | 1: -90 100mm tootl | | | e Elevatio | DN: |
| | | | | | isions: | | | | | | Excavatio | in method | | | | ctor: Car | dno |
| | | | | | 24/8/18 | | | | | | Logged B | /: HS | | | | ed By: GA | |
| | Ex | cavati | on | | Sampl | ling & Testing | | | | | | | al Description | | | | |
| | | d) | | | | | Ê | | E | | | | | | | | |
| | Method | Resistance | Stability | Water | | ample or ield Test | Depth (m) | Graphic Log | Classification | S | OIL TYPE, plastic colour, secondar ROCK TYPE, gra fabric & texture defects | ty or particle cha y and minor com in size and type , strength, weatl and structure | aracteristic, nponents e, colour, hering, | Moisture Condition | Consistency Relative Density | & C | STRUCTURE other Observations |
| | | | | | | | - | | | | FILL; Silty SAND, low plasticity silt, w | ine to medium gra th foreign materia | iin, dark brown, Is | | | 'quarried are | erials include: metal. tile |
| | | | | red | ES 0.40 - 0 |) 50 m | - | | | | | | | | | | - |
| | —EX — | | Stable | Not Encountered | | | - 0.5 | | | | | | | D | | | - |
| | | | | | | | - | | | | | | | | | | - |
| | | | | | | | | | | 1.00m | Silty CLAY: mediur | a plasticity, brown | 072020 | | | RESIDUALS | - |
| 2 | V | | | | | | | | CI | 1.10m | Silly CLAT. Mediu | r plasticity, brown- | orange | M (≈PL) | St | | |
| | | | | | | | | | | | TERMINATED AT Target depth | 1.10 m | | | | | |
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| | | THOD | l | | 1 | PENETRATION | | 1 | | IELD T | | | SAMPLES | | | | SOIL CONSISTENCY |
| | EX R | Rip | cavato per | | et | VE Very Easy (I E Easy | No Resista | nce) | | PT - IP - | Standard Penetra Hand/Pocket Per | | D - Dist | | mple | | VS - Very Soft S - Soft |
| | HA PT SO | Pu | nd aug sh tub | е | | F Firm H Hard | Dofusal' | | | OCP - SP - | Dynamic Cone P Perth Sand Pene | enetrometer | | vironment n wall tub | | turbed' | F - Firm St - Stiff VSt Von/Stiff |
| 5 | AH PS | Air | nic dril hamm rcussic | er | pler | VH Very Hard (F | (Grubdi) | | Ν | 1C - PBT - | Moisture Conten | : | MOISTURE | | | | VSt - Very Stiff H - Hard |
| | AS AD/ | Sh V So | ort spiı lid fligh | ral aug nt auge | er er: V-Bit | Water shown | | n Date | I | MP - | Borehole Impres | sion Test | D - Dry M - Moi | st | | | RELATIVE DENSITY VL - Very Loose |
| | AD/ HF/ | T So A Ho | lid fligh llow flig | nt auge ght au | er: TC-Bit ger | water i | inflow | | | 'ID - 'S - | Photoionisation I Vane Shear; P=F | Peak, | PL - Wei PL - Plas LL - Liqu | stic limit | | | L - Loose MD - Medium Dense |
| | WB RR | Wa | ashbor ck rolle | e drillir | ng | water | outflow | | | | R=Resdual (unco | prrected kPa) | w - Moi | | itent | | D - Dense VD - Very Dense |
| | Refe | er to exp reviation | lanatory s and ba | notes f | or details of lescriptions | 1 | | CAF | | NO | (NSW/AC | T) PTY I | LTD | | | I | |

| | \square | C | arc | lno [®] | | | | | | TE | ST PIT LOG SHEET |
|--|-----------------------|-----------|------------------------|--|----------------------|--|----------------|--|-----------------------|------------------------------------|--|
| | ject: | | Rådo | e Land Pty Ltd liffe, Wyee Develope | ment | | | | | Η | ole No: TP204 |
| | atio | | | ells Ridge Road, Bus | hells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan | | | | Angle from Horizontal: -90° | | | e Elevation: |
| - | | | | onne Excavator | | | | Excavation Method: 400mm too | | | ctor: Cardno |
| | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| - | cavat | | cu. 2 | Sampling & Testing | | | | Material Description | | oneck | |
| | | 1 | | | | | 6 | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | لت علت علت علت علت ع لت علت علت علت علت ع | | Silty SAND: fine to medium grained, grey-brown, low 0.10m plasticity silt, with rootlets | D | | TOPSOIL 0.00 m: Northern side of 'quarried area' |
| | | ble | Not Encountered | ES 0.10 m ES 0.25 m | - | | CL- CI | Silty CLAY: low to medium plasticity, pale grey | M (>PL) | St to VSt | RESIDUAL SOIL |
| EX | | Stable | Not E | | - | | | SILTSTONE, pale grey, thinly laminated, extremely weathered, extremely low strength | | | WEATHERED ROCK |
| | | | | ES 0.50 m | - 0.5 | | | 0.60m | | | - |
| _ | | | | | | | | TERMINATED AT 0.60 m Target depth | | | |
| | | | | | - - 1.0 - - | | | | | | - |
| | | | | | - - 1.5 - - | | | | | | - |
| | | | | | - 2.0 - - - | | | | | | - |
| ME | THOE | | | PENETRATION | - 2.5 | | | ELD TESTS SAMPLES | | | SOIL CONSISTENCY |
| METHOD -1.5 EX -2.0 -2.0 | | | | | | | | | | | |
| Ref abb | er to ex previatio | planatory | r notes f asis of d | or details of escriptions | | CAF | D | NO (NSW/ACT) PTY LTD | | | |

| | |) C | arc | lno [°] | | | | | | ΤE | ST PIT LOG SHEET |
|--|---|--|---|--|--|---|-----------------------------|--|---|------------------------------------|--|
| | ject: | : | Rado | e Land Pty Ltd liffe, Wyee Develop | ement | | | | | Η | ole No: TP205 |
| | atio ae | | | ells Ridge Road, Bu | Ishells | | | Job No: 82219014 | | | Sheet: 1 of 1 |
| | | | | ched plan onne Excavator | | | | Angle from Horizontal: -90° Excavation Method: 400mm to | | | e Elevation: |
| - | | | | isions: | | | | Excavation Method: 400mm | | | ctor: Cardno |
| - | | | | 24/8/18 | | | | Logged By: HS | | | ed By: GA |
| | kcavat | | | Sampling & Testing | | | | Material Descript | | encon | |
| | | | | | | | c | | | | |
| Method | Resistance | Stability | Water | Sample or Field Test | Depth (m) | Graphic Log | Classification | SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure | Moisture Condition | Consistency Relative Density | STRUCTURE & Other Observations |
| | | | | | | لت علت علت علت علت ع لت علت علت علت ولتو ع | | Silty SAND: fine to medium grained, grey-brown, 0.10m plasticity silt, with rootlets | ow D | | TOPSOIL 0.00 m: Approximate centre of 'quarried area' |
| | | | Not Encountered | ES 0.10 m | - | | CL- CI | Silty CLAY: low to medium plasticity, pale grey | M (>PL) |) St to VSt | RESIDUAL SOIL |
| EX- | | Stable | Not Enc | ES 0.25 m | - | | | 0.30m SILTSTONE, pale grey, thinly laminated, extreme weathered, extremely low strength | y J | | WEATHERED ROCK |
| | | | | ES 0.50 m | -0.5 | | | | | | |
| ¥. | | | | | | | | 0.60m TERMINATED AT 0.60 m | | | |
| | | | | | - - - 1.0 - | | | Target depth | | | |
| | | | | | - 1.5 - - | | | | | | |
| | | | | | - 2.0 - - | | | | | | |
| | | | | | - - 2.5 - - | | | | | | |
| EX HA PT SC AH AD AD HF RR | Ri Pi DN Si I Ai Si Si Si Si Si Si Si Si Si Si Si Si Si | xcavato ipper and au- ush tub onic dri ir hamn ercussi hort spi olid flig olid flig olid flig lollow fl vashbor tock roll | ger e ling per on sam ral augo nt augo ght au ght au e drillin er | pler er er: V-Bit ger ger | y (No Resistar d (Refusal) er Level on | Date | S F D F N F II F V | IP - Hand/Pocket Penetrometer D - ICP - Dynamic Cone Penetrometer ES - SP - Perth Sand Penetrometer U - IC - Moisture Content MOISTI MOISTI BT - Plate Bearing Test D - ID - Photoionisation Detector W - S - Vane Shear, P=Peak, R=Resdual (uncorrected kPa) LL - | Bulk disturt Disturbed s Environmer Thin wall tu | ample ntal sampl be 'undis | le F - Firm |
| AH PS AS AD AD HF WE RR Ref abb | F Po S SI D/V So D/T So FA Ho B W R R R Fer to ex | ercussi hort spi olid flig olid flig lollow fl vashbor cock roll | on sam ral aug nt aug ght au e drillin er | er er: V-Bit er: TC-Bit ger Wat | wn er inflow | | F If F | BT Plate Bearing Test D - /IP Borehole Impression Test M - ID Photoionisation Detector W - 'S Vane Shear; P=Peak, PL - Beadual (uncorrected (PB)) LL - | Dry Moist Wet Plastic limit Liquid limit | | RELATIVE I VL - Ve L - Lo MD - Me D - De |

APPENDIX



ANALYTICAL RESULTS



CHAIN OF CUSTODY RECORD

| LAB Name | SGS | |
|--------------|-------------------|----------|
| Address | 16/33 Maddox St | |
| | Alexandria NSW 20 | 15 |
| Client | Cardno (NSW/ACT) | Ptv Ltd |
| | PO Box 74 | |
| | Broadmeadow | NSW 2292 |
| Contact | Daniel McCallum | |
| Sampled by | Daniel McCallum | |
| Project Ref: | 82219014 | |



E-mail daniel.mccallum@cardno.com.au dimce.stojanvoski@cardno.com.au

(invoice to geotech@cardno.com.au)

Date Results Required Standard TAT

Phone

Fax

| | | | Ma | atrix | | | C | Containe | ers/Pre | eserva | tion | | | | Ar | nalysis | Requir | ed | | |
|-----------------------|------------------|-----------------|--------------|-------|--------------------------|----------------------------------|---------------------------------|--|-----------------------------------|--|---|--------------------|-------|------|--|-------------|--------|------|----------|-----------------|
| Laboratory LIMS ID | Client Sample ID | Date Sampled | Soil | Water | Soil Jar (G) Nat. Orange | 0.5-1.0 litre (G) Nat. Yellow | 0.1-1.0 litre (P) Nat. Green | 50mL VOA Vial (G) H ₂ SO4 Maroon | 0.1-1.0 litre (P) H₂SO₄ Maroon | 0.2-1.0 litre (G) H ₂ SO₄ Maroon | 0.1-0.2 (P) Filtered?? Y=Yes, N=No (HNO3) Red |).2l (P) NaOH Blue | Other | CL17 | pH(caC12 Extract), CEC, Clay Content (%) | sbestos ID | TRH | BTEX | | |
| 1 | TP101 0.1 | 24/08/2018 | × | | 0/ | 102 | 00 | LO T | 02 | 02 | OYK | 0 | 0 | | 000 | × | F | 8 | | |
| 2 | TP102 0.1 | 24/08/2018 | | 1 | | 1 | 1 | 1 | † | 1 | | | | | | | | | | |
| 3 | TP103 0.1 | 24/08/2018 | × | 1 | | 1 | | 1 | † | † | | | | X | | •••••• | | | | |
| <u>Y</u> | TB104 0.1 | 24/08/2018 | × | 1 | | 1 | | 1 | 1 | ł | | | | × | | | ŀ | | | |
| S | TP105 0.1 | 24/08/2018 | × | 1 | | 1 | ····· | † | † | İ | | | | | | | | | | |
| G | TP106 0.1 | 24/08/2018 | \boxtimes | 1 | | 1 | | | <u>†</u> | † | | | | | | | | | <u> </u> | |
| 7 | TP107 0.25 | 24/08/2018 | \mathbf{X} | 1 | | 1 | | † | † | † | | | | | + | | | | <u> </u> | |
| 8 | TP108 0.1 | 24/08/2018 | × | 1 | | t | | † | <u> </u> | ł | | | | | · | | | | ļ | |
| 9 | TP109 0.1 | 24/08/2018 | × | 1 | | İ | | <u>†</u> | | ł | | | | | | \boxtimes | | | | |
| 10 | TP110 0.1 | 24/08/2018 | ⊠ | | •••••• | | | <u> </u> | ŀ | ł | | | | | | × | | | ļ | |
| 11 | DUP2 | 24/08/2018 | × | | | · | | † | | ····· | | | | | | | | | | |
| 12 | RINS24.08.2018 | 24/08/2018 | × | | | | | | ļ | | | | | | ļ | | × | × | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | ••••••• | | | ······ | | | | | | | | | | SGS | | Alexandria Labo |
| | | | | | •••••• | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | ļļ. | | | SI | E183 | 3216 COC |
| | | | | | | | | | | | | | | | <u> </u> | | | Rec | eived | 29 - Aug - 201 |

RE: SE183216 - 82219014

Dan McCallum <daniel.mccallum@cardno.com.au>

Tue 4/09/2018 9:06 AM

To:AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>; Dimce Stojanovski <dimce.stojanovski@cardno.com.au>;

Hi Emily,

Sample TP107_0.1 wasn't meant to be in that esky, sorry about that. Could we please just have it on hold?

Regards,

Dan McCallum Graduate environmental scientist cardno

C) Cardno

Address Unit 1, 10 Denney Street. Broadmeadow, New South Wales 2292 Australia Phone Fax +61.2 4940 5545 Direct +61.2 4940 5545

Email daniel.niccallum@cardno.com.au Web.www.cardno.com.au CONNECT WITH CARDNO Cardno's menagement systems are certified to ISO9001 (quality) and AS4801/0HSAS18001 (occupational health and safety)

must be checked against an applicable hardcopy version which shall be the only document which Cardno warrants accuracy. If you are not the inlended recipient. email the sender by replying to this message and immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed This ernall and its attachments may conitain confidential and/or privileged information for the sole use of the intended recipient(s). All electronically supplied data any use, distribution or copying of the information contained in this email and its attachments is strictly prohibited, if you have received this email in error, ptease are the author's own and may not reflect the views or opinions of Cardho.

To: Dan McCallum <danieł,mccallum@cardno.com.au>; Dimce Stojanovski <dimce.stojanovski@cardno.com.au> From: AU. Sample Receipt. Sydney (Sydney) [mailto: AU. Sample Receipt. Sydney@sgs.com] Sent: Monday, 3 September 2018 7:18 PM Subject: SE183216 - 82219014

Dear Daniel/Dimce,

Extra sample TP107_0.1 received. Do you want it analysed? Please advise as soon as possible. Thank You.

Regards,

Emily Yin



ANALYTICAL REPORT



| ontact | Daniel McCallum | Manager | Jon Dicker |
|--------------|-------------------------------|---------------|---------------------------------|
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Cairns Environmental |
| Address | Unit 1 | Address | Unit 2, 58 Comport St |
| | 10 Denney Street | | Portsmith QLD 4870 |
| | Broadmeadow NSW 2292 | | |
| | | | |
| Telephone | 61 2 4965 4555 | Telephone | +61 07 4035 5111 |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 07 4035 5122 |
| Email | daniel.mccallum@cardno.com.au | Email | AU.Environmental.Cairns@sgs.com |
| Project | 82219014 | SGS Reference | CE135439 R0 |
| Order Number | SE183216 | Date Received | 31 Aug 2018 |
| Samples | 1 | Date Reported | 05 Sep 2018 |

COMMENTS _

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146).

SIGNATORIES _____

Anthony Nilsson Operations Manager

Jon Dicker Manager Northern QLD

SGS Australia Pty Ltd ABN 44 000 964 278

Environment, Health and Safety

Unit 2 58 Comport St

St Portsmith QLD 4870

Australia t +61 7 4035 5111 f +61 7 4035 5122

www.sgs.com.au



ANALYTICAL REPORT

| | | ample Number Sample Matrix Sample Date Sample Name | CE135439.001 Soil 24 Aug 2018 T103 0.1 |
|--|-----------------|---|---|
| Parameter | Units | LOR | |
| Moisture Content Method: AN002 Tested: 31/8/2018 | | | |
| % Moisture | %w/w | 1 | 6.2 |
| Particle sizing of soils by sieving Method: AN005 Tested: 5 Passing 75µm | /9/2018 %w/w | 1 | 19 |
| Retained 75µm | %w/w | 1 | 81 |
| Particle sizing of soils <75µm by hydrometer Method: AN005 | Tested: 5 | ;/ 9/201 8 | |
| Clay (<0.002mm) | %w/w | 0.1 | 15 |



QC SUMMARY

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample. DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : the absolute difference of the two results divided by the average of the two results as a percentage. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

No QC samples were reported for this job.



METHOD SUMMARY

| 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. |
| AN005 | The particle size distribution of a soil is determined by wet sieving, using a maximum of 900 mL of deionised water to sieve all fractions down to 75 μm. Referenced to AS1289.3.6.1 and AS1141.11. |

FOOTNOTES _

- IS Insufficient sample for analysis.
- LNR Sample listed, but not received. * NATA accreditation does not cover the
- performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- LOR Limit of Reporting
- ↑↓ Raised or Lowered Limit of Reporting
- QFH QC result is above the upper tolerance
- QFL QC result is below the lower tolerance
- The sample was not analysed for this analyte NVL Not Validated
 - VL NOT Validated

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

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

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

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

- Note that in terms of units of radioactivity:
 - a. 1 Bq is equivalent to 27 pCi
 - b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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

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ANALYTICAL REPORT



| CLIENT DETAILS | LABORATORY DETAILS | | | | | | | | |
|------------------------------------|---|---|---|--|--|--|--|--|--|
| Contact | Daniel McCallum | Manager | Huong Crawford | | | | | | |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental | | | | | | |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 | | | | | | |
| Telephone Facsimile Email | 61 2 4965 4555 61 2 4965 4666 daniel.mccallum@cardno.com.au | Telephone Facsimile Email | +61 2 8594 0400 +61 2 8594 0499 au.environmental.sydney@sgs.com | | | | | | |
| Project Order Number Samples | 82219014 (Not specified) 12 | SGS Reference Date Received Date Reported | SE183216 R0 29/8/2018 13/9/2018 | | | | | | |

COMMENTS

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

Clay % subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146,

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar Beniameen Chemist



Kamrul Ahsan Senior Chemist

Bennet Lo Senior Organic Chemist/Metals Chemist

kmln

Ly Kim Ha Organic Section Head

No

Huong Crawford Production Manager

S. Ravender.

Ravee Sivasubramaniam Hygiene Team Leader

SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

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VOC's in Soil [AN433] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|---------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - | - | - | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|---------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | |
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 |

| | | | DUP2 |
|---------------|-------|-----|--------------|
| | | | SOIL |
| | | | - |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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 |
| Total Xylenes | mg/kg | 0.3 | <0.3 |
| Total BTEX | mg/kg | 0.6 | <0.6 |
| Naphthalene | mg/kg | 0.1 | <0.1 |



Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|----------------------------|-------|-----|----------------|----------------|----------------|----------------|----------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|----------------------------|-------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - | - | - | - |
| PARAMETER | UOM | LOR | 24/8/2018 SE183216.006 | 24/8/2018 SE183216.007 | 24/8/2018 SE183216.008 | 24/8/2018 SE183216.009 | 24/8/2018 SE183216.010 |
| 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 |

| | | | DUP2 |
|----------------------------|-------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|---------------------------------|-------|-----|----------------|----------------|----------------|----------------|----------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | mg/kg | 25 | <25 | <25 | <25 | <25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 | <210 | <210 | <210 | <210 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|---------------------------------|-------|-----|----------------|----------------|----------------|--------------|----------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 | mg/kg | 25 | <25 | <25 | <25 | <25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 | <210 | <210 | <210 | <210 |

| | | | DUP2 |
|---------------------------------|-------|-----|--|
| PARAMETER | UOM | LOR | SOIL - 24/8/2018 SE183216.011 |
| 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 | mg/kg | 25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 |



SE183216 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|--|-------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 3012 | - 3012 | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | <0.1 | <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(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|--|-------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - 3012 | | | - 3012 |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |



SE183216 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | DUP2 |
|--|-------------|-----|--------------|
| | | | SOIL |
| | | | - |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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(ah)anthracene | mg/kg | 0.1 | <0.1 |
| Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 |
| Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 |



SE183216 R0

OC Pesticides in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | <1 | <1 | <1 |



OC Pesticides in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-------------------------|-------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| PARAMETER | UOM | LOR | 24/8/2018 SE183216.006 | 24/8/2018 SE183216.007 | 24/8/2018 SE183216.008 | 24/8/2018 SE183216.009 | 24/8/2018 SE183216.010 |
| 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 | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | <1 | <1 | <1 |



SE183216 R0

OC Pesticides in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | DUP2 SOIL - 24/8/2018 |
|-------------------------|-------|-----|--------------------------------|
| PARAMETER | UOM | LOR | SE183216.011 |
| 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 | 0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 |



OP Pesticides in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-----------------------------------|-------|-----|------------------------|------------------------|------------------------|------------------------|------------------------|
| | | | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-----------------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - | - | - | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 |

| | | | DUP2 SOIL - 24/8/2018 |
|-----------------------------------|-------|-----|--------------------------------|
| PARAMETER | UOM | LOR | SE183216.011 |
| Dichlorvos | mg/kg | 0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 |



PCBs in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 |

| | | | DUP2 |
|------------------------|-------|-----|--|
| PARAMETER | UOM | LOR | SOIL - 24/8/2018 SE183216.011 |
| 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 |



pH in soil (1:5) [AN101] Tested: 3/9/2018

| | | | TP103 0.1 |
|-------------|----------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.003 |
| pH (CaCl2)* | pH Units | 0.1 | 4.1 |



Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 3/9/2018

| PARAMETER | UOM | LOR | TP103 0.1 SOIL - 24/8/2018 SE183216.003 |
|------------------------------------|----------|------|---|
| Exchangeable Sodium, Na | mg/kg | 2 | 8 |
| Exchangeable Sodium, Na | meq/100g | 0.01 | 0.04 |
| Exchangeable Sodium Percentage* | % | 0.1 | 5.7 |
| Exchangeable Potassium, K | mg/kg | 2 | 23 |
| Exchangeable Potassium, K | meq/100g | 0.01 | 0.06 |
| Exchangeable Potassium Percentage* | % | 0.1 | 9.5 |
| Exchangeable Calcium, Ca | mg/kg | 2 | 68 |
| Exchangeable Calcium, Ca | meq/100g | 0.01 | 0.34 |
| Exchangeable Calcium Percentage* | % | 0.1 | 54.0 |
| Exchangeable Magnesium, Mg | mg/kg | 2 | 24 |
| Exchangeable Magnesium, Mg | meq/100g | 0.02 | 0.19 |
| Exchangeable Magnesium Percentage* | % | 0.1 | 30.7 |
| Cation Exchange Capacity | meq/100g | 0.02 | 0.63 |



SE183216 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|--------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Arsenic, As | mg/kg | 1 | <1 | 1 | 2 | 2 | 3 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 2.7 | 1.3 | 3.0 | 3.5 | 1.5 |
| Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Lead, Pb | mg/kg | 1 | 2 | 2 | 3 | 2 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | <2.0 | 2.4 | 3.0 | 2.5 | <2.0 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|--------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| Arsenic, As | mg/kg | 1 | 1 | <1 | <1 | 1 | 2 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 0.9 | 2.3 | 0.5 | 1.4 | 1.0 |
| Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | 0.8 | <0.5 | 0.5 |
| Lead, Pb | mg/kg | 1 | 1 | <1 | <1 | 1 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | 4.3 | <2.0 | 2.6 | 2.5 | 3.2 |

| | | | DUP2 |
|--------------|-------|-----|--------------|
| | | | SOIL |
| | | | |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| Arsenic, As | mg/kg | 1 | 1 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 2.8 |
| Copper, Cu | mg/kg | 0.5 | <0.5 |
| Lead, Pb | mg/kg | 1 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | <2.0 |



Mercury in Soil [AN312] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-----------|-------|------|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Mercury | mg/kg | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-----------|-------|------|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| Mercury | mg/kg | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |

| | | | DUP2 |
|-----------|-------|------|--------------|
| | | | SOIL |
| | | | |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| Mercury | mg/kg | 0.05 | <0.05 |



Moisture Content [AN002] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|------------|------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| % Moisture | %w/w | 0.5 | 5.8 | 7.7 | 6.5 | 6.6 | 9.6 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|------------|------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| % Moisture | %w/w | 0.5 | 8.0 | 13 | 18 | 9.2 | 13 |

| | | | DUP2 |
|------------|------|-----|--------------|
| | | | SOIL |
| | | | |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| % Moisture | %w/w | 0.5 | 8.0 |


Fibre Identification in soil [AN602] Tested: 4/9/2018

| | | | TP101 0.1 | TP109 0.1 |
|-------------------|---------|------|--------------|--------------|
| | | | SOIL | SOIL |
| | | | | |
| | | | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.009 |
| Asbestos Detected | No unit | - | No | No |
| Estimated Fibres* | %w/w | 0.01 | <0.01 | <0.01 |



ANALYTICAL RESULTS

SE183216 R0

VOCs in Water [AN433] Tested: 3/9/2018

| | | | RINS 24.08.2018 |
|---------------|------|-----|---|
| PARAMETER | UOM | LOR | WATER - 24/8/2018 SE183216.012 |
| Benzene | µg/L | 0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 |
| m/p-xylene | µg/L | 1 | <1 |
| o-xylene | µg/L | 0.5 | <0.5 |
| Total Xylenes | µg/L | 1.5 | <1.5 |
| Total BTEX | µg/L | 3 | <3 |
| Naphthalene | μg/L | 0.5 | <0.5 |



Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 3/9/2018

| | | | RINS 24.08.2018 |
|----------------------------|------|-----|-----------------|
| | | | WATER |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.012 |
| TRH C6-C9 | µg/L | 40 | <40 |
| Benzene (F0) | µg/L | 0.5 | <0.5 |
| TRH C6-C10 | µg/L | 50 | <50 |
| TRH C6-C10 minus BTEX (F1) | µg/L | 50 | <50 |



ANALYTICAL RESULTS

SE183216 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 31/8/2018

| | | | RINS 24.08.2018 |
|---------------------------------|------|-----|-------------------------|
| | | | WATER - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.012 |
| TRH C10-C14 | µg/L | 50 | <50 |
| TRH C15-C28 | µg/L | 200 | <200 |
| TRH C29-C36 | µg/L | 200 | <200 |
| TRH C37-C40 | µg/L | 200 | <200 |
| TRH >C10-C16 | µg/L | 60 | <60 |
| TRH >C16-C34 (F3) | µg/L | 500 | <500 |
| TRH >C34-C40 (F4) | µg/L | 500 | <500 |
| TRH C10-C36 | µg/L | 450 | <450 |
| TRH C10-C40 | µg/L | 650 | <650 |
| TRH >C10-C16 - Naphthalene (F2) | µg/L | 60 | <60 |



ANALYTICAL RESULTS

Sample Subcontracted [] Tested: 13/9/2018

| | | | TP103 0.1 |
|-----------------------|---------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.003 |
| Sample Subcontracted* | No unit | - | Subcontracted |
| SGS Cairns* | No unit | - | Subcontracted |



| 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-sodicESP 6-15%sodicESP >15%strongly sodic |
| | Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1 |
| 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 |
| 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 | 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. |
| AN602 | Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned. |



| AN602 | Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres. |
|-------|--|
| AN602 | AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg." |
| AN602 | The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- |
| | (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions. |

FOOTNOTES

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

Samples analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

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

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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

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STATEMENT OF QA/QC PERFORMANCE

| CLIENT DETAILS | | LABORATORY DETAI | LS |
|----------------|---|------------------|--|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone | 61 2 4965 4555 | Telephone | +61 2 8594 0400 |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 2 8594 0499 |
| Email | daniel.mccallum@cardno.com.au | Email | au.environmental.sydney@sgs.com |
| Project | 82219014 | SGS Reference | SE183216 R0 |
| Order Number | (Not specified) | Date Received | 29 Aug 2018 |
| Samples | 12 | Date Reported | 13 Sep 2018 |

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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:

| Extraction Date | pH in soil (1:5) | 1 item |
|-----------------|--|--------|
| | VOCs in Water | 1 item |
| | Volatile Petroleum Hydrocarbons in Water | 1 item |

| Samples clearly labelled | Yes | Complete documentation received | Yes | |
|--|-----------|------------------------------------|------------|--|
| Sample container provider | SGS | Sample cooling method | Ice Bricks | |
| Samples received in correct containers | Yes | Sample counts by matrix | 12 Soil | |
| Date documentation received | 29/8/2018 | Type of documentation received | COC | |
| Samples received in good order | Yes | Samples received without headspace | Yes | |
| Sample temperature upon receipt | 6.1°C | Sufficient sample for analysis | Yes | |
| Turnaround time requested | Standard | | | |

SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

Unit 16 33 Maddox St Alexandria NSW 2015 PO Box 6432 Bourke Rd BC Alexandria NSW 2015



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 C Sample Name | | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | ME-(AU)-[ENV]AI |
|---|------------------------------|----------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------------------|----------------------------|
| TP103 0.1 | Sample No. SE183216.003 | LB155649 | | 29 Aug 2018 | | 03 Sep 2018 | 21 Sep 2018 | Analysed 04 Sep 2018 |
| P 103 0.1 | SE 1632 10.003 | LB155649 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2016 | 04 Sep 2018 |
| ibre Identification in soil | | | | | | | Method: | ME-(AU)-[ENV]AI |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155838 | 24 Aug 2018 | 29 Aug 2018 | 24 Aug 2019 | 04 Sep 2018 | 24 Aug 2019 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155838 | 24 Aug 2018 | 29 Aug 2018 | 24 Aug 2019 | 04 Sep 2018 | 24 Aug 2019 | 05 Sep 2018 |
| lercury in Soil | | | | | | | | ME-(AU)-[ENV]A |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| | | | | • | | | · · · · · · · · · · · · · · · · · · · | |
| TP102 0.1 | SE183216.002 | LB155630 | 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| FP103 0.1 | SE183216.003 | LB155630 | 24 Aug 2018 | - | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| FP108 0.1 | SE183216.008 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| FP109 0.1 | SE183216.009 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P110 0.1 | SE183216.010 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 201 |
|)UP2 | SE183216.011 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 201 |
| oisture Content | | | | | | | Method: | ME-(AU)-[ENV]A |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P102 0.1 | SE183216.002 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P103 0.1 | SE183216.003 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 201 |
| P104 0.1 | SE183216.004 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 201 |
| P105 0.1 | SE183216.005 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 201 |
| P106 0.1 | SE183216.006 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 201 |
| P107 0.25 | SE183216.007 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 201 |
| P108 0.1 | SE183216.008 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P109 0.1 | SE183216.009 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| FP110 0.1 | SE183216.010 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
|)UP2 | SE183216.011 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| C Pesticides in Soil | | | | | | | Method: | ME-(AU)-[ENV]A |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| FP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| 0UP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| Pesticides in Soil | | | J - | | P | e | | ME-(AU)-[ENV]/ |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| P102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 201 |
| FP104 0.1 | | LB155627 | 24 Aug 2018 24 Aug 2018 | | 07 Sep 2018 | | | 04 Sep 2018 |
| P104 0.1 P105 0.1 | SE183216.004 SE183216.005 | LB155627 | 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 |
| | | | | | | | | 04 Sep 2018 05 Sep 2018 |
| P106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | |
| P107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| | | | | | | | | |

05 Sep 2018

05 Sep 2018

05 Sep 2018

TP108 0.1

TP109 0.1

TP110 0.1

SE183216.008

SE183216.009

SE183216.010

LB155627

LB155627

LB155627

24 Aug 2018

24 Aug 2018

24 Aug 2018

29 Aug 2018

29 Aug 2018

29 Aug 2018

07 Sep 2018

07 Sep 2018

07 Sep 2018

03 Sep 2018

03 Sep 2018

03 Sep 2018

13 Oct 2018

13 Oct 2018

13 Oct 2018



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.

| OP Pesticides in Soil (continu | ued) | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
|--------------------------------|--------------------------|-------------------|-------------|-------------|----------------|--------------|----------------|--------------------|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| PAH (Polynuclear Aromatic H | Hydrocarbons) in Soil | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| PCBs in Soil | | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| pH in soil (1:5) | | | | | | | Method: I | ME-(AU)-[ENV]AN101 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP103 0.1 | SE183216.003 | LB155661 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 03 Sep 2018† | 04 Sep 2018 | 03 Sep 2018 |
| | | | | | | | | |
| Total Recoverable Elements | in Soil/Waste Solide/Mat | terials by ICPOES | | | | | Method: ME-(AL |)-[ENV]AN040/AN320 |

| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
|--|--|--|---|--|---|--|--|--|
| TP101 0.1 | SE183216.001 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| DUP2 | SE183216.011 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TRH (Total Recoverable Hydroca | rbons) in Soil | | | | | | Method: N | /IE-(AU)-[ENV]AN403 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | 05100010.000 | | | | | | | 04 Sep 2018 |
| | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.002 SE183216.003 | LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 | | | |
| TP103 0.1 TP104 0.1 | | | | | • | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 |
| TP104 0.1 | SE183216.003 SE183216.004 | LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 04 Sep 2018 |
| TP104 0.1 TP105 0.1 | SE183216.003 SE183216.004 SE183216.005 | LB155627 LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 |
| TP104 0.1 TP105 0.1 TP106 0.1 | SE183216.003 SE183216.004 SE183216.005 SE183216.006 | LB155627 LB155627 LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 |
| TP104 0.1 TP105 0.1 TP106 0.1 TP107 0.25 | SE183216.003 SE183216.004 SE183216.005 SE183216.006 SE183216.007 | LB155627 LB155627 LB155627 LB155627 LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 04 Sep 2018 |
| TP104 0.1 TP105 0.1 TP106 0.1 TP107 0.25 TP108 0.1 | SE183216.003 SE183216.004 SE183216.005 SE183216.006 SE183216.007 SE183216.008 | LB155627 LB155627 LB155627 LB155627 LB155627 LB155627 LB155627 | 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 29 Aug 2018 | 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 07 Sep 2018 | 03 Sep 2018 03 Sep 2018 | 13 Oct 2018 13 Oct 2018 | 04 Sep 2018 04 Sep 2018 |



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.

| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
|-----------------|--------------|----------|-------------|-------------|----------------|--------------|--------------|------------------|
| RINS 24.08.2018 | SE183216.012 | LB155528 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 31 Aug 2018 | 10 Oct 2018 | 03 Sep 2018 |
| | | | | | | | | |
| /OC's in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN4 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| OCs in Water | | | | | | | Method: | ME-(AU)-[ENV]AN4 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| RINS 24.08.2018 | SE183216.012 | LB155745 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 03 Sep 2018† | 13 Oct 2018 | 05 Sep 2018 |

| • | | | | | | | | |
|--------------------------|------------------|----------|-------------|-------------|----------------|--------------|--------------|--------------------|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| Volatile Petroleum Hydro | carbons in Water | | | | | | Method: | ME-(AU)-[ENV]AN433 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| RINS 24.08.2018 | SE183216.012 | LB155745 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 03 Sep 2018† | 13 Oct 2018 | 05 Sep 2018 |
| | | | | | | | | |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| C Pesticides in Soil | | | | | (AU)-[ENV]A |
|--|-------------|---------------|-------|------------|-------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Tetrachloro-m-xylene (TCMX) (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 105 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 117 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 121 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 119 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 123 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 117 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 120 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 122 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 113 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 121 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 123 |
| P Pesticides in Soil | | | | Method: ME | (AU)-[ENV]A |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| 2-fluorobiphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 88 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 86 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 82 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 86 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 90 |
| | TP106 0.1 | SE183216.005 | % | | |
| | | | | 60 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 88 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 88 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 90 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 86 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 92 |
| 14-p-terphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 102 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 98 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 94 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 96 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 100 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 98 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 96 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 102 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 100 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 96 |
| AH (Polynuclear Aromatic Hydrocarbons) in Soil | | | | Method: ME | (AU)-[ENV] |
| arameter | Sample Name | Sample Number | Units | Criteria | Recover |
| 2-fluorobiphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 70 - 130% | 88 |
| | TP102 0.1 | SE183216.002 | % | 70 - 130% | 86 |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 82 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 86 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 90 |
| | | | % | | |
| | TP106 0.1 | SE183216.006 | | 70 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 88 |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 88 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 90 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 86 |
| | DUP2 | SE183216.011 | % | 70 - 130% | 92 |
| 14-p-terphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 70 - 130% | 102 |
| | TP102 0.1 | SE183216.002 | % | 70 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 98 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 94 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 96 |
| | TP106 0.1 | SE183216.006 | % | 70 - 130% | 100 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 98 |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 96 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 102 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 100 |
| | DUP2 | SE183216.011 | % | 70 - 130% | 96 |
| | | | | | |



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 identifier 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: MI | E-(AU)-[ENV]AN |
|---|---|--|-------------|-------------------------------------|-----------------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery ^o |
| d5-nitrobenzene (Surrogate) | TP102 0.1 | SE183216.002 | % | 70 - 130% | 82 |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 92 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 84 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 70 - 130% | 80 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 84 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 82 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 82 |
| | DUP2 | SE183216.010 | % | 70 - 130% | 82 |
| | 0012 | SE103210.011 | 78 | | |
| PCBs in Soil | | | | Method: MI | E-(AU)-[ENV]A |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Tetrachloro-m-xylene (TCMX) (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 105 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 117 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 121 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 119 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 123 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 117 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 120 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 120 |
| | | SE183216.009 | | | |
| | TP109 0.1 | | % | 60 - 130% | 113 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 121 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 123 |
| OC's in Soil | | | | Method: MI | E-(AU)-[ENV]A |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Bromofluorobenzene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 77 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 75 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 74 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 74 |
| | | | | | |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 75 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 75 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 74 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 82 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 75 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| d4-1,2-dichloroethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 98 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 99 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 79 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 95 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 93 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 92 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 93 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 89 |
| | TP110 0.1 | SE183216.009 | % | 60 - 130% | 82 |
| | | | | | |
| -10 to have a (0 mm moto) | DUP2 | SE183216.011 | % | 60 - 130% | 85 |
| d8-toluene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 70 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 79 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 76 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 84 |
| | TD 107 0 05 | SE183216.007 | % | 60 - 130% | 82 |
| | TP107 0.25 | | 8/ | 60 - 130% | 76 |
| | TP107 0.25 TP108 0.1 | SE183216.008 | % | | |
| | | | | | 80 |
| | TP108 0.1 TP109 0.1 | SE183216.009 | % | 60 - 130% | 80 73 |
| | TP108 0.1 TP109 0.1 TP110 0.1 | SE183216.009 SE183216.010 | % | 60 - 130% 60 - 130% | 73 |
| Dihomefuoromethano (Suzegata) | TP108 0.1 TP109 0.1 TP110 0.1 DUP2 | SE183216.009 SE183216.010 SE183216.011 | % % % | 60 - 130% 60 - 130% 60 - 130% | 73 76 |
| Dibromofluoromethane (Surrogate) | TP108 0.1 TP109 0.1 TP110 0.1 | SE183216.009 SE183216.010 | % | 60 - 130% 60 - 130% | 73 |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| /OC's in Soil (continued) | | | | Method: ME | -(AU)-[ENV]AN |
|--|-----------------|---------------|-------|------------|---------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Dibromofluoromethane (Surrogate) | TP103 0.1 | SE183216.003 | % | 60 - 130% | 74 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 81 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 77 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 79 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 84 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 77 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| /OCs in Water | | | | | -(AU)-[ENV]AN |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Bromofluorobenzene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 85 |
| d4-1,2-dichloroethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 114 |
| d8-toluene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |
| | | | % | | |
| Dibromofluoromethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | 70 | 40 - 130% | 101 |
| olatile Petroleum Hydrocarbons in Soil | | | | Method: ME | -(AU)-[ENV]AN |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery 9 |
| Bromofluorobenzene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 77 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 75 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 74 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 78 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 75 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 75 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 74 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 82 |
| | TP110 0.1 | SE183216.003 | % | 60 - 130% | 75 |
| | | | | | |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| d4-1,2-dichloroethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 98 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 99 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 79 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 95 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 93 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 92 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 93 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 89 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 82 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 85 |
| d8-toluene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 70 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 79 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 76 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 84 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 82 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 76 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 80 |
| | TP110 0.1 | SE183216.003 | % | 60 - 130% | 73 |
| | | | | | |
| | DUP2 | SE183216.011 | % | 60 - 130% | 76 |
| Dibromofluoromethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 85 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 93 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 74 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 81 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 77 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 79 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 84 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 77 |

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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 identifier 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: M | E-(AU)-[ENV]AN433 |
|---|-----------------|---------------|-------|-----------|-------------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Dibromofluoromethane (Surrogate) | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| Volatile Petroleum Hydrocarbons in Water Method: ME-(AU)-[ENV | | | | | |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Bromofluorobenzene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 85 |
| d4-1,2-dichloroethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 60 - 130% | 114 |
| d8-toluene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |
| Dibromofluoromethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |



METHOD BLANKS

SE183216 R0

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).

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

| Exchangeable Cations and Cation Excha | ange Capacity (CEC/ESP/SAR) | | Metho | od: ME-(AU)-[ENV]AN122 |
|---------------------------------------|-----------------------------|-------|-------|------------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155649.001 | Exchangeable Sodium, Na | mg/kg | 2 | 0 |
| | Exchangeable Potassium, K | mg/kg | 2 | 0 |
| | Exchangeable Calcium, Ca | mg/kg | 2 | 0 |
| | Exchangeable Magnesium, Mg | mg/kg | 2 | 0 |
| Mercury in Soil | | | Metho | od: ME-(AU)-[ENV]AN312 |
| Sample Number | Parameter | Units | LOR | Result |
| LB155630.001 | Mercury | mg/kg | 0.05 | <0.05 |

OC Pesticides in Soil

| OC Pesticides in Soil | | | М | lethod: ME-(AU)-[ENV]AN42 |
|-----------------------|---|-------|-----|---------------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155627.001 | 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 | 0.2 | <0.2 |
| | 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) | % | - | 95 |
| OP Pesticides in Soil | | | M | lethod: ME-(AU)-[ENV]AN42 |

| | | | Moun | |
|---------------|-----------------------------------|-------|------|--------|
| Sample Number | Parameter | Units | LOR | Result |
| .B155627.001 | Dichlorvos | mg/kg | 0.5 | <0.5 |
| | Dimethoate | mg/kg | 0.5 | <0.5 |
| | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| | Fenitrothion | mg/kg | 0.2 | <0.2 |
| | Malathion | mg/kg | 0.2 | <0.2 |
| | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| | Bromophos Ethyl | mg/kg | 0.2 | <0.2 |
| | Methidathion | mg/kg | 0.5 | <0.5 |
| | Ethion | mg/kg | 0.2 | <0.2 |
| | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| Surrogates | 2-fluorobiphenyl (Surrogate) | % | - | 94 |
| | d14-p-terphenyl (Surrogate) | % | - | 98 |

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

| Sample Number | Parameter | Units | LOR | Result |
|---------------|---------------------|-------|-----|--------|
| LB155627.001 | 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 |



METHOD BLANKS

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| | omatic Hydrocarbons) in Soll (co | | | | od: ME-(AU)-[ENV]AN4 |
|-----------------------|----------------------------------|---|-------|---------------------------------------|----------------------|
| Sample Number | | Parameter | Units | LOR | Result |
| LB155627.001 | | 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 |
| | | | | 0.1 | <0.1 |
| | | Dibenzo(ah)anthracene | mg/kg | · · · · · · · · · · · · · · · · · · · | |
| | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 |
| | | Total PAH (18) | mg/kg | 0.8 | <0.8 |
| | Surrogates | d5-nitrobenzene (Surrogate) | % | - | 84 |
| | | 2-fluorobiphenyl (Surrogate) | % | - | 94 |
| | | d14-p-terphenyl (Surrogate) | % | - | 98 |
| PCBs in Soil | | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| | | | | | |
| LB155627.001 | | 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 |
| | Surregates | Tetrachloro-m-xylene (TCMX) (Surrogate) | % | - | 95 |
| | Surrogates | | /0 | | |
| Total Recoverable Ele | ements in Soil/Waste Solids/Ma | terials by ICPOES | | Method: ME- | (AU)-[ENV]AN040/AN3 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155629.001 | | Arsenic, As | mg/kg | 1 | <1 |
| | | Cadmium, Cd | mg/kg | 0.3 | <0.3 |
| | | | | | |
| | | Chromium, Cr | mg/kg | 0.3 | <0.3 |
| | | Copper, Cu | mg/kg | 0.5 | <0.5 |
| | | Nickel, Ni | mg/kg | 0.5 | <0.5 |
| | | Lead, Pb | mg/kg | 1 | <1 |
| | | Zinc, Zn | mg/kg | 2 | <2.0 |
| RH (Total Recoveral | ble Hydrocarbons) in Soil | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155627.001 | | TRH C10-C14 | | 20 | <20 |
| LB155027.001 | | | mg/kg | | |
| | | 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 |
| RH (Total Recoveral | ble Hydrocarbons) in Water | | | Metho | d: ME-(AU)-[ENV]AN |
| | | Parameter | Units | 1.00 | |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155528.001 | | TRH C10-C14 | μg/L | 50 | <50 |
| | | TRH C15-C28 | µg/L | 200 | <200 |
| | | TRH C29-C36 | μg/L | 200 | <200 |
| | | TRH C37-C40 | μg/L | 200 | <200 |
| /OC's in Soil | | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155626.001 | Monocyclic Aromatic | Benzene | | 0.1 | <0.1 |
| LD 100020.001 | Monocyclic Aromatic | | mg/kg | | |
| | Hydrocarbons | 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 |
| | | e Ajone | | | |
| | Polycyclic VOCs | Naphthalene | mg/kg | 0.1 | <0.1 |
| | Polycyclic VOCs Surrogates | | | | <0.1 74 |



METHOD BLANKS

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

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)

| • | · · · · · · · · · · · · · · · · · · · | | | | · · · · |
|-----------------------|---------------------------------------|-----------------------------------|-------|------|-----------------------|
| Sample Number | | Parameter | Units | LOR | Result |
| LB155626.001 | Surrogates | d8-toluene (Surrogate) | % | - | 106 |
| | | Bromofluorobenzene (Surrogate) | % | - | 74 |
| | Totals | Total BTEX | mg/kg | 0.6 | <0.6 |
| VOCs in Water | | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155745.001 | Monocyclic Aromatic | Benzene | µg/L | 0.5 | <0.5 |
| | Hydrocarbons | Toluene | µg/L | 0.5 | <0.5 |
| | | Ethylbenzene | µg/L | 0.5 | <0.5 |
| | | m/p-xylene | µg/L | 1 | <1 |
| | | o-xylene | µg/L | 0.5 | <0.5 |
| | Polycyclic VOCs | Naphthalene | µg/L | 0.5 | <0.5 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 87 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 96 |
| | | d8-toluene (Surrogate) | % | - | 98 |
| | | Bromofluorobenzene (Surrogate) | % | - | 90 |
| Volatile Petroleum Hy | drocarbons in Soil | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155626.001 | | TRH C6-C9 | mg/kg | 20 | <20 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 74 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 72 |
| | | d8-toluene (Surrogate) | % | - | 106 |
| Volatile Petroleum Hy | drocarbons in Water | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155745.001 | | TRH C6-C9 | µg/L | 40 | <40 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 87 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 96 |
| | | d8-toluene (Surrogate) | % | - | 98 |
| | | Bromofluorobenzene (Surrogate) | % | - | 90 |
| | | | | | |



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 | | | | | | Meth | od: ME-(AU)- | ENVJAN312 |
|-----------------|--------------|-----------|-------|------|----------|-----------|--------------|-----------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.003 | LB155630.014 | Mercury | mg/kg | 0.05 | <0.05 | <0.05 | 200 | 0 |
| SE183216.011 | LB155630.023 | Mercury | mg/kg | 0.05 | <0.05 | <0.05 | 200 | 0 |

Moisture Content

| Moisture Content Method: ME-(AU)-[E | | | | | | | ENVJAN002 | |
|-------------------------------------|--------------|------------|-------|-----|----------|-----------|------------|-------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.003 | LB155628.011 | % Moisture | %w/w | 0.5 | 6.5 | 6.2 | 46 | 5 |
| SE183216.011 | LB155628.020 | % Moisture | %w/w | 0.5 | 8.0 | 8.6 | 42 | 7 |

OC Pesticides in Soil

| | | | | | | | | | (ENVJAN |
|-------------|--------------|------------|---|-------|-----|----------|-------|------------|---------|
| riginal | Duplicate | | Parameter | Units | LOR | Original | | Criteria % | |
| E183216.001 | LB155627.028 | | Hexachlorobenzene (HCB) | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Alpha BHC | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Lindane | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Heptachlor | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Aldrin | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Beta BHC | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Delta BHC | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Heptachlor epoxide | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | o,p'-DDE | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Alpha Endosulfan | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Gamma Chlordane | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Alpha Chlordane | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | trans-Nonachlor | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | p,p'-DDE | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Dieldrin | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Endrin | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | o,p'-DDD | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | o,p'-DDT | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Beta Endosulfan | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | p,p'-DDD | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | p,p'-DDT | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Endosulfan sulphate | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Endrin Aldehyde | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Methoxychlor | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Endrin Ketone | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Isodrin | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Mirex | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Total CLP OC Pesticides | mg/kg | 1 | <1 | 0 | 200 | 0 |
| | | Surragataa | | | - | | 0.187 | 30 | 17 |
| 183216.011 | LB155627.023 | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | 0.1 | 0.16 | <0.1 | 200 | 0 |
| 183216.011 | LB155627.023 | | Hexachlorobenzene (HCB) | mg/kg | | | | | |
| | | | 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 | 0.2 | <0.2 | <0.2 | 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 | | 0.2 | <0.1 | <0.1 | 200 | 0 |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| OC Pesticides in S | | | Deveneder | | LOD | Onimierat | | od: ME-(AU)- | |
|--------------------|--------------------|--------------|---|-------|------|-----------|-----------|--------------|---------|
| Original | Duplicate | | Parameter | Units | LOR | Original | | Criteria % | |
| SE183216.011 | LB155627.023 | | 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 | |
| | | | Mirex | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | Total CLP OC Pesticides | mg/kg | - 1 | <1 0.19 | <1 0.19 | 200 30 | 0 |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.19 | | | |
| OP Pesticides in S | Soil | | | | | | Metho | od: ME-(AU)- | [ENV]AN |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| SE183216.002 | LB155627.026 | | Dichlorvos | mg/kg | 0.5 | <0.5 | 0 | 200 | 0 |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | 0 | 200 | 0 |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | 0 | 200 | 0 |
| | | | Fenitrothion | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Malathion | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Bromophos Ethyl | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Methidathion | mg/kg | 0.5 | <0.5 | 0 | 200 | 0 |
| | | | Ethion | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | 0 | 200 | 0 |
| | | | Total OP Pesticides* | mg/kg | 1.7 | <1.7 | 0 | 200 | 0 |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.4 | 0.43 | 30 | 0 |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.45 | 30 | 0 |
| SE183216.011 | LB155627.023 | | Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Malathion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Ethion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | 200 | 0 |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 30 | 2 |
| | | ounogates | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 30 | 4 |
| | A | | | | | 0.0 | | | |
| | Aromatic Hydrocarb | ons) in Soli | | | 1.00 | | | od: ME-(AU)- | |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| SE183216.002 | LB155627.026 | | Naphthalene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Acenaphthylene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Acenaphthene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Fluorene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Phenanthrene | mg/kg | 0.1 | <0.1 | 0.02 | 200 | 0 |
| | | | Anthracene | mg/kg | 0.1 | <0.1 | 0.02 | 200 | 0 |
| | | | Fluoranthene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Pyrene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Benzo(a)anthracene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Chrysene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Benzo(b&j)fluoranthene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Benzo(k)fluoranthene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Benzo(a)pyrene | mg/kg | 0.1 | <0.1 | 0.01 | 200 | 0 |
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Dibenzo(ah)anthracene | mg/kg | 0.1 | <0.1 | 0 | 200 | 0 |
| | | | Ponze(abi)non/ono | | 0.1 | -0.1 | 0 | 200 | 0 |

Benzo(ghi)perylene

Carcinogenic PAHs, BaP TEQ <LOR=0

0

0.1

0.2

mg/kg

mg/kg

<0.1

<0.2

0

0

200

200



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.

| Driginal | Duplicate | | Parameter | Units | LOR | Original | Dup <u>licate</u> | Criteria % | RPD |
|-------------|--------------|------------|---|--------|-------|----------|-------------------|--------------|------|
| E183216.002 | LB155627.026 | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>mg/kg</td><td>0.3</td><td><0.3</td><td>0.242</td><td>134</td><td>0</td></lor=lor<> | mg/kg | 0.3 | <0.3 | 0.242 | 134 | 0 |
| 100210.002 | 20100021.020 | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td>0.121</td><td>175</td><td>0</td></lor=lor> | mg/kg | 0.2 | <0.2 | 0.121 | 175 | 0 |
| | | | Total PAH (18) | mg/kg | 0.8 | <0.8 | 0.121 | 200 | |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - 0.0 | 0.4 | 0.4 | 30 | |
| | | Sunogales | 2-fluorobiphenyl (Surrogate) | mg/kg | | 0.4 | 0.43 | 30 | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | | 0.4 | 0.45 | 30 | |
| 183216.011 | LB155627.023 | | | | 0.1 | | | 200 | |
| 103210.011 | LB155027.025 | | Naphthalene | mg/kg | | <0.1 | <0.1 | | |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Acenaphthylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Acenaphthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Fluorene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Phenanthrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(a)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Chrysene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(b&j)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(k)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(a)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Dibenzo(ah)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td><0.2</td><td>200</td><td></td></lor=0<> | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>mg/kg</td><td>0.3</td><td><0.3</td><td><0.3</td><td>134</td><td></td></lor=lor<> | mg/kg | 0.3 | <0.3 | <0.3 | 134 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td><0.2</td><td>175</td><td></td></lor=lor> | mg/kg | 0.2 | <0.2 | <0.2 | 175 | |
| | | | Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | 200 | |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.4 | 30 | |
| | | ounogates | 2-fluorobiphenyl (Surrogate) | mg/kg | | 0.5 | 0.5 | 30 | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | | 0.5 | 0.5 | 30 | |
| | | | | ing/kg | | 0.5 | | | |
| Bs in Soil | | | | | | | Meth | od: ME-(AU)- | (ENV |
| riginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RP |
| E183216.001 | LB155627.025 | | Arochlor 1016 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1221 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1232 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1242 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1248 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1254 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1260 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1262 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Arochlor 1268 | mg/kg | 0.2 | <0.2 | 0 | 200 | |
| | | | Total PCBs (Arochlors) | | 1 | <1 | 0 | 200 | |
| | | 0 | | mg/kg | | | | | |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | | 0 | 0.187 | 30 | |
| E183216.011 | LB155627.023 | | Arochlor 1016 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1221 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1232 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1242 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1248 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1254 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1260 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1262 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1268 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Total PCBs (Arochlors) | mg/kg | 1 | <1 | <1 | 200 | |
| | | | | | | | | | |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0 | 0 | 30 | |



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 | Original | Duplicate | Criteria % | RPD % |
|-----------------|---------------------|-------------|-----------------------------------|-------|-----|-------------|-----------|--------------|--------|
| SE183216.003 | LB155629.014 | | Arsenic, As | | 1 | 2 | 3 | 73 | 41 |
| 3E 1832 10.003 | LB155029.014 | | Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | | Chromium, Cr | mg/kg | | | | 46 | 7 |
| | | | | mg/kg | 0.3 | 3.0 <0.5 | 3.3 | | 0 |
| | | | Copper, Cu | mg/kg | 0.5 | | | 200 | |
| | | | Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Lead, Pb | mg/kg | 1 | 3 | 3 | 64 | 4 |
| | | | Zinc, Zn | mg/kg | 2 | 3.0 | 3.0 | 97 | 3 |
| SE183216.011 | LB155629.023 | | Arsenic, As | mg/kg | 1 | 1 | <1 | 134 | 32 |
| | | | Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | | Chromium, Cr | mg/kg | 0.3 | 2.8 | 2.3 | 49 | 19 |
| | | | Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Lead, Pb | mg/kg | 1 | 2 | <1 | 129 | 63 |
| | | | Zinc, Zn | mg/kg | 2 | <2.0 | <2.0 | 200 | 0 |
| RH (Total Recov | erable Hydrocarbons |) in Soil | | | | | Meth | od: ME-(AU)- | [ENV]A |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| SE183216.002 | LB155627.025 | | TRH C10-C14 | mg/kg | 20 | <20 | 0 | 200 | 0 |
| | | | TRH C15-C28 | mg/kg | 45 | <45 | 0 | 200 | 0 |
| | | | TRH C29-C36 | mg/kg | 45 | <45 | 0 | 200 | 0 |
| | | | TRH C37-C40 | mg/kg | 100 | <100 | 0 | 200 | 0 |
| | | | TRH C10-C36 Total | mg/kg | 110 | <110 | 0 | 200 | 0 |
| | | | TRH C10-C40 Total (F bands) | mg/kg | 210 | <210 | 0 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 210 | <25 | 0 | 200 | 0 |
| | | TRITI Danus | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25 | <25 | 0 | 200 | 0 |
| | | | | | 90 | <90 | 0 | 200 | 0 |
| | | | TRH >C16-C34 (F3) | mg/kg | | | | | |
| | | | TRH >C34-C40 (F4) | mg/kg | 120 | <120 | 0 | 200 | 0 |
| E183216.011 | LB155627.023 | | 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 (F bands) | mg/kg | 210 | <210 | <210 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| | | | TRH >C10-C16 - Naphthalene (F2) | 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 |
| 'OC's in Soil | | | | | | | Meth | od: ME-(AU)- | [ENV]A |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| SE183216.003 | LB155626.014 | Monocyclic | Benzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | Aromatic | 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 | - | 3.7 | 4.3 | 50 | 15 |
| | | Canogatos | d4-1,2-dichloroethane (Surrogate) | mg/kg | | 4.0 | 4.6 | 50 | 15 |
| | | | d8-toluene (Surrogate) | mg/kg | | 3.5 | 4.0 | 50 | 16 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | | 3.8 | 3.5 | 50 | 7 |
| | | Totals | Total Xylenes | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | IULAIS | · | | | | | | 0 |
| 25402246.044 | 1.0466000.000 | Managerella | Total BTEX | mg/kg | 0.6 | <0.6 | <0.6 | 200 | |
| SE183216.011 | LB155626.023 | Monocyclic | Benzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | Aromatic | 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 |
| | | Delvovelie | Nanhthalene | ma/ka | 0.1 | -01 | <01 | 200 | 0 |

Polycyclic

Surrogates

Naphthalene

Dibromofluoromethane (Surrogate)

d4-1,2-dichloroethane (Surrogate)

Bromofluorobenzene (Surrogate)

d8-toluene (Surrogate)

0

6

6

7

0.1

-

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

<0.1

3.9

4.2

3.8

4.0

<0.1

4.2

4.5

4.1

3.6

200

50

50

50

50



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 (cont | tinued) | | | | | | Meth | od: ME-(AU)- | ENVJAN43 |
|---------------------|---------------------|-------------|---|-------|----------|-------------|-------------|--------------|----------|
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.011 | LB155626.023 | 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 |
| VOCs in Water | | | | | | | Meth | od: ME-(AU)- | |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.012 | LB155745.022 | Monocyclic | Benzene | μg/L | 0.5 | <0.5 | 0.04 | 200 | 0 |
| 02100210.012 | LD 1001 40.022 | Aromatic | Toluene | μg/L | 0.5 | <0.5 | 0.04 | 200 | 0 |
| | | Violitate | Ethylbenzene | μg/L | 0.5 | <0.5 | 0.04 | 200 | 0 |
| | | | m/p-xylene | μg/L | 1 | <1 | 0.01 | 200 | 0 |
| | | | o-xylene | μg/L | 0.5 | <0.5 | 0.02 | 200 | 0 |
| | | Polycyclic | Naphthalene | μg/L | 0.5 | <0.5 | 0.01 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 5.1 | 4.88 | 30 | 4 |
| | | ounogates | d4-1,2-dichloroethane (Surrogate) | μg/L | _ | 5.7 | 5.52 | 30 | 4 |
| | | | d8-toluene (Surrogate) | μg/L | _ | 5.1 | 4.84 | 30 | 4 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | _ | 4.3 | 4.37 | 30 | 2 |
| Volatile Petroleum | Hydrocarbons in Soi | 1 | Diomondorobenzene (ounogate) | µ9/⊏ | | 4.0 | | od: ME-(AU)- | |
| Original | | 1 | Devenuetor | Units | | Original | | Criteria % | |
| | Duplicate | | Parameter | | LOR | | | | RPD % |
| SE183216.003 | LB155626.014 | | TRH C6-C10 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| | | | TRH C6-C9 | mg/kg | 20 | <20 3.7 | <20 4.3 | 200 30 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | | | | 15 |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | | 4.0 | 4.6 | 30 | 15 16 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 3.5 | 4.1 | 30 | 7 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | _ | 3.8 | 3.5 | 30 | |
| | | VPH F Bands | Benzene (F0) | mg/kg | 0.1 | <0.1 | <0.1 <25 | 200 | 0 |
| 05400046.044 | L D455626 022 | | TRH C6-C10 minus BTEX (F1) | mg/kg | 25 | <25 | | 200 | |
| SE183216.011 | LB155626.023 | | TRH C6-C10 TRH C6-C9 | mg/kg | 25 20 | <25 <20 | <25 <20 | 200 | 0 |
| | | | | mg/kg | - 20 | 3.9 | 4.2 | 30 | 6 |
| | | Surrogates | Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.2 | 4.2 | 30 | 6 |
| | | | | mg/kg | - | 3.8 | 4.5 | 30 | 7 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.0 | 3.6 | 30 | 11 |
| | | VPH F Bands | Bromofluorobenzene (Surrogate) | mg/kg | - | | <0.1 | | 0 |
| | | VPH F banus | Benzene (F0) TRH C6-C10 minus BTEX (F1) | mg/kg | 0.1 | <0.1 <25 | <25 | 200 | 0 |
| | | | | mg/kg | 25 | ×25 | | | |
| | Hydrocarbons in Wa | iter | | | | | | od: ME-(AU)- | |
| Original | Duplicate | | Parameter | Units | LOR | Original | | Criteria % | RPD % |
| SE183216.012 | LB155745.022 | | TRH C6-C10 | μg/L | 50 | <50 | 0 | 200 | 0 |
| | | | TRH C6-C9 | μg/L | 40 | <40 | 0 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 5.1 | 4.88 | 30 | 4 |
| | | | d4-1,2-dichloroethane (Surrogate) | μg/L | - | 5.7 | 5.52 | 30 | 4 |
| | | | d8-toluene (Surrogate) | μg/L | - | 5.1 | 4.84 | 30 | 4 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | - | 4.3 | 4.37 | 30 | 2 |
| | | VPH F Bands | Benzene (F0) | μg/L | 0.5 | <0.5 | 0.04 | 200 | 0 |
| | | | TRH C6-C10 minus BTEX (F1) | μg/L | 50 | <50 | -0.12 | 200 | 0 |
| SE183244.010 | LB155745.023 | | TRH C6-C10 | μg/L | 50 | 0 | 0 | 200 | 0 |
| | | - | TRH C6-C9 | μg/L | 40 | 0 | 0 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 4.8 | 5.31 | 30 | 10 |
| | | | d4-1,2-dichloroethane (Surrogate) | μg/L | - | 5.45 | 6.05 | 30 | 10 |
| | | | d8-toluene (Surrogate) | μg/L | - | 4.8 | 5.22 | 30 | 8 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | - | 4.21 | 4.16 | 30 | 1 |
| | | VPH F Bands | Benzene (F0) | μg/L | 0.5 | 0.05 | 0.04 | 200 | 0 |
| | | | TRH C6-C10 minus BTEX (F1) | µg/L | 50 | -0.16 | -0.17 | 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 C | ation Exchange Capacity (CEC/ESP/SAR) | | Method: ME-(AU)-[E | | | | |
|----------------------------|---------------------------------------|-------|--------------------|--------|----------|---------------|--------------|
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155649.002 | Exchangeable Sodium, Na | mg/kg | 2 | NA | 72.68 | 80 - 120 | 102 |
| | Exchangeable Potassium, K | mg/kg | 2 | NA | 238.12 | 80 - 120 | 97 |
| | Exchangeable Calcium, Ca | mg/kg | 2 | NA | 692 | 80 - 120 | 91 |
| | Exchangeable Magnesium, Mg | mg/kg | 2 | NA | 134.2 | 80 - 120 | 100 |
| Mercury in Soil | | | | | N | Nethod: ME-(A | U)-[ENV]AN31 |
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155630.002 | Mercury | mg/kg | 0.05 | 0.19 | 0.2 | 70 - 130 | 96 |

OC Pesticides in Soil

| Hepsohor mgkg 0.1 0.2 0.2 66 1 40 100 Adm mgkg 0.1 0.2 0.2 0.6 140 0.00 Dels BIC mgkg 0.1 0.2 0.2 0.6 140 0.00 Dels Dir mgkg 0.1 0.2 0.2 0.6 140 0.00 Dels Dir mgkg 0.1 0.2 0.2 0.6 140 0.00 Derogates Technor-msylene (TCMX) (Surrogate) mgkg 0.1 0.2 0.2 0.6 140 0.00 Sympole Nume Parameter mgkg 0.5 2.0 2 0.6 140 0.00 Disport (Charymfos Ethy) mgkg 0.5 2.0 2 0.0 140 100 Disport (Charymfos Ethy) mgkg 0.5 2.0 2 0.6 140 100 Disport (Charymfos Ethy) mgkg 0.5 2.0 2 0.6 140 100 Disport (Charymfos Ethy) mgkg 0.5 0.5 40.130 100 | OC Pesticides in Sc | bil | | | | | I | Method: ME-(A | U)-[ENV]AN42 |
|---|---------------------|-----------------|---|-------|-----|--------|----------|---------------|--------------|
| Addin mg/dg 0.1 0.2 0.2 60.140 0.160 Deld mg/dg 0.1 0.2 0.2 0.01 0.02 Deld Deld mg/gg 0.1 0.2 0.2 0.01 0.02 Deld Deld mg/gg 0.2 0.2 0.01 0.02 Burgate Tetrachionom-xylene (TCMX) (Surogate) mg/gg 0.1 0.2 0.2 0.01 0.01 Portectose Instruct Tetrachionom-xylene (TCMX) (Surogate) mg/gg 0.1 0.2 0.2 0.01 0.01 Bis5627.002 Dichlorova mg/gg 0.5 0.01 | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Petides mgkg 0.1 0.2 0.2 60.140 104 Dedm mgkg 0.2 0.2 0.2 60.140 104 Defdm mgkg 0.2 0.2 0.2 60.140 108 pp:DDT mgkg 0.1 0.2 0.2 60.140 108 Sumogate pp:DDT mgkg 0.1 0.2 0.2 60.140 108 Patchore-mxylere (TCMX) (Surogate) mgkg 0.1 0.2 0.2 60.140 108 Surogate Parameter Visite Ngkg 0.5 2.0 2.0 60.140 101 Diazono (Dimujula) mgkg 0.2 1.8 2.0 60.140 108 Diazono (Dimujula) mgkg 0.2 1.8 0.5 0.5 40.10 108 Bis Sorogate 2-fluorobiners (Surogate) mgkg 0.1 4.2 40.140 105 Surogate 2-fluorobiners (Surogate) mgkg 0.1 4.2< | LB155627.002 | | Heptachlor | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 109 |
| Deletini mg/kg 0.2 0.2 0.2 0.2 0.1 0.05 Endrin mg/kg 0.2 0.2 0.1 0.2 0.2 0.1 0.9 p.p'-DDT mg/kg 0.1 0.15 40.15 99 Presetoles In Sol mg/kg 0.1 0.15 40.15 96 Sample Number Parenetor Variant Sol Resoult Expected Criteria % Recovery EB15627.002 Dichtoros mg/kg 0.5 2.0 2.2 60.140 100 EB15627.002 Dichtoros mg/kg 0.5 2.3 2 60.140 101 EB15627.002 Dichtoros mg/kg 0.5 2.3 2 60.140 103 EB15627.002 Dichtorogete mg/kg 0.2 1.8 2 60.140 108 EB15627.002 Alurobichenyl (Surogete) mg/kg 0.1 4.2 4 60.140 101 EB15627.002 Parenetr | | | Aldrin | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 106 |
| Endmin mg/kg 0.2 40.2 0.2 60.1 0.0 0.2 0.0 | | | Delta BHC | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 104 |
| pp/DDT mg/kg 0.1 0.2 0.2 6.0 10 Surogates Tetachiorom-sydene (TCMX) (Surogate) mg/kg 0.1 0.14 0.15 0.0< | | | Dieldrin | mg/kg | 0.2 | 0.2 | 0.2 | 60 - 140 | 105 |
| SuragatesSuragatesTetachloro-m-sydeer (CRMX) (Suragate)mpkg00.140.150.130.130.130.150.13Sample NumberParameterParameterUnitsLORResultExpectedCriteria & ResveryResveryLB155627.002ParameterDichloroysettomgkg0.52.3260-140101Dichloroysettomgkg0.52.3260-140101 <td></td> <td></td> <td>Endrin</td> <td>mg/kg</td> <td>0.2</td> <td><0.2</td> <td>0.2</td> <td>60 - 140</td> <td>99</td> | | | Endrin | mg/kg | 0.2 | <0.2 | 0.2 | 60 - 140 | 99 |
| P Pesticides in Soli Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery Bi55627.002 Diazion (Dimyide) mg/kg 0.5 2.0 2 60 · 140 100 Diazion (Dimyide) mg/kg 0.5 2.3 2 60 · 140 100 Ellion mg/kg 0.2 2.2 2 60 · 140 108 Surrogates 2/fluorobipenyl (Surrogate) mg/kg 0.2 1.8 2 60 · 140 108 Surrogates 2/fluorobipenyl (Surrogate) mg/kg 0.2 1.8 2 60 · 140 108 Sample Number Parameter mg/kg 0.1 4.2 4 60 · 140 105 Sample Number Parameter mg/kg 0.1 4.2 4 60 · 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 · 140 108 Prene mg/kg 0.1 4.2 | | | p,p'-DDT | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 89 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Dichlorvos mg/kg 0.5 2.0 2 60-140 100 LB155627.002 Dichlorvorfios (Chioryrifos Ethyl) mg/kg 0.2 2.3 2 60-140 117 Chioryrifos (Chioryrifos Ethyl) mg/kg 0.2 1.8 2 60-140 100 Ethion mg/kg 0.2 1.8 2 60-140 108 Surogates 2-fluorobiphenyl (Surogate) mg/kg 0.2 1.8 2 60-140 108 Maphte Number Parametor mg/kg 0.2 1.8 2 60-140 100 Surogates Parametor Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60-140 106 Acenaphthone mg/kg 0.1 4.2 4 60-140 1 | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.14 | 0.15 | 40 - 130 | 96 |
| Bisse27.002 Dichlorvos Dicklorvos mg/kg 0.5 2.0 2 60-140 100 Diazinon (Dimpylate) mg/kg 0.5 2.3 2 60-140 117 Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg 0.2 2.2 2 60-140 108 Surrogates 2-fluorobiphenyl (Surrogate) mg/kg 0.2 1.8 2 60-140 108 Surrogates 2-fluorobiphenyl (Surrogate) mg/kg 0.5 0.5 40-130 92 CAH (Polynuclear Aromatic Hydrocarbors) In Soll Nample Number Parameter VInits LOR Result Exposeted Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60-140 106 Accaraphthylene mg/kg 0.1 4.2 4 60-140 106 Accaraphthylene mg/kg 0.1 4.2 4 60-140 106 Accaraphthylene mg/kg 0.1 4.1 4 <td>OP Pesticides in Sc</td> <td>il -</td> <td></td> <td></td> <td></td> <td></td> <td>l</td> <td>Method: ME-(A</td> <td>U)-[ENV]AN4</td> | OP Pesticides in Sc | il - | | | | | l | Method: ME-(A | U)-[ENV]AN4 |
| Diazinon (Dimpyliste) mg/kg 0.5 2.3 2 60 - 140 117 Chlorpyrifis (Chlorpyrifis (Ethyl) mg/kg 0.2 2.2 2 60 - 140 108 Ethion mg/kg 0.2 1.8 2 60 - 140 108 Surrogates Zinobiphenyl (Surrogate) mg/kg -0.5 0.5 40 - 130 90 Atl Polynuclear Aromatic Hydrocarbons) in Sol mg/kg -0 0.5 0.5 40 - 130 92 Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Accnaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Fluoranthene mg/kg 0.1 4.2 4 60 - 140 106 Accnaphthene mg/kg 0.1 4.2 4 60 - 140 108 Fluoranthene mg/kg 0.1 | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg 0.2 2.2 2 60 - 140 108 Ethion mg/kg 0.2 1.8 2 60 - 140 89 Surogates 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 89 AH (Polynuclear Aromatic Hydrocarbox) in Soll Wethod: KE-(AU)-(ENV/AN Sample Number Parameter Ng/kg 0.1 4.2 4 60 - 140 106 ALF (Polynuclear Aromatic Hydrocarbox) in Soll Wethod: KE-(AU)-(ENV/AN Sample Number Parameter Ng/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.1 4 60 - 140 106 Acenaphthyle | LB155627.002 | | Dichlorvos | mg/kg | 0.5 | 2.0 | 2 | 60 - 140 | 100 |
| Ethion mg/kg 0.2 1.8 2 60 - 140 89 Surogates 2-fluorobiphenyl (Surogate) mg/kg - 0.5 0.5 40 - 130 90 d14-perphenyl (Surogate) mg/kg - 0.5 0.5 40 - 130 90 AH (Polynuclear Aromatic Hydrocarbons) in Sol Wethod: ME-(AU)-(ENV)AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 103 Pituranthene mg/kg 0.1 4.2 4 60 - 140 103 Pituranthene mg/kg 0.1 4.4 40 - 140 103 Pituranthene mg/kg 0.1 4.4 40 - 140 103 Ben | | | Diazinon (Dimpylate) | mg/kg | 0.5 | 2.3 | 2 | 60 - 140 | 117 |
| Surrogates 2-fluorobiphenyl (Surrogate) ng/kg - 0.5 0.5 40 - 130 90 Atl (-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 Atl (Polynuclear Aromatic Hydrocarbons) in Soll wethod: Surrogate Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 108 Anthracene mg/kg 0.1 4.1 4 60 - 140 108 Benzo(a)prene | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 2.2 | 2 | 60 - 140 | 108 |
| d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 92 AH (Polynuclear Aromatic Hydrocarbors) In Sol Sample Number Parameter Nethod: NE-(AU)-[ENV/AN Sample Number Parameter Mag/kg 0.1 4.2 4 60-140 106 Accenaphthylene mg/kg 0.1 4.2 4 60-140 106 Accenaphthylene mg/kg 0.1 4.2 4 60-140 106 Phenanthrene mg/kg 0.1 4.2 4 60-140 106 Phenanthrene mg/kg 0.1 4.2 4 60-140 106 Phenanthrene mg/kg 0.1 4.3 4 60-140 106 Purora mg/kg 0.1 4.3 4 60-140 106 Berzo(a)pyrene mg/kg 0.1 4.3 4 60-140 108 Berzo(a)pyrene mg/kg 0.1 4.3 4 60-140 108 Jurogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.3 40-130 78 Zurogates d5-nitrobenzene (Surrogate) mg/kg 0.5 0.5 40-130 90 Zefluorobiphenyl (Surrogate)< | | | Ethion | mg/kg | 0.2 | 1.8 | 2 | 60 - 140 | 89 |
| AH (Polynuclear Aromatic Hydrocarbons) in Soll Nather Nather LOR Result Expacted Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60-140 106 Acenaphthylene mg/kg 0.1 4.2 4 60-140 106 Acenaphthylene mg/kg 0.1 4.2 4 60-140 105 Acenaphthene mg/kg 0.1 4.2 4 60-140 106 Acenaphthene mg/kg 0.1 4.2 4 60-140 104 Anthracene mg/kg 0.1 4.1 4 60-140 103 Fluoranthene mg/kg 0.1 4.4 4 60-140 108 Pyrene mg/kg 0.1 4.3 4 60-140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60-140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.5 40-130 < | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 90 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 3.9 4 60 - 140 104 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Phenanthrene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.4 4 60 - 140 108 Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 92 |
| LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 3.9 4 60 - 140 104 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 104 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.4 4 60 - 140 108 Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg -1 4.7 4 60 - 140 108 2-fluorobiphenyl (Surrogate) mg/kg -1 0.5 0.5 40 - 130 < | PAH (Polynuclear A | romatic Hydroca | rbons) in Soil | | | | 1 | Method: ME-(A | U)-[ENV]AN42 |
| Acenaphthylene mg/kg 0.1 4.2 4 60-140 105 Acenaphthene mg/kg 0.1 3.9 4 60-140 97 Phenanthrene mg/kg 0.1 4.2 4 60-140 104 Anthracene mg/kg 0.1 4.2 4 60-140 104 Fluoranthene mg/kg 0.1 4.1 4 60-140 103 Pyrene mg/kg 0.1 4.4 4 60-140 109 Pyrene mg/kg 0.1 4.3 4 60-140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60-140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60-140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40-130 90 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 92 rCB | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Acenaphthene mg/kg 0.1 3.9 4 60-140 97 Phenanthrene mg/kg 0.1 4.2 4 60-140 104 Anthracene mg/kg 0.1 4.2 4 60-140 103 Fluoranthene mg/kg 0.1 4.1 4 60-140 109 Pyrene mg/kg 0.1 4.4 4 60-140 109 Benzo(a)pyrene mg/kg 0.1 4.3 4 60-140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60-140 108 2-fluorobiphenyl (Surrogate) mg/kg 0.1 4.7 4 60-140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40-130 90 14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 92 mg/kg - 0.5 0.5 40-130 92 <td>LB155627.002</td> <td></td> <td>Naphthalene</td> <td>mg/kg</td> <td>0.1</td> <td>4.2</td> <td>4</td> <td>60 - 140</td> <td>106</td> | LB155627.002 | | Naphthalene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 106 |
| Phenanthrene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.1 4 60 - 140 109 Pyrene mg/kg 0.1 4.4 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 YCBs in Soli Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y | | | Acenaphthylene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 105 |
| Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.4 4 60 - 140 109 Pyrene mg/kg 0.1 4.4 4 60 - 140 109 Benzo(a)pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 CBs in Soil Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | Acenaphthene | mg/kg | 0.1 | 3.9 | 4 | 60 - 140 | 97 |
| Fluoranthene mg/kg 0.1 4.4 4 60 - 140 109 Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surogate) mg/kg - 0.5 0.5 40 - 130 90 141-p-terphenyl (Surogate) mg/kg - 0.5 0.5 40 - 130 92 *CEs in Soil * * * * * * * * Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | Phenanthrene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 104 |
| Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Anthracene | mg/kg | 0.1 | 4.1 | 4 | 60 - 140 | 103 |
| Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Fluoranthene | mg/kg | 0.1 | 4.4 | 4 | 60 - 140 | 109 |
| Murrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 rCBs in Soil mg/kg - 0.5 0.5 40 - 130 92 Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | Pyrene | mg/kg | 0.1 | 4.3 | 4 | 60 - 140 | 108 |
| 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Benzo(a)pyrene | mg/kg | 0.1 | 4.7 | 4 | 60 - 140 | 118 |
| d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil *CBs in Soil * Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.5 | 40 - 130 | 78 |
| CBs in Soil Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 90 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 92 |
| | PCBs in Soil | | | | | | l | Method: ME-(A | U)-[ENV]AN42 |
| LB155627.002 Arochlor 1260 mg/kg 0.2 0.5 0.4 60 - 140 114 | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| | LB155627.002 | | Arochlor 1260 | mg/kg | 0.2 | 0.5 | 0.4 | 60 - 140 | 114 |

al Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

| Total Recoverable Elements | in Soll/Waste Solids/Materials by ICPOES | | | | Method: | ME-(AU)-[EN\ | /JAN040/AN320 |
|----------------------------|--|-------|-----|--------|----------|---------------|---------------|
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155629.002 | Arsenic, As | mg/kg | 1 | 340 | 336.32 | 79 - 120 | 100 |
| | Cadmium, Cd | mg/kg | 0.3 | 430 | 416.6 | 69 - 131 | 103 |
| | Chromium, Cr | mg/kg | 0.3 | 38 | 35.2 | 80 - 120 | 109 |
| | Copper, Cu | mg/kg | 0.5 | 330 | 370.46 | 80 - 120 | 88 |
| | Nickel, Ni | mg/kg | 0.5 | 180 | 210.88 | 79 - 120 | 87 |
| | Lead, Pb | mg/kg | 1 | 92 | 107.87 | 79 - 120 | 85 |
| | Zinc, Zn | mg/kg | 2 | 290 | 301.27 | 80 - 121 | 96 |
| TRH (Total Recoverable Hyd | rocarbons) in Soil | | | | N | lethod: ME-(A | U)-[ENV]AN403 |
| Sample Number | 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.

| | | | | | | - | Method: ME-(Al | |
|---|---|---|--|---|---|--|--|---|
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recover |
| _B155627.002 | | TRH C10-C14 | mg/kg | 20 | 43 | 40 | 60 - 140 | 108 |
| | | TRH C15-C28 | mg/kg | 45 | <45 | 40 | 60 - 140 | 93 |
| | | TRH C29-C36 | mg/kg | 45 | <45 | 40 | 60 - 140 | 80 |
| | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | 39 | 40 | 60 - 140 | 98 |
| | | TRH >C16-C34 (F3) | mg/kg | 90 | <90 | 40 | 60 - 140 | 83 |
| | | TRH >C34-C40 (F4) | mg/kg | 120 | <120 | 20 | 60 - 140 | 95 |
| RH (Total Recove | erable Hydrocarbo | ns) in Water | | | | P | Method: ME-(AL | J)-[ENV]A |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recover |
| _B155528.002 | | TRH C10-C14 | µg/L | 50 | 950 | 1200 | 60 - 140 | 79 |
| | | TRH C15-C28 | μg/L | 200 | 1200 | 1200 | 60 - 140 | 101 |
| | | TRH C29-C36 | μg/L | 200 | 1300 | 1200 | 60 - 140 | 110 |
| | TRH F Bands | TRH >C10-C16 | μg/L | 60 | 1100 | 1200 | 60 - 140 | 89 |
| | | TRH >C16-C34 (F3) | μg/L | 500 | 1300 | 1200 | 60 - 140 | 110 |
| | | TRH >C34-C40 (F4) | μg/L | 500 | 640 | 600 | 60 - 140 | 107 |
| OC's in Soil | | | | | | | Method: ME-(AL | |
| | | D | 11-34- | 100 | Decult | | | |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | |
| LB155626.002 | Monocyclic | Benzene | mg/kg | 0.1 | 2.9 | 2.9 | 60 - 140 | 99 |
| | Aromatic | Toluene | mg/kg | 0.1 | 2.1 | 2.9 | 60 - 140 | 72 |
| | | Ethylbenzene | mg/kg | 0.1 | 2.0 | 2.9 | 60 - 140 | 69 |
| | | m/p-xylene | mg/kg | 0.2 | 4.0 | 5.8 | 60 - 140 | 68 |
| | | o-xylene | mg/kg | 0.1 | 1.8 | 2.9 | 60 - 140 | 62 |
| | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 6.4 | 5 | 60 - 140 | 128 |
| | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.5 | 5 | 60 - 140 | 89 |
| | | d8-toluene (Surrogate) | mg/kg | - | 4.9 | 5 | 60 - 140 | 98 |
| | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.8 | 5 | 60 - 140 | 95 |
| OCs in Water | | | | | | ŀ | Method: ME-(Al | J)-[ENV]/ |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recove |
| | | | | | | | | |
| LB155745.002 | Monocyclic | Benzene | µg/L | 0.5 | 51 | 45.45 | 60 - 140 | 113 |
| LB155745.002 | Monocyclic Aromatic | Benzene | μg/L μg/L | 0.5 | 51 51 | 45.45 45.45 | 60 - 140 60 - 140 | 113 |
| LB155745.002 | - | | | | | | | 112 |
| LB155745.002 | - | Toluene | µg/L | 0.5 | 51 | 45.45 | 60 - 140 | 112 113 |
| LB155745.002 | - | Toluene Ethylbenzene | μg/L μg/L μg/L | 0.5 0.5 | 51 51 | 45.45 45.45 | 60 - 140 60 - 140 | 112 113 113 |
| LB155745.002 | - | Toluene Ethylbenzene m/p-xylene o-xylene | µg/L µg/L µg/L µg/L | 0.5 0.5 1 | 51 51 100 | 45.45 45.45 90.9 | 60 - 140 60 - 140 60 - 140 | 112 113 113 |
| LB155745.002 | Aromatic | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) | µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 0.5 | 51 51 100 51 4.5 | 45.45 45.45 90.9 45.45 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 112 113 113 113 |
| LB155745.002 | Aromatic | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | µg/L µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 0.5 - | 51 51 100 51 4.5 4.4 | 45.45 45.45 90.9 45.45 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 112 113 113 113 113 89 88 |
| LB155745.002 | Aromatic | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) | µg/L µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 0.5 - | 51 51 100 51 4.5 4.4 4.7 | 45.45 45.45 90.9 45.45 5 5 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 112 113 113 113 89 88 93 |
| | Aromatic Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) | µg/L µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 0.5 - - | 51 51 100 51 4.5 4.4 | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 112 113 113 113 89 88 93 93 97 |
| olatile Petroleum | Aromatic Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) | µg/L µg/L µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 | 45.45 45.45 90.9 45.45 5 5 5 5 5 | 60 - 140 60 - 140 Vethod: ME-(AL | 112 113 113 113 89 88 93 93 97 J)-[ENV]A |
| olatile Petroleum Sample Number | Aromatic Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter | µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L | 0.5 0.5 1 0.5 - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Vethod: ME-(AL Criteria % | 112 113 113 113 89 88 93 97 J)-[ENV]/ Recove |
| | Aromatic Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - - - 25 | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 | 45.45 45.45 90.9 45.45 5 5 5 5 5 Expected 24.65 | 60 - 140 60 - 140 Vethod: ME-(AL Criteria % 60 - 140 | 112 113 113 113 89 88 93 93 97 J)-[ENV]/ Recove 88 |
| ' <mark>olatile Petroleum</mark> Sample Number | Aromatic Surrogates Hydrocarbons in S | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 | 112 113 113 113 89 88 93 93 97 J)-[ENV]/ Recove 88 88 87 |
| ' <mark>olatile Petroleum</mark> Sample Number | Aromatic Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - - - - - - 25 20 - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 | 45.45 45.45 90.9 45.45 5 5 5 5 5 Expected 24.65 23.2 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 | 1112 1113 1113 89 88 93 97 J)-[ENV]/ Recove 88 87 128 |
| olatile Petroleum Sample Number | Aromatic Surrogates Hydrocarbons in S | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 - - - - - - - - - 25 20 | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 | 112 113 113 113 89 88 93 93 97 J)-[ENV]/ CRECOVE 88 88 87 125 |
| ' <mark>olatile Petroleum</mark> Sample Number | Aromatic Surrogates Hydrocarbons in S | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-2-dichloroethane (Surrogate) d8-toluene (Surrogate) | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 1112 113 113 113 89 88 93 97 97 J)-[ENV]// Recove 88 87 128 89 89 98 |
| ' <mark>olatile Petroleum</mark> Sample Number | Aromatic Surrogates Hydrocarbons in S Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene o-xylene data d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) bitorobenzene (Surrogate) bitoromofluoromethane (Surrogate) toll Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) B-toluene (Surrogate) Bromofluorobenzene (Surrogate) | μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 | 112 113 113 113 89 88 93 97 VJ-[ENV]A Recove 88 87 128 89 98 98 |
| olatile Petroleum Sample Number | Aromatic Surrogates Hydrocarbons in S | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-2-dichloroethane (Surrogate) d8-toluene (Surrogate) | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 | 1112 113 113 113 89 88 93 97 97 Recove 88 87 128 89 98 98 95 |
| <mark>olatile Petroleum</mark> Sample Number .B155626.002 | Aromatic Surrogates Hydrocarbons in S Surrogates | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobenzene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) | μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 | 1112 113 113 113 89 88 93 97 VJ-(ENV)/ Recove 88 87 128 89 98 98 95 124 |
| olatile Petroleum Sample Number .B155626.002 | Aromatic Surrogates Hydrocarbons in S Surrogates VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobenzene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) | μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - | 1112 113 113 113 89 88 93 97 Recove 88 87 128 89 98 98 95 - [E NV]/ |
| olatile Petroleum Sample Number .B155626.002 olatile Petroleum Sample Number | Aromatic Surrogates Hydrocarbons in S Surrogates VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) toll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobentane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) d8-toluene (Surrogate) TRH C6-C10 Vater | μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 <25 | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL) | 1112 1113 1113 1113 89 88 93 97 NJ-[ENV]/ Recove 88 87 128 89 98 95 124 J)-[ENV]/ Recove |
| <mark>olatile Petroleum</mark> Sample Number _B155626.002 olatile Petroleum Sample Number | Aromatic Surrogates Hydrocarbons in S Surrogates VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) toll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobentane (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Vater Parameter | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L mg/kg mg/kg | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 <25 Result | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % | 1112 1113 1113 1113 89 88 93 97 NJ-[ENV]/ Recove 88 87 128 89 98 95 124 J)-[ENV]/ Recove |
| <mark>olatile Petroleum</mark> Sample Number _B155626.002 olatile Petroleum Sample Number | Aromatic Surrogates Hydrocarbons in S Surrogates VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) ioll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobenzene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) Vater Parameter TRH C6-C10 TRH C6-C10 TRH C6-C10 TRH C6-C10 TRH C6-C10 TRH C6-C10 | μg/L | 0.5 0.5 1 0.5 - - - - - 25 20 - - - - 25 20 - - 25 20 - - 50 | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 <25 20 6.4 4.5 4.9 4.8 <25 | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 | 1112 113 113 113 89 88 93 97 Recove 88 87 128 89 98 95 124 J)-[ENV]/ Recove 100 94 |
| <mark>olatile Petroleum</mark> Sample Number _B155626.002 olatile Petroleum Sample Number | Aromatic Aromatic Surrogates Hydrocarbons in S VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) koll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobenzene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Vater Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/Rg mg/kg mg/kg < | 0.5 0.5 1 0.5 - - - - - 25 20 - - - 25 20 - - - 25 20 - - 50 40 | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 <25 Result 940 770 4.5 | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 | 1112 113 113 113 89 88 93 97 Recove 88 87 126 89 98 95 124 Recove 100 94 89 |
| olatile Petroleum Sample Number .B155626.002 olatile Petroleum Sample Number | Aromatic Aromatic Surrogates Hydrocarbons in S VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) koll Parameter TRH C6-C10 TRH C6-C10 d8-toluene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Vater Parameter TRH C6-C10 TRH C6-C10 | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L mg/kg μg/L μg/L μg/L μg/L μg/L | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.9 4.8 <25 Result 940 770 4.5 4.4 | 45.45 45.45 90.9 45.45 5 5 5 5 Expected 24.65 23.2 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 | 1112 113 113 113 89 88 93 97 J)-[ENV]/ Recove 88 87 128 89 988 95 124 J)-[ENV]/ Recove 100 94 88 |
| <mark>olatile Petroleum</mark> Sample Number _B155626.002 | Aromatic Aromatic Surrogates Hydrocarbons in S VPH F Bands Hydrocarbons in V | Toluene Ethylbenzene m/p-xylene o-xylene Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) koll Parameter TRH C6-C10 TRH C6-C9 Dibromofluorobenzene (Surrogate) d4-1,2-dichloroethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Vater Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/Rg mg/kg mg/kg < | 0.5 0.5 1 0.5 - - - - - - - - - - - - - - - - - - - | 51 51 100 51 4.5 4.4 4.7 4.9 Result <25 20 6.4 4.5 4.9 4.8 <25 Result 940 770 4.5 | 45.45 45.45 90.9 45.45 5 5 5 5 5 5 5 5 5 5 5 5 5 | 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 Kethod: ME-(AL Kethod: ME-(AL) Kethod: ME-(AL) Kethod: ME-(AL) | 1112 1113 1113 1113 89 88 93 97 Recove 88 87 128 89 98 95 124 J)-[ENV]/ Recove 80 95 124 J)-[ENV]/ 80 95 124 J)-[ENV]/ 80 95 124 124 125 124 124 125 124 125 124 125 124 125 124 125 125 125 125 125 125 125 125 125 125 |



MATRIX SPIKES

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

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 | | | | | | Met | hod: ME-(AL | J)-[ENV]AN312 |
|-----------------|---------------|-----------|-------|------|--------|----------|-------------|---------------|
| QC Sample | Sample Number | Parameter | Units | LOR | Result | Original | Spike | Recovery% |
| SE183339.001 | LB155630.004 | Mercury | mg/kg | 0.05 | 0.20 | <0.05 | 0.2 | 90 |

OC Pesticides in Soil

| C Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery |
|-------------|---------------|------------|---|-------|-----|--------|----------|-------|----------|
| E183339.003 | LB155627.027 | | 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 | 122 |
| | | | Aldrin | mg/kg | 0.1 | 0.2 | <0.1 | 0.2 | 117 |
| | | | Beta BHC | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | Delta BHC | mg/kg | 0.1 | 0.2 | <0.1 | 0.2 | 116 |
| | | | 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 | 0.2 | 0.2 | <0.2 | 0.2 | 112 |
| | | | Endrin | mg/kg | 0.2 | 0.2 | <0.2 | 0.2 | 105 |
| | | | 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 | 97 |
| | | | 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 | - | - |
| | | | Total CLP OC Pesticides | mg/kg | 1 | 1 | <1 | - | - |
| | - | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.14 | 0.18 | - | 91 |

| OF Features III | 001 | | | | | | IAN | 60100. MIL-(AO)- | -Triasbase |
|-----------------|------------------------|-------------|-----------------------------------|-------|-----|----------|----------|------------------|-------------|
| QC Sample | Sample Number | | Parameter | Units | LOR | Original | Spike | Recovery% | |
| SE183216.001 | LB155627.025 | | Dichlorvos | mg/kg | 0.5 | <0.5 | 2 | 110 | |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | - | - | |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | 2 | 92 | |
| | | | Fenitrothion | mg/kg | 0.2 | <0.2 | - | - | |
| | | | Malathion | mg/kg | 0.2 | <0.2 | - | - | |
| | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | 2 | 99 | |
| | | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | - | - | |
| | | | Bromophos Ethyl | mg/kg | 0.2 | <0.2 | - | - | |
| | | | Methidathion | mg/kg | 0.5 | <0.5 | - | - | |
| | | | Ethion | mg/kg | 0.2 | <0.2 | 2 | 103 | |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | - | - | |
| | _ | | Total OP Pesticides* | mg/kg | 1.7 | <1.7 | - | - | |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.4 | - | 90 | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | - | 100 | |
| PAH (Polynuclea | r Aromatic Hydrocarbor | ns) in Soil | | | | | M | ethod: ME-(AU)- | -[ENV]AN420 |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery% |
| SE183216.001 | LB155627.025 | | Naphthalene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 117 |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | | | | | | | |

Acenaphthylene

Acenaphthene

Phenanthrene

Fluorene

117

112

108

0.1

0.1

0.1

0.1

mg/kg

mg/kg

mg/kg

mg/kg

4.5

4.3

<0.1

4.7

<0.1

<0.1

<0.1

<0.1

4

4

4



MATRIX SPIKES

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.

| | ar Aromatic Hydrocarbo | | | | 1.00 | | | nod: ME-(AU | |
|--|--|--------------------|--|---|--|---|---|---|---|
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recover |
| SE183216.001 | LB155627.025 | | Anthracene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 118 |
| | | | Fluoranthene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 117 |
| | | | Pyrene | mg/kg | 0.1 | 4.9 | <0.1 | 4 | 122 |
| | | | 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 | 4.3 | <0.1 | 4 | 106 |
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | Dibenzo(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.3</td><td><0.2</td><td>-</td><td>-</td></lor=0<> | TEQ (mg/kg) | 0.2 | 4.3 | <0.2 | - | - |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td>4.4</td><td><0.3</td><td>-</td><td>-</td></lor=lor<> | TEQ (mg/kg) | 0.3 | 4.4 | <0.3 | - | - |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.3</td><td><0.2</td><td>-</td><td>-</td></lor=lor> | TEQ (mg/kg) | 0.2 | 4.3 | <0.2 | - | - |
| | | | Total PAH (18) | mg/kg | 0.8 | 37 | <0.8 | - | - |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.4 | - | 76 |
| | | Ū | 2-fluorobiphenyl (Surrogate) | mg/kg | _ | 0.5 | 0.4 | - | 90 |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | - | 100 |
| | | | | | | 0.0 | | | |
| CBs in Soil | | | | | | | | nod: ME-(AU |)-[ENVJAN |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recove |
| SE183339.003 | LB155627.024 | | 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 | 0.5 | <0.2 | 0.4 | 124 |
| | | | 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 | | 107 |
| | | - | | 0.0 | | - | | (410 0000 | |
| | le Elements in Soil/Wa | iste Solids/Materi | als by ICPOES | | | | Method: ME | | |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recove |
| SE183339.001 | LB155629.004 | | Arsenic, As | mg/kg | 1 | 54 | 10 | 50 | 87 |
| | | | Cadmium, Cd | mg/kg | 0.3 | 47 | 0.3 | 50 | 94 |
| | | | Chromium, Cr | mg/kg | 0.3 | 67 | 22 | 50 | 89 |
| | | | Copper, Cu | mg/kg | 0.5 | 66 | 16 | 50 | 101 |
| | | | | | | | 0.0 | 50 | 93 |
| | | | Nickel, Ni | mg/kg | 0.5 | 56 | 9.3 | 50 | |
| | | | Nickel, Ni Lead, Pb | mg/kg mg/kg | 0.5 | 56 | 9.3 | 50 | 86 |
| | | | | mg/kg | | | | | 86 103 |
| | | | Lead, Pb | | 1 | 58 | 15 42 | 50 50 | 103 |
| · · | werable Hydrocarbons |) in Soil | Lead, Pb Zinc, Zn | mg/kg mg/kg | 1 2 | 58 93 | 15 42 Meth | 50 50 nod: ME-(AU | 103)-[ENV]A M |
| · · | werable Hydrocarbons Sample Number |) in Soll | Lead, Pb | mg/kg | 1 | 58 93 Result | 15 42 | 50 50 | 103)-[ENV]A I |
| QC Sample | - | i) in Soil | Lead, Pb Zinc, Zn | mg/kg mg/kg | 1 2 | 58 93 | 15 42 Meth | 50 50 nod: ME-(AU | 103)-[ENV]A Recove |
| QC Sample | Sample Number | i) in Soil | Lead, Pb Zinc, Zn Parameter | mg/kg mg/kg Units | 1 2 LOR | 58 93 Result | 15 42 Meth Original | 50 50 nod: ME-(AL Spike | 103 I)-[ENV]AI Recove 118 |
| QC Sample | Sample Number | i) in Soll | Lead, Pb Zinc, Zn Parameter TRH C10-C14 | mg/kg mg/kg Units mg/kg | 1 2 LOR 20 | 58 93 Result 47 | 15 42 Meth Original <20 | 50 50 nod: ME-(AL Spike 40 | 103 I)-[ENV]AI Recove 118 98 |
| QC Sample | Sample Number | i) in Soil | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 | mg/kg mg/kg Units mg/kg mg/kg | 1 2 LOR 20 45 | 58 93 Result 47 <45 | 15 42 Meth Original <20 <45 | 50 50 nod: ME-(AL Spike 40 40 | 103 I)-[ENV]A Recov 118 98 |
| QC Sample | Sample Number | ı) in Soil | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 | mg/kg mg/kg Units mg/kg mg/kg mg/kg | 1 2 LOR 20 45 45 | 58 93 Result 47 <45 <45 | 15 42 Meth Original <20 <45 <45 | 50 50 nod: ME-(AL Spike 40 40 40 | 103 I)-[ENV]AI Recove 118 98 73 |
| QC Sample | Sample Number | ı) in Soli | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 | mg/kg mg/kg Units mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 | 58 93 Result 47 <45 <45 <100 | 15 42 Original <20 <45 <45 <100 | 50 50 nod: ME-(AL Spike 40 40 40 - | 103 I)-[ENV]A Recove 118 98 73 |
| QC Sample | Sample Number | i) in Soil | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total | mg/kg mg/kg Units mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 | 58 93 Result 47 <45 <45 <100 <110 | 15 42 Original <20 <45 <45 <100 <110 | 50 50 nod: ME-(AL Spike 40 40 - - | 103 D-[ENV]Al Recove 118 98 73 - - - - |
| QC Sample | Sample Number | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) | mg/kg mg/kg Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 | 58 93 Result 47 <45 <45 <100 <110 <210 | 15 42 Original <20 <45 <45 <100 <110 <210 | 50 50 mod: ME-(AL Spike 40 40 40 - - - | 103 D-[ENV]Al Recove 118 98 73 - - - |
| QC Sample | Sample Number | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 | 58 93 Result 47 <45 <45 <100 <110 <210 42 | 15 42 Original <20 <45 <45 <100 <110 <210 <25 | 50 50 Nod: ME-(AL Spike 40 40 40 - - - 40 | 103 I)-[ENV]Al Recovi 118 98 73 - - - - 105 - - - - - |
| C Sample | Sample Number | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-C34 (F3) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 | 58 93 Result 47 <45 <45 <100 <110 <210 42 42 | 15 42 Meth 20 <45 <45 <100 <110 <210 <25 <25 | 50 50 nod: ME-(AL Spike 40 40 - - - - 40 - | 103 I)-[ENV]Al Recovi 118 98 73 - - - - 105 - - - - - |
| QC Sample E183339.002 | Sample Number | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16 - Naphthalene (F2) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 | 58 93 Result 47 <45 <45 <100 <110 <210 42 42 <90 | 15 42 Meth Original <20 <45 <45 <100 <110 <210 <25 <25 <25 <80 <120 | 50 50 nod: ME-(AL Spike 40 40 - - 40 - 40 - 40 - | 103 I)-[ENV]AI Recove 118 98 73 - - - - 105 - - 85 - - |
| C Sample E183339.002 | Sample Number LB155627.024 | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16 - Naphthalene (F2) TRH >C16-C34 (F3) TRH >C34-C40 (F4) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 120 | 58 93 Result 47 <45 <100 <110 <210 42 42 42 <90 <120 | 15 42 Original <20 <45 <45 <100 <110 <210 <25 <25 <90 <120 Meth | 50 50 mod: ME-(AL 40 40 - - 40 - 40 - 40 - - 40 - 0 - | 103)-[ENV]Al Recov 118 98 73 - - 105 - 85 - - 105 - 105 - 105 - 105 - 105 - - 105 - - - - - - - - - - - - - |
| CC Sample E183339.002 | Sample Number | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-C34 (F3) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 | 58 93 Result 47 <45 <45 <100 <110 <210 42 42 <90 | 15 42 Meth Original <20 <45 <45 <100 <110 <210 <25 <25 <25 <80 <120 | 50 50 nod: ME-(AL Spike 40 40 - - 40 - 40 - 40 - | 103)-[ENV]AI Recove 118 98 73 - - 105 - 85 - 1)-[ENV]AI |
| QC Sample SE183339.002 DC's in Soil QC Sample | Sample Number LB155627.024 | | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16 - Naphthalene (F2) TRH >C16-C34 (F3) TRH >C34-C40 (F4) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 120 | 58 93 Result 47 <45 <100 <110 <210 42 42 42 <90 <120 | 15 42 Original <20 <45 <45 <100 <110 <210 <25 <25 <90 <120 Meth | 50 50 mod: ME-(AL 40 40 - - 40 - 40 - 40 - - 40 - 0 - | 103)-[ENV]AI Recover 118 98 73 - - 105 - 85 - 105 - 85 - 105 - 85 - 20 - 20 - 20 - - - - - - - - - - - - - |
| QC Sample SE183339.002 DC's in Soil QC Sample | Sample Number LB155627.024 Sample Number LB155626.004 | TRH F Bands | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C10-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-Naphthalene (F2) TRH >C10-C40 (F4) | mg/kg mg/kg Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 120 LOR | 58 93 Result 47 <45 <100 <110 <210 42 42 42 <90 <120 Result | 15 42 Original <20 <45 <45 <100 <110 <210 <25 <25 <90 <120 Meth Original | 50 50 mod: ME-(AL 40 40 - - 40 - 40 - - 40 - 5 0 KE-(AL Spike | 103 I)-[ENV]AI Recove 118 98 73 - - - 105 - 85 - 85 |
| QC Sample SE183339.002 DC's in Soil QC Sample | Sample Number LB155627.024 Sample Number LB155626.004 | TRH F Bands | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-C34 (F3) TRH >C10-C40 (F4) Parameter Benzene | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 120 LOR 0.1 | 58 93 Result 47 <45 <45 <100 <110 <210 42 42 42 <90 <120 Result 2.7 | 15 42 Meth Original <20 <45 <45 <100 <110 <210 <25 <25 <25 <90 <120 Meth Original <0.1 | 50 50 mod: ME-(AL 5pike 40 - - - 40 - - 40 - - - 0 Spike 2.9 | 103)-[ENV]AN Recove 98 73 - - 105 - 85 - N)-[ENV]AN Recove 94 |
| RH (Total Recc QC Sample SE183339.002 | Sample Number LB155627.024 Sample Number LB155626.004 | TRH F Bands | Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-C34 (F3) TRH >C10-C40 (F4) Parameter Benzene Toluene | mg/kg mg/kg Units mg/kg mg/kg | 1 2 20 45 45 100 110 210 25 25 90 120 LOR 0.1 0.1 | 58 93 Result 47 <45 <45 <100 <110 <210 42 42 <80 <120 Result 2.7 1.9 | 15 42 Meth Original <20 <45 <45 <100 <110 <210 <25 <25 <25 <90 <120 Meth Original <0.1 <0.1 | 50 50 nod: ME-(AL Spike 40 - - - 40 - - 40 - - 40 - - - 40 - - 2,9 2,9 2,9 | 103)-[ENV]AI Recove 118 98 73 - - - 105 - 85 - - 105 - 85 - - 0)-[ENV]AI Recove 45 - - - - - - - - - - - - - |



MATRIX SPIKES

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.

| QC Sample | Sample Numbe | - | Parameter | Units | LOR | Result | Original | Spike | Recovery |
|---|---|---------------------------------------|---|---|---|---|---|---|---|
| SE183339.001 | LB155626.004 | Polycyclic | Naphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - эріке | Recovery |
| SE163339.001 | LB155626.004 | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | | 4.1 | 5.9 | - | 82 |
| | | Surroyates | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.1 | 4.5 | - | 81 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.1 | 5.4 | - | 85 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | | 5.6 | 4.0 | | 112 |
| | | Totals | Total Xylenes | mg/kg | 0.3 | 6.1 | <0.3 | | - |
| | | 101213 | Total BTEX | mg/kg | 0.6 | 13 | <0.6 | - | _ |
| | | | | | 0.0 | 10 | | | |
| OCs in Water | | | | | | _ | | • | J)-[ENV]AN4 |
| QC Sample | Sample Numbe | | Parameter | Units | LOR | Result | Original | Spike | Recovery |
| SE183221.013 | LB155745.024 | Monocyclic | Benzene | µg/L | 0.5 | 54 | <0.5 | 45.45 | 118 |
| | | Aromatic | Toluene | µg/L | 0.5 | 55 | <0.5 | 45.45 | 120 |
| | | | Ethylbenzene | µg/L | 0.5 | 52 | <0.5 | 45.45 | 115 |
| | | | m/p-xylene | µg/L | 1 | 95 | <1 | 90.9 | 105 |
| | | | o-xylene | µg/L | 0.5 | 48 | <0.5 | 45.45 | 106 |
| | | Polycyclic | Naphthalene | µg/L | 0.5 | 54 | <0.5 | - | - |
| | | Surrogates | Dibromofluoromethane (Surrogate) | µg/L | - | 4.5 | 4.6 | - | 90 |
| | | | d4-1,2-dichloroethane (Surrogate) | µg/L | - | 5.2 | 5.2 | - | 103 |
| | | | d8-toluene (Surrogate) | µg/L | - | 4.8 | 4.5 | - | 96 |
| | | | Bromofluorobenzene (Surrogate) | µg/L | - | 4 7 | | - | |
| | | | Bromonaorobonizono (ourrogato) | P9/L | - | 4.7 | 4.2 | - | 93 |
| /olatile Petroleu | m Hydrocarbons in § | Soil | | μg/L | - | 4.7 | | | |
| /olatile Petroleu QC Sample | m Hydrocarbons in S Sample Numbe | | Parameter | Units | LOR | 4.7 Result | | | J)-[ENV]AN4 |
| QC Sample | - | | | | | | Met | hod: ME-(AL | J)-[ENV]AN4 |
| QC Sample | Sample Numbe | | Parameter | Units | LOR | Result | Mett Original | hod: ME-(AL Spike | J)-[ENV]AN4 Recovery |
| QC Sample | Sample Numbe | | Parameter TRH C6-C10 | Units mg/kg | LOR 25 | Result <25 | Mett Original <25 | hod: ME-(AL Spike 24.65 | J)-[ENV]AN4 Recovery 72 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 | Units mg/kg mg/kg | LOR 25 20 | Result <25 <20 | Met Original <25 <20 | hod: ME-(AL Spike 24.65 23.2 | J)-[ENV]AN4 Recover 72 73 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg | LOR 25 20 | Result <25 <20 4.1 | Mett Original <25 <20 5.9 | hod: ME-(AL Spike 24.65 23.2 - | J)-[ENV]AN4 Recover 72 73 82 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg | LOR 25 20 | Result <25 <20 4.1 4.1 | Met Original <25 <20 5.9 4.5 | hod: ME-(AL Spike 24.65 23.2 - | J)-[ENV]AN4 Recover 72 73 82 81 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - | Result <25 | Met Original <25 <20 5.9 4.5 5.4 | hod: ME-(AL Spike 24.65 23.2 - - - | J)-[ENV]AN4 Recover 72 73 82 81 85 |
| QC Sample | Sample Numbe | Surrogates | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - | Result <25 | Met Original <25 <20 5.9 4.5 5.4 4.0 | hod: ME-(AL Spike 24.65 23.2 - - - - - | J)-[ENV]ANA Recovery 72 73 82 81 85 112 |
| QC Sample SE183339.001 | Sample Numbe LB155626.004 | Surrogates VPH F Bands | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 | Result <25 <20 4.1 4.1 4.2 5.6 2.7 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - - 7.25 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 |
| QC Sample SE183339.001 /olatile Petroleu | Sample Numbe LB155626.004 m Hydrocarbons in V | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL | U)-[ENV]ANA Recover 72 73 82 81 85 112 - 70 70 U)-[ENV]ANA |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 LOR | Result <25 | Metil Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units µg/L | LOR 25 20 - - - 0.1 25 LOR 50 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C10 | Units mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 LOR | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike | J)-[ENV]AN4 Recovery 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recovery 95 91 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - 7.25 hod: ME-(AL Spike 946.63 818.71 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 |
| QC Sample SE183339.001 [/] olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 103 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 TRH C6-C10 TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 25 - 0.1 25 50 40 - - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 103 96 |
| QC Sample SE183339.001 | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recovery 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recovery 95 91 90 103 |



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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- 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.
- 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.
- O LOR was raised due to dilution of significantly high concentration of analyte in sample.
- Image:
- Recovery failed acceptance criteria due to sample heterogeneity.
- [®] LOR was raised due to high conductivity of the sample (required dilution).
- t Refer to Analytical Report comments for further information.

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CHAIN OF CUSTODY RECORD

| LAB Name | SGS | |
|--------------|-------------------|----------|
| Address | 16/33 Maddox St | |
| | Alexandria NSW 20 | 15 |
| Client | Cardno (NSW/ACT) | Pty Ltd |
| | PO Box 74 | |
| | Broadmeadow | NSW 2292 |
| Contact | Daniel McCallum | |
| Sampled by | Daniel McCallum | |
| Project Ref: | 82219014 | |



Contact Numbers Phone

 Phone
 0249 654555

 Fax
 0249 654666

E-mail daniel.mccallum@cardno.com.au dimce.stojanvoski@cardno.com.au

(invoice to geotech@cardno.com.au)

Date Results Required Standard TAT

| | | | Ma | ıtrix | | | C | ontaine | ers/Pre | serva | tion | | | | A | nalysis | Require | ed | | |
|------------------------------|--------------------|------------------------|------|-------|--------------------------|----------------------------------|---------------------------------|--|--|--|---|--------------------|--------|----------|-------------|---------|---------|-----------|-------|--------------|
| Laboratory LIMS ID | Client Sample ID | Date Sampled | Soil | Water | Soil Jar (G) Nat. Orange | 0.5-1.0 litre (G) Nat. Yellow | 0.1-1.0 litre (P) Nat. Green | 50mL VOA Vial (G) H ₂ SO4 Maroon | 0.1-1.0 litre (P) H ₂ SO ₄ Maroon | 0.2-1.0 litre (G) H ₂ SO ₄ Maroon | 0.1-0.2 (P) Filtered?? Y=Yes, N=No (HNO3) Red | 0.21 (P) NaOH Blue | Other | CL17 | Asbestos ID | | | | | |
| | TP203 04 0. 4 -0.3 | 24/08/2018 | × | | 0) | 07 | 00 | I CO L | 0 2 | 0 2 | OFE | 0 | | × | X | | | | | |
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| Released by: Received by: | Daniel McCallum | Signature Signature | N. | | | Date/T Date/T | ime 2 ime 2 | 3/8/ | 120 | 0 | 530 | Custo | dy Sea | ls Intac | t? / Sar | mples R | eceived | d Chilled | 1? | |



ANALYTICAL REPORT





| CLIENT DETAIL | S | LABORATORY DE | TAILS |
|------------------------------------|---|---|---|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone Facsimile Email | 61 2 4965 4555 61 2 4965 4666 daniel.mccallum@cardno.com.au | Telephone Facsimile Email | +61 2 8594 0400 +61 2 8594 0499 au.environmental.sydney@sgs.com |
| Project Drder Number Samples | 82219014 (Not specified) 1 | SGS Reference Date Received Date Reported | SE183218 R0 29/8/2018 5/9/2018 |

COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar Beniameen Chemist

kinter

Ly Kim Ha Organic Section Head

Bennet Lo Senior Organic Chemist/Metals Chemist

S. Ravendr.

Ravee Sivasubramaniam Hygiene Team Leader

Kamrul Ahsan Senior Chemist

ions

Shane McDermott Inorganic/Metals Chemist

SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

Unit 16 33 Maddox St PO Box 6432 Bourke Rd BC Alexandria NSW 2015 Alexandria NSW 2015 Australia t +61 2 8594 0400 Australia f +61 2 8594 0499



VOC's in Soil [AN433] Tested: 3/9/2018

| PARAMETER | UOM | LOR | TP203 0.4-0.5 SOIL - 24/8/2018 SE183218.001 |
|---------------|-------|-----|---|
| 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 |
| Total Xylenes | mg/kg | 0.3 | <0.3 |
| Total BTEX | mg/kg | 0.6 | <0.6 |
| Naphthalene | mg/kg | 0.1 | <0.1 |



Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 3/9/2018

| | | | TP203 0.4-0.5 |
|----------------------------|-------|-----|---------------------------|
| | | | SOIL - |
| PARAMETER | UOM | LOR | 24/8/2018 SE183218.001 |
| 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: 3/9/2018

| | | | TP203 0.4-0.5 SOIL - 24/8/2018 |
|---------------------------------|-------|-----|---|
| PARAMETER | UOM | LOR | SE183218.001 |
| 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-C16 | mg/kg | 25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 |



ANALYTICAL RESULTS

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/9/2018

| | | | TP203 0.4-0.5 |
|--|-------------|-----|---------------------------|
| | | | SOIL - |
| PARAMETER | UOM | LOR | 24/8/2018 SE183218.001 |
| 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(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(ah)anthracene | mg/kg | 0.1 | <0.1 |
| Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 |
| Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 |


SE183218 R0

OC Pesticides in Soil [AN420] Tested: 3/9/2018

| PARAMETER UOM LOR 23/18/2018 Hexachlorobenzene (HCB) mg/kg 0.1 <0.1 Alpha BHC mg/kg 0.1 <0.1 Lindane mg/kg 0.1 <0.1 Hexachlorobenzene (HCB) mg/kg 0.1 <0.1 Lindane mg/kg 0.1 <0.1 Heptachlor mg/kg 0.1 <0.1 Adrin mg/kg 0.1 <0.1 Beta BHC mg/kg 0.1 <0.1 Delta BHC mg/kg 0.1 <0.1 Implaction epoxide mg/kg 0.1 <0.1 op'DDE mg/kg 0.1 <0.1 Alpha Endosulfan mg/kg 0.1 <0.1 Apha Chlordane mg/kg 0.1 <0.1 Apha Chlordane mg/kg 0.1 <0.1 p.p'DDE mg/kg 0.1 <0.1 p.p'DDD mg/kg 0.1 <0.1 p.p'DDD mg/kg 0.1 <0.1 <th></th> <th></th> <th></th> <th>TP203 0.4-0.5</th> | | | | TP203 0.4-0.5 |
|--|-------------------------|-------|-----|---------------|
| PARAMETER UOM LOR 24/4/2016 SET/83218.001 Hexachlorobenzene (HCB) mg/kg 0.1 <0.1 | | | | SOIL |
| PARAMETER UOM LOR SEE83218.001 Hexachlorobenzene (HCB) mg/kg 0.1 <0.1 | | | | |
| Hexachlorobenzene (HCB) mg/kg 0.1 <0.1 Alpha BHC mg/kg 0.1 <0.1 | | | | |
| Alpha BHC mg/kg 0.1 <0.1 Lindane mg/kg 0.1 <0.1 | | | | |
| Indane mg/kg 0.1 <0.1 Heptachlor mg/kg 0.1 <0.1 | | | | |
| Heptachlor mg/kg 0.1 <0.1 Aldrin mg/kg 0.1 <0.1 | | | | |
| Aldrin mg/kg 0.1 Aldrin mg/kg 0.1 <0.1 | Lindane | mg/kg | | |
| Beta BHC mg/kg 0.1 <0.1 Delta BHC mg/kg 0.1 <0.1 | Heptachlor | mg/kg | 0.1 | <0.1 |
| Delta BHC mg/kg 0.1 <0.1 Heptachlor epoxide mg/kg 0.1 <0.1 | Aldrin | mg/kg | 0.1 | <0.1 |
| Heptachlor epoxide mg/kg 0.1 <0.1 o,p'-DDE mg/kg 0.1 <0.1 | Beta BHC | mg/kg | 0.1 | <0.1 |
| non-transmission no-transmission no-transmission o,p'-DDE mg/kg 0.1 <0.1 | Delta BHC | mg/kg | 0.1 | <0.1 |
| Alpha Endosulfan mg/kg 0.2 <0.2 Gamma Chlordane mg/kg 0.1 <0.1 | Heptachlor epoxide | mg/kg | 0.1 | <0.1 |
| Gamma Chlordane mg/kg 0.1 <0.1 Alpha Chlordane mg/kg 0.1 <0.1 | o,p'-DDE | mg/kg | 0.1 | <0.1 |
| Alpha Chlordane mg/kg 0.1 <0.1 trans-Nonachlor mg/kg 0.1 <0.1 | Alpha Endosulfan | mg/kg | 0.2 | <0.2 |
| mg/kg 0.1 <0.1 p.p'-DDE mg/kg 0.1 <0.1 | Gamma Chlordane | mg/kg | 0.1 | <0.1 |
| p.p-DDE mg/kg 0.1 <0.1 Dieldrin mg/kg 0.2 <0.2 | Alpha Chlordane | mg/kg | 0.1 | <0.1 |
| Dieldrin mg/kg 0.2 <0.2 Endrin mg/kg 0.2 <0.2 | trans-Nonachlor | mg/kg | 0.1 | <0.1 |
| Endrin mg/kg 0.2 <0.2 o,p'-DDD mg/kg 0.1 <0.1 | p,p'-DDE | mg/kg | 0.1 | <0.1 |
| o,p'-DDD mg/kg 0.1 <0.1 | Dieldrin | mg/kg | 0.2 | <0.2 |
| ng/kg 0.1 <0.1 Beta Endosulfan mg/kg 0.2 <0.2 | Endrin | mg/kg | 0.2 | <0.2 |
| Beta Endosulfan mg/kg 0.2 <0.2 p,p'-DDD mg/kg 0.1 <0.1 | o,p'-DDD | mg/kg | 0.1 | <0.1 |
| Ingris Ingris< | o,p'-DDT | mg/kg | 0.1 | <0.1 |
| mg/kg 0.1 <0.1 Endosulfan sulphate mg/kg 0.1 <0.1 | Beta Endosulfan | mg/kg | 0.2 | <0.2 |
| Image: Market | p,p'-DDD | mg/kg | 0.1 | <0.1 |
| Endrin Aldehyde mg/kg 0.1 <0.1 Methoxychlor mg/kg 0.1 <0.1 | p,p'-DDT | mg/kg | 0.1 | <0.1 |
| Endrin Aldehyde mg/kg 0.1 <0.1 Methoxychlor mg/kg 0.1 <0.1 | Endosulfan sulphate | mg/kg | 0.1 | <0.1 |
| Methoxychlor mg/kg 0.1 <0.1 Endrin Ketone mg/kg 0.1 <0.1 | Endrin Aldehyde | mg/kg | 0.1 | <0.1 |
| Isodrin mg/kg 0.1 <0.1 Mirex mg/kg 0.1 <0.1 | Methoxychlor | mg/kg | 0.1 | <0.1 |
| Mirex mg/kg 0.1 <0.1 | Endrin Ketone | mg/kg | 0.1 | <0.1 |
| Mirex mg/kg 0.1 <0.1 | Isodrin | mg/kg | 0.1 | <0.1 |
| | Mirex | | 0.1 | <0.1 |
| rotar our resticides mg/kg 1 <1 | Total CLP OC Pesticides | mg/kg | 1 | <1 |



OP Pesticides in Soil [AN420] Tested: 3/9/2018

| | | | TP203 0.4-0.5 SOIL - |
|-----------------------------------|-------|-----|----------------------------|
| PARAMETER | UOM | LOR | 24/8/2018 |
| | | | SE183218.001 |
| Dichlorvos | mg/kg | 0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 |



PCBs in Soil [AN420] Tested: 3/9/2018

| PARAMETER | UOM | LOR | TP203 0.4-0.5 SOIL - 24/8/2018 SE183218.001 |
|------------------------|-------|-----|---|
| 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 |



ANALYTICAL RESULTS

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 3/9/2018

| | | | TP203 0.4-0.5 |
|--------------|-------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183218.001 |
| Arsenic, As | mg/kg | 1 | 5 |
| Cadmium, Cd | mg/kg | 0.3 | 0.4 |
| Chromium, Cr | mg/kg | 0.3 | 4.1 |
| Copper, Cu | mg/kg | 0.5 | 9.8 |
| Lead, Pb | mg/kg | 1 | 16 |
| Nickel, Ni | mg/kg | 0.5 | 1.1 |
| Zinc, Zn | mg/kg | 2 | 150 |



Mercury in Soil [AN312] Tested: 3/9/2018

| | | | TP203 0.4-0.5 |
|-----------|-------|------|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183218.001 |
| Mercury | mg/kg | 0.05 | <0.05 |



Moisture Content [AN002] Tested: 3/9/2018

| | | TP203 0.4-0.5 |
|-----|-------------|---------------------------|
| | | SOIL |
| | | - |
| ЦОМ | LOR | 24/8/2018 SE183218.001 |
| | | 11 |
| | UOM %w/w | |



Fibre Identification in soil [AN602] Tested: 4/9/2018

| | | | TP203 0.4-0.5 |
|-------------------|---------|------|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183218.001 |
| Asbestos Detected | No unit | - | No |
| Estimated Fibres* | %w/w | 0.01 | <0.01 |



| 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. |
| 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 |
| 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 | 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. |
| AN602 | Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned. |
| AN602 | Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres. |
| AN602 | AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg." |
| AN602 | The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- |
| | (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions. |



FOOTNOTES

 * NATA accreditation does not cover the performance of this service.
 ** Indicative data, theoretical holding time exceeded Not analysed.
 NVL Not validated.
 IS Insufficient sample for analysis.
 LNR Sample listed, but not received.

UOM Unit of Measure. LOR Limit of Reporting. ↑↓ Raised/lowered Limit of Reporting.

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

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

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

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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

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ANALYTICAL REPORT



| CLIENT DETAILS | | LABORATORY DETAI | LS | |
|----------------|---|------------------|--|--|
| Contact | Daniel McCallum | Manager | Huong Crawford | |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental | |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 | |
| Telephone | 61 2 4965 4555 | Telephone | +61 2 8594 0400 | |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 2 8594 0499 | |
| Email | daniel.mccallum@cardno.com.au | Email | au.environmental.sydney@sgs.com | |
| Project | 82219014 | SGS Reference | SE183218 R0 | |
| Order Number | (Not specified) | Date Received | 29 Aug 2018 | |
| Samples | 1 | Date Reported | 05 Sep 2018 | |

COMMENTS -

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

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar Beniameen Chemist

kmln

Ly Kim Ha Organic Section Head

Bennet Lo Senior Organic Chemist/Metals Chemis

S. Ravender.

Ravee Sivasubramaniam Hygiene Team Leader

Kamrul Ahsan Senior Chemist

hone

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Member of the SGS Group

www.sgs.com.au



ANALYTICAL REPORT

| Fibre Identifica | tion in soil | | | | Method | AN602 |
|-------------------------|---------------------|--------|------------------------|--------------|---|-----------|
| Laboratory Reference | Client Reference | Matrix | Sample Description | Date Sampled | Fibre Identification | Est.%w/w* |
| SE183218.001 | TP203 0.4-0.5 | Soil | 41g Sand,Soil,Rocks | 24 Aug 2018 | No Asbestos Found Synthetic Mineral Fibres Detected Organic Fibres Detected | <0.01 |



METHOD SUMMARY

| METHOD | METHODOLOGY SUMMARY |
|--------|---|
| AN602 | Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned. |
| AN602 | Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres. |
| AN602 | AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg." |
| AN602 | The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- |
| | (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions. |

Amosite Brown Asbestos NA Not Analysed White Asbestos Chrysotile INR --Listed. Not Required Crocidolite Blue Asbestos * -NATA accreditation does not cover the performance of this service . ** Amosite and/or Crocidolite Indicative data, theoretical holding time exceeded. Amphiboles

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

FOOTNOTES -

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining. Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining. Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

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

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STATEMENT OF QA/QC PERFORMANCE

| CLIENT DETAILS | | LABORATORY DETAI | ILS |
|----------------|---|------------------|--|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone | 61 2 4965 4555 | Telephone | +61 2 8594 0400 |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 2 8594 0499 |
| Email | daniel.mccallum@cardno.com.au | Email | au.environmental.sydney@sgs.com |
| Project | 82219014 | SGS Reference | SE183218 R0 |
| Order Number | (Not specified) | Date Received | 29 Aug 2018 |
| Samples | 1 | Date Reported | 05 Sep 2018 |

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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

Samples clearly labelled Sample container provider Samples received in correct containers Date documentation received Samples received in good order Sample temperature upon receipt Turnaround time requested

Yes SGS Yes 30/8/2018 Yes 6.1°C Standard

Unit 16 33 Maddox St

Complete documentation received Sample cooling method Sample counts by matrix Type of documentation received Samples received without headspace Sufficient sample for analysis

Yes Ice Bricks 1 Soil COC Yes Yes

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Environment, Health and Safety

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Member of the SGS Group



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.

| Fibre Identification in soil | | | | | | | Method: | ME-(AU)-[ENV]AN6 |
|---|---|--|--|--|--|--|---|---|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155838 | 24 Aug 2018 | 29 Aug 2018 | 24 Aug 2019 | 04 Sep 2018 | 24 Aug 2019 | 05 Sep 2018 |
| lercury in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN3 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155658 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 05 Sep 2018 |
| loisture Content | | | | | | | Method: | ME-(AU)-[ENV]AN(|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155654 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| C Pesticides in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN4 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155656 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| P Pesticides in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN4 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155656 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| | | | | | | | | |
| AH (Polynuclear Aromatic | c Hydrocarbons) in Soil | | | | | | Method: | ME-(AU)-[ENV]AN- |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155656 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| CBs in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN4 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP203 0.4-0.5 | SE183218.001 | LB155656 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| | | | | | | | | |
| otal Recoverable Elemen | ts in Soil/Waste Solids/Ma | terials by ICPOES | | | | | Method: ME-(AU |)-IENVIAN040/AN3 |
| | nts in Soil/Waste Solids/Ma | - | Sampled | Received | Extraction Due | Extracted | • | I)-[ENV]AN040/AN3 Analysed |
| Sample Name | n <mark>ts in Soil/Waste Solids/Ma</mark> Sample No. SE183218.001 | terials by ICPOES QC Ref LB155657 | Sampled 24 Aug 2018 | Received 29 Aug 2018 | Extraction Due 20 Feb 2019 | Extracted 03 Sep 2018 | Method: ME-(AU Analysis Due 20 Feb 2019 | I)-[ENV]AN040/AN3 Analysed 04 Sep 2018 |
| Sample Name IP203 0.4-0.5 | Sample No. SE183218.001 | QC Ref | | | | | Analysis Due 20 Feb 2019 | Analysed 04 Sep 2018 |
| Sample Name TP203 0.4-0.5 <mark>RH (Total Recoverable H</mark> | Sample No. SE183218.001 Iydrocarbons) in Soll | QC Ref LB155657 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | Analysis Due 20 Feb 2019 Method: | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN4 |
| Sample Name IP203 0.4-0.5 RH (Total Recoverable H Sample Name | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. | QC Ref LB155657 QC Ref | 24 Aug 2018 Sampled | 29 Aug 2018 Received | 20 Feb 2019 Extraction Due | 03 Sep 2018 Extracted | Analysis Due 20 Feb 2019 Method: Analysis Due | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN4 Analysed |
| Sample Name IP203 0.4-0.5 RH (Total Recoverable H Sample Name | Sample No. SE183218.001 Iydrocarbons) in Soll | QC Ref LB155657 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | Analysis Due 20 Feb 2019 Method: | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN |
| Sample Name IP203 0.4-0.5 RH (Total Recoverable H Sample Name IP203 0.4-0.5 | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. | QC Ref LB155657 QC Ref | 24 Aug 2018 Sampled | 29 Aug 2018 Received | 20 Feb 2019 Extraction Due | 03 Sep 2018 Extracted | Analysis Due 20 Feb 2019 Method: Analysis Due 13 Oct 2018 | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN Analysed 05 Sep 2018 |
| Sample Name IP203 0.4-0.5 RH (Total Recoverable H Sample Name IP203 0.4-0.5 OC's in Soli | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. | QC Ref LB155657 QC Ref | 24 Aug 2018 Sampled | 29 Aug 2018 Received | 20 Feb 2019 Extraction Due | 03 Sep 2018 Extracted | Analysis Due 20 Feb 2019 Method: Analysis Due 13 Oct 2018 | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN Analysed |
| Sample Name IP203 0.4-0.5 RH (Total Recoverable H Sample Name IP203 0.4-0.5 OC's in Soli Sample Name | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. SE183218.001 | QC Ref LB155657 QC Ref LB155656 | 24 Aug 2018 Sampled 24 Aug 2018 | 29 Aug 2018 Received 29 Aug 2018 | 20 Feb 2019 Extraction Due 07 Sep 2018 | 03 Sep 2018 Extracted 03 Sep 2018 | Analysis Due 20 Feb 2019 Method: Analysis Due 13 Oct 2018 Method: | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN Analysed 05 Sep 2018 ME-(AU)-[ENV]AN |
| Sample Name TP203 0.4-0.5 RH (Total Recoverable H Sample Name TP203 0.4-0.5 OC's in Soil Sample Name TP203 0.4-0.5 | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. SE183218.001 Sample No. SE183218.001 | QC Ref LB155657 QC Ref LB155656 | 24 Aug 2018 Sampled 24 Aug 2018 Sampled | 29 Aug 2018 Received 29 Aug 2018 Received | 20 Feb 2019 Extraction Due 07 Sep 2018 Extraction Due | 03 Sep 2018 Extracted 03 Sep 2018 Extracted | Analysis Due 20 Feb 2019 Method: Analysis Due 13 Oct 2018 Method: Analysis Due 13 Oct 2018 | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN Analysed 05 Sep 2018 ME-(AU)-[ENV]AN Analysed |
| iotal Recoverable Elemen Sample Name TP203 0.4-0.5 RH (Total Recoverable H Sample Name TP203 0.4-0.5 'OC's in Soll Sample Name TP203 0.4-0.5 'olatile Petroleum Hydrocc Sample Name | Sample No. SE183218.001 Iydrocarbons) in Soll Sample No. SE183218.001 Sample No. SE183218.001 | QC Ref LB155657 QC Ref LB155656 | 24 Aug 2018 Sampled 24 Aug 2018 Sampled | 29 Aug 2018 Received 29 Aug 2018 Received | 20 Feb 2019 Extraction Due 07 Sep 2018 Extraction Due | 03 Sep 2018 Extracted 03 Sep 2018 Extracted | Analysis Due 20 Feb 2019 Method: Analysis Due 13 Oct 2018 Method: Analysis Due 13 Oct 2018 | Analysed 04 Sep 2018 ME-(AU)-[ENV]AN Analysed 05 Sep 2018 ME-(AU)-[ENV]AN Analysed 05 Sep 2018 |



SURROGATES

SE183218 R0

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

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| OC Pesticides in Soil | | | | Method: M | E-(AU)-[ENV]AN4 |
|--|---|---|-----------------|--|--|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Tetrachloro-m-xylene (TCMX) (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 123 |
| | | | | | |
| OP Pesticides in Soll | | | | Method: M | E-(AU)-[ENV]AN4 |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| 2-fluorobiphenyl (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 90 |
| | | | | | |
| d14-p-terphenyl (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 88 |
| d14-p-terphenyl (Surrogate) PAH (Polynuclear Aromatic Hydrocarbons) in Soil | TP203 0.4-0.5 | SE183218.001 | % | | |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soil | TP203 0.4-0.5 Sample Name | SE183218.001 Sample Number | % Units | | e-(au)-[env]an4 |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soil | | | | Method: M | E-(AU)-[ENV]AN4 |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soil Parameter | Sample Name | Sample Number | Units | Method: M Criteria | E-(AU)-[ENV]AN4 Recovery % |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soil Parameter 2-fluorobiphenyl (Surrogate) | Sample Name TP203 0.4-0.5 | Sample Number SE183218.001 | Units % | Method: M Criteria 70 - 130% | <mark>E-(AU)-[ENV]AN4</mark> Recovery % 90 |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soil Parameter 2-fluorobiphenyl (Surrogate) d14-p-terphenyl (Surrogate) | Sample Name TP203 0.4-0.5 TP203 0.4-0.5 | Sample Number SE183218.001 SE183218.001 | Units % % | Method: M Criteria 70 - 130% 70 - 130% 70 - 130% | E-(AU)-[ENV]AN4 Recovery % 90 88 76 |
| PAH (Polynuclear Aromatic Hydrocarbons) in Soll Parameter 2-fluorobiphenyl (Surrogate) d14-p-terphenyl (Surrogate) d5-nitrobenzene (Surrogate) | Sample Name TP203 0.4-0.5 TP203 0.4-0.5 | Sample Number SE183218.001 SE183218.001 | Units % % | Method: M Criteria 70 - 130% 70 - 130% 70 - 130% | E-(AU)-[ENV]AN4 Recovery % 90 88 |

VOC's in Soil

| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
|-----------------------------------|---------------|---------------|-------|-----------|------------|
| Bromofluorobenzene (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 80 |
| d4-1,2-dichloroethane (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 89 |
| d8-toluene (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 83 |
| Dibromofluoromethane (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 92 |
| Dibromofluoromethane (Surrogate) | TP203 0.4-0.5 | SE183218.001 | % | 60 - 130% | 92 |

Method: ME-(AU)-[ENV]AN433 Volatile Petroleum Hydrocarbons in Soil Parameter Sample Number Criteria Recovery % Sample Name Bromofluorobenzene (Surrogate) TP203 0.4-0.5 SE183218.001 % 60 - 130% 80 d4-1,2-dichloroethane (Surrogate) TP203 0.4-0.5 SE183218.001 % 60 - 130% 89 d8-toluene (Surrogate) TP203 0.4-0.5 SE183218.001 % 60 - 130% 83 Dibromofluoromethane (Surrogate) TP203 0.4-0.5 SE183218.001 60 - 130% 92 %



METHOD BLANKS

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 in Soil | | | Meth | od: ME-(AU)-[ENV]AN312 |
|-----------------|-----------|-------|------|------------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155658.001 | Mercury | mg/kg | 0.05 | <0.05 |

OC Pesticides in Soil

| OC Pesticides in Soil | | | Meth | od: ME-(AU)-[ENV]AN42 |
|-----------------------|---|-------|------|-----------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155656.001 | 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 | 0.2 | <0.2 |
| | 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) | % | - | 73 |
| OP Pesticides in Soil | | | Meth | od: ME-(AU)-[ENV]AN42 |
| Sample Number | Parameter | Units | LOR | Result |
| LB155656.001 | Dichlorvos | mg/kg | 0.5 | <0.5 |
| | Dimethoate | mg/kg | 0.5 | <0.5 |
| | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| | Fenitrothion | mg/kg | 0.2 | <0.2 |
| | Malathion | mg/kg | 0.2 | <0.2 |
| | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| | Bromophos Ethyl | mg/kg | 0.2 | <0.2 |

| | d14-p-terphenyl (Surrogate) | % | - | 98 |
|------------|------------------------------|-------|-----|------|
| Surrogates | 2-fluorobiphenyl (Surrogate) | % | - | 96 |
| | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| | Ethion | mg/kg | 0.2 | <0.2 |
| | Methidathion | mg/kg | 0.5 | <0.5 |
| | Bromophos Ethyl | mg/kg | 0.2 | <0.2 |

| Sample Number | Parameter | Units | LOR | Result |
|---------------|---------------------|-------|-----|--------|
| LB155656.001 | 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 |



METHOD BLANKS

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) Method: ME-(AU)-[ENV]AN420 LOR Sample Number Paran Units Result LB155656.001 Indeno(1,2,3-cd)pyrene mg/kg 0.1 < 0.1 Dibenzo(ah)anthracene mg/kg 0.1 <0.1 0.1 <0.1 Benzo(ghi)perylene mg/kg Total PAH (18) mg/kg 0.8 <0.8 Surrogates d5-nitrobenzene (Surrogate) 80 % 2-fluorobiphenyl (Surrogate) % 96 d14-p-terphenyl (Surrogate) 98 % -Method: ME-(AU)-[ENV]AN420 PCBs in Soil Sample Numb Result Parameter LOR LB155656.001 Arochlor 1016 0.2 <0.2 mg/kg Arochlor 1221 mg/kg 0.2 <0.2 Arochlor 1232 mg/kg 0.2 <0.2 Arochlor 1242 0.2 <0.2 mg/kg Arochlor 1248 mg/kg 0.2 < 0.2 Arochlor 1254 mg/kg 0.2 <0.2 Arochlor 1260 0.2 <0.2 mg/kg Arochlor 1262 mg/kg 0.2 < 0.2 Arochlor 1268 0.2 <0.2 mg/kg Total PCBs (Arochlors) mg/kg <1 1 Surrogates Tetrachloro-m-xylene (TCMX) (Surrogate) % 73 Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320 LOR Sample Number Result LB155657.001 Arsenic, As mg/kg 1 2 Cadmium, Cd mg/kg 0.3 <0.3 Chromium, Cr 0.3 <0.3 mg/kg 0.5 <0.5 Copper, Cu mg/kg Nickel, Ni mg/kg 0.5 <0.5 Lead, Pb <1 mg/kg 1 2 <2.0 Zinc, Zn mg/kg TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403 Units Result Sample Number Parameter LOR LB155656.001 TRH C10-C14 20 <20 mg/kg TRH C15-C28 mg/kg 45 <45 TRH C29-C36 mg/kg 45 <45 TRH C37-C40 100 <100 mg/kg TRH C10-C36 Total mg/kg 110 <110 Method: ME-(AU)-[ENV]AN433 VOC's in Soil Sample Numbe Units Result Parameter LOR LB155655.001 Monocyclic Aromatic Benzene mg/kg 0.1 <0.1 Hvdrocarbons Toluene mg/kg 0.1 <0.1 Ethylbenzene 0.1 <0.1 mg/kg 0.2 <0.2 m/p-xylene mg/kg o-xylene mg/kg 0.1 < 0.1 Polycyclic VOCs Naphthalene 0.1 <0.1 mg/kg Dibromofluoromethane (Surrogate) Surrogates 88 % d4-1,2-dichloroethane (Surrogate) % 87 d8-toluene (Surrogate) % 85 Bromofluorobenzene (Surrogate) % 83 Totals Total BTEX mg/kg 0.6 <0.6 Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433 Sample Number Parameter Units LOR Result LB155655.001 TRH C6-C9 20 <20 mg/kg Surrogates Dibromofluoromethane (Surrogate) % 88 d4-1,2-dichloroethane (Surrogate) % 87 d8-toluene (Surrogate) % 85



Method: ME_(ALI)_TENV/IAN312

Method: ME-(AU)-IENVIAN002

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

| Morodry III Coll | | | | | | Wour | ou. ML-(//0)-[| ,city paro 12 |
|------------------|--------------|-----------|-------|------|--------------|---------------|----------------|---------------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183280.003 | LB155658.014 | Mercury | mg/kg | 0.05 | 0.0046340689 | 90.0038791069 | 200 | 0 |
| SE183286.001 | LB155658.020 | Mercury | mg/kg | 0.05 | 0.0332130556 | 60.0370238676 | 172 | 0 |

Moisture Content

| molotare contone | | | | | | moun | | |
|------------------|--------------|------------|-------|-----|--------------|--------------|------------|-------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183248.004 | LB155654.011 | % Moisture | %w/w | 0.5 | 18 | 20 | 35 | 12 |
| SE183286.001 | LB155654.021 | % Moisture | %w/w | 0.5 | 6.6350710900 | 6.7574931880 | 45 | 2 |

OC Pesticides in Soil

| riginal | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|------------|--------------|---|-------|-----|----------|-----------|------------|-------|
| 183286.001 | LB155656.024 | Hexachlorobenzene (HCB) | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Alpha BHC | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Lindane | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Heptachlor | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Aldrin | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Beta BHC | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Delta BHC | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Heptachlor epoxide | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | o,p'-DDE | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Alpha Endosulfan | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Gamma Chlordane | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Alpha Chlordane | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | trans-Nonachlor | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | p,p'-DDE | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Dieldrin | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Endrin | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | o,p'-DDD | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | o,p'-DDT | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Beta Endosulfan | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | p,p'-DDD | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | p,p'-DDT | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Endosulfan sulphate | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Endrin Aldehyde | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Methoxychlor | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Endrin Ketone | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Isodrin | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Mirex | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Total CLP OC Pesticides | mg/kg | 1 | 0 | 0 | 200 | 0 |
| | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.175 | 0.19 | 30 | 8 |

| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|-----------------|--------------------------------|-----------------------------------|-------|-----|----------|-----------|---------------|---------|
| SE183286.001 | LB155656.024 | Dichlorvos | mg/kg | 0.5 | 0 | 0 | 200 | 0 |
| | | Dimethoate | mg/kg | 0.5 | 0 | 0 | 200 | 0 |
| | | Diazinon (Dimpylate) | mg/kg | 0.5 | 0.05 | 0 | 200 | 0 |
| | | Fenitrothion | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Malathion | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 0.07 | 0.05 | 200 | 0 |
| | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Bromophos Ethyl | mg/kg | 0.2 | 0.08 | 0.03 | 200 | 0 |
| | | Methidathion | mg/kg | 0.5 | 0 | 0 | 200 | 0 |
| | | Ethion | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | 0 | 0 | 200 | 0 |
| | | Total OP Pesticides* | mg/kg | 1.7 | 0 | 0 | 200 | 0 |
| | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.44 | 0.56 | 30 | 24 |
| | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.49 | 0.53 | 30 | 8 |
| AH (Polynuclear | Aromatic Hydrocarbons) in Soil | | | | | Meth | od: ME-(AU)-[| ENVJAN4 |
| Original | Duplicate | Parameter | Units | LOR | | | | |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| Original | Aromatic Hydrocarb Duplicate | | Parameter | Units | LOR | Original | Duplicate | d: ME-(AU)- Criteria % | RPD |
|--------------------------|---------------------------------|---------------------|---|----------------------------------|-----|--------------|---------------------------------|---------------------------|-------|
| | | | | | | - | - | | |
| SE183280.001 | LB155656.026 | | Naphthalene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Acenaphthylene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Acenaphthene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Fluorene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Phenanthrene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Anthracene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Fluoranthene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | Pyrene | mg/kg | 0.1 | 0 | 0 | 200 | C |
| | | | Benzo(a)anthracene | mg/kg | 0.1 | 0.01 | 0 | 200 | C |
| | | | Chrysene | mg/kg | 0.1 | 0 | 0 | 200 | |
| | | | | | 0.1 | 0 | 0 | 200 | |
| | | | Benzo(b&j)fluoranthene | mg/kg | | | | | |
| | | | Benzo(k)fluoranthene | mg/kg | 0.1 | 0 | 0 | 200 | (|
| | | | Benzo(a)pyrene | mg/kg | 0.1 | 0.01 | 0.01 | 200 | (|
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | 0 | 0 | 200 | (|
| | | | Dibenzo(ah)anthracene | mg/kg | 0.1 | 0 | 0 | 200 | |
| | | | Benzo(ghi)perylene | mg/kg | 0.1 | 0 | 0 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>mg/kg</td><td>0.2</td><td>0</td><td>0</td><td>200</td><td></td></lor=0<> | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>mg/kg</td><td>0.3</td><td>0.242</td><td>0.242</td><td>134</td><td></td></lor=lor<> | mg/kg | 0.3 | 0.242 | 0.242 | 134 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>mg/kg</td><td>0.2</td><td>0.121</td><td>0.121</td><td>175</td><td></td></lor=lor> | mg/kg | 0.2 | 0.121 | 0.121 | 175 | |
| | | | Total PAH (18) | mg/kg | 0.8 | 0 | 0 | 200 | |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.39 | 0.38 | 30 | |
| | | ounogates | 2-fluorobiphenyl (Surrogate) | | - | 0.44 | 0.00 | 30 | |
| | | | | mg/kg | | | 0.42 | 30 | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.47 | | | |
| Bs in Soil | | | | | | | Metho | d: ME-(AU)- | [ENV] |
| riginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RP |
| 183286.001 | LB155656.024 | | Arochlor 1016 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1221 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1232 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1242 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1248 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1254 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | | | | 0 | 0 | 200 | |
| | | | Arochlor 1260 | mg/kg | 0.2 | | | | |
| | | | Arochlor 1262 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Arochlor 1268 | mg/kg | 0.2 | 0 | 0 | 200 | |
| | | | Total PCBs (Arochlors) | mg/kg | 1 | 0 | 0 | 200 | |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.175 | 0.19 | 30 | |
| al Recoverable | Elements in Soil/Wa | aste Solids/Materia | Is by ICPOES | | | | Method: ME-(| AU)-[ENV]A | N040 |
| riginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RP |
| 183280.003 | LB155657.014 | | Arsenic, As | mg/kg | 1 | - | 36.1295168067 | 48 | 2 |
| 100200.000 | 20100001.014 | | Cadmium, Cd | | 0.3 | | 70.1480336134 | 200 | - |
| | | | | mg/kg | | | | | |
| | | | Chromium, Cr | mg/kg | 0.3 | | 42.3654327731 | 34 | |
| | | | Copper, Cu | mg/kg | 0.5 | | 27.6931218487 | 36 | 1 |
| | | | Nickel, Ni | mg/kg | 0.5 | 6.579586721 | 97.2443949579 | 37 | 1 |
| | | | Lead, Pb | mg/kg | 1 | 10.310640546 | 90.4271176470 | 40 | |
| | | | Zinc, Zn | mg/kg | 2 | 17.842650844 | 76.2420630252 | 42 | |
| 183286.001 | LB155657.020 | | Arsenic, As | mg/kg | 1 | 3.591471275 | 42.7524779069 | 62 | 2 |
| | | | Cadmium, Cd | mg/kg | 0.3 | 0.123257594 | 00.0830310077 | 200 | |
| | | | Chromium, Cr | mg/kg | 0.3 | 7.960740472 | 111.3005201550 | 35 | 3 |
| | | | Copper, Cu | mg/kg | 0.5 | | 42.0519507751 | 34 | 3 |
| | | | Nickel, Ni | mg/kg | 0.5 | | 35.9989903100 | 38 | |
| | | | | | 1 | | | 35 | |
| | | | Lead, Pb | mg/kg | | | 979.3711341085 97.2134127906 | | 1 |
| | | | Zinc, Zn | mg/kg | 2 | ⇒1.33293U464 | | 37 | |
| H (Total Recove | erable Hydrocarbons | s) in Soil | | | | | Metho | d: ME-(AU)- | [ENV] |
| riginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RP |
| - | LB155656.026 | | TRH C10-C14 | | 20 | 0 | 0 | 200 | |
| | | | | | | | | | |
| | | | | | | | | | |
| Original SE183280.001 | | | | Units mg/kg mg/kg mg/kg | | | | | % |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| | erable Hydrocarbons |) in Soil (continued) | | | | | Meth | nod: ME-(AU)- | [ENV]AN4 |
|--------------------|---------------------|-----------------------|---|-------|------|----------|-----------|---------------|----------|
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183280.001 | LB155656.026 | | TRH C37-C40 | mg/kg | 100 | 0 | 0 | 200 | 0 |
| | | | TRH C10-C36 Total | mg/kg | 110 | 0 | 0 | 200 | 0 |
| | | | TRH C10-C40 Total (F bands) | mg/kg | 210 | 0 | 0 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | 0 | 0 | 200 | 0 |
| | | | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25 | 0 | 0 | 200 | 0 |
| | | | TRH >C16-C34 (F3) | mg/kg | 90 | 0 | 0 | 200 | 0 |
| | | | TRH >C34-C40 (F4) | mg/kg | 120 | 0 | 0 | 200 | 0 |
| SE183286.001 | LB155656.024 | | TRH C10-C14 | mg/kg | 20 | 0 | 0 | 200 | 0 |
| | | | TRH C15-C28 | mg/kg | 45 | 0 | 0 | 200 | 0 |
| | | | TRH C29-C36 | mg/kg | 45 | 0 | 0 | 200 | 0 |
| | | | TRH C37-C40 | mg/kg | 100 | 0 | 0 | 200 | 0 |
| | | | TRH C10-C36 Total | mg/kg | 110 | 0 | 0 | 200 | 0 |
| | | | TRH C10-C40 Total (F bands) | mg/kg | 210 | 0 | 0 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | 0 | 0 | 200 | 0 |
| | | | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25 | 0 | 0 | 200 | 0 |
| | | | TRH >C16-C34 (F3) | mg/kg | 90 | 0 | 0 | 200 | 0 |
| | | | TRH >C34-C40 (F4) | mg/kg | 120 | 0 | 0 | 200 | 0 |
| /OC's in Soil | | | | | | | Meth | nod: ME-(AU)- | ENVJAN4 |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183279.001 | LB155655.025 | Monocyclic | Benzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | Aromatic | 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 | - | 4.4 | 3.9 | 50 | 12 |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.4 | 3.9 | 50 | 13 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.1 | 3.6 | 50 | 11 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.1 | 3.6 | 50 | 14 |
| | | 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 |
| SE183286.001 | LB155655.024 | Monocyclic | Benzene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Aromatic | Toluene | mg/kg | 0.1 | 0.01 | 0.01 | 200 | 0 |
| | | | Ethylbenzene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | | m/p-xylene | mg/kg | 0.2 | 0.02 | 0.01 | 200 | 0 |
| | | | o-xylene | mg/kg | 0.1 | 0.01 | 0.01 | 200 | 0 |
| | | Polycyclic | Naphthalene | mg/kg | 0.1 | 0 | 0 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 4.55 | 4.36 | 50 | 4 |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.59 | 4.47 | 50 | 3 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.13 | 3.92 | 50 | 5 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.12 | 3.9 | 50 | 5 |
| | | Totals | Total Xylenes | mg/kg | 0.3 | 0.03 | 0.02 | 200 | 0 |
| | | | Total BTEX | mg/kg | 0.6 | 0.04 | 0.03 | 200 | 0 |
| /olatile Petroleum | Hydrocarbons in Soi | I | | | | | Mett | nod: ME-(AU)- | ENVJAN4 |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183279.001 | LB155655.025 | | TRH C6-C10 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| 02100210.001 | 28100000.020 | | TRH C6-C9 | mg/kg | 20 | <20 | <20 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 4.4 | 3.9 | 30 | 12 |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.4 | 3.9 | 30 | 13 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.1 | 3.6 | 30 | 11 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.1 | 3.6 | 30 | 14 |
| | | 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 |
| SE183286.001 | LB155655.024 | | TRH C6-C10 | mg/kg | 25 | 0 | 0 | 200 | 0 |
| | 2010000024 | | TRH C6-C9 | mg/kg | 20 | 0 | 0 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - 20 | 4.55 | 4.36 | 30 | 4 |
| | | Gunogales | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.59 | 4.30 | 30 | 3 |
| | | | d4-1,2-dichloroetnane (Surrogate) d8-toluene (Surrogate) | mg/kg | | 4.59 | 3.92 | 30 | 5 |
| | | | | | | | | | |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.12 | 3.9 | 30 | 5 |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| Volatile Petroleum | Hydrocarbons in Soi | (continued) | | | | | Meth | od: ME-(AU)- | ENVJAN433 |
|--------------------|---------------------|-------------|----------------------------|-------|-----|----------|-----------|--------------|-----------|
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183286.001 | LB155655.024 | VPH F Bands | TRH C6-C10 minus BTEX (F1) | mg/kg | 25 | -0.04 | -0.03 | 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.

| Mercury in Soil | | | | N | lethod: ME-(A | U)-[ENV]AN312 |
|-------------------------|-------|------|--------|----------|---------------|---------------|
| Sample Number Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155658.002 Mercury | mg/kg | 0.05 | 0.18 | 0.2 | 70 - 130 | 89 |

| OC Pesticides in S | Soil | | | | | N | Nethod: ME-(A | U)-[ENV]AN420 |
|-------------------------------|------------------|---|-------------------------|---------------|-------------------|------------------------|--|-----------------------|
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155656.002 | | Heptachlor | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 104 |
| | | Aldrin | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 106 |
| | | Delta BHC | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 104 |
| | | Dieldrin | mg/kg | 0.2 | <0.2 | 0.2 | 60 - 140 | 96 |
| | | Endrin | mg/kg | 0.2 | <0.2 | 0.2 | 60 - 140 | 89 |
| | | p,p'-DDT | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 79 |
| | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.18 | 0.15 | 40 - 130 | 117 |
| OP Pesticides in S | ioil | | | | | N | Nethod: ME-(A | U)-[ENV]AN42(|
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155656.002 | | Dichlorvos | mg/kg | 0.5 | 2.0 | 2 | 60 - 140 | 98 |
| | | Diazinon (Dimpylate) | mg/kg | 0.5 | 2.0 | 2 | 60 - 140 | 102 |
| | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 2.0 | 2 | 60 - 140 | 101 |
| | | Ethion | mg/kg | 0.2 | 1.9 | 2 | 60 - 140 | 95 |
| | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.4 | 0.5 | 40 - 130 | 86 |
| | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.4 | 0.5 | 40 - 130 | 88 |
| PAH (Polynuclear | Aromatic Hydroca | arbons) in Soll | | | | N | Nethod: ME-(A | U)-[ENV]AN420 |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155656.002 | | Naphthalene | mg/kg | 0.1 | 4.7 | 4 | 60 - 140 | 117 |
| | | Acenaphthylene | mg/kg | 0.1 | 4.4 | 4 | 60 - 140 | 111 |
| | | Acenaphthene | mg/kg | 0.1 | 4.5 | 4 | 60 - 140 | 112 |
| | | Phenanthrene | mg/kg | 0.1 | 4.6 | 4 | 60 - 140 | 116 |
| | | Anthracene | mg/kg | 0.1 | 4.6 | 4 | 60 - 140 | 116 |
| | | Fluoranthene | mg/kg | 0.1 | 4.7 | 4 | 60 - 140 | 117 |
| | | | | | | | | 118 |
| | | Pyrene | mg/kg | 0.1 | 4.7 | 4 | 60 - 140 | 118 |
| | | Pyrene Benzo(a)pyrene | mg/kg mg/kg | 0.1 0.1 | 4.7 4.5 | 4 4 | 60 - 140 60 - 140 | 118 |
| | Surrogates | | | - | | | | |
| | Surrogates | Benzo(a)pyrene | mg/kg | 0.1 | 4.5 | 4 | 60 - 140 | 112 |
| | Surrogates | Benzo(a)pyrene d5-nitrobenzene (Surrogate) | mg/kg mg/kg | 0.1 - | 4.5 0.4 | 4 0.5 | 60 - 140 40 - 130 | 112 76 |
| PCBs in Soil | Surrogates | Benzo(a)pyrene d5-nitrobenzene (Surrogate) 2-fluorobiphenyl (Surrogate) | mg/kg mg/kg mg/kg | 0.1 - - | 4.5 0.4 0.4 | 4 0.5 0.5 0.5 | 60 - 140 40 - 130 40 - 130 40 - 130 | 112 76 86 |
| PCBs in Soil Sample Number | | Benzo(a)pyrene d5-nitrobenzene (Surrogate) 2-fluorobiphenyl (Surrogate) | mg/kg mg/kg mg/kg | 0.1 - - | 4.5 0.4 0.4 | 4 0.5 0.5 0.5 | 60 - 140 40 - 130 40 - 130 40 - 130 | 112 76 86 88 |

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

| Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 1 0.3 0.5 0.5 1 2 | Result 330 430 33 320 180 93 290 | Expected 336.32 416.6 35.2 370.46 210.88 107.87 301.27 | Criteria % 79 - 120 69 - 131 80 - 120 80 - 120 79 - 120 79 - 120 80 - 121 | Recovery % 98 104 93 87 84 86 97 |
|---|---|--|---|--|--|
| mg/kg mg/kg mg/kg mg/kg mg/kg | 0.3 0.5 0.5 1 | 430 33 320 180 93 | 416.6 35.2 370.46 210.88 107.87 | 69 - 131 80 - 120 80 - 120 79 - 120 79 - 120 | 104 93 87 84 86 |
| mg/kg mg/kg mg/kg mg/kg | 0.3 0.5 0.5 1 | 33 320 180 93 | 35.2 370.46 210.88 107.87 | 80 - 120 80 - 120 79 - 120 79 - 120 | 93 87 84 86 |
| mg/kg mg/kg mg/kg | 0.5 0.5 1 | 320 180 93 | 370.46 210.88 107.87 | 80 - 120 79 - 120 79 - 120 | 87 84 86 |
| mg/kg mg/kg | 0.5 1 | 180 93 | 210.88 107.87 | 79 - 120 79 - 120 | 84 86 |
| mg/kg | 1 | 93 | 107.87 | 79 - 120 | 86 |
| | · · · · | | | | |
| mg/kg | 2 | 290 | 301.27 | 80 - 121 | 07 |
| | | | | | 31 |
| | | | 1 | Method: ME-(A | U)-[ENV]AN40 |
| Units | LOR | Result | Expected | Criteria % | Recovery % |
| mg/kg | 20 | 33 | 40 | 60 - 140 | 83 |
| mg/kg | 45 | <45 | 40 | 60 - 140 | 93 |
| mg/kg | 45 | <45 | 40 | 60 - 140 | 65 |
| mg/kg | 25 | 34 | 40 | 60 - 140 | 85 |
| mg/kg | 90 | <90 | 40 | 60 - 140 | 80 |
| mg/kg | 120 | <120 | 20 | 60 - 140 | 75 |
| | mg/kg mg/kg mg/kg mg/kg mg/kg | mg/kg 20 mg/kg 45 mg/kg 45 mg/kg 25 mg/kg 90 | mg/kg 20 33 mg/kg 45 <45 | mg/kg 20 33 40 mg/kg 45 <45 | mg/kg 20 33 40 60 - 140 mg/kg 45 <45 |

Sample Number

5/9/2018



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.

| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
|-------------------|-------------------|---|----------------|-----|------------|----------|----------------------|-------------|
| LB155655.002 | Monocyclic | Benzene | mg/kg | 0.1 | 3.3 | 2.9 | 60 - 140 | 112 |
| | Aromatic | Toluene | mg/kg | 0.1 | 2.4 | 2.9 | 60 - 140 | 82 |
| | | Ethylbenzene | mg/kg | 0.1 | 2.5 | 2.9 | 60 - 140 | 87 |
| | | m/p-xylene | mg/kg | 0.2 | 5.5 | 5.8 | 60 - 140 | 95 |
| | | o-xylene | mg/kg | 0.1 | 2.6 | 2.9 | 60 - 140 | 90 |
| | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 4.7 | 5 | 60 - 140 | 95 |
| | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.8 | 5 | 60 - 140 | 95 |
| | | d8-toluene (Surrogate) | mg/kg | - | 4.6 | 5 | 60 - 140 | 91 |
| | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.7 | 5 | 60 - 140 | 94 |
| olatile Petroleum | Hydrocarbons in § | Soil | | | | N | /lethod: ME-(A | U)-[ENV]AN4 |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery |
| B155655 002 | | TRH C6-C10 | mg/kg | 25 | <25 | 24.65 | 60 - 140 | 95 |
| 3155655.002 | | TRH C6-C9 | mg/kg | 20 | 21 | 23.2 | 60 - 140 | 88 |
| 10 100000.002 | | 1KH 60-69 | iiig/kg | | | | | |
| | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 4.7 | 5 | 60 - 140 | 95 |
| | Surrogates | | | - | 4.7 4.8 | 5 | 60 - 140 60 - 140 | 95 95 |
| | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | | | | | |
| | Surrogates | Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | mg/kg mg/kg | - | 4.8 | 5 | 60 - 140 | 95 |



MATRIX SPIKES

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

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 | | | | | | Met | hod: ME-(AL | J)-[ENV]AN312 |
|-----------------|---------------|-----------|-------|------|--------|----------|-------------|---------------|
| QC Sample | Sample Number | Parameter | Units | LOR | Result | Original | Spike | Recovery% |
| SE183217.001 | LB155658.004 | Mercury | mg/kg | 0.05 | 0.18 | <0.05 | 0.2 | 84 |

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

| Katikation of the second se | | | | | | | _ | | | / Leite partice | | | | | | | | | | | | | |
|--|--|---|--|---|--|---|--|--|---|--|---|--|---|--|--|--|--|--|--|--|--|--|--|
| Partylingsheine: mage of isolation: mage of iso | QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery% | | | | | | | | | | | | | |
| Angle optimized in the second optimized in th | SE183217.002 | LB155656.025 | | Naphthalene | mg/kg | | | | 4 | 114 | | | | | | | | | | | | | |
| kernstnijver Areactinityer mode mod | | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - | - | | | | | | | | | | | | | |
| kramine mp mp mp mp mp mp Persidence mp mp 0.0 4.0 4.0 10.0 Persidence mp mp 0.0 4.0 4.0 10.0 Persidence mp mp 0.0 4.0 4.0 4.0 Persidence mp mp 0.0 4.0 4.0 4.0 Persidence mp mp 0.0 4.0 | | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - | - | | | | | | | | | | | | | |
| Partial provision of the properties of the properis of the properties of the properties of the properties of th | | | 225 Naphthalene 2-methylnaphthalene 1-methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(k)lfluoranthene Benzo(k)lfluoranthene | mg/kg | 0.1 | 4.4 | <0.1 | 4 | 110 | | | | | | | | | | | | | | |
| Pierrantene mpig 0, 1, 4,5, 4,7, 4,8, 4,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, | | | | Acenaphthene | mg/kg | 0.1 | 4.3 | <0.1 | 4 | 107 | | | | | | | | | | | | | |
| Animagene Park (a field of a field | | | | Fluorene | mg/kg | 0.1 | <0.1 | <0.1 | - | - | | | | | | | | | | | | | |
| Provide mpdi 4.0 4. | | | | Phenanthrene | mg/kg | 0.1 | 4.5 | <0.1 | 4 | 113 | | | | | | | | | | | | | |
| Pinemine mpdi 4.0 4 | | | | Anthracene | mg/kg | 0.1 | 4.5 | <0.1 | 4 | 111 | | | | | | | | | | | | | |
| Piperia in the second seco | | | | Fluoranthene | | | 4.6 | <0.1 | 4 | 115 | | | | | | | | | | | | | |
| Bases(paintanzam mg/g 0.1 -0.1 -0.1 - Branch/s/Basen/Burne mg/g 0.1 -0.1 - - - Branch/s/Basen/Burne mg/g 0.1 -0.1 - | | | | Pyrene | | 0.1 | 4.6 | <0.1 | 4 | 115 | | | | | | | | | | | | | |
| Chypana mg/a 0.1 -0.1 | | | | | | | | | | | | | | | | | | | | | | | |
| Field Stands | | | | | | | | | | | | | | | | | | | | | | | |
| Banacol/Inconstantance mg/s 0.1 4.0.1 4.0.1 4.0.1 4.0.1 Index 12.5-2 (day)me mg/s 0.1 4.0.1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | | | | | | | | | | | | | | |
| Banoologionen mglag 0.1 4.8 0.1 4.0 4.0 100 Deenoclathentineseen mglag 0.1 4.01 4.01 - - Bancolathentineseen mglag 0.1 4.01 - - - Geronogene PAHs, Ball FEG 4.00R-0 TEG (mglag) 0.3 5.0 4.03 - - Geronogene PAHs, Ball FEG 4.00R-0 TEG (mglag) 0.3 5.0 4.03 - - Geronogene PAHs, Ball FEG 4.00R-0 TEG (mglag) 0.3 4.0 - - - Sungates Geronogene PAHs, Ball FEG 4.00R-0 TEG (mglag) 0.3 4.0 - - - Sungates Geronogene PAHs, Ball FEG 4.00R-0 mglag 0.5 6.0 - | | | | | | | | | | | | | | | | | | | | | | | |
| Image: start of the start o | | | | | | | | | | | | | | | | | | | | | | | |
| Bissocial Physics Social State TEG 4: COR-DCR mplg 0.1 -0. | | | | | | | | | | | | | | | | | | | | | | | |
| Sample Number Parameter End Only 0.1 | | | | | | | | | | | | | | | | | | | | | | | |
| Carangenic P4Hs, BaP TEQ 40,0R=0 TEQ rmpspin 0.2 4.8 -0.2 - Carangenic P4Hs, BaP TEQ 40,0R-00 TEQ rmpspin 0.3 5.0 -0.3 - - Surrangenic P4Hs, BaP TEQ 40,0R-002 TEQ rmpspin 0.8 -0.8 -0.8 - - - Surragenic P4Hs, BaP TEQ 40,0R-002 TEQ rmpshin 0.64 0.6 -< | | | | | | | | | - | - | | | | | | | | | | | | | |
| Image: constraint of the second sec | | | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 | <0.1 | - | - | | | | | | | | | | | | | |
| Image: control bit is the state of | | | | Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.8</td><td><0.2</td><td>-</td><td>-</td></lor=0<> | TEQ (mg/kg) | 0.2 | 4.8 | <0.2 | - | - | | | | | | | | | | | | | |
| Vertical Total PAH (18) mptp 0.8 38 -0.8 - Surrogates distrobenane (Surrogate) mpkp - 0.4 0.5 0.6 0.6 2-Nuorobe/men/ (Surrogate) mpkp - 0.6 0.5 0.5 0.6 0.6 Color Delemants in Solf/Vector Parametor Units Color Delemants Splite Network | | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td>5.0</td><td><0.3</td><td>-</td><td>-</td></lor=lor<> | TEQ (mg/kg) | 0.3 | 5.0 | <0.3 | - | - | | | | | | | | | | | | | |
| Surgates ds-inclobations(Surgate) mg/kg - 0.4 0.4 0.4 0.6 76 24/uordpithmi (Surgate) mg/kg - 0.4 0.5 - 0.6 bit Ap-traphytic (Surgate) mg/kg - 0.4 0.5 - 0.6 bit Ap-traphytic (Surgate) mg/kg - 0.4 0.5 - 0.6 bit Ap-traphytic (Surgate) mg/kg - 0.4 0.3 0.5 0.6 | | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.9</td><td><0.2</td><td>-</td><td>-</td></lor=lor> | TEQ (mg/kg) | 0.2 | 4.9 | <0.2 | - | - | | | | | | | | | | | | | |
| 2-Buorobineny (Surrogate) mghg 0.4 0.5 84 24-Buorobineny (Surrogate) mghg 0.5 </td <td></td> <td></td> <td></td> <td>Total PAH (18)</td> <td>mg/kg</td> <td>0.8</td> <td>36</td> <td><0.8</td> <td>-</td> <td>-</td> | | | | Total PAH (18) | mg/kg | 0.8 | 36 | <0.8 | - | - | | | | | | | | | | | | | |
| d14-plampenyt (Surrogale) mg/sg d. 5. 0.5. 0.5. 0.5. 0.5. 0.5. 0.5. 262 Sample Number Parameter VLPCOES Nethol: XLEV/VLPLNV/VLPUND 202 Sample Number Parameter Units LOR Result Original Spite Rescover 262 Sample Number Parameter Units LOR Result Original Spite Rescover 263 Sample Number Aranei, Ca mg/sg 0.3 5.1 2.4 6.0 9.6 Chronium, Cr mg/sg 0.5 5.4 3.1 5.0 9.6 Coper, Cu mg/sg 0.5 5.4 3.1 5.0 9.6 Lead, Po mg/sg 0.5 5.4 3.1 5.0 9.6 Zor, Zn mg/sg 0.5 5.4 3.1 5.0 9.6 Casample Number Parameter mg/sg 1.6 5.6 7.7 5.0 9.6 Casample Number Parameter Monocity Monocity Monocity Nonocity Nonoci | | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.4 | - | 76 | | | | | | | | | | | | | |
| Stanple Sumple Number Parameter Units LOR Result Original Spike Recover EE183217.001 LB155657.004 Asemic, As mg/kg 1 46 3 50 9.84 Cadmium, Cd mg/kg 0.3 51 2.4 50 9.64 Copper, Cu mg/kg 0.5 54 3.1 60 101 Nickel, Ni Nickel, Ni mg/kg 0.5 54 3.1 60 9.94 Lead, Pb mg/kg 1 55 7 50 9.4 Lead, Pb mg/kg 1 55 7 50 9.94 Lead, Pb mg/kg 101 55 7 50 9.4 Sample Number Parameter Units LOR Result Original Spike Recover LE183217.002 LB155658.025 TFH C10-C14 mg/kg 20 39 <20 | | | | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.4 | 0.5 | - | 84 | | | | | | | | | | | | | |
| bit Account in Solit/Wasto Solids/Materials by CPCBS bit State Colspan=16 bit State Colspan=16 | | | | d14-p-terphenyl (Surrogate) | | - | 0.5 | 0.5 | - | 96 | | | | | | | | | | | | | |
| Sample Sample Number Parameter Units LOR Result Original Spike Recover EE183217.001 LB155657.004 Arsenic, As mg/kg 1 4.6 3 50 8.6 Cadmium, Cd mg/kg 0.3 4.7 <0.3 | otal Recoverable | e Elements in Soil/W | aste Solids/Materi | als by ICPOES | | | | Method: ME | -(AU)-IENV | AN040/AN32 | | | | | | | | | | | | | |
| Ker Bas 217.001 LB 155657.004 Arsenic. As Cadmium, Cd mg/kg 1 46 3 50 86 Cadmium, Cd mg/kg 0.3 47 40.3 50 94 Chromum, Cr mg/kg 0.5 54 3.1 50 96 Copper, Cu mg/kg 0.5 54 3.1 50 94 Nickel, Ni mg/kg 0.5 48 1.2 50 94 Lead, Po mg/kg 1 55 7 50 95 Zo Sample Sample Number Parameter mg/kg 20 48 94 90 TRI C10-C14 mg/kg 20 945 445 40 90 TRI C10-C26 mg/kg 100 <110 | | | | • | Unite | LOP | Posult | | | | | | | | | | | | | | | | |
| Cadmiun, Cd mg/kg 0.3 47 40.3 50 94 Chromiun, Cr mg/kg 0.3 51 2.4 50 96 Copper, Cu mg/kg 0.5 54 3.1 50 94 Nickel, Ni mg/kg 0.5 54 3.1 50 94 Lead, Pb mg/kg 0.5 54 3.1 50 94 Zor, Zn mg/kg 0.5 54 3.1 50 94 Zor, Zn mg/kg 0.1 55 7 50 95 Zor, Zn mg/kg 2 30 60 90 110 Sample Sample Number Parameter Units LOR Result Origint Same Recover SE183217.002 LB15666.025 TRH C10-C14 mg/kg 20 39 <25 | | | | | | | | | | | | | | | | | | | | | | | |
| Chronium, Cr mg/kg 0.3 51 2.4 50 96 Copper, Cu mg/kg 0.5 54 3.1 50 101 Nickel, Ni mg/kg 0.5 48 1.2 50 94 Lead, Pb mg/kg 1 55 7 50 95 Zinc, Zn mg/kg 1 55 7 50 94 CX ample Number Dample Number Dample Number Dample Number Dample Number Dample Number Dample Number Spike Recover EX 15257.020 LB155656.025 TRH C10-C14 mg/kg 45 <45 | SE103217.001 | LB155057.004 | | | | | | | | | | | | | | | | | | | | | |
| Copper, Cu mg/kg 0.5 54 3.1 50 101 Nickel, Ni mg/kg 0.5 48 1.2 50 94 Lead, Pb mg/kg 1 55 7 50 95 RC (Total Recordsons) in Soil Sample Number Parameter Units LOR Result Original Spike Record SEX 25002 LB155850.025 TRH C10-C14 mg/kg 20 39 <20 | | | | | | | | | | | | | | | | | | | | | | | |
| Nickel, Ni mg/kg 0.5 48 1.2 50 94 Lead, Pb mg/kg 1 55 7 50 955 Zinc, Zn mg/kg 2 100 69 50 113 RH (Total Recoverable Hydrocarbons) In Solt Nethod: Ne | | | | | | | | | | | | | | | | | | | | | | | |
| Lead, Pb mg/kg 1 55 7 50 95 Zine, Zn mg/kg 2 130 69 50 113 RH (Total Recoveree Hydrocarbors) in Solt KH (Total Recoveree Hydrocarbors) in Solt CC Sample Sample Number Vertext Hydrocarbors) in Solt CC Sample Sample Number Parameter Units Colspan="2">Solt Method (Colspan="2">Colspan="2">Solt CC Sample Sample Number Parameter Units Colspan="2">Colspan="2">Colspan="2">Solt CC Sample Sample Number Parameter Units Colspan="2">Colspan="2">Solt Colspan="2">Colspan="2">Solt Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2" Colspan="2" Colspan= 2 Colspan= 2 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | | | | | | | | | | | | | | |
| Zinc, Zn mg/kg 2 130 69 50 113 RH (Total Recoverable Hydrocarbons) in Soll Method: ME-(AU)-(ENV)AN AC Sample Sample Number Parameter Units LOR Result Original Spike Recoverable Hydrocarbons) AC Sample Sample Number Parameter Units LOR Result Original Spike Recoverable Hydrocarbons) AC Sample Sample Number Parameter Units LOR Result Original Spike Recoverable Hydrocarbons) AC Sample Sample Number Parameter Units LOR Result Original Spike Recoverable Hydrocarbons) TRH C10-C16 TRH C10-C16 mg/kg 100 <100 | | | | | | | | | | | | | | | | | | | | | | | |
| Method coarbons) in Soil Method Sample Number Parameter Units LOR Result Original Spike Result Result Original Spike Result Result Original Spike Result Colspan="6" Spike Result Original Result Result Cols Spike | | | | Lead, Pb | mg/kg | · · · · · · · · · · · · · · · · · · · | | | | 95 | | | | | | | | | | | | | |
| Sample Sample Number Parameter Units LOR Result Original Spike Recover SE183217.002 LB155656.025 TRH C10-C14 mg/kg 20 39 <20 | | | | Zinc, Zn | mg/kg | 2 | 130 | 69 | 50 | 113 | | | | | | | | | | | | | |
| No. 1000 LB15565.025 LB15555.025 TRH C10-C14 mg/kg 20 39 <20 40 98 TRH C10-C26 TRH C10-C26 mg/kg 45 <45 | RH (Total Recov | verable Hydrocarbon | s) in Soil | | | | | Meth | od: ME-(AU |)-[ENV]AN40 | | | | | | | | | | | | | |
| Kine Kine <th< td=""><td>QC Sample</td><td>Sample Number</td><td></td><td>Parameter</td><td>Units</td><td>LOR</td><td>Result</td><td>Original</td><td>Spike</td><td>Recovery</td></th<> | QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery | | | | | | | | | | | | | |
| Image: Second | SE183217.002 | LB155656.025 | | TRH C10-C14 | mg/kg | 20 | 39 | <20 | 40 | 98 | | | | | | | | | | | | | |
| ITRH C29-C36 mg/kg 45 <45 | | | | | | | | | | | | | | | | | | | | | | | |
| TRH C37-C40 mg/kg 100 <100 <100 < - TRH C10-C36 Total mg/kg 110 <110 | | | | | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | | | | | | |
| TRH C10-C36 Total mg/kg 110 <110 <110 < <th><<th><<th> TRH C10-C36 Total mg/kg 210 <210</th></th></th> | < <th><<th> TRH C10-C36 Total mg/kg 210 <210</th></th> | < <th> TRH C10-C36 Total mg/kg 210 <210</th> | TRH C10-C36 Total mg/kg 210 <210 | < <td><<td><<td><<td> TRH C10-C40 Total (F bands) mg/kg 210 <210</td> <210</td> <<td><<td><<td><<td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td></td></td></td></td></td> | < <td><<td><<td> TRH C10-C40 Total (F bands) mg/kg 210 <210</td> <210</td> <<td><<td><<td><<td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td></td></td></td></td> | < <td><<td> TRH C10-C40 Total (F bands) mg/kg 210 <210</td> <210</td> < <td><<td><<td><<td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td></td></td></td> | < <td> TRH C10-C40 Total (F bands) mg/kg 210 <210</td> <210 | TRH C10-C40 Total (F bands) mg/kg 210 <210 | < <td><<td><<td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td></td></td> | < <td><<td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td></td> | < <td><<td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td></td> | < <td><<t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td> | < <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | | | | | | | | | | |
| TRH C10-C40 Total (F bands) mg/kg 210 <210 <210 < TRH F Bands TRH > C10-C16 mg/kg 25 39 <25 | | | | | | | | | | | | | | | | | | | | | | | |
| TRH F Bands TRH > C10-C16 mg/kg 25 39 <25 40 98 TRH > C10-C16 - Naphthalene (F2) mg/kg 25 39 <25 | | | | | | | | | | - | | | | | | | | | | | | | |
| TRH >C10-C16 - Naphthalene (F2) mg/kg 25 39 <25 - TRH >C16-C34 (F3) mg/kg 90 <90 | | | TDUEDeed | | | | | | | - | | | | | | | | | | | | | |
| TRH >C16-C34 (F3) mg/kg 90 <90 <90 40 110 TRH >C34-C40 (F4) mg/kg 120 <120 | | | IKH F Bands | | | | | | | | | | | | | | | | | | | | |
| TRH > C34-C40 (F4) mg/kg 120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <120 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | | | | | | | | | | | | | | | | | | | | | | | |
| Method: IDC's in Soil Method: IDC Sample Number Parameter Units LOR Result Original Spike Recover EE183217.001 LB155655.004 Monocyclic Aromatic Benzene mg/kg 0.1 3.2 <0.1 | | | | | | | | | | | | | | | | | | | | | | | |
| QC Sample Sample Number Parameter Units LOR Result Original Spike Recover EE183217.001 LB155655.004 Monocyclic Aromatic Benzene mg/kg 0.1 3.2 <0.1 | | | | TRH >C34-C40 (F4) | mg/kg | 120 | <120 | <120 | - | - | | | | | | | | | | | | | |
| Monocyclic Aromatic Benzene mg/kg 0.1 3.2 <0.1 2.9 110 Aromatic Toluene mg/kg 0.1 2.4 <0.1 | OC's in Soil | | | | | | | Meth | nod: ME-(AU |)-[ENV]AN43 | | | | | | | | | | | | | |
| Monocyclic Aromatic Benzene mg/kg 0.1 3.2 <0.1 2.9 110 Aromatic Toluene mg/kg 0.1 2.4 <0.1 | QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery | | | | | | | | | | | | | |
| Aromatic Toluene mg/kg 0.1 2.4 <0.1 2.9 81 Ethylbenzene mg/kg 0.1 2.6 <0.1 | SE183217.001 | - | | Benzene | mg/kg | 0.1 | 3.2 | - | 2.9 | - | | | | | | | | | | | | | |
| Ethylbenzene mg/kg 0.1 2.6 <0.1 2.9 90 m/p-xylene mg/kg 0.2 5.8 <0.2 | | | | | | | | | | | | | | | | | | | | | | | |
| m/p-xylene mg/kg 0.2 5.8 <0.2 5.8 99 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| o-xytene mg/Kg U.1 2.8 <0.1 2.9 94 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | (1-XVIPTIP) | ma/ka | U 1 | ∠.8 | <0.1 | 2.9 | 94 | | | | | | | | | | | | | |



MATRIX SPIKES

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.

Method: ME-(AU)-[ENV]AN433 VOC's in Soil (continued) QC Sample Sample Number Original Spike Recovery% Parameter Units LOR Result SE183217.001 LB155655.004 Polycyclic Naphthalene mg/kg 0.1 <0.1 <0.1 Surrogates Dibromofluoromethane (Surrogate) mg/kg 4.5 4.4 90 d4-1,2-dichloroethane (Surrogate) 4.5 4.4 90 mg/kg d8-toluene (Surrogate) mg/kg -4.4 4.3 88 -Bromofluorobenzene (Surrogate) 4.5 4.3 90 mg/kg Totals Total Xylenes 0.3 8.5 <0.3 mg/kg Total BTEX 0.6 17 <0.6 mg/kg Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433 Original Spike Recovery% QC Sample Sample Number Result Units LOR Parameter SE183217.001 LB155655.004 TRH C6-C10 24.65 25 <25 <25 97 mg/kg TRH C6-C9 mg/kg 20 21 <20 23.2 89 Surrogates Dibromofluoromethane (Surrogate) mg/kg 4.5 4.4 90 d4-1,2-dichloroethane (Surrogate) 4.5 4.4 90 mg/kg d8-toluene (Surrogate) mg/kg 4.4 4.3 88 Bromofluorobenzene (Surrogate) mg/kg 4.5 4.3 90 VPH F Benzene (F0) 0.1 3.2 <0.1 mg/kg Bands TRH C6-C10 minus BTEX (F1) mg/kg 25 <25 <25 7.25 102



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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- 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.
- 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.
- O LOR was raised due to dilution of significantly high concentration of analyte in sample.
- Image:
- Recovery failed acceptance criteria due to sample heterogeneity.
- [®] LOR was raised due to high conductivity of the sample (required dilution).
- t Refer to Analytical Report comments for further information.

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CHAIN OF CUSTODY RECORD

| LAB Name | SGS | |
|--------------|---------------------|----------|
| Address | 16/33 Maddox St | |
| | Alexandria NSW 2015 | |
| Client | Cardno (NSW/ACT) P | ty Ltd |
| | PO Box 74 | 2 |
| | Broadmeadow | NSW 2292 |
| Contact | Daniel McCallum | |
| Sampled by | Daniel McCallum | |
| Project Ref: | 82219014 | |



Contact Numbers

Phone 0249 654555 Fax 0249 654666

dimce.stojanvoski@cardno.com.au E-mail daniel.mccallum@cardno.com.au

(invoice to geotech@cardno.com.au)

Date Results Required Standard TAT

| | | | Ma | atrix | | | C | ontaine | ers/Pre | serva | tion | _ | - | | A | nalysis Requir | ed | _ |
|-----------------------|------------------|-----------------|------|-------|--------------------------|----------------------------------|---------------------------------|--|--|--|---|--------------------|----------|----------|-------------|----------------|----------|---------------|
| Laboratory LIMS ID | Client Sample ID | Date Sampled | Soil | Water | Soil Jar (G) Nat. Orange | 0.5-1.0 litre (G) Nat. Yellow | 0.1-1.0 litre (P) Nat. Green | 50mL VOA Vial (G) H ₂ SO ₄ Maroon | 0.1-1.0 litre (P) H ₂ SO ₄ Maroon | 0.2-1.0 litre (G) H ₂ SO ₄ Maroon | 0.1-0.2 (P) Filtered?? Y=Yes, N=No (HNO3) Red | 0.21 (P) NaOH Blue | Other | CL17 | Asbestos ID | | | |
| 1 | TP201 0.1 | 24/08/2018 | | | | 102 | | 47 | | | | | | | X | | | |
| 2 | TP202 0.1 | 24/08/2018 | | 1 | | ĺ | | 1 | 1 | 1 | | | 1 | | | | | |
| 3 | TP204 0.1 | 24/08/2018 | ⊠ | 1 | | [| | 1 | 1 | [| | | | | | | [| |
| Y | TP205 0.1 | 24/08/2018 | × | 1 | | | | [| | | | <u> </u> | <u> </u> | ⊠ | | | <u> </u> | |
| Ś | DUP1 | 24/08/2018 | ⊠ | | Į | Į | | Į | Į | Į | ļ | . | <u>]</u> | | ļ | | ļļ | |
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| | | | | .] | ļ | .Į | ļ | ļ | Ļ | . | | . | ļ | | | | | |
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| | | | | 1 | | | | ļ | | | | | - | | | SGS EH | IS Alexa | ndria Laborat |
| | | | | | | | | ļ | | . | | | - | . | ļ | | | |
| | | | | | | | | ļ | | | | | - | | <u> </u> | | | |
| | | | | | | | | ļ | ļ | ļ | | | 1 | | | SE1 | 8321 | 7 COC |
| | | | | | | | | | | | | | | | | Receiv | ed: 29– | Aug - 2018 |
| | | | | | | | | Į | - | | | | | | | | | |
| | | - | | ·· | | | <u>.</u> | † | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 1 | 1 |
| | | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | T | |
| | | | 1 | 1 | ******* | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | 1 | 1 |



ANALYTICAL REPORT





| - CLIENT DETAILS | · | LABORATORY DE | TAILS |
|------------------------------------|---|---|---|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone Facsimile Email | 61 2 4965 4555 61 2 4965 4666 daniel.mccallum@cardno.com.au | Telephone Facsimile Email | +61 2 8594 0400 +61 2 8594 0499 au.environmental.sydney@sgs.com |
| Project Order Number Samples | 82219014 (Not specified) 12 | SGS Reference Date Received Date Reported | SE183216 R1 29/8/2018 8/10/2018 |

COMMENTS

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

This report cancels and supersedes the report No. SE183216 R0 dated 13.09.18 issued by SGS Environment, Health and Safety due to amended extration dates on VOC's and VPH's.

pH analysis was performed by SGS on sample outside of holding time.

Clay % subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146,

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Akheeqar Beniameen Chemist



Kamrul Ahsan Senior Chemist

Bennet Lo Senior Organic Chemist/Metals Chemist

kmIn

Ly Kim Ha Organic Section Head

No

Huong Crawford Production Manager

S. Ravendr.

Ravee Sivasubramaniam Hygiene Team Leader

SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

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SE183216 R1

VOC's in Soil [AN433] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|---------------|-------|-----|----------------|----------------|----------------|--------------|----------------|
| | | | | 0.011 | 0.01 | 0.01 | |
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| | | | | | | | |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|---------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | | | | | |
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 |

| | | | DUP2 |
|---------------|-------|-----|--------------|
| | | | SOIL |
| | | | - |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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 |
| Total Xylenes | mg/kg | 0.3 | <0.3 |
| Total BTEX | mg/kg | 0.6 | <0.6 |
| Naphthalene | mg/kg | 0.1 | <0.1 |



SE183216 R1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|----------------------------|-------|-----|----------------|----------------|----------------|----------------|----------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|----------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 |

| | | | DUP2 |
|----------------------------|-------|-----|--------------|
| | | | 001 |
| | | | SOIL |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|---------------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | mg/kg | 25 | <25 | <25 | <25 | <25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 | <210 | <210 | <210 | <210 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|---------------------------------|-------|-----|----------------|----------------|----------------|----------------|----------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 | mg/kg | 25 | <25 | <25 | <25 | <25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 | <210 | <210 | <210 | <210 |

| | | | DUP2 |
|---------------------------------|-------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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 | mg/kg | 25 | <25 |
| TRH >C10-C16 - Naphthalene (F2) | 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 (F bands) | mg/kg | 210 | <210 |



PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|--|-------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | 001 | 001 |
| | | | SUIL | SOIL | SOIL | SOIL | SOIL |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | <0.1 | <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(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|--|-------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - SUIL | SOIL | SOIL | - 501L | SOIL |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |



ANALYTICAL RESULTS

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | DUP2 |
|--|-------------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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(ah)anthracene | mg/kg | 0.1 | <0.1 |
| Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 |
| Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=0<> | TEQ (mg/kg) | 0.2 | <0.2 |
| Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td><0.3</td></lor=lor<> | TEQ (mg/kg) | 0.3 | <0.3 |
| Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td><0.2</td></lor=lor> | TEQ (mg/kg) | 0.2 | <0.2 |
| Total PAH (18) | mg/kg | 0.8 | <0.8 |
| Total PAH (NEPM/WHO 16) | mg/kg | 0.8 | <0.8 |



OC Pesticides in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - | - | - | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | <1 | <1 | <1 |



OC Pesticides in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-------------------------|-------|-----|------------------------|------------------------|------------------------|------------------------|------------------------|
| | | | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | <1 | <1 | <1 |


ANALYTICAL RESULTS

SE183216 R1

OC Pesticides in Soil [AN420] Tested: 3/9/2018 (continued)

| | | | DUP2 |
|-------------------------|-------|-----|--------------|
| | | | - |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| 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 | 0.2 | <0.2 |
| 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 |
| Total CLP OC Pesticides | mg/kg | 1 | <1 |



OP Pesticides in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-----------------------------------|-------|-----|------------------------|------------------------|------------------------|------------------------|------------------------|
| | | | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-----------------------------------|-------|-----|----------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | <1.7 | <1.7 | <1.7 |

| PARAMETER | UOM | LOR | DUP2 SOIL - 24/8/2018 SE183216.011 |
|-----------------------------------|-------|-----|--|
| Dichlorvos | mg/kg | 0.5 | <0.5 |
| Dimethoate | mg/kg | 0.5 | <0.5 |
| Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| Fenitrothion | mg/kg | 0.2 | <0.2 |
| Malathion | mg/kg | 0.2 | <0.2 |
| Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| Bromophos Ethyl | mg/kg | 0.2 | <0.2 |
| Methidathion | mg/kg | 0.5 | <0.5 |
| Ethion | mg/kg | 0.2 | <0.2 |
| Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| Total OP Pesticides* | mg/kg | 1.7 | <1.7 |



SE183216 R1

PCBs in Soil [AN420] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|------------------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| 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 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|------------------------|-------|-----|------------------------|------------------------|------------------------|------------------------|------------------------|
| | | LOR | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 | SOIL - 24/8/2018 |
| PARAMETER | UOM | | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| 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 |

| | | | DUP2 |
|------------------------|-------|-----|--|
| PARAMETER | UOM | LOR | SOIL - 24/8/2018 SE183216.011 |
| 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 |



pH in soil (1:5) [AN101] Tested: 3/9/2018

| | | | TP103 0.1 |
|-------------|----------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.003 |
| pH (CaCl2)* | pH Units | 0.1 | 4.1 |



ANALYTICAL RESULTS

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 3/9/2018

| PARAMETER | UOM | LOR | TP103 0.1 SOIL - 24/8/2018 SE183216.003 |
|------------------------------------|----------|------|---|
| Exchangeable Sodium, Na | mg/kg | 2 | 8 |
| Exchangeable Sodium, Na | meq/100g | 0.01 | 0.04 |
| Exchangeable Sodium Percentage* | % | 0.1 | 5.7 |
| Exchangeable Potassium, K | mg/kg | 2 | 23 |
| Exchangeable Potassium, K | meq/100g | 0.01 | 0.06 |
| Exchangeable Potassium Percentage* | % | 0.1 | 9.5 |
| Exchangeable Calcium, Ca | mg/kg | 2 | 68 |
| Exchangeable Calcium, Ca | meq/100g | 0.01 | 0.34 |
| Exchangeable Calcium Percentage* | % | 0.1 | 54.0 |
| Exchangeable Magnesium, Mg | mg/kg | 2 | 24 |
| Exchangeable Magnesium, Mg | meq/100g | 0.02 | 0.19 |
| Exchangeable Magnesium Percentage* | % | 0.1 | 30.7 |
| Cation Exchange Capacity | meq/100g | 0.02 | 0.63 |



ANALYTICAL RESULTS

SE183216 R1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|--------------|-------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Arsenic, As | mg/kg | 1 | <1 | 1 | 2 | 2 | 3 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 2.7 | 1.3 | 3.0 | 3.5 | 1.5 |
| Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Lead, Pb | mg/kg | 1 | 2 | 2 | 3 | 2 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | <2.0 | 2.4 | 3.0 | 2.5 | <2.0 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|--------------|-------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | - | - | - | - | - |
| PARAMETER | UOM | LOR | 24/8/2018 SE183216.006 | 24/8/2018 SE183216.007 | 24/8/2018 SE183216.008 | 24/8/2018 SE183216.009 | 24/8/2018 SE183216.010 |
| Arsenic, As | mg/kg | 1 | 1 | <1 | <1 | 1 | 2 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 0.9 | 2.3 | 0.5 | 1.4 | 1.0 |
| Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | 0.8 | <0.5 | 0.5 |
| Lead, Pb | mg/kg | 1 | 1 | <1 | <1 | 1 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | 4.3 | <2.0 | 2.6 | 2.5 | 3.2 |

| | | | DUP2 |
|--------------|-------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| Arsenic, As | mg/kg | 1 | 1 |
| Cadmium, Cd | mg/kg | 0.3 | <0.3 |
| Chromium, Cr | mg/kg | 0.3 | 2.8 |
| Copper, Cu | mg/kg | 0.5 | <0.5 |
| Lead, Pb | mg/kg | 1 | 2 |
| Nickel, Ni | mg/kg | 0.5 | <0.5 |
| Zinc, Zn | mg/kg | 2 | <2.0 |



SE183216 R1

Mercury in Soil [AN312] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|-----------|-------|------|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| Mercury | mg/kg | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|-----------|-------|------|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| Mercury | mg/kg | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |

| | | | DUP2 |
|-----------|-------|------|--------------|
| | | | SOIL |
| | | | |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| Mercury | mg/kg | 0.05 | <0.05 |



SE183216 R1

Moisture Content [AN002] Tested: 3/9/2018

| | | | TP101 0.1 | TP102 0.1 | TP103 0.1 | TP104 0.1 | TP105 0.1 |
|------------|------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.002 | SE183216.003 | SE183216.004 | SE183216.005 |
| % Moisture | %w/w | 0.5 | 5.8 | 7.7 | 6.5 | 6.6 | 9.6 |

| | | | TP106 0.1 | TP107 0.25 | TP108 0.1 | TP109 0.1 | TP110 0.1 |
|------------|------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | | | | - |
| | | | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.006 | SE183216.007 | SE183216.008 | SE183216.009 | SE183216.010 |
| % Moisture | %w/w | 0.5 | 8.0 | 13 | 18 | 9.2 | 13 |

| | | | DUP2 |
|------------|------|-----|--------------|
| | | | SOIL |
| | | | |
| | | | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.011 |
| % Moisture | %w/w | 0.5 | 8.0 |



Fibre Identification in soil [AN602] Tested: 4/9/2018

| | | | TP101 0.1 | TP109 0.1 |
|-------------------|---------|------|--------------|--------------|
| | | | SOIL | SOIL |
| | | | | |
| | | | 24/8/2018 | 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.001 | SE183216.009 |
| Asbestos Detected | No unit | - | No | No |
| Estimated Fibres* | %w/w | 0.01 | <0.01 | <0.01 |



VOCs in Water [AN433] Tested: 29/8/2018

| | | | RINS 24.08.2018 |
|---------------|------|-----|-------------------------|
| | | | WATER - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.012 |
| Benzene | µg/L | 0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 |
| m/p-xylene | µg/L | 1 | <1 |
| o-xylene | μg/L | 0.5 | <0.5 |
| Total Xylenes | μg/L | 1.5 | <1.5 |
| Total BTEX | μg/L | 3 | <3 |
| Naphthalene | μg/L | 0.5 | <0.5 |



Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 29/8/2018

| | | | RINS 24.08.2018 |
|----------------------------|------|-----|-----------------|
| | | | WATER |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.012 |
| TRH C6-C9 | μg/L | 40 | <40 |
| Benzene (F0) | µg/L | 0.5 | <0.5 |
| TRH C6-C10 | μg/L | 50 | <50 |
| TRH C6-C10 minus BTEX (F1) | µg/L | 50 | <50 |



ANALYTICAL RESULTS

SE183216 R1

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 31/8/2018

| | | | RINS 24.08.2018 |
|---------------------------------|------|-----|-------------------------|
| | | | WATER - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.012 |
| TRH C10-C14 | µg/L | 50 | <50 |
| TRH C15-C28 | µg/L | 200 | <200 |
| TRH C29-C36 | µg/L | 200 | <200 |
| TRH C37-C40 | µg/L | 200 | <200 |
| TRH >C10-C16 | µg/L | 60 | <60 |
| TRH >C16-C34 (F3) | µg/L | 500 | <500 |
| TRH >C34-C40 (F4) | µg/L | 500 | <500 |
| TRH C10-C36 | µg/L | 450 | <450 |
| TRH C10-C40 | µg/L | 650 | <650 |
| TRH >C10-C16 - Naphthalene (F2) | µg/L | 60 | <60 |



Sample Subcontracted [] Tested: 13/9/2018

| | | | TP103 0.1 |
|-----------------------|---------|-----|----------------|
| | | | SOIL |
| | | | - 24/8/2018 |
| PARAMETER | UOM | LOR | SE183216.003 |
| Sample Subcontracted* | No unit | - | Subcontracted |
| SGS Cairns* | No unit | - | Subcontracted |



| 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-sodicESP 6-15%sodicESP >15%strongly sodic |
| | Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1 |
| 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 |
| 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 Recoverable Hydrocarbons - Silica (TRH-Si) 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 | 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. |
| AN602 | Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned. |



| AN602 | Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres. |
|-------|--|
| AN602 | AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg." |
| AN602 | The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- |
| | (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions. |

FOOTNOTES

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

Samples analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

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

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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

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ANALYTICAL REPORT



| CLIENT DETAILS | | LABORATORY DETAI | LS |
|----------------|---|------------------|--|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone | 61 2 4965 4555 | Telephone | +61 2 8594 0400 |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 2 8594 0499 |
| Email | daniel.mccallum@cardno.com.au | Email | au.environmental.sydney@sgs.com |
| Project | 82219014 | SGS Reference | SE183216 R1 |
| Order Number | (Not specified) | Date Received | 29 Aug 2018 |
| Samples | 2 | Date Reported | 08 Oct 2018 |

- COMMENTS

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

This report cancels and supersedes the report No. SE183216 R0 dated 13.09.18 issued by SGS Environment, Health and Safety due to amended extration dates on VOC's and VPH's.

pH analysis was performed by SGS on sample outside of holding time.

Clay % subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146,

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Akheeqar Beniameen Chemist



Kamrul Ahsan Senior Chemist



Bennet Lo Senior Organic Chemist/Metals Chemis

kmln

Ly Kim Ha Organic Section Head

lon

Huong Crawford Production Manager

S. Ravendr.

Ravee Sivasubramaniam Hygiene Team Leader

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ANALYTICAL REPORT

| RESULTS - | ation in soil | | | | Method AN | 502 |
|-------------------------|---------------------|--------|-----------------------|--------------|--|-----------|
| Laboratory Reference | Client Reference | Matrix | Sample Description | Date Sampled | Fibre Identification | Est.%w/w* |
| SE183216.001 | TP101 0.1 | Soil | 44g Sand,Soil | 24 Aug 2018 | No Asbestos Found | <0.01 |
| SE183216.009 | TP109 0.1 | Soil | 50g Sand,Soil | 24 Aug 2018 | No Asbestos Found Organic Fibres Detected | <0.01 |



METHOD SUMMARY

| METHOD | METHODOLOGY SUMMARY |
|--------|---|
| AN602 | Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned. |
| AN602 | Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres. |
| AN602 | AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg." |
| AN602 | The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres): |
| | (b) The estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions. |
| | |

Amosite Brown Asbestos NA Not Analysed White Asbestos Chrysotile INR --Listed. Not Required Crocidolite Blue Asbestos * -NATA accreditation does not cover the performance of this service . ** Amosite and/or Crocidolite Indicative data, theoretical holding time exceeded. Amphiboles

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

FOOTNOTES -

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining. Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining. Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

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

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STATEMENT OF QA/QC PERFORMANCE

| CLIENT DETAILS | | LABORATORY DETAI | LS |
|----------------|---|------------------|--|
| Contact | Daniel McCallum | Manager | Huong Crawford |
| Client | CARDNO (NSW/ACT) PTY LTD | Laboratory | SGS Alexandria Environmental |
| Address | Unit 1 10 Denney Street Broadmeadow NSW 2292 | Address | Unit 16, 33 Maddox St Alexandria NSW 2015 |
| Telephone | 61 2 4965 4555 | Telephone | +61 2 8594 0400 |
| Facsimile | 61 2 4965 4666 | Facsimile | +61 2 8594 0499 |
| Email | daniel.mccallum@cardno.com.au | Email | au.environmental.sydney@sgs.com |
| Project | 82219014 | SGS Reference | SE183216 R1 |
| Order Number | (Not specified) | Date Received | 29 Aug 2018 |
| Samples | 12 | Date Reported | 08 Oct 2018 |

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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:

Extraction Date

pH in soil (1:5)

1 item

| Samples clearly labelled | Yes | Complete documentation received | Yes | |
|--|-----------|------------------------------------|------------|--|
| Sample container provider | SGS | Sample cooling method | Ice Bricks | |
| Samples received in correct containers | Yes | Sample counts by matrix | 12 Soil | |
| Date documentation received | 29/8/2018 | Type of documentation received | COC | |
| Samples received in good order | Yes | Samples received without headspace | Yes | |
| Sample temperature upon receipt | 6.1°C | Sufficient sample for analysis | Yes | |
| Furnaround time requested | Standard | | | |

SGS Australia Pty Ltd ABN 44 000 964 278

SAMPLE SUMMARY

Environment, Health and Safety

Unit 16 33 Maddox St Alexandria NSW 2015 PO Box 6432 Bourke Rd BC Alexandria NSW 2015 Australia t +61 2 Australia f +61 2

t +61 2 8594 0400 www.sgs.com.au f +61 2 8594 0499



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.

| - | d Cation Exchange Capacit | | | | | _ | | ME-(AU)-[ENV]AI |
|----------------------------|---------------------------|-----------|----------------------------|-------------|----------------|-------------|--------------|----------------------------|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P103 0.1 | SE183216.003 | LB155649 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| ore Identification in soil | | | | | | | Method: | ME-(AU)-[ENV]AI |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155838 | 24 Aug 2018 | 29 Aug 2018 | 24 Aug 2019 | 04 Sep 2018 | 24 Aug 2019 | 05 Sep 2018 |
| P109 0.1 | SE183216.009 | LB155838 | 24 Aug 2018 | 29 Aug 2018 | 24 Aug 2019 | 04 Sep 2018 | 24 Aug 2019 | 05 Sep 2018 |
| ercury in Soil | | | | | | | Method: | ME-(AU)-[ENV]A |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P102 0.1 | SE183216.002 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P103 0.1 | SE183216.003 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P104 0.1 | SE183216.004 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P105 0.1 | SE183216.005 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P106 0.1 | SE183216.006 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P107 0.25 | SE183216.007 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P108 0.1 | SE183216.008 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P109 0.1 | SE183216.009 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 |
| P110 0.1 | SE183216.010 | LB155630 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2010 04 Sep 2018 |
| UP2 | SE183216.010 | LB155630 | 24 Aug 2018 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2018 | 03 Sep 2018 | 21 Sep 2018 | 04 Sep 2018 04 Sep 2018 |
| | 3E103210.011 | EB155050 | 24 Aug 2018 | 29 Aug 2018 | 21 Sep 2016 | 05 Sep 2018 | | |
| oisture Content | Sample No. | QC Ref | Sampled | Received | Extraction Duo | Extracted | Analysis Due | ME-(AU)-[ENV]A |
| ample Name | Sample No. | | | | Extraction Due | Extracted | | Analysed |
| P101 0.1 | SE183216.001 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P102 0.1 | SE183216.002 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P103 0.1 | SE183216.003 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P104 0.1 | SE183216.004 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P105 0.1 | SE183216.005 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P106 0.1 | SE183216.006 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P107 0.25 | SE183216.007 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P108 0.1 | SE183216.008 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P109 0.1 | SE183216.009 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| P110 0.1 | SE183216.010 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| UP2 | SE183216.011 | LB155628 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 08 Sep 2018 | 04 Sep 2018 |
| C Pesticides in Soil | | | | | | | Method: | ME-(AU)-[ENV]A |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| UP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| | SE 103210.011 | LD 133027 | 24 Aug 2010 | 28 Aug 2010 | 07 Sep 2010 | 03 360 2010 | | |
| Pesticides in Soil | | 00 B (| | | | | | ME-(AU)-[ENV]A |
| ample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| P101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| P106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| P107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| P108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| | SE192216 000 | 1 0166607 | 24 Aug 2019 | 20 Aug 2019 | 07 Son 2019 | 02 Son 2019 | 12 Oct 2019 | 05 0 0046 |

29 Aug 2018

29 Aug 2018

03 Sep 2018

03 Sep 2018

07 Sep 2018

07 Sep 2018

05 Sep 2018

05 Sep 2018

13 Oct 2018

13 Oct 2018

TP109 0.1

TP110 0.1

SE183216.009

SE183216.010

LB155627

LB155627

24 Aug 2018

24 Aug 2018



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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.

| OP Pesticides in Soil (con | ntinued) | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
|----------------------------|-------------------------------|-------------------|-------------|-------------|----------------|--------------|----------------|--------------------|
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| PAH (Polynuclear Aroma | ttic Hydrocarbons) in Soil | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| PCBs in Soil | | | | | | | Method: I | ME-(AU)-[ENV]AN420 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| DUP2 | SE183216.011 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| pH in soil (1:5) | | | | | | | Method: I | ME-(AU)-[ENV]AN101 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP103 0.1 | SE183216.003 | LB155661 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 03 Sep 2018† | 04 Sep 2018 | 03 Sep 2018 |
| Total Recoverable Flome | ents in Soil/Waste Solids/Mat | terials by ICPOES | | | | | Method: ME-(AU |)-[ENV]AN040/AN320 |
| | | | Compled | Dessived | | Eveneted | | |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |

| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
|------------------------|-----------------------|----------|-------------|-------------|----------------|----------------------------|--------------|----------------------------|
| TP101 0.1 | SE183216.001 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| DUP2 | SE183216.011 | LB155629 | 24 Aug 2018 | 29 Aug 2018 | 20 Feb 2019 | 03 Sep 2018 | 20 Feb 2019 | 04 Sep 2018 |
| TRH (Total Recoverable | Hydrocarbons) in Soil | | | | | | Method: I | ME-(AU)-[ENV]AN403 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| | 3E 1632 10.007 | LB155027 | 24 Aug 2010 | | | | | |
| TP108 0.1 | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 04 Sep 2018 |
| TP108 0.1 TP109 0.1 | | | • | | • | 03 Sep 2018 03 Sep 2018 | | 04 Sep 2018 04 Sep 2018 |
| | SE183216.008 | LB155627 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | | 13 Oct 2018 | |

29 Aug 2018

07 Sep 2018

03 Sep 2018

13 Oct 2018

SE183216.011

LB155627

24 Aug 2018

DUP2

04 Sep 2018



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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.

| Comula Nama | Comple No. | 00 84 | Compled | Received | Extraction Due | Evtracted | Analusia Dua | Analysed |
|-----------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-----------------|
| Sample Name | Sample No. | QC Ref | Sampled | | Extraction Due | Extracted | Analysis Due | Analysed |
| RINS 24.08.2018 | SE183216.012 | LB155528 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 31 Aug 2018 | 10 Oct 2018 | 03 Sep 2018 |
| VOC's in Soil | | | | | | | Method: | ME-(AU)-[ENV]AN |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| TP101 0.1 | SE183216.001 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| /OCs in Water | | | | | | | Method: | ME-(AU)-[ENV]AN |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| RINS 24.08.2018 | SE183216.012 | LB155745 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 29 Aug 2018 | 08 Oct 2018 | 05 Sep 2018 |

| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
|--------------------------|------------------|----------|-------------|-------------|----------------|-------------|--------------|--------------------|
| TP101 0.1 | SE183216.001 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP102 0.1 | SE183216.002 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP103 0.1 | SE183216.003 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP104 0.1 | SE183216.004 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP105 0.1 | SE183216.005 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP106 0.1 | SE183216.006 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP107 0.25 | SE183216.007 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP108 0.1 | SE183216.008 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP109 0.1 | SE183216.009 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| TP110 0.1 | SE183216.010 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| DUP2 | SE183216.011 | LB155626 | 24 Aug 2018 | 29 Aug 2018 | 07 Sep 2018 | 03 Sep 2018 | 13 Oct 2018 | 05 Sep 2018 |
| Volatile Petroleum Hydro | carbons in Water | | | | | | Method: I | ME-(AU)-[ENV]AN433 |
| Sample Name | Sample No. | QC Ref | Sampled | Received | Extraction Due | Extracted | Analysis Due | Analysed |
| RINS 24.08.2018 | SE183216.012 | LB155745 | 24 Aug 2018 | 29 Aug 2018 | 31 Aug 2018 | 29 Aug 2018 | 08 Oct 2018 | 05 Sep 2018 |
| | | | | | | | | |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| C Pesticides in Soil | | | | | -(AU)-[ENV]/ |
|---|-------------|---------------|-------|-------------|--------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Tetrachloro-m-xylene (TCMX) (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 105 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 117 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 121 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 119 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 123 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 117 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 120 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 122 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 113 |
| | | | | | |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 121 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 123 |
| P Pesticides in Soil | | | | Method: ME- | (AU)-[ENV] |
| arameter | Sample Name | Sample Number | Units | Criteria | Recover |
| 2-fluorobiphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 88 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 86 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 82 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 86 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 90 |
| | | SE183216.005 | % | | |
| | TP106 0.1 | | | 60 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 88 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 88 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 90 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 86 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 92 |
| I4-p-terphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 102 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | | | | | |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 98 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 94 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 96 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 100 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 98 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 96 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 102 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 100 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 96 |
| H (Polynuclear Aromatic Hydrocarbons) in Soil | | | | Method: ME- | (AU)-IENV |
| irameter | Sample Name | Sample Number | Units | Criteria | Recove |
| fluorobiphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 70 - 130% | 88 |
| ndorobipitetiyi (odrogato) | | | % | 70 - 130% | 86 |
| | TP102 0.1 | SE183216.002 | | | |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 82 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 86 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 90 |
| | TP106 0.1 | SE183216.006 | % | 70 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 88 |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 88 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 90 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 86 |
| | | | | | |
| | DUP2 | SE183216.011 | % | 70 - 130% | 92 |
| 4-p-terphenyl (Surrogate) | TP101 0.1 | SE183216.001 | % | 70 - 130% | 102 |
| | TP102 0.1 | SE183216.002 | % | 70 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 98 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 94 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 96 |
| | TP106 0.1 | SE183216.006 | % | 70 - 130% | 100 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 98 |
| | | | | | |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 96 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 102 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 100 |
| | DUP2 | SE183216.011 | % | 70 - 130% | 96 |
| | | | | | |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| AH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) | | | | Method: ME | -(AU)-[ENV]A |
|--|---|--|-------------|-------------------------------------|--------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| d5-nitrobenzene (Surrogate) | TP102 0.1 | SE183216.002 | % | 70 - 130% | 82 |
| | TP103 0.1 | SE183216.003 | % | 70 - 130% | 92 |
| | TP104 0.1 | SE183216.004 | % | 70 - 130% | 84 |
| | TP105 0.1 | SE183216.005 | % | 70 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 70 - 130% | 80 |
| | TP107 0.25 | SE183216.007 | % | 70 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 70 - 130% | 84 |
| | TP109 0.1 | SE183216.009 | % | 70 - 130% | 82 |
| | TP110 0.1 | SE183216.010 | % | 70 - 130% | 82 |
| | | | | | |
| | DUP2 | SE183216.011 | % | 70 - 130% | 82 |
| CBs in Soil | | | | Method: ME | -(AU)-[ENV]A |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Tetrachloro-m-xylene (TCMX) (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 105 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 117 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 121 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 119 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 123 |
| | TP106 0.1 | SE183216.005 | % | 60 - 130% | 123 |
| | | | | | |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 120 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 122 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 113 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 121 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 123 |
| OC's in Soll | | | | Method: ME | -(AU)-[ENV]/ |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery |
| Bromofluorobenzene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| Sionoliuolobelizelle (Sunogate) | | | % | 60 - 130% | |
| | TP102 0.1 | SE183216.002 | | | 77 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 75 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 74 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 78 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 75 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 75 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 74 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 82 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 75 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| d4-1,2-dichloroethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 98 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 99 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 79 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 95 |
| | | | % | | |
| | TP105 0.1 | SE183216.005 | | 60 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 93 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 92 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 93 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 89 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 82 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 85 |
| d8-toluene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 70 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 79 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 76 |
| | | SE183216.006 | % | 60 - 130% | 84 |
| | TP106.0.1 | 02.00210.000 | % | 60 - 130% | 82 |
| | TP106 0.1 | SE183216 007 | | 00 - 130% | 02 |
| | TP107 0.25 | SE183216.007 | | | 70 |
| | TP107 0.25 TP108 0.1 | SE183216.008 | % | 60 - 130% | 76 |
| | TP107 0.25 TP108 0.1 TP109 0.1 | SE183216.008 SE183216.009 | % | 60 - 130% 60 - 130% | 80 |
| | TP107 0.25 TP108 0.1 TP109 0.1 TP110 0.1 | SE183216.008 SE183216.009 SE183216.010 | % % % | 60 - 130% 60 - 130% 60 - 130% | 80 73 |
| | TP107 0.25 TP108 0.1 TP109 0.1 | SE183216.008 SE183216.009 | % | 60 - 130% 60 - 130% | 80 |
| Dibromofluoromethane (Surrogate) | TP107 0.25 TP108 0.1 TP109 0.1 TP110 0.1 | SE183216.008 SE183216.009 SE183216.010 | % % % | 60 - 130% 60 - 130% 60 - 130% | 80 73 |



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 identifier 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]AN |
|---|------------------------|---------------|-------|------------|---------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Dibromofluoromethane (Surrogate) | TP103 0.1 | SE183216.003 | % | 60 - 130% | 74 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 81 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 77 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 79 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 84 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 77 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| /OCs in Water | | | | Method: ME | -(AU)-[ENV]AN |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Bromofluorobenzene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 85 |
| d4-1,2-dichloroethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 114 |
| d8-toluene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |
| Dibromofluoromethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |
| /olatile Petroleum Hydrocarbons in Soil | | | | | -(AU)-[ENV]AN |
| · · · · · · · · · · · · · · · · · · · | | | | | |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Bromofluorobenzene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 77 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 75 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 74 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 78 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 75 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 75 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 74 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 82 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 75 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| d4-1,2-dichloroethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 98 |
| , | TP102 0.1 | SE183216.002 | % | 60 - 130% | 99 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 79 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 95 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 86 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 93 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 92 |
| | | | % | | 93 |
| | TP108 0.1 | SE183216.008 | | 60 - 130% | |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 89 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 82 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 85 |
| d8-toluene (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 80 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 90 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 70 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 79 |
| | TP105 0.1 | SE183216.005 | % | 60 - 130% | 76 |
| | TP106 0.1 | SE183216.006 | % | 60 - 130% | 84 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 82 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 76 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 80 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 73 |
| | DUP2 | SE183216.011 | % | 60 - 130% | 76 |
| Dibromofluoromethane (Surrogate) | TP101 0.1 | SE183216.001 | % | 60 - 130% | 85 |
| | TP102 0.1 | SE183216.002 | % | 60 - 130% | 93 |
| | TP103 0.1 | SE183216.003 | % | 60 - 130% | 74 |
| | TP104 0.1 | SE183216.004 | % | 60 - 130% | 81 |
| | TP105 0.1 | SE183216.004 | % | 60 - 130% | 77 |
| | TP105.0.1 TP106.0.1 | | % | 60 - 130% | |
| | | SE183216.006 | | | 86 |
| | TP107 0.25 | SE183216.007 | % | 60 - 130% | 84 |
| | TP108 0.1 | SE183216.008 | % | 60 - 130% | 79 |
| | TP109 0.1 | SE183216.009 | % | 60 - 130% | 84 |
| | TP110 0.1 | SE183216.010 | % | 60 - 130% | 77 |

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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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| Volatile Petroleum Hydrocarbons in Soli (continued) | Method: M | E-(AU)-[ENV]AN433 | | | |
|---|-----------------|-------------------|-------|-----------|------------|
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Dibromofluoromethane (Surrogate) | DUP2 | SE183216.011 | % | 60 - 130% | 79 |
| Volatile Petroleum Hydrocarbons in Water Method: ME-(AU | | | | | |
| Parameter | Sample Name | Sample Number | Units | Criteria | Recovery % |
| Bromofluorobenzene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 85 |
| d4-1,2-dichloroethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 60 - 130% | 114 |
| d8-toluene (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |
| Dibromofluoromethane (Surrogate) | RINS 24.08.2018 | SE183216.012 | % | 40 - 130% | 101 |



METHOD BLANKS

SE183216 R1

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)

| • | | | | |
|-----------------|----------------------------|-------|------|------------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155649.001 | Exchangeable Sodium, Na | mg/kg | 2 | 0 |
| | Exchangeable Potassium, K | mg/kg | 2 | 0 |
| | Exchangeable Calcium, Ca | mg/kg | 2 | 0 |
| | Exchangeable Magnesium, Mg | mg/kg | 2 | 0 |
| Mercury in Soil | | | Meth | od: ME-(AU)-[ENV]AN312 |
| Sample Number | Parameter | Units | LOR | Result |
| LB155630.001 | Mercury | mg/kg | 0.05 | <0.05 |

OC Pesticides in Soil

| OC Pesticides in Soil | | | М | lethod: ME-(AU)-[ENV]AN42 |
|-----------------------|---|-------|-----|---------------------------|
| Sample Number | Parameter | Units | LOR | Result |
| LB155627.001 | 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 | 0.2 | <0.2 |
| | 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) | % | - | 95 |
| OP Pesticides in Soil | | | M | lethod: ME-(AU)-[ENV]AN42 |

| | | Mour | | |
|---------------|-----------------------------------|-------|-----|--------|
| Sample Number | Parameter | Units | LOR | Result |
| .B155627.001 | Dichlorvos | mg/kg | 0.5 | <0.5 |
| | Dimethoate | mg/kg | 0.5 | <0.5 |
| | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 |
| | Fenitrothion | mg/kg | 0.2 | <0.2 |
| | Malathion | mg/kg | 0.2 | <0.2 |
| | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 |
| | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 |
| | Bromophos Ethyl | mg/kg | 0.2 | <0.2 |
| | Methidathion | mg/kg | 0.5 | <0.5 |
| | Ethion | mg/kg | 0.2 | <0.2 |
| | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 |
| Surrogates | 2-fluorobiphenyl (Surrogate) | % | - | 94 |
| | d14-p-terphenyl (Surrogate) | % | - | 98 |

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

| Sample Number | Parameter | Units | LOR | Result |
|---------------|---------------------|-------|-----|--------|
| LB155627.001 | 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 |

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



METHOD BLANKS

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.

| | matic Hydrocarbons) in Soil (co | | | | d: ME-(AU)-[ENV]AN |
|--|-------------------------------------|--|----------------------------------|--------------------------|------------------------------|
| Sample Number | | Parameter | Units | LOR | Result |
| LB155627.001 | | 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 |
| | | | | 0.1 | <0.1 |
| | | Dibenzo(ah)anthracene | mg/kg | · · · · · · | |
| | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 |
| | | Total PAH (18) | mg/kg | 0.8 | <0.8 |
| | Surrogates | d5-nitrobenzene (Surrogate) | % | - | 84 |
| | | 2-fluorobiphenyl (Surrogate) | % | | 94 |
| | | d14-p-terphenyl (Surrogate) | % | - | 98 |
| PCBs in Soil | | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| | | | | | |
| LB155627.001 | | 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) | % | - | 95 |
| | | | /0 | | |
| Total Recoverable Elei | ments in Soil/Waste Solids/Mat | erials by ICPOES | | Method: ME-(| (AU)-[ENV]AN040/AN |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155629.001 | | Arsenic, As | mg/kg | 1 | <1 |
| | | Cadmium, Cd | mg/kg | 0.3 | <0.3 |
| | | Chromium, Cr | mg/kg | 0.3 | <0.3 |
| | | Copper, Cu | mg/kg | 0.5 | <0.5 |
| | | Nickel, Ni | | 0.5 | <0.5 |
| | | | mg/kg | | |
| | | Lead, Pb | mg/kg | 2 | <1 |
| | | Zinc, Zn | mg/kg | | <2.0 |
| RH (Total Recoverab | le Hydrocarbons) in Soil | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155627.001 | | TRH C10-C14 | mg/kg | 20 | <20 |
| | | TRH C15-C28 | mg/kg | 45 | <45 |
| | | TRH C29-C36 | | 45 | <45 |
| | | | mg/kg | · · · · · · | |
| | | TRH C37-C40 | mg/kg | 100 | <100 |
| | | TRH C10-C36 Total | mg/kg | 110 | <110 |
| RH (Total Recoverab | le Hydrocarbons) in Water | | | Metho | d: ME-(AU)-[ENV]AN |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155528.001 | | TRH C10-C14 | μg/L | 50 | <50 |
| | | TRH C15-C28 | μg/L | 200 | <200 |
| | | TRH C13-C28 | | 200 | <200 |
| | | | μg/L | | |
| | | TRH C37-C40 | µg/L | 200 | <200 |
| | | | | Metho | d: ME-(AU)-[ENV]AN |
| /OC's in Soil | | Parameter | Units | LOR | Result |
| | | | mg/kg | 0.1 | <0.1 |
| Sample Number | Monocyclic Aromatic | Benzene | | | |
| Sample Number | | | ma/ka | 0.1 | <0.1 |
| /OC's in Soil Sample Number LB155626.001 | Monocyclic Aromatic Hydrocarbons | Toluene | mg/kg | 0.1 | <0.1 |
| Sample Number | | Toluene Ethylbenzene | mg/kg | 0.1 | <0.1 |
| Sample Number | | Toluene Ethylbenzene m/p-xylene | mg/kg mg/kg | 0.1 0.2 | <0.1 <0.2 |
| Sample Number | Hydrocarbons | Toluene Ethylbenzene m/p-xylene o-xylene | mg/kg mg/kg mg/kg | 0.1 0.2 0.1 | <0.1 <0.2 <0.1 |
| Sample Number | Hydrocarbons Polycyclic VOCs | Toluene Ethylbenzene m/p-xylene o-xylene Naphthalene | mg/kg mg/kg mg/kg mg/kg | 0.1 0.2 0.1 0.1 | <0.1 <0.2 <0.1 <0.1 |
| Sample Number | Hydrocarbons | Toluene Ethylbenzene m/p-xylene o-xylene | mg/kg mg/kg mg/kg | 0.1 0.2 0.1 | <0.1 <0.2 <0.1 |



METHOD BLANKS

SE183216 R1

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)

| VOC's in Soil (continu | (beu | | | Meth | od: ME-(AU)-[ENV]AN43 |
|------------------------|----------------------|-----------------------------------|-------|------|-----------------------|
| Sample Number | | Parameter | Units | LOR | Result |
| LB155626.001 | Surrogates | d8-toluene (Surrogate) | % | - | 106 |
| | | Bromofluorobenzene (Surrogate) | % | - | 74 |
| | Totals | Total BTEX | mg/kg | 0.6 | <0.6 |
| VOCs in Water | | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155745.001 | Monocyclic Aromatic | Benzene | µg/L | 0.5 | <0.5 |
| | Hydrocarbons | Toluene | µg/L | 0.5 | <0.5 |
| | | Ethylbenzene | µg/L | 0.5 | <0.5 |
| | | m/p-xylene | µg/L | 1 | <1 |
| | | o-xylene | µg/L | 0.5 | <0.5 |
| | Polycyclic VOCs | Naphthalene | µg/L | 0.5 | <0.5 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 87 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 96 |
| | | d8-toluene (Surrogate) | % | - | 98 |
| | | Bromofluorobenzene (Surrogate) | % | - | 90 |
| Volatile Petroleum Hy | /drocarbons in Soil | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155626.001 | | TRH C6-C9 | mg/kg | 20 | <20 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 74 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 72 |
| | | d8-toluene (Surrogate) | % | - | 106 |
| Volatile Petroleum Hy | /drocarbons in Water | | | Meth | od: ME-(AU)-[ENV]AN43 |
| Sample Number | | Parameter | Units | LOR | Result |
| LB155745.001 | | TRH C6-C9 | µg/L | 40 | <40 |
| | Surrogates | Dibromofluoromethane (Surrogate) | % | - | 87 |
| | | d4-1,2-dichloroethane (Surrogate) | % | - | 96 |
| | | d8-toluene (Surrogate) | % | - | 98 |
| | | Bromofluorobenzene (Surrogate) | % | - | 90 |
| | | | | | |



Method: ME-(AU)-IENVIAN002

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 | | | | | | Meth | od: ME-(AU)- | ENVJAN312 |
|-----------------|--------------|-----------|-------|------|----------|-----------|--------------|-----------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.003 | LB155630.014 | Mercury | mg/kg | 0.05 | <0.05 | <0.05 | 200 | 0 |
| SE183216.011 | LB155630.023 | Mercury | mg/kg | 0.05 | <0.05 | <0.05 | 200 | 0 |

Moisture Content

| ······································ | | | | | | | | |
|--|--------------|------------|-------|-----|----------|-----------|------------|-------|
| Original | Duplicate | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.003 | LB155628.011 | % Moisture | %w/w | 0.5 | 6.5 | 6.2 | 46 | 5 |
| SE183216.011 | LB155628.020 | % Moisture | %w/w | 0.5 | 8.0 | 8.6 | 42 | 7 |

OC Pesticides in Soil

| | Soil | | | | | | | od: ME-(AU)- | |
|-------------|--------------|------------|---|-------|-----|----------|-----------|--------------|-------|
| Priginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| E183216.001 | LB155627.028 | | 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 | 0.2 | <0.2 | <0.2 | 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 |
| | | | Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | 200 | 0 |
| | | Surragataa | | | | 0.16 | 0.19 | 30 | 17 |
| 183216.011 | LB155627.023 | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) Hexachlorobenzene (HCB) | mg/kg | 0.1 | <0.1 | <0.19 | 200 | 0 |
| =103210.011 | LB155627.023 | | | mg/kg | | | | | |
| | | | 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 | 0.2 | <0.2 | <0.2 | 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 |



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| Original | | | Paramotor | Units | LOR | Original | | od: ME-(AU)- Criteria % | |
|-------------------|--------------------|--------------|---|-------|-----|----------|-----------|----------------------------|--------|
| Original | Duplicate | | Parameter | | | | | | RPD |
| SE183216.011 | LB155627.023 | | 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 |
| | | - | Total CLP OC Pesticides | mg/kg | 1 | <1 | <1 | 200 | 0 |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.19 | 0.19 | 30 | 3 |
| P Pesticides in S | oil | | | | | | Meth | od: ME-(AU)- | [ENV]A |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| SE183216.002 | LB155627.026 | | Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Malathion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Methidathion | | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | | mg/kg | | | | | |
| | | | Ethion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | 200 | 0 |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.4 | 0.4 | 30 | 0 |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 30 | 0 |
| E183216.011 | LB155627.023 | | Dichlorvos | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Fenitrothion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Malathion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Parathion-ethyl (Parathion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Bromophos Ethyl | mg/kg | 0.2 | <0.2 | <0.2 | 200 | 0 |
| | | | Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Ethion | mg/kg | 0.2 | <0.2 | <0.2 | 200 | C |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | 200 | C |
| | | | Total OP Pesticides* | mg/kg | 1.7 | <1.7 | <1.7 | 200 | C |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 30 | 2 |
| | | Sunoguloo | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 30 | 4 |
| | | | | | | 0.0 | | | |
| | Aromatic Hydrocarb | ons) in Soil | | | | | | od: ME-(AU)- | |
| Priginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPI |
| E183216.002 | LB155627.026 | | Naphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | C |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | C |
| | | | Acenaphthylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | C |
| | | | Acenaphthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | C |
| | | | Fluorene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|
| | | | Phenanthrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|
| | | | Anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|
| | | | Fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(a)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Chrysene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | | | | | | | (|
| | | | Benzo(b&j)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(k)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|
| | | | Benzo(a)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | Dibenzo(ah)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | | | | | | | |
| | | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | (|

Carcinogenic PAHs, BaP TEQ <LOR=0

mg/kg



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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

| riginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
|-------------|--------------|------------|--|--------|-----|----------|-----------|--------------|--------|
| E183216.002 | LB155627.026 | | Carcinogenic PAHs, BaP TEQ <lor=lor< th=""><th>mg/kg</th><th>0.3</th><th><0.3</th><th><0.3</th><th>134</th><th>0</th></lor=lor<> | mg/kg | 0.3 | <0.3 | <0.3 | 134 | 0 |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td><0.2</td><td>175</td><td>0</td></lor=lor> | mg/kg | 0.2 | <0.2 | <0.2 | 175 | 0 |
| | | | Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | 200 | 0 |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | | 0.4 | 0.4 | 30 | 2 |
| | | Sunogates | 2-fluorobiphenyl (Surrogate) | mg/kg | | 0.4 | 0.4 | 30 | |
| | | | d14-p-terphenyl (Surrogate) | | | 0.4 | 0.4 | 30 | |
| 183216.011 | LB155627.023 | | Naphthalene | mg/kg | | <0.1 | <0.1 | 200 | |
| 103210.011 | LB155027.025 | | | mg/kg | 0.1 | | | 200 | |
| | | | 2-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | | |
| | | | 1-methylnaphthalene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Acenaphthylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Acenaphthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Fluorene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Phenanthrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(a)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Chrysene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(b&j)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(k)fluoranthene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(a)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Dibenzo(ah)anthracene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Benzo(ghi)perylene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=0< td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td><0.2</td><td>200</td><td></td></lor=0<> | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>mg/kg</td><td>0.3</td><td><0.3</td><td><0.3</td><td>134</td><td></td></lor=lor<> | mg/kg | 0.3 | <0.3 | <0.3 | 134 | |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>mg/kg</td><td>0.2</td><td><0.2</td><td><0.2</td><td>175</td><td></td></lor=lor> | mg/kg | 0.2 | <0.2 | <0.2 | 175 | |
| | | | Total PAH (18) | mg/kg | 0.8 | <0.8 | <0.8 | 200 | |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.4 | 30 | |
| | | ounogates | 2-fluorobiphenyl (Surrogate) | mg/kg | | 0.5 | 0.5 | 30 | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | | 0.5 | 0.5 | 30 | |
| | | | | nigrkg | | 0.5 | | | |
| Bs in Soil | | | | | | | Meth | od: ME-(AU)- | -[ENV] |
| iginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RP |
| 183216.001 | LB155627.025 | | Arochlor 1016 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1221 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1232 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1242 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1248 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1254 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1260 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1262 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1268 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Total PCBs (Arochlors) | mg/kg | 1 | <1 | <1 | 200 | |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | | 0 | 0 | 30 | |
| 183216.011 | LB155627.023 | ounogates | Arochlor 1016 | | 0.2 | | | 200 | |
| 103210.011 | LB155027.025 | | Arochlor 1221 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | | mg/kg | | | | | |
| | | | Arochlor 1232 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1242 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1248 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1254 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1260 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1262 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Arochlor 1268 | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | Total PCBs (Arochlors) | mg/kg | 1 | <1 | <1 | 200 | |
| | | | | | | | | | |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0 | 0 | 30 | |



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 | Original | Duplicate | Criteria % | RPD |
|-----------------|---------------------|-------------|-----------------------------------|--------|-----|----------|-----------|---------------|--------|
| | | | | | | | | | |
| SE183216.003 | LB155629.014 | | Arsenic, As | mg/kg | 1 | 2 | 3 | 73 | 41 |
| | | | Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | | Chromium, Cr | mg/kg | 0.3 | 3.0 | 3.3 | 46 | 7 |
| | | | Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Nickel, Ni | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Lead, Pb | mg/kg | 1 | 3 | 3 | 64 | 4 |
| | | | Zinc, Zn | mg/kg | 2 | 3.0 | 3.0 | 97 | 3 |
| E183216.011 | LB155629.023 | | Arsenic, As | mg/kg | 1 | 1 | <1 | 134 | 32 |
| | | | Cadmium, Cd | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | | Chromium, Cr | mg/kg | 0.3 | 2.8 | 2.3 | 49 | 19 |
| | | | Copper, Cu | mg/kg | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | Nickel, Ni | | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | | mg/kg | | | | | |
| | | | Lead, Pb | mg/kg | 1 | 2 | <1 | 129 | 63 |
| | | | Zinc, Zn | mg/kg | 2 | <2.0 | <2.0 | 200 | 0 |
| RH (Total Recov | erable Hydrocarbons |) in Soil | | | | | Met | hod: ME-(AU)- | [ENV]A |
| Driginal | Duplicate | | Parameter | Units | LOR | Original | Dunlicate | Criteria % | RPD |
| E183216.002 | LB155627.025 | | TRH C10-C14 | | 20 | | | | 0 |
| E 1032 10.002 | LD100027.025 | | | mg/kg | | <20 | <20 | 200 | |
| | | | 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 (F bands) | mg/kg | 210 | <210 | <210 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| | | | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25 | <25 | <25 | 200 | 0 |
| | | | TRH >C16-C34 (F3) | mg/kg | 90 | <90 | <90 | 200 | C |
| | | | TRH >C34-C40 (F4) | mg/kg | 120 | <120 | <120 | 200 | 0 |
| E 402246 044 | 1 0455607 000 | | | | | | | | |
| E183216.011 | LB155627.023 | | 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 (F bands) | mg/kg | 210 | <210 | <210 | 200 | 0 |
| | | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| | | | TRH >C10-C16 - Naphthalene (F2) | 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 |
| | | | | nigrig | 120 | -120 | | | |
| OC's in Soil | | | | | | | Met | hod: ME-(AU)- | (ENV)A |
| Driginal | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD |
| E183216.003 | LB155626.014 | Monocyclic | Benzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | Aromatic | Toluene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | Ethylbenzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | | | | | | | | 0 |
| | | | m/p-xylene | mg/kg | 0.2 | <0.2 | <0.2 | 200 | |
| | | | 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 | - | 3.7 | 4.3 | 50 | 1 |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.0 | 4.6 | 50 | 1 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 3.5 | 4.1 | 50 | 1 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | - | 3.8 | 3.5 | 50 | 7 |
| | | Totals | Total Xylenes | mg/kg | 0.3 | <0.3 | <0.3 | 200 | 0 |
| | | | Total BTEX | mg/kg | 0.6 | <0.6 | <0.6 | 200 | |
| E183216.011 | LB155626.023 | Monocyclic | Benzene | mg/kg | 0.0 | <0.1 | <0.1 | 200 | 0 |
| | 20100020.020 | Aromatic | Toluene | | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | Aromatic | | mg/kg | | | | | |
| | | | Ethylbenzene | mg/kg | 0.1 | <0.1 | <0.1 | 200 | C |
| | | | 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 | - | 3.9 | 4.2 | 50 | 6 |
| | | | | | | | | | |
| | | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.2 | 4.5 | 50 | 6 |

d8-toluene (Surrogate)

Bromofluorobenzene (Surrogate)

7

3.8

4.0

mg/kg

mg/kg

4.1

3.6

50

50



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 (con | tinued) | | | | | | Mett | nod: ME-(AU)- | (ENVJAN43 |
|--------------------|---------------------|--------------|-----------------------------------|----------------|------|----------|-----------|---------------|-----------|
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.011 | LB155626.023 | 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 |
| VOCs in Water | | | | | | | Meth | nod: ME-(AU)- | [ENV]AN43 |
| Original | Duplicate | | Parameter | Units | LOR | Original | Duplicate | Criteria % | RPD % |
| SE183216.012 | LB155745.022 | Monocyclic | Benzene | μg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| 02100210.012 | | Aromatic | Toluene | μg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | , a official | Ethylbenzene | μg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | m/p-xylene | μg/L | 1 | <1 | <1 | 200 | 0 |
| | | | o-xylene | μg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | Polycyclic | Naphthalene | μg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 5.1 | 4.9 | 30 | 4 |
| | | currogutoo | d4-1,2-dichloroethane (Surrogate) | μg/L | - | 5.7 | 5.5 | 30 | 4 |
| | | | d8-toluene (Surrogate) | μg/L | | 5.1 | 4.8 | 30 | 4 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | | 4.3 | 4.4 | 30 | 2 |
| Volatile Petroleum | Hydrocarbons in Soi | | Dromondorobonzono (olarrogato) | P3, - | | 1.0 | | nod: ME-(AU)- | |
| Original | Duplicate | • | Parameter | Units | LOR | Original | | Criteria % | RPD % |
| SE183216.003 | LB155626.014 | | TRH C6-C10 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| 3E 1832 10.003 | LB155020.014 | | TRH C6-C9 | mg/kg | 20 | <20 | <20 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - 20 | 3.7 | 4.3 | 30 | 15 |
| | | Surrogates | d4-1,2-dichloroethane (Surrogate) | mg/kg | | 4.0 | 4.6 | 30 | 15 |
| | | | d8-toluene (Surrogate) | | | 3.5 | 4.0 | 30 | 15 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | | 3.8 | 3.5 | 30 | 7 |
| | | VPH F Bands | Benzene (F0) | mg/kg mg/kg | 0.1 | <0.1 | <0.1 | 200 | 0 |
| | | VEH E Danus | TRH C6-C10 minus BTEX (F1) | | 25 | <25 | <25 | 200 | 0 |
| SE183216.011 | LB155626.023 | | TRH C6-C10 | mg/kg | 25 | <25 | <25 | 200 | 0 |
| 3E103210.011 | LB155020.025 | | TRH C6-C9 | mg/kg | 20 | <20 | <20 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg mg/kg | - 20 | 3.9 | 4.2 | 30 | 6 |
| | | Surroyates | d4-1,2-dichloroethane (Surrogate) | | | 4.2 | 4.2 | 30 | 6 |
| | | | | mg/kg | | 3.8 | 4.5 | 30 | 7 |
| | | | d8-toluene (Surrogate) | mg/kg | | 4.0 | 3.6 | 30 | 11 |
| | | VOLLE Develo | Bromofluorobenzene (Surrogate) | mg/kg | | | | | |
| | | 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 |
| | Hydrocarbons in Wa | iter | | | | | | nod: ME-(AU)- | |
| Original | Duplicate | | Parameter | Units | LOR | Original | | Criteria % | RPD % |
| SE183216.012 | LB155745.022 | | TRH C6-C10 | µg/L | 50 | <50 | <50 | 200 | 0 |
| | | | TRH C6-C9 | µg/L | 40 | <40 | <40 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 5.1 | 4.9 | 30 | 4 |
| | | | d4-1,2-dichloroethane (Surrogate) | μg/L | - | 5.7 | 5.5 | 30 | 4 |
| | | | d8-toluene (Surrogate) | μg/L | - | 5.1 | 4.8 | 30 | 4 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | - | 4.3 | 4.4 | 30 | 2 |
| | | VPH F Bands | Benzene (F0) | µg/L | 0.5 | <0.5 | <0.5 | 200 | 0 |
| | | | TRH C6-C10 minus BTEX (F1) | µg/L | 50 | <50 | <50 | 200 | 0 |
| SE183244.010 | LB155745.023 | | TRH C6-C10 | μg/L | 50 | 0 | 0 | 200 | 0 |
| | | | TRH C6-C9 | µg/L | 40 | 0 | 0 | 200 | 0 |
| | | Surrogates | Dibromofluoromethane (Surrogate) | µg/L | - | 4.8 | 5.31 | 30 | 10 |
| | | | d4-1,2-dichloroethane (Surrogate) | µg/L | - | 5.45 | 6.05 | 30 | 10 |
| | | | d8-toluene (Surrogate) | µg/L | - | 4.8 | 5.22 | 30 | 8 |
| | | | Bromofluorobenzene (Surrogate) | μg/L | - | 4.21 | 4.16 | 30 | 1 |
| | | VPH F Bands | Benzene (F0) | µg/L | 0.5 | 0.05 | 0.04 | 200 | 0 |
| | | | TRH C6-C10 minus BTEX (F1) | µg/L | 50 | -0.16 | -0.17 | 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 C | ation Exchange Capacity (CEC/ESP/SAR) | | Method: ME-(AU)-[ENV]A | | | | |
|----------------------------|---------------------------------------|-------|------------------------|--------|----------|---------------|--------------|
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155649.002 | Exchangeable Sodium, Na | mg/kg | 2 | NA | 72.68 | 80 - 120 | 102 |
| | Exchangeable Potassium, K | mg/kg | 2 | NA | 238.12 | 80 - 120 | 97 |
| | Exchangeable Calcium, Ca | mg/kg | 2 | NA | 692 | 80 - 120 | 91 |
| | Exchangeable Magnesium, Mg | mg/kg | 2 | NA | 134.2 | 80 - 120 | 100 |
| Mercury in Soil | | | | | N | Nethod: ME-(A | U)-[ENV]AN31 |
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| LB155630.002 | Mercury | mg/kg | 0.05 | 0.19 | 0.2 | 70 - 130 | 96 |

OC Pesticides in Soil

| Besser 2002 Hepachlor mg/kg 0.1 0.2 0.2 60.140 0.00 Adrin mg/kg 0.1 0.2 0.2 0.0140 0.00 Della Bl/C mg/kg 0.1 0.2 0.2 0.0140 0.00 Delda Dir mg/kg 0.2 0.2 0.0140 0.00< | OC Pesticides in So | bil | | | | | 1 | Method: ME-(A | U)-[ENV]AN42 |
|---|---------------------|-----------------|---|-------|-----|--------|----------|---------------|--------------|
| Addin Mathin mg/hg 0.1 0.2 0.2 60.14 0.16 Datedrin mg/hg 0.1 0.2 0.2 0.01 0.02 Datedrin mg/hg 0.2 0.2 0.01 0.02 0.01 0.02 Burgote Tetrachionom-xylene (TCMX) (Surogate) mg/hg 0.1 0.2 0.2 0.01 0.01 Surogate Tetrachionom-xylene (TCMX) (Surogate) mg/hg 0.1 0.02 0.02 0.01 <td< th=""><th>Sample Number</th><th></th><th>Parameter</th><th>Units</th><th>LOR</th><th>Result</th><th>Expected</th><th>Criteria %</th><th>Recovery %</th></td<> | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Delia BHC mg/sq 0.1 0.2 0.2 0.0.1 0.1 Defin mg/sq 0.2 0.2 0.2 0.0.1 0.0 p/DDT mg/sq 0.1 0.2 0.2 0.0.1 0.0 surrage mode p/DDT mg/sq 0.1 0.2 0.2 0.0.1 0.0 Pertodices mode mg/sq 0.1 0.2 0.2 0.0 0.0 Surrage mode Parameter Distance Distance Result Expected Criteria % Recovery Bis5827.002 Distance Ng/sq 0.5 2.0 0.2 0.0 0.0 Dazion Ofmy/stel Diazon mg/sq 0.2 1.8 0.0 < | LB155627.002 | | Heptachlor | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 109 |
| Deletinin mg/kg 0.2 0.2 0.2 0.01 0.05 Endmin mg/kg 0.2 0.2 0.2 0.01 0.99 p.p':DDT mg/kg 0.1 0.15 40-130 99 Surrogates Tetrachloro-m-xylene (TCMX) (Surrogate) mg/kg 0.1 0.15 40-130 96 PP esettices in Sol Dichtorom-xylene (TCMX) (Surrogate) mg/kg 0.5 2.0 2.2 60-140 1015 Sample Number Parenetor Mathematica mg/kg 0.5 2.0 2.2 60-140 1010 Dichtorymos mg/kg 0.5 2.3 2 60-140 1010 Discorymos mg/kg 0.5 2.3 2 60-140 1010 Surrogates 24/uorobichenyl (Surrogate) mg/kg 0.2 0.5 0.5 40-130 90 ElsioS627.002 Varrogates 24/uorobichenyl (Surrogate) mg/kg 0.1 4.2 4 60-140 1016 60-140 | | | Aldrin | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 106 |
| Endmin mg/kg 0.2 40.2 0.2 0.2 0.1 0.2 0.2 0.1 0.0 0.1 0.0 0 | | | Delta BHC | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 104 |
| pp/DDT mg/kg 0.1 0.2 0.2 0.0 0.1 0.2 0.0 0. | | | Dieldrin | mg/kg | 0.2 | 0.2 | 0.2 | 60 - 140 | 105 |
| SurogatesSurogatesIngited00.140.150.100.160.16Peetidides In SolfParanterParanterUnitsLORResultExpectedCriteriaRecoverySample NumberDichlorovomg/kg0.52.02.06.010.0Dichlorovomg/kg0.52.326010.0Dichlorovomg/kg0.52.326010.0Dichlorovomg/kg0.52.326010.0Dichlorovomg/kg0.22.226010.0Dichlorovomg/kg0.21.82.060.010.0SurogatesEhionmg/kg0.20.540.1010.0Autorbhenyl (Surogate)mg/kg0.20.540.1010.0Autorbhenyl (Surogate)mg/kg0.14.240.10010.0Autorbhenyl (Surogate)mg/kg0.14.240.01010.0Sample NumberParametermg/kg0.14.240.01010.0Autorbhenemg/kg0.14.240.01010.010.0Sample NumberParametermg/kg0.14.240.01010.0Parametermg/kg0.14.240.01010.010.0Parametermg/kg0.14.140.01010.010.0Parametermg/kg0.14.140.01010.010.0Parametermg/kg< | | | Endrin | mg/kg | 0.2 | <0.2 | 0.2 | 60 - 140 | 99 |
| PP Pesticides in Soll Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery Bi55627.002 Diaziono (Dimyide) mg/kg 0.5 2.0 2 60 · 140 100 Diaziono (Dimyide) mg/kg 0.5 2.3 2 60 · 140 100 Elifion mg/kg 0.2 2.2 2 60 · 140 108 Surrogates 2-fluorobipenyl (Surrogate) mg/kg 0.2 2.1 80 · 140 108 Sample Number Parameter mg/kg 0.2 1.8 2 60 · 140 108 Sample Number Parameter mg/kg 0.2 0.5 0.5 40 · 130 90 Sample Number Parameter Units LOR Result Expected Criteria % Recovery LBI55627.002 Naphthalme mg/kg 0.1 4.2 4 60 · 140 106 Acenaphthylene mg/kg 0.1 | | | p,p'-DDT | mg/kg | 0.1 | 0.2 | 0.2 | 60 - 140 | 89 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155527.002 Dichlorvos mg/kg 0.5 2.0 2 60-140 100 LB155527.002 Dichlorvorfios (Chioryvifos Ethyl) mg/kg 0.5 2.3 2 60-140 117 Chioryvifos (Chioryvifos Ethyl) mg/kg 0.2 1.8 2 60-140 100 Ethion mg/kg 0.2 1.8 2 60-140 89 Surogates 2-fluorobipheryl (Surogate) mg/kg 0.2 1.8 2 60-140 89 Surogates 2-fluorobipheryl (Surogate) mg/kg 0.5 0.5 40-130 90 AtH Polynuclear Aromatic Hydrocarborn) Bott Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60-140 106 Acenaphthylene mg/kg 0.1 4.2 4 60-140 106 Prienafthre | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.14 | 0.15 | 40 - 130 | 96 |
| Bits627.002 Dichorvos mg/kg 0.5 2.0 2 60.140 100 Diazinon (Dimpylate) mg/kg 0.5 2.3 2 60.140 117 Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg 0.2 2.2 2 60.140 108 Surrogates 2 Huorobiphenyl (Surrogate) mg/kg 0.5 0.5 40.130 90 YAH (Polynuclear Aromatic Hydrocarbors) In Soll mg/kg - 0.5 0.5 40.130 92 YAH (Polynuclear Aromatic Hydrocarbors) In Soll mg/kg - 0.5 0.5 40.130 92 YAH (Polynuclear Aromatic Hydrocarbors) In Soll mg/kg - 0.5 0.5 40.130 92 YAH (Polynuclear Aromatic Hydrocarbors) In Soll mg/kg 0.1 4.2 4 60.140 106 Sample Number Parameter mg/kg 0.1 4.2 4 60.140 105 Acenaphthylene mg/kg 0.1 4.1 4 60.140 104 <t< td=""><td>OP Pesticides in Sc</td><td>il -</td><td></td><td></td><td></td><td></td><td>1</td><td>Method: ME-(A</td><td>U)-[ENV]AN4</td></t<> | OP Pesticides in Sc | il - | | | | | 1 | Method: ME-(A | U)-[ENV]AN4 |
| Diazion (Dimpylate) mg/kg 0.5 2.3 2 60 - 140 117 Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg 0.2 2.2 2 60 - 140 108 Surrogates Zinobiphenyl (Surogate) mg/kg 0.2 1.8 2 60 - 140 108 Surrogates Zinobiphenyl (Surogate) mg/kg -0.5 0.5 40 - 130 90 Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg -0.5 0.5 40 - 130 90 Chlorpyrifos (Divorgate) mg/kg -0.5 0.5 40 - 130 90 Chlorpyrifos (Divorgate) mg/kg 0.1 4.2 4 60 - 140 106 Surrogates Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Accenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Accenaphthene mg/kg 0.1 4.2 4 60 - 140 108 Florenthene mg/kg 0.1 4.1 4 <td>Sample Number</td> <td></td> <td>Parameter</td> <td>Units</td> <td>LOR</td> <td>Result</td> <td>Expected</td> <td>Criteria %</td> <td>Recovery %</td> | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Chlorpyrifos (Chlorpyrifos Ethyl) mg/kg 0.2 2.2 2 60 - 140 108 Ethion mg/kg 0.2 1.8 2 60 - 140 89 Surogates 2-fluorobjhenyl (Surogate) mg/kg 0.2 1.8 2 60 - 140 89 Atl (Polynuclear Aromatic Hydrocarbox) in Soll mg/kg 0.5 0.5 40 - 130 90 Sample Number Parameter Notits LOR Result Expected Criteria % Recovery Sample Number Parameter mg/kg 0.1 4.2 4 60 - 140 106 Sample Number Parameter mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.4 40 - 140 106 Acenaphthylene mg/kg 0.1 4.4 40 - 140 108 Acenaphthylene mg/kg 0.1 4.4 | LB155627.002 | | Dichlorvos | mg/kg | 0.5 | 2.0 | 2 | 60 - 140 | 100 |
| Ethion mg/kg 0.2 1.8 2 60-140 89 Surogates 2-fluorobiphenyl (Surogate) mg/kg - 0.5 0.5 40-130 90 d14-perphenyl (Surogate) mg/kg - 0.5 0.5 40-130 90 v2M (Polynuckear Aromatic Hydrocarbons) in Sol mg/kg - 0.5 0.5 40-130 92 Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60-140 106 Acenaphthylene mg/kg 0.1 4.2 4 60-140 104 Acenaphthene mg/kg 0.1 4.2 4 60-140 104 Piteriathrene mg/kg 0.1 4.4 4 60-140 104 Piteriathrene mg/kg 0.1 4.4 4 60-140 108 Benzo(a)prene mg/kg 0.1 4.4 | | | Diazinon (Dimpylate) | mg/kg | 0.5 | 2.3 | 2 | 60 - 140 | 117 |
| Surrogates 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 Atl (-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 Atl (Polynuclear Aromatic Hydrocarbons) in Soll searnot in the second in th | | | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 2.2 | 2 | 60 - 140 | 108 |
| d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 AAH (Polynuclear Aromatic Hydrocarbors) In Soll bethed: KE-(AU-)ENV/AN Sample Number Parameter Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 105 Phenanthrene mg/kg 0.1 4.2 4 60 - 140 104 Phenanthrene mg/kg 0.1 4.2 4 60 - 140 104 Putracene mg/kg 0.1 4.1 4 60 - 140 103 Puronanthene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.3 40 - 130 108 Benzo(a)pyrene mg/kg 0.1 4.3 40 - 130 108 2-fluorobiphenyl (Surrogate) mg/kg 0.5 0.5 40 - 130 90 2-fluorobiphenyl (Surrogate) mg/kg | | | Ethion | mg/kg | 0.2 | 1.8 | 2 | 60 - 140 | 89 |
| AH (Polynuclear Aromatic Hydrocarbons) in Soll Nathod: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.2 4 60 - 140 104 Fluoranthene mg/kg 0.1 4.1 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Pyrene mg/kg 0.1 4.4 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.3 4 60 - 140 108 | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 90 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery LB155627.002 Naphthalene mg/kg 0.1 4.2 4 60 - 140 106 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 3.9 4 60 - 140 104 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 104 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 104 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 108 Fluoranthene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.5 0.5 | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 92 |
| LB155627.002 Naphthalene Maphthalene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 4.2 4 60 - 140 105 Acenaphthylene mg/kg 0.1 3.9 4 60 - 140 104 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 104 Acenaphthene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.4 4 60 - 140 109 Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 108 2-fluorobiphenyl (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surrogate) mg/kg -1 0.5 0.5 40 - 130 | PAH (Polynuclear A | romatic Hydroca | rbons) in Soil | | | | 1 | Method: ME-(A | U)-[ENV]AN42 |
| Acenaphthylene mg/kg 0.1 4.2 4 60-140 105 Acenaphthene mg/kg 0.1 3.9 4 60-140 97 Phenanthrene mg/kg 0.1 4.2 4 60-140 104 Acenaphthene mg/kg 0.1 4.2 4 60-140 104 Phenanthrene mg/kg 0.1 4.1 4 60-140 103 Fluoranthene mg/kg 0.1 4.4 4 60-140 109 Pyrene mg/kg 0.1 4.3 4 60-140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60-140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60-140 118 2-fluorobiphenyl (Surrogate) mg/kg 0.1 4.7 4 60-140 18 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 90 | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| Acenaphthene mg/kg 0.1 3.9 4 60-140 97 Phenanthrene mg/kg 0.1 4.2 4 60-140 104 Anthracene mg/kg 0.1 4.2 4 60-140 103 Fluoranthene mg/kg 0.1 4.1 4 60-140 103 Pyrene mg/kg 0.1 4.4 4 60-140 109 Pyrene mg/kg 0.1 4.3 4 60-140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60-140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60-140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40-130 90 014-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 92 Units LOR Result Expected Criteris & Recovery | LB155627.002 | | Naphthalene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 106 |
| Phenanthrene mg/kg 0.1 4.2 4 60 - 140 104 Anthracene mg/kg 0.1 4.1 4 60 - 140 103 Fluoranthene mg/kg 0.1 4.1 4 60 - 140 103 Pyrene mg/kg 0.1 4.4 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.3 4 60 - 140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surrogate) mg/kg 0.1 4.7 4 60 - 140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 verterphenyl (Surrogate) mg/kg - 0.5 | | | Acenaphthylene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 105 |
| Anthracene mg/kg 0.1 4.1 4 60-140 103 Fluoranthene mg/kg 0.1 4.4 4 60-140 109 Pyrene mg/kg 0.1 4.4 4 60-140 109 Benzo(a)pyrene mg/kg 0.1 4.3 4 60-140 108 Surrogates d5-nitrobenzene (Surrogate) mg/kg 0.1 4.7 4 60-140 118 2-fluorobiphenyl (Surrogate) mg/kg - 0.4 0.5 40-130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40-130 92 CPBs in Soll Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | Acenaphthene | mg/kg | 0.1 | 3.9 | 4 | 60 - 140 | 97 |
| Fluoranthene mg/kg 0.1 4.4 4 60 - 140 109 Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Phenanthrene | mg/kg | 0.1 | 4.2 | 4 | 60 - 140 | 104 |
| Pyrene mg/kg 0.1 4.3 4 60 - 140 108 Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Anthracene | mg/kg | 0.1 | 4.1 | 4 | 60 - 140 | 103 |
| Benzo(a)pyrene mg/kg 0.1 4.7 4 60 - 140 118 Surrogates d5-nitrobenzene (Surrogate) mg/kg - 0.4 0.5 40 - 130 78 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Fluoranthene | mg/kg | 0.1 | 4.4 | 4 | 60 - 140 | 109 |
| Marcal Markan | | | Pyrene | mg/kg | 0.1 | 4.3 | 4 | 60 - 140 | 108 |
| 2-fluorobiphenyl (Surrogate) mg/kg - 0.5 40 - 130 90 d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil ************************************ | | | Benzo(a)pyrene | mg/kg | 0.1 | 4.7 | 4 | 60 - 140 | 118 |
| d14-p-terphenyl (Surrogate) mg/kg - 0.5 0.5 40 - 130 92 *CBs in Soil *CBs in Soil * Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.5 | 40 - 130 | 78 |
| CBs in Soil Method: ME-(AU)-[ENV]AN Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 90 |
| Sample Number Parameter Units LOR Result Expected Criteria % Recovery | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | 40 - 130 | 92 |
| | PCBs in Soil | | | | | | 1 | Method: ME-(A | U)-[ENV]AN4 |
| LB155627.002 Arochlor 1260 mg/kg 0.2 0.5 0.4 60 - 140 114 | Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % |
| | LB155627.002 | | Arochlor 1260 | mg/kg | 0.2 | 0.5 | 0.4 | 60 - 140 | 114 |

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

| Total Recoverable Elements i | otal Recoverable Elements in Soil/Waste Solids/Materials by ICPOES | | | | | Method: ME-(AU)-[ENV]AN040/AN320 | | | |
|------------------------------|--|-------|-----|--------|----------|----------------------------------|---------------|--|--|
| Sample Number | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery % | | |
| LB155629.002 | Arsenic, As | mg/kg | 1 | 340 | 336.32 | 79 - 120 | 100 | | |
| | Cadmium, Cd | mg/kg | 0.3 | 430 | 416.6 | 69 - 131 | 103 | | |
| | Chromium, Cr | mg/kg | 0.3 | 38 | 35.2 | 80 - 120 | 109 | | |
| | Copper, Cu | mg/kg | 0.5 | 330 | 370.46 | 80 - 120 | 88 | | |
| | Nickel, Ni | mg/kg | 0.5 | 180 | 210.88 | 79 - 120 | 87 | | |
| | Lead, Pb | mg/kg | 1 | 92 | 107.87 | 79 - 120 | 85 | | |
| | Zinc, Zn | mg/kg | 2 | 290 | 301.27 | 80 - 121 | 96 | | |
| TRH (Total Recoverable Hydr | rocarbons) in Soil | | | | N | lethod: ME-(A | U)-[ENV]AN403 | | |
| Sample Number | 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.

| | | | | | | | Nethod: ME-(AL | |
|---------------------------------------|---------------------------------|---|---|--------------------------------------|---|--|--|--|
| ī | | Parameter | Units | LOR | Result | Expected | Criteria % | Recovery |
| | | TRH C10-C14 | mg/kg | 20 | 43 | 40 | 60 - 140 | 108 |
| | | TRH C15-C28 | mg/kg | 45 | <45 | 40 | 60 - 140 | 93 |
| | | TRH C29-C36 | mg/kg | 45 | <45 | 40 | 60 - 140 | 80 |
| RH (Total Pacouersh | TRH F Bands | TRH >C10-C16 | mg/kg | 25 | 39 | 40 | 60 - 140 | 98 |
| RH (Total Pacouant | | TRH >C16-C34 (F3) | mg/kg | 90 | <90 | 40 | 60 - 140 | 83 |
| BH (Total Pacoucont | | TRH >C34-C40 (F4) | mg/kg | 120 | <120 | 20 | 60 - 140 | 95 |
| i i i i i i i i i i i i i i i i i i i | ble Hydrocarbor | s) in Water | | | | I | Nethod: ME-(AL | J)-[ENV]A |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recover |
| _B155528.002 | | TRH C10-C14 | µg/L | 50 | 950 | 1200 | 60 - 140 | 79 |
| | | TRH C15-C28 | µg/L | 200 | 1200 | 1200 | 60 - 140 | 101 |
| | | TRH C29-C36 | μg/L | 200 | 1300 | 1200 | 60 - 140 | 110 |
| - | TRH F Bands | TRH >C10-C16 | µg/L | 60 | 1100 | 1200 | 60 - 140 | 89 |
| | | TRH >C16-C34 (F3) | μg/L | 500 | 1300 | 1200 | 60 - 140 | 110 |
| | | TRH >C34-C40 (F4) | μg/L | 500 | 640 | 600 | 60 - 140 | 107 |
| OC's in Soil | | | ro. | | | | vethod: ME-(AL | |
| | | | 11.14 | | | | | |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | |
| | Monocyclic | Benzene | mg/kg | 0.1 | 2.9 | 2.9 | 60 - 140 | 99 |
| 4 | Aromatic | Toluene | mg/kg | 0.1 | 2.1 | 2.9 | 60 - 140 | 72 |
| | | Ethylbenzene | mg/kg | 0.1 | 2.0 | 2.9 | 60 - 140 | 69 |
| | | m/p-xylene | mg/kg | 0.2 | 4.0 | 5.8 | 60 - 140 | 68 |
| - | | o-xylene | mg/kg | 0.1 | 1.8 | 2.9 | 60 - 140 | 62 |
| Ş | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | - | 6.4 | 5 | 60 - 140 | 128 |
| | | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.5 | 5 | 60 - 140 | 89 |
| | | d8-toluene (Surrogate) | mg/kg | - | 4.9 | 5 | 60 - 140 | 98 |
| | | Bromofluorobenzene (Surrogate) | mg/kg | - | 4.8 | 5 | 60 - 140 | 95 |
| OCs in Water | | | | | | | Nethod: ME-(AL | J)-[ENV]A |
| Sample Number | | Parameter | Units | LOR | Result | Expected | Criteria % | Recove |
| LB155745.002 M | Monocyclic | Benzene | μg/L | 0.5 | 51 | 45.45 | 60 - 140 | 113 |
| , | Aromatic | Toluene | µg/L | 0.5 | 51 | 45.45 | 60 - 140 | 112 |
| | | Ethylbenzene | μg/L | 0.5 | 51 | 45.45 | 60 - 140 | 113 |
| | | m/p-xylene | µg/L | 1 | 100 | 90.9 | 60 - 140 | 113 |
| | | o-xylene | μg/L | 0.5 | 51 | 45.45 | 60 - 140 | 113 |
| | Surrogates | Dibromofluoromethane (Surrogate) | μg/L | - | 4.5 | 5 | 60 - 140 | 89 |
| | Sunogutos | d4-1,2-dichloroethane (Surrogate) | µg/L | _ | 4.4 | 5 | 60 - 140 | 88 |
| | | d8-toluene (Surrogate) | μg/L | | 4.4 | 5 | 60 - 140 | 93 |
| | | Bromofluorobenzene (Surrogate) | | - | 4.7 | 5 | 60 - 140 | 97 |
| | | | µg/L | | 4.5 | | | |
| olatile Petroleum Hyd | drocarbons in S | | | | | | Nethod: ME-(AL | J)-[ENV]/ |
| | | Parameter | Units | LOR | Result | Expected | Criteria % | Recove |
| Sample Number | | TRH C6-C10 | mg/kg | 25 | <25 | 24.65 | 60 - 140 | 88 |
| Sample Number LB155626.002 | | TRH C6-C9 | mg/kg | 20 | 20 | 23.2 | 60 - 140 | 87 |
| | Surrogates | Dibramafly aromathana (Cymanata) | ma lun | - | 6.4 | 5 | 60 - 140 | 128 |
| LB155626.002 | Guilogates | Dibromofluoromethane (Surrogate) | mg/kg | | - | | | |
| _B155626.002 | ounogates | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.5 | 5 | 60 - 140 | 89 |
| LB155626.002 | ourrogates | | | | | 5 5 | | 89 |
| _B155626.002 | | d4-1,2-dichloroethane (Surrogate) | mg/kg | | 4.5 | | 60 - 140 | |
| B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) | mg/kg mg/kg | - | 4.5 4.9 | 5 | 60 - 140 60 - 140 | 89 98 95 |
| B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) | mg/kg mg/kg mg/kg | - | 4.5 4.9 4.8 | 5 5 7.25 | 60 - 140 60 - 140 60 - 140 | 89 98 95 124 |
| B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) //ater | mg/kg mg/kg mg/kg mg/kg | - | 4.5 4.9 4.8 <25 | 5 5 7.25 | 60 - 140 60 - 140 60 - 140 60 - 140 | 89 98 95 124 J)-[ENV]/ |
| B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fater Parameter | mg/kg mg/kg mg/kg mg/kg Units | - - 25 LOR | 4.5 4.9 4.8 <25 Result | 5 5 7.25 Expected | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 Vethod: ME-(AL Criteria % | 89 98 95 124 J)-[ENV]/ Recove |
| _B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fater Parameter TRH C6-C10 | mg/kg mg/kg mg/kg mg/kg Units μg/L | - - 25 LOR 50 | 4.5 4.9 4.8 <25 Result 940 | 5 5 7.25 Expected 946.63 | 60 - 140 60 - 140 60 - 140 60 - 140 60 - 140 //ethod: ME-(AL Criteria % 60 - 140 | 89 98 95 124 J)-[ENV]/ Recove 100 |
| .B155626.002 | VPH F Bands /drocarbons in W | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fator Parameter TRH C6-C10 TRH C6-C9 | mg/kg mg/kg mg/kg mg/kg Units μg/L μg/L | - - 25 LOR 50 40 | 4.5 4.9 4.8 <25 Result 940 770 | 5 5 7.25 Expected 946.63 818.71 | 60 - 140 60 - 140 60 - 140 60 - 140 060 - 140 Method: ME-(AL Criteria % 60 - 140 60 - 140 | 89 98 95 124 J)-[ENV]/ Recove 100 94 |
| .B155626.002 | VPH F Bands | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fater Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | mg/kg mg/kg mg/kg mg/kg Units μg/L μg/L μg/L | - - 25 LOR 50 40 - | 4.5 4.9 4.8 <25 Result 940 770 4.5 | 5 5 7.25 Expected 946.63 818.71 5 | 60 - 140 60 - 140 60 - 140 60 - 140 Aethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 | 89 98 95 124 J)-[ENV]/ Recove 100 94 89 |
| B155626.002 | VPH F Bands /drocarbons in W | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fater Parameter TRH C6-C10 TRH C6-C10 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | mg/kg mg/kg mg/kg mg/kg Units μg/L μg/L μg/L μg/L | - - 25 LOR 50 40 - | 4.5 4.9 4.8 <25 Result 940 770 4.5 4.4 | 5 5 7.25 Expected 946.63 818.71 5 5 | 60 - 140 60 - 140 60 - 140 60 - 140 Acthod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 60 - 140 | 89 98 95 124 J)-[ENV]/ Recove 100 94 89 |
| .B155626.002 | VPH F Bands /drocarbons in W | d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) TRH C6-C10 minus BTEX (F1) fater Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | mg/kg mg/kg mg/kg mg/kg Units μg/L μg/L μg/L | - - 25 LOR 50 40 - | 4.5 4.9 4.8 <25 Result 940 770 4.5 | 5 5 7.25 Expected 946.63 818.71 5 | 60 - 140 60 - 140 60 - 140 60 - 140 Aethod: ME-(AL Criteria % 60 - 140 60 - 140 60 - 140 | 89 98 95 124 J)-[ENV]/ Recove 100 |


MATRIX SPIKES

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 | | | | | | Met | hod: ME-(AL | J)-[ENV]AN312 |
|-----------------|---------------|-----------|-------|------|--------|----------|-------------|---------------|
| QC Sample | Sample Number | Parameter | Units | LOR | Result | Original | Spike | Recovery% |
| SE183339.001 | LB155630.004 | Mercury | mg/kg | 0.05 | 0.20 | <0.05 | 0.2 | 90 |

OC Pesticides in Soil

| OC Pesticides in | | | | | | | | |)-[ENV]AN420 |
|------------------|---------------|------------|---|-------|-----|--------|----------|------------|--------------|
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery? |
| SE183339.003 | LB155627.027 | | 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 | 122 |
| | | | Aldrin | mg/kg | 0.1 | 0.2 | <0.1 | 0.2 | 117 |
| | | | Beta BHC | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | Delta BHC | mg/kg | 0.1 | 0.2 | <0.1 | 0.2 | 116 |
| | | | 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 | 0.2 | 0.2 | <0.2 | 0.2 | 112 |
| | | | Endrin | mg/kg | 0.2 | 0.2 | <0.2 | 0.2 | 105 |
| | | | 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 | 97 |
| | | | 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 | - | - |
| | | | Total CLP OC Pesticides | mg/kg | 1 | 1 | <1 | - | - |
| | | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | - | 0.14 | 0.18 | - | 91 |
| P Pesticides in | Soil | | | | | | Meth | od: ME-(Al |)-[ENV]AN42 |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery |
| SE183216.001 | LB155627.025 | | Dichlorvos | mg/kg | 0.5 | 2.2 | <0.5 | 2 | 110 |
| | | | Dimethoate | mg/kg | 0.5 | <0.5 | <0.5 | - | - |
| | | | Diazinon (Dimpylate) | mg/kg | 0.5 | 1.8 | <0.5 | 2 | 92 |
| | | | Fenitrothion | mg/kg | 0.3 | <0.2 | <0.2 | - | - 52 |
| | | | | Пулку | 0.2 | ~U.Z | ~v.z | - | |

| | | | Methidathion | mg/kg | 0.5 | <0.5 | <0.5 | - | - |
|-----------------|-------------------------|-------------|------------------------------|-------|-----|--------|----------|-------------|---------------|
| | | | Ethion | mg/kg | 0.2 | 2.1 | <0.2 | 2 | 103 |
| | | | Azinphos-methyl (Guthion) | mg/kg | 0.2 | <0.2 | <0.2 | - | - |
| | _ | | Total OP Pesticides* | mg/kg | 1.7 | 8.0 | <1.7 | - | - |
| | | Surrogates | 2-fluorobiphenyl (Surrogate) | mg/kg | - | 0.5 | 0.4 | - | 90 |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | - | 100 |
| PAH (Polynuclea | ar Aromatic Hydrocarbon | ns) in Soil | | | | | Mett | nod: ME-(AL | J)-[ENV]AN420 |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recovery% |
| SE183216.001 | LB155627.025 | | Naphthalene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 117 |
| | | | 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 | 4.5 | <0.1 | 4 | 112 |
| | | | Acenaphthene | mg/kg | 0.1 | 4.3 | <0.1 | 4 | 108 |
| | | | Fluorene | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | Phenanthrene | | 0.1 | 4.7 | <0.1 | | 117 |

Malathion

Chlorpyrifos (Chlorpyrifos Ethyl)

Parathion-ethyl (Parathion)

Bromophos Ethyl

<0.2

2.0

<0.2

<0.2

0.2

0.2

0.2

0.2

mg/kg

mg/kg

mg/kg

mg/kg

<0.2

<0.2

<0.2

<0.2

2

-

99

-



MATRIX SPIKES

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.

| | ar Aromatic Hydrocarb | | · | | | | | | J)-[ENV]AN |
|--|---|---|---|---|---|--|--|--|--|
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recover |
| SE183216.001 | LB155627.025 | | Anthracene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 118 |
| | | | Fluoranthene | mg/kg | 0.1 | 4.7 | <0.1 | 4 | 117 |
| | | | Pyrene | mg/kg | 0.1 | 4.9 | <0.1 | 4 | 122 |
| | | | 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 | 4.3 | <0.1 | 4 | 106 |
| | | | Indeno(1,2,3-cd)pyrene | mg/kg | 0.1 | <0.1 | <0.1 | - | - |
| | | | Dibenzo(ah)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< td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.3</td><td><0.2</td><td>-</td><td>-</td></lor=0<> | TEQ (mg/kg) | 0.2 | 4.3 | <0.2 | - | - |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor< td=""><td>TEQ (mg/kg)</td><td>0.3</td><td>4.4</td><td><0.3</td><td>-</td><td>-</td></lor=lor<> | TEQ (mg/kg) | 0.3 | 4.4 | <0.3 | - | - |
| | | | Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" td=""><td>TEQ (mg/kg)</td><td>0.2</td><td>4.3</td><td><0.2</td><td>-</td><td>-</td></lor=lor> | TEQ (mg/kg) | 0.2 | 4.3 | <0.2 | - | - |
| | | | Total PAH (18) | mg/kg | 0.8 | 37 | <0.8 | - | |
| | | Surrogates | d5-nitrobenzene (Surrogate) | mg/kg | - | 0.4 | 0.4 | - | 76 |
| | | Surrogates | | | _ | 0.4 | 0.4 | | 90 |
| | | | 2-fluorobiphenyl (Surrogate) | mg/kg | | | | | |
| | | | d14-p-terphenyl (Surrogate) | mg/kg | - | 0.5 | 0.5 | - | 100 |
| CBs in Soil | | | | | | | Meth | nod: ME-(Al | J)-[ENV]AI |
| QC Sample | Sample Number | | Parameter | Units | LOR | Result | Original | Spike | Recove |
| SE183339.003 | LB155627.024 | | 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 | - | |
| | | | | | | <0.2 | <0.2 | - | |
| | | | Arochlor 1254 | mg/kg | 0.2 | | | | |
| | | | Arochlor 1260 | mg/kg | 0.2 | 0.5 | <0.2 | 0.4 | 124 |
| | | | 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 | - | 107 |
| | In The second state of the second | ete Solide/Mater | als by ICPOES | | | | Method: ME | -(AU)-[ENV | JAN040/AM |
| otal Recoverab | le Elements in Soll/wa | aste conus/mater | | | | | | | |
| | | aste Colics/Mater | Parameter | Units | LOR | Result | | | Recove |
| QC Sample | Sample Number | sie Collos/Mater | Parameter | Units | LOR | Result | Original | Spike | |
| | | | Arsenic, As | mg/kg | 1 | 54 | Original 10 | Spike 50 | 87 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd | mg/kg mg/kg | 1 0.3 | 54 47 | Original 10 0.3 | Spike 50 50 | 87 94 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr | mg/kg mg/kg mg/kg | 1 0.3 0.3 | 54 47 67 | Original 10 0.3 22 | Spike 50 50 50 | 87 94 89 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu | mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.3 0.5 | 54 47 67 66 | Original 10 0.3 22 16 | Spike 50 50 50 50 50 | 87 94 89 101 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni | mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.3 0.5 0.5 | 54 47 67 66 56 | Original 10 0.3 22 16 9.3 | Spike 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb | mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.3 0.5 0.5 1 | 54 47 67 66 56 58 | Original 10 0.3 22 16 9.3 15 | Spike 50 50 50 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 86 |
| QC Sample | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni | mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.3 0.5 0.5 | 54 47 67 66 56 | Original 10 0.3 22 16 9.3 | Spike 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 |
| QC Sample SE183339.001 | Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.3 0.5 0.5 1 | 54 47 67 66 56 58 | Original 10 0.3 22 16 9.3 15 42 | Spike 50 50 50 50 50 50 50 50 50 50 50 50 | 94 89 101 93 86 103 |
| QC Sample SE183339.001 RH (Total Reco | Sample Number LB155629.004 | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 | 54 47 67 66 56 58 93 | Original 10 0.3 22 16 9.3 15 42 Metr | Spike 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 86 103 J)-[ENV]AN |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units | 1 0.3 0.5 0.5 1 2 LOR | 54 47 67 66 56 58 93 Result | Original 10 0.3 22 16 9.3 15 42 Meth Original | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AN Recove |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 | 54 47 67 66 56 58 93 Result 47 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 50 50 50 50 50 50 50 50 60 50 50 60 50 80 60 80 80 80 80 80 80 80 80 80 80 80 80 80 | 87 94 89 101 93 86 103 J)-[ENV]AN Recove 118 |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 | 54 47 67 66 56 58 93 Result 47 <45 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]A Recove 118 98 |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 | 54 47 67 66 56 58 93 Result 47 <45 <45 | Original 10 0.3 22 16 9.3 15 42 Mettr Original <20 | Spike 50 | 87 94 89 101 93 86 103 U)-[ENV]AI Recov 118 98 73 |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 | 54 47 67 66 56 58 93 Result 47 <45 <45 <100 | Original 10 0.3 22 16 9.3 15 42 Methods Original <20 | Spike 50 | 87 94 89 101 93 86 103 U)-[ENV]AI Recov 118 98 73 - |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 | Original 10 0.3 22 16 9.3 15 42 Methods Original <20 | Spike 50 | 87 94 89 101 93 86 103 U)-[ENV]AI Recov 118 98 73 |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 210 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AI Recov 118 98 73 - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 | Original 10 0.3 22 16 9.3 15 42 Methods Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AI Recove 118 98 73 - - |
| QC Sample E183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 210 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AI Recov 118 98 73 - - |
| QC Sample E183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 210 25 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 | Original 10 0.3 22 16 9.3 15 42 Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AI Recov 118 98 73 - - - - - - 105 |
| QC Sample SE183339.001 RH (Total Reco QC Sample | Sample Number LB155629.004 overable Hydrocarbons Sample Number | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16- Naphthalene (F2) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 210 25 25 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 42 | Original 10 0.3 22 16 9.3 15 42 Original <20 | Spike 50 | 87 94 89 101 93 86 103 J)-[ENV]AI Recov 118 98 73 - - - - - - 105 |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 | Sample Number LB155629.004 overable Hydrocarbons Sample Number | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C40 TRH C10-C36 Total TRH C10-C36 Total TRH >C10-C16 TRH >C10-C16 TRH >C10-C16 - Naphthalene (F2) TRH >C10-C34 (F3) | mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 210 25 25 90 | 54 47 67 66 58 93 Result 47 <45 <100 <110 <210 42 42 42 <90 | Original 10 0.3 22 16 9.3 15 42 Methods Original <20 | Spike 50 | 87 94 89 101 93 86 103 /)-[ENV]Al Recove 118 98 73 - - - - - 105 - - 85 - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 | Sample Number LB155629.004 | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C16 TRH >C10-C16-C34 (F3) TRH >C34-C40 (F4) | mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 210 25 25 90 120 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 42 42 <90 <120 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 50 50 50 50 50 50 50 50 50 40 40 40 40 - - 40 - 40 | 87 94 89 101 93 86 103 V)-[ENV]AI Recove 118 98 73 - - - - 105 - - 85 - - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 C's In Soll QC's In Soll QC Sample | Sample Number LB155629.004 | s) in Soil TRH F Bands | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C16 TRH >C10-C16 TRH >C10-C16-C34 (F3) TRH >C10-C16 (F3) TRH >C34-C40 (F4) | mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 210 25 25 90 120 LOR | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 42 42 <90 <120 Result | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 40 - 40 - 40 - 40 - 40 - 40 - - 40 - - - - - - - - - - - - - - - - <td>87 94 89 101 93 86 103 J)-[ENV]AI Recove 118 98 73 - - - - 105 - 85 - - - - - - - - - - - - - - - - -</td> | 87 94 89 101 93 86 103 J)-[ENV]AI Recove 118 98 73 - - - - 105 - 85 - - - - - - - - - - - - - - - - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 C's In Soll QC's In Soll QC Sample | Sample Number LB155629.004 | s) in Soil | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C37-C40 TRH C10-C36 Total TRH C10-C16 TRH >C10-C16-C34 (F3) TRH >C34-C40 (F4) | mg/kg mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 210 25 25 90 120 | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 42 42 <90 <120 | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 50 50 50 50 50 50 50 50 50 40 40 40 40 - - 40 - 40 | 87 94 89 101 93 86 103 V)-[ENV]AI Recove 118 98 73 - - - - - - - - - - - - - - - - - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 C's In Soll QC's In Soll QC Sample | Sample Number LB155629.004 | s) in Soil TRH F Bands | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C16 TRH >C10-C16 TRH >C10-C16-C34 (F3) TRH >C10-C16 (F3) TRH >C34-C40 (F4) | mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 210 25 25 90 120 LOR | 54 47 67 66 58 93 Result 47 <45 <45 <100 <110 <210 42 42 42 <90 <120 Result | Original 10 0.3 22 16 9.3 15 42 Meth Original <20 | Spike 50 40 - 40 - 40 - 40 - 40 - 40 - - 40 - - - - - - - - - - - - - - - - <td>87 94 89 101 93 86 103 J)-[ENV]AI Recove 118 98 73 - - - - 105 - 85 - - - - - - - - - - - - - - - - -</td> | 87 94 89 101 93 86 103 J)-[ENV]AI Recove 118 98 73 - - - - 105 - 85 - - - - - - - - - - - - - - - - - |
| QC Sample SE183339.001 RH (Total Reco | Sample Number LB155629.004 | s) in Soil TRH F Bands Monocyclic | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C40 TRH C10-C40 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-Naphthalene (F2) TRH >C10-C40 (F4) Parameter | mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 45 100 110 25 25 90 120 LOR 0.1 | 54 47 67 66 58 93 Result 47 <45 <100 <110 <210 42 42 <90 <120 Result 2.7 | Original 10 0.3 22 16 9.3 15 42 Methods Original <20 | Spike 50 50 50 50 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 86 103 93 Recove 118 98 73 - - - - 105 - - - - 105 - - - - 105 - - - - - - - - - - - - - - - - - - - |
| QC Sample SE183339.001 RH (Total Reco QC Sample SE183339.002 C's In Soll QC's In Soll QC Sample | Sample Number LB155629.004 | s) in Soil TRH F Bands Monocyclic | Arsenic, As Cadmium, Cd Chromium, Cr Copper, Cu Nickel, Ni Lead, Pb Zinc, Zn Parameter TRH C10-C14 TRH C15-C28 TRH C29-C36 TRH C10-C36 Total TRH C10-C40 Total (F bands) TRH >C10-C16 TRH >C10-C16-Naphthalene (F2) TRH >C10-C16-Naphthalene (F2) TRH >C10-C16-Naphthalene (F2) TRH >C10-C40 (F4) Parameter Benzene Toluene | mg/kg | 1 0.3 0.5 0.5 1 2 LOR 20 45 45 100 110 25 25 90 120 LOR 0.1 0.1 | 54 47 67 66 58 93 Result 47 <45 <100 <110 <210 42 42 42 <90 <120 Result 2.7 1.9 | Original 10 0.3 22 16 9.3 15 42 Methy Original <20 | Spike 50 50 50 50 50 50 50 50 50 50 50 50 50 | 87 94 89 101 93 86 103 105 Recove 118 98 73 - - - - - - - - - - - - - - - - - - |



MATRIX SPIKES

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.

| QC Sample | Sample Numbe | - | Parameter | Units | LOR | Result | Original | Spike | Recovery |
|---|---|---------------------------------------|--|---|---|---|---|---|---|
| SE183339.001 | LB155626.004 | Polycyclic | Naphthalene | mg/kg | 0.1 | <0.1 | <0.1 | - эріке | Recovery |
| SE163339.001 | LB155626.004 | Surrogates | Dibromofluoromethane (Surrogate) | mg/kg | | 4.1 | 5.9 | - | 82 |
| | | Surroyates | d4-1,2-dichloroethane (Surrogate) | mg/kg | - | 4.1 | 4.5 | - | 81 |
| | | | d8-toluene (Surrogate) | mg/kg | - | 4.1 | 5.4 | - | 85 |
| | | | Bromofluorobenzene (Surrogate) | mg/kg | | 5.6 | 4.0 | | 112 |
| | | Totals | Total Xylenes | mg/kg | 0.3 | 6.1 | <0.3 | | - |
| | | 101213 | Total BTEX | mg/kg | 0.6 | 13 | <0.6 | - | _ |
| | | | | | 0.0 | 10 | | | |
| OCs in Water | | | | | | _ | | • | J)-[ENV]AN4 |
| QC Sample | Sample Numbe | | Parameter | Units | LOR | Result | Original | Spike | Recovery |
| SE183221.013 | LB155745.024 | Monocyclic | Benzene | µg/L | 0.5 | 54 | <0.5 | 45.45 | 118 |
| | | Aromatic | Toluene | µg/L | 0.5 | 55 | <0.5 | 45.45 | 120 |
| | | | Ethylbenzene | µg/L | 0.5 | 52 | <0.5 | 45.45 | 115 |
| | | | m/p-xylene | µg/L | 1 | 95 | <1 | 90.9 | 105 |
| | | | o-xylene | µg/L | 0.5 | 48 | <0.5 | 45.45 | 106 |
| | | Polycyclic | Naphthalene | µg/L | 0.5 | 54 | <0.5 | - | - |
| | | Surrogates | Dibromofluoromethane (Surrogate) | µg/L | - | 4.5 | 4.6 | - | 90 |
| | | | d4-1,2-dichloroethane (Surrogate) | µg/L | - | 5.2 | 5.2 | - | 103 |
| | | | d8-toluene (Surrogate) | µg/L | - | 4.8 | 4.5 | - | 96 |
| | | | Bromofluorobenzene (Surrogate) | µg/L | - | 4 7 | | - | |
| | | | Bromonaorobonizono (ourrogato) | P9/L | - | 4.7 | 4.2 | - | 93 |
| /olatile Petroleu | m Hydrocarbons in § | Soil | | μg/L | - | 4.7 | | | |
| /olatile Petroleu QC Sample | m Hydrocarbons in S Sample Numbe | | Parameter | Units | LOR | 4.7 Result | | | J)-[ENV]AN4 |
| QC Sample | - | | | | | | Met | hod: ME-(AL | J)-[ENV]AN4 |
| QC Sample | Sample Numbe | | Parameter | Units | LOR | Result | Mett Original | hod: ME-(AL Spike | J)-[ENV]AN4 Recovery |
| QC Sample | Sample Numbe | | Parameter TRH C6-C10 | Units mg/kg | LOR 25 | Result <25 | Mett Original <25 | hod: ME-(AL Spike 24.65 | J)-[ENV]AN4 Recovery 72 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 | Units mg/kg mg/kg | LOR 25 20 | Result <25 <20 | Met Original <25 <20 | hod: ME-(AL Spike 24.65 23.2 | J)-[ENV]AN4 Recover 72 73 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg | LOR 25 20 | Result <25 <20 4.1 | Mett Original <25 <20 5.9 | hod: ME-(AL Spike 24.65 23.2 - | J)-[ENV]AN4 Recover 72 73 82 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg | LOR 25 20 | Result <25 <20 4.1 4.1 | Met Original <25 <20 5.9 4.5 | hod: ME-(AL Spike 24.65 23.2 - | J)-[ENV]AN4 Recover 72 73 82 81 |
| QC Sample | Sample Numbe | r | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - | Result <25 | Met Original <25 <20 5.9 4.5 5.4 | hod: ME-(AL Spike 24.65 23.2 - - - | J)-[ENV]AN4 Recover 72 73 82 81 85 |
| QC Sample | Sample Numbe | Surrogates | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - | Result <25 | Met Original <25 <20 5.9 4.5 5.4 4.0 | hod: ME-(AL Spike 24.65 23.2 - - - - - | J)-[ENV]AN4 Recovery 72 73 82 81 85 112 |
| QC Sample SE183339.001 | Sample Numbe LB155626.004 | Surrogates VPH F Bands | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 | Result <25 <20 4.1 4.1 4.2 5.6 2.7 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - - 7.25 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 |
| QC Sample SE183339.001 /olatile Petroleu | Sample Numbe LB155626.004 m Hydrocarbons in V | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) d8-toluene (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL | U)-[ENV]ANA Recover 72 73 82 81 85 112 - 70 70 U)-[ENV]ANA |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 LOR | Result <25 | Metil Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units µg/L | LOR 25 20 - - - 0.1 25 LOR 50 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C10 | Units mg/kg mg/kg | LOR 25 20 - - - - 0.1 25 LOR | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike | J)-[ENV]AN4 Recovery 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recovery 95 91 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Water | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - 7.25 hod: ME-(AL Spike 946.63 818.71 | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 |
| QC Sample SE183339.001 [/] olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 103 |
| QC Sample SE183339.001 /olatile Petroleu QC Sample | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 TRH C6-C10 TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg Units µg/L µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 25 - 0.1 25 50 40 - - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recover 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recover 95 91 90 103 96 |
| QC Sample SE183339.001 | Sample Numbe LB155626.004 m Hydrocarbons in V Sample Numbe | Surrogates VPH F Bands Nater | Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) d4-1,2-dichloroethane (Surrogate) Bromofluorobenzene (Surrogate) Benzene (F0) TRH C6-C10 minus BTEX (F1) Parameter TRH C6-C10 TRH C6-C9 Dibromofluoromethane (Surrogate) | Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg units µg/L µg/L µg/L µg/L | LOR 25 20 - - - 0.1 25 LOR 50 40 - | Result <25 | Meth Original <25 | hod: ME-(AL Spike 24.65 23.2 - - - - 7.25 hod: ME-(AL Spike 946.63 818.71 - - | J)-[ENV]AN4 Recovery 72 73 82 81 85 112 - 70 J)-[ENV]AN4 Recovery 95 91 90 103 |



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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- 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.
- 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.
- O LOR was raised due to dilution of significantly high concentration of analyte in sample.
- Image:
- Recovery failed acceptance criteria due to sample heterogeneity.
- [®] LOR was raised due to high conductivity of the sample (required dilution).
- t Refer to Analytical Report comments for further information.

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| Ou | tputs | |
|--|----------------|----------------|
| Land use | Zn soil-spe | ecific EILs |
| | (mg contaminan | t/kg dry soil) |
| | Fresh | Aged |
| National parks and areas of high conservation value | #NUM! | 80 |
| Urban residential and open public spaces | #NUM! | 95 |
| Commercial and industrial | #NUM! | 100 |



| Ou | tputs | |
|--|----------------|-----------------|
| Land use | Ni soil-sp | ecific EILs |
| | (mg contaminar | nt/kg dry soil) |
| | Fresh | Aged |
| National parks and areas of high conservation value | #NUM! | 5 |
| Urban residential and open public spaces | #NUM! | 5 |
| Commercial and industrial | #NUM! | 5 |



| Ou | tputs | |
|--|----------------|-----------------|
| Land use | Cu soil-sp | ecific EILs |
| | (mg contaminar | nt/kg dry soil) |
| | Fresh | Aged |
| National parks and areas of high conservation value | #NUM! | 20 |
| Urban residential and open public spaces | #NUM! | 30 |
| Commercial and industrial | #NUM! | 35 |

| Inputs |
|--------------------------------------|
| Select contaminant from list below |
| Cr_III |
| Below needed to calculate fresh and |
| aged ACLs |
| |
| |
| |
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| |
| |
| |
| Enter % clay (values from 0 to 100%) |
| 15 |
| Below needed to calculate fresh and |
| aged ABCs |
| Measured background concentration |
| (mg/kg). Leave blank if no measured |
| value |
| |
| or for fresh ABCs only |
| Enter iron content (aqua regia |
| method) (values from 0 to 50%) to |
| obtain estimate of background |
| |
| or for aged ABCs only |
| Enter State (or closest State) |
| Enter state (or closest state) |
| NSW |
| Enter traffic volume (high or low) |
| low |
| 10 10 |

| Ou | tputs | |
|--|----------------|-----------------|
| Land use | Cr III soil-s | pecific EILs |
| | (mg contaminar | nt/kg dry soil) |
| | Fresh | Aged |
| National parks and areas of high conservation value | #NUM! | 150 |
| Urban residential and open public spaces | #NUM! | 460 |
| Commercial and industrial | #NUM! | 770 |

| | ES EPA8100 | TRH | | | | BTEX | | | | | | трн | | | | CR | C Care | TPH Fr | actions | | | | | | | | | | | | PAH | |
|---|------------------------|-------------|---------|---------|--------------|----------------|------------|--------------|------------|---------|-----------|-----------|----------|---------------------------|--------|---------|---------|---------|--------------------------|----------------------|-------------------------------|-------------------------|---------------------|----------------------|--------------|------------------|------------|-------------------|----------------|-----------------------|----------------------|----------|
| | otal PAH (NEPM/WHO 16) | IRH C37-C40 | Benzene | foluene | Ethylbenzene | Kylene (m & p) | kylene (o) | Kylene Total | fotal BTEX | ce - c9 | C10 - C14 | C15 - C28 | 36 | +C10 - C36 (Sum of total) | 017-07 | C10-C16 | 016-034 | C34-C40 | C10 - C40 (Sum of total) | F1: C6-C10 less BTEX | F2: >C10-C16 less Naphthalene | 3enzo(b+j)flu oranthene | I-Methylnaphthalene | 2-methyin aphthalene | Acenaphthene | Acena phthyle ne | Anthracene | 3enz(a)anthracene | 3enzo(a)pyrene | Benzo(g,h,i) perylene | 3enzo(k)fluoranthene | Chrysene |
| | mg/kg | | mg/kg | mg/kg | mg/kg | mg/kg | | | | | | | mg/kg mg | | | | | | | | | | | | | | | | | | | |
| EQL | 0.8 | 100 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.6 | 20 | 20 | 45 | 45 1 | | | | | 120 | 210 | 25 | 25 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| CRCCARE 2011 Soil HSL for Direct Contact, HSL-A Residential 0-1m | | | 100 | 14000 | 4500 | | | 12000 | | | | | | 44 | 00 3 | 300 4 | 500 | 6300 | | | | | | | | | | | | | | |
| NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Sch B1 Table 7 Asbestos HSLs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Coarse Soil 0-2m | | | 50 | 85 | 70 | | | 105 | | | 120 | | | | 1 | 120 3 | 00 | 2800 | | 180 | | | | | | | | | 0.7 | | | |
| NEPM 2013 ESL UR/POS, Fine Soil 0-2m | | | 65 | 105 | 125 | | | 45 | | | 120 | | | | 1 | 120 1 | 300 | 5600 | | 180 | | | | | | | | | 0.7 | | | |
| NEPM 2013 HIL, Residential A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m | | | 0.7 | 480 | NL | | | 110 | | | | | | | | | | | | 50 | 280 | | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand 0-1m | | | 0.5 | 160 | 55 | | | 40 | | | | | | | | | | | | 45 | 110 | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Coarse Soil | | | | | | | | | | 700 | 1000 | | | 7 | 00 1 | 000 3 | 500 : | 10000 | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Fine Soil | | | | | | | | | | 800 | 1000 | | | 8 | 00 1 | 000 5 | 000 : | 10000 | | | | | | | | | | | | | | |

| Field_ID | | Jampie_Deptil_Nange | Sampled_Date_mile_Watrix_Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|---------------------|--------------------------------------|------|------|------|------|------|------|-------|-------|------|-----|-----|-----|-----|------|-----|-----|-----|------|------|-----|-----|------|------|------|------|-------|-------|------|-------|------|------|------|
| TP101 0.1 | TP101 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | < 0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP102 0.1 | TP102 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| TP103 0.1 | TP103 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP104 0.1 | TP104 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP105 0.1 | TP105 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| TP106 0.1 | TP106 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP107 0.25 | TP107 0.25 | 0.2-0.3 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP108 0.1 | TP108 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| TP109 0.1 | TP109 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | < 0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| TP110 0.1 | TP110 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP201 0.1 | TP201 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP202 0.1 | TP202 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | < 0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP203 0.4-0.5 | TP203 0.4-0.5 | 0.4-0.5 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | < 0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| TP204 0.1 | TP204 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| TP205 0.1 | TP205 0.1 | 0.09-0.11 | 24/08/2018 | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

| Statistical Summary | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|-------|-------|------|-----|-----|------|------|------|------|------|-----|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|
| Number of Results | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Number of Detects | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minimum Concentration | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | < 0.1 | < 0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Minimum Detect | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Maximum Concentration | <0.8 | <100 | <0.1 | <0.1 | <0.1 | <0.2 | <0.1 | <0.3 | <0.6 | <20 | <20 | <45 | <45 | <110 | <25 | <25 | <90 | <120 | <210 | <25 | <25 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Maximum Detect | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Average Concentration | 0.4 | 50 | 0.05 | 0.05 | 0.05 | 0.1 | 0.05 | 0.15 | 0.3 | 10 | 10 | 23 | 23 | 55 | 13 | 13 | 45 | 60 | 105 | 13 | 13 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Median Concentration | 0.4 | 50 | 0.05 | 0.05 | 0.05 | 0.1 | 0.05 | 0.15 | 0.3 | 10 | 10 | 22.5 | 22.5 | 55 | 12.5 | 12.5 | 45 | 60 | 105 | 12.5 | 12.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Standard Deviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances(Detects Only) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | M | etals | | | | | | | | | Inorganics | | | | | | |
|---|-----------------------|--------------|----------|-------------------------|-------------|---------------------|--------------|--------|----|---------|----------|---------|-------------------|--------|-------|-----------|---------|--------|-----------|--------|-------|----------------------|------------------------|------------------------|---------------------|-----------------------------|------|----------|------------|---------|---------|
| | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | PAHs (Sum of total) | Dhenanthrene | Decore | | Arsenic | Cad mium | Calcium | Chromium (III+VI) | Copper | Lead | Magnesium | Mercury | Nickel | Potassium | Sodium | Zinc | Exchangeable Calcium | Exchangeable Magnesium | Exchangeable Potassium | Exchangeable Sodium | Exchangeable Sodium Percent | CEC | Moisture | pH (CaCl2) | 2,4-DDT | 4,4-DDE |
| | | | | | | | | | | g/kg | | mg/kg | | | mg/kg | | | | mg/kg | | mg/kg | | | meq/100g | | | | | | | |
| EQL | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | | 0. | 1 0 | .1 | 1 | 0.3 | 2 | 0.3 | 0.5 | 1 | 2 | 0.05 | 0.5 | 2 | 2 | 2 | 0.01 | 0.02 | 0.01 | 0.01 | 0.1 | 0.02 | 0.5 | 0.1 | 0.1 | 0.1 |
| CRCCARE 2011 Soil HSL for Direct Contact, HSL-A Residential 0-1m | | | | | 140 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m | | | | | 170 | | | | 1 | 100 | | | 460 | 30 | 1100 | | | 5 | | | 95 | | | | | | | | | | |
| NEPM 2013 Sch B1 Table 7 Asbestos HSLs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Coarse Soil 0-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Fine Soil 0-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 HIL, Residential A | | | | | | 300 |) | | 1 | 100 | 20 | | | 6000 | 300 | | 40 | 400 | | | 7400 | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m | | | | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand 0-1m | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Coarse Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Fine Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| TP101 0.1 | TP101 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | <0.1 | <0.1 | <1 | <0.3 | - | 2.7 | <0.5 | 2 | - | < 0.05 | <0.5 | - | - | <2 | | - | | - | - | - | 5.8 | - | <0.1 | <0.1 |
|---------------|---------------|-----------|------------|------|------|------|-------|------|------|------|------|----|-------|----|-----|-------|----|----|--------|------|----|---|-----|------|------|------|------|-----|------|-----|-----|-------|------|
| TP102 0.1 | TP102 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 1 | < 0.3 | - | 1.3 | <0.5 | 2 | - | < 0.05 | <0.5 | - | - | 2.4 | | - | - | - | - | | 7.7 | - | <0.1 | <0.1 |
| TP103 0.1 | TP103 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 2 | <0.3 | 68 | 3 | < 0.5 | 3 | 24 | < 0.05 | <0.5 | 23 | 8 | 3 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 6.5 | 4.1 | < 0.1 | <0.1 |
| TP104 0.1 | TP104 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 2 | <0.3 | - | 3.5 | < 0.5 | 2 | - | < 0.05 | <0.5 | - | - | 2.5 | | - | | - | - | - | 6.6 | - | < 0.1 | <0.1 |
| TP105 0.1 | TP105 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 3 | <0.3 | - | 1.5 | <0.5 | 2 | - | < 0.05 | <0.5 | - | - | <2 | | - | | - | - | - | 9.6 | - | <0.1 | <0.1 |
| TP106 0.1 | TP106 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 1 | <0.3 | - | 0.9 | <0.5 | 1 | - | < 0.05 | <0.5 | - | - | 4.3 | | - | | - | - | - | 8 | - | < 0.1 | <0.1 |
| TP107 0.25 | TP107 0.25 | 0.2-0.3 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | <1 | <0.3 | - | 2.3 | <0.5 | <1 | - | < 0.05 | <0.5 | - | - | <2 | | - | | - | - | - | 13 | - | < 0.1 | <0.1 |
| TP108 0.1 | TP108 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | <0.1 | <0.1 | <1 | <0.3 | - | 0.5 | 0.8 | <1 | - | < 0.05 | <0.5 | - | - | 2.6 | | - | | - | - | - | 18 | - | <0.1 | <0.1 |
| TP109 0.1 | TP109 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 1 | < 0.3 | - | 1.4 | <0.5 | 1 | - | < 0.05 | <0.5 | - | - | 2.5 | | - | - | - | - | - | 9.2 | | <0.1 | <0.1 |
| TP110 0.1 | TP110 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 2 | <0.3 | - | 1 | 0.5 | 2 | - | < 0.05 | <0.5 | - | - | 3.2 | | - | | - | - | - | 13 | - | < 0.1 | <0.1 |
| TP201 0.1 | TP201 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 3 | <0.3 | - | 2.4 | 3.1 | 7 | - | < 0.05 | 1.2 | - | - | 69 | | - | | - | - | - | 7.8 | - | < 0.1 | <0.1 |
| TP202 0.1 | TP202 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 4 | <0.3 | - | 3.4 | 2.4 | 9 | - | < 0.05 | <0.5 | - | - | 11 | | - | | - | - | - | 12 | - | <0.1 | <0.1 |
| TP203 0.4-0.5 | TP203 0.4-0.5 | 0.4-0.5 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 5 | 0.4 | - | 4.1 | 9.8 | 16 | - | < 0.05 | 1.1 | - | - | 150 | | - | - | - | - | | 11 | - | <0.1 | <0.1 |
| TP204 0.1 | TP204 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 3 | <0.3 | - | 3.1 | 6.2 | 8 | - | < 0.05 | 1.1 | - | - | 25 | | - | | - | - | - | 13 | - | < 0.1 | <0.1 |
| TP205 0.1 | TP205 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 2 | <0.3 | - | 5.9 | 5.8 | 8 | - | < 0.05 | 1.8 | - | - | 58 | | - | | - | - | - | 17 | - | <0.1 | <0.1 |

| Number of Results | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 1 | 15 | 15 | 15 | 1 | 15 | 15 | 1 | 1 | 15 | 1 | 1 | 1 | 1 | 1 | 1 | 15 | 1 | 15 | 1 |
|---|------|------|------|-------|------|------|-------|------|-----|-------|----|-----|-------|-----|----|--------|------|----|---|-----|------|------|------|------|-----|------|-----|-----|------|-----|
| Number of Detects | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 1 | 15 | 7 | 13 | 1 | 0 | 4 | 1 | 1 | 12 | 1 | 1 | 1 | 1 | 1 | 1 | 15 | 1 | 0 | (|
| Minimum Concentration | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.8 | < 0.1 | <0.1 | <1 | < 0.3 | 68 | 0.5 | < 0.5 | <1 | 24 | < 0.05 | <0.5 | 23 | 8 | <2 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 5.8 | 4.1 | <0.1 | <0 |
| Minimum Detect | ND | ND | ND | ND | ND | ND | ND | ND | 1 | 0.4 | 68 | 0.5 | 0.5 | 1 | 24 | ND | 1.1 | 23 | 8 | 2.4 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 5.8 | 4.1 | ND | N |
| Maximum Concentration | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.8 | <0.1 | <0.1 | 5 | 0.4 | 68 | 5.9 | 9.8 | 16 | 24 | < 0.05 | 1.8 | 23 | 8 | 150 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 18 | 4.1 | <0.1 | <0 |
| Maximum Detect | ND | ND | ND | ND | ND | ND | ND | ND | 5 | 0.4 | 68 | 5.9 | 9.8 | 16 | 24 | ND | 1.8 | 23 | 8 | 150 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 18 | 4.1 | ND | N |
| Average Concentration | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.4 | 0.05 | 0.05 | 2 | 0.17 | | 2.5 | 2 | 4.3 | | 0.025 | 0.53 | | | 22 | | | | | | | 11 | | 0.05 | 0.0 |
| Median Concentration | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.4 | 0.05 | 0.05 | 2 | 0.15 | 68 | 2.4 | 0.25 | 2 | 24 | 0.025 | 0.25 | 23 | 8 | 3 | 0.34 | 0.19 | 0.06 | 0.04 | 5.7 | 0.63 | 9.6 | 4.1 | 0.05 | 0.0 |
| Standard Deviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.4 | 0.065 | | 1.4 | 3 | 4.4 | | 0 | 0.51 | | | 41 | | | | | | | 3.8 | | 0 | (|
| Number of Guideline Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (|
| Number of Guideline Exceedances(Detects Only) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (|

| | | | cis) | ordane | | | | | | | ohate | | | | | | de | e | | | | | _ | | | | | | | | |
|-------|--------|-------|-------------|------------|-------|-------|-------|----------|---------------|----------------|-----------------|--------|-----------------|---------------|-----------------|------------|------------------|-----------------|--------------|---------|----------|-----------------|-----------------|------------------|--------------|----------|-----------|------------|--------|--------------|-----------|
| a-BHC | Aldrin | b-BHC | Chlordane (| gamma-Chlo | d-BHC | DDD | DDT | Dieldrin | End osulfan I | End osulfan II | End osulfan sul | Endrin | Endrin aldehyde | Endrin ketone | g-BHC (Lindane) | Heptachlor | Heptachlor epoxi | Hexachlorobenze | Methoxychlor | o,p-DDD | o,p'-DDE | trans-Nonachlor | Azinophos methy | Brom ophos-ethyl | Chlorpyrifos | Diazinon | Dichlowos | Dimethoate | Ethion | Fenitrothion | Malathion |
| mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.5 | 0.5 | 0.5 | 0.2 | 0.2 | 0.2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | 180 | | | | | | | | | | | | | | | | | | | | | | | | |

| | mg/kg | mg/kg | g mg/kg | mg/kg | mg/k | g mg/kg | g mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | g mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | g mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg r | mg/kg |
|---|-------|-------|---------|-------|------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|---------|-------|
| EQL | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.5 | 0.5 | 0.5 | 0.2 | 0.2 | 0.2 | 0.5 |
| CRCCARE 2011 Soil HSL for Direct Contact, HSL-A Residential 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m | | | | | | | | 180 | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Sch B1 Table 7 Asbestos HSLs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Coarse Soil 0-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Fine Soil 0-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 HIL, Residential A | | | | | | | | | | | | | 10 | | | | 6 | | 10 | 300 | | | | | | 160 | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Coarse Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Fine Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Field_ID | Location_Code | Sample_Depth_Range | Sampled_Date_Time | Watrix_Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|--------------------|-------------------|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|-------|-------|------|------|------|------|------|
| TP101 0.1 | TP101 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP102 0.1 | TP102 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP103 0.1 | TP103 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.5 | < 0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP104 0.1 | TP104 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP105 0.1 | TP105 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP106 0.1 | TP106 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.5 | < 0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP107 0.25 | TP107 0.25 | 0.2-0.3 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP108 0.1 | TP108 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP109 0.1 | TP109 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP110 0.1 | TP110 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.5 | < 0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP201 0.1 | TP201 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP202 0.1 | TP202 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP203 0.4-0.5 | TP203 0.4-0.5 | 0.4-0.5 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP204 0.1 | TP204 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| TP205 0.1 | TP205 0.1 | 0.09-0.11 | 24/08/2018 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | <0.5 |

| Statistical Summary | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|-------|-------|------|------|-------|------|-------|------|------|------|------|-------|------|-------|------|------|------|------|
| Number of Results | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Number of Detects | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minimum Concentration | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.5 | <0.5 | < 0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| Minimum Detect | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Maximum Concentration | <0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.1 | <0.2 | <0.1 | <0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.2 | <0.2 | <0.2 | < 0.5 | <0.5 | < 0.5 | <0.2 | <0.2 | <0.2 | <0.5 |
| Maximum Detect | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Average Concentration | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.05 | 0.1 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.25 | 0.25 | 0.25 | 0.1 | 0.1 | 0.1 | 0.25 |
| Median Concentration | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.05 | 0.1 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.25 | 0.25 | 0.25 | 0.1 | 0.1 | 0.1 | 0.25 |
| Standard Deviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances(Detects Only) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | F | Pesticide | es | Other | | | | Polyc | hlorina | ted Biph | enyls | | | |
|---|---------|-----------|-----------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|---------------------|
| | Isodrin | Mirex | Parathion | Estimated Fibres | Arochlor 1016 | Arochlor 1221 | Arochlor 1232 | Arochlor 1242 | Arochlor 1248 | Arochlor 1254 | Arochlor 1260 | Arochlor 1268 | Arodor 1262 | PCBs (Sum of total) |
| | | | | mg/kg | | | | | | | | | | mg/k |
| EQL | 0.1 | 0.1 | 0.2 | 100 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 1 |
| CRCCARE 2011 Soil HSL for Direct Contact, HSL-A Residential 0-1m | | | | | | | | | | | | | | |
| NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m | | | | | | | | | | | | | | |
| NEPM 2013 Sch B1 Table 7 Asbestos HSLs | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Coarse Soil 0-2m | | | | | | | | | | | | | | |
| NEPM 2013 ESL UR/POS, Fine Soil 0-2m | | | | | | | | | | | | | | |
| NEPM 2013 HIL, Residential A | | 10 | | | | | | | | | | | | 1 |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m | | | | | | | | | | | | | | |
| NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand 0-1m | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Coarse Soil | | | | | | | | | | | | | | |
| NEPM 2013 Management Limits, C/I, Fine Soil | | | | | | | | | | | | | | |

| TP101 0.1 | TP101 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
|---------------|---------------|-----------|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| TP102 0.1 | TP102 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP103 0.1 | TP103 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP104 0.1 | TP104 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP105 0.1 | TP105 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP106 0.1 | TP106 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP107 0.25 | TP107 0.25 | 0.2-0.3 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP108 0.1 | TP108 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP109 0.1 | TP109 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP110 0.1 | TP110 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP201 0.1 | TP201 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP202 0.1 | TP202 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP203 0.4-0.5 | TP203 0.4-0.5 | 0.4-0.5 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP204 0.1 | TP204 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| TP205 0.1 | TP205 0.1 | 0.09-0.11 | 24/08/2018 | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |

| Statistical Summary | | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Number of Results | 15 | 15 | 15 | 7 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Number of Detects | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minimum Concentration | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| Minimum Detect | ND
| Maximum Concentration | <0.1 | <0.1 | <0.2 | <100 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 |
| Maximum Detect | ND
| Average Concentration | 0.05 | 0.05 | 0.1 | 50 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 |
| Median Concentration | 0.05 | 0.05 | 0.1 | 50 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 |
| Standard Deviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Guideline Exceedances(Detects Only) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

QA/QC REPORT





Shaping the Future

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File Reference: 82219014 QAQC Report

Date: 24 September 2018

Wyee Land Pty Ltd C/- Northrop Consulting Engineers 4/257/259 Central Coast Highway Erina, NSW, 2250

QA/QC Report

Supplementary Contamination Assessment Report

Lot 173 DP 1212974 & Lot 212 DP 866437 Hue Hue Road & Bushells Ridge Road, Wyee

This Quality Assurance and Quality Control (QA/QC) report assesses the reliability of field procedures adopted and the analytical results produced as part of the Supplementary Contamination Assessment for Lot 173 DP 1212974 and Lot 212 DP 866437 ('the Site'). The following data quality indicators have been adopted with reference to the National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (amended, April 2013) (NEPM, 2013):

- > Precision The quantitative measure of variability of reproducibility of the data. Is a measure of the reproducibility of on measurements under a given set of conditions the Relative Percent Difference ('RPD') has been adopted to assess the precision of data between duplicate sample pairs;
- > Accuracy The quantitative measure of the closeness of the reported data to the true value. It is a measure of the bias in the analytical results and can often be attributed to: field contamination; insufficient preservation or sample preparation; or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples, laboratory spikes and analytical techniques in accordance with appropriate standards. Accuracy of the fieldwork is assessed against an assessment of field blank, field trip and rinsate results;
- > Representativeness The confidence that the data is representative of each medium present on the site. Data representativeness is achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures;
- > Completeness A measure of the amount of usable data (expressed as a %) from a data collection activity. Sufficient data is required to enable an assessment of the Decision Rules; and,
- > Comparability The confidence that data may be considered to be equivalent for each sampling and analytical event. This is achieved through consistent sampling and analytical testing and reporting techniques.

The data quality objectives, requirements and indicators for the assessment are presented in Table 1 below.

| Table 1 Data Quality Objectiv | ves, Requirements and Indicators | |
|---|--|-----------------------------|
| Data Quality Objective | Requirement | Data Quality Indicator |
| Precision | | |
| Intra-laboratory Duplicates | 1 per 20 samples | RPDs < 50% |
| Inter-laboratory Duplicates | 1 per 20 samples | RPDs < 50% |
| Laboratory Duplicates | Minimum of 1 per batch per analyte. | RPDs < 50% |
| Accuracy | | |
| Laboratory Matrix Spikes | 1 per batch per volatile/semi-volatile analyte | Recoveries 50% to 150% |
| Laboratory Surrogate Spikes | 1 per volatile/semi-volatile analyte sample (as appropriate) | Recoveries 70% to 130% |
| Laboratory Method Blanks | At least 1 per batch per analyte tested | Result < Limit of reporting |
| Laboratory Control Samples | At least 1 per batch per analyte tested | Result < Limit of reporting |
| Rinsate samples | 1 per sampling day | Result < Limit of reporting |
| Representativeness | | |
| Sampling methodology | Appropriate for the sample type and analytes | Meet Requirement |
| Samples extracted and analysed within holding times | Specific to each analyte | Meet Requirement |
| Comparability | | |
| Sampling approach | Consistent for each sample | Meet Requirement |
| Analysis methodology | Consistent methodology for each sample | Meet Requirement |
| Handling conditions and sampler | Consistent for each sample | Meet Requirement |
| Field observations and analytical results | Field observations to support analytical results | Meet Requirement |
| Consistent laboratory Limit of Reporting (LOR) | Consistent between primary and secondary laboratories | Meet Requirement |
| Completeness | | |
| Chain of Custody Documentation | Appropriately completed | Meet Requirement |
| Field Sampling Documentation | Appropriately completed | Meet Requirement |
| Satisfactory quality assurance/ quality control procedures | In accordance with relevant guidance | Meet Requirement |

 Table 1
 Data Quality Objectives, Requirements and Indicators

1 Field QA/QC Results

1.1 Duplicate Sampling Techniques

1.1.1 Soil Sampling

Duplicate samples were collected by splitting soil samples in the field. This comprised collecting a sample of soil from the test pit and splitting it equally (per volume) into three laboratory supplied jars (primary, duplicate and triplicate). This process was repeated until all jars were full and zero headspace remained. Care was taken to collect a representative sample in each jar, that is, from the same strata, location and depth within the test pit.

Field splitting was employed rather than sample homogenisation (blending of a sample in a bowl) and splitting to minimise VOC loss.

1.2 Decontamination Procedures

Decontamination of non-disposable equipment was conducted between sampling events and comprised:

- > The scrubbing of field equipment in contact with potentially contaminated materials with a scrubbing brush and a container of 1% Decon 90 solution; and,
- > Rinsing of equipment with deionised water following scrubbing to remove the detergent.

1.3 Relative Percentage Difference

The precision or repeatability of laboratory results obtained between field split primary and replicate samples (ie. duplicate and triplicate samples) is derived by the calculation of the relative percentage differences (RPDs). The calculation of the RPD is conducted using the following equation:

 $RPD (\%) = \frac{Original - Duplicate}{(Original + Duplicate) / 2} \times 100$

A RPD of +/- 50% is generally considered acceptable.

The comparative analysis between the primary and replicate samples for the sampling event is summarised below in Table 2. Note that when the laboratory result for one or both samples is below the PQL the RPD has been given as NA. Complete laboratory reports are provided in Appendix G.

| Contaminant Species | | PQL ¹ | Primary Sample ID TP107-0.25 | Duplicate ID DUP2 | RPD | Primary Sample ID TP205-0.1 | Duplicate ID DUP1 | RPD |
|---------------------|--|------------------|------------------------------------|-------------------------|-----|-----------------------------------|-------------------------|-----|
| | Arsenic | 1 | <1 | <1 | NA | 2 | 3 | 40% |
| Metals | Cadmium | 0.3 | <0.3 | <0.3 | NA | <0.3 | <0.3 | NA |
| | Chromium | 0.3 | 2.8 | 2.3 | 20% | 5.9 | 4 | 38% |
| | Copper | 0.5 | <0.5 | <0.5 | NA | 5.8 | 6.2 | 7% |
| | Lead | 1 | 2 | <1 | NA | 8 | 9 | 12% |
| | Mercury | 0.05 | <0.05 | <0.05 | NA | <0.05 | <0.05 | NA |
| | Nickel | 0.5 | <0.5 | <0.5 | NA | 1.8 | 1.9 | 5% |
| | Zinc | 2 | <2.0 | <2.0 | NA | 58 | 60 | 3% |
| TRH | C ₆ - C ₉ | 20 | <20 | <20 | NA | <20 | <20 | NA |
| | C ₁₀ - C ₃₆ | 110 | <110 | <110 | NA | <110 | <110 | NA |
| | F1 - C ₆ - C ₉ | 25 | <25 | <25 | NA | <25 | <25 | NA |
| | F2 > C ₁₀ - C ₁₆ | 25 | <25 | <25 | NA | <25 | <25 | NA |
| | F3 > C ₁₆ - C ₃₄ | 90 | <90 | <90 | NA | <90 | <90 | NA |
| | F4 > C ₃₄ - C ₄₀ | 120 | <120 | <120 | NA | <120 | <120 | NA |
| | Naphthalene | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| BTEX | Benzene | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Ethylbenzene | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Toluene | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Xylene Total | 0.3 | <0.3 | <0.3 | NA | <0.3 | <0.3 | NA |
| | Total | 0.8 | <0.8 | <0.8 | NA | <0.8 | <0.8 | NA |
| PAH | B(a)P | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | B(a)P TEQ (Upper) | 0.3 | <0.3 | <0.3 | NA | <0.3 | <0.3 | NA |
| OCP | Total | 1.0 | <1 | <1 | NA | <1 | <1 | NA |
| | DDT+DDE+DDD | 0.3 | <0.3 | <0.3 | NA | <0.3 | <0.3 | NA |
| | DDT | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Aldrin + Dieldrin | 0.3 | <0.3 | <0.3 | NA | <0.3 | <0.3 | NA |
| | Chlordane | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Endosulfan | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Endrin | 0.2 | <0.2 | <0.2 | NA | <0.2 | <0.2 | NA |
| | Heptachlor | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| | Methoxychlor | 0.1 | <0.1 | <0.1 | NA | <0.1 | <0.1 | NA |
| OPP | Total | 1.7 | <1.7 | <1.7 | NA | <1.7 | <1.7 | NA |
| | Chlorpyrifos | 0.2 | <0.2 | <0.2 | NA | <0.2 | <0.2 | NA |
| PCB | Total | 1.0 | <1 | <1 | NA | <1 | <1 | NA |

 Table 2
 Replicate RDP results for TP107-0.25, TP205-0.1 and associated duplicates

Notes to Table F5:

Bold - indicates exceedance of the acceptable RPD range of +/- 30% for inorganic analytes and +/- 50% for organic analytes

1 - SGS PQL Values

The replicate RPD results summarised in Table 2 indicate that the samples analysed were generally within the acceptable RPD range of +/- 50%.

The RPD results indicate the sampling methodology was acceptable and laboratory precision or repeatability was achieved.

1.4 Rinsate Samples

Rinsate samples are samples of laboratory prepared water poured over or through decontaminated field sampling equipment prior to the collection of environmental samples. Following completion of decontamination procedures (refer Section 1.2) laboratory supplied de-ionised water was poured over sampling equipment (typically a stainless steel garden trowel) and collected into a clean sampling jar for contaminant analysis. Rinsate samples are recovered to determine the adequacy of decontamination procedures and the potential for cross contamination of samples through use of adulterated sampling equipment.

Laboratory results for the Total Heavy Metals analysis of rinsate samples for the investigation are summarised in Table 3. Complete laboratory reports sheets are provided in Appendix G.

| Table 3 | Summary | of | TRH/BTEX | Rinsate | laboratory | results |
|---------|---------|----|----------|---------|------------|---------|
|---------|---------|----|----------|---------|------------|---------|

| | Date Sampled | BTEX | | | | | | | TRH | |
|----------------|--------------|---------|---------|-------------------|----------|----------------|------------------|---------------------------------|-----------------------------------|--|
| Sample ID | | Benzene | Toluene | Ethyl- benzene | o-Xylene | m+p- Xylene | Total Xylenes | C ₆ - C ₉ | C ₁₀ - C ₃₆ | |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | μg/L | µg/L | μg/L | |
| RIN 24.08.2018 | 24/08/2018 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <1.5 | <40 | <450 | |
| SGS P | 0.5 | 0.5 | 0.5 | 0.5 | 1 | 3 | 40 | 450 | | |

Notes to Table:

BOLD - Indicates laboratory result is greater than the laboratory PQL

PQL - Practical Quantification Limit

The rinsate laboratory results summarised in Table 3 were all less than the laboratory PQL, indicating that field decontamination procedures were generally adequate.

2 Laboratory QA/QC Results

The following laboratory QA/QC reports met all Data Quality Objectives:

- SE183217
- SE183218

The following laboratory QA/QC reports did not meet all Data Quality Objectives:

• SE183216 (extraction date)

The rinsate sample (RIN 24.08.2018) required to be extracted by the 29th August, 2018. It was not extracted until the 3rd September, 2018. These times are recommendations only and as samples were refrigerated/chilled adequately at all stages between sampling and analysis this non-compliance is not considered significant.

2.1 Laboratory Replicates

Laboratory replicates are generated by subjecting a separate aliquot of sample through the same preparation and analysis procedures as the primary sample. Comparison of the primary sample to the duplicate will yield a precision measurement (expressed as RPD) in a given matrix.

The laboratory acceptance criteria for duplicate samples are as follows:

- > If results are less than 5 times the PQL, any RPD is acceptable; and,
- > If results are greater than 5 times the PQL, an RPD of 0-50% is acceptable.

All samples from reports SE183216, SE183217 and SE183218 returned RPD values within the acceptance criteria.

2.2 Method Blanks

A Method Blank is an analyte free matrix (laboratory certified clean sands for solid samples or de-ionised water for water samples) which is subjected to the complete preparation and analytical procedure to assess contamination introduced during laboratory procedures.

All laboratory results for method blank analysis were below the PQL indicating laboratory procedures were adequate to prevent cross contamination of samples.

2.3 Matrix Spikes

The Matrix Spike is a separate aliquot of the sample spiked with known concentrations of the analytes of interest. It is analyzed to determine, including the matrix interferences, if the procedure is working within established control limits. Analyte recoveries must lie between 70-130% for inorganics, 60-140% for organics and 10-140% for SVOC and Phenols.

All laboratory results for matrix spike analysis were within the acceptance criteria.

3 Summary

It was considered that the field and laboratory QA/QC criteria were generally within acceptable limits indicating field sampling, storage, handling and decontamination procedures and laboratory preparation and analysis procedures were adequate for the purposes of the environmental investigation.