DETAILED SITE INVESTIGATION FOR

10 WICKFIELD CIRCUIT, AMBARVALE

CAMPBELLTOWN CITY COUNCIL

LOCAL GOVERNMENT AREA

Job number: 2338

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Version 4

Version	Date drafted	Drafted by
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2	10/07/2022	Jason Anderson
3	26/07/2022	Bo Davidson
4	05/08/2022	Jason Anderson
Version	**Date reviewed**	**Reviewed by**
1	27/10/2021	Jason Anderson
2	12/07/2022	Jason Anderson
3	28/07/2022	Jason Anderson
4	09/08/2022	Jason Anderson

Client	**The Fairfield Chase Centre Pty Ltd**
Approved by	**Date**
Adam Sullivan - CEnvP-SC No. SC40944 (Sullivan Environmental Sciences Pty Ltd) Jason Anderson (Anderson Environmental Consultants Pty Ltd)	10/08/2022

Executive Summary

Introduction

Anderson Environmental Pty Ltd (Anderson Environmental) was engaged to conduct a Detailed Site Investigation (DSI) at 10 Wickfield Circuit, Ambarvale (lot 2 DP 1185139) within the Campbelltown City Council Local Government Area (LGA), referred to hereafter as the Subject Site. The report was conducted on behalf of the Subject Site owner, The Fairfield Chase Centre Pty Ltd.

The proposed development is for the construction of a mixed use development including a 91 place centre-based child-care centre, shop top housing consisting of a retail tenancy, 29 residential units and basement car parking consisting of 62 spaces (the Proposal). This will involve the removal of all soil from the site for a depth of 9.4 metres in depth to facilitate the basement and foundation development. The site area is 2,697m^2.

Previous Preliminary Site Investigation

The PSI found some evidence of minor foreign materials on the Subject Site. This was in the form of some small pieces of concrete/gravel on the surface in some small areas which most likely came from the neighbouring development at the time of their development.

The Subject Site contains cleared land sloping to the west surrounded largely by roads and an ALDI to the south. The land slopes to the west and drops approximately 3.0 metres from the east to its lowest area in the west.

The following contaminants represented a potential risk of land contamination.

Source	Associated chemicals	CoPC (Contaminants of Potential Concern)
A few small areas of ground scatter rubbish comprising small gravel rocks, small pieces of concrete and some domestic rubbish such as take away food garbage. Caltex Service Station to the North-east at approximately 25 metres at 37 Woodhouse Drive, Ambarvale. Developed between 1990-2005 based on available aerial photos. The EPA list contains sites notified to the EPA as being contaminated. If lands are considered "significantly contaminated" they are regulated under the CLM Act. The subject Site is not Listed. The Caltex Service Centre to the north-east (25 metres) is listed. The Caltex Service Centre is considered low risk as the site is listed as "Regulation under CLM Act not required". The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required. As such the land is not considered "significantly contaminated". While the Caltex Service Centre is upslope from the subject site it is not directly upslope and occurs to the north-east. As such runoff risk and groundwater inferred flow is to the west of the Caltex Service Centre. No clean up notices are listed under the POEA Act for this site on the NSW EPA Search Portal. GIPA Searches with council did not reveal any potentially contaminating activities on the subject site.	Could be a range of chemicals from hydrocarbons, asbestos, thinners, and heavy metals. PSI however inspected these materials and did not recommend a DSI based on the visual evaluation. Council requested a DSI.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); Total Recoverable Hydrocarbons (TRH) Monocyclic aromatic hydrocarbons Benzene, Toluene, Ethyl-benzene, Xylenes Napthalene (BTEXN) Polycystic Aromatic Hydrocarbons (PAH) Asbestos

Previous Detailed Site Investigation – Version 1 DSI Report

A targeted sampling regime was undertaken to target the areas where the small surface scatters of gravel were found. This entailed the collection of five near-surface samples to specifically target areas where there were obvious foreign materials on the surface

Additional Detailed Site Investigation Sampling

Drilling was undertaken at 10 approximately evenly spaced locations across the site. This included the installation on one groundwater monitoring well on the lowest portion on the west of the subject site. Drilling at the well location was undertaken to 4.5 metres until drill refusal occurred on hard interbedded shale.

Results

The soils of the Subject Site were characterised by what appeared to be natural soils other than a few small surface scatters of gravel and a few small pieces of domestic garbage common on such sites with public access. There was some surface gravel adjacent to the ALDI which was probably as a result of the construction of that building.

The soils were found to be clay derived and were dry at the time of drilling with shale present as depth increased. Clay and clay loam varied in colour from yellow through red to grey. Most boreholes achieved 1.7 metres with a termination depth of 4.5 metres on interbedded hard shale in the monitoring well. A thin layer of fill (gravel and concrete fragments) was observed in B8-B10 in the highest portion of the Subject Site (south) at a uniform depth of approximately 0.3m. The remnants of a small concrete slab were also encountered on the soil surface adjacent to B6. No olfactory odours or visual staining was detected. No elevated levels of VOCs as a result of the field screening with the PID were detected.

The results of the chemical analysis of the five near surface sampling sites in Version 1 of this DSI indicated no exceedances of adopted soil criteria for the analytes tested. The chemical analysis for the 10 sampling locations in this Version 2 of the DSI indicated that all analytes tested were again below adopted soil criteria. No groundwater was reached due to auger refusal on hard interbedded shale.

A service station is located approximately up/cross slope and approximately 25m to the north-east of the Subject Site. Based on a review of the historical aerial imagery obtained during the PSI, this service station was constructed between 1980 and 1990. The Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regs) regulates the Caltex property under active monitoring for leakages from underground tanks. Also, the service station property was notified to the NSW EPA under section 60 of the CLM Act 1997 and is registered on the NSW Environment Protection Authority (EPA) list of notified sites (NSW Environment Protection Authority, 2022). At the time of writing this DSI report, the property was classed as "Regulation under CLM Act not required", indicating that any contamination on the Caltex site would be monitored under the UPSS Regs 2019 and would not be cause for concern on adjoining or nearby properties via migration offsite. This is of particular importance to the Subject site as it would be unlikely for a plume of contaminated groundwater to be migrating under the Subject Site caused by the Caltex.

Conclusion and Recommendations

This DSI did not identify contamination considered to pose a risk to human health or the environment for the future land use of the proposed development. The results of the extensive sampling on the site included 15 sampling locations in which the soils were examined physically and analytically. Drilling to depths of 4.5m bgl encountered bedrock and confirmed no shallow groundwater was present. This indicated that the soils on the Subject Site are representative of natural soils with limited fill or foreign materials present (thin layer of gravel fill at 0.3m in the upper (southern) portion of the Subject Site adjacent to ALDI.

The site is considered suitable for its proposed use and no further assessment or remedial works are required.

Certification

I certify that this report has been undertaken according to the requirements of NSW EPA-Consultants reporting on Contaminated Land-Contaminated Land Guidelines (2020) and that report was undertaken without bias and the findings would be the same regardless of the client or their objectives and is an entirely independent report based solely on the site conditions and background information available at the time of the assessment.

This report was also certified by Adam Sullivan CEnvP-SC No. SC40944 (Sullivan Environmental Sciences Pty Ltd). Please refer to second page of this report (Version Page) and formal certification stamp of Adam Sullivan.

Yours Sincerely

Jason Anderson (B.App.Sc – 1992 - University of New England - Australia)
Overseas Qualifications
AESAC (CESA - Phase 1 and Phase 2)
P.Ag (Assessment, Remediation and Management of Contaminated Land – BCIA, AIA, SIA, TIA)
HAZWOPER
10th August 2022

Contents

1. Introduction

1.1 Background

Anderson Environmental Pty Ltd (Anderson Environmental) was engaged to conduct a Detailed Site Investigation (DSI) at 10 Wickfield Circuit, Ambarvale (lot 2 DP 1185139) within the Campbelltown City Council Local Government Area (LGA), referred to hereafter as the Subject Site. The report was conducted on behalf of the Subject Site owner, The Fairfield Chase Centre Pty Ltd. The proposed development is for the construction of a mixed use development including a 91 place centre-based child-care centre, shop top housing consisting of a retail tenancy, 29 residential units and two basement level car parking consisting of 62 spaces, referred to in this report as the Proposal. The proposed depth of excavation for basement construction will be to approximately 9.4 metres from the existing ground level on the eastern side of the Subject Site. The site area is 2,697m^2.

Anderson Environmental conducted a combined Preliminary Site Investigation (PSI) and Salinity Assessment (Dec, 2019), which included drilling of two boreholes to 1.8 metres depth into natural soil. The PSI concluded that a DSI was not required given the low risk of potential contamination to have occurred from historical and existing site activities. Council requested a DSI be prepared for the Subject Site which Anderson Environmental undertook as DSI Version 1 (Oct, 2021) including collection of near surface soil samples from five (5) locations evenly spaced over the Subject Site. Subsequent to receiving the DSI Version 1, Council engaged a third party consultant to review DSI Version 1. As part of addressing review comments from Council and the third party, additional drilling, soil sampling and analysis was undertaken including the installation of one groundwater monitoring well.

Version 2 of the DSI (July 2022) included additional borehole sampling (10 boreholes, one of which one was turned into a groundwater monitoring well) in addition to the 5 near surface soil samples which were undertaken for Version 1 of the DSI (Oct 2021).

This version (Version 4) incorporates additional revisions from a review and approval by Adam Sullivan - CEnvP-SC No. SC40944 (Sullivan Environmental Sciences Pty Ltd), certified as a Site Contamination specialist under the EIANZ certification scheme.

This DSI assessment has been developed based on guidelines made or approved under the *Contaminated Land Management Act 1997* (CLM Act), including the National Environment Protection (Assessment of Site Contamination) Measure 1999 – amended 2013 (NEPM) and Australian Standards (including AS4482) (Australian Government, 2013) (Standards Australia, 2005).

The report has been prepared in accordance with the Guidelines for Consultants Reporting on Contaminated Land, 2020 (NSW Environment Protection Authority, 2020), State Environmental Planning Policy (Resilience and Hazards (formerly SEPP 55) Planning Guidelines (NSW Environment Protection Authority, 1998), along with the NSW EPA Sampling Guidelines for Consultants, November 1995 (NSW Envrionment Protection Authority, 1995).

This report does not constitute a Site Audit Report (SAR) as defined in the Guidelines for NSW Site Auditor Scheme (NSW Environment Protection Authority, 2017).

1.2 Aim and Scope of this DSI

The aim of the investigation was to assess the Subject Site suitability for the proposed future land use type being mixed use with basement car parking, retail shops and a childcare on the ground level with residential apartments above. The scope of the DSI was to undertake invasive sampling to test for potential contaminants identified as CoPCs.

1.3 Subject Site - Identification, Description, History and Surrounding Land Uses.

The Subject Site is 2,697m^2 in area and contains cleared land surrounded by roads and an ALDI grocery store to the south. A risk assessment analysis table is provided in section 1.4 below in relation to the risks of contamination occurring on the subject site.

The Subject Site and surrounding locality were historically used for grazing before residential development began around 1975. A brief site history based on aerial photography is shown below;

- **1969:** Paddock and surrounding area paddock grazing;
- **1972:** Paddock and surrounding area paddock grazing;
- **1975:** Commencement of construction of the local road and subdivision layouts;
- **1978:** Residential homes to the NNE and south of the Subject Site;
- **1980:** Subject Site vacant and service station to the NE not present;
- **1990:** Subject Site Vacant and Service Station to the NE now present;
- **2005:** Subject Site vacant, ALDI and service station present; and
- **2005-Present:** Subject Site Vacant. No notable changes in local area.

All historical aerial imagery used in the PSI are provided as **Appendix 2**.

1.4 Risk Assessment Table (Site History and On-site Assessment)

Attribute	Data Sources	Data Review	Discussion and Evaluation of Potential Risks of Contamination and COPC's	Data Adequateness or Data Gaps	Further Information or Evaluation Required ?
Aerial Photos	Historical Image Viewer NSW Government[1] And Google Earth	Aerials (1969, 1972, 1975, 1978, 1980, 1990, 2005, 2007, 2014, 2019)	Land Vacant for all years. No signs of dumping, clearing or soil disturbance. No storage of items noted on the site.	Information considered adequate	No
GIPA Records	Campbelltown City Council	Review of records provided by Campbelltown Council	Council reported no records for the site or Development Consents or known contamination or other uses.	Data considered adequate	No
Chain of Title	NSW Government	Not ordered as other records indicate no site usage	Deemed not to be required based on other site background information.	Other data considered adequate	No
EPA NSW Notified Sites	Online NSW Monthly List[2]	Review of Excel Monthly Spreadsheet	The list contains sites notified to the EPA as being contaminated. If lands are considered "significantly contaminated" they are regulated under the CLM Act. The subject Site is not Listed. The Caltex Service Centre to the north-east (25 metres) is listed. The Caltex Service Centre is considered	Data considered adequate	No

Attribute	Data Sources	Data Review	Discussion and Evaluation of Potential Risks of Contamination and COPC's	Data Adequateness or Data Gaps	Further Information or Evaluation Required ?
			low risk as the site is listed as "Regulation under CLM Act not required". The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required. As such the land is not considered "significantly contaminated". While the Caltex Service Centre is upslope from the subject site it is not directly upslope and occurs to the north-east. As such runoff risk and groundwater inferred flow is to the west of the Caltex Service Centre.		
NSW EPA Contaminated Land Records of Notice	*NSW EPA Contaminated Land Records of Notice*[3]	Search of LGA	No records for the site or near to the site which could impact the subject site.	Data considered adequate	No
Former Gasworks	NSW EPA[4]	Search Online	No records for this LGA	Data considered adequate	No
NSW EPA PFAS Investigation Program	NSW EPA PFAS Investigation Program[5]	Search Online	No Records for this LGA	Data considered adequate	No
Defence Sites PFAS Investigation etc	Department of Defence[6]	Search Online	No Records present	Data considered adequate	No
Safework NSW Section 11 Dangerous Goods Search	Safe work NSW search requests are emailed	Deemed not to be required	Deemed not to be require based on other site background	Other data considered adequate	No
Acid Sulfate Soils	eSpade[7] and on site assessment	Search Online	No acid sulfate potential found to be present	Data considered adequate	No
Dryland Salinity	NSW Government SEED[8] and on site assessment	Search Online	No dryland salinity found online or in the on site assessment.	Data considered adequate	No
Nearby Groundwater Water Well Data	Australian Groundwater Explorer[9]	Search Online	No wells or monitoring wells found on site or near to the site. Nearest wells are	Data considered adequate	No
Environment Protection licences, applications, notices, audits or pollution studies and reduction programs	POEO Public Register NSW EPA[10]	Search Online	No records found for the subject site or nearby sites which could result in contamination to the subject site	Data considered adequate	No
Ground Surface Visibility	On Site Assessment	Yes ground largely visible as bare ground	Ground surface visibility not considered a significant limitation to the detection of staining or foreign materials or other disturbances	Data considered adequate	No
Staining, Foreign Materials, Fill or Odours	On Site Assessment	On Site Assessment	No staining found to be present. Some small surface scatters of gravel and minor bitumen present. No staining or odours. Risk considered insignificant as ground was visible through the gravel and it appeared to be only gravel with no other foreign materials such as potential asbestos or products of combustion etc. A couple of small slabs of concrete on the western	Data considered adequate	No

Attribute	Data Sources	Data Review	Discussion and Evaluation of Potential Risks of Contamination and COPC's	Data Adequateness or Data Gaps	Further Information or Evaluation Required ?
			side of the site approximately 1 metre square.		
Interviews	Interviews with persons knowledgeable of the site	No persons with knowledge of the site were available for interview	No persons with knowledge of the site were available for interview	No considered a limitation	No
Asbestos Containing Materials	On Site Assessment	On Site Assessment	No structures on site and no signs of this material on the surface	Data considered adequate	No
Lead	On Site Assessment	On Site Assessment	No previous uses/activities known which would results in the potential presence of Mercury on the site.	Data considered adequate	No
Mercury		On Site Assessment	No previous uses/activities known which would results in the potential presence of Mercury on the site.	Data considered adequate	No
Ozone Depleting Substances	On Site Assessment	On Site Assessment	No previous uses/activities known which would results in the potential presence of ODS on the site.	Data considered adequate	No
Polychlorinated Biphenyls	On Site Assessment	On Site Assessment	No previous uses/activities known which would results in the potential presence of PCB's on the site.	Data considered adequate	No
Pesticides (OP/OC)	On Site Assessment	On Site Assessment	No previous uses/activities known which would results in the potential presence of pesticides on the site.	Data considered adequate	No
Fuel Tanks or Fuel Storage (AST or UST)	On Site Assessment	On Site Assessment	Not present. Records from the GIPA and aerials indicate this item has not been present on the site.	Data considered adequate	No
Pits, Sumps or Lagoons	On Site Assessment	On Site Assessment	Not present	Data considered adequate	No
Hoists – above or underground	On Site Assessment	On Site Assessment	Not present	Data considered adequate	No
Drains and Grease Traps	On Site Assessment	On Site Assessment	Not present	Data considered adequate	No
Air emissions – stacks etc on or near the site	On Site Assessment	On Site Assessment	Not present	Data considered adequate	No
Stressed Vegetation	On Site Assessment	On Site Assessment	Not present	Data considered adequate	No
Nearby high risk sites such as fuel storage, dry cleaners, foundaries, fabrication, heavy industry, mines, weapons test sites, waste dumps, recycling centres, mechanical workshops etc	On Site Assessment and evaluation of neighbouring property uses	Field Assessment	Not present other than aforementioned Caltex Service Centre.	Data considered adequate	No

[1]https://portal.spatial.nsw.gov.au/portal/apps/webappviewer/index.html?id=f7c215b873864d44bccddda8075238cb
[2]https://www.epa.nsw.gov.au/your-environment/contaminated-land/notified-and-regulated-contaminated-land/list-of-notified-sites
[3]https://app.epa.nsw.gov.au/prclmapp/searchregister.aspx
[4]https://www.epa.nsw.gov.au/your-environment/contaminated-land/other-contamination-issues/former-gasworks-sites
[5]https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program
[6]https://defence.gov.au/environment/pfas/
[7]https://www.environment.nsw.gov.au/eSpade2Webapp
[8]https://datasets.seed.nsw.gov.au/dataset/salinity-potential-of-western-sydney473ff
[9]https://realtimedata.waternsw.com.au/)
[10]https://app.epa.nsw.gov.au/prpoeoapp/default.aspx?SearchTag=notice&searchrange=notice

The Subject Site locality map is shown below in **Figure 1.1**.

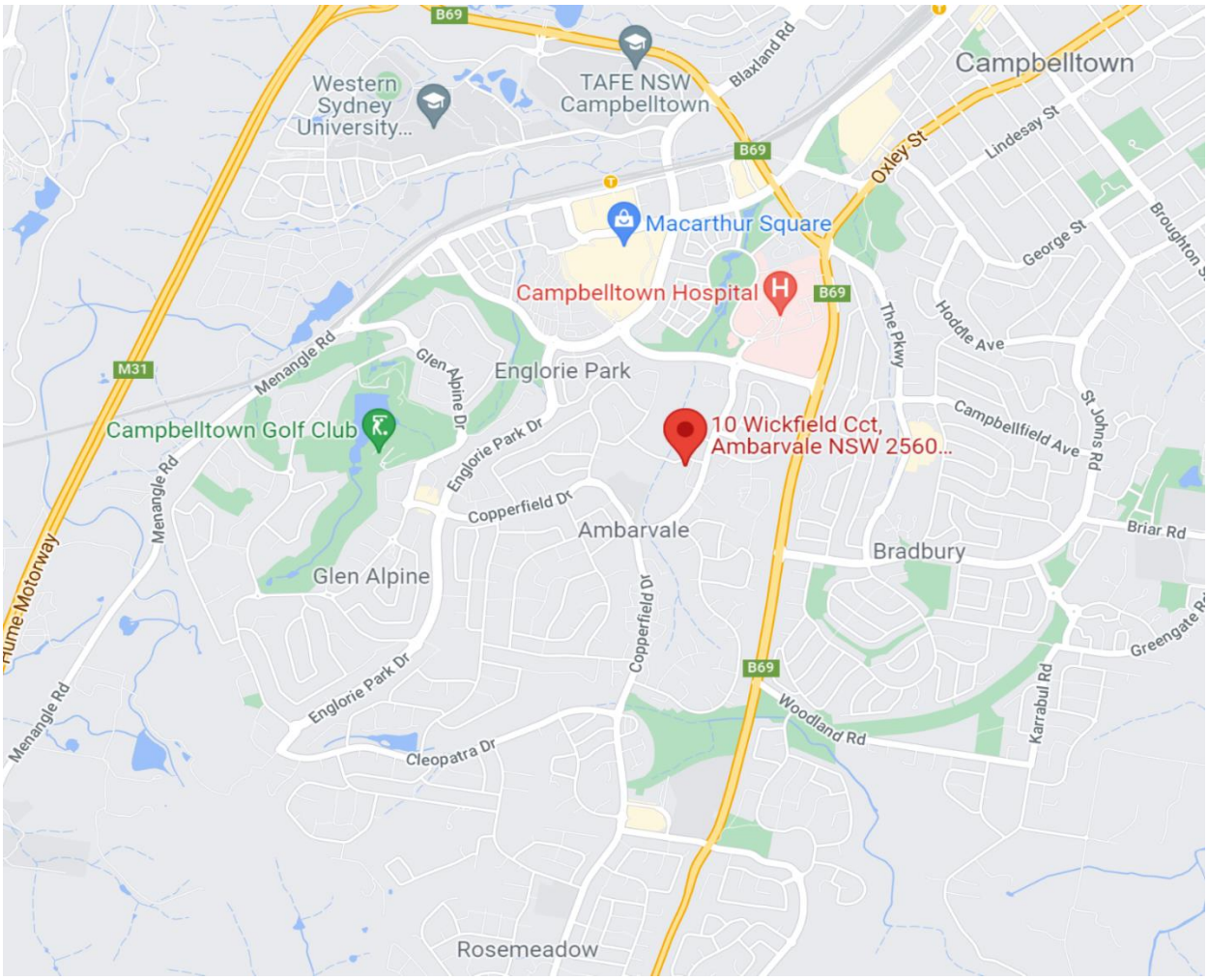


Figure 1.1: Locality map of the Subject Site (Source: Google Maps 2022)

1.5 Soils

The NSW Espade Soil mapping service indicates that the landscape of the region of the Subject Site falls within the Blacktown Soil Landscape (NSW Department of Planning, Industry and Environment, 2021). Its attributes are described in **Table 1.2** below.

Table 1.2: Soil landscape description

Blacktown	
Attribute	**Description**
Landscape	Gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry sclerophyll forest)
Soil	Shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, Red and Brown Podzolic Soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to Yellow Podzolic Soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines
Limitations	Localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, localised surface movement potential

1.6 Geology

The Espade mapping service identifies the underlying geology as part of the Wianamatta Group – Ashfield Shale, described as "consisting of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone" (NSW Department of Planning, Industry and Environment, 2021).

1.7 Hydrology/Hydrogeology

There are no significant drainage lines near to the subject site. There were 4 boreholes to a maximum depth of 10.5 metres at Campbelltown Hospital. The borehole logs indicate that groundwater was not detected in these boreholes. These are the closest boreholes to the subject site.

1.8 Data Quality Objectives (DQO)

As detailed on page 41 of the NSW EPA Consultants Reporting on Contaminated Land guideline, a seven step process is required to document the DQOs for a DSI (NSW Environment Protection Authority, 2020). **Table 1.3** below addresses this seven step process for the Subject Site and the Proposal.

Table 1.3: Data Quality Objectives

Objective	Summary	Where addressed in report
Step 1: State the problem	Problem was unknown land contamination risk to the Subject Site from onsite and offsite sources	**Section 1.1** **Section 1.2** **Section 1.3**
Step 2: Identify the decision/goal of the study	The goal of this study was to identify potential land contamination sources to the Subject Site and determine if the Subject Site was suitable for the proposed land use	**Section 1.2** **Section 1.3**
Step 3: Identify the information inputs	Information inputs comprised: -Data reviewed in the initial PSI -Data obtained during initial DSI (version 1 of this report) -Data obtained in additional DSI works (version 2 of this report)	**Section 1.3**
Step 4: Define the boundaries of the study	Boundary of the study was the Subject Site and adjacent locality examined was 250m from the subject site boundary.	**Section 1**
Step 5: Develop the analytical approach	Analytical approach consisted of the testing of samples collected during the two rounds of sampling.	**Section 2**

	Results were analysed statistically to determine whether the 95% UCL for all CoPCs were below the acceptance criteria	
Step 6: Specify performance or acceptance criteria	Acceptance criteria were the relevant NEPM HILA, HSLA or ESL for the CoPCs analysed	**Section 2**
Step 7: Develop the plan for obtaining data	Plan to obtain data consisted of two rounds of near surface (version 1) and upper two meters (version 2) testing for likely CoPCs on the Subject Site. Results were analysed and compared to the specified acceptance criteria to determine if the goal of the study could be met	**Section 2**

2. Methodology and Testing Parameters

Based on the PSI and DSI, areas of Potential Environmental Concern (APEC's), contamination sources and associated Contaminants of Potential Concern (CoPC) were identified at the Subject Site as per the table below.

Source	Associated chemicals	CoPC (Contaminants of Potential Concern)
Onsite: A few small areas of ground scatter rubbish comprising small gravel rocks, small pieces of concrete and some domestic rubbish such as take away food garbage. Offsite: An operational Caltex Service Station located 25 metres to the North-east. Developed between 1980-1990 based on available aerial photos.	Could include a range of chemicals from petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, asbestos, solvents, and heavy metals. Onsite rubbish materials were inspected during the PSI and found to be a low risk of contamination and did not recommend a DSI based on visual evaluation.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); Total Recoverable Hydrocarbons (TRH) Monocyclic aromatic hydrocarbons Benzene, Toluene, Ethyl-benzene, Xylenes Napthalene (BTEXN) Polycyclic Aromatic Hydrocarbons (PAH) Asbestos Organochlorine and Organophosphorus Pesticides Phenols Polychlorinated Biphenyls

2.1 Previous Detailed Site Investigation – Version 1 DSI Report

A targeted sampling regime was undertaken to target the areas where the small surface scatters of gravel were found. This was undertaken on the 8th of March 2021 by Bo Davidson. This entailed the collection of five near-surface samples to specifically target areas where there were obvious foreign materials on the surface. Samples were taken by hand using a spade. As such the DSI was a targeted assessment based on the evidence of potential contamination on the site. Sample locations are presented on **Figure 2.1** below.

Samples were placed in laboratory supplied collection jars/bottles, labelled with the sample number, date and time, depth and name of sampler. Following collection samples were stored in a laboratory supplied cooler with ice. Samples are then taken directly to the laboratory or kept refrigerated until delivery to the testing laboratory. Samples were delivered to the National Association of Testing Authorities (NATA) accredited ALS Australia testing laboratory at Unit 277-289 Woodpark Road, Smithfield.

These samples were tested for a variety of analytes based on their location on the Subject Site and the CoPCs identified for each item. The full analyte suite is as follows:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Total Recoverable Hydrocarbons (TRH);

- Monocyclic aromatic hydrocarbons Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene (BTEXN);
- Polycystic Aromatic Hydrocarbons (PAH); and
- Asbestos.

2.2 Methodology for Additional Detailed Site Investigation Sampling

Drilling was undertaken at 10 approximately evenly spaced locations across the site by Bo Davidson on the 16th of June 2022. Sampling point density was based on Table A (page 8) of the *NSW Environment Protection Authority. (1995)- Contaminated Sites Sampling Design Guidelines.* The sampling points were spread evenly across the subject site for maximum site coverage. The site area is 2,697m^2 and the required number of samples based on Table A for 0.3ha is 9 sampling points. Ten sampling points were chosen to provide more even site coverage. Sample locations are presented on **Figure 2.2** below.

This included the installation on one groundwater monitoring well on the lowest portion on the west of the subject site (B1 on **Figure 2.2**). Drilling at the well location was undertaken to 4.5 metres until drill refusal occurred on hard shale. The lowest point of the subject site was chosen for the first monitoring well to determine if groundwater could be reached. This point was chosen to avoid drilling through the larger amount of "overburden" on the more elevated part of the subject site. As the first well had no indications of water being present it was terminated and finalised using 2 metres of screen (sand backfilled), then bentonite to ground level terminated by a flush mounted well cover.

The drilling was undertaken using a truck mounted hydraulic solid flight auger rig (100mm diameter – spiral auger. Soils were screened for volatiles using a Tiger Photoionization Detector (PID) hired from Airmet Scientific.

Samples were placed in laboratory supplied collection jars/bottles, labelled with the sample number, date and time, depth and name of sampler. Following collection samples were stored in a laboratory supplied cooler with ice. Samples were then taken directly to the laboratory or kept refrigerated until delivery to the testing laboratory. Samples were delivered to the National Association of Testing Authorities (NATA) accredited SGS Australia testing laboratory at Unit 277-289 Woodpark Road, Smithfield. Inter-lab samples were sent by SGS to their Melbourne Laboratory and the Intra-lab sample was analysed by Envirolab Chatswood.

These samples were tested for a variety of analytes based on their location on the Subject Site and the CoPCs identified for each item. The full analyte suite is as follows:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Total Recoverable Hydrocarbons (TRH);
- Monocyclic aromatic hydrocarbons Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene (BTEXN);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Phenols;
- Organochlorine pesticides (OC);
- Organophosphate pesticides (OP); and
- Polychlorinated Biphenyls (PCBs).

Asbestos was not analysed for the second sampling round as no signs of foreign materials were located in the soil samples and the number of samples previously taken did not result in any asbestos being found.

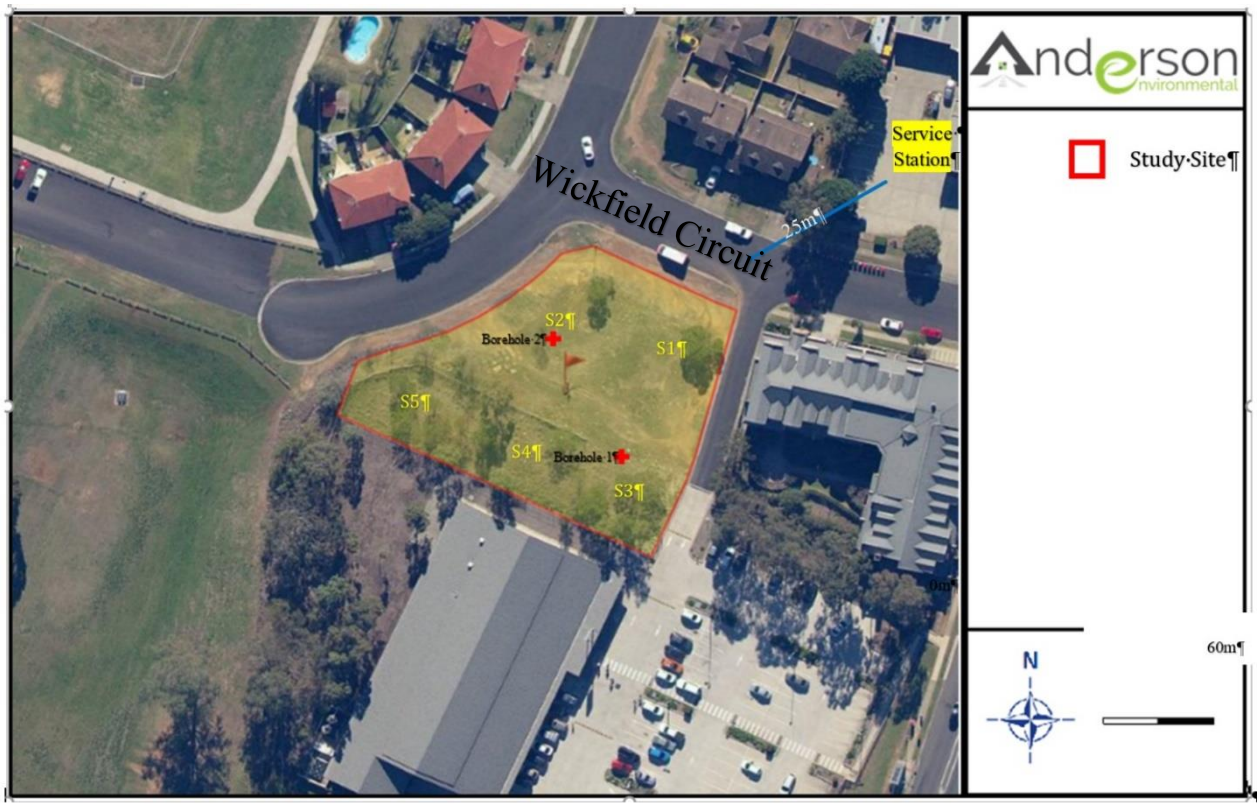


Figure2.1: DSI Version 1 Near Surface Sampling Points

Figure 2.2: DSI Version 2 Sampling locations. BH1 turned into a monitoring well 4.5m depth.

2.3 Borehole Drilling Methodology

For each borehole a complete borehole log was recorded, detailing stratigraphic changes in the soil profile, total depth, sampling depths and any other notable characteristics (e.g., bedrock, presence of water table, inclusions of non-native materials).

2.4 Assessment Criteria Rationale

The results of these analyses were compared against Schedule B1 of the NEPM 2013. . Due to the development being high density residential with a childcare centre and retail shops on the ground floor and basements beneath, traditional soil land use criteria may not be appropriate. The proposed basement footprint covers nearly the entire site with some strips of land around the periphery to be used for landscaping. Where there is no soil profile, then there is no media for contamination sources to reside. However, strictly for conservative reasons and the presence of a childcare centre on the ground floor, health investigation levels for sensitive land uses (HIL A) were used to screen soil samples adopted from ASC NEPM 2013.

In accordance with Schedule B1 of ASC NEPM 2013 (Table Notes: Table 1A(3)), less conservative HSL criteria can be used when a basement exists beneath habitable levels of a multi-storey building. As such, HSL-D soil screening criteria have been adopted for potential soil vapour risk at depth directly beneath the basement floor (<1.0m depth) in clay.

EIL's and ESL's are not relevant to this site or this assessment as all of the soil is being removed from the site for the development of a two level basement car park. Greater than 4 metres of soil will require removal to facilitate the development. All areas of the site will be concrete with the only soil being landscaping soil within planter boxes from off site.

Appropriate TRH fractions and BTEXN results were also compared to HSL Levels (NEPM 2013) for clay soils to assess potential risk of vapour intrusion. See **Table 2.5** below for the screening criteria for the CoPCs tested in this DSI.

Table 2.5: Screening criteria HIL-A and HSL-D

Analyte class	Analyte	Sampling phase	NEPM HILA (mg/kg)	NEPM HSL D (mg/kg)
VOCs	**Benzene**	1 and 2		4
	Toluene	1 and 2		NL
	Ethylbenzene	1 and 2		NL
	Naphthalene (VOC)	1 and 2		NL
	Total Xylenes	1 and 2		NL
TRH	**TRH C6-C10 minus BTEX (F1)**	1 and 2		310
	TRH >C10-C16 - Naphthalene (F2)	1 and 2		NL
	TRH >C16-C34 (F3)	1 and 2		-
	TRH >C34-C40 (F4)	1 and 2		-
PAH	**Naphthalene**	1 and 2		-
	Benzo(a)pyrene	1 and 2		-

Analyte class	Analyte	Sampling phase	NEPM HILA (mg/kg)	NEPM HSL D (mg/kg)
	Carcinogenic PAHs, BaP TEQ <LOR=0	1 and 2	3	3
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	1 and 2	3	3
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	1 and 2	3	3
	Total PAH (18)	1 and 2	3	40
Phenols	**Phenol**	2	3000	240 000
	Total Cresol	2	400	25000
	Pentachlorophenol	2	100	660
OC pesticides	**Hexachlorobenzene (HCB)**	2	10	80
	Heptachlor	2	6	50
	Aldrin	2	6	45
	Heptachlor epoxide	2	3	50
	DDE+DDD+DDT	2	240	3600
	Alpha Endosulfan	2	270	2000
	Gamma Chlordane	2	50	530
	Alpha Chlordane	2	50	530
	Dieldrin	2	6	45
	Endrin	2	10	100
	Beta Endosulfan	2	270	2000
	Endosulfan sulphate	2	270	2000
	Endrin Aldehyde	2	10	100
	Methoxychlor	2	300	2500
	Endrin Ketone	2	10	100
	Mirex	2	10	100
OP pesticides	**Chlorpyrifos (Chlorpyrifos Ethyl)**	2	160	2000
PCBs	**Total PCBs (Arochlors)**	2	1	7
Metals	**Arsenic (As)**	1 and 2	100	3000
	Cadmium (Cd)	1 and 2	20	900
	Chromium (Cr)	1 and 2	100	3600
	Copper (Cu)	1 and 2	600	240 000
	Lead (Pb)	1 and 2	30	1500
	Nickel (Ni)	1 and 2	40	6000
	Zinc (Zn)	1 and 2	7400	400 000
	Mercury (He)	1 and 2	40	730
Asbestos	**Asbestos**	1	presence/ absence	-

NL= Not Limiting

***For clay-based soils at 0-<1m*

The NEPM requires a consideration of soil aesthetics (colour, rubbish, odours, stains etc.). Observations of the aesthetic condition of the soils in all boreholes were recorded.

2.5 Quality Assurance / Quality Control (QA/QC)

Throughout all phases of works, appropriate QA/QC procedures were followed. Samples were collected and stored in appropriate containment vessels, on ice and delivered to the testing facility within scheduled holding times. Borehole logs for all sampling boreholes were collected, detailing dates and time, total depth, soil profile, soil characteristics, presence and depth of groundwater, equipment used and depths of sampling. Suitably competent field staff (Mr Jason Anderson and Mr Bo Davidson) were onsite to perform all sampling activities and sample dispatch.

Chain of Custody (COC) forms were collated during works detailing:

- The name of person relinquishing the samples;
- Time and date of sampling;
- Time and date of delivery to the testing facility;
- Contact details of client;
- Nature of the samples; and
- Analytes to be determined.

One inter-lab sample was analysed by Envirolab Group, 12 Ashley St Chatswood NSW 2067.

3. Results

3.1 Borehole Results

The soils of the Subject Site were predominantly characteristic of the Blacktown Soil Landscape. Natural soil profiles were observed in all 10 boreholes during sampling to a depth of between 1 and 4.3m. A thin layer of fill (gravel and concrete fragments) was observed in B8-B10 in the highest portion of the Subject Site (south) at a uniform depth of approximately 0.3m. The remnants of a small concrete slab were also encountered on the soil surface adjacent to B6. No significant buried fill or other materials, soil discolouring or discernible odours were detected during either sampling phase. No elevated levels of VOC's as a result of the field screening with the PID were detected with readings varying from 0.3 to 1.5 parts per million (ppm).

Complete logs for all boreholes can be found in **Appendix 3**.

3.2 Laboratory Results

3.2.1 Results

The complete results of the laboratory analyses are provided in **Appendix 8** All chemical analysis were below threshold levels for the acceptance criteria as outlined in **Table 2.5** above. No groundwater was present at a depth of 4.3 metres.

There is no risk to terrestrial receptors as due to the soil removal for the basement to a depth of 9.4 m bgl all of the overlying soil is being removed. No contamination was found to be present in the soil tested.

Table 3.1 – Version 1 DSI Sampling Results ALS

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	S1	S2	S3	S4	S5
			Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit	ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.2	12.8	11.9	22.8	16.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	No
Organic Fibre	----	0.1	g/kg	No	No	No	No	No
Sample weight (dry)	----	0.01	g	221	133	172	156	162
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	10	10	9	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	26	20	15	21
Copper	7440-50-8	5	mg/kg	39	29	42	43	40
Lead	7439-92-1	5	mg/kg	26	35	36	33	32
Nickel	7440-02-0	2	mg/kg	14	17	18	20	18
Zinc	7440-66-6	5	mg/kg	78	45	72	76	66
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	S1	S2	S3	S4	S5
				Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit		ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		100	88.3	97.9	98.3	94.0
2-Chlorophenol-D4	93951-73-6	0.5	%		103	90.8	98.6	99.4	94.6

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	S1	S2	S3	S4	S5
				Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit		ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	0.5	%		76.8	74.4	70.8	69.2	69.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		105	97.0	103	102	100
Anthracene-d10	1719-06-8	0.5	%		102	96.0	97.6	97.5	93.7
4-Terphenyl-d14	1718-51-0	0.5	%		97.3	106	94.2	94.9	89.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		100	99.1	101	92.6	93.1
Toluene-D8	2037-26-5	0.2	%		98.3	93.6	100	94.5	103
4-Bromofluorobenzene	460-00-4	0.2	%		107	96.4	106	99.4	102

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S1 - 08-Mar-2021 15:19	Mid brown soil.
EA200: Description	S2 - 08-Mar-2021 15:34	Mid brown soil.
EA200: Description	S3 - 08-Mar-2021 15:46	Mid brown soil.
EA200: Description	S4 - 08-Mar-2021 16:00	Mid brown soil.
EA200: Description	S5 - 08-Mar-2021 16:11	Mid brown soil.

Table 3.2 – Version 2 DSI Sampling Results SGS

Analyte Name	Units	Reporting Limit	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	HIL-A/HSL D
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-/4
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-/NL
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-/NL
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<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	<0.1	<0.1	<0.1	<0.1	<0.1	-/-
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-/NL
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-/NL
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	-/-
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-/4
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-/-
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	-/-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	-/310
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-/-
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	-/-
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	-/-
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-/-
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	-/-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	-/NL
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	-/-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	-/-
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	-/-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	-/-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<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	<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	<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	<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	<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	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	-/-

Analyte Name	Units	Reporting Limit	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	HIL-A/HSL D
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<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	<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	<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	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	-/-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	3-/-40
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	3-/-40
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	3-/-40
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	3-/-40
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	3-/-40
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3000-/-240000
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-/-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-/-
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	400-/-25000
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-/-
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	100-/-660
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10-/-80
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	

Analyte Name	Units	Reporting Limit	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	HIL-A/HSL D
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6-/-50
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6-/-45
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	6-/-50
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.2	<0.2	<0.2	<0.2	<0.2	270-/-2000
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	50-/-530
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	50-/-530
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	6-/-45
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10-/-100
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	270-/-2000
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<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	<0.1	<0.1	<0.1	<0.1	<0.1	270-/-2000
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10-/-100
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	300-/-2500
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10-/-100
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	10-/-100
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<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	<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	<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	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	160-/-2000

Analyte Name	Units	Reporting Limit	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	HIL-A/HSL D
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<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	<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	<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	<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	<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	<1.7	<1.7	<1.7	<1.7	<1.7	
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<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	<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	<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	<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	<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	<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	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Arsenic, As	mg/kg	1	**5**	**5**	**6**	**6**	**7**	**7**	**7**	**4**	**6**	**7**	100-/-3000
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	20-/-900
Chromium, Cr	mg/kg	0.5	**6.2**	**14**	**11**	**12**	**13**	**16**	**11**	**10**	**11**	**10**	100-/-3600
Copper, Cu	mg/kg	0.5	**24**	**18**	**23**	**29**	**23**	**23**	**28**	**17**	**22**	**25**	6000-/-240 000
Lead, Pb	mg/kg	1	**18**	**20**	**23**	**24**	**26**	**26**	**24**	**13**	**22**	**20**	300-/-1500
Nickel, Ni	mg/kg	0.5	**3.4**	**7.0**	**7.7**	**8.3**	**8.5**	**10**	**9.5**	**9.7**	**9.8**	**11**	400-/-6000
Zinc, Zn	mg/kg	2	**28**	**26**	**42**	**52**	**41**	**38**	**50**	**39**	**46**	**54**	7400-/-400 000
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	40-/-730
% Moisture	%w/w	1	**9.2**	**21.6**	**16.1**	**10.7**	**18.6**	**17.4**	**13.7**	**13.2**	**14.6**	**17.4**	

3.3 Conceptual Site Model

Contamination Source	Pathway	Receptor
No fill materials were detected. There was no contamination detected in the analytes tested. Groundwater was not reached due to auger refusal at 4.5 metres. The list contains sites notified to the EPA as being contaminated. If lands are considered "significantly contaminated" they are regulated under the CLM Act. The subject Site is not Listed. The Caltex Service Centre to the north-east (25 metres) is listed. The Caltex Service Centre is considered low risk as the site is listed as "Regulation under CLM Act not required". The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required. As such the land is not considered "significantly contaminated". While the Caltex Service Centre is upslope from the subject site it is not directly upslope and occurs to the north-east. As such runoff risk and groundwater inferred flow is to the west of the Caltex Service Centre.	Dust Inhalation/Injestion of contaminated soil/dust if soil is moved where contamination with heavy metals, hydrocarbons, absestos fibres etc. is present. There was however no contamination of the analytes tested in the soil. As such no pathway is present or risk to workers or occupiers of the future building	The Subject Site was not found to contain contamination for the analytes tested. The nearby Caltex Service Centre does not require regulation under the CLM Act. As such no receptors would be impacted.

3.4 Data Gaps

There are not considered to be any data gaps as part of this investigation. Groundwater was not reached during the drilling due to auger refusal on hard interbedded shale. Groundwater in the locality is greater than 10.5 metres based on nearby borehole logs. The maximum excavation depth is 9.4 metres. Based on aerial photographs the nearby service station was constructed sometime between 1980 (where it is not present) and 1990 (where it is present). As the site is not listed the risk from the Caltex Service Centre is considered low as the site is listed as "Regulation under CLM Act not required", as such any potential for contamination from the petrol station to the north east to impact the site is considered negligible.

3.5 QA and QC Analysis

QA and QC procedures undertaken as part of this DSI, addressing all Precision, Accuracy, Representativeness, Comparability and Completeness (PARCC) parameters as detailed in Table 2(c) of the NSW EPA Consultants reporting on contaminated Land Guideline (NSW Environment Protection Authority, 2020) are provided in **Appendix 2**.

3.6 Laboratory Data Quality Validation

Relative Percentage Difference (RPD) provided by the testing laboratories during both sampling phases is calculated as follows:

Original result-replicate result x 100 / mean

All RPD results were within an acceptable range (typically ±50%) for both the primary testing facility and the inter and intra sample testing facilities. All samples were evaluated.

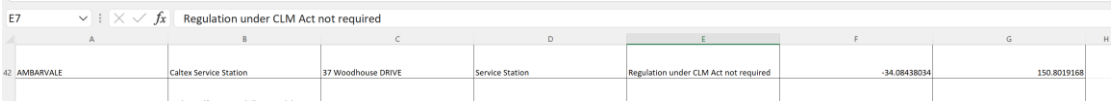
No acceptance criteria for any analyte failed with the exception of TRH in S4 of the second sampling phase, which failed spike recovery for TRH >C16-C34 (F3), with the report stating '*recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level)*". This is not considered to be a limitation due to the high number of samples taken for such a small site.

The laboratory analysis used for both phases of this DSI was considered reliable.

3.7 Risk Analysis

No contamination was identified in line with relevant acceptance criteria. The risk of potential contamination which may not have been detected by the sampling undertaken on the Subject Site is considered negligible.

A service station is located approximately up/cross slope and approximately 25m to the north-east of the Subject Site. Based on a review of the historical aerial imagery obtained during the PSI, this service station was constructed between 1980 and 1990. The Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regs) regulates the Caltex property under active monitoring for leakages from underground tanks. Also, the service station property was notified to the NSW EPA under section 60 of the CLM Act 1997 and is registered on the NSW Environment Protection Authority (EPA) list of notified sites (NSW Environment Protection Authority, 2022). At the time of writing this DSI report, the property was classed as "*Regulation under CLM Act not required*", indicating that any contamination on the Caltex site would be monitored under the UPSS Regs 2019 and would not be cause for concern on adjoining or nearby properties via migration offsite. This is of particular importance to the Subject site as it would be unlikely for a plume of contaminated groundwater to be migrating under the Subject Site caused by the Caltex property. A screenshot of the excel spreadsheet is shown below.



The proposed basement area would extend to a depth of 9.4m bgl. As detailed in **Section 2.2** above, during the additional sampling detailed in version 2 of this DSI, a maximum depth of 4.5m was achieved before drilling was arresting on shale rock. No groundwater was encountered during the drilling of this borehole. With reference to the Australian Groundwater Explorer, the nearest registered borehole was located on the grounds of the Campbelltown Hospital, approximately 900m to the north-east of the Subject Site (Australian Government Bureau of Meteorology, 2022). This borehole provides a groundwater depth of 10.5m.

4. Conclusion and Recommendations

4.1 Conclusion

This DSI did not identify contamination considered to pose a risk to human health or the environment for the future land use of the proposed development. The results of the extensive sampling on the site included 15 sampling locations in which the soils were examined physically and analytically. Drilling to depths of 4.5m bgl encountered bedrock and confirmed no shallow groundwater was present. This indicated that the soils on the Subject Site are representative of natural soils with limited fill or foreign materials present (thin layer of gravel fill at 0.3m in the upper (southern) portion of the Subject Site adjacent to ALDI.

The site is considered suitable for its proposed use and no further assessment or remedial works are required.

5. REFERENCES

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6. APPENDIX 1: DISCLAIMER AND LIMITATIONS OF LIABILITY

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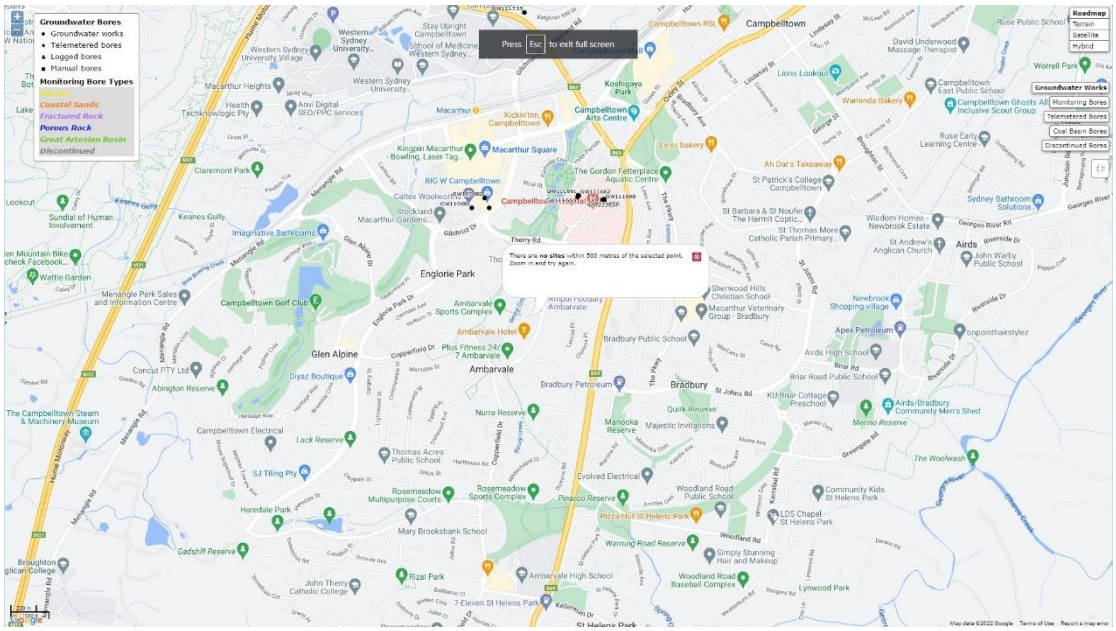
7. APPENDIX 2: ASSESSMENT OF QA AND QC PARAMETERS

Required information	Precision	Accuracy	Representativeness	Comparability	Completeness	Assessment
Details of sampling team				X	X	Details of sampling team provided in **Section 2**
Reference to sampling plan/method, including any deviations from it – sampling and analysis quality plan					X	Details of sampling plan provided in **Section 2**.
Any information that could be required to evaluate measurement uncertainty for subsequent testing (analysis)	X	X				None encountered
Decontamination procedures carried out between sampling events	X	X	X			All remaining soil material was physically removed from the auger following each sampling event
Logs for each sample collected, including date, time, location (with GPS coordinates if possible), sampler, duplicate samples, chemical analyses to be performed, site observations and weather/environmental (i.e., surroundings) conditions. Include any diagrams, maps, photos			X	X		Borehole logs provided in appendices of this report.
Chain of custody fully identifying – for each sample – the sampler, nature of the sample, collection date, analyses to be performed, sample preservation method, departure time from the site and dispatch courier(s) (where applicable)				X	X	COC forms provided in **Appendix 8**
Field quality assurance/quality control results (e.g., field blank, rinsate blank, trip blank, laboratory prepared trip spike)	X	X				Laboratory reports provided in **Appendix 8**. Laboratory QA and QC provided on in these reports from all laboratories
Sample splitting techniques – subsampling, containers/preservation (ensure unique ID for subsequent samples provided)			X			No subsampling or sample splitting was undertaken. All soil samples were collected in laboratory supplied containers and stored on ice prior to transport to the testing laboratory
Statement of duplicate frequency	X		X			Duplicate details provided in **Appendix 8**

Required information	Precision	Accuracy	Representativeness	Comparability	Completeness	Assessment
Background sample results				X	X	No background samples were able to be obtained from the site.
Field instrument calibrations (when used)	X	X				PID was hired from AirMet Scientific Equipment and was fully calibrated.
Sampling devices and equipment				X	X	Sampling devices and equipment detailed in **Section 2**
A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments				X	X	COC forms provided in **Appendix 8**
Record of holding times and a comparison with method specifications				X	X	Holding time data provided in laboratory report QA and QC report (intra sample and remaining samples). All analytes were tested within their required holding times.
Analytical methods used, including any deviations				X	X	Method summaries are provided in the Laboratory Analysis results in **Appendix 8**.
Laboratory accreditation for analytical methods used, also noting any methods used which are not covered by accreditation	X				X	Details of tests covered and not covered by the National Association of Testing Authorities (NATA) provided in the laboratory reports in **Appendix 8.**
Laboratory performance for the analytical method using inter-laboratory duplicates		X		X		The analysis for the inter-laboratory duplicate that Envirolab tested was below threshold levels for HIL-A. There were no significant differences in the results of the analysis from the laboratories used.
Surrogates and spikes used throughout the full method process, or only in parts. Results are corrected for the recovery				X	X	Details of surrogates and spikes used in all tests are provided in the laboratory reports in **Appendix 8**
A list of what spikes and surrogates were run with their recoveries and acceptance criteria (tabulate)		X		X		Surrogates and spikes details provided in **Appendix 8**
Practical quantification limits (PQL)				X	X	PQL are provided in the Laboratory Reports in **Appendix 8**
Reference laboratory control sample (LCS) and check results					X	Details of LCS used for the inter sample provided in the laboratory reports in **Appendix 8**
Laboratory duplicate results (tabulate)		X			X	Laboratory duplicate results provided in **Appendix 8**
Laboratory blank results (tabulate)		X			X	Laboratory blank results provided in **Appendix 8**

Required information	Precision	Accuracy	Representativeness	Comparability	Completeness	Assessment
Results are within control chart limits					X	All samples were found to be within control chart limits.
Evaluation of all quality assurance/control information listed above against the stated data quality objectives, including a quality assurance/control data evaluation	X	X	X	X	X	QC and QA requirements met, with the exception of TRH in S4 of the second sampling phase, which failed spike recovery for TRH >C16-C34 (F3). This is not considered significant in light of the large number of samples taken for such a small site.

8. APPENDIX 3: GROUNDWATER BORES



9. APPENDIX 4: HISTORICAL AERIAL IMAGERY USED IN PSI

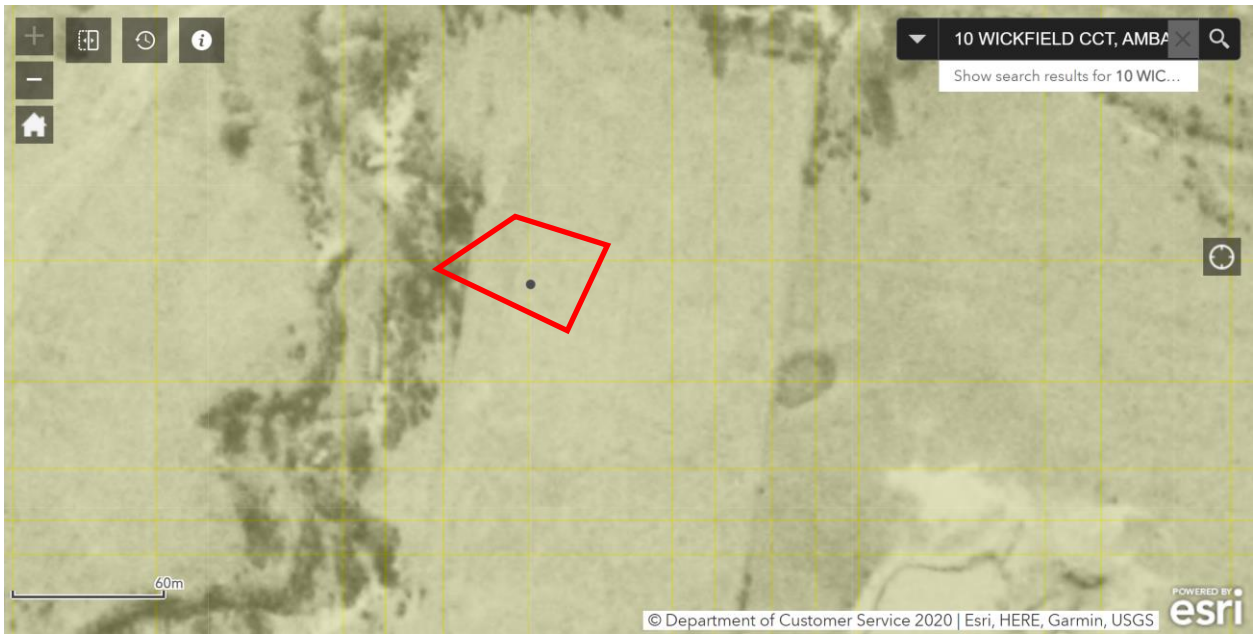


Figure A2.1: Aerial Photo 1969 (first available)

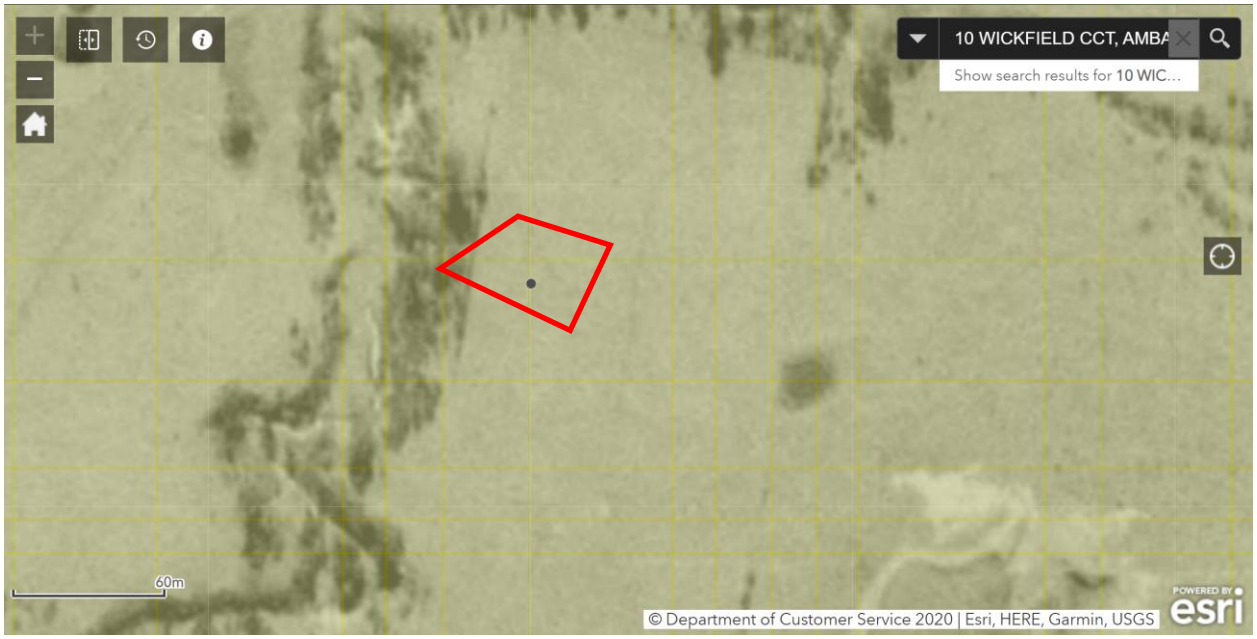


Figure A2.2: Aerial Photograph 1972

Figure A2.3: Aerial Photograph 1975

Figure A2.4: Aerial Photograph 1978

Figure A2.5: Aerial Photograph 1980

Figure A2.6: Aerial Photograph 1990

Figure A2.7: Aerial Photograph 2005

Figure A2.8: Aerial Photography 2007

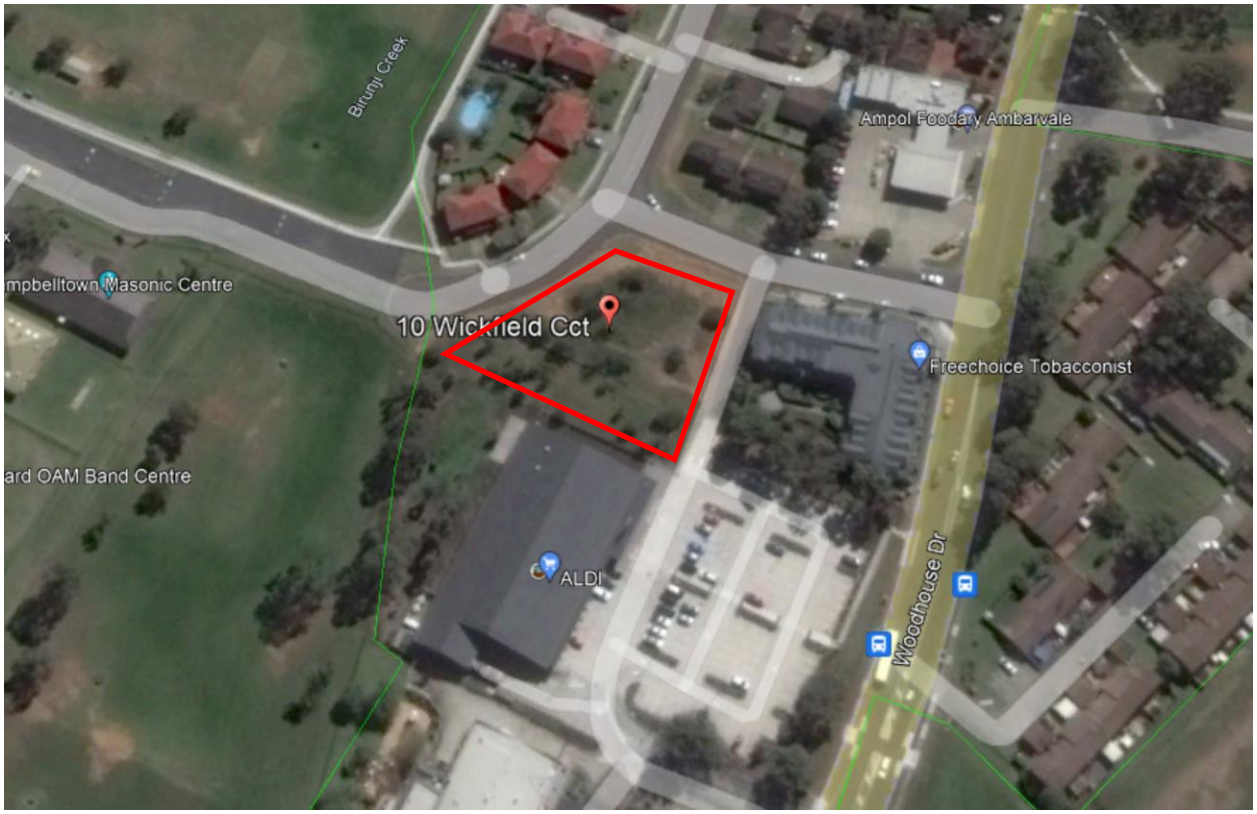


Figure A2.9: Aerial Photograph 2014

Figure A2.10: Aerial Photograph 2019

10. APPENDIX 5: PARAMETER THRESHOLDS-NEPM 2013

Table 1A(1) Health investigation levels for soil contaminants

Chemical	Health-based investigation levels (mg/kg)			
	Residential[1] A	Residential[1] B	Recreational[1] C	Commercial/ industrial[1] D
Metals and Inorganics				
Arsenic[2]	100	500	300	3 000
Beryllium	60	90	90	500
Boron	4500	40 000	20 000	300 000
Cadmium	20	150	90	900
Chromium (VI)	100	500	300	3600
Cobalt	100	600	300	4000
Copper	6000	30 000	17 000	240 000
Lead[3]	300	1200	600	1 500
Manganese	3800	14 000	19 000	60 000
Mercury (inorganic)[5]	40	120	80	730
Methyl mercury[4]	10	30	13	180
Nickel	400	1200	1200	6 000
Selenium	200	1400	700	10 000
Zinc	7400	60 000	30 000	400 000
Cyanide (free)	250	300	240	1 500
Polycyclic Aromatic Hydrocarbons (PAHs)				
Carcinogenic PAHs (as BaP TEQ)[6]	3	4	3	40
Total PAHs[7]	300	400	300	4000
Phenols				
Phenol	3000	45 000	40 000	240 000
Pentachlorophenol	100	130	120	660
Cresols	400	4 700	4 000	25 000
Organochlorine Pesticides				
DDT+DDE+DDD	240	600	400	3600
Aldrin and dieldrin	6	10	10	45
Chlordane	50	90	70	530
Endosulfan	270	400	340	2000
Endrin	10	20	20	100
Heptachlor	6	10	10	50
HCB	10	15	10	80
Methoxychlor	300	500	400	2500
Mirex	10	20	20	100
Toxaphene	20	30	30	160
Herbicides				
2,4,5-T	600	900	800	5000
2,4-D	900	1600	1300	9000
MCPA	600	900	800	5000

Chemical	Health-based investigation levels (mg/kg)			
	Residential[1] A	Residential[1] B	Recreational[1] C	Commercial/ industrial[1] D
MCPB	600	900	800	5000
Mecoprop	600	900	800	5000
Picloram	4500	6600	5700	35000
Other Pesticides				
Atrazine	320	470	400	2500
Chlorpyrifos	160	340	250	2000
Bifenthrin	600	840	730	4500
Other Organics				
PCBs[8]	1	1	1	7
PBDE Flame Retardants (Br1–Br9)	1	2	2	10

Notes:

(1) Generic land uses are described in detail in Schedule B7 Section 3

HIL A – Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.

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

HIL C – Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. This does not include undeveloped public open space where the potential for exposure is lower and where a site-specific assessment may be more appropriate.

HIL D – Commercial/industrial, includes premises such as shops, offices, factories and industrial sites.

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

(3) Lead: HIL is based on blood lead models (IEUBK for HILs A, B and C and adult lead model for HIL D where 50% oral bioavailability has been considered. Site-specific bioavailability may be important and should be considered where appropriate.

(4) Methyl mercury: assessment of methyl mercury should only occur where there is evidence of its potential source. It may be associated with inorganic mercury and anaerobic microorganism activity in aquatic environments. In addition the reliability and quality of sampling/analysis should be considered.

(5) Elemental mercury: HIL does not address elemental mercury. A site-specific assessment should be considered if elemental mercury is present, or suspected to be present,

(6) Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF, given below, and summing these products.

PAH species	TEF	PAH species	TEF
Benzo(a)anthracene	0.1	Benzo(g,h,i)perylene	0.01
Benzo(a)pyrene	1	Chrysene	0.01
Benzo(b+j)fluoranthene	0.1	Dibenz(a,h)anthracene	1
Benzo(k)fluoranthene	0.1	Indeno(1,2,3-c,d)pyrene	0.1

Where the B(a)P occurs in bitumen fragments it is relatively immobile and does not represent a significant health risk.

(7) Total PAHs: HIL is based on the sum of the 16 PAHs most commonly reported for contaminated sites (WHO 1998). The application of the total PAH HIL should consider the presence of carcinogenic PAHs and naphthalene (the most volatile PAH). Carcinogenic PAHs reported in the total PAHs should meet the B(a)P TEQ HIL. Naphthalene reported in the total PAHs should meet the relevant HSL.

(8) PCBs: HIL relates to non-dioxin-like PCBs only. Where a PCB source is known, or suspected, to be present at a site, a site-specific assessment of exposure to all PCBs (including dioxin-like PCBs) should be undertaken.

Table 1A(3) Soil HSLs for vapour intrusion (mg/kg)

	HSL A & HSL B Low – high density residential				HSL C recreational / open space				HSL D Commercial / Industrial				
CHEMICAL	0 m to <1 m	1 m to <2 m	2 m to <4m	4 m+	0 m to <1 m	1 m to <2 m	2 m to <4 m	4 m+	0 m to <1 m	1 m to <2 m	2 m to <4 m	4 m+	Soil saturation concentration (Csat)
SAND													
Toluene	160	220	310	540	NL	NL	NL	NL	NL	NL	NL	NL	560
Ethylbenzene	55	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	64
Xylenes	40	60	95	170	NL	NL	NL	NL	230	NL	NL	NL	300
Naphthalene	3	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	9
Benzene	0.5	0.5	0.5	0.5	NL	NL	NL	NL	3	3	3	3	360
F1[9]	45	70	110	200	NL	NL	NL	NL	260	370	630	NL	950
F2[10]	110	240	440	NL	NL	NL	NL	NL	NL	NL	NL	NL	560
SILT													
Toluene	390	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	640
Ethylbenzene	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	69
Xylenes	95	210	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	330

	HSL A & HSL B Low – high density residential				HSL C recreational / open space				HSL D Commercial / Industrial				
Naphthalene	4	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	10
Benzene	0.6	0.7	1	2	NL	NL	NL	NL	4	4	6	10	440
F1[9]	40	65	100	190	NL	NL	NL	NL	250	360	590	NL	910
F2[10]	230	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	570
CLAY													
Toluene	480	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	630
Ethylbenzene	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	68
Xylenes	110	310	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	330
Naphthalene	5	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	10
Benzene	0.7	1	2	3	NL	NL	NL	NL	4	6	9	20	430
F1[9]	50	90	150	290	NL	NL	NL	NL	310	480	NL	NL	850
F2[10]	280	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	560

Notes:

(1) Land use settings are equivalent to those described in Table 1A(1) Footnote 1 and Schedule B7. HSLs for vapour intrusion for high density residential assume residential occupation of the ground floor. If communal car parks or commercial properties occupy the ground floor, HSL D should be used,

(2) The key limitations of the HSLs should be referred to prior to application and are presented in Friebel and Nadebaum (2011b and 2011d).

(3) Detailed assumptions in the derivation of the HSLs and information on how to apply the HSLs are presented in Friebel and Nadebaum (2011a and 2011b).

(4) Soil HSLs for vapour inhalation incorporate an adjustment factor of 10 applied to the vapour phase partitioning to reflect the differences observed between theoretical estimates of soil vapour partitioning and field measurements. Refer Friebel & Nadebaum (2011a) for further information.

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

Figure A4.2: Soil Health safety levels for vapour intrusion (mg/kg)

Table 1B(6) ESLs for TPH fractions F1 – F4, BTEX and benzo(a)pyrene in soil

CHEMICAL	Soil texture	ESLs (mg/kg dry soil)		
		Areas of ecological significance	Urban residential and public open space	Commercial and industrial
F1 C_6-C_{10}	*Coarse/ Fine*	125*	180*	215*
F2 >C_{10}-C_{16}		25*	120*	170*
F3 >C_{16}-C_{34}	*Coarse*	-	300	1700
	Fine	-	1300	2500
F4 >C_{34}-C_{40}	*Coarse*	-	2800	3300
	Fine	-	5600	6600
Benzene	*Coarse*	10	50	75
	Fine	10	65	95
Toluene	*Coarse*	10	85	135
	Fine	65	105	135
Ethylbenzene	*Coarse*	1.5	70	165
	Fine	40	125	185
Xylenes	*Coarse*	10	105	180
	Fine	1.6	45	95
Benzo(a)pyrene	*Coarse*	0.7	0.7	0.7
	Fine	0.7	0.7	0.7

Notes:

(1) ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

(2) '-' indicates that insufficient data was available to derive a value.

(3) To obtain F1, subtract the sum of BTEX concentrations from C_6-C_{10} fraction and subtract naphthalene from >C_{10}-C_{16} to obtain F2.

Figure A4.3: Ecological Screening Levels for hydrocarbon fractions and BTEX (mg/kg)

Table A1: Summary of the EILs for fresh and aged contamination in soil with various land uses. Presented ranges are the EILs for a range of soil characteristics.

Contaminant	Age of contam	Added contaminant limits (mg added/kg soil) or EIL (mg/kg) for various land uses		
		Area of ecological significance[3]	Urban residential/ public open space[4]	Commercial & industrial[5]
Zinc[1]	fresh	7–130	25–500	45–800
	aged	15–280	70–1300	100–2000
Arsenic[2]	fresh	20	50	80
	aged	40	100	160
Naphthalene[2]	fresh	10	170	370
DDT[2]	fresh	3	180	630
Chromium (III)[1]	fresh	25–50	75–160	120–270
	aged	60–130	190–400	310–660
Copper[1]	fresh	15–60	30–120	45–200
	aged	20–80	60–230	85–340
Lead[1]	fresh	110	270	440
	aged	470	1100	1800
Nickel[1]	fresh	1–25	10–170	20–350
	aged	5–95	30–560	55–960

Figure A4.4: Ecological Investigation Levels (EIL's) for fresh and aged contamination in soils (mg/kg)

Table 1C ···· → Groundwater Investigation Levels (GILs) ¶

Substance¤		Groundwater Investigation Levels¤		
		Fresh Waters[A]¤	Marine Waters[A]¤	Drinking Water[B]¤
		(µg/L)¤	(µg/L)¤	(mg/L)¤
Metals and Metalloids¤				
Aluminium, Al pH>6.5¤	¤	55¤	-¤	-¤
Antimony¤	¤	-¤	-¤	0.003¤
Arsenic¤	¤	24 as As(III)¶ 13 as As(V)¤	-¤	0.01¤
Barium¤	¤	-¤	-¤	2¤
Beryllium¤	¤	-¤	-¤	0.06¤
Boron¤	¤	370[C]¤	-¤	4¤
Cadmium ¤	H¤	0.2¤	0.7[D]¤	0.002¤
Chromium, Cr (III)¤	H¤	-¤	27¤	-¤
Chromium, Cr (VI)¤	¤	1[C]¤	4.4¤	0.05¤
Cobalt¤	¤	-¤	1¤	-¤
Copper¤	H¤	1.4¤	1.3¤	2¤
Iron, (Total)¤	¤	-¤	-¤	-¤
Lead¤	H¤	3.4¤	4.4¤	0.01¤
Manganese¤	¤	1900[C]¤	-¤	0.5¤
Mercury (Total)¤	¤	0.06[D]¤	0.1[D]¤	0.001¤
Molybdenum¤	¤	-¤	-¤	0.05¤
Nickel¤	H¤	11¤	7¤	0.02¤
Selenium (Total)¤	¤	5[D]¤	-¤	0.01¤
Silver¤	¤	0.05¤	1.4¤	0.1¤
Tributyl tin (as Sn)¤	¤	-¤	0.006[C]¤	-¤
Tributyl tin oxide¤	¤	-¤	-¤	0.001¤
Uranium¤	¤	-¤	-¤	0.017¤
Vanadium¤	¤	-¤	100¤	-¤
Zinc¤	H¤	8[C]¤	15[C]¤	-¤
Non-metallic Inorganics¤				
Ammonia[E] (as NH_3-N at pH 8)···¤	°¤	900[C]¤	910¤	-¤
Bromate¤	°¤	-¤	-¤	0.02¤
Chloride¤	°¤	-¤	-¤	-¤
Cyanide (as un-ionised Cn)¤	°¤	7¤	4¤	0.08¤
Fluoride¤	°¤	-¤	-¤	1.5¤
Hydrogen sulphide (un-ionised H_2S measured as S)¤	°¤	1¤	-¤	-¤
Iodide¤	°¤	-¤	-¤	0.5¤

Substance		Groundwater Investigation Levels		
		Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
		(µg/L)	(µg/L)	(mg/L)
Nitrate (as NO_3)		refer to guideline	refer to guideline	50
Nitrite (as NO_2)		refer to guideline	refer to guideline	3
Nitrogen		refer to guideline	refer to guideline	-
Phosphorus		refer to guideline	refer to guideline	-
Sulphate (as SO_4)		-	-	500
Organic alchohols/other organics				
Ethanol		1400	-	-
Ethylenediamine tetra-acetic acid (EDTA)		-	-	0.25
Formaldehyde		-	-	0.5
Nitrilotriacetic acid		-	-	0.2
Anilines				
Aniline		8	-	-
2,4-Dichloroaniline		7	-	-
3,4-Dichloroaniline		3	150	-
Chlorinated Alkanes				
Dichloromethane		-	-	0.004
Trichloromethane (chloroform)		-	-	0.003
Trihalomethanes (total)		-	-	0.25
Tetrachloromethane (carbon tetrachloride)		-	-	0.003
1,2-Dichloroethane		-	-	0.003
1,1,2-Trichloroethane		6500	1900	-
Hexachloroethane		290[D]	-	-
Chlorinated Alkenes				
Chloroethene (vinyl chloride)		-	-	0.0003
1,1-Dichloroethene		-	-	0.03
1,2-Dichoroethene		-	-	0.06
Tetrachloroethene (PCE) (Perchloroethene)		-	-	0.05
Chlorinated Benzenes				
Chlorobenzene		-	-	0.3
1,2-Dichlorobenzene		160	-	1.5
1,3-Dichlorobenzene		260	-	-

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)
1,4-·Dichlorobenzene	60	-	0.04
1,2,3-·Trichlorobenzene	3[D]	-	0.03
1,2,4-·Trichlorobenzene	85[D]	20[D]	for individual or total trichlorobenzenes
1,3,5-Trichlorobenzene	-	-	
Polychlorinated Biphenyls (PCBs)			
Aroclor 1242	0.3[D]	-	-
Aroclor 1254	0.01[D]	-	-
Other Chlorinated Compounds			
Epichlorohydrin	-	-	0.1
Hexachlorobutadiene	-	-	0.0007
Monochloramine	-	-	3
Monocyclic Aromatic Hydrocarbons			
Benzene	950	500[C]	0.001
Toluene	-	-	0.8
Ethylbenzene	-	-	0.3
Xylenes	350 (as o-xylene) 200 (as p-xylene)	-	0.6
Styrene (Vinyl benzene)	-	-	0.03
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	16	50[C]	-
Benzo[a]pyrene	-	-	0.00001
Phenols			
Phenol	320	400	-
2-Chlorophenol	340[C]	-	0.3
4-Chlorophenol	220	-	-
2,4-Dichlorophenol	120	-	0.2
2,4,6-Trichlorophenol	3[D]	-	0.02
2,3,4,6-Tetrachlorophenol	10[D]	-	-
Pentachlorophenol	3.6[D]	11[D]	0.01
2,4-Dinitrophenol	45	-	-
Phthalates			
Dimethylphthalate	3700	-	-
Diethylphthalate	1000	-	-
Dibutylphthalate	10[D]	-	-
Di(2-ethylhexyl) phthalate	-	-	0.01

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)
Pesticides			
Acephate	-	-	0.008
Aldicarb	-	-	0.004
Aldrin plus Dieldrin	-	-	0.0003
Ametryn	-	-	0.07
Amitraz	-	-	0.009
Amitrole	-	-	0.0009
Asulam	-	-	0.07
Atrazine	13	-	0.02
Azinphos-methyl	-	-	0.03
Benomyl	-	-	0.09
Bentazone	-	-	0.4
Bioresmethrin	-	-	0.1
Bromacil	-	-	0.4
Bromoxynil	-	-	0.01
Captan	-	-	0.4
Carbaryl	-	-	0.03
Carbendazim (Thiophanate-methyl)	-	-	0.09
Carbofuran	0.06	-	0.01
Carboxin	-	-	0.3
Carfentrazone-ethyl	-	-	0.1
Chlorantraniliprole	-	-	6
Chlordane	0.03[D]	-	0.002
Chlorfenvinphos	-	-	0.002
Chlorothalonil	-	-	0.05
Chlorpyrifos	0.01[D]	0.009[D]	0.01
Chlorsulfuron	-	-	0.2
Clopyralid	-	-	2
Cyfluthrin, Beta-cyfluthrin	-	-	0.05
Cypermethrin isomers	-	-	0.2
Cyprodinil	-	-	0.09
1,3-Dichloropropene	-	-	0.1
2,2-DPA	-	-	0.5
2,4-D [2,4-dichlorophenoxy acetic acid]	280	-	0.03
DDT	0.006[D]	-	0.009
Deltramethrin	-	-	0.04

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)
Diazinon	0.01	-	0.004
Dicamba	-	-	0.1
Dichloroprop	-	-	0.1
Dichlorvos	-	-	0.005
Dicofol	-	-	0.004
Diclofop-methyl	-	-	0.005
Dieldrin plus Aldrin	-	-	0.0003
Diflubenzuron	-	-	0.07
Dimethoate	0.15	-	0.007
Diquat	1.4	-	0.007
Disulfoton	-	-	0.004
Diuron	-	-	0.02
Endosulfan	0.03[D]	0.005[D]	0.02
Endothal	-	-	0.1
Endrin	0.01[D]	0.004[D]	-
EPTC	-	-	0.3
Esfenvalerate	-	-	0.03
Ethion	-	-	0.004
Ethoprophos	-	-	0.001
Etridiazole	-	-	0.1
Fenamiphos	-	-	0.0005
Fenarimol	-	-	0.04
Fenitrothion	0.2	-	0.007
Fenthion	-	-	0.007
Fenvalerate	-	-	0.06
Fipronil	-	-	0.0007
Flamprop-methyl	-	-	0.004
Fluometuron	-	-	0.07
Fluproponate	-	-	0.009
Glyphosate	370	-	1
Haloxyfop	-	-	0.001
Heptachlor	0.01[D]	-	-
Heptachlor epoxide	-	-	0.0003
Hexazinone	-	-	0.4
Imazapyr	-	-	9
Iprodione	-	-	0.1
Lindane (γ-HCH)	0.2	-	0.01

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)
Malathion	0.05	-	0.07
Mancozeb (as ETU, ethylene thiourea)	-	-	0.009
MCPA	-	-	0.04
Metaldehyde	-	-	0.02
Metham (as methylisothiocyanate, MITC)	-	-	0.001
Methidathion	-	-	0.006
Methiocarb	-	-	0.007
Methomyl	3.5		0.02
Methyl bromide	-	-	0.001
Metiram (as ETU, ethylene thiourea)	-	-	0.009
Metolachlor/s–Metolachlor	-	-	0.30
Metribuzin	-	-	0.07
Metsulfuron-methyl	-	-	0.04
Mevinphos	-	-	0.006
Molinate	3.4	-	0.004
Napropamide	-	-	0.4
Nicarbazin	-	-	1
Norflurazon	-	-	0.05
Omethoate	-	-	0.001
Oryzalin	-	-	0.4
Oxamyl	-	-	0.007
Paraquat	-	-	0.02
Parathion	0.004[C]	-	0.02
Parathion methyl	-	-	0.0007
Pebulate	-	-	0.03
Pendimethalin	-	-	0.4
Pentachlorophenol	-	-	0.01
Permethrin	-	-	0.2
Picloram	-	-	0.30
Piperonyl butoxide	-	-	0.6
Pirimicarb	-	-	0.007
Pirimiphos methyl	-	-	0.09
Polihexanide	-	-	0.7
Profenofos	-	-	0.0003

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)
Propachlor	-	-	0.07
Propanil	-	-	0.7
Propargite	-	-	0.007
Proparzine	-	-	0.05
Propiconazole	-	-	0.1
Propyzamide	-	-	0.07
Pyrasulfatole	-	-	0.04
Pyrazophos	-	-	0.02
Pyroxsulam	-	-	4
Quintozene	-	-	0.03
Simazine	3.2	-	0.02
Spirotetramat	-	-	0.2
Sulprofos	-	-	0.01
2,4,5-T	36	-	0.1
Tebuthiuron	2.2	-	-
Temephos	-	0.05[D]	0.4
Terbacil	-	-	0.2
Terbufos	-	-	0.0009
Terbuthylazine	-	-	0.01
Terbutryn	-	-	0.4
Thiobencarb	2.8	-	0.04
Thiometon	-	-	0.004
Thiram	0.01	-	0.007
Toltrazuril	-	-	0.004
Toxafene	0.1[D]	-	-
Triadimefon	-	-	0.09
Trichlorfon	-	-	0.007
Triclopyr	-	-	0.02
Trifluralin	2.6[D]	-	0.09
Vernolate	-	-	0.04
Surfactants			
Linear alkylbenzene sulfonates (LAS)	280	-	-
Alcohol ethoxylated sulfate (AES)	650	-	-
Alcohol ethoxylated surfactants (AE)	140	-	-

Substance	Groundwater Investigation Levels		
	Fresh Waters[A]	Marine Waters[A]	Drinking Water[B]
	(µg/L)	(µg/L)	(mg/L)

A Investigation levels apply to typical slightly-moderately disturbed systems. See ANZECC & ARMCANZ (2000) for guidance on applying these levels to different ecosystem conditions.

B Investigation levels are taken from the health values of the Australian Drinking Water Guidelines (NHMRC 2011).

C Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.

D Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.

E For changes in GIL with pH refer to ANZECC & ARMCANZ (2000) for further guidance.

H Values have been calculated using a hardness of 30 mg/L $CaCO_3$ refer to ANZECC & ARMCANZ (2000) for further guidance on recalculating for site-specific hardness.

Section Break (Continuous)

11. APPENDIX 6: BOREHOLE LOGS

11.1 Phase 1 sampling

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 001	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Shovel	
Logged by: Bo Davidson	Started: 15:15	Bit type: N/A	Diameter: 140 mm	
Date: 08/03/2021	Completed: 15:20	Auger type: N/A		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 0.3 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.3	Soil	S1		Brown-grey loamy sand. Fragments ~ 50% (fractured shale). Scattered surface fragments of concrete and brick. Sample at 0.3 m		

Anderson Environmental Pty Ltd Boring Log: Sheet 1 of 5

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 002	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Shovel	
Logged by: Bo Davidson	Started: 15:30	Bit type: N/A	Diameter: 140 mm	
Date: 08/03/2021	Completed: 15:40	Auger type: N/A		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 0.25 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.25	Soil	S2		Orange-brown sandy loam. Fragments ~ 10% (fractured shale). Scattered surface fragments of concrete and brick. Sample at 0.25 m		

Anderson Environmental Pty Ltd Boring Log: Sheet 2 of 5

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 003	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Shovel	
Logged by: Bo Davidson	Started: 15:40	Bit type: N/A	Diameter: 140 mm	
Date: 08/03/2021	Completed: 15:50	Auger type: N/A		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 0.3 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.3	Soil	S3		Orange-brown sandy loam. Fragments ~ 15% (fractured shale). Scattered surface fragments of concrete and brick. Sample at 0.3 m		

Anderson Environmental Pty Ltd Boring Log: Sheet 3 of 5

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 004	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Shovel	
Logged by: Bo Davidson	Started: 15:50	Bit type: N/A	Diameter: 140 mm	
Date: 08/03/2021	Completed: 16:00	Auger type: N/A		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 0.25 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.25	Soil	S4		Orange-brown sandy loam. Fragments ~ 15% (fractured shale). Scattered surface fragments of concrete and brick and electrical wire Sample at 0.25 m		

Anderson Environmental Pty Ltd Boring Log: Sheet 4 of 5

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 005	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Shovel	
Logged by: Bo Davidson	Started: 16:00	Bit type: N/A	Diameter: 140 mm	
Date: 08/03/2021	Completed: 16:10	Auger type: N/A		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 0.3 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.3	Soil	S5		White-brown sandy loam. Fragments ~ 15% (fractured shale). Scattered surface fragments of concrete and brick Sample at 0.3 m		

Anderson Environmental Pty Ltd Boring Log: Sheet 5 of 5

11.2 Phase 2 sampling

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 001	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 09:15	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 11:30	Auger type: Spiral auger		
	Backfilled: No	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 89 m	Total depth of boring: 4.5 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Well Construction	Additional test
0.0-2.0	Soil	S1		Yellow-grey clay loam. Fragments ~ 10% (shale). Sample at 0.3 m. PID @ 0.3m = 1.5ppm isobutylene		Flush Mount Steel Well Cap with plug Bentonite Seal Around PVC 50mm
2.0-2.5				Red-brown clay loam. Fragments ~ 10% (shale)		
2.5-2.6				Shale lens		
2.6-3.0				White clay. Fragments <5% (shale)		
3.0-4.5				Black-grey clay. Fragments <5% (shale) PID @ 4.3m = 1ppm isobutylene		Well Screen at 2.5m to 4.5m backfilled with well sand No Groundwater Present
4.0-4.5				Decomposed shale, auger refused		

Anderson Environmental Pty Ltd Boring Log: Sheet 1 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 002	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 12:00	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 12:15	Auger type: Spiral auger		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 89 m	Total depth of boring: 1.7 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.3	Soil	S2		Orange-grey clay loam. Fragments <5% (shale). Sample at 0.3 m. PID @ 0.3m = 0.7ppm isobutylene		
0.3-1.0				Orange clay. Fragments <5% (shale)		
1.0-1.7				White-grey clay. Fragment <5% (shale). PID @ 1.7m = 0.6ppm isobutylene. Auger refused		

Anderson Environmental Pty Ltd Boring Log: Sheet 2 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 003	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 12:20	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 12:30	Auger type: Spiral auger		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 91 m	Total depth of boring: 1.0 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.5	Soil	S3		Brown clay loam. Fragments ~10% (shale). Sample at 0.3 m. PID @ 0.3m = 0.6ppm isobutylene		Intra sample
0.5-1.0				Orange clay. Fragments <5% (shale). PID @ 1.0m = 0.4ppm isobutylene		

Anderson Environmental Pty Ltd Boring Log: Sheet 3 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 004	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 12:40	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 12:50	Auger type: Spiral auger		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 91 m	Total depth of boring: 1.7 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.8	Soil	S4		Brown-orange clay loam. Fragments <5% (shale). Sample at 0.3 m. PID @ 0.3m = 0.5ppm isobutylene		
0.8-1.2				Grey clay loam. Fragments ~30% (fractured shale)		
1.2-1.7				Brown clay. Fragments <5% (shale). PID @1.7m = 0.6ppm isobutylene. Auger refused		

Anderson Environmental Pty Ltd Boring Log: Sheet 4 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 005	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 13:00	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 13:10	Auger type: Spiral auger		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 91 m	Total depth of boring: 1.7 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.5	Soil	S5		Grey-brown clay loam. Fragments ~30% (shale). Sample at 0.3 m. PID @ 0.3m = 0.6ppm isobutylene		Inter sample
0.5-1.7				Brown-orange clay. Fragments <5% (shale). PID @ 1.7m = 0.5ppm isobutylene. Auger refused		

Anderson Environmental Pty Ltd Boring Log: Sheet 5 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 006	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Vehicle-mounted spiral	
Logged by: Bo Davidson	Started: 13:20	Bit type: Spiral auger	Diameter: 120 mm	
Date: 16/06/2022	Completed: 13:30	Auger type: Spiral auger		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 89 m	Total depth of boring: 1.0 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.5	Soil	S6		Orange-brown clay loam. Fragments of concrete and asphalt on surface. Fragments <5% (shale). Sample at 0.3 m. PID @0.3m = 0.5ppm isobutylene		
0.5-1.0				Orange-brown clay. Fragments <5% (shale). PID @ 1.0m = 0.4ppm isobutylene. Auger refused		

Anderson Environmental Pty Ltd Boring Log: Sheet 6 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 007	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Christie hand vibrating corer	
Logged by: Bo Davidson	Started: 14:10	Bit type: Core tube	Diameter: 50 mm	
Date: 16/06/2022	Completed: 14:20	Auger type: Core tube		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 93 m	Total depth of boring: 1.5 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.3	Soil	S7		Grey-brown clay loam. Fragments ~10% (shale). Sample at 0.3 m. PID @ 0.3m = 0.5ppm isobutylene		
0.3-1.5				Orange-brown clay. Fragments <5% (shale). PID @1.5m = 0.4ppm isobutylene		

Anderson Environmental Pty Ltd Boring Log: Sheet 7 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 008	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Christie hand vibrating corer	
Logged by: Bo Davidson	Started: 14:30	Bit type: Core tube	Diameter: 50 mm	
Date: 16/06/2022	Completed: 14:40	Auger type: Core tube		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 93 m	Total depth of boring: 1.5 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.15				Brown clay. Fragments <5% (shale)		
0.15-0.3	Soil	S8		Brown-orange clay loam. Fragments ~50% (shale and concrete). Sample at 0.3 m. PID @ 0.3m = 0.5ppm isobutylene		
0.3-1.5				Orange clay. Fragments <5% (shale). PID @ 1.5m = 0.4ppm isobutylene		

Anderson Environmental Pty Ltd Boring Log: Sheet 8 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 009	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Christie hand vibrating corer	
Logged by: Bo Davidson	Started: 14:40	Bit type: Core tube	Diameter: 50 mm	
Date: 16/06/2022	Completed: 14:50	Auger type: Core tube		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 93 m	Total depth of boring: 1.5 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.2				Brown loamy clay. Fragments <5% (shale)		
0.2-1.5	Soil	S9		Orange-brown clay loam. Fragments ~10% (gravel and shale). Sample at 0.3 m. PID @ 0.3m = 0.4ppm isobutylene PID @ 1.5m = 0.4ppm isobutylene		

Anderson Environmental Pty Ltd Boring Log: Sheet 9 of 10

Project: 10 Wickfield Circuit	Project number:	Client:	Boring no. 010	
Address, City, State: 10 Wickfield Circuit Ambarvale NSW 2560		Drilling contractor: Anderson Environmental	Drill rig type: Christie hand vibrating corer	
Logged by: Bo Davidson	Started: 15:00	Bit type: Core tube	Diameter: 50 mm	
Date: 16/06/2022	Completed: 15:10	Auger type: Core tube		
	Backfilled: Yes	Hammer weight: N/A	Hammer drop: N/A	
	Groundwater depth: N/A	Elevation: 92 m	Total depth of boring: 1.5 m	

Depth (m)	Sample type	Sample number	Graphic log	Soil description	Munsell colour	Additional test
0.0-0.2				Brown loamy clay. Fragments <5% (shale)		
0.2-0.6	Soil	S10		Brown-orange clay loam. Fragments ~10% (gravel and shale). Sample at 0.3 m. PID @ 0.3m = 0.3ppm isobutylene		
0.6-1.5				Yellow-grey clay. Fragments <5% (shale). PID = 0.4ppm isobutylene		

Anderson Environmental Pty Ltd Boring Log: Sheet 10 of 10

12. APPENDIX 7: SITE PHOTOS

12.1 Phase 1 sampling

Photograph A4.1: B1

Photograph A4.2: B2

Photograph A4.3: B3

Photograph A4.4: B4

Photograph A4.5: B5

12.2 Phase 2 sampling

Photograph A4.6: B1

Photograph A4.7: B2

Photograph A4.8: B3

Photograph A4.9: B4

Photograph A4.10: B5

Photograph A4.11: B6

Photograph A4.12: B7 Christie Percussion Sample Tube

Photograph A4.13: B8

Photograph A4.14: B9

Photograph A4.15: Surface scatters of foreign stone material

13. APPENDIX 8: DEVELOPMENT PLANS

14. APPENDIX 9: LABORATORY RESULTS

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Jason Anderson
Client	ANDERSON ENVIRONMENTAL PTY LTD
Address	SUITE 19 103 GEORGE STREET PARRAMATTA NSW 2150
Telephone	61 1300302507
Facsimile	(Not specified)
Email	JASON@ANDERSONENVIRONMENTAL.COM.AU
Project	**10 Wickfield**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE200026 R0**
Date Received	15/11/2019
Date Reported	21/11/2019

COMMENTS

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

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Conductivity and TDS by Calculation - Soil [AN106] Tested: 20/11/2019

PARAMETER	UOM	LOR	10 Wickfield SOIL - 15/11/2019 SE200026.001
Conductivity of Extract (1:5 as received)	µS/cm	1	**170**
Salinity (by calculation)*	mg/kg	5	**630**

Moisture Content [AN002] Tested: 18/11/2019

PARAMETER	UOM	LOR	10 Wickfield SOIL - 15/11/2019 SE200026.001
% Moisture	%w/w	1	**14.6**

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.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au.pv.sgsvr/en-qb/environment.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2108342**	Page	: 1 of 6
Client	: **Anderson Environmental Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Mr Jason Anderson	Contact	: Customer Services ES
Address	: Suite 19, 103 George Street Sydney 2150	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 1300302507	Telephone	: +61-2-8784 8555
Project	: 10 Wickfield Cct Ambarvale	Date Samples Received	: 10-Mar-2021 08:20
Order number	: ----	Date Analysis Commenced	: 11-Mar-2021
C-O-C number	: ----	Issue Date	: 17-Mar-2021 15:07
Sampler	: Bo Davidson		
Site	: ----		
Quote number	: SY/172/19		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	S1	S2	S3	S4	S5
			Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit	ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.2	12.8	11.9	22.8	16.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	No
Organic Fibre	----	0.1	g/kg	No	No	No	No	No
Sample weight (dry)	----	0.01	g	221	133	172	156	162
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	10	10	9	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	26	20	15	21
Copper	7440-50-8	5	mg/kg	39	29	42	43	40
Lead	7439-92-1	5	mg/kg	26	35	36	33	32
Nickel	7440-02-0	2	mg/kg	14	17	18	20	18
Zinc	7440-66-6	5	mg/kg	78	45	72	76	66
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	S1	S2	S3	S4	S5
			Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit	ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**100**	**88.3**	**97.9**	**98.3**	**94.0**
2-Chlorophenol-D4	93951-73-6	0.5	%	**103**	**90.8**	**98.6**	**99.4**	**94.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	S1	S2	S3	S4	S5
			Sampling date / time	08-Mar-2021 15:19	08-Mar-2021 15:34	08-Mar-2021 15:46	08-Mar-2021 16:00	08-Mar-2021 16:11
Compound	CAS Number	LOR	Unit	ES2108342-001	ES2108342-002	ES2108342-003	ES2108342-004	ES2108342-005
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2.4.6-Tribromophenol	118-79-6	0.5	%	**76.8**	**74.4**	**70.8**	**69.2**	**69.1**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**105**	**97.0**	**103**	**102**	**100**
Anthracene-d10	1719-06-8	0.5	%	**102**	**96.0**	**97.6**	**97.5**	**93.7**
4-Terphenyl-d14	1718-51-0	0.5	%	**97.3**	**106**	**94.2**	**94.9**	**89.6**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**100**	**99.1**	**101**	**92.6**	**93.1**
Toluene-D8	2037-26-5	0.2	%	**98.3**	**93.6**	**100**	**94.5**	**103**
4-Bromofluorobenzene	460-00-4	0.2	%	**107**	**96.4**	**106**	**99.4**	**102**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S1 - 08-Mar-2021 15:19	Mid brown soil.
EA200: Description	S2 - 08-Mar-2021 15:34	Mid brown soil.
EA200: Description	S3 - 08-Mar-2021 15:46	Mid brown soil.
EA200: Description	S4 - 08-Mar-2021 16:00	Mid brown soil.
EA200: Description	S5 - 08-Mar-2021 16:11	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2108342**	Page	: 1 of 7
Client	: **Anderson Environmental Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Mr Jason Anderson	Contact	: Customer Services ES
Address	: Suite 19, 103 George Street Sydney 2150	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 1300302507	Telephone	: +61-2-8784 8555
Project	: 10 Wickfield Cct Ambarvale	Date Samples Received	: 10-Mar-2021
Order number	: ----	Date Analysis Commenced	: 11-Mar-2021
C-O-C number	: ----	Issue Date	: 17-Mar-2021
Sampler	: Bo Davidson		
Site	: ----		
Quote number	: SY/172/19		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

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Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3560990)									
ES2108342-001	S1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	17	14.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	33	15.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	48	60.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	77	0.00	0% - 50%
ES2108357-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	18	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	6	21.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	14	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	20	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	48	6.76	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3560994)									
ES2108342-003	S3	EA055: Moisture Content	----	0.1	%	11.9	10.4	14.0	0% - 50%
ES2108357-013	Anonymous	EA055: Moisture Content	----	0.1	%	7.5	8.2	8.13	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3560991)									
ES2108342-001	S1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2108357-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3557649)									
ES2108104-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3557649) - continued									
ES2108104-001	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3557284)									
ES2108110-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2108342-002	S2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3557648)									
ES2108104-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3557284)									
ES2108110-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2108342-002	S2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3557648)									
ES2108104-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 3557284)									
ES2108110-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 3557284) - continued									
ES2108342-002	S2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3560990)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	112	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	108	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	127	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	57 mg/kg	109	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.1 mg/kg	119	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	117	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	99.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3560991)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.073 mg/kg	105	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3557649)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	104	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	107	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	96.1	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	96.0	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	99.5	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.8	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.1	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	95.3	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	97.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3557284)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	97.4	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3557648)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	106	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	101	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3557284)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3557284) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.2	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3557648)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	105	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	103	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	87.6	63.0	131
EP080: BTEXN (QCLot: 3557284)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.3	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.5	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.1	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.0	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.2	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.5	63.0	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3560990)							
ES2108342-001	S1	EG005T: Arsenic	7440-38-2	50 mg/kg	72.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	77.7	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	73.9	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	72.8	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	79.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	74.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	69.9	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3560991)							
ES2108342-001	S1	EG035T: Mercury	7439-97-6	5 mg/kg	83.6	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3557649)							
ES2108104-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	99.7	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	99.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3557284)							
ES2108110-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	107	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3557648)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3557648) - continued							
ES2108104-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	116	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	122	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	121	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3557284)							
ES2108110-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	106	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3557648)							
ES2108104-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	115	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	122	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	109	52.0	132
EP080: BTEXN (QCLot: 3557284)							
ES2108110-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	101	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	92.8	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	95.9	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.9	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	103	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2108342**	Page	: 1 of 5
Client	: **Anderson Environmental Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Mr Jason Anderson	Telephone	: +61-2-8784 8555
Project	: 10 Wickfield Cct Ambarvale	Date Samples Received	: 10-Mar-2021
Site	: ----	Issue Date	: 17-Mar-2021
Sampler	: Bo Davidson	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**----**	----	----	**12-Mar-2021**	22-Mar-2021	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag (EA200)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**----**	----	----	**12-Mar-2021**	04-Sep-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**12-Mar-2021**	04-Sep-2021	✓	**15-Mar-2021**	04-Sep-2021	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**12-Mar-2021**	05-Apr-2021	✓	**16-Mar-2021**	05-Apr-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
S1, S2, S3, S4, S5	**08-Mar-2021**	**13-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Apr-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**11-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Mar-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**13-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Apr-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**11-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Mar-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**13-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Apr-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
S1, S2, S3, S4, S5	**08-Mar-2021**	**11-Mar-2021**	22-Mar-2021	✓	**16-Mar-2021**	22-Mar-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY

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PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: Anderson Environmental	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY: (Circle)
OFFICE:		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 10 Wick Field Cct Ambarvale	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt °C
PROJECT MANAGER: Jason Anderson	CONTACT PH: 1300 302 507		Other comment:
SAMPLER: Bo Davidson	SAMPLER MOBILE: 0402 575497		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): jason@andersonenvironmental.			
Email Invoice to (will default to PM if no other addresses are listed): com.au			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Bo Davidson	SAZ		
DATE/TIME: 10/03/2021 08:20	DATE/TIME: 10/3/21 8:20am	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).						Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH	BTEXN	PAH	8 metals	Asbestos		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	S1	08/03/21 15:19	Soil	B / glass jar	2	X	X	X	X	X		
2	S2	" 15:34	"	B / glass jar	2	X	X	X	X	X		
3	S3	" 15:46	"	B / glass jar	2	X	X	X	X	X		
4	S4	" 16:00	"	B / glass jar	2	X	X	X	X	X		
5	S5	" 16:01	"	B / glass jar	2	X	X	X	X	X		
				TOTAL								

Subcon / Forward Lab / Split WO
Lab / Analysis: Newcastle -> Asbestos
Organised By / Date: _____
Relinquished By / Date: _____
Connote / Courier: _____
WO No: _____
Attach By PO / Internal Sheet: _____

Environmental Division
Sydney
Work Order Reference
ES2108342

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Jason Anderson
Client	ANDERSON ENVIRONMENTAL PTY LTD
Address	SUITE 19 103 GEORGE STREET PARRAMATTA NSW 2150
Telephone	61 1300302507
Facsimile	(Not specified)
Email	JASON@ANDERSONENVIRONMENTAL.COM.AU
Project	**10 Wickfield Circuit Ambarvale**
Order Number	(Not specified)
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE233215 R0**
Date Received	16/6/2022
Date Reported	23/6/2022

COMMENTS

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

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
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
Naphthalene (VOC)	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

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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
Naphthalene (VOC)	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

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
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

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
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	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (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

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (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

Speciated Phenols in Soil [AN420] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2	<2

OC Pesticides in Soil [AN420] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
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
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 20/6/2022 (continued)

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
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

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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

PCBs in Soil [AN420] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 22/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
Arsenic, As	mg/kg	1	5	5	6	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	6.2	14	11	12	13
Copper, Cu	mg/kg	0.5	24	18	23	29	23
Lead, Pb	mg/kg	1	18	20	23	24	26
Nickel, Ni	mg/kg	0.5	3.4	7.0	7.7	8.3	8.5
Zinc, Zn	mg/kg	2	28	26	42	52	41

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
Arsenic, As	mg/kg	1	7	7	4	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	16	11	10	11	10
Copper, Cu	mg/kg	0.5	23	28	17	22	25
Lead, Pb	mg/kg	1	26	24	13	22	20
Nickel, Ni	mg/kg	0.5	10	9.5	9.7	9.8	11
Zinc, Zn	mg/kg	2	38	50	39	46	54

Mercury in Soil [AN312] Tested: 22/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 20/6/2022

PARAMETER	UOM	LOR	S1 SOIL - 16/6/2022 SE233215.001	S2 SOIL - 16/6/2022 SE233215.002	S3 SOIL - 16/6/2022 SE233215.003	S4 SOIL - 16/6/2022 SE233215.004	S5 SOIL - 16/6/2022 SE233215.005
% Moisture	%w/w	1	**9.2**	**21.6**	**16.1**	**10.7**	**18.6**

PARAMETER	UOM	LOR	S6 SOIL - 16/6/2022 SE233215.006	S7 SOIL - 16/6/2022 SE233215.007	S8 SOIL - 16/6/2022 SE233215.008	S9 SOIL - 16/6/2022 SE233215.009	S10 SOIL - 16/6/2022 SE233215.010
% Moisture	%w/w	1	**17.4**	**13.7**	**13.2**	**14.6**	**17.4**

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 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.

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE233215 R0

CLIENT DETAILS

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Project	**10 Wickfield Circuit Ambarvale**
Order Number	(Not specified)
Samples	10

LABORATORY DETAILS

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SGS Reference	**SE233215 R0**
Date Received	16 Jun 2022
Date Reported	23 Jun 2022

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.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

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

Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	5 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	10 Soil
Date documentation received	16/6/2022	Type of documentation received	COC
Number of eskies/boxes received		Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3°C
Sufficient sample for analysis	Yes	Turnaround time requested	Standard

HOLDING TIME SUMMARY

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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

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251511	16 Jun 2022	16 Jun 2022	14 Jul 2022	22 Jun 2022	14 Jul 2022	23 Jun 2022

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S2	SE233215.002	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S3	SE233215.003	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S4	SE233215.004	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S5	SE233215.005	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S6	SE233215.006	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S7	SE233215.007	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S8	SE233215.008	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S9	SE233215.009	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022
S10	SE233215.010	LB251334	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	25 Jun 2022	23 Jun 2022

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

HOLDING TIME SUMMARY

SE233215 R0

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S2	SE233215.002	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S3	SE233215.003	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S4	SE233215.004	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S5	SE233215.005	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S6	SE233215.006	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S7	SE233215.007	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S8	SE233215.008	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S9	SE233215.009	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022
S10	SE233215.010	LB251509	16 Jun 2022	16 Jun 2022	13 Dec 2022	22 Jun 2022	13 Dec 2022	23 Jun 2022

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S2	SE233215.002	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S3	SE233215.003	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S4	SE233215.004	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S5	SE233215.005	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S6	SE233215.006	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S7	SE233215.007	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S8	SE233215.008	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S9	SE233215.009	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022
S10	SE233215.010	LB251328	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jul 2022	23 Jun 2022

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S2	SE233215.002	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S3	SE233215.003	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S4	SE233215.004	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S5	SE233215.005	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S6	SE233215.006	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S7	SE233215.007	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S8	SE233215.008	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S9	SE233215.009	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S10	SE233215.010	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022

HOLDING TIME SUMMARY

SE233215 R0

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE233215.001	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S2	SE233215.002	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S3	SE233215.003	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S4	SE233215.004	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S5	SE233215.005	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S6	SE233215.006	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S7	SE233215.007	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S8	SE233215.008	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S9	SE233215.009	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022
S10	SE233215.010	LB251332	16 Jun 2022	16 Jun 2022	30 Jun 2022	20 Jun 2022	30 Jun 2022	23 Jun 2022

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

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

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	S1	SE233215.001	%	60 - 130%	99
	S2	SE233215.002	%	60 - 130%	114
	S3	SE233215.003	%	60 - 130%	97
	S4	SE233215.004	%	60 - 130%	70
	S5	SE233215.005	%	60 - 130%	70
	S6	SE233215.006	%	60 - 130%	71
	S7	SE233215.007	%	60 - 130%	71
	S8	SE233215.008	%	60 - 130%	106
	S9	SE233215.009	%	60 - 130%	96
	S10	SE233215.010	%	60 - 130%	108

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S1	SE233215.001	%	60 - 130%	94
	S2	SE233215.002	%	60 - 130%	86
	S3	SE233215.003	%	60 - 130%	83
	S4	SE233215.004	%	60 - 130%	92
	S5	SE233215.005	%	60 - 130%	96
	S6	SE233215.006	%	60 - 130%	88
	S7	SE233215.007	%	60 - 130%	89
	S8	SE233215.008	%	60 - 130%	85
	S9	SE233215.009	%	60 - 130%	88
	S10	SE233215.010	%	60 - 130%	91
d14-p-terphenyl (Surrogate)	S1	SE233215.001	%	60 - 130%	96
	S2	SE233215.002	%	60 - 130%	90
	S3	SE233215.003	%	60 - 130%	89
	S4	SE233215.004	%	60 - 130%	96
	S5	SE233215.005	%	60 - 130%	100
	S6	SE233215.006	%	60 - 130%	89
	S7	SE233215.007	%	60 - 130%	90
	S8	SE233215.008	%	60 - 130%	90
	S9	SE233215.009	%	60 - 130%	91
	S10	SE233215.010	%	60 - 130%	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S1	SE233215.001	%	70 - 130%	94
	S2	SE233215.002	%	70 - 130%	86
	S3	SE233215.003	%	70 - 130%	83
	S4	SE233215.004	%	70 - 130%	92
	S5	SE233215.005	%	70 - 130%	96
	S6	SE233215.006	%	70 - 130%	88
	S7	SE233215.007	%	70 - 130%	89
	S8	SE233215.008	%	70 - 130%	85
	S9	SE233215.009	%	70 - 130%	88
	S10	SE233215.010	%	70 - 130%	91
d14-p-terphenyl (Surrogate)	S1	SE233215.001	%	70 - 130%	96
	S2	SE233215.002	%	70 - 130%	90
	S3	SE233215.003	%	70 - 130%	89
	S4	SE233215.004	%	70 - 130%	96
	S5	SE233215.005	%	70 - 130%	100
	S6	SE233215.006	%	70 - 130%	89
	S7	SE233215.007	%	70 - 130%	90
	S8	SE233215.008	%	70 - 130%	90
	S9	SE233215.009	%	70 - 130%	91
	S10	SE233215.010	%	70 - 130%	96
d5-nitrobenzene (Surrogate)	S1	SE233215.001	%	70 - 130%	93
	S2	SE233215.002	%	70 - 130%	84
	S3	SE233215.003	%	70 - 130%	84
	S4	SE233215.004	%	70 - 130%	92
	S5	SE233215.005	%	70 - 130%	95
	S6	SE233215.006	%	70 - 130%	86

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	S7	SE233215.007	%	70 - 130%	88
	S8	SE233215.008	%	70 - 130%	88
	S9	SE233215.009	%	70 - 130%	87
	S10	SE233215.010	%	70 - 130%	92

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	S1	SE233215.001	%	60 - 130%	99
	S2	SE233215.002	%	60 - 130%	114
	S3	SE233215.003	%	60 - 130%	97
	S4	SE233215.004	%	60 - 130%	70
	S5	SE233215.005	%	60 - 130%	70
	S6	SE233215.006	%	60 - 130%	71
	S7	SE233215.007	%	60 - 130%	71
	S8	SE233215.008	%	60 - 130%	106
	S9	SE233215.009	%	60 - 130%	96
	S10	SE233215.010	%	60 - 130%	108

Speciated Phenols in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	S1	SE233215.001	%	70 - 130%	88
	S2	SE233215.002	%	70 - 130%	83
	S3	SE233215.003	%	70 - 130%	82
	S4	SE233215.004	%	70 - 130%	72
	S5	SE233215.005	%	70 - 130%	80
	S6	SE233215.006	%	70 - 130%	77
	S7	SE233215.007	%	70 - 130%	76
	S8	SE233215.008	%	70 - 130%	80
	S9	SE233215.009	%	70 - 130%	75
	S10	SE233215.010	%	70 - 130%	79
d5-phenol (Surrogate)	S1	SE233215.001	%	50 - 130%	93
	S2	SE233215.002	%	50 - 130%	88
	S3	SE233215.003	%	50 - 130%	77
	S4	SE233215.004	%	50 - 130%	81
	S5	SE233215.005	%	50 - 130%	85
	S6	SE233215.006	%	50 - 130%	77
	S7	SE233215.007	%	50 - 130%	84
	S8	SE233215.008	%	50 - 130%	86
	S9	SE233215.009	%	50 - 130%	83
	S10	SE233215.010	%	50 - 130%	89

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE233215.001	%	60 - 130%	114
	S2	SE233215.002	%	60 - 130%	92
	S3	SE233215.003	%	60 - 130%	101
	S4	SE233215.004	%	60 - 130%	100
	S5	SE233215.005	%	60 - 130%	92
	S6	SE233215.006	%	60 - 130%	97
	S7	SE233215.007	%	60 - 130%	91
	S8	SE233215.008	%	60 - 130%	103
	S9	SE233215.009	%	60 - 130%	98
	S10	SE233215.010	%	60 - 130%	100
d4-1,2-dichloroethane (Surrogate)	S1	SE233215.001	%	60 - 130%	118
	S2	SE233215.002	%	60 - 130%	95
	S3	SE233215.003	%	60 - 130%	104
	S4	SE233215.004	%	60 - 130%	104
	S5	SE233215.005	%	60 - 130%	95
	S6	SE233215.006	%	60 - 130%	102
	S7	SE233215.007	%	60 - 130%	93
	S8	SE233215.008	%	60 - 130%	111
	S9	SE233215.009	%	60 - 130%	103

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	S10	SE233215.010	%	60 - 130%	107
d8-toluene (Surrogate)	S1	SE233215.001	%	60 - 130%	121
	S2	SE233215.002	%	60 - 130%	96
	S3	SE233215.003	%	60 - 130%	107
	S4	SE233215.004	%	60 - 130%	107
	S5	SE233215.005	%	60 - 130%	92
	S6	SE233215.006	%	60 - 130%	101
	S7	SE233215.007	%	60 - 130%	90
	S8	SE233215.008	%	60 - 130%	112
	S9	SE233215.009	%	60 - 130%	103
	S10	SE233215.010	%	60 - 130%	107

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE233215.001	%	60 - 130%	114
	S2	SE233215.002	%	60 - 130%	92
	S3	SE233215.003	%	60 - 130%	101
	S4	SE233215.004	%	60 - 130%	100
	S5	SE233215.005	%	60 - 130%	92
	S6	SE233215.006	%	60 - 130%	97
	S7	SE233215.007	%	60 - 130%	91
	S8	SE233215.008	%	60 - 130%	103
	S9	SE233215.009	%	60 - 130%	98
	S10	SE233215.010	%	60 - 130%	100
d4-1,2-dichloroethane (Surrogate)	S1	SE233215.001	%	60 - 130%	118
	S2	SE233215.002	%	60 - 130%	95
	S3	SE233215.003	%	60 - 130%	104
	S4	SE233215.004	%	60 - 130%	104
	S5	SE233215.005	%	60 - 130%	95
	S6	SE233215.006	%	60 - 130%	102
	S7	SE233215.007	%	60 - 130%	93
	S8	SE233215.008	%	60 - 130%	111
	S9	SE233215.009	%	60 - 130%	103
	S10	SE233215.010	%	60 - 130%	107
d8-toluene (Surrogate)	S1	SE233215.001	%	60 - 130%	121
	S2	SE233215.002	%	60 - 130%	96
	S3	SE233215.003	%	60 - 130%	107
	S4	SE233215.004	%	60 - 130%	107
	S5	SE233215.005	%	60 - 130%	92
	S6	SE233215.006	%	60 - 130%	101
	S7	SE233215.007	%	60 - 130%	90
	S8	SE233215.008	%	60 - 130%	112
	S9	SE233215.009	%	60 - 130%	103
	S10	SE233215.010	%	60 - 130%	107

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

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

Sample Number	Parameter	Units	LOR	Result
LB251511.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB251328.001		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)	%	-	99

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB251328.001		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)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	97

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB251328.001	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

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

Sample Number		Parameter	Units	LOR	Result
LB251328.001		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
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	95
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	97

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB251328.001		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)	%	-	99

Speciated Phenols in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB251328.001		Phenol	mg/kg	0.5	<0.5
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
		2-chlorophenol	mg/kg	0.5	<0.5
		2,4-dimethylphenol	mg/kg	0.5	<0.5
		2,6-dichlorophenol	mg/kg	0.5	<0.5
		2,4-dichlorophenol	mg/kg	0.5	<0.5
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5
		2-nitrophenol	mg/kg	0.5	<0.5
		4-nitrophenol	mg/kg	1	<1
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
		Pentachlorophenol	mg/kg	0.5	<0.5
		2,4-dinitrophenol	mg/kg	2	<2
		4-chloro-3-methylphenol	mg/kg	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	71
		d5-phenol (Surrogate)	%	-	78

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

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

Sample Number	Parameter	Units	LOR	Result
LB251509.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	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

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB251328.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

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

Sample Number	Parameter	Units	LOR

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

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

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB251332.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	117
		d8-toluene (Surrogate)	%	-	116
		Bromofluorobenzene (Surrogate)	%	-	108
	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
LB251332.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	117

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.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233215.001	LB251511.014	Mercury	mg/kg	0.05	<0.05	<0.05	135	0
SE233215.010	LB251511.024	Mercury	mg/kg	0.05	<0.05	0.05	152	4

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251334.011	% Moisture	%w/w	1	46.2	47.4	32	2
SE233215.010	LB251334.022	% Moisture	%w/w	1	17.4	13.0	37	29

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014		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
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0
SE233215.010	LB251328.025		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

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.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233215.010	LB251328.025		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
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	30	5

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014		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	-	0.4	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE233215.010	LB251328.025		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	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

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

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

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

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

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	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	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE233215.010	LB251328.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	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	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	0
SE233215.010	LB251328.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	5

Speciated Phenols in Soil

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

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

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Speciated Phenols in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014		Phenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	200	0
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	200	0
			Total Cresol	mg/kg	1.5	<1.5	<1.5	200	0
			2-chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
			4-nitrophenol	mg/kg	1	<1	<1	200	0
			2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	200	0
			Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dinitrophenol	mg/kg	2	<2	<2	200	0
			4-chloro-3-methylphenol	mg/kg	2	<2	<2	200	0
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	4.2	4.2	30	0
			d5-phenol (Surrogate)	mg/kg	-	1.7	1.8	30	7
SE233215.010	LB251328.025		Phenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	200	0
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	200	0
			Total Cresol	mg/kg	1.5	<1.5	<1.5	200	0
			2-chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
			4-nitrophenol	mg/kg	1	<1	<1	200	0
			2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	200	0
			Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dinitrophenol	mg/kg	2	<2	<2	200	0
			4-chloro-3-methylphenol	mg/kg	2	<2	<2	200	0
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	4.0	5.3	30	28
			d5-phenol (Surrogate)	mg/kg	-	1.8	2.3	30	24

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233215.001	LB251509.014	Arsenic, As	mg/kg	1	5	6	47	14
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	6.2	6.1	38	3
		Copper, Cu	mg/kg	0.5	24	26	32	9
		Nickel, Ni	mg/kg	0.5	3.4	3.8	44	10
		Lead, Pb	mg/kg	1	18	18	36	2
		Zinc, Zn	mg/kg	2	28	30	37	8
SE233215.010	LB251509.024	Arsenic, As	mg/kg	1	7	7	45	1
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	10	8.3	35	22
		Copper, Cu	mg/kg	0.5	25	25	32	1
		Nickel, Ni	mg/kg	0.5	11	10	35	12
		Lead, Pb	mg/kg	1	20	17	35	14
		Zinc, Zn	mg/kg	2	54	52	34	3

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014	TRH C10-C14	mg/kg	20	70	59	61	17
		TRH C15-C28	mg/kg	45	370	290	44	23
		TRH C29-C36	mg/kg	45	340	240	46	36
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	780	590	46	28
		TRH >C10-C40 Total (F bands)	mg/kg	210	810	590	60	32

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.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251328.014	TRH F Bands	TRH >C10-C16	mg/kg	25	140	130	49	11
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	140	130	49	11
			TRH >C16-C34 (F3)	mg/kg	90	460	330	53	32
			TRH >C34-C40 (F4)	mg/kg	120	210	130	99	46
SE233215.010	LB251328.025		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

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251332.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	0.4	0.3	60	23
			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 (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	8.3	50	21
			d8-toluene (Surrogate)	mg/kg	-	10.2	8.2	50	22
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	8.2	50	21
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	119	23
SE233215.010	LB251332.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	167	0
			Toluene	mg/kg	0.1	<0.1	<0.1	191	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 (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.7	8.5	50	23
			d8-toluene (Surrogate)	mg/kg	-	10.7	8.3	50	25
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.0	8.1	50	22
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE233153.010	LB251332.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	8.3	30	21
			d8-toluene (Surrogate)	mg/kg	-	10.2	8.2	30	22
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	8.2	30	21
		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
SE233215.010	LB251332.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.7	8.5	30	23
			d8-toluene (Surrogate)	mg/kg	-	10.7	8.3	30	25
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.0	8.1	30	22
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	167	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251511.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	101

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	92
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	88
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	88
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	88
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	103
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	95
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	95

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002		Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	111
		Diazinon (Dimpylate)	mg/kg	0.5	2.3	2	60 - 140	117
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.3	2	60 - 140	114
		Ethion	mg/kg	0.2	2.1	2	60 - 140	103
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	100
		Phenanthrene	mg/kg	0.1	4.0	4	60 - 140	100
		Anthracene	mg/kg	0.1	4.0	4	60 - 140	100
		Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	99
		Pyrene	mg/kg	0.1	3.8	4	60 - 140	95
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	96
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	99

Speciated Phenols in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002		Phenol	mg/kg	0.5	1.1	1	70 - 130	108
		2,4-dichlorophenol	mg/kg	0.5	1.0	1	70 - 130	97
		2,4,6-trichlorophenol	mg/kg	0.5	1.0	1	70 - 130	99
		Pentachlorophenol	mg/kg	0.5	0.7	1	70 - 130	70
	Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	3.5	5	40 - 130	71
		d5-phenol (Surrogate)	mg/kg	-	1.6	2	40 - 130	82

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251509.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	108
	Cadmium, Cd	mg/kg	0.3	4.7	4.81	70 - 130	98
	Chromium, Cr	mg/kg	0.5	37	38.31	80 - 120	97
	Copper, Cu	mg/kg	0.5	330	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	105
	Lead, Pb	mg/kg	1	96	89.9	80 - 120	107
	Zinc, Zn	mg/kg	2	290	273	80 - 120	106

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251328.002		TRH C10-C14	mg/kg	20	52	40	60 - 140	130
		TRH C15-C28	mg/kg	45	52	40	60 - 140	130
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	105
	TRH F Bands	TRH >C10-C16	mg/kg	25	56	40	60 - 140	140
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	115
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251332.002	Monocyclic	Benzene	mg/kg	0.1	4.7	5	60 - 140	94
	Aromatic	Toluene	mg/kg	0.1	4.4	5	60 - 140	87
		Ethylbenzene	mg/kg	0.1	4.6	5	60 - 140	93
		m/p-xylene	mg/kg	0.2	9.0	10	60 - 140	90
		o-xylene	mg/kg	0.1	4.8	5	60 - 140	97
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		d8-toluene (Surrogate)	mg/kg	-	12.1	10	70 - 130	121
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.3	10	70 - 130	113

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB251332.002		TRH C6-C10	mg/kg	25	74	92.5	60 - 140	80
		TRH C6-C9	mg/kg	20	60	80	60 - 140	75
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	47	62.5	60 - 140	75

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233225.001	LB251511.004	Mercury	mg/kg	0.05	0.21	0.01929596374	0.2	97

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		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	101
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	93
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	111
			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	92
			Endrin	mg/kg	0.2	0.3	<0.2	0.2	125
			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	103
			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	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.14	-	98

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		Dichlorvos	mg/kg	0.5	1.9	<0.5	2	96
			Diazinon (Dimpylate)	mg/kg	0.5	2.1	<0.5	2	103
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	<0.2	2	98
			Ethion	mg/kg	0.2	1.9	<0.2	2	94
			Total OP Pesticides*	mg/kg	1.7	22	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	89
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004	Naphthalene	mg/kg	0.1	3.9	<0.1	4	98
		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	3.8	<0.1	4	94
		Acenaphthene	mg/kg	0.1	3.8	<0.1	4	93
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.0	<0.1	4	100
		Anthracene	mg/kg	0.1	3.9	<0.1	4	97
		Fluoranthene	mg/kg	0.1	4.0	<0.1	4	98
		Pyrene	mg/kg	0.1	3.7	<0.1	4	93
		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	-	-

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.6	<0.1	4	89
			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	TEQ (mg/kg)	0.2	3.6	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.7	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.7	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	31	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	92
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	89
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	82

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		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	0.3	<0.2	0.4	82
			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	-	98

Speciated Phenols in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		Phenol	mg/kg	0.5	1.2	<0.5	1	115
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	-	-
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	-	-
			Total Cresol	mg/kg	1.5	<1.5	<1.5	-	-
			2-chlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
			2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	-	-
			2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
			2,4-dichlorophenol	mg/kg	0.5	1.1	<0.5	1	108
			2,4,6-trichlorophenol	mg/kg	0.5	0.9	<0.5	1	92
			2-nitrophenol	mg/kg	0.5	<0.5	<0.5	-	-
			4-nitrophenol	mg/kg	1	<1	<1	-	-
			2,4,5-trichlorophenol	mg/kg	0.5	0.8	<0.5	-	-
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	-	-
			Pentachlorophenol	mg/kg	0.5	1.2	<0.5	1	105
			2,4-dinitrophenol	mg/kg	2	<2	<2	-	-
			4-chloro-3-methylphenol	mg/kg	2	<2	<2	-	-
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	3.7	3.7	-	74
			d5-phenol (Surrogate)	mg/kg	-	1.8	1.7	-	88

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233225.001	LB251509.004	Arsenic, As	mg/kg	1	46	2.61185791254	50	87
		Cadmium, Cd	mg/kg	0.3	43	0.04182690607	50	86
		Chromium, Cr	mg/kg	0.5	60	13.7455606512	50	93
		Copper, Cu	mg/kg	0.5	110	75.8357953808	50	77
		Nickel, Ni	mg/kg	0.5	51	5.80464507610	50	90
		Lead, Pb	mg/kg	1	52	8.03231511064	50	88
		Zinc, Zn	mg/kg	2	75	31.8906921634	50	87

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251328.004		TRH C10-C14	mg/kg	20	170	150	40	50 ⑤
			TRH C15-C28	mg/kg	45	610	790	40	-458 ⑤
			TRH C29-C36	mg/kg	45	560	770	40	-540 ⑤
			TRH C37-C40	mg/kg	100	130	240	-	-
			TRH C10-C36 Total	mg/kg	110	1300	1700	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	1400	1900	-	-
		TRH F	TRH >C10-C16	mg/kg	25	310	350	40	-110 ⑤
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	310	350	-	-
			TRH >C16-C34 (F3)	mg/kg	90	720	970	40	-628 ⑤
			TRH >C34-C40 (F4)	mg/kg	120	380	590	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251332.004	Monocyclic	Benzene	mg/kg	0.1	3.4	<0.1	5	66
		Aromatic	Toluene	mg/kg	0.1	3.5	<0.1	5	68
			Ethylbenzene	mg/kg	0.1	3.8	<0.1	5	77
			m/p-xylene	mg/kg	0.2	7.4	<0.2	10	74
			o-xylene	mg/kg	0.1	4.0	<0.1	5	80
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	9.2	10	92
			d8-toluene (Surrogate)	mg/kg	-	9.0	8.8	10	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.6	10	89
		Totals	Total Xylenes	mg/kg	0.3	11	<0.3	-	-
			Total BTEX	mg/kg	0.6	22	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE233153.001	LB251332.004		TRH C6-C10	mg/kg	25	70	<25	92.5	74
			TRH C6-C9	mg/kg	20	58	<20	80	72
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	9.2	10	92
			d8-toluene (Surrogate)	mg/kg	-	9.0	8.8	10	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.6	-	89
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	48	<25	62.5	74

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

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: https://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.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Samples	10

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SGS Reference	**SE233215 R0**
Date Received	16 Jun 2022
Date Reported	23 Jun 2022

COMMENTS

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

GUIDELINE OBJECTIVES

When the traffic light is green, a comparison of the results and the guideline limit and warn values suggest no exceedances.
When the traffic light is amber, a comparison of the results and guideline warning values suggests one or more warnings.
When the traffic signal is red, a comparison of results and guideline values suggests one or more guideline exceedances.
If all lights are out, no comparison of results and guideline values was performed.
In all cases, closer inspection of results is recommended.

The Guideline Objectives traffic signal device serves to highlight variations between results and guideline values (limit and warn).
As a guide, where the result ± MU indicates no exceedance (result + MU < guideline) or an exceedance (result - MU > guideline),

SIGNATORIES

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Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample Depth	-	-	-	-	-	-
Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
Sample Name	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**

VOC's in Soil Method: AN433 Tested: 20/6/2022

Monocyclic Aromatic Hydrocarbons

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Benzene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	0.5	0.5	0.5	0.5	0.5	0.5
Toluene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	65	65	65	65	65	65
Ethylbenzene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	25	25	25	25	25	25
m/p-xylene	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
o-xylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Polycyclic VOCs

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Naphthalene (VOC)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Totals

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Total Xylenes	mg/kg	0.3	Result	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
			Warn	-	-	-	-	-	-
			Limit	15	15	15	15	15	15
Total BTEX	mg/kg	0.6	Result	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
TRH C6-C10	mg/kg	25	Result	<25	<25	<25	<25	<25	<25
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH C6-C9	mg/kg	20	Result	<20	<20	<20	<20	<20	<20
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

VPH F Bands

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Benzene (F0)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	Result	<25	<25	<25	<25	<25	<25
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
TRH C10-C14	mg/kg	20	Result	<20	<20	<20	<20	<20	<20
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH C15-C28	mg/kg	45	Result	<45	<45	<45	<45	<45	<45
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample Depth	-	-	-	-	-	-
Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
Sample Name	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**

TRH (Total Recoverable Hydrocarbons) in Soil **Method: AN403** **Tested: 20/6/2022** **(continued)**

				SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
TRH C29-C36	mg/kg	45	Result	<45	<45	<45	<45	<45	<45
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH C37-C40	mg/kg	100	Result	<100	<100	<100	<100	<100	<100
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH C10-C36 Total	mg/kg	110	Result	**<110**	**<110**	**<110**	**<110**	**<110**	**<110**
			Warn	**250**	**250**	**250**	**250**	**250**	**250**
			Limit	**500**	**500**	**500**	**500**	**500**	**500**
TRH >C10-C40 Total (F bands)	mg/kg	210	Result	<210	<210	<210	<210	<210	<210
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

TRH F Bands

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
TRH >C10-C16	mg/kg	25	Result	<25	<25	<25	<25	<25	<25
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	Result	<25	<25	<25	<25	<25	<25
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	Result	<90	<90	<90	<90	<90	<90
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	Result	<120	<120	<120	<120	<120	<120
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: AN420** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Naphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
1-methylnaphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Acenaphthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Fluorene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Phenanthrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

	Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S1	S2	S3	S4	S5	S6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Benzo(a)anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Chrysene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	0.5	0.5	0.5	0.5	0.5	0.5
			Limit	1	1	1	1	1	1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	Result	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total PAH (18)	mg/kg	0.8	Result	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
			Warn	20	20	20	20	20	20
			Limit	40	40	40	40	40	40
Total PAH (NEPM/WHO 16)	mg/kg	0.8	Result	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Speciated Phenols in Soil Method: AN420 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Phenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total Cresol	mg/kg	1.5	Result	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2-chlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample Depth	-	-	-	-	-	-
Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
Sample Name	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**

Speciated Phenols in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
2,6-dichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2-nitrophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
4-nitrophenol	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,4,5-trichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Pentachlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
2,4-dinitrophenol	mg/kg	2	Result	<2	<2	<2	<2	<2	<2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
4-chloro-3-methylphenol	mg/kg	2	Result	<2	<2	<2	<2	<2	<2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Hexachlorobenzene (HCB)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Alpha BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Lindane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Heptachlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Aldrin	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Beta BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Delta BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
o,p'-DDE	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

	Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S1	S2	S3	S4	S5	S6

OC Pesticides in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Alpha Endosulfan	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Gamma Chlordane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Alpha Chlordane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
trans-Nonachlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
p,p'-DDE	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Dieldrin	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Endrin	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
o,p'-DDD	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
o,p'-DDT	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Beta Endosulfan	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
p,p'-DDD	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
p,p'-DDT	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Methoxychlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Endrin Ketone	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Isodrin	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Mirex	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total CLP OC Pesticides	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total OC VIC EPA	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample Depth	-	-	-	-	-	-
Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
Sample Name	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**

OP Pesticides in Soil **Method: AN420** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Dichlorvos	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Dimethoate	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Malathion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Bromophos Ethyl	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Methidathion	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Ethion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total OP Pesticides*	mg/kg	1.7	Result	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

PCBs in Soil **Method: AN420** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Arochlor 1016	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1221	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1232	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1242	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1248	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1254	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1260	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

	Sample Number	SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S1	S2	S3	S4	S5	S6

PCBs in Soil **Method: AN420** **Tested: 20/6/2022** **(continued)**

				SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Arochlor 1262	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Arochlor 1268	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-
Total PCBs (Arochlors)	mg/kg	1	Result	<1	<1	<1	<1	<1	<1
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: AN040/AN320** **Tested: 22/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Arsenic, As	mg/kg	1	Result	5 ±13.2%	5 ±13.2%	6 ±13.2%	6 ±13.2%	7 ±13.2%	7 ±13.2%
			Warn	20	20	20	20	20	20
			Limit	40	40	40	40	40	40
Cadmium, Cd	mg/kg	0.3	Result	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
			Warn	0.5	0.5	0.5	0.5	0.5	0.5
			Limit	1	1	1	1	1	1
Chromium, Cr	mg/kg	0.5	Result	6.2 ±12.5%	14 ±12.5%	11 ±12.5%	12 ±12.5%	13 ±12.5%	16 ±12.5%
			Warn	75	75	75	75	75	75
			Limit	150	150	150	150	150	150
Copper, Cu	mg/kg	0.5	Result	24 ±12.5%	18 ±12.5%	23 ±12.5%	29 ±12.5%	23 ±12.5%	23 ±12.5%
			Warn	100	100	100	100	100	100
			Limit	200	200	200	200	200	200
Nickel, Ni	mg/kg	0.5	Result	3.4 ±7.1%	7.0 ±7.1%	7.7 ±7.1%	8.3 ±7.1%	8.5 ±7.1%	10 ±7.1%
			Warn	30	30	30	30	30	30
			Limit	60	60	60	60	60	60
Lead, Pb	mg/kg	1	Result	18 ±9.8%	20 ±9.8%	23 ±9.8%	24 ±9.8%	26 ±9.8%	26 ±9.8%
			Warn	50	50	50	50	50	50
			Limit	100	100	100	100	100	100
Zinc, Zn	mg/kg	2	Result	28 ±9.6%	26 ±9.6%	42 ±9.6%	52 ±9.6%	41 ±9.6%	38 ±9.6%
			Warn	150	150	150	150	150	150
			Limit	300	300	300	300	300	300

Mercury in Soil **Method: AN312** **Tested: 22/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
Mercury	mg/kg	0.05	Result	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
			Warn	0.5	0.5	0.5	0.5	0.5	0.5
			Limit	1	1	1	1	1	1

Moisture Content **Method: AN002** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.001	SE233215.002	SE233215.003	SE233215.004	SE233215.005	SE233215.006
% Moisture	%w/w	1	Result	9.2	21.6	16.1	10.7	18.6	17.4
			Warn	-	-	-	-	-	-
			Limit	-	-	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

VOC's in Soil **Method: AN433** **Tested: 20/6/2022**

Monocyclic Aromatic Hydrocarbons

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Benzene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	0.5	0.5	0.5	0.5
Toluene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	65	65	65	65
Ethylbenzene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	25	25	25	25
m/p-xylene	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
o-xylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-

Polycyclic VOCs

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Naphthalene (VOC)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-

Totals

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Total Xylenes	mg/kg	0.3	Result	<0.3	<0.3	<0.3	<0.3
			Warn	-	-	-	-
			Limit	15	15	15	15
Total BTEX	mg/kg	0.6	Result	<0.6	<0.6	<0.6	<0.6
			Warn	-	-	-	-
			Limit	-	-	-	-

Volatile Petroleum Hydrocarbons in Soil **Method: AN433** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
TRH C6-C10	mg/kg	25	Result	<25	<25	<25	<25
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH C6-C9	mg/kg	20	Result	<20	<20	<20	<20
			Warn	-	-	-	-
			Limit	-	-	-	-

VPH F Bands

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Benzene (F0)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	Result	<25	<25	<25	<25
			Warn	-	-	-	-
			Limit	-	-	-	-

TRH (Total Recoverable Hydrocarbons) in Soil **Method: AN403** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
TRH C10-C14	mg/kg	20	Result	<20	<20	<20	<20
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH C15-C28	mg/kg	45	Result	<45	<45	<45	<45
			Warn	-	-	-	-
			Limit	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 20/6/2022 (continued)

				SE233215.007	SE233215.008	SE233215.009	SE233215.010
TRH C29-C36	mg/kg	45	Result	<45	<45	<45	<45
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH C37-C40	mg/kg	100	Result	<100	<100	<100	<100
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH C10-C36 Total	mg/kg	110	Result	<110	<110	<110	<110
			Warn	250	250	250	250
			Limit	500	500	500	500
TRH >C10-C40 Total (F bands)	mg/kg	210	Result	<210	<210	<210	<210
			Warn	-	-	-	-
			Limit	-	-	-	-

TRH F Bands

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
TRH >C10-C16	mg/kg	25	Result	<25	<25	<25	<25
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	Result	<25	<25	<25	<25
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	Result	<90	<90	<90	<90
			Warn	-	-	-	-
			Limit	-	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	Result	<120	<120	<120	<120
			Warn	-	-	-	-
			Limit	-	-	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Naphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
2-methylnaphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
1-methylnaphthalene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Acenaphthylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Acenaphthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Fluorene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Phenanthrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.007	SE233215.008	SE233215.009	SE233215.010
Benzo(a)anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Chrysene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Benzo(a)pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	0.5	0.5	0.5	0.5
			Limit	1	1	1	1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	Result	<0.3	<0.3	<0.3	<0.3
			Warn	-	-	-	-
			Limit	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Total PAH (18)	mg/kg	0.8	Result	<0.8	<0.8	<0.8	<0.8
			Warn	20	20	20	20
			Limit	40	40	40	40
Total PAH (NEPM/WHO 16)	mg/kg	0.8	Result	<0.8	<0.8	<0.8	<0.8
			Warn	-	-	-	-
			Limit	-	-	-	-

Speciated Phenols in Soil Method: AN420 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Phenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-
Total Cresol	mg/kg	1.5	Result	<1.5	<1.5	<1.5	<1.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2-chlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

Speciated Phenols in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.007	SE233215.008	SE233215.009	SE233215.010
2,6-dichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2-nitrophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
4-nitrophenol	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-
2,4,5-trichlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-
Pentachlorophenol	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
2,4-dinitrophenol	mg/kg	2	Result	<2	<2	<2	<2
			Warn	-	-	-	-
			Limit	-	-	-	-
4-chloro-3-methylphenol	mg/kg	2	Result	<2	<2	<2	<2
			Warn	-	-	-	-
			Limit	-	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Hexachlorobenzene (HCB)	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Alpha BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Lindane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Heptachlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Aldrin	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Beta BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Delta BHC	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
o,p'-DDE	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

OC Pesticides in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.007	SE233215.008	SE233215.009	SE233215.010
Alpha Endosulfan	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Gamma Chlordane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Alpha Chlordane	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
trans-Nonachlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
p,p'-DDE	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Dieldrin	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Endrin	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
o,p'-DDD	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
o,p'-DDT	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Beta Endosulfan	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
p,p'-DDD	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
p,p'-DDT	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Methoxychlor	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Endrin Ketone	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Isodrin	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Mirex	mg/kg	0.1	Result	<0.1	<0.1	<0.1	<0.1
			Warn	-	-	-	-
			Limit	-	-	-	-
Total CLP OC Pesticides	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-
Total OC VIC EPA	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-

	Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Depth	-	-	-	-
	Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
	Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
	Sample Name	S7	S8	S9	S10

OP Pesticides in Soil **Method: AN420** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Dichlorvos	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
Dimethoate	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
Fenitrothion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Malathion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Bromophos Ethyl	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Methidathion	mg/kg	0.5	Result	<0.5	<0.5	<0.5	<0.5
			Warn	-	-	-	-
			Limit	-	-	-	-
Ethion	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Total OP Pesticides*	mg/kg	1.7	Result	<1.7	<1.7	<1.7	<1.7
			Warn	-	-	-	-
			Limit	-	-	-	-

PCBs in Soil **Method: AN420** **Tested: 20/6/2022**

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Arochlor 1016	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1221	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1232	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1242	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1248	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1254	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1260	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-

Sample Number	SE233215.007	SE233215.008	SE233215.009	SE233215.010
Sample Matrix	Soil	Soil	Soil	Soil
Sample Depth	-	-	-	-
Sample Date	16 Jun 2022	16 Jun 2022	16 Jun 2022	16 Jun 2022
Guideline	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material	The Excavated Natural Material
Sample Name	S7	S8	S9	S10

PCBs in Soil Method: AN420 Tested: 20/6/2022 (continued)

				SE233215.007	SE233215.008	SE233215.009	SE233215.010
Arochlor 1262	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Arochlor 1268	mg/kg	0.2	Result	<0.2	<0.2	<0.2	<0.2
			Warn	-	-	-	-
			Limit	-	-	-	-
Total PCBs (Arochlors)	mg/kg	1	Result	<1	<1	<1	<1
			Warn	-	-	-	-
			Limit	-	-	-	-

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 22/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Arsenic, As	mg/kg	1	Result	7 ±13.2%	4 ±13.2%	6 ±13.2%	7 ±13.2%
			Warn	20	20	20	20
			Limit	40	40	40	40
Cadmium, Cd	mg/kg	0.3	Result	<0.3	<0.3	<0.3	<0.3
			Warn	0.5	0.5	0.5	0.5
			Limit	1	1	1	1
Chromium, Cr	mg/kg	0.5	Result	11 ±12.5%	10 ±12.5%	11 ±12.5%	10 ±12.5%
			Warn	75	75	75	75
			Limit	150	150	150	150
Copper, Cu	mg/kg	0.5	Result	28 ±12.5%	17 ±12.5%	22 ±12.5%	25 ±12.5%
			Warn	100	100	100	100
			Limit	200	200	200	200
Nickel, Ni	mg/kg	0.5	Result	9.5 ±7.1%	9.7 ±7.1%	9.8 ±7.1%	11 ±7.1%
			Warn	30	30	30	30
			Limit	60	60	60	60
Lead, Pb	mg/kg	1	Result	24 ±9.8%	13 ±9.8%	22 ±9.8%	20 ±9.8%
			Warn	50	50	50	50
			Limit	100	100	100	100
Zinc, Zn	mg/kg	2	Result	50 ±9.6%	39 ±9.6%	46 ±9.6%	54 ±9.6%
			Warn	150	150	150	150
			Limit	300	300	300	300

Mercury in Soil Method: AN312 Tested: 22/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
Mercury	mg/kg	0.05	Result	<0.05	<0.05	<0.05	<0.05
			Warn	0.5	0.5	0.5	0.5
			Limit	1	1	1	1

Moisture Content Method: AN002 Tested: 20/6/2022

Parameter	Units	LOR		SE233215.007	SE233215.008	SE233215.009	SE233215.010
% Moisture	%w/w	1	Result	13.7	13.2	14.6	17.4
			Warn	-	-	-	-
			Limit	-	-	-	-

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.

Mercury in Soil Method: AN312

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Mercury	LB251511	mg/kg	0.05	<0.05	0 - 4%	101%	97%

Moisture Content Method: AN002

Parameter	QC Ref	Units	LOR	DUP %RPD
% Moisture	LB251334	%w/w	1	29%

OC Pesticides in Soil Method: AN420

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Hexachlorobenzene (HCB)	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Alpha BHC	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Lindane	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Heptachlor	LB251328	mg/kg	0.1	<0.1	0%	92%	101%
Aldrin	LB251328	mg/kg	0.1	<0.1	0%	88%	93%
Beta BHC	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Delta BHC	LB251328	mg/kg	0.1	<0.1	0%	88%	111%
Heptachlor epoxide	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDE	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Endosulfan	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Gamma Chlordane	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Chlordane	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
trans-Nonachlor	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDE	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Dieldrin	LB251328	mg/kg	0.2	<0.2	0%	88%	92%
Endrin	LB251328	mg/kg	0.2	<0.2	0%	103%	125%
o,p'-DDD	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDT	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Beta Endosulfan	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
p,p'-DDD	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDT	LB251328	mg/kg	0.1	<0.1	0%	95%	103%
Endosulfan sulphate	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Aldehyde	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Methoxychlor	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Ketone	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Isodrin	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Mirex	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Total CLP OC Pesticides	LB251328	mg/kg	1	<1	0%	NA	NA
Total OC VIC EPA	LB251328	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB251328	mg/kg	-	0.15	0 - 5%	95%	98%

OP Pesticides in Soil Method: AN420

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Dichlorvos	LB251328	mg/kg	0.5	<0.5	0%	111%	96%
Dimethoate	LB251328	mg/kg	0.5	<0.5	0%		
Diazinon (Dimpylate)	LB251328	mg/kg	0.5	<0.5	0%	117%	103%
Fenitrothion	LB251328	mg/kg	0.2	<0.2	0%		
Malathion	LB251328	mg/kg	0.2	<0.2	0%		
Chlorpyrifos (Chlorpyrifos Ethyl)	LB251328	mg/kg	0.2	<0.2	0%	114%	98%
Parathion-ethyl (Parathion)	LB251328	mg/kg	0.2	<0.2	0%		
Bromophos Ethyl	LB251328	mg/kg	0.2	<0.2	0%		
Methidathion	LB251328	mg/kg	0.5	<0.5	0%		
Ethion	LB251328	mg/kg	0.2	<0.2	0%	103%	94%
Azinphos-methyl (Guthion)	LB251328	mg/kg	0.2	<0.2	0%		

OP Pesticides in Soil Method: AN420 (continued)

				MB	DUP %RPD	LCS %REC	MS %REC
Total OP Pesticides*	LB251328	mg/kg	1.7	<1.7	0%	NA	NA

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
2-fluorobiphenyl (Surrogate)	LB251328	mg/kg	-	0.5	3 - 4%	94%	89%
d14-p-terphenyl (Surrogate)	LB251328	mg/kg	-	0.5	1 - 5%	89%	82%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Naphthalene	LB251328	mg/kg	0.1	<0.1	0%	102%	98%
2-methylnaphthalene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB251328	mg/kg	0.1	<0.1	0%	97%	94%
Acenaphthene	LB251328	mg/kg	0.1	<0.1	0%	100%	93%
Fluorene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB251328	mg/kg	0.1	<0.1	0%	100%	100%
Anthracene	LB251328	mg/kg	0.1	<0.1	0%	100%	97%
Fluoranthene	LB251328	mg/kg	0.1	<0.1	0%	99%	98%
Pyrene	LB251328	mg/kg	0.1	<0.1	0%	95%	93%
Benzo(a)anthracene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Chrysene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(b&j)fluoranthene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(k)fluoranthene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(a)pyrene	LB251328	mg/kg	0.1	<0.1	0%	96%	89%
Indeno(1,2,3-cd)pyrene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Dibenzo(ah)anthracene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB251328	mg/kg	0.1	<0.1	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB251328	TEQ	0.2	<0.2	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB251328	TEQ	0.3	<0.3	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB251328	TEQ	0.2	<0.2	0%	NA	NA
Total PAH (18)	LB251328	mg/kg	0.8	<0.8	0%	NA	NA
Total PAH (NEPM/WHO 16)	LB251328	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
d5-nitrobenzene (Surrogate)	LB251328	mg/kg	-	0.5	2 - 4%	92%	92%
2-fluorobiphenyl (Surrogate)	LB251328	mg/kg	-	0.5	3 - 4%	94%	89%
d14-p-terphenyl (Surrogate)	LB251328	mg/kg	-	0.5	1 - 5%	89%	82%

PCBs in Soil Method: AN420

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Arochlor 1016	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1221	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1232	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1242	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1248	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1254	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1260	LB251328	mg/kg	0.2	<0.2	0%	99%	82%
Arochlor 1262	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1268	LB251328	mg/kg	0.2	<0.2	0%	NA	NA
Total PCBs (Arochlors)	LB251328	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB251328	mg/kg	-	0	0 - 5%	95%	98%

Speciated Phenols in Soil Method: AN420

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Phenol	LB251328	mg/kg	0.5	<0.5	0%	108%	115%
2-methyl phenol (o-cresol)	LB251328	mg/kg	0.5	<0.5	0%	NA	NA
3/4-methyl phenol (m/p-cresol)	LB251328	mg/kg	1	<1	0%	NA	NA
Total Cresol	LB251328	mg/kg	1.5	<1.5	0%	NA	NA
2-chlorophenol	LB251328	mg/kg	0.5	<0.5	0%	NA	NA

Speciated Phenols in Soil Method: AN420 (continued)

				MB	DUP %RPD	LCS %REC	MS %REC
2,4-dimethylphenol	LB251328	mg/kg	0.5	<0.5	0%	NA	NA
2,6-dichlorophenol	LB251328	mg/kg	0.5	<0.5	0%	NA	NA
2,4-dichlorophenol	LB251328	mg/kg	0.5	<0.5	0%	97%	108%
2,4,6-trichlorophenol	LB251328	mg/kg	0.5	<0.5	0%	99%	92%
2-nitrophenol	LB251328	mg/kg	0.5	<0.5	0%	NA	NA
4-nitrophenol	LB251328	mg/kg	1	<1	0%	NA	NA
2,4,5-trichlorophenol	LB251328	mg/kg	0.5	<0.5	0%	NA	NA
2,3,4,6/2,3,5,6-tetrachlorophenol	LB251328	mg/kg	1	<1	0%	NA	NA
Pentachlorophenol	LB251328	mg/kg	0.5	<0.5	0%	70%	105%
2,4-dinitrophenol	LB251328	mg/kg	2	<2	0%	NA	NA
4-chloro-3-methylphenol	LB251328	mg/kg	2	<2	0%	NA	NA

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
2,4,6-Tribromophenol (Surrogate)	LB251328	mg/kg	-	3.6	28%	71%	74%
d5-phenol (Surrogate)	LB251328	mg/kg	-	1.6	7%	82%	88%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Arsenic, As	LB251509	mg/kg	1	<1	1 - 14%	108%	87%
Cadmium, Cd	LB251509	mg/kg	0.3	<0.3	0%	98%	86%
Chromium, Cr	LB251509	mg/kg	0.5	<0.5	3 - 22%	97%	93%
Copper, Cu	LB251509	mg/kg	0.5	<0.5	1 - 9%	112%	77%
Nickel, Ni	LB251509	mg/kg	0.5	<0.5	10 - 12%	105%	90%
Lead, Pb	LB251509	mg/kg	1	<1	2 - 14%	107%	88%
Zinc, Zn	LB251509	mg/kg	2	<2.0	3 - 8%	106%	87%

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
TRH C10-C14	LB251328	mg/kg	20	<20	0 - 17%	130%	50%
TRH C15-C28	LB251328	mg/kg	45	<45	0 - 23%	130%	-458%
TRH C29-C36	LB251328	mg/kg	45	<45	36%	105%	-540%
TRH C37-C40	LB251328	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB251328	mg/kg	110	<110	0 - 28%	NA	NA
TRH >C10-C40 Total (F bands)	LB251328	mg/kg	210	<210	0 - 32%	NA	NA

TRH F Bands

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
TRH >C10-C16	LB251328	mg/kg	25	<25	0 - 11%	140%	-110%
TRH >C10-C16 - Naphthalene (F2)	LB251328	mg/kg	25	<25	0 - 11%	NA	NA
TRH >C16-C34 (F3)	LB251328	mg/kg	90	<90	0 - 32%	115%	-628%
TRH >C34-C40 (F4)	LB251328	mg/kg	120	<120	0 - 46%	95%	NA

VOC's in Soil Method: AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Benzene	LB251332	mg/kg	0.1	<0.1	0%	94%	66%
Toluene	LB251332	mg/kg	0.1	<0.1	0 - 23%	87%	68%
Ethylbenzene	LB251332	mg/kg	0.1	<0.1	0%	93%	77%
m/p-xylene	LB251332	mg/kg	0.2	<0.2	0%	90%	74%
o-xylene	LB251332	mg/kg	0.1	<0.1	0%	97%	80%

Polycyclic VOCs

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Naphthalene (VOC)	LB251332	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
d4-1,2-dichloroethane (Surrogate)	LB251332	mg/kg	-	11.7	21 - 23%	92%	92%
d8-toluene (Surrogate)	LB251332	mg/kg	-	11.6	22 - 25%	121%	90%
Bromofluorobenzene (Surrogate)	LB251332	mg/kg	-	10.8	21 - 22%	113%	89%

Totals

VOC's in Soil Method: AN433 (continued)

Totals

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Total Xylenes	LB251332	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB251332	mg/kg	0.6	<0.6	0 - 23%	NA	NA

Volatile Petroleum Hydrocarbons in Soil Method: AN433

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
TRH C6-C10	LB251332	mg/kg	25	<25	0%	80%	74%
TRH C6-C9	LB251332	mg/kg	20	<20	0%	75%	72%

Surrogates

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
d4-1,2-dichloroethane (Surrogate)	LB251332	mg/kg	-	11.7	21 - 23%	92%	92%
d8-toluene (Surrogate)	LB251332	mg/kg	-	11.6	22 - 25%	121%	90%
Bromofluorobenzene (Surrogate)	LB251332	mg/kg	-	10.8	21 - 22%	113%	89%

VPH F Bands

Parameter	QC Ref	Units	LOR	MB	DUP %RPD	LCS %REC	MS %REC
Benzene (F0)	LB251332	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB251332	mg/kg	25	<25	0%	75%	74%

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	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.
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.
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.
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).
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.

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.
***	Indicates that both * and ** apply.
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
NA	The sample was not analysed for this analyte

HLimit	High Guideline Limit
HWarn	High Guideline Warning Limit
LWarn	Low Guideline Warning Limit
LLimit	Low Guideline Limit

Note: Some limits may not apply, depending on guideline. Results outside the HLimit or LLimit will be flagged red. Results outside the HWarn or LWarn, but inside the Limits will be flagged as warnings. Interpretation

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-qb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

SGS EHS Sydney COC

SE233215

Company Name:	Anderson Environmental	Project Name/No:	10 Wickfield Circuit, Ambarvale
Address:	Suite 19 103 George St Parramatta 2150	Purchase Order No:	
		Results Required Date:	
		Telephone:	1300 302507 Fax:
Contact Name:	Jason Anderson	Email Results to:	Jason @andenviro.com.au @
Quotation No:			

SGS ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate) Soil Sample	Water Sample	Other	NO. OF CONTAINERS	ANALYSIS REQUESTED: CLIS (TRH, BTEXN, PAH plus Naph, OCP, PCB, BM)
1	S1	16/06/22	X			1	X
2	S2	"	X			1	X
3	S3	"	X			1	X
4	S4	"	X			1	X
5	S5	"	X			1	X
6	S6	"	X			1	X
7	S7	"	X			1	X
8	S8	"	X			1	X
9	S9	"	X			1	X
10	S10	"	X			1	X
~~11~~	Intra	"	X			1	X

Additional Report Formats

- ☐ NEPM
- ☐ CSV
- ☐ ESDAT
- ☐ DQO
- ☐ GO, Guidelines ---------
- ☐ Others

Notes/Guidelines/LOR/ Special instructions

Relinquished By: Bo Davidson	Date/Time: 16/06/22 17:32	Received By: George Zhi	Date/Time: 16/6/22 @ 5:35pm
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 3 °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*

Comments / Subcontracting details:

Yin, Emily (Sydney)

From: Jason Anderson <jason@andenviro.com.au>
Sent: Friday, 17 June 2022 2:16 PM
To: Yin, Emily (Sydney)
Subject: Re: [EXTERNAL] RE: SE233215 - 10 Wickfield

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Emily

Yes in house SGS but another lab of SGS it has to be like Cairns etc. That is what you normally do
Thanks
Jason

Sent from my BlackBerry 10 smartphone.

From: Yin, Emily (Sydney)
Sent: Thursday, June 16, 2022 7:11 PM
To: jason@andenviro.com.au
Subject: RE: [EXTERNAL] RE: SE233215 - 10 Wickfield

So we will it in house and not forward it to another lab.

Regards,

Emily Yin
Environment, Health & Safety
Sample Receipt

SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499
E-mail: au.samplereceipt.sydney@sgs.com

From: jason@andenviro.com.au <jason@andenviro.com.au>
Sent: Thursday, 16 June 2022 8:02 PM
To: Yin, Emily (Sydney) <Emily.Yin@sgs.com>
Subject: [EXTERNAL] RE: SE233215 - 10 Wickfield

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Emily

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Jason Anderson	Manager	Adam Atkinson
Client	ANDERSON ENVIRONMENTAL PTY LTD	Laboratory	SGS Melbourne EH&S
Address	SUITE 19 103 GEORGE STREET PARRAMATTA NSW 2150	Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	61 1300302507	Telephone	+61395743200
Facsimile	(Not specified)	Facsimile	+61395743399
Email	JASON@ANDERSONENVIRONMENTAL.COM.AU	Email	Au.SampleReceipt.Melbourne@sgs.com
Project	**10 Wickfield Circuit, Ambarvale**	SGS Reference	**ME327545 R0**
Order Number	**TBA**	Date Received	21 Jun 2022
Samples	1	Date Reported	28 Jun 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(14420).

Sampling performed by client

SIGNATORIES

Narelle SAUNDER
Senior Laboratory Technician

Ryan ZHANG
Inorganics Team Leader

Susan WAN
Senior Chemist

Vanessa PALAMARA
Senior Chemist

Parameter	Units	LOR	Sample Number: ME327545.001 Sample Matrix: Soil Sample Date: 16 Jun 2022 Sample Name: Intra
Moisture Content Method: AN002 Tested: 22/6/2022			
% Moisture	%w/w	1	**16.6**
USEPA 8260B Volatile Organic Compounds in Solids/Soils Method: USEPA 8260 B Tested: 22/6/2022			
m&p-Xylenes	mg/kg	0.1	<0.1
Total BTEX	mg/kg	0.5	<0.5
Monocyclic Aromatic Hydrocarbons			
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
o-Xylenes	mg/kg	0.1	<0.1
Polycyclic Aromatic Hydrocarbons			
Naphthalene (VOC)	mg/kg	0.1	<0.1
Surrogates			
Toluene-d8 (surrogate)	%	-	**84**
Volatile Petroleum Hydrocarbons in soil Method: MA30-VPH Tested: 22/6/2022			
TRH C6-C9 (P&T)	mg/kg	10	<10
TRH C6-C10 (P&T)	mg/kg	10	<10
TRH C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10

Parameter	Units	LOR	Sample Number: ME327545.001 Sample Matrix: Soil Sample Date: 16 Jun 2022 Sample Name: Intra
TRH in soil MA-30.SL.01 Method: MA30 Tested: 22/6/2022			
TRH C6-C9 (P&T)	mg/kg	10	<10
TRH C10-C14	mg/kg	10	<10
TRH >C10-C16	mg/kg	10	<10
TRH>C10-C16 less naphthalene (F2)	mg/kg	10	<10
TRH >C16-C34 (F3)	mg/kg	20	**35**
TRH C15-C28	mg/kg	20	**22**
TRH C29-C36	mg/kg	20	<20
C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10
Total TRH C10-C36	mg/kg	20	**22**
TRH >C34-C40 (F4)	mg/kg	20	<20
TRH C6-C10 (P&T)	mg/kg	10	<10
Total TRH C6-C36	mg/kg	20	**22**
Total TRH C6-C40 (F)	mg/kg	20	**35**
TRH >C10-C40 (F)	mg/kg	20	**35**
8270D.SL.01 SVOCs All in Solids/Soils Method: MA 8270 Tested: 22/6/2022			
1-Methylnaphthalene	mg/kg	0.1	<0.1
2-Chlorophenol	mg/kg	0.5	<0.5
2-Methylnaphthalene	mg/kg	0.1	<0.1
2-Nitrophenol	mg/kg	0.5	<0.5
2,3,4,5-Tetrachlorophenol*	mg/kg	0.5	<0.5
2,4-Dichlorophenol	mg/kg	0.5	<0.5
2,4-Dimethylphenol	mg/kg	0.5	<0.5
2,4-Dinitrophenol	mg/kg	0.5	<0.5
2,4,5-Trichlorophenol	mg/kg	0.5	<0.5
2,4,6-Trichlorophenol	mg/kg	0.5	<0.5
2,6-Dichlorophenol	mg/kg	0.5	<0.5
4-Chloro-3-methylphenol	mg/kg	0.5	<0.5
4-Nitrophenol	mg/kg	0.5	<0.5
4,4-DDD	mg/kg	0.5	<0.5
4,4-DDE	mg/kg	0.5	<0.5
4,4-DDT	mg/kg	0.5	<0.5
4,6-Dinitro-2-methylphenol	mg/kg	0.5	<0.5
Acenaphthene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.5	<0.5
alpha-BHC	mg/kg	0.5	<0.5
alpha-Chlordane	mg/kg	0.5	<0.5
gamma-Chlordane	mg/kg	0.5	<0.5
Anthracene	mg/kg	0.1	<0.1
Arochlor 1016	mg/kg	1	<1.0
Arochlor 1221	mg/kg	1	<1.0
Arochlor 1232	mg/kg	1	<1.0
Arochlor 1242	mg/kg	1	<1.0
Arochlor 1248	mg/kg	1	<1.0
Arochlor 1254	mg/kg	1	<1.0
Arochlor 1260	mg/kg	1	<1.0
Arochlor 1262	mg/kg	1	<1.0
Arochlor 1268	mg/kg	1	<1.0
Benzo(a)anthracene	mg/kg	0.1	<0.1
Benzo (a) pyrene	mg/kg	0.1	<0.1
Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1
Benzo (ghi) perylene	mg/kg	0.1	<0.1
Benzo (k) fluoranthene	mg/kg	0.1	<0.1
beta-BHC	mg/kg	0.5	<0.5
Chlorpyrifos	mg/kg	0.5	<0.5
Chrysene	mg/kg	0.1	<0.1
Coronene	mg/kg	0.1	<0.1

Parameter	Units	LOR	Sample Number ME327545.001 Sample Matrix Soil Sample Date 16 Jun 2022 Sample Name Intra
8270D.SL.01 SVOCs All in Solids/Soils Method: MA 8270 Tested: 22/6/2022 (continued)			
delta-BHC	mg/kg	0.5	<0.5
Dibenz (ah) anthracene	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Dinoseb	mg/kg	0.5	<0.5
Disulfoton	mg/kg	0.5	<0.5
Endosulfan 1	mg/kg	0.5	<0.5
Endosulfan 2	mg/kg	0.5	<0.5
Endosulfan Sulphate	mg/kg	0.5	<0.5
Endrin	mg/kg	0.5	<0.5
Endrin Aldehyde	mg/kg	0.5	<0.5
Famphur	mg/kg	0.5	<0.5
Fluoranthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
gamma-BHC	mg/kg	0.5	<0.5
Heptachlor	mg/kg	0.5	<0.5
Heptachlor Epoxide	mg/kg	0.5	<0.5
Hexachlorobenzene	mg/kg	0.5	<0.5
Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.5	<0.5
Methoxychlor	mg/kg	0.5	<0.5
Methyl parathion	mg/kg	0.5	<0.5
Naphthalene	mg/kg	0.1	<0.1
m&p-Cresol	mg/kg	0.5	<0.5
o-Cresol	mg/kg	0.5	<0.5
O,O,O-Triethylphosphorothioate	mg/kg	0.5	<0.5
Pentachlorophenol	mg/kg	0.5	<0.5
Perylene	mg/kg	0.5	<0.5
Phenanthrene	mg/kg	0.5	<0.5
Phenol	mg/kg	0.5	<0.5
Phorate	mg/kg	0.5	<0.5
Pyrene	mg/kg	0.5	<0.5
Stirofos	mg/kg	0.5	<0.5
Sulfotepp	mg/kg	0.5	<0.5
Thionazin	mg/kg	0.5	<0.5
Total Halogenated Phenols	mg/kg	1	<1.0
Total Non Halogenated Phenols	mg/kg	1	<1.0
Total OC Pesticides	mg/kg	1	<1.0
Total PCBs	mg/kg	1	<1.0
Total PAH	mg/kg	0.8	<0.8
2,4,6-Tribromophenol (surrogate)	%	-	**88**
Fluorobiphenyl (surrogate)	%	-	**63**
Fluorophenol (surrogate)	%	-	**104**
Nitrobenzene-D5 (surrogate)	%	-	**86**
p-Terphenyl-D14 (surrogate)	%	-	**78**
Phenol-D6 (surrogate)	%	-	**82**

Parameter	Units	LOR	Sample Number: ME327545.001 Sample Matrix: Soil Sample Date: 16 Jun 2022 Sample Name: Intra
Combined SVOC Pesticides in Solids/Soils Method: MA 8270 Tested: 22/6/2022			
Azinphos-methyl	mg/kg	0.5	<0.5
Diazinon*	mg/kg	0.5	<0.5
Bromophos ethyl*	mg/kg	0.5	<0.5
Metals/Elements in Solids Method: MA1400_1 Tested: 23/6/2022			
Arsenic	mg/kg	2	**9**
Cadmium	mg/kg	0.2	<0.2
Chromium	mg/kg	2	**22**
Copper	mg/kg	2	**21**
Lead	mg/kg	2	**32**
Mercury	mg/kg	0.05	**0.05**
Nickel	mg/kg	2	**12**
Zinc	mg/kg	2	**39**

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.

8270D.SL.01 SVOCs All in Solids/Soils Method: MA 8270

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
1-Methylnaphthalene	LB052023	mg/kg	0.1	<0.1	0%	NA		
2-Chlorophenol	LB052023	mg/kg	0.5	<0.5	0%	80%	77%	1%
2-Methylnaphthalene	LB052023	mg/kg	0.1	<0.1	0%	NA		
2-Nitrophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,3,4,5-Tetrachlorophenol*	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,4-Dichlorophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,4-Dimethylphenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,4-Dinitrophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,4,5-Trichlorophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,4,6-Trichlorophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
2,6-Dichlorophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
4-Chloro-3-methylphenol	LB052023	mg/kg	0.5	<0.5	0%	72%	71%	5%
4-Nitrophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
4,4-DDD	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
4,4-DDE	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
4,4-DDT	LB052023	mg/kg	0.5	<0.5	0%	102%		
4,6-Dinitro-2-methylphenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Acenaphthene	LB052023	mg/kg	0.1	<0.1	0%	87%	95%	23%
Acenaphthylene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Aldrin	LB052023	mg/kg	0.5	<0.5	0%	102%		
alpha-BHC	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
alpha-Chlordane	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
gamma-Chlordane	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Anthracene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Arochlor 1016	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1221	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1232	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1242	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1248	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1254	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1260	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1262	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Arochlor 1268	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Benzo(a)anthracene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo (a) pyrene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo (b+j) fluoranthene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo (ghi) perylene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo (k) fluoranthene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
beta-BHC	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Chlorpyrifos	LB052023	mg/kg	0.5	<0.5		NA		
Chrysene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Coronene	LB052023	mg/kg	0.1	<0.1		NA		
delta-BHC	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Dibenz (ah) anthracene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Dieldrin	LB052023	mg/kg	0.5	<0.5	0%	98%		
Dimethoate	LB052023	mg/kg	0.5	<0.5		NA		
Dinoseb	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Disulfoton	LB052023	mg/kg	0.5	<0.5		NA		
Endosulfan 1	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Endosulfan 2	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Endosulfan Sulphate	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Endrin	LB052023	mg/kg	0.5	<0.5	0%	91%		
Endrin Aldehyde	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Famphur	LB052023	mg/kg	0.5	<0.5		NA		
Fluoranthene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Fluorene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA

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.

8270D.SL.01 SVOCs All in Solids/Soils **Method: MA 8270 (continued)**

				MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
gamma-BHC	LB052023	mg/kg	0.5	<0.5	0%	110%		
Heptachlor	LB052023	mg/kg	0.5	<0.5	0%	103%		
Heptachlor Epoxide	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Hexachlorobenzene	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Indeno (1,2,3-cd) pyrene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
Isodrin	LB052023	mg/kg	0.5	<0.5		NA		
Methoxychlor	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Methyl parathion	LB052023	mg/kg	0.5	<0.5		NA		
Naphthalene	LB052023	mg/kg	0.1	<0.1	0%	NA	NA	NA
m&p-Cresol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
o-Cresol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
O,O,O-Triethylphosphorothioate	LB052023	mg/kg	0.5	<0.5		NA		
Pentachlorophenol	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Perylene	LB052023	mg/kg	0.5	<0.5		NA		
Phenanthrene	LB052023	mg/kg	0.5	<0.5	0%	NA	NA	NA
Phenol	LB052023	mg/kg	0.5	<0.5	0%	71%	64%	0%
Phorate	LB052023	mg/kg	0.5	<0.5		NA		
Pyrene	LB052023	mg/kg	0.5	<0.5	0%	77%	86%	3%
Stirofos	LB052023	mg/kg	0.5	<0.5		NA		
Sulfotepp	LB052023	mg/kg	0.5	<0.5		NA		
Thionazin	LB052023	mg/kg	0.5	<0.5		NA		
Total Halogenated Phenols	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Total Non Halogenated Phenols	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Total OC Pesticides	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Total PCBs	LB052023	mg/kg	1	<1.0	0%	NA	NA	NA
Total PAH	LB052023	mg/kg	0.8	<0.8	0%	NA	NA	NA
2,4,6-Tribromophenol (surrogate)	LB052023	%	-	64%	0 - 1%	86%	84%	0%
Fluorobiphenyl (surrogate)	LB052023	%	-	67%	3 - 7%	87%	81%	3%
Fluorophenol (surrogate)	LB052023	%	-	85%	2 - 7%	95%	89%	9%
Nitrobenzene-D5 (surrogate)	LB052023	%	-	75%	1 - 3%	81%	77%	11%
p-Terphenyl-D14 (surrogate)	LB052023	%	-	77%	7 - 8%	82%	84%	3%
Phenol-D6 (surrogate)	LB052023	%	-	74%	1 - 4%	80%	69%	5%

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.

Metals/Elements in Solids Method: MA1400_1

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arsenic	LB052035	mg/kg	2	<2	8%	102%
Cadmium	LB052035	mg/kg	0.2	<0.2	0%	99%
Chromium	LB052035	mg/kg	2	<2		98%
Copper	LB052035	mg/kg	2	<2	1%	98%
Lead	LB052035	mg/kg	2	<2	34%	99%
Mercury	LB052035	mg/kg	0.05	<0.05	22%	104%
Nickel	LB052035	mg/kg	2	<2	0%	97%
Zinc	LB052035	mg/kg	2	<2	12%	108%

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

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB052009	%w/w	1	7%

TRH in soil MA-30.SL.01 Method: MA30

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH C6-C9 (P&T)	LB052001	mg/kg	10	<10	0%	NA	NA	NA
TRH C10-C14	LB052001	mg/kg	10	<10	0 - 13%	NA	NA	NA
TRH >C10-C16	LB052001	mg/kg	10	<10	0 - 9%	NA	NA	NA
TRH>C10-C16 less naphthalene (F2)	LB052001	mg/kg	10	<10	0 - 9%	NA	NA	NA
TRH >C16-C34 (F3)	LB052001	mg/kg	20	<20	2 - 24%	NA	NA	NA
TRH C15-C28	LB052001	mg/kg	20	<20	0%	NA	NA	NA
TRH C29-C36	LB052001	mg/kg	20	<20	0 - 20%	NA	NA	NA
C6-C10 (P&T) less BTEX (F1)	LB052001	mg/kg	10	<10	0%	NA	NA	NA
Total TRH C10-C36	LB052001	mg/kg	20	<20	6 - 20%	88%	82%	NA
TRH >C34-C40 (F4)	LB052001	mg/kg	20	<20	0 - 11%	NA	NA	NA
TRH C6-C10 (P&T)	LB052001	mg/kg	10	<10	0%	NA	NA	NA
Total TRH C6-C36	LB052001	mg/kg	20	<20	6 - 20%	NA	NA	NA
Total TRH C6-C40 (F)	LB052001	mg/kg	20	<20	4 - 17%	NA	NA	NA
TRH >C10-C40 (F)	LB052001	mg/kg	20	<20	4 - 17%	NA	NA	NA

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.

USEPA 8260B Volatile Organic Compounds in Solids/Soils **Method: USEPA 8260 B**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
m&p-Xylenes	LB052008	mg/kg	0.1	<0.1	0%	NA	NA	NA
Total BTEX	LB052008	mg/kg	0.5	<0.5	0%	NA	NA	NA

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Benzene	LB052008	mg/kg	0.1	<0.1	0%	104%	102%	0%
Toluene	LB052008	mg/kg	0.1	<0.1	0%	99%	96%	1%
Ethylbenzene	LB052008	mg/kg	0.1	<0.1	0%	105%	103%	0%
o-Xylenes	LB052008	mg/kg	0.1	<0.1	0%	NA	NA	NA

Polycyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Naphthalene (VOC)	LB052008	mg/kg	0.1	<0.1	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Toluene-d8 (surrogate)	LB052008	%	-	88%	1%	88%	81%	0%

Volatile Petroleum Hydrocarbons in soil **Method: MA30-VPH**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH C6-C9 (P&T)	LB052008	mg/kg	10	<10	0%	137%	136%	NA
TRH C6-C10 (P&T)	LB052008	mg/kg	10	<10	0%	118%	117%	NA
TRH C6-C10 (P&T) less BTEX (F1)	LB052008	mg/kg	10	<10	0%	NA	NA	NA

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.
MA 8270	This method covers analytical procedures for the analysis of semi-volatile organic compounds (SVOC) including most neutral, acidic, and basic organic compounds based on the USEPA method 8270D. Samples are extracted into a solvent appropriate to the matrix and analysed using a gas chromatograph – mass spectrometer (GC–MS).
MA1400_1	A weighed portion of as received sample is extracted in concentrated acid using microwave heating by the Microwave Digestion system. The sample and acid are placed in a microwave vessel (TFM), which is then capped and heated in the microwave unit. After cooling,the vessel contents are diluted with DI water, then filtered, centrifuged, or allowed to settle and analysed by ICP-MS.
MA-30	This method is used for the analysis of Total Recoverable Hydrocarbons (TRH). TRH is a generic term for all extractable organic compounds and includes all hydrocarbons and hydrocarbon derivatives that have between six and forty carbons per molecule i.e. compounds in the range >C5 to C40. The reporting of Total Recoverable Hydrocarbons is done by grouping compounds of similar nature and behaviour into “fractions”. Samples are extracted into a solvent appropriate to the matrix. The extract is then analysed using a gas chromatograph with either a flame ionisation detector (GC-FID) or a mass spectrometer (GC-MS)
MA30 -VPH	This method is used to quantify Volatile Petroleum Hydrocarbon (VPH) fractions using Gas Chromatography Mass Spectrometry coupled with a purge and trap sample concentrator. This method is based on USEPA 8260B (Volatile Organic Compounds by Gas Chromatography Mass Spectrometry GC/MS), using USEPA 5035 (Closed system purge and trap and extraction for volatile organics in soil and solid waste samples.).
MA30-VPH	A sample is weighed out, and has surrogates added and is extracted in methanol. This methanol extract is then diluted in water. A stream of helium is passed through a portion of the extracted sample; the volatile components are ‘purged’ from the sample and are collected and concentrated on an adsorbent trap. The trap is rapidly heated and back-flushed with helium to ‘desorb’ the analytes onto the Gas Chromatographic column. The GC column separates the analytes and they are passed into the Mass Selective detector, which fragments the molecules and produces “mass spectra” of each compound.
MA8270	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
MA8270 Pes	This method covers analytical procedures for the analysis of semi-volatile organic compounds (SVOC pesticides) including most neutral, acidic, and basic organic compounds based on the USEPA method 8270D. Samples are extracted into a solvent appropriate to the matrix and analysed using a gas chromatograph – triple quadrapole (GC–QQQ).
USEPA 8260B	This method is used to quantify Volatile Organic Compounds using Gas Chromatography Mass Spectrometry coupled with a purge and trap sample concentrator. This method is based on USEPA 8260B (Volatile Organic Compounds by Gas Chromatography Mass Spectrometry GC/MS), using USEPA 5035 (Closed system purge and trap and extraction for volatile organics in soil and solid waste samples.).
USEPA 8260B	A sample is weighed out, and has surrogates added and is extracted in methanol. This methanol extract is then diluted in water. A stream of helium is passed through a portion of the extracted sample; the volatile components are ‘purged’ from the sample and are collected and concentrated on an adsorbent trap. The trap is rapidly heated and back-flushed with helium to ‘desorb’ the analytes onto the Gas Chromatographic column. The GC column separates the analytes and they are passed into the Mass Selective detector, which fragments the molecules and produces “mass spectra” of each compound.

METHOD	METHODOLOGY SUMMARY

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

STATEMENT OF QA/QC PERFORMANCE

ME327545 R0

CLIENT DETAILS

Contact	Jason Anderson
Client	ANDERSON ENVIRONMENTAL PTY LTD
Address	SUITE 19 103 GEORGE STREET PARRAMATTA NSW 2150
Telephone	61 1300302507
Facsimile	(Not specified)
Email	JASON@ANDERSONENVIRONMENTAL.COM.AU
Project	**10 Wickfield Circuit, Ambarvale**
Order Number	**TBA**
Samples	1

LABORATORY DETAILS

Manager	Adam Atkinson
Laboratory	SGS Melbourne EH&S
Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	+61395743200
Facsimile	+61395743399
Email	Au.SampleReceipt.Melbourne@sgs.com
SGS Reference	**ME327545 R0**
Date Received	21 Jun 2022
Date Reported	28 Jun 2022

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.
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 Melbourne EH&S laboratory).

SAMPLE SUMMARY

HOLDING TIME SUMMARY

ME327545 R0

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

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

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

8270D.SL.01 SVOCs All in Solids/Soils

Method: MA 8270

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052023	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	01 Aug 2022	23 Jun 2022

Combined SVOC Pesticides in Solids/Soils

Method: MA 8270

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052024	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	01 Aug 2022	23 Jun 2022

Metals/Elements in Solids

Method: MA1400_1

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052035	16 Jun 2022	21 Jun 2022	13 Dec 2022	23 Jun 2022	13 Dec 2022	23 Jun 2022

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052009	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	27 Jun 2022	23 Jun 2022

TRH in soil MA-30.SL.01

Method: MA30

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052001	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	01 Aug 2022	24 Jun 2022

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052008	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	30 Jun 2022	23 Jun 2022

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Intra	ME327545.001	LB052008	16 Jun 2022	21 Jun 2022	30 Jun 2022	22 Jun 2022	30 Jun 2022	23 Jun 2022

SURROGATES

ME327545 R0

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

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

8270D.SL.01 SVOCs All in Solids/Soils — **Method: MA 8270**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (surrogate)	Intra	ME327545.001	%	60 - 140%	88
Fluorobiphenyl (surrogate)	Intra	ME327545.001	%	60 - 140%	63
Fluorophenol (surrogate)	Intra	ME327545.001	%	60 - 140%	104
Nitrobenzene-D5 (surrogate)	Intra	ME327545.001	%	60 - 140%	86
Phenol-D6 (surrogate)	Intra	ME327545.001	%	60 - 140%	82
p-Terphenyl-D14 (surrogate)	Intra	ME327545.001	%	60 - 140%	78

USEPA 8260B Volatile Organic Compounds in Solids/Soils — **Method: USEPA 8260 B**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Toluene-d8 (surrogate)	Intra	ME327545.001	%	60 - 130%	84

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.

8270D.SL.01 SVOCs All in Solids/Soils — **Method: MA 8270**

Sample Number	Parameter	Units	LOR	Result
LB052023.001	1-Methylnaphthalene	mg/kg	0.1	<0.1
	2-Chlorophenol	mg/kg	0.5	<0.5
	2-Methylnaphthalene	mg/kg	0.1	<0.1
	2-Nitrophenol	mg/kg	0.5	<0.5
	2,4-Dichlorophenol	mg/kg	0.5	<0.5
	2,4-Dimethylphenol	mg/kg	0.5	<0.5
	2,4-Dinitrophenol	mg/kg	0.5	<0.5
	2,4,5-Trichlorophenol	mg/kg	0.5	<0.5
	2,4,6-Trichlorophenol	mg/kg	0.5	<0.5
	2,6-Dichlorophenol	mg/kg	0.5	<0.5
	4-Chloro-3-methylphenol	mg/kg	0.5	<0.5
	4-Nitrophenol	mg/kg	0.5	<0.5
	4,4-DDD	mg/kg	0.5	<0.5
	4,4-DDE	mg/kg	0.5	<0.5
	4,4-DDT	mg/kg	0.5	<0.5
	4,6-Dinitro-2-methylphenol	mg/kg	0.5	<0.5
	Acenaphthene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.5	<0.5
	alpha-BHC	mg/kg	0.5	<0.5
	alpha-Chlordane	mg/kg	0.5	<0.5
	gamma-Chlordane	mg/kg	0.5	<0.5
	Anthracene	mg/kg	0.1	<0.1
	Arochlor 1016	mg/kg	1	<1.0
	Arochlor 1221	mg/kg	1	<1.0
	Arochlor 1232	mg/kg	1	<1.0
	Arochlor 1242	mg/kg	1	<1.0
	Arochlor 1248	mg/kg	1	<1.0
	Arochlor 1254	mg/kg	1	<1.0
	Arochlor 1260	mg/kg	1	<1.0
	Arochlor 1262	mg/kg	1	<1.0
	Arochlor 1268	mg/kg	1	<1.0
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Benzo (a) pyrene	mg/kg	0.1	<0.1
	Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1
	Benzo (ghi) perylene	mg/kg	0.1	<0.1
	Benzo (k) fluoranthene	mg/kg	0.1	<0.1
	beta-BHC	mg/kg	0.5	<0.5
	Chlorpyrifos	mg/kg	0.5	<0.5
	Chrysene	mg/kg	0.1	<0.1
	Coronene	mg/kg	0.1	<0.1
	delta-BHC	mg/kg	0.5	<0.5
	Dibenz (ah) anthracene	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Dinoseb	mg/kg	0.5	<0.5
	Disulfoton	mg/kg	0.5	<0.5
	Endosulfan 1	mg/kg	0.5	<0.5
	Endosulfan 2	mg/kg	0.5	<0.5
	Endosulfan Sulphate	mg/kg	0.5	<0.5
	Endrin	mg/kg	0.5	<0.5
	Endrin Aldehyde	mg/kg	0.5	<0.5
	Famphur	mg/kg	0.5	<0.5
	Fluoranthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	gamma-BHC	mg/kg	0.5	<0.5
	Heptachlor	mg/kg	0.5	<0.5
	Heptachlor Epoxide	mg/kg	0.5	<0.5
	Hexachlorobenzene	mg/kg	0.5	<0.5
	Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.5	<0.5

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.

8270D.SL.01 SVOCs All in Solids/Soils (continued)

Method: MA 8270

Sample Number	Parameter	Units	LOR	Result
LB052023.001	Methoxychlor	mg/kg	0.5	<0.5
	Methyl parathion	mg/kg	0.5	<0.5
	Naphthalene	mg/kg	0.1	<0.1
	m&p-Cresol	mg/kg	0.5	<0.5
	o-Cresol	mg/kg	0.5	<0.5
	O,O,O-Triethylphosphorothioate	mg/kg	0.5	<0.5
	Pentachlorophenol	mg/kg	0.5	<0.5
	Perylene	mg/kg	0.5	<0.5
	Phenanthrene	mg/kg	0.5	<0.5
	Phenol	mg/kg	0.5	<0.5
	Phorate	mg/kg	0.5	<0.5
	Pyrene	mg/kg	0.5	<0.5
	Stirofos	mg/kg	0.5	<0.5
	Sulfotepp	mg/kg	0.5	<0.5
	Thionazin	mg/kg	0.5	<0.5
	Total Halogenated Phenols	mg/kg	1	<1.0
	Total Non Halogenated Phenols	mg/kg	1	<1.0
	Total OC Pesticides	mg/kg	1	<1.0
	Total PCBs	mg/kg	1	<1.0

Metals/Elements in Solids

Method: MA1400_1

Sample Number	Parameter	Units	LOR	Result
LB052035.001	Arsenic	mg/kg	2	<2
	Cadmium	mg/kg	0.2	<0.2
	Chromium	mg/kg	2	<2
	Copper	mg/kg	2	<2
	Lead	mg/kg	2	<2
	Mercury	mg/kg	0.05	<0.05
	Nickel	mg/kg	2	<2
	Zinc	mg/kg	2	<2

TRH in soil MA-30.SL.01

Method: MA30

Sample Number	Parameter	Units	LOR	Result
LB052001.001	TRH C6-C9 (P&T)	mg/kg	10	<10
	TRH C10-C14	mg/kg	10	<10
	TRH >C10-C16	mg/kg	10	<10
	TRH>C10-C16 less naphthalene (F2)	mg/kg	10	<10
	TRH >C16-C34 (F3)	mg/kg	20	<20
	TRH C15-C28	mg/kg	20	<20
	TRH C29-C36	mg/kg	20	<20
	C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10
	Total TRH C10-C36	mg/kg	20	<20
	TRH >C34-C40 (F4)	mg/kg	20	<20
	TRH C6-C10 (P&T)	mg/kg	10	<10
	Total TRH C6-C36	mg/kg	20	<20
	Total TRH C6-C40 (F)	mg/kg	20	<20
	TRH >C10-C40 (F)	mg/kg	20	<20

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

Sample Number		Parameter	Units	LOR	Result
LB052008.001		m&p-Xylenes	mg/kg	0.1	<0.1
	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		o-Xylenes	mg/kg	0.1	<0.1
	Polycyclic Aromatic	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	Toluene-d8 (surrogate)	%	-	88

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

Sample Number	Parameter	Units	LOR	Result
LB052008.001	TRH C6-C9 (P&T)	mg/kg	10	<10
	TRH C6-C10 (P&T)	mg/kg	10	<10
	TRH C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10

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.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

8270D.SL.01 SVOCs All in Solids/Soils — **Method: MA 8270**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327467.001	LB052023.004	2-Chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2-Nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,3,4,5-Tetrachlorophenol*	mg/kg	0.5	<0.5	<0.5	200	0
		2,4-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,4-Dimethylphenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,4-Dinitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,4,5-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,4,6-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		2,6-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		4-Chloro-3-methylphenol	mg/kg	0.5	<0.5	<0.5	200	0
		4-Nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
		4,4-DDD	mg/kg	0.5	<0.5	<0.5	200	0
		4,4-DDE	mg/kg	0.5	<0.5	<0.5	200	0
		4,4-DDT	mg/kg	0.5	<0.5	<0.5	200	0
		4,6-Dinitro-2-methylphenol	mg/kg	0.5	<0.5	<0.5	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.5	<0.5	<0.5	200	0
		alpha-BHC	mg/kg	0.5	<0.5	<0.5	200	0
		alpha-Chlordane	mg/kg	0.5	<0.5	<0.5	200	0
		gamma-Chlordane	mg/kg	0.5	<0.5	<0.5	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Arochlor 1016	mg/kg	1	<1	<1	200	0
		Arochlor 1221	mg/kg	1	<1	<1	200	0
		Arochlor 1232	mg/kg	1	<1	<1	200	0
		Arochlor 1242	mg/kg	1	<1	<1	200	0
		Arochlor 1248	mg/kg	1	<1	<1	200	0
		Arochlor 1254	mg/kg	1	<1	<1	200	0
		Arochlor 1260	mg/kg	1	<1	<1	200	0
		Arochlor 1262	mg/kg	1	<1	<1	200	0
		Arochlor 1268	mg/kg	1	<1	<1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (a) pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (ghi) perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (k) fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		beta-BHC	mg/kg	0.5	<0.5	<0.5	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		delta-BHC	mg/kg	0.5	<0.5	<0.5	200	0
		Dibenz (ah) anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.5	<0.5	<0.5	200	0
		Dinoseb	mg/kg	0.5	<0.5	<0.5	200	0
		Endosulfan 1	mg/kg	0.5	<0.5	<0.5	200	0
		Endosulfan 2	mg/kg	0.5	<0.5	<0.5	200	0
		Endosulfan Sulphate	mg/kg	0.5	<0.5	<0.5	200	0
		Endrin	mg/kg	0.5	<0.5	<0.5	200	0
		Endrin Aldehyde	mg/kg	0.5	<0.5	<0.5	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		gamma-BHC	mg/kg	0.5	<0.5	<0.5	200	0
		Heptachlor	mg/kg	0.5	<0.5	<0.5	200	0
		Heptachlor Epoxide	mg/kg	0.5	<0.5	<0.5	200	0
		Hexachlorobenzene	mg/kg	0.5	<0.5	<0.5	200	0
		Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.5	<0.5	<0.5	200	0
		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		m&p-Cresol	mg/kg	0.5	<0.5	<0.5	200	0
		o-Cresol	mg/kg	0.5	<0.5	<0.5	200	0
		Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
		Phenanthrene	mg/kg	0.5	<0.5	<0.5	200	0
		Phenol	mg/kg	0.5	<0.5	<0.5	200	0

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

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

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

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

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

8270D.SL.01 SVOCs All in Solids/Soils (continued) — **Method: MA 8270**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327467.001	LB052023.004	Pyrene	mg/kg	0.5	<0.5	<0.5	200	0
		Total Halogenated Phenols	mg/kg	1	<1	<1	200	0
		Total Non Halogenated Phenols	mg/kg	1	<1	<1	200	0
		Total OC Pesticides	mg/kg	1	<1	<1	200	0
		Total PCBs	mg/kg	1	<1	<1	200	0
		Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		2,4,6-Tribromophenol (surrogate)	mg/kg	-	1	1	30	0
		Fluorobiphenyl (surrogate)	mg/kg	-	1	1	30	3
		Fluorophenol (surrogate)	mg/kg	-	1	1	30	7
		Nitrobenzene-D5 (surrogate)	mg/kg	-	1	1	30	1
		p-Terphenyl-D14 (surrogate)	mg/kg	-	1	1	30	8
		Phenol-D6 (surrogate)	mg/kg	-	1	1	30	4
ME327517.001	LB052023.015	1-Methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-Methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (a) pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (ghi) perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo (k) fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenz (ah) anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.5	<0.5	<0.5	200	0
		Pyrene	mg/kg	0.5	<0.5	<0.5	200	0
		2,4,6-Tribromophenol (surrogate)	mg/kg	-	1	1	30	1
		Fluorobiphenyl (surrogate)	mg/kg	-	1	1	30	7
		Fluorophenol (surrogate)	mg/kg	-	1	1	30	2
		Nitrobenzene-D5 (surrogate)	mg/kg	-	1	1	30	3
		p-Terphenyl-D14 (surrogate)	mg/kg	-	1	1	30	7
		Phenol-D6 (surrogate)	mg/kg	-	1	1	30	1

Metals/Elements in Solids — **Method: MA1400_1**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327543.001	LB052035.004	Arsenic	mg/kg	2	2	2	121	8
		Cadmium	mg/kg	0.2	<0.2	<0.2	200	0
		Copper	mg/kg	2	3	4	87	1
		Lead	mg/kg	2	3	2	107	34
		Mercury	mg/kg	0.05	0.08	0.06	102	22
		Nickel	mg/kg	2	<2	<2	200	0
		Zinc	mg/kg	2	6	5	67	12

Moisture Content — **Method: ME-(AU)-[ENV]AN002**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327545.001	LB052009.002	% Moisture	%w/w	1	16.6	15.5	36	7

TRH in soil MA-30.SL.01 — **Method: MA30**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327517.001	LB052001.017	TRH C6-C9 (P&T)	mg/kg	10	<10	<10	200	0
		TRH C10-C14	mg/kg	10	<10	<10	200	0
		TRH >C10-C16	mg/kg	10	<10	<10	200	0
		TRH>C10-C16 less naphthalene (F2)	mg/kg	10	<10	<10	200	0
		TRH >C16-C34 (F3)	mg/kg	20	31	40	87	24
		TRH C15-C28	mg/kg	20	<20	<20	200	0
		TRH C29-C36	mg/kg	20	31	38	88	20

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.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH in soil MA-30.SL.01 (continued)

Method: MA30

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327517.001	LB052001.017	C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10	<10	200	0
		Total TRH C10-C36	mg/kg	20	31	38	88	20
		TRH >C34-C40 (F4)	mg/kg	20	43	48	74	11
		TRH C6-C10 (P&T)	mg/kg	10	<10	<10	200	0
		Total TRH C6-C36	mg/kg	20	31	38	88	20
		Total TRH C6-C40 (F)	mg/kg	20	74	87	55	17
		TRH >C10-C40 (F)	mg/kg	20	74	87	55	17
ME327543.001	LB052001.004	TRH C6-C9 (P&T)	mg/kg	10	<10	<10	200	0
		TRH C10-C14	mg/kg	10	35	40	57	13
		TRH >C10-C16	mg/kg	10	28	31	64	9
		TRH>C10-C16 less naphthalene (F2)	mg/kg	10	28	31	64	9
		TRH >C16-C34 (F3)	mg/kg	20	47	48	72	2
		TRH C15-C28	mg/kg	20	42	42	77	0
		TRH C29-C36	mg/kg	20	<20	<20	200	0
		C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10	<10	200	0
		Total TRH C10-C36	mg/kg	20	78	82	55	6
		TRH >C34-C40 (F4)	mg/kg	20	<20	<20	200	0
		TRH C6-C10 (P&T)	mg/kg	10	<10	<10	200	0
		Total TRH C6-C36	mg/kg	20	78	82	55	6
		Total TRH C6-C40 (F)	mg/kg	20	75	79	56	4
		TRH >C10-C40 (F)	mg/kg	20	75	79	56	4

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327545.001	LB052008.004		m&p-Xylenes	mg/kg	0.1	<0.1	<0.1	200	0
			Total BTEX	mg/kg	0.5	<0.5	<0.5	200	0
		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
			o-Xylenes	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Toluene-d8 (surrogate)	mg/kg	-	17	17	30	1

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME327545.001	LB052008.004	TRH C6-C9 (P&T)	mg/kg	10	<10	<10	200	0
		TRH C6-C10 (P&T)	mg/kg	10	<10	<10	200	0
		TRH C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10	<10	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.

8270D.SL.01 SVOCs All in Solids/Soils

Method: MA 8270

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB052023.002	2-Chlorophenol	mg/kg	0.5	4.0	5	60 - 140	80
	4-Chloro-3-methylphenol	mg/kg	0.5	3.6	5	60 - 140	72
	4,4-DDT	mg/kg	0.5	13	13	60 - 140	102
	Acenaphthene	mg/kg	0.1	2.2	2.5	60 - 140	87
	Aldrin	mg/kg	0.5	5.3	5.2	60 - 140	102
	Dieldrin	mg/kg	0.5	13	13	60 - 140	98
	Endrin	mg/kg	0.5	12	13	60 - 140	91
	gamma-BHC	mg/kg	0.5	5.7	5.2	60 - 140	110
	Heptachlor	mg/kg	0.5	5.4	5.2	60 - 140	103
	Phenol	mg/kg	0.5	3.6	5	60 - 140	71
	Pyrene	mg/kg	0.5	1.9	2.5	60 - 140	77
	2,4,6-Tribromophenol (surrogate)	mg/kg	-	1	1	60 - 140	86
	Fluorobiphenyl (surrogate)	mg/kg	-	1	1	60 - 140	87
	Fluorophenol (surrogate)	mg/kg	-	1	1	60 - 140	95
	Nitrobenzene-D5 (surrogate)	mg/kg	-	1	1	60 - 140	81
	p-Terphenyl-D14 (surrogate)	mg/kg	-	1	1	60 - 140	82
	Phenol-D6 (surrogate)	mg/kg	-	1	1	60 - 140	80

Metals/Elements in Solids

Method: MA1400_1

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB052035.002	Arsenic	mg/kg	2	10	10	80 - 120	102
	Cadmium	mg/kg	0.2	9.9	10	80 - 120	99
	Chromium	mg/kg	2	10	10	80 - 120	98
	Copper	mg/kg	2	10	10	80 - 120	98
	Lead	mg/kg	2	10	10	80 - 120	99
	Mercury	mg/kg	0.05	1.0	1	80 - 120	104
	Nickel	mg/kg	2	10	10	80 - 120	97
	Zinc	mg/kg	2	11	10	80 - 120	108

TRH in soil MA-30.SL.01

Method: MA30

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB052001.002	Total TRH C10-C36	mg/kg	20	440	500	60 - 140	88

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB052008.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	5.2	5	60 - 140	104
		Toluene	mg/kg	0.1	5.0	5	60 - 140	99
		Ethylbenzene	mg/kg	0.1	5.2	5	60 - 140	105

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB052008.002	TRH C6-C9 (P&T)	mg/kg	10	41	30	60 - 140	137
	TRH C6-C10 (P&T)	mg/kg	10	41	35	60 - 140	118

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.

8270D.SL.01 SVOCs All in Solids/Soils — **Method: MA 8270**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
ME327467.001	LB052023.005	2-Chlorophenol	mg/kg	0.5	3.8	<0.5	5	77
		2-Nitrophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,3,4,5-Tetrachlorophenol*	mg/kg	0.5	<0.5	<0.5	-	-
		2,4-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4-Dimethylphenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4-Dinitrophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4,5-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,4,6-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		2,6-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		4-Chloro-3-methylphenol	mg/kg	0.5	3.5	<0.5	5	71
		4-Nitrophenol	mg/kg	0.5	<0.5	<0.5	-	-
		4,4-DDD	mg/kg	0.5	<0.5	<0.5	-	-
		4,4-DDE	mg/kg	0.5	<0.5	<0.5	-	-
		4,6-Dinitro-2-methylphenol	mg/kg	0.5	<0.5	<0.5	-	-
		Acenaphthene	mg/kg	0.1	2.4	<0.1	2.5	95
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	-
		alpha-BHC	mg/kg	0.5	<0.5	<0.5	-	-
		alpha-Chlordane	mg/kg	0.5	<0.5	<0.5	-	-
		gamma-Chlordane	mg/kg	0.5	<0.5	<0.5	-	-
		Anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1016	mg/kg	1	<1.0	<1	-	-
		Arochlor 1221	mg/kg	1	<1.0	<1	-	-
		Arochlor 1232	mg/kg	1	<1.0	<1	-	-
		Arochlor 1242	mg/kg	1	<1.0	<1	-	-
		Arochlor 1248	mg/kg	1	<1.0	<1	-	-
		Arochlor 1254	mg/kg	1	<1.0	<1	-	-
		Arochlor 1260	mg/kg	1	<1.0	<1	-	-
		Arochlor 1262	mg/kg	1	<1.0	<1	-	-
		Arochlor 1268	mg/kg	1	<1.0	<1	-	-
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo (a) pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo (ghi) perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo (k) fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		beta-BHC	mg/kg	0.5	<0.5	<0.5	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		delta-BHC	mg/kg	0.5	<0.5	<0.5	-	-
		Dibenz (ah) anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Dinoseb	mg/kg	0.5	<0.5	<0.5	-	-
		Endosulfan 1	mg/kg	0.5	<0.5	<0.5	-	-
		Endosulfan 2	mg/kg	0.5	<0.5	<0.5	-	-
		Endosulfan Sulphate	mg/kg	0.5	<0.5	<0.5	-	-
		Endrin Aldehyde	mg/kg	0.5	<0.5	<0.5	-	-
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor Epoxide	mg/kg	0.5	<0.5	<0.5	-	-
		Hexachlorobenzene	mg/kg	0.5	<0.5	<0.5	-	-
		Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.5	<0.5	<0.5	-	-
		Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		m&p-Cresol	mg/kg	0.5	<0.5	<0.5	-	-
		o-Cresol	mg/kg	0.5	<0.5	<0.5	-	-
		Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
		Phenanthrene	mg/kg	0.5	<0.5	<0.5	-	-
		Phenol	mg/kg	0.5	3.2	<0.5	5	64
		Pyrene	mg/kg	0.5	2.1	<0.5	2.5	86
		Total Halogenated Phenols	mg/kg	1	7.4	<1	-	-
		Total Non Halogenated Phenols	mg/kg	1	3.2	<1	-	-
		Total OC Pesticides	mg/kg	1	<1.0	<1	-	-
		Total PCBs	mg/kg	1	<1.0	<1	-	-
		Total PAH	mg/kg	0.8	4.5	<0.8	-	-

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.

8270D.SL.01 SVOCs All in Solids/Soils (continued)

Method: MA 8270

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
ME327467.001	LB052023.005	2,4,6-Tribromophenol (surrogate)	mg/kg	-	1	1	-	84
		Fluorobiphenyl (surrogate)	mg/kg	-	1	1	-	81
		Fluorophenol (surrogate)	mg/kg	-	1	1	-	89
		Nitrobenzene-D5 (surrogate)	mg/kg	-	1	1	-	77
		p-Terphenyl-D14 (surrogate)	mg/kg	-	1	1	-	84
		Phenol-D6 (surrogate)	mg/kg	-	1	1	-	69

TRH in soil MA-30.SL.01

Method: MA30

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
ME327543.001	LB052001.005	TRH C6-C9 (P&T)	mg/kg	10	<10	<10	-	-
		TRH C10-C14	mg/kg	10	150	35	-	-
		TRH >C10-C16	mg/kg	10	240	28	-	-
		TRH>C10-C16 less naphthalene (F2)	mg/kg	10	240	28	-	-
		TRH >C16-C34 (F3)	mg/kg	20	240	47	-	-
		TRH C15-C28	mg/kg	20	330	42	-	-
		TRH C29-C36	mg/kg	20	<20	<20	-	-
		C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10	<10	-	-
		Total TRH C10-C36	mg/kg	20	490	78	500	82
		TRH >C34-C40 (F4)	mg/kg	20	<20	<20	-	-
		TRH C6-C10 (P&T)	mg/kg	10	<10	<10	-	-
		Total TRH C6-C36	mg/kg	20	490	78	-	-
		Total TRH C6-C40 (F)	mg/kg	20	480	75	-	-
		TRH >C10-C40 (F)	mg/kg	20	480	75	-	-

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
ME327545.001	LB052008.005		m&p-Xylenes	mg/kg	0.1	<0.1	<0.1	-	-
			Total BTEX	mg/kg	0.5	15	<0.5	-	-
		Monocyclic	Benzene	mg/kg	0.1	5.1	<0.1	5	102
		Aromatic	Toluene	mg/kg	0.1	4.8	<0.1	5	96
			Ethylbenzene	mg/kg	0.1	5.2	<0.1	5	103
			o-Xylenes	mg/kg	0.1	<0.1	<0.1	-	-
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Toluene-d8 (surrogate)	µg/L	-	16	17	-	81

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
ME327545.001	LB052008.005	TRH C6-C9 (P&T)	mg/kg	10	41	<10	30	136
		TRH C6-C10 (P&T)	mg/kg	10	41	<10	35	117
		TRH C6-C10 (P&T) less BTEX (F1)	mg/kg	10	26	<10	-	-

MATRIX SPIKE DUPLICATES

ME327545 R0

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

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

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

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

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

8270D.SL.01 SVOCs All in Solids/Soils

Method: MA 8270

QC Sample	Sample Number	Parameter	Units	LOR

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

8270D.SL.01 SVOCs All in Solids/Soils (continued) **Method: MA 8270**

QC Sample	Sample Number	Parameter	Units	LOR	Duplicate
ME327467.001	LB052023.006	2-Chlorophenol	mg/kg	0.5	3.8
		2-Nitrophenol	mg/kg	0.5	<0.5
		2,3,4,5-Tetrachlorophenol*	mg/kg	0.5	<0.5
		2,4-Dichlorophenol	mg/kg	0.5	<0.5
		2,4-Dimethylphenol	mg/kg	0.5	<0.5
		2,4-Dinitrophenol	mg/kg	0.5	<0.5
		2,4,5-Trichlorophenol	mg/kg	0.5	<0.5
		2,4,6-Trichlorophenol	mg/kg	0.5	<0.5
		2,6-Dichlorophenol	mg/kg	0.5	<0.5
		4-Chloro-3-methylphenol	mg/kg	0.5	3.4
		4-Nitrophenol	mg/kg	0.5	<0.5
		4,4-DDD	mg/kg	0.5	<0.5
		4,4-DDE	mg/kg	0.5	<0.5
		4,6-Dinitro-2-methylphenol	mg/kg	0.5	<0.5
		Acenaphthene	mg/kg	0.1	1.9
		Acenaphthylene	mg/kg	0.1	<0.1
		alpha-BHC	mg/kg	0.5	<0.5
		alpha-Chlordane	mg/kg	0.5	<0.5
		gamma-Chlordane	mg/kg	0.5	<0.5
		Anthracene	mg/kg	0.1	<0.1
		Arochlor 1016	mg/kg	1	<1.0
		Arochlor 1221	mg/kg	1	<1.0
		Arochlor 1232	mg/kg	1	<1.0
		Arochlor 1242	mg/kg	1	<1.0
		Arochlor 1248	mg/kg	1	<1.0
		Arochlor 1254	mg/kg	1	<1.0
		Arochlor 1260	mg/kg	1	<1.0
		Arochlor 1262	mg/kg	1	<1.0
		Arochlor 1268	mg/kg	1	<1.0
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Benzo (a) pyrene	mg/kg	0.1	<0.1
		Benzo (b+j) fluoranthene	mg/kg	0.1	<0.1
		Benzo (ghi) perylene	mg/kg	0.1	<0.1
		Benzo (k) fluoranthene	mg/kg	0.1	<0.1
		beta-BHC	mg/kg	0.5	<0.5
		Chrysene	mg/kg	0.1	<0.1
		delta-BHC	mg/kg	0.5	<0.5
		Dibenz (ah) anthracene	mg/kg	0.1	<0.1
		Dinoseb	mg/kg	0.5	<0.5
		Endosulfan 1	mg/kg	0.5	<0.5
		Endosulfan 2	mg/kg	0.5	<0.5
		Endosulfan Sulphate	mg/kg	0.5	<0.5
		Endrin Aldehyde	mg/kg	0.5	<0.5
		Fluoranthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Heptachlor Epoxide	mg/kg	0.5	<0.5
		Hexachlorobenzene	mg/kg	0.5	<0.5
		Indeno (1,2,3-cd) pyrene	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.5	<0.5
		Naphthalene	mg/kg	0.1	<0.1
		m&p-Cresol	mg/kg	0.5	<0.5
		o-Cresol	mg/kg	0.5	<0.5
		Pentachlorophenol	mg/kg	0.5	<0.5
		Phenanthrene	mg/kg	0.5	<0.5
		Phenol	mg/kg	0.5	3.2
		Pyrene	mg/kg	0.5	2.1
		Total Halogenated Phenols	mg/kg	1	7.2

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

8270D.SL.01 SVOCs All in Solids/Soils (continued)

Method: MA 8270

QC Sample	Sample Number	Parameter	Units	LOR	Duplicate
ME327467.001	LB052023.006	Total Non Halogenated Phenols	mg/kg	1	3.2
		Total OC Pesticides	mg/kg	1	<1.0
		Total PCBs	mg/kg	1	<1.0
		Total PAH	mg/kg	0.8	4.0
		2,4,6-Tribromophenol (surrogate)	mg/kg	-	1
		Fluorobiphenyl (surrogate)	mg/kg	-	1
		Fluorophenol (surrogate)	mg/kg	-	1
		Nitrobenzene-D5 (surrogate)	mg/kg	-	1
		p-Terphenyl-D14 (surrogate)	mg/kg	-	1
		Phenol-D6 (surrogate)	mg/kg	-	1

TRH in soil MA-30.SL.01

Method: MA30

QC Sample	Sample Number	Parameter	Units	LOR	Duplicate
ME327543.001	LB052001.006	TRH C6-C9 (P&T)	mg/kg	10	<10
		TRH C10-C14	mg/kg	10	150
		TRH >C10-C16	mg/kg	10	240
		TRH>C10-C16 less naphthalene (F2)	mg/kg	10	240
		TRH >C16-C34 (F3)	mg/kg	20	240
		TRH C15-C28	mg/kg	20	330
		TRH C29-C36	mg/kg	20	<20
		C6-C10 (P&T) less BTEX (F1)	mg/kg	10	<10
		Total TRH C10-C36	mg/kg	20	490
		TRH >C34-C40 (F4)	mg/kg	20	<20
		TRH C6-C10 (P&T)	mg/kg	10	<10
		Total TRH C6-C36	mg/kg	20	490
		Total TRH C6-C40 (F)	mg/kg	20	490
		TRH >C10-C40 (F)	mg/kg	20	490

USEPA 8260B Volatile Organic Compounds in Solids/Soils

Method: USEPA 8260 B

QC Sample	Sample Number		Parameter	Units	LOR	Duplicate
ME327545.001	LB052008.006		m&p-Xylenes	mg/kg	0.1	<0.1
			Total BTEX	mg/kg	0.5	15
		Monocyclic	Benzene	mg/kg	0.1	5.1
		Aromatic	Toluene	mg/kg	0.1	4.8
			Ethylbenzene	mg/kg	0.1	5.2
			o-Xylenes	mg/kg	0.1	<0.1
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1
		Surrogates	Toluene-d8 (surrogate)	µg/L	-	16

Volatile Petroleum Hydrocarbons in soil

Method: MA30-VPH

QC Sample	Sample Number	Parameter	Units	LOR	Duplicate
ME327545.001	LB052008.006	TRH C6-C9 (P&T)	mg/kg	10	41
		TRH C6-C10 (P&T)	mg/kg	10	41
		TRH C6-C10 (P&T) less BTEX (F1)	mg/kg	10	26

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: https://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.
***	Indicates that both * and ** apply.
-	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	Majority of surrogate recoveries are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
⑪	Majority of spike recoveries are within acceptance criteria.
†	Refer to relevant report comments for further information.

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

SGS EHS Sydney COC

SE233215

Company Name:	Anderson Environmental	Project Name/No:	10 Wickfield Circuit, Ambarvale
Address:	Suite 19 103 George St Parramatta 2150	Purchase Order No:	
		Results Required Date:	
		Telephone:	1300 302507 Fax:
Contact Name:	Jason Anderson	Email Results to:	Jason @andenviro.com.au
Quotation No:			@

SGS ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate) Soil Sample	Water Sample	Other	NO. OF CONTAINERS	ANALYSIS REQUESTED: CL15 (TRH, BTEXN, PAH, Phenols, OCP, PCB, BH)
1	S1	16/06/22	X			1	X
2	S2	"	X			1	X
3	S3	"	X			1	X
4	S4	"	X			1	X
5	S5	"	X			1	X
6	S6	"	X			1	X
7	S7	"	X			1	X
8	S8	"	X			1	X
9	S9	"	X			1	X
10	S10	"	X			1	X
~~11~~	Intra	"	X			1	X

SGS EHS Melbourne COC

ME327545

Additional Report Formats

- ☐ NEPM
- ☐ CSV
- ☐ ESDAT
- ☐ DQO
- ☐ GO, Guidelines ———
- ☐ Others _____

Notes/Guidelines/LOR/ Special instructions

Relinquished By: Bo Davidson	Date/Time: 16/06/22 17:32	Received By: George Zhi	Date/Time: 16/6/22 @ 5:35pm
Relinquished By:	Date/Time:	Received By: Shirley Shen	Date/Time: 21/6 2-4pm
Samples Intact: (Yes) / No	Temperature: 3 °C	Sample Security Sealed: Yes / No	Hazards: e.g. may contain Asbestos

Comments / Subcontracting details:

Yin, Emily (Sydney)

From: Jason Anderson <jason@andenviro.com.au>
Sent: Friday, 17 June 2022 2:16 PM
To: Yin, Emily (Sydney)
Subject: Re: [EXTERNAL] RE: SE233215 - 10 Wickfield

Hi Emily

Yes in house SGS but another lab of SGS it has to be like Cairns etc. That is what you normally do
Thanks
Jason

Sent from my BlackBerry 10 smartphone.

From: Yin, Emily (Sydney)
Sent: Thursday, June 16, 2022 7:11 PM
To: jason@andenviro.com.au
Subject: RE: [EXTERNAL] RE: SE233215 - 10 Wickfield

So we will it in house and not forward it to another lab.

Regards,

Emily Yin
Environment, Health & Safety
Sample Receipt

SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499
E-mail: au.samplereceipt.sydney@sgs.com

From: jason@andenviro.com.au <jason@andenviro.com.au>
Sent: Thursday, 16 June 2022 8:02 PM
To: Yin, Emily (Sydney) <Emily.Yin@sgs.com>
Subject: [EXTERNAL] RE: SE233215 - 10 Wickfield

Hi Emily

SGS Notting Hill Bottle Map for Water & Soil Samples

Temperature	20°C	Ice Brick		Ice		Ice Pack		Esky		Bag	1	Box		Bucket	
Name + Date	3:00pm - 21/6 - JS														

Bottle Type And Preservation Type

	Sample ID	Tray #	Soil	Water	Oil	1L Unpreserved Plastic Bottle	1L HNO3 Preserved Plastic Bottle	1L Unpreserved Glass Amber Bottle	500mL Unpreserved Plastic Bottle	500mL Unpreserved Glass Amber Bottle	250mL Unpreserved Plastic Bottle	250mL Unpreserved Pastic Jar	250mL 5M H2SO4 Preserved Plastic Bottle	250mL Zn acetate & NaOH Preserved Plastic	250mL Unpreserved Glass Jar	200mL Unpreserved Glass Amber Bottle	150mL Unpreserved Plastic Jar	125mL Unpreserved Plastic Bottle	125mL HNO3 (Filtered) Preserved Plastic	125mL HNO3 (Unfiltered) Preserved Plastic	125mL NaOH Preserved Plastic Bottle	125mL 5M H2SO4 Preserved Plastic Bottle	125mL Unpreserved Glass Jar	100mL Unpreserved Glass Amber Bottle	70mL Unpreserved Plastic Jar	50mL Unpreserved Plastic Bottle	40mL Unpreserved Glass vial	40mL Na2S2O3 Preserved Glass vial	40mL H2SO4 Preserved Glass vial	40mL NH4Cl Preserved Glass vial	40mL HCl Preserved Glass vial	10mL Unpreserved Glass Amber Bottle	Plastic bag	Number of labels to be printed per sample ID
1	Intra	R9	1												1																			
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		

Comments:

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

CERTIFICATE OF ANALYSIS 298159

Client Details

Client	Anderson Environmental Pty Ltd
Attention	Jason Anderson
Address	Suite 19, 103 George Street, PARRAMATTA, NSW, 2150

Sample Details

Your Reference	**10 Wickfield Circuit Ambarvale**
Number of Samples	1 Soil
Date samples received	17/06/2022
Date completed instructions received	17/06/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	24/06/2022
Date of Issue	24/06/2022

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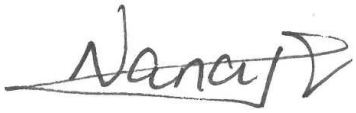
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Liam Timmins, Organic Instruments Team Leader
Steven Luong, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	74

svTRH (C10-C40) in Soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	80

PAHs in Soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	107

Organochlorine Pesticides in soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	94

Organophosphorus Pesticides in Soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Surrogate TCMX	%	94

PCBs in Soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date extracted	-	20/06/2022
Date analysed	-	21/06/2022
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCMX	%	94

Acid Extractable metals in soil		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date prepared	-	20/06/2022
Date analysed	-	23/06/2022
Arsenic	mg/kg	7
Cadmium	mg/kg	<0.4
Chromium	mg/kg	14
Copper	mg/kg	27
Lead	mg/kg	27
Mercury	mg/kg	<0.1
Nickel	mg/kg	8
Zinc	mg/kg	36

Misc Soil - Inorg		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date prepared	-	21/06/2022
Date analysed	-	21/06/2022
Total Phenolics (as Phenol)	mg/kg	<5

Moisture		
Our Reference		298159-1
Your Reference	UNITS	Inter
Depth		0.3m
Date Sampled		16/06/2022
Type of sample		Soil
Date prepared	-	20/06/2022
Date analysed	-	21/06/2022
Moisture	%	17

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	106	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	89	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	113	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	89	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
Surrogate o-Terphenyl	%		Org-020	79	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	82	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	84	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	86	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	75	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	86	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	129	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	86	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			20/06/2022	[NT]	[NT]	[NT]	[NT]	20/06/2022	[NT]
Date analysed	-			23/06/2022	[NT]	[NT]	[NT]	[NT]	23/06/2022	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	95	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	94	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
Date analysed	-			21/06/2022	[NT]	[NT]	[NT]	[NT]	21/06/2022	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

CHAIN OF CUSTODY FORM - Client

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Contact Person:	Jason Anderson	PO No. (if applicable):	
Project Mgr:	Jason Anderson	Envirolab Quote No. :	
Sampler:	Bo Davidson	Date results required:	
Address:	Suite 19, 103 George St Parramatta NSW 2150	Or choose: ☒ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day	
Phone:	1300 302 507 Mob:	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	
Email Results to:	jason@andenviro.com.au	Additional report format: ☐ Esdat ☐ Equis	
Email Invoice to:	jason@andenviro.com.au	Lab Comments:	

Sample Information					Tests Required															Comments
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	TRH	BTEXN	PAH	Phenols	OC	OP	PCB	8 metals								Provide as much information about the sample as you can
	Inter	0.3m	16/6/22	Soil	x	x	x	x	x	x	x	x								Undeveloped site possible Fill

☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by (Company):	Anderson Environmental	Received by (Company):	ELS
Print Name:	Bo Davidson	Print Name:	CHOI
Date & Time:	17/06/2022 07:14	Date & Time:	9:00 17-6-22
Signature:		Signature:	

Lab Use Only

Job number:	298159.	Cooling: Ice / Ice pack / (None)	
Temperature:	16	Security seal: Intact / Broken / (None)	
TAT Req - SAME day / 1 / 2 / 3 / 4 / (STD)			