
Detailed Contamination Assessment

Lot 121 and 129 Newling
Street, Lisarow, NSW.

NEW20P-0141-AB
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Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) carried out a Detailed Contamination Assessment (DCA) for Ulawatu Properties Pty Ltd C/- ADW Johnson Pty Ltd (ADW) for a parcel of land located at 121 and 129 Lisarow, NSW (the Site).

The site is approximately 1.171 ha and comprised part of Lot 121 DP1218619 and Lot 4 DP660988. The site comprises the 'proposed Lot 2' in the consolidation and three lot subdivision of 121 and 129 Newling Street, Lisarow. The site is currently vacant land zoned B2 Local Centre and is to be rezoned into R1 General Residential for a future 17 Lot residential subdivision.

Qualtest completed a Preliminary Contamination Assessment (PCA) for the site (ref: NEW20P-0141-AA, dated 8 October 2020). The PCA identified three Areas of Environmental Concern (AECs) for the site. The AECs related to; illegally dumped waste; importation of fill; and former crops/orchard farming and related activities. The PCA recommended additional assessment, comprising intrusive investigations.

ADW requested the DCA be prepared as part of a Development Application (DA) being submitted to Central Coast Council for the site.

The objectives of the assessment were to:

- Assess the presence of soil contamination within the Areas of Environmental Concern (AECs) previously identified at the site by Qualtest (2020);
- Update the Conceptual Site Model (CSM) for the site based on the findings of the assessment; and
- Provide recommendations for further assessments, remediation and/or management, as required.

In order to achieve the above objectives, Qualtest carried out the following scope:

- Site walkover;
- Collection of soil samples from six test pits and six surface samples;
- Laboratory analysis of selected soil samples for identified chemicals of potential concern (CoPC);
- Preparation of an updated Conceptual Site Model (CSM); and
- Data assessment and preparation of this Detailed Contamination Assessment (DCA) Report.

Based on the results of the Detailed Contamination Assessment and results of field and laboratory investigations, it is considered that the site is suitable for the proposed development.

As a precaution it is recommended that an Unexpected Finds Procedure be included in the Construction Environmental Management Plan, and implemented during earthworks.

The surface/fill soils across the site classify as General Solid Waste (non-putrescible), and the underlying residual clay/weathered rock would classify as Virgin Excavated Natural Material (VENM), in accordance with the NSW EPA (2014) Waste Classification Guidelines. It is recommended that the waste classification of soils is confirmed prior to disposal of materials offsite.

If conditions other than those encountered during this assessment are uncovered, further assessment by an environmental consultant may be necessary.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

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1.0 Introduction

Qualtest Laboratory NSW Pty Ltd (Qualtest) carried out a Detailed Contamination Assessment (DCA) for Ulawatu Properties Pty Ltd C/- ADW Johnson Pty Ltd (ADW) for a parcel of land located at 121 and 129 Lisarow, NSW (the Site).

The site is approximately 1.171 ha and comprised part of Lot 121 DP1218619 and Lot 4 DP660988. The site comprises the 'proposed Lot 2' in the consolidation and three lot subdivision of 121 and 129 Newling Street, Lisarow. The site is currently vacant land zoned B2 Local Centre and is to be rezoned into R1 General Residential, for a future 17 Lot residential subdivision.

The site was an orchard farm from around 1924 until the mid 1980s. Between the mid 1980's and early 1990's the site was vacant grass land. From 1993 the south western corner of the site was used to grow crops; the remainder of the site was vacant grass land used to run cattle. Following development of the shopping centre (located to the north of the site) in the early 2000's, the site has remained vacant.

Qualtest completed a Preliminary Contamination Assessment (PCA) for the site (ref: NEW20P-0141-AA, dated 8 October 2020). The PCA identified three Areas of Environmental Concern (AECs) for the site. The AECs related to; illegally dumped waste; importation of fill; and use of the site as former crops/orchard farming and related activities. The PCA recommended additional assessment, comprising intrusive investigations.

ADW requested the DCA be prepared as part of a Development Application (DA) being submitted to Central Coast Council for the site.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, NEPC 2013, Canberra (referred to as ASC NEPM 2013).

1.1 Objectives

The objectives of the assessment were to:

- Assess the presence of soil contamination within the Areas of Environmental Concern (AECs) previously identified at the site by Qualtest (2020);
- Update the Conceptual Site Model (CSM) for the site based on the findings of the assessment; and
- Provide recommendations for further assessments, remediation and/or management, as required.

1.2 Scope of Works

In order to achieve the above objectives, Qualtest carried out the following scope:

- Site walkover;
- Collection of soil samples from six test pits and six surface samples;
- Laboratory analysis of selected soil samples for identified chemicals of potential concern (CoPC);
- Preparation of an updated Conceptual Site Model (CSM); and
- Data assessment and preparation of this Detailed Contamination Assessment (DCA) Report.

2.0 Site Description

2.1 Site Identification

General site information is provided below in Table 2.1. The site location is shown in Figure 1, Appendix A.

Table 2.1: Summary of Site Details

Site Address:	121 and 129 Newling Street, Lisarow, NSW
Approximate site area and dimensions:	Approx. 1.171 ha Approx. 90m wide by 145m long at its widest and longest points.
Title Identification Details:	Lot 122 DP1218619 and Lot 4 DP660988, within the Central Coast local government area, Parish of Gosford, County of Northumberland.
Current Zoning	B2 Local Centre
Current Ownership:	Ulawatu Properties Pty Ltd
Current Occupier:	Unoccupied vacant land
Previous and Current Landuse:	Orchard farm and undeveloped vacant land.
Proposed Landuse:	R1 General Residential
Adjoining Site Uses:	Commercial to the west and north-west; Residential to the south; Lisarow high school to the east; and Undeveloped bushland to the north-east.
Site Coordinates for approx. centre of site:	33°23'11.03 S 151°22'05.96 E

2.2 Topography and Drainage

Reference to the NSW Land and Property Information Spatial Information Exchange website (<https://six.nsw.gov.au/wps/portal/>) indicated the elevation of the site ranged between about 30m and 50m AHD.

The highest portion of the site was observed in the southern portion. The site was observed to slope down to north with a small portion along the western boundary observed to slope to the west.

Rain falling on the site, would be expected to infiltrate into the site surface. Excess surface water was expected to follow the site topography, and flow to the north and west into a municipal stormwater drain, located in the north western portion of the site. It was expected

that the municipal stormwater drain discharged to Lisarow Wetlands situated approximately 240m north of the site.

2.3 Geology and Soils

Reference to the 1:100,000 Coastal Quaternary Geology map indicates that the site is underlain by Triassic Sydney Basin Sedimentary rock of the Narrabeen group comprising quartz-lithic to quartzose sandstone, conglomerate, mudstone, siltstone, rare coal.

2.4 Hydrogeology

Groundwater beneath the site was anticipated to be present in a semi-confined aquifer in weathered rock. In the lower lying eastern portion of the site, groundwater was expected to be greater than 10m below ground surface (bgs). Groundwater flow direction was anticipated to follow the surface topography and flow to the north and possibly discharge into Lisarow Wetlands located approximately 240m north of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were two bores within this radius. A summary of the information available for the bores is provided in Table 2.4 below.

Table 2.4 – Summary of Registered Groundwater Bore Information

Bore ID	Installation Date	Purpose	Approx. Distance and Gradient from Site	Water Bearing Zones (mbgs)
GW023748	01/01/1966	Irrigation	300m N, down-gradient to cross gradient	17.37 to 21.33
GW102011	18/12/1997	Domestic/Stock	350m SE, cross gradient. Not shown on plan, location based on co-ordinates.	28.20 to 57

Note: NK – not known; N – North, E – East, S – South, W – West

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil Risk Mapping for the Gosford (1:25,000 scale, December 1997 Edition 2, supplied by the Department of Land and Water Conservation) indicates that the site is located within an area of “no known occurrence” of acid sulfate soils.

3.0 Previous Reports

Qualtest completed a Preliminary Contamination Assessment (PCA) for the site in October 2020 (ref: NEW20P-0141-AA, dated 8 October 2020). Relevant information available from the PCA (Qualtest, 2020) is summarised below;

The objectives of the PCA were to provide an assessment of the likelihood for contamination to be present on site from past uses and activities.

The scope of works included:

- Desktop Study and site history review;
- Site walkover; and,
- Data assessment and preparation of a Preliminary Contamination Assessment Report.

The site history review showed the site had been an orchard farm from around 1924 until the mid 1980s. An access track was observed on the site from 1965 before being removed between the period of 1984 to 1996. Between the mid 1980's and early 1990's the site was vacant grass land. From 1993 the south western corner of the site was used to grow crops; the remainder of the site was vacant grass land used to run cattle. Following development of the shopping centre (located to the north of the site) in the early 2000's the site has remained vacant.

Three Areas of Environmental Concern (AECs) were identified based on the site history and site observations. The AECs related to: illegally dumped waste; importation of fill; and former crops/orchard farming and related activities.

The Conceptual Site Model (CSM) indicated that, should soil contamination exist on the site, then a potential exposure pathway could exist to current and future site users and the environment. The potential risk that contamination could impact soil biota, surface water and/or groundwater was considered to be low.

Based on the site history and observations made during the site walkover, it was recommended that additional assessment, comprising intrusive investigations in the AECs identified, was carried out. The investigation should include, but not be limited to:

- Surface soil sampling under/adjacent to observed waste that has the potential to cause contamination (i.e. construction waste);
- Soil sampling of the fill and underlying natural soils;
- Laboratory analysis for a suite of Chemicals of Potential Concern (CPOC); and
- Reporting of the results in a Detailed Site Investigation (DSI).

4.0 Site Observations

During the PCA (Qualtest, 2020) a Qualtest Environmental Scientist carried out a site walkover to assess site features. During the site walkover the site was observed to contain local undulations and was thought to possibly be related to past orchard farming activities. Long grass, present across the site, meant that the cause of the undulations could not be confirmed.

As recommended by Qualtest, prior to field works being carried out for the DCA the site was slashed. Following slashing the local undulations were not observed however an area of fill was observed in the western portion of the site. Refer to Figure 4, Appendix B.

Refer to Qualtest PCA (Qualtest, 2020) and Figure 3, Appendix A for remaining site observations.

5.0 Areas of Environmental Concern and Chemicals of Potential Concern

Based on the results of the PCA (Qualtest, 2020), and the observations made following slashing of the site, updated Areas of Environmental Concern (AECs) and associated Chemicals of Potential Concern (COPCs) are shown in table 5.1. Figures 3, Appendix A shows the site features.

Table 5.1 – Potential AECs and COCs

AEC	Potentially Contaminating Activity	Potential COPCs	Likelihood of Contamination
1. Illegally dumped waste	Construction waste - concrete, steel, bricks and some asphalt. Potential for hazardous materials (asbestos, lead paints). Household waste – clothes. General waste - plastic bottles, cardboard, papers, cans.	TRH, BTEX, PAH, Metals, Asbestos (CoPCs dependent on waste type)	Low
2. Imported Fill	Potential use of imported fill of unknown quality and origin.	TRH, BTEX, PAH, OCPs, Metals, Asbestos	Low
3. Former crops/orchard farming	Potential for pesticide and other farming related contamination	TRH, BTEX, PAH, OCPs, Metals, Asbestos	Low

6.0 Data Quality Objectives

6.1 Step 1 – State the Problem

Based on the Conceptual Site Model (CSM) developed for the site (Qualtest, 20 20) there is a potential for soil contamination to be present on the site and there is a potential for site users and workers and ecological receptors to be exposed to contaminated soil.

6.2 Step 2 – Identify the Decisions

The decision to be made based on the previous assessments and site observations is:

- Is the site contaminated with respect to the proposed landuse criteria and are there exposure pathways to receptors; and
- Will the site require remediation, and if so, what level and type of remediation will be required to make the site suitable for the proposed land use, from a contamination perspective?

6.3 Step 3 – Identify the Inputs to the Decisions

Inputs into the decision are:

- Have samples been collected in the required areas of the site (the identified AECs)?
- Have samples been collected at the required frequencies and adequately represent the conditions on site?
- Is the data set adequate to perform statistical analysis, if required (i.e. calculate 95% UCL)
- Have the samples been analysed for the COPCs identified?
- Have concentrations exceeding the adopted criteria been reported in the samples?
- If concentrations exceeding adopted criteria have been reported, will these areas require remediation and/or management?

The informational inputs into the decision area:

- Field observations and field screening results;
- Laboratory results (concentrations of contaminants in soil);
- QA/QC documentation and data;
- Adopted assessment criteria (see Section 7); and,
- Relevant NSW EPA endorsed Guidelines.

Media to be sampled and analysed is:

- Soil.

Based on previous assessments and site observations an assessment of groundwater, surface water and/or soil gases are not required.

6.4 Step 4 – Define the Study Boundaries

The study boundary is defined laterally as the site boundary, located in Lot 122 DP 1218619 and Lot 4 DP 660988 within the Central Coast Council government area. The site is located at 121 and 129 Newling Street, Lisarow, NSW and covers an area of approximately 1.171ha (refer to Figure 1, Appendix A). Vertically, the study boundary will be defined by the depth of soil contamination. It is anticipated the vertical boundary would be a maximum of 2m bgs.

6.5 Step 5 – Develop a Decision Rule

Chemicals of Potential Concern (COPCs) are identified in Section 4, above. The COPCs and the associated assessment criteria are listed in Section 7 below.

The decision rules can be defined as: -

- If the laboratory quality assurance/ quality control data are within the acceptable ranges, the data will be considered suitable for use;
- If the COPCs are reported above the adopted criteria and/or at elevated levels (where no criteria are available) then it will be considered whether further assessment, remediation and/or management measures are required; and
- Where concentrations are below the assessment criteria, then no further assessment, remediation and/or management of that contaminant, in that area, in that media, is required.

6.6 Step 6 – Specify Acceptable Limits on Decision Errors

There are two types of errors:

- Type 1 – finding that the site is contaminated, when it is not;
- Type 2 – finding that the site is uncontaminated, when it is.

To reduce the potential for errors, the following will be applied:

- Appropriate field sampling methodologies and collection of field data;
- Robust QA/QC assessment of field procedures and laboratory data;
- Appropriate sampling and analytical density;
- Use of statistics (i.e. 95% UCL) to assess arithmetic average of COPCs. Use of statistics will also take into account:
 - No sample should report a concentration more than 250% of the adopted criteria; and,
 - The standard deviation of a sample population should not exceed 50% of the adopted criteria.

6.7 Step 7 – Optimise the Design for Obtaining Data

The methodologies presented in this report are designed to meet the nominated DQOs. Optimisation of the data collection process will be achieved by:

- Working closely with the analytical laboratories and sampling equipment suppliers so that:
 - appropriate laboratory procedures and processes are developed and implemented prior to and during the field work; and
 - that sampling, handling, and transport to, and processing by, the analytical laboratories is appropriate.
- Conduct sampling in accordance with industry best practice and Standard Operating Procedures (SOPs) for the type of sampling being conducted.

7.0 Field and Laboratory Investigations

7.1 Sampling Plan

The NSW EPA (1995) Sampling Design Guidelines recommends a minimum of 25 sampling locations to characterise an area of between 1.0ha to 1.5 ha. Due to the low potential for contamination across the majority of the site a lower sampling density was adopted (12 sampling locations). The sampling methodology was based on a combination of judgmental sampling for waste and fill areas, and as no evidence of chemicals stored or mixed on the site systematic sampling was adopted for the orchards/cropping.

A summary of the samples completed per AEC is summarised in Table 7.1, below.

Table 7.1 – Number of samples completed per AEC

AEC	Sample Locations	Comments
<p>1. Illegally dumped waste</p> <p>Construction waste - concrete, steel, bricks and some asphalt. Potential for hazardous materials (asbestos, lead paints).</p> <p>Household waste – clothes</p> <p>General waste - plastic bottles, cardboard, papers, cans.</p>	Soil samples – SS1, SS4 and SS5.	One surface sample collected from under/adjacent to each waste that had the potential to cause contamination.
<p>2. Imported Fill</p> <p>Potential use of imported fill of unknown quality and origin.</p>	TP1 to TP6 and SS2, SS3 and SS6	
<p>3. Former crops/orchard farming</p> <p>Potential for pesticide and other farming related contamination</p>	TP1 to TP6 and SS2, SS3 and SS6	Broad scale sampling due to low potential for point source contamination.

Based on the site history assessment, the sampling density completed per AEC was considered appropriate to characterise the site with respect to contamination.

The location of test pits and surface samples are shown on Figures 4, Appendix A. The test pit logs are presented in Appendix D.

7.2 Soil Sampling

As outlined in Table 7.1 above, six test pit (TP1 to TP6) locations were excavated across the site and 6 surface sample (SS1 to SS6) locations. The test pits were excavated with a 2.7 tonne excavator to depths of between 1.0m to 1.7m bgs (approximately 0.5m into natural soils). Soil samples were collected at the surface and approximately 0.5m intervals and/or a change in subsurface conditions.

Soil samples were collected either directly from the excavator bucket and/or using hand tools. A clean pair of disposable gloves was used whilst handling each new sample and hand tools were decontaminated between each sampling location using a phosphate free detergent and potable water.

The soil samples were placed into 250mL laboratory supplied glass jars and the samples for asbestos testing were placed in dedicated asbestos sampling plastic zip-lock bags for laboratory analysis. Each sample was placed directly into an ice-chilled esky and remained chilled during transportation to the laboratory.

7.3 Laboratory analysis

The samples were dispatched to the NATA-accredited Eurofins MGT laboratory in Lane Cove West, NSW under chain of custody conditions. The soil samples were analysed for the following:

- Organochlorine and Organophosphorous Pesticides (OCP and OPP) – 9 primary soil samples;
- Total Recoverable Hydrocarbons (TRH) – 8 primary soil samples;
- Benzene, toluene, ethylbenzene, xylenes (BTEX) – 8 primary soil samples;
- Polycyclic Aromatic Hydrocarbons (PAHs) – 8 primary soil samples;
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) – 12 primary soil samples; and
- Asbestos (presence/absence) – 6 primary soil samples.

For quality control samples, see Section 8.

8.0 Assessment Criteria

8.1 Exposure Scenario

The site is proposed to be developed into a 17 Lot residential subdivision, with associated landscaping, roads and services.

This type of development is considered to represent residential landuse with garden/accessible soils.

8.2 Health and Ecological Levels (Soil)

The health and ecological investigation levels for soil, presented in the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, *NEPC 2013*, Canberra (referred to as NEPM 2013) are generally used in NSW when selecting investigation levels for chemical contaminants in soil.

The purpose of the NEPM (2013) is to *'establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, landowners, developers and industry'*.

NEPM (2013) provides health and ecological investigation and screening levels for different exposure scenarios based on a proposed land use. Health and ecological investigation and screening levels are applicable to the first stage (Tier 1) of site assessment and are used to assist in the iterative development of a Conceptual Site Model (CSM). They are adopted as concentrations of a contaminant above which either further appropriate investigation and/or evaluation will be required, or development of an appropriate management strategy (including remediation).

Health Investigation Levels (HILs) and Health Screening levels (HSLs) are applicable for assessing human health risk via relevant exposure pathways.

The HILs were developed for a broad range of metals and organic substances. These are generic to all soil types.

The HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via inhalation and direct contact with soil and groundwater. The HSLs depend on specific soil physicochemical properties, building configurations, land use scenarios and the depth that groundwater is encountered.

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) are applicable for assessing risk to terrestrial ecosystems under residential, open space and commercial/industrial land use scenarios. They apply to the top 2m of soil, which corresponds to the root zone and habitation zone of many species.

The EILs are associated with selected metals and organic compounds. The EILs depend on specific soil physiochemical properties and ambient background concentrations. In the absence of ambient background concentration data, a generic Added Contaminant Limit (ACL) has been adopted for the EILs.

The ESLs are associated with petroleum compounds and fractions and are dependent on specific soil physical properties (i.e. coarse and fine-grained soil).

As the proposed development is low density residential with gardens/accessible soils, the investigation levels for HIL A/HSL A and EILs/ESLs for urban residential / public open are considered applicable for the site.

8.3 Asbestos Materials in Soil

The assessment of known and suspected asbestos contamination in soil is based on:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (April 2013), NEPC 2013, Canberra; and
- *WA DoH 2009 Guidelines of the assessment and management of asbestos contaminated sites in Western Australia*, WA Department of Health and Department of Environment and Conservation.

Schedule B1, Section 4 NEPM (2013) provides guidance on the assessment of both friable and non-friable forms of asbestos in soil. This guidance is based on the WA DoH (2009) Guidelines that presented risk based screening levels for asbestos in soil under various landuse scenarios.

For the purpose of assessing asbestos impacts in soil, three groups are recognised:

- *Asbestos Containing Material (ACM)* – which is in sound condition although possibly broken or fragmented and the asbestos is bound in a matrix. This is restricted to material that cannot pass through a 7mm x 7mm sieve;
- *Fibrous asbestos (FA)* – friable asbestos material, such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products;
- *Asbestos fines (AF)* – includes free fibres of asbestos, small fibre bundles and also ACM fragments that pass through a 7mm x 7mm sieve.

The adopted health screening levels for asbestos in soil under various landuse scenarios, are shown in Table 8.3, below.

Table 8.3 Health Screening Levels for Asbestos Contamination in Soil (NEPM 2013)

Form of Asbestos	Health Screening Level			
	<u>Residential A</u> (HIL A)	<u>Residential B</u> (HIL B)	<u>Recreational</u> (HIL C)	<u>Commercial/Industrial</u> (HIL D)
Bonded ACM (%)	0.01	0.04	0.02	0.05
FA and AF (%)	0.001			
All forms of Asbestos	No visible evidence for surface soil (top 10cm)			

It is noted that Qualtest have carried out asbestos sampling and analysis on a present/absent" basis, and therefore the guidelines above are not practical to apply. Therefore, a guideline of "detected" has been adopted.

8.4 Adopted Investigation Levels – Soil

Based on the proposed site use, the adopted investigation levels for residential land use have been adopted (HIL A, HSL A, EIL A and ESL A).

The adopted investigation levels (for residential land use) are listed in Table 8.4, below.

Table 8.4: Adopted Investigation Levels for Human Health and Environment

COC	HIL (mg/kg) ¹	HSLs – 0.0m to <1.0m ² (mg/kg)	EIL/ESL ³ (mg/kg)
Metals			
Arsenic	100	-	100
Cadmium	20	-	-
Chromium	-	-	400*
Copper	6000	-	95*
Lead	300	-	1100
Nickel	400	-	30*
Mercury	40	-	-
Zinc	7400	-	70*
Naphthalene and TRH			
Naphthalene	-	5	170
TRH C6-C10 less BTEX (F1)	-	50	-
TRH >C10-C16 less Naphthalene (F2)	-	280	-
TRH C6 – C10	-	-	180
TPH >C10 – C16	-	-	120

COC	HIL (mg/kg) ¹	HSLs – 0.0m to <1.0m ² (mg/kg)	EIL/ESL ³ (mg/kg)
TRH >C16 – C34	-	-	1300
TRH >C34 – C40	-	-	5600
BTEX			
Benzene	-	0.5	65
Toluene	-	160	105
Ethylbenzene	-	55	125
Total Xylene	-	40	45
PAHs			
Benzo(a) pyrene	-	-	0.7
Carcinogenic PAH as Benzo(a)pyrene TEQ	3	-	-
Total PAHs	300	-	-
OCPs/OPPs			
DDT+DDE+DDD	240		-
DDT	-	-	180
Aldrin and dieldrin	6		
Chlordane	50	-	-
Endosulfan	270		
Endrin	10	-	-
Heptachlor	6	-	-
Hexachlorobenzene (HCB)	10	-	-
Methoxychlor	300	-	-
Toxaphene	20	-	-
Mirex	10	-	-
Chlorpyrifos	160	-	-
Asbestos			
AF and FA Asbestos	Detect	-	-
ACM	Detect	-	-

Notes:

* EIL Based on pH of 4, CEC of 5meq/100ml, and clay content >10%. As no pH or CEC were tested, as a conservative measure the minimum values were adopted.

1 – NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) – Table 1A(1): Health Investigation Levels- HILA

2 – NEPC (2013) Soil Health Screening Levels for Vapour Intrusion, Residential, 0m to <1m, Clay

3 – NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) – Ecological Investigation and Screening Levels, Clay

8.5 Preliminary Waste Classification

In order to provide a preliminary waste classification for the soils in the area of the current shed and former shed footprint, the laboratory results were compared to the Contaminant Threshold (CT) values for General Solid Waste in the NSW EPA (2014) *Waste Classification Guidelines*.

The adopted waste classification criteria are presented in the attached Table 3, Appendix B.

9.0 Quality Assurance/Quality Control

Sampling activities were undertaken in accordance with normal, industry accepted practices and standards and carried out by appropriately trained personnel. The assessment of field and laboratory quality assurance / quality control (QA / QC) procedures is provided below, and a data validation report is presented in Appendix E.

9.1 Holding Times

Samples were extracted and analysed within the holding times.

9.2 Field QC Samples

In order to assess field quality assurance / quality control (QA/QC) procedures, the following quality control samples were collected and analysed:

QC Sample	Type	Lab	Analysis
D.19.10.20	Duplicate of TP01 0.0-0.1	Eurofins	TRHs, BTEX, PAHs, Metals, OCPs OPPs
T.19.10.20	Triplicate of TP01 0.0-0.1	ALS	TRHs, BTEX, PAHs, Metals, OCPs OPPs

Primary and intra lab duplicate samples were analysed by the NATA-accredited Eurofins-MGT laboratory in Lane Cove West, NSW. Inter-lab duplicate samples (triplicates) were analysed by ALS laboratory in Springvale, VIC.

Table 4, Appendix B presents the relative percentage differences (RPDs) between the primary and duplicate soil samples. A review of the Qualtest QA / QC results indicates that RPDs were within the acceptable range.

9.3 Laboratory QA/QC

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Laboratory blank samples were free of contamination;
- Matrix spike recoveries were within the control limits;
- Laboratory duplicate RPDs were recorded within the control limits; and
- Surrogates and laboratory control samples were within the laboratories acceptable range.

9.4 Data Usability

Based on the above, and the data validation report in Appendix E, it is considered that the field and laboratory methods for soil sampling are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

10.0 Results

10.1 Subsurface Conditions

The soils observed during test pitting are summarised below in Table 10.1. The test pit logs are presented in Appendix D.

Table 10.1 – Summary of Geotechnical Units and Soil Types

Unit	Soil Type	Description	Depth Range (m bgs)
1	FILL/Topsoil	Variable materials at different test pit locations including: <ul style="list-style-type: none"> Sandy CLAY – low to medium plasticity, dark brown to dark grey-brown, fine to medium grained sand, some sub angular to sub rounded gravels. Gravelly Sandy CLAY (potentially reworked site soils) – medium to high plasticity, orange-brown to pale orange-brown and grey/brown, fine to medium grained sand, fine to coarse grained sub-rounded to sub-angular weathered sandstone. 	0.0 to 0.2 0.2 to 1.2 (TP3 and TP6 only).
2	Slopewash	<ul style="list-style-type: none"> Sandy CLAY – low to medium plasticity, grey to grey-brown, fine grained sand, trace rootlets. 	0.2 to 0.6
3	Residual Soil	<ul style="list-style-type: none"> Sandy CLAY – medium to high plasticity, orange-brown to pale orange-brown and brown, fine grained sand, trace sub-angular fine-grained gravel, with some extremely weathered sandstone 	0.4-1.7*
4	Extremely Weathered Sandstone	<ul style="list-style-type: none"> Extremely weathered sandstone with soil properties: breaks down into sandy CLAY – medium to high plasticity, pale orange-brown, with some pale red-brown, fine grained sand. 	1.0-1.1*
5	Highly/moderately Weathered Sandstone	<ul style="list-style-type: none"> SANDSTONE – fine to medium grained, orange-brown to brown and red/brown. 	0.9-1.32*

* End of hole

Trace anthropogenic materials such as wood, a bottle cap (TP1) and iron piece (TP2) were found in topsoil/fill of TP1 and TP2. No other anthropogenic materials, odours, or groundwater inflows, were observed during sampling and test pitting.

10.2 Laboratory Results

10.2.1 Soil – Contamination

Soil analytical results are summarised in Table 1 to Table 3, Appendix B. The laboratory analytical reports are also included in Appendix F.

The soil laboratory results were compared to the investigation levels described in Sections 7.4. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria, with the exception of:

- Zinc reported above the adopted EIL criteria (70mg/kg) in sample SS4 (71mg/kg).

For soil analytical results exceeding the adopted investigation levels the 95% Upper Confidence Limits (UCLs) of the average concentrations for the soil results were calculated using ProUCL in accordance with the procedures discussed in NEPM (2013) Schedule B2 Section 13 and NSW EPA (1995) Sampling Design Guidelines.

NEPM (2013) Schedule B1, Section 3.2.1 states that:

- *“At the very least, the maximum and 95%UCL of the arithmetic mean contaminant concentration should be compared to the relevant Tier 1 screening criteria”*
- *“The implications of localised elevated values (hotspots) should also be considered. The results should also meet the following criteria:*
 - *The standard deviation of the results should be less than 50% of the relevant investigation or screening level, and*
 - *No single value should exceed 250% of the relevant investigation or screening level.”*

The 95% UCL was calculated based on the AEC and material type (i.e. surface soils) for:

- Zinc in surface soils.

The 95% UCL calculations are shown below. The calculation sheets for data statistics, including average, standard deviation and 95%UCL of the average, are attached in Appendix B. ProUCL calculates the UCL comparing a number of different methods, including normal distribution, lognormal distribution, gamma distribution and nonparametric. ProUCL then recommends an appropriate method for the data set.

The UCL calculations showed:

Parameter	Zinc
No. Samples	12
Average	30.92
Standard Deviation	15.56
95% UCL	38.98

Parameter	Zinc
HIL / EIL	7,400 / 70

The 95% UCL calculations showed that the average and arithmetic average for zinc were below the adopted HILs and EILs.

10.3.2 Preliminary Waste Classification

The waste classification results are summarised in Table 3. The laboratory results were compared to the investigation levels described in Section 7.5.

Qualtest followed the six-step process described in Part 1 of the NSW EPA (2014) Waste Classification Guidelines for assessing the classification of the surface soils in the area of the current and former shed in the northern portion of the site. According to the waste classification procedure:

- **Step 1 – Is the waste special waste?:** The material is assessed to not be 'special waste'.
- **Step 2 – Is the waste liquid waste?:** The material assessed is not to be a 'liquid waste' in its current form. The material requiring offsite disposal was soil and capable of being picked up by a spade or shovel.
- **Step 3 – Is the waste pre-classified?:** The material assessed is not 'pre-classified'.
- **Step 4 – Does the waste possess hazardous characteristics?:** The material assessed does not appear to possess hazardous characteristics from the onsite observations made.
- **Step 5 - Determining a waste's classification using chemical assessment:** The material has been assessed by chemical analyses. Soil analytical results are presented in Table 3, Appendix B. The results show concentrations below the general solid waste criteria (CT1).
- **Step 6 - Is the waste putrescible or non-putrescible?:** The material is composed of soil. NSW EPA (2014) notes that materials that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forestry and crop materials, and natural fibrous organic and vegetative materials. Based on observations by Qualtest, the material is considered to be non-putrescible.

Based on the above, the surface soils and fill materials across the site classify as General Solid Waste (non-putrescible).

The underlying residual soils on the site would classify as Virgin Excavated Natural Material (VENM), as long as they are not mixed with any topsoil, fill, or waste materials.

11.0 Conceptual Site Model

Based on the results of the PCA (Qualtest, 2020) and the DCA carried out on the site, an updated Conceptual Site Model (CSM) has been developed and is presented as Table 11.1 below.

Table 11.1 – Updated AECs Following Assessment

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling Completed	Potential & Complete Exposure Pathways
1. Illegally dumped waste <ul style="list-style-type: none"> Construction waste - concrete, steel, bricks and some asphalt. Potential for hazardous materials (asbestos, lead paints) Household waste – clothes General waste - plastic bottles, cardboard, papers, cans 	<ul style="list-style-type: none"> TRH, BTEX, PAH, Metals, Asbestos (CoPCs dependent on waste type) 	<ul style="list-style-type: none"> Top-down leaks/spills, flakes/fibres onto soil Leaching of soil contaminants to surface water and groundwater 	<ul style="list-style-type: none"> Aesthetics Underlying soils Surface water Sediment Groundwater 	<ul style="list-style-type: none"> Current site visitors Future construction workers & site users Offsite surface water – Lisarow Wetlands located approximately 250m to the north of the site 	<ul style="list-style-type: none"> Direct dermal contact with contaminated soil and/or surface water Ingestion of contaminated soil and/or surface water Inhalation of asbestos fibres, or contaminated soil (as dust) Inhalation of petroleum hydrocarbon vapours Leaching of soil contaminants to surface water and/or groundwater Surface water and groundwater discharge from onsite to offsite Lisarow Wetlands located approximately 250m to the north of the site 	<ul style="list-style-type: none"> SS1, SS4 and SS5 	<ul style="list-style-type: none"> No contamination identified therefore exposure pathways are considered to be incomplete for current site users, future construction workers, site users, soil biota and transitory wildlife, and surface water Incomplete exposure pathway for groundwater, as groundwater expected to be greater than 10m bgs in residual clays, and no contamination identified on the site
2. Imported Fill <ul style="list-style-type: none"> Potential use of imported fill of unknown quality and origin. 	<ul style="list-style-type: none"> TRH, BTEX, PAH, OCPs, Metals, Asbestos 	<ul style="list-style-type: none"> Top-down Leaching of soil contaminants to surface water and groundwater 	<ul style="list-style-type: none"> Fill soils Underlying soils Surface water Sediment Groundwater 	<ul style="list-style-type: none"> Current site visitors Future construction workers & site users Offsite surface water – Lisarow Wetlands located approximately 250m to the north of the site. 	<ul style="list-style-type: none"> Direct dermal contact with contaminated soil and/or surface water Ingestion of contaminated soil and/or surface water Inhalation of asbestos fibres, or contaminated soil (as dust) Inhalation of petroleum hydrocarbon vapours Leaching of soil contaminants to surface water and/or groundwater Surface water and groundwater discharge from onsite to offsite Lisarow Wetlands located approximately 250m to the north of the site. 	<ul style="list-style-type: none"> TP1 to TP6 and SS2, SS3 and SS6 	<ul style="list-style-type: none"> No contamination identified therefore exposure pathways are considered to be incomplete for current site users, future construction workers, site users, soil biota and transitory wildlife, and surface water Incomplete exposure pathway for groundwater, as groundwater expected to be greater than 10m bgs in residual clays, and no contamination identified on the site

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling Completed	Potential & Complete Exposure Pathways
3. Former crops/orchard farming <ul style="list-style-type: none">Potential for pesticide and other farming related contamination	<ul style="list-style-type: none">TRH, BTEX, PAH, OCPs, Metals, Asbestos	<ul style="list-style-type: none">Top-downLeaching of soil contaminants to surface water and groundwater	<ul style="list-style-type: none">SoilsGroundwaterSurface waterSediments	<ul style="list-style-type: none">Current site visitorsFuture construction workers & site usersOffsite surface water – Lisarow Wetlands located approximately 250m to the north of the site.	<ul style="list-style-type: none">Direct dermal contact with contaminated soil and/or groundwaterIngestion of contaminated soil and/or groundwaterInhalation of contaminated soil (as dust)Inhalation of petroleum hydrocarbon vapoursLeaching of soil contaminants to surface water and/or groundwaterSurface water and groundwater discharge from onsite to offsite Lisarow Wetlands located approximately 250m to the north of the site.	<ul style="list-style-type: none">TP1 to TP6 and SS2, SS3 and SS6	<ul style="list-style-type: none">No contamination identified therefore exposure pathways are considered to be incomplete for current site users, future construction workers, site users, soil biota and transitory wildlife, and surface waterIncomplete exposure pathway for groundwater, as groundwater expected to be greater than 10m bgs in residual clays, and no contamination identified on the site

12.0 Conclusions and Recommendations

Based on the results of the Detailed Contamination Assessment and results of field and laboratory investigations, it is considered that the site is suitable for the proposed development.

As a precaution it is recommended that an Unexpected Finds Procedure be included in the Construction Environmental Management Plan, and implemented during earthworks.

The surface/fill soils across the site classify as General Solid Waste (non-putrescible), and the underlying residual clay/weathered rock would classify as Virgin Excavated Natural Material (VENM), in accordance with the NSW EPA (2014) Waste Classification Guidelines. It is recommended that the waste classification of soils is confirmed prior to disposal of materials offsite.

If conditions other than those encountered during this assessment are uncovered, further assessment by an environmental consultant may be necessary.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

13.0 Limitations

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted practices and standards. To our knowledge, they represent a reasonable interpretation of the general conditions of the site.

In compiling this report Qualtest has relied on information contained in reports prepared by others. The accuracy of the information contained within these reports cannot be verified beyond what has been uncovered through this review.

Data and opinions contained within the report may not be used in other contexts or for any other purposes without prior review and agreement by Qualtest. If this report is reproduced, it must be in full.

14.0 References

Friebel & Nadebaum (2011). *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater* (technical paper No.10) Guidelines, CRC for Contamination Assessment and Remediation of the Environment (CRC CARE).

NEPC (2013) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as amended in 2013, National Environment Protection Council (ASC NEPM, 2013).

NSW Department of Primary Industries (Office of Water) Registered Groundwater Bore Map, accessed from <http://allwaterdata.water.nsw.gov.au/water.stm>, accessed on 25 September 2020

NSW Land and Property Information, Spatial Information eXchange (SIX) Maps - Topographic Map, accessed from <https://maps.six.nsw.gov.au/>, accessed on 18 September 2020

NSW Department of Land and Water Conservation (1997) Gosford Acid Sulfate Soil Risk Map, 1:25,000 scale (Edition Two)

NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

NSW EPA (1995) Sampling Design Guidelines

Qualtest (2020) Preliminary Contamination Assessment, Lot 121 and 129 Newling Street,
Lisarow, NSW (ref: NEW20P-0141-AA, dated 8 October 2020)

APPENDIX A:

Figures



Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 22 October 2020


	Client:	ADW JOHNSON PTY LTD	Drawing No:	FIGURE 1
	Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW20P-0141-AB
	Location:	Lot 121 and 129 Newling Street, Lisarow, NSW	Scale:	N.T.S
	Title:	SITE LOCATION PLAN	Date:	22/10/2020



Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 25 September 2020

Client:	ADW JOHNSON PTY LTD	Drawing No:	FIGURE 2
Project:	PRELIMINARY CONTAMINATION ASSESSMENT	Project No:	NEW20P-0141-AA
Location:	121 AND 129 NEWLING STREET, LISAROW	Scale:	N.T.S.
Title:	LOT LAYOUT PLAN	Date:	22/10/2020



Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 25 September 2020

Client:	ADW JOHNSON PTY LTD	Drawing No:	FIGURE 3
Project:	PRELIMINARY CONTAMINATION ASSESSMENT	Project No:	NEW20P-0141-AA
Location:	121 AND 129 NEWLING STREET, LISAROW	Scale:	N.T.S.
Title:	SITE FEATURES PLAN	Date:	25/09/2020



Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 25 September 2020

Client:	ADW JOHNSON PTY LTD	Drawing No:	FIGURE 4
Project:	PRELIMINARY CONTAMINATION ASSESSMENT	Project No:	NEW20P-0141-AA
Location:	121 AND 129 NEWLING STREET, LISAROW	Scale:	As Shown
Title:	SITE FEATURES PLAN	Date:	25/09/2020

APPENDIX B:

Tables



						Field ID	SS1	SS2	SS3	SS4	SS5	SS6	TP1 0.0-0.1	TP2 0.0-0.1	TP3 0.0-0.1	TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.1
						Date	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020
Analytes		Units	EQL	HIL-A ¹	HSL A ²	EIL A/ESL A ³												
Metals	Arsenic	mg/kg	2	100		100	< 2	< 2	< 2	2.2	2.6	< 2	< 2	< 2	< 2	< 2	< 2	< 2
	Cadmium	mg/kg	0.4	20			< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium	mg/kg	5	100		400*	6.2	17	12	16	21	21	31	8.5	13	22	7.6	10
	Copper	mg/kg	5	6000		95*	< 5	28	25	23	40	36	76	15	27	62	53	12
	Lead	mg/kg	5	300		1100	8.2	10	9.4	18	13	11	14	6.8	12	12	10	10
	Mercury	mg/kg	5	40			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400		30*	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	Zinc	mg/kg	5	7400		70*	22	24	26	71	24	35	36	38	22	43	11	19
PAHs	Acenaphthene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Acenaphthylene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Anthracene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benz(a)anthracene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(a)pyrene	mg/kg	0.5			0.7	< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(a)pyrene TEQ	mg/kg	0.6	3			0.6	-	-	0.6	0.6	-	0.6	0.6	0.6	-	0.6	0.6
	Benzo(b&j)fluoranthene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(g,h,i)perylene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Chrysene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Dibenz(a,h)anthracene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Fluoranthene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Fluorene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Naphthalene	mg/kg	0.5			170	< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Phenanthrene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Pyrene	mg/kg	0.5				< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Total PAH	mg/kg	0.5	300			< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
BTEX	Benzene	mg/kg	0.1		0.7	65	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1		NL	125	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Toluene	mg/kg	0.1		480	105	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Xylenes	mg/kg	0.3		110	45	< 0.3	-	-	< 0.3	< 0.3	-	< 0.3	< 0.3	< 0.3	-	< 0.3	< 0.3
TRH	Naphthalene	mg/kg	0.5		5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	TRH C6-C10	mg/kg	20			180	< 20	-	-	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C6-C10 less BTEX (F1)	mg/kg	20		50		< 20	-	-	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20
	TRH >C10-C16	mg/kg	50			120	< 50	-	-	< 50	< 50	-	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50		280		< 50	-	-	< 50	< 50	-	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C16-C34	mg/kg	100			1300	130	-	-	< 100	< 100	-	< 100	< 100	< 100	< 100	< 100	< 100
	TRH >C34-C40	mg/kg	100			5600	< 100	-	-	< 100	< 100	-	< 100	< 100	< 100	< 100	< 100	< 100
Asbestos	Asbestos	Detect		Detect			ND	-	-	ND	ND	-	ND	-	ND	-	-	ND

Notes

- * EIL based on pH of 4, CEC of 5meq/100ml, and clay content >10%
- Not analysed
- ND Not detected
- NL Non Limiting

Result	Concentration exceeds adopted human health criteria
Result	Concentration exceeds adopted health screening level, vapour intrusion (Residential)
Result	Concentration exceeds adopted ecological investigation/screening levels - Residential, Clay

- NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(1): Health Investigation Levels (Residential)
- NEPC (2013) Soil Health Screening Levels for Vapour Intrusion, Residential, Clay 0m to <1m
- NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM



				Field ID	SS1	SS2	SS3	SS4	SS5	SS6	TP1 0.0-0.1	TP2 0.0-0.1	TP3 0.0-0.1	TP4 0.0-0.1
				Date	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020
Analytes		Units	EQL	HIL-A ¹	EIL A/ESL A ²									
OCPs	4.4'-DDD	mg/kg	0.05	240		-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	4.4'-DDE	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	4.4'-DDT	mg/kg	0.05		180	-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	a-BHC	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Aldrin	mg/kg	0.05	6		-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Dieldrin	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	b-BHC	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Chlordanes - Total	mg/kg	0.1	50		-	< 0.1	< 0.1	-	-	< 0.1	< 0.1	< 0.1	< 0.1
	d-BHC	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan I	mg/kg	0.05	270		-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan II	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan sulphate	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin	mg/kg	0.05	10		-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin aldehyde	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin ketone	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	g-BHC (Lindane)	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Heptachlor	mg/kg	0.05	6		-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Heptachlor epoxide	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
OPPs	Hexachlorobenzene	mg/kg	0.05			-	< 0.05	< 0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05
	Methoxychlor	mg/kg	0.05	300		-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Toxaphene	mg/kg	1	20		-	< 0.1	< 0.1	-	-	< 0.1	< 0.1	< 0.1	< 0.1
	Azinphos-methyl	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Bolstar	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Chlorfenvinphos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Chlorpyrifos	mg/kg	0.2	160		-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Chlorpyrifos-methyl	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Coumaphos	mg/kg	2			-	< 2	< 2	-	-	< 2	< 2	< 2	< 2
	Demeton-O	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Demeton-S	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Diazinon	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Dichlorvos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Dimethoate	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Disulfoton	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	EPN	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Ethion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Ethoprop	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Ethyl parathion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Fenitrothion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Fensulfothion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Fenthion	mg/kg	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
	Merphos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Methyl parathion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Mevinphos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Monocrotophos	mg/kg	2			-	< 2	< 2	-	-	< 2	< 2	< 2	< 2
	Naled	mg/kg	2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Omethoate	mg/kg	0.2			-	< 2	< 2	-	-	< 2	< 2	< 2	< 2
	Phorate	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Pirimiphos-methyl	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Pyrazophos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Ronnel	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Terbufos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Tetrachlorvinphos	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Tokuthion	mg/kg	0.2			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2
	Trichloronate	mg/kg	0.6			-	< 0.2	< 0.2	-	-	< 0.2	< 0.2	< 0.2	< 0.2

Notes

- Not analysed
- Result Concentration exceeds adopted human health criteria
- Result Concentration exceeds adopted ecological investigation levels - Residential

1 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(1): Health Investigation Levels (Residential)
2 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Ecological Investigation and Screening Levels (Residential)



				Field ID	SS1	SS2	SS3	SS4	SS5	SS6	TP1 0.0-0.1	TP2 0.0-0.1	TP3 0.0-0.1	TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.1
				Date	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020	19.10.2020
Analytes		Units	EQL	General Solid Waste without leaching												
				CT1												
Metals	Arsenic	mg/kg	2	100	< 2	< 2	< 2	2.2	2.6	< 2	< 2	< 2	< 2	< 2	< 2	< 2
	Cadmium	mg/kg	0.4	20	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium	mg/kg	5	100	6.2	17	12	16	21	21	31	8.5	13	22	7.6	10
	Copper	mg/kg	5		< 5	28	25	23	40	36	76	15	27	62	53	12
	Lead	mg/kg	5	100	8.2	10	9.4	18	13	11	14	6.8	12	12	10	10
	Mercury	mg/kg	0.1	4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	40	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	Zinc	mg/kg	5		22	24	26	71	24	35	36	38	22	43	11	19
PAH	Acenaphthene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Acenaphthylene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Anthracene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benz(a)anthracene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(a)pyrene TEQ	mg/kg	0.6		0.6	-	-	0.6	0.6	-	0.6	0.6	0.6	-	0.6	0.6
	Benzo(b&j)fluoranthene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(g,h,i)perylene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Chrysene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Dibenz(a,h)anthracene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Fluoranthene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Fluorene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Naphthalene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Phenanthrene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Pyrene	mg/kg	0.5		< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
	Total PAH*	mg/kg	0.5	200	< 0.5	-	-	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5
BTEX	Benzene	mg/kg	0.1	10	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1	600	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Toluene	mg/kg	0.1	288	< 0.1	-	-	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1
	Xylenes - Total	mg/kg	0.3	1000	< 0.3	-	-	< 0.3	< 0.3	-	< 0.3	< 0.3	< 0.3	-	< 0.3	< 0.3
TRH	TRH C6-C9	mg/kg	20	650	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C10-C14	mg/kg	20		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C15-C28	mg/kg	50		110	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH C29-C36	mg/kg	50		51	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH C10-36 (Total)	mg/kg	50	10000	161	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Asbestos	Asbestos	-	-	Detected	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Value	Result exceeds criteria for General Solid Waste
Value	Asbestos Detected
ND	Not detected

* Chrysotile and amosite asbestos detected in fibre cement fragments
Criteria from NSW EPA (2014) Waste Classification Guidelines, Tables 1 and 2

Table LR4: Quality Control Results - Soil Duplicates
Lot 121 and 129 Newling Street, Lisarow NSW



			Field ID	TP01 0.0-0.1	D.19.10.20	RPD%	TP01 0.0-0.1	T.19.10.20	RPD%
			Date	19.10.20	19.10.20		19.10.20	19.10.20	
			Comments	Duplicate			Triplicate		
Analytes		Units	LOR						
Heavy Metals	Arsenic	mg/kg	2	< 2	< 2	0	< 2	<5	0
	Cadmium	mg/kg	0.4	< 0.4	< 0.4	0	< 0.4	<1	0
	Chromium	mg/kg	5	31	30	3	31	40	25
	Copper	mg/kg	5	76	79	4	76	87	13
	Lead	mg/kg	5	14	11	24	14	12	15
	Mercury	mg/kg	5	< 0.1	< 0.1	0	< 0.1	<0.1	0
	Nickel	mg/kg	5	< 5	< 5	0	< 5	2	0
	Zinc	mg/kg	5	36	31	15	36	32	12
BTEX	Benzene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.2	0
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.5	0
	Toluene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.5	0
	Xylenes	mg/kg	0.3	< 0.3	< 0.3	0	< 0.3	<0.5	0
TRH	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	TRH C6-C10	mg/kg	20	< 20	< 20	0	< 20	<10	0
	TRH C6-C10 less BTEX (F1)	mg/kg	20	< 20	< 20	0	< 20	<10	0
	TRH >C10-C16	mg/kg	50	< 50	< 50	0	< 50	<50	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	< 50	< 50	0	< 50	<50	0
	TRH >C16-C34	mg/kg	100	< 100	< 100	0	< 100	<100	0
	TRH >C34-C40	mg/kg	100	< 100	< 100	0	< 100	<100	0
	TRH C6-C9	mg/kg	20	< 20	< 20	0	< 20	<10	0
	TRH C10-C14	mg/kg	20	< 20	< 20	0	< 20	<50	0
	TRH C15-C28	mg/kg	50	< 50	< 50	0	< 50	<100	0
	TRH C29-C36	mg/kg	50	< 50	< 50	0	< 50	<100	0
	TRH C10-C36	mg/kg	50	< 50	< 50	0	< 50	<50	0
PAHs	Acenaphthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Benzo(a)pyrene TEQ	mg/kg	0.6	0.6	0.6	0	0.6	0.6	0
	Benzo(b&j)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Chrysene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Fluorene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
	Total PAH	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<0.5	0
OCPs	4,4'-DDD	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	4,4'-DDE	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	4,4'-DDT	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.2	0
	a-BHC	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Aldrin	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Dieldrin	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	b-BHC	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Chlordanes - Total	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	< 0.05	0
	d-BHC	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endosulfan I	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endosulfan II	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endosulfan sulphate	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endrin	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endrin aldehyde	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Endrin ketone	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	g-BHC (Lindane)	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Heptachlor	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Heptachlor epoxide	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Hexachlorobenzene	mg/kg	0.05	< 0.05	< 0.05	0	< 0.05	< 0.05	0
	Methoxychlor	mg/kg	0.05	< 0.2	< 0.2	0	< 0.2	< 0.2	0
Toxaphene	mg/kg	1	< 0.1	< 0.1	0	< 0.1	-	0	
OPPs	Azinphos-methyl	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Bolstar	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Chlorfenvinphos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Chlorpyrifos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Chlorpyrifos-methyl	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Coumaphos	mg/kg	2	< 2	< 2	0	< 2	-	0
	Demeton-O	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Demeton-S	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Diazinon	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Dichlorvos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Dimethoate	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Disulfoton	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	EPN	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Ethion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Ethoprop	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	-
	Ethyl parathion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	-
	Fenitrothion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	-
	Fensulfothion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	-



			Field ID	TP01 0.0-0.1	D.19.10.20	RPD%	TP01 0.0-0.1	T.19.10.20	RPD%
			Date	19.10.20	19.10.20		19.10.20	19.10.20	
			Comments	Duplicate			Triplicate		
	Fenthion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Malathion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.05	0
	Merphos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Methyl parathion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	< 0.2	0
	Mevinphos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Monocrotophos	mg/kg	2	< 2	< 2	0	< 2	< 0.2	0
	Naled	mg/kg	2	< 0.2	< 0.2	0	< 0.2	-	0
	Omethoate	mg/kg	0.2	< 2	< 2	0	< 2	-	0
	Phorate	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Pirimiphos-methyl	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Pyrazophos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Ronnel	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Terbufos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Tetrachlorvinphos	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Tokuthion	mg/kg	0.2	< 0.2	< 0.2	0	< 0.2	-	0
	Trichloronate	mg/kg	0.6	< 0.2	< 0.2	0	< 0.2	-	0

Notes:
*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPD range is 30% (>10 x EQL))

APPENDIX C:

Site Photos



Photograph 1 - Test pit 1



Photograph 2 - Test pit 2



Client:	ADW JOHNSON PTY LTD	Project No:	NEW20P-0141-AB
Project:	DETAILED CONTAMINATION ASSESSMENT	Date:	23.10.20
Location:	LOT 121 AND 129 NEWLING STREET, LISAROW, NSW	No:	1 and 2
Title:	SITE PHOTOGRAPHS		



Photograph 3 - Test pit 3



Photograph 4 - Test pit 4




Client:	ADW JOHNSON PTY LTD	Project No:	NEW20P-0141-AB
Project:	DETAILED CONTAMINATION ASSESSMENT	Date:	23.10.20
Location:	LOT 121 AND 129 NEWLING STREET, LISAROW, NSW	No:	3 and 4
Title:	SITE PHOTOGRAPHS		



Photograph 5 - Test pit 5



Photograph 6 - Test pit 6


	Client:	ADW JOHNSON PTY LTD	Project No:	NEW20P-0141-AB
	Project:	DETAILED CONTAMINATION ASSESSMENT	Date:	23.10.20
	Location:	LOT 121 AND 129 NEWLING STREET, LISAROW, NSW	No:	5 and 6
	Title:	SITE PHOTOGRAPHS		



Photograph 7 - Looking south west across the site



Photograph 8 - Looking south over the eastern portion of the site

	Client:	ADW JOHNSON PTY LTD	Project No:	NEW20P-0141-AB
	Project:	DETAILED CONTAMINATION ASSESSMENT	Date:	23.10.20
	Location:	LOT 121 AND 129 NEWLING STREET, LISAROW, NSW	No:	7 and 8
	Title:	SITE PHOTOGRAPHS		

APPENDIX D:

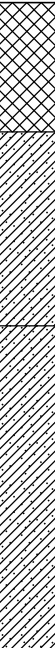
Logs

ENGINEERING LOG - TEST PIT

CLIENT: ULAWATU PROPERTIES PTY LTD
PROJECT: PROPOSED RESIDENTIAL SUBDIVISION
LOCATION: 129 NEWLING STREET, LISAROW

TEST PIT NO: TP01
PAGE: 1 OF 1
JOB NO: NEW20P-0141
LOGGED BY: BS
DATE: 19/10/20

EQUIPMENT TYPE: 2.7T Excavator
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E	Not Encountered	E 0.10m		0.5		CL	FILL: Sandy CLAY - low to medium plasticity, dark brown, fine grained sand, trace wood and bottle cap, with roots and rootlets.	M < w _p				FILL - TOPSOIL
		CL				Sandy CLAY - low to medium plasticity, grey to grey-brown, fine grained sand, trace rootlets.	SLOPEWASH					
		CH				Sandy CLAY - medium to high plasticity, orange-brown to pale orange-brown, fine grained sand, trace sub-angular fine grained gravel.	RESIDUAL SOIL					
		Becoming orange-brown to brown with some pockets of orange-brown with some extremely weathered sandstone.										
				1.0			Hole Terminated at 1.00 m Due to limit of required investigation					
				1.5								



LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400	
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose		Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L	Loose		Density Index 15 - 35%
				MD	Medium Dense		Density Index 35 - 65%
				D	Dense		Density Index 65 - 85%
				VD	Very Dense		Density Index 85 - 100%




ENGINEERING LOG - TEST PIT

CLIENT: ULAWATU PROPERTIES PTY LTD
PROJECT: PROPOSED RESIDENTIAL SUBDIVISION
LOCATION: 129 NEWLING STREET, LISAROW

TEST PIT NO: TP02
PAGE: 1 OF 1
JOB NO: NEW20P-0141
LOGGED BY: BS
DATE: 19/10/20

EQUIPMENT TYPE: 2.7T Excavator
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E	Not Encountered	E 0.10m				CL	FILL: Sandy CLAY - low to medium plasticity, dark brown, fine grained sand, with roots and rootlets.	M < w _p				FILL - TOPSOIL
						CL	Iron piece found. Sandy CLAY - low to medium plasticity, grey to grey-brown, fine grained sand.					SLOPEWASH
		0.50m		0.5		CL						RESIDUAL SOIL
		E 0.60m			CH	Sandy CLAY - medium to high plasticity, orange-brown to pale orange-brown, fine grained sand, with some pockets of highly weathered sandstone.						
		E 0.70m										
				1.0			SANDSTONE - fine to medium grained, orange-brown to brown.				HIGHLY WEATHERED ROCK	
				1.5			Hole Terminated at 1.00 m Due to limit of required investigation					

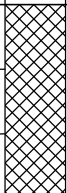
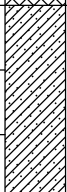
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		D Dense	Density Index 65 - 85%
						VD Very Dense	Density Index 85 - 100%




ENGINEERING LOG - TEST PIT

CLIENT: ULAWATU PROPERTIES PTY LTD
PROJECT: PROPOSED RESIDENTIAL SUBDIVISION
LOCATION: 129 NEWLING STREET, LISAROW

TEST PIT NO: TP03
PAGE: 1 OF 1
JOB NO: NEW20P-0141
LOGGED BY: BS
DATE: 19/10/20

EQUIPMENT TYPE: 2.7T Excavator
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result		
E	Not Encountered	E 0.10m				CL	FILL: Sandy CLAY - low to medium plasticity, dark grey-brown, fine to medium grained sand, with some fine to coarse grained sub-angular to sub-rounded gravel, trace sandstone cobbles, with roots and rootlets.	M < w _p				FILL - TOPSOIL	
		0.50m	0.5										
		E 0.60m					0.60m						
		E 0.70m										FILL: Gravelly Sandy CLAY - medium to high plasticity, orange-brown to pale orange-brown, fine to medium grained sand, fine to coarse grained sub-rounded to sub-angular gravel with some highly weathered sandstone.	FILL
		1.00m	1.0	1.00m									
		E 1.10m					1.00m					FILL: Gravelly Sandy CLAY - low to medium plasticity, grey-brown, fine grained sand, fine to medium grained sub-rounded gravel.	
		1.20m		1.20m									
		E 1.30m					1.20m					Sandy CLAY - medium to high plasticity, pale brown to brown, fine grained sand, with pockets of fine grained red-brown and orange-brown highly weathered sandstone.	RESIDUAL SOIL / HIGHLY WEATHERED SANDSTONE
				1.5		CH		M > w _p					
				1.70m									
							Hole Terminated at 1.70 m Due to limit of required investigation						

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D	Density Index 35 - 65%
				VD Very Dense		VD	Density Index 65 - 85%
							Density Index 85 - 100%


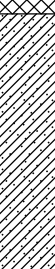
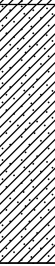

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ENGINEERING LOG - TEST PIT

CLIENT: ULAWATU PROPERTIES PTY LTD
PROJECT: PROPOSED RESIDENTIAL SUBDIVISION
LOCATION: 129 NEWLING STREET, LISAROW

TEST PIT NO: TP05
PAGE: 1 OF 1
JOB NO: NEW20P-0141
LOGGED BY: BS
DATE: 19/10/20

EQUIPMENT TYPE: 2.7T Excavator
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E	Not Encountered	E 0.10m		0.5		CL	FILL: Sandy CLAY - low to medium plasticity, dark brown, fine grained sand, with roots and rootlets.	M < w _p				FILL - TOPSOIL
					CL	Sandy CLAY - low to medium plasticity, grey to grey-brown, fine grained sand, trace rootlets.	SLOPEWASH					
		0.60m				CH	Sandy CLAY - medium to high plasticity, pale orange-brown, fine to medium grained sand, with highly to moderately weathered sandstone throughout.					RESIDUAL SOIL / WEATHERED ROCK
		E 0.70m										
				1.0			Hole Terminated at 1.00 m Due to limit of required investigation					
				1.5								

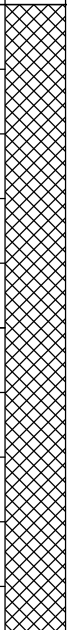
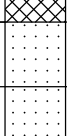

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS Very Soft		<25		D Dry	
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S Soft		25 - 50		M Moist	
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F Firm		50 - 100		W Wet	
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St Stiff		100 - 200		W _p Plastic Limit	
Strata Changes		B Bulk Sample		VSt Very Stiff		200 - 400		W _L Liquid Limit	
Gradational or transitional strata		Field Tests		H Hard		>400			
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb Friable					
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose		Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense		Density Index 15 - 35%	
				D Dense		VD Very Dense		Density Index 35 - 65%	
								Density Index 65 - 85%	
								Density Index 85 - 100%	




ENGINEERING LOG - TEST PIT

CLIENT: ULAWATU PROPERTIES PTY LTD
PROJECT: PROPOSED RESIDENTIAL SUBDIVISION
LOCATION: 129 NEWLING STREET, LISAROW

TEST PIT NO: TP06
PAGE: 1 OF 1
JOB NO: NEW20P-0141
LOGGED BY: BS
DATE: 19/10/20

EQUIPMENT TYPE: 2.7T Excavator
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E	Not Encountered	E 0.10m		0.5		CL	FILL: Sandy CLAY - low to medium plasticity, dark grey to dark brown, fine grained sand, with some sub-angular to sub-rounded fine to medium grained gravel. With roots and rootlets in top 0.2m.	M < w _p				FILL
		0.50m										
		E 0.60m										
		1.00m										
		E 1.10m										
						CL	Extremely weathered sandstone with soil properties: breaks down into Sandy CLAY - medium to high plasticity, pale orange-brown with some pale red-brown, fine grained sand, with pockets of highly weathered sandstone.				EXTREMELY WEATHERED ROCK	
							SANDSTONE - fine grained, pale orange-brown with some red-brown.				HIGHLY WEATHERED ROCK / MODERATELY WEATHERED ROCK	
							Hole Terminated at 1.20 m Refusal on weathered rock					
				1.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

APPENDIX E:

Data Validation Report

QA/QC DATA VALIDATION REPORT**Job No: NEW20P-0141AB - VALIDATION****Eurofins report: 751766-S 751766-AID, ES2036912_0_COA****1. SAMPLE HANDLING**

Item	Yes/No	Comments
Were the sample holding times met?	Yes	-
Were the samples in proper custody between collection in the field and reaching the laboratory?	Yes	-
Were the samples properly and adequately preserved?	Yes	-
Were the samples received by the laboratory in good condition?	Yes	-

Sampling Handling was:

Satisfactory : ✓	Partially Satisfactory:	Unsatisfactory:
-------------------------	--------------------------------	------------------------

2. PRECISION AND ACCURACY ASSESSMENT

Item	Yes/No	Comment
Was a NATA registered laboratory used?	Yes	-
Did the laboratory perform the requested tests?	Yes	-
Were the laboratory methods adopted NATA endorsed?	Yes	-
Were the appropriate test procedures followed?	Yes	-
Were the reporting limits satisfactory?	Yes	-
Was the NATA seal on the reports?	Yes	-
Were the reports signed by an authorised person?	Yes	-

Laboratory Precision and Accuracy was:

Satisfactory : ✓	Partially Satisfactory:	Unsatisfactory:
-------------------------	--------------------------------	------------------------

3. FIELD QA/QC**Soil Samples**

	BTEX, PAH, TRH	Metals	Asbestos	OCP & OPP
No. Samples Analysed	9	12	6	9
Duplicates	1	1	0	1
Triplicates	1	1	0	1
Wash Blanks	0	0	0	0
Trip Blanks	0	0	0	0
Trip Spikes	0	0	0	0

No. Days Sampling

Item	Soil
Number of Days Sampling	1
Number of Sampling Events	1

Field Duplicates

Item	Yes/No	Comments
Were an adequate number of field duplicates collected?	Yes	No duplicates collected for asbestos due to the nature of occurrence of these contaminants. Intra- and Inter-lab duplicates collected at a rate of 1 per 12 samples for Metals, 1 per 9 samples for TRH, 1 per 9 samples for PAH, 1 per 9 samples for OCP and OPP.
Were RPDs within control limits? No Limit for 5-10 x EQL and 30% for >10 x EQL	Yes	

Trip Blanks/Trip Spikes

Item	Yes/No	Comments
Were an adequate number of trip blanks and trip spikes collected?	N/A	Trip blanks and trip spikes were not collected as volatiles were not a primary COC. Olfactory evidence also did not indicate the presence of TRH/BTEX. Where BTEX and TRH C6-C10 have been analysed, this is because they are part of a lab suite.
Were the trip blanks free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	N/A	

Were the trip spikes within recovery limits (between 80% and 120%)	N/A	
--	-----	--

Rinsate Samples

Item	Yes/No	Comments
Were an adequate number of rinsate samples used? (1 per day of using reusable sampling equipment – trowel, hand auger etc)	No	No rinsate samples were collected. It is noted that the field sampling equipment was decontaminated between sampling locations in accordance with Qualtest SOP's. Based on this, the risk of cross contamination is considered to be low.
Were the rinsate samples free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	N/A	

4. LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

A) Type of QA/QC Sample	Yes/No	Comments
Laboratory Blanks/Reagent Blanks (at least 1 per batch)	Yes	
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples)	Yes	
Matrix Spikes, Matrix Spike Duplicates (1 for each soil type)	Yes	
Laboratory Control Spike	Yes	
Surrogate (where appropriate)	Yes	

Item	Yes/No	Comments
B) Were the laboratory blanks and/or reagent blanks free of contamination?	Yes	
C) Were the spike recoveries within control limits?	Yes	
D) Were the RPDs of the laboratory duplicates within control limits?	Yes	
E) Were the surrogate recoveries within control limits?	Yes	

Laboratory Internal QA/QC was:

Satisfactory :	✓	Partially Satisfactory:	Unsatisfactory:
-----------------------	---	--------------------------------	------------------------

5. DATA USABILITY

Item	Yes/No	Comments
Was the data directly usable?	Yes	
Was the data usable with the following corrections/modifications? (see comments)	NA	
Was the data not usable?	NA	

APPENDIX F:

Laboratory Results

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation			29/10/2020 1:17:15 PM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	Zinc											
12												
13	General Statistics											
14	Total Number of Observations				12		Number of Distinct Observations				10	
15							Number of Missing Observations				0	
16	Minimum				11		Mean				30.92	
17	Maximum				71		Median				25	
18	SD				15.56		Std. Error of Mean				4.492	
19	Coefficient of Variation				0.503		Skewness				1.591	
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic				0.861		Shapiro Wilk GOF Test					
23	5% Shapiro Wilk Critical Value				0.859		Data appear Normal at 5% Significance Level					
24	Lilliefors Test Statistic				0.207		Lilliefors GOF Test					
25	5% Lilliefors Critical Value				0.256		Data appear Normal at 5% Significance Level					
26	Data appear Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL					95% UCLs (Adjusted for Skewness)						
30	95% Student's-t UCL				38.98		95% Adjusted-CLT UCL (Chen-1995)				40.51	
31							95% Modified-t UCL (Johnson-1978)				39.33	
32												
33	Gamma GOF Test											
34	A-D Test Statistic				0.359		Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value				0.732		Detected data appear Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic				0.172		Kolmogrov-Smirnoff Gamma GOF Test					
37	5% K-S Critical Value				0.246		Detected data appear Gamma Distributed at 5% Significance Level					
38	Detected data appear Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)				5.013		k star (bias corrected MLE)				3.815	
42	Theta hat (MLE)				6.168		Theta star (bias corrected MLE)				8.104	
43	nu hat (MLE)				120.3		nu star (bias corrected)				91.56	
44	MLE Mean (bias corrected)				30.92		MLE Sd (bias corrected)				15.83	
45						Approximate Chi Square Value (0.05)				70.5		
46	Adjusted Level of Significance				0.029		Adjusted Chi Square Value				67.68	
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))				40.15		95% Adjusted Gamma UCL (use when n<50)				41.83	
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic				0.964		Shapiro Wilk Lognormal GOF Test					
53	5% Shapiro Wilk Critical Value				0.859		Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic				0.142		Lilliefors Lognormal GOF Test					
55	5% Lilliefors Critical Value				0.256		Data appear Lognormal at 5% Significance Level					
56	Data appear Lognormal at 5% Significance Level											
57												

	A	B	C	D	E	F	G	H	I	J	K	L
58	Lognormal Statistics											
59	Minimum of Logged Data					2.398	Mean of logged Data					3.328
60	Maximum of Logged Data					4.263	SD of logged Data					0.472
61												
62	Assuming Lognormal Distribution											
63	95% H-UCL					42.07	90% Chebyshev (MVUE) UCL					43.74
64	95% Chebyshev (MVUE) UCL					49.57	97.5% Chebyshev (MVUE) UCL					57.67
65	99% Chebyshev (MVUE) UCL					73.57						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data appear to follow a Discernible Distribution at 5% Significance Level											
69												
70	Nonparametric Distribution Free UCLs											
71	95% CLT UCL					38.3	95% Jackknife UCL					38.98
72	95% Standard Bootstrap UCL					37.87	95% Bootstrap-t UCL					43.21
73	95% Hall's Bootstrap UCL					71.69	95% Percentile Bootstrap UCL					38.17
74	95% BCA Bootstrap UCL					39.67						
75	90% Chebyshev(Mean, Sd) UCL					44.39	95% Chebyshev(Mean, Sd) UCL					50.49
76	97.5% Chebyshev(Mean, Sd) UCL					58.97	99% Chebyshev(Mean, Sd) UCL					75.61
77												
78	Suggested UCL to Use											
79	95% Student's-t UCL					38.98						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												



mgt

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Page 1 of 1

Company Name:	Qualitest	Contact Name:	Libby Betz	Purchase Order:		COC Number:	
Office Address:	8 Ironbark Close	Project Manager:	Libby Betz	PROJECT Number:	NEW20P-0141	Eurofins mgt quote ID:	180622QUAN-1
		Email for results:	emma@qualitest.com.au libbybetz@qualitest.com.au	PROJECT Name:		Data output format:	

Warabrook NSW 2304

ADW Johnson

Special Directions & Comments:

Analyses

Some common holding times (with correct preservation).
For further information contact the lab

		Waters		Soils	
		BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
		TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
		Heavy Metals	6 months	Heavy Metals	6 months
		Mercury, Cr-VI	28 days	Mercury, Cr-VI	28 days
		Microbiological testing	24 hours	Microbiological testing	72 hours
		BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
		Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CFS	24 hours
		Ferrous Ion	7 days	ASLP, TOLP	7 days

Eurofins | mgt DI water batch number:

Sample ID	Date	Matrix	Suite B7 (TRH, BTEX, PAHs, Metals)	Asbestos (presence/absence)	Suite B14 (OCs and OPPs)	Suite B4	Suite M8	pH and CEC
1 SS1	19/10/2020	Soil						
2 SS2	19/10/2020	Soil						
3 SS3	19/10/2020	Soil						
4 SS4	19/10/2020	Soil						
5 SS5	19/10/2020	Soil						
6 SS6	19/10/2020	Soil						
7 TP1 0.0-0.1	19/10/2020	Soil						
8 TP1 0.5-0.6	19/10/2020	Soil						
9 TP2 0.0-0.1	19/10/2020	Soil						
10 TP2 0.5-0.6	19/10/2020	Soil						
11 TP2 0.6-0.7	19/10/2020	Soil						
12 TP3 0.0-0.1	19/10/2020	Soil						
13 TP3 0.5-0.6	19/10/2020	Soil						
14 TP3 0.6-0.7	19/10/2020	Soil						
15 TP3 1.0-1.1	19/10/2020	Soil						
16 TP3 1.2-1.3	19/10/2020	Soil						
17								

Relinquished By:	B. SNOW	Received By:	Libby Betz	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Date & Time:	19/10/2020	Date & Time:	19/10/2020 2:40PM		1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> 3 DAY <input type="checkbox"/>	<input type="checkbox"/> Courier <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Postal	15.50°C
Signature:		Signature:			5 DAY <input checked="" type="checkbox"/> 10 DAY <input type="checkbox"/> Other: <input type="checkbox"/>	Counter Consignment #: <input type="checkbox"/>	751766



mgt

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Page 1 of 1

Company Name:	Qualitest	Contact Name:	Libby Belz	Purchase Order:		COC Number:	
Office Address:	8 Ironbark Close	Project Manager:	Libby Belz	PROJECT Number:	NEW20P-0141	Eurofins mgt quote ID:	180622QUAN-1
		Email for results:	emma.coleman@qualitest.com.au billysnow@qualitest.com.au libbybelz@qualitest.com.au	PROJECT Name:		Data output format:	

Warabrook NSW 2304

ADW Johnson

Special Directions & Comments:

Analyses

Some common holding times (with correct preservation),
For further information contact the lab

		Waters				Soils			
		BTEX, MAH, VOC	TRH, PAH, Phenols, Pesticides	Heavy Metals	Microbiological testing	BOD, Nitrate, Nitrite, Total N	Solids - TSS, TDS etc	Ferrous Iron	
		14 days	7 days	6 months	24 hours	2 days	2 days	7 days	
		BTEX, MAH, VOC	TRH, PAH, Phenols, Pesticides	Heavy Metals	Microbiological testing	Amoxins	SPOCAS, pH Field and FOX, C/S	ASLP, TOCP	
		14 days	14 days	6 months	28 days	28 days	28 days	7 days	

Eurofins | mgt | mgt water batch number:

Sample ID	Date	Matrix	Suite B7 (TRH, BTEX, PAHs, Metals)	Asbestos (presence/absence)	OCPs and OPPs	Suite M8	pH and EC	ALS Suite S26 (TRH, BTEX, PAHs, Metals)	ALS Suite S12 (OCPs and OPPs)	Containers:	Sample comments:
1	19/10/2020	Soil								1LP 250P 125P 1LA 40mL vial 125mL A Jar Bag	
2	19/10/2020	Soil									
3	19/10/2020	Soil									
4	19/10/2020	Soil									
5	19/10/2020	Soil									
6	19/10/2020	Soil									
7	19/10/2020	Soil									
8	19/10/2020	Soil									
9	19/10/2020	Soil									
10	19/10/2020	Soil									
11											
12											
13											
14											
15											
16											
17											

SEND TO ALS

Relinquished By:	B. SNOW	Receiver By:	Libby Belz	Turn around time	Method Of Shipment	Temperature on arrival:
Date & Time:	19/10/2020	Date & Time:	19/10/2020 2:40 PM	1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> 3 DAY <input type="checkbox"/>	<input type="checkbox"/> Courier <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Postal	15.50°C
Signature:		Signature:		5 DAY <input checked="" type="checkbox"/> 10 DAY <input type="checkbox"/> Other: <input type="checkbox"/>	Courier Consignment #:	751766

Australia

Melbourne 6 Monterey Road Dandenong South VIC 3175 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271	Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone : +61 2 9900 8400 NATA # 1261 Site # 18217	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794	Perth 2/91 Leach Highway Kewdale WA 6105 Phone : +61 8 9251 9600 NATA # 1261 Site # 23736	Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Phone : +61 2 4968 8448	New Zealand Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
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Sample Receipt Advice

Company name:	Qualtest
Contact name:	Emma Coleman
Project name:	ADW JOHNSON
Project ID:	NEW20P-0141
Turnaround time:	5 Day
Date/Time received	Oct 19, 2020 2:40 PM
Eurofins reference	751766

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Sample Jar; T.19.10.20 sent to ALS.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Emma Coleman - emmacoleman@qualtest.com.au.

Qualtest
8 Ironbark Close
Warabrook
NSW 2304



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Emma Coleman

Report 751766-S
Project name ADW JOHNSON
Project ID NEW20P-0141
Received Date Oct 19, 2020

Client Sample ID			TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.1	D.19.10.20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34500	S20-Oc34501	S20-Oc34502	S20-Oc34503
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	103	129	88	58
Tetrachloro-m-xylene (surr.)	1	%	101	92	104	93
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.1	D.19.10.20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34500	S20-Oc34501	S20-Oc34502	S20-Oc34503
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	101	113	123	122
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	7.6	10	30
Copper	5	mg/kg	62	53	12	79
Lead	5	mg/kg	12	10	10	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	43	11	19	31
% Moisture	1	%	21	17	14	25
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	< 50

Client Sample ID			TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.1	D.19.10.20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34500	S20-Oc34501	S20-Oc34502	S20-Oc34503
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	77	75	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	85	101	109
p-Terphenyl-d14 (surr.)	1	%	-	118	121	117

Client Sample ID			SS1 Soil S20-Oc34628 Oct 19, 2020	SS2 Soil S20-Oc34629 Oct 19, 2020	SS3 Soil S20-Oc34630 Oct 19, 2020	SS4 Soil S20-Oc34631 Oct 19, 2020
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	-
4,4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	-
4,4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	-
4,4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	-
Methoxychlor	0.2	mg/kg	-	< 0.2	< 0.2	-
Toxaphene	0.1	mg/kg	-	< 0.1	< 0.1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	-
Dibutylchloride (surr.)	1	%	-	87	97	-
Tetrachloro-m-xylene (surr.)	1	%	-	93	127	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	-	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	-	< 2	< 2	-
Demeton-S	0.2	mg/kg	-	< 0.2	< 0.2	-
Demeton-O	0.2	mg/kg	-	< 0.2	< 0.2	-
Diazinon	0.2	mg/kg	-	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	-	< 0.2	< 0.2	-
Dimethoate	0.2	mg/kg	-	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	-	< 0.2	< 0.2	-
EPN	0.2	mg/kg	-	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	-	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	-	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	-	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	-	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	-	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	-	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	-	< 0.2	< 0.2	-

Client Sample ID			SS1	SS2	SS3	SS4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34628	S20-Oc34629	S20-Oc34630	S20-Oc34631
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	-	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	-	< 2	< 2	-
Naled	0.2	mg/kg	-	< 0.2	< 0.2	-
Omethoate	2	mg/kg	-	< 2	< 2	-
Phorate	0.2	mg/kg	-	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	-	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	-	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	-	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	-	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	-	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	93	93	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	2.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	6.2	17	12	16
Copper	5	mg/kg	< 5	28	25	23
Lead	5	mg/kg	8.2	10	9.4	18
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	22	24	26	71
% Moisture	1	%	7.8	23	22	24
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	110	-	-	< 50
TRH C29-C36	50	mg/kg	51	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	161	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	74	-	-	63
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	130	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	130	-	-	< 100

Client Sample ID			SS1 Soil S20-Oc34628 Oct 19, 2020	SS2 Soil S20-Oc34629 Oct 19, 2020	SS3 Soil S20-Oc34630 Oct 19, 2020	SS4 Soil S20-Oc34631 Oct 19, 2020
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	105	-	-	99
p-Terphenyl-d14 (surr.)	1	%	118	-	-	98

Client Sample ID			SS5 Soil S20-Oc34632 Oct 19, 2020	SS6 Soil S20-Oc34633 Oct 19, 2020	TP1 0.0-0.1 Soil S20-Oc34634 Oct 19, 2020	TP2 0.0-0.1 Soil S20-Oc34635 Oct 19, 2020
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05

Client Sample ID			SS5	SS6	TP1 0.0-0.1	TP2 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34632	S20-Oc34633	S20-Oc34634	S20-Oc34635
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Methoxychlor	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	-	150	INT	INT
Tetrachloro-m-xylene (surr.)	1	%	-	105	145	104
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	-	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	-	< 2	< 2	< 2
Naled	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	-	< 2	< 2	< 2
Phorate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	-	83	107	67
Heavy Metals						
Arsenic	2	mg/kg	2.6	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	21	21	31	8.5
Copper	5	mg/kg	40	36	76	15

Client Sample ID			SS5 Soil S20-Oc34632 Oct 19, 2020	SS6 Soil S20-Oc34633 Oct 19, 2020	TP1 0.0-0.1 Soil S20-Oc34634 Oct 19, 2020	TP2 0.0-0.1 Soil S20-Oc34635 Oct 19, 2020
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	13	11	14	6.8
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	24	35	36	38
% Moisture	1	%	19	25	25	16
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	71	-	66	61
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			SS5	SS6	TP1 0.0-0.1	TP2 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S20-Oc34632	S20-Oc34633	S20-Oc34634	S20-Oc34635
Date Sampled			Oct 19, 2020	Oct 19, 2020	Oct 19, 2020	Oct 19, 2020
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	81	-	95	98
p-Terphenyl-d14 (surr.)	1	%	119	-	112	132

Client Sample ID			TP3 0.0-0.1
Sample Matrix			Soil
Eurofins Sample No.			S20-Oc34636
Date Sampled			Oct 19, 2020
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2
Toxaphene	0.1	mg/kg	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2
Dibutylchloroendate (surr.)	1	%	93
Tetrachloro-m-xylene (surr.)	1	%	83
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2

Client Sample ID			TP3 0.0-0.1
Sample Matrix			Soil
Eurofins Sample No.			S20-Oc34636
Date Sampled			Oct 19, 2020
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Dimethoate	0.2	mg/kg	< 0.2
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	74
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	13
Copper	5	mg/kg	27
Lead	5	mg/kg	12
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	22
% Moisture	1	%	16
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	145

Client Sample ID			TP3 0.0-0.1
Sample Matrix			Soil
Eurofins Sample No.			S20-Oc34636
Date Sampled			Oct 19, 2020
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	116
p-Terphenyl-d14 (surr.)	1	%	122

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Oct 21, 2020	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Oct 21, 2020	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Oct 21, 2020	180 Days
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 21, 2020	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 21, 2020	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 21, 2020	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 21, 2020	
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 21, 2020	14 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Oct 20, 2020	14 Days

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NATA # 1261 Site # 18217

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Company Name: Qualtest
Address: 8 Ironbark Close
Warabrook
NSW 2304

Project Name: ADW JOHNSON
Project ID: NEW20P-0141

Order No.:
Report #: 751766
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Oct 19, 2020 2:40 PM
Due: Oct 26, 2020
Priority: 5 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B14: OCP/OPP	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
1	TP4 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34500			X	X	X	
2	TP5 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34501				X	X	X
3	TP6 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34502	X			X	X	X
4	D.19.10.20	Oct 19, 2020		Soil	S20-Oc34503				X	X	X
5	TP4 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34504		X				
6	TP5 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34505		X				
7	TP6 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34506		X				
8	SS1	Oct 19, 2020		Soil	S20-Oc34628	X				X	X
9	SS2	Oct 19, 2020		Soil	S20-Oc34629			X	X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
10	SS3	Oct 19, 2020		Soil	S20-Oc34630			X	X	X	
11	SS4	Oct 19, 2020		Soil	S20-Oc34631	X				X	X
12	SS5	Oct 19, 2020		Soil	S20-Oc34632	X				X	X
13	SS6	Oct 19, 2020		Soil	S20-Oc34633			X	X	X	
14	TP1 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34634	X			X	X	X
15	TP2 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34635				X	X	X
16	TP3 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34636	X			X	X	X
17	TP1 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34637		X				
18	TP2 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34638		X				
19	TP2 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34639		X				
20	TP3 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34640		X				

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Priority: 5 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

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Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
21	TP3 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34641		X				
22	TP3 1.0-1.1	Oct 19, 2020		Soil	S20-Oc34642		X				
23	TP3 1.2-1.3	Oct 19, 2020		Soil	S20-Oc34643		X				
24	TP4 0.9-1.0	Oct 19, 2020		Soil	S20-Oc34713		X				
25	TP6 1.0-1.1	Oct 19, 2020		Soil	S20-Oc34714		X				
Test Counts						6	12	4	10	13	9

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NC	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	100			70-130	Pass	
4,4'-DDD	%	106			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4,4'-DDE	%	94			70-130	Pass	
4,4'-DDT	%	95			70-130	Pass	
a-BHC	%	102			70-130	Pass	
Aldrin	%	90			70-130	Pass	
b-BHC	%	103			70-130	Pass	
d-BHC	%	100			70-130	Pass	
Dieldrin	%	101			70-130	Pass	
Endosulfan I	%	79			70-130	Pass	
Endosulfan II	%	109			70-130	Pass	
Endosulfan sulphate	%	92			70-130	Pass	
Endrin	%	122			70-130	Pass	
Endrin aldehyde	%	112			70-130	Pass	
Endrin ketone	%	89			70-130	Pass	
g-BHC (Lindane)	%	107			70-130	Pass	
Heptachlor	%	104			70-130	Pass	
Heptachlor epoxide	%	93			70-130	Pass	
Hexachlorobenzene	%	99			70-130	Pass	
Methoxychlor	%	105			70-130	Pass	
Toxaphene	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	107			70-130	Pass	
Dimethoate	%	126			70-130	Pass	
Ethion	%	103			70-130	Pass	
Fenitrothion	%	108			70-130	Pass	
Methyl parathion	%	123			70-130	Pass	
Mevinphos	%	116			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	86			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	95			80-120	Pass	
Copper	%	98			80-120	Pass	
Lead	%	91			80-120	Pass	
Mercury	%	92			80-120	Pass	
Nickel	%	98			80-120	Pass	
Zinc	%	96			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	92			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	71			70-130	Pass	
TRH C6-C10	%	87			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthene			%	88			70-130	Pass	
Acenaphthylene			%	92			70-130	Pass	
Anthracene			%	100			70-130	Pass	
Benz(a)anthracene			%	90			70-130	Pass	
Benzo(a)pyrene			%	86			70-130	Pass	
Benzo(b&j)fluoranthene			%	86			70-130	Pass	
Benzo(g,h,i)perylene			%	91			70-130	Pass	
Benzo(k)fluoranthene			%	87			70-130	Pass	
Chrysene			%	90			70-130	Pass	
Dibenz(a,h)anthracene			%	92			70-130	Pass	
Fluoranthene			%	79			70-130	Pass	
Fluorene			%	102			70-130	Pass	
Indeno(1,2,3-cd)pyrene			%	91			70-130	Pass	
Naphthalene			%	89			70-130	Pass	
Phenanthrene			%	96			70-130	Pass	
Pyrene			%	93			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S20-Oc34501	CP	%	83			75-125	Pass	
Cadmium	S20-Oc34501	CP	%	94			75-125	Pass	
Chromium	S20-Oc34501	CP	%	93			75-125	Pass	
Copper	S20-Oc34501	CP	%	100			75-125	Pass	
Lead	S20-Oc34501	CP	%	87			75-125	Pass	
Mercury	S20-Oc34501	CP	%	93			75-125	Pass	
Nickel	S20-Oc34501	CP	%	95			75-125	Pass	
Zinc	S20-Oc34501	CP	%	90			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S20-Oc34502	CP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S20-Oc34502	CP	%	86			70-130	Pass	
Toluene	S20-Oc34502	CP	%	85			70-130	Pass	
Ethylbenzene	S20-Oc34502	CP	%	82			70-130	Pass	
m&p-Xylenes	S20-Oc34502	CP	%	84			70-130	Pass	
o-Xylene	S20-Oc34502	CP	%	83			70-130	Pass	
Xylenes - Total*	S20-Oc34502	CP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-Oc34502	CP	%	86			70-130	Pass	
TRH C6-C10	S20-Oc34502	CP	%	79			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S20-Oc28419	NCP	%	119			70-130	Pass	
4,4'-DDE	S20-Oc28419	NCP	%	121			70-130	Pass	
a-BHC	S20-Oc28419	NCP	%	124			70-130	Pass	
Aldrin	S20-Oc28419	NCP	%	124			70-130	Pass	
b-BHC	S20-Oc28419	NCP	%	119			70-130	Pass	
Dieldrin	S20-Oc28419	NCP	%	124			70-130	Pass	
Endosulfan I	S20-Oc28419	NCP	%	124			70-130	Pass	
Endosulfan II	S20-Oc28419	NCP	%	120			70-130	Pass	
Endosulfan sulphate	S20-Oc28419	NCP	%	122			70-130	Pass	
Endrin	S20-Oc28419	NCP	%	111			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	S20-Oc28419	NCP	%	93			70-130	Pass	
Endrin ketone	S20-Oc28419	NCP	%	125			70-130	Pass	
g-BHC (Lindane)	S20-Oc28419	NCP	%	125			70-130	Pass	
Heptachlor epoxide	S20-Oc28419	NCP	%	121			70-130	Pass	
Hexachlorobenzene	S20-Oc28419	NCP	%	117			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S20-Oc34500	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S20-Oc34500	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S20-Oc34500	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S20-Oc34500	CP	mg/kg	< 2	< 2	<1	30%	Pass	

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Naled	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S20-Oc34500	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S20-Oc34500	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S20-Oc34500	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	S20-Oc34500	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S20-Oc34500	CP	mg/kg	22	20	11	30%	Pass
Copper	S20-Oc34500	CP	mg/kg	62	58	6.0	30%	Pass
Lead	S20-Oc34500	CP	mg/kg	12	11	11	30%	Pass
Mercury	S20-Oc34500	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S20-Oc34500	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S20-Oc34500	CP	mg/kg	43	41	5.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S20-Oc34500	CP	%	21	20	4.0	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S20-Oc34500	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S20-Oc34501	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan sulphate	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S20-Oc34501	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S20-Oc34501	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S20-Oc34501	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S20-Oc34501	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S20-Oc34501	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S20-Oc34501	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S20-Oc34501	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S20-Oc34501	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S20-Oc34501	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
BTEX				Result 1	Result 2	RPD		
o-Xylene	S20-Oc34501	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S20-Oc34501	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S20-Oc34501	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S20-Oc34501	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Toxaphene	S20-Oc38843	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S20-Oc34634	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	S20-Oc34634	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S20-Oc34634	CP	mg/kg	31	27	12	30%	Pass
Copper	S20-Oc34634	CP	mg/kg	76	72	5.0	30%	Pass
Lead	S20-Oc34634	CP	mg/kg	14	12	13	30%	Pass
Mercury	S20-Oc34634	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S20-Oc34634	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S20-Oc34634	CP	mg/kg	36	36	1.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S20-Oc34634	CP	%	25	26	5.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Qualtest
8 Ironbark Close
Warabrook
NSW 2304



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025-Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Emma Coleman
Report 751766-AID
Project Name ADW JOHNSON
Project ID NEW20P-0141
Received Date Oct 19, 2020
Date Reported Oct 26, 2020

Methodology:

Asbestos Fibre
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestos-
 containing material
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name ADW JOHNSON
Project ID NEW20P-0141
Date Sampled Oct 19, 2020
Report 751766-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP6 0.0-0.1	20-Oc34502	Oct 19, 2020	Approximate Sample 215g Sample consisted of: Brown coarse-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SS1	20-Oc34628	Oct 19, 2020	Approximate Sample 71g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SS4	20-Oc34631	Oct 19, 2020	Approximate Sample 34g Sample consisted of: Brown coarse-grained sandy soil and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
SS5	20-Oc34632	Oct 19, 2020	Approximate Sample 39g Sample consisted of: Brown coarse-grained sandy soil	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP1 0.0-0.1	20-Oc34634	Oct 19, 2020	Approximate Sample 57g Sample consisted of: Brown coarse-grained sandy soil and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP3 0.0-0.1	20-Oc34636	Oct 19, 2020	Approximate Sample 58g Sample consisted of: Brown coarse-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description

Asbestos - LTM-ASB-8020

Testing Site

Sydney

Extracted

Oct 20, 2020

Holding Time

Indefinite

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448

New Zealand

Auckland
35 O'Rourke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

Company Name: Qualtest
Address: 8 Ironbark Close
Warabrook
NSW 2304

Project Name: ADW JOHNSON
Project ID: NEW20P-0141

Order No.:
Report #: 751766
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Oct 19, 2020 2:40 PM
Due: Oct 26, 2020
Priority: 5 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B14: OCP/OPP	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
1	TP4 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34500			X	X	X	
2	TP5 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34501				X	X	X
3	TP6 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34502	X			X	X	X
4	D.19.10.20	Oct 19, 2020		Soil	S20-Oc34503				X	X	X
5	TP4 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34504		X				
6	TP5 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34505		X				
7	TP6 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34506		X				
8	SS1	Oct 19, 2020		Soil	S20-Oc34628	X				X	X
9	SS2	Oct 19, 2020		Soil	S20-Oc34629			X	X	X	

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
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Rolleston, Christchurch 7675
Phone : 0800 856 450
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ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

Company Name: Qualtest
Address: 8 Ironbark Close
Warabrook
NSW 2304

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Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
10	SS3	Oct 19, 2020		Soil	S20-Oc34630			X	X	X	
11	SS4	Oct 19, 2020		Soil	S20-Oc34631	X				X	X
12	SS5	Oct 19, 2020		Soil	S20-Oc34632	X				X	X
13	SS6	Oct 19, 2020		Soil	S20-Oc34633			X	X	X	
14	TP1 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34634	X			X	X	X
15	TP2 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34635				X	X	X
16	TP3 0.0-0.1	Oct 19, 2020		Soil	S20-Oc34636	X			X	X	X
17	TP1 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34637		X				
18	TP2 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34638		X				
19	TP2 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34639		X				
20	TP3 0.5-0.6	Oct 19, 2020		Soil	S20-Oc34640		X				

Australia

Melbourne

6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
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Sydney

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Company Name: Qualtest
Address: 8 Ironbark Close
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Project Name: ADW JOHNSON
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Order No.:
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Received: Oct 19, 2020 2:40 PM
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Priority: 5 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Suite B14: OCP/OPP	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Mayfield Laboratory											
External Laboratory											
21	TP3 0.6-0.7	Oct 19, 2020		Soil	S20-Oc34641		X				
22	TP3 1.0-1.1	Oct 19, 2020		Soil	S20-Oc34642		X				
23	TP3 1.2-1.3	Oct 19, 2020		Soil	S20-Oc34643		X				
24	TP4 0.9-1.0	Oct 19, 2020		Soil	S20-Oc34713		X				
25	TP6 1.0-1.1	Oct 19, 2020		Soil	S20-Oc34714		X				
Test Counts						6	12	4	10	13	9

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to "non-bonded / friable".
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

S20-Oc34628, S20-Oc34631, S20-Oc34631, S20-Oc34632, S20-Oc34634, S20-Oc34636: The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayed Abu Senior Analyst-Asbestos (NSW)

Authorised by:

Chamath JHM Annakkage Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

Work Order : **ES2036912**
Client : **QUALTEST LABORATORY(NSW) PTY LTD**
Contact : LIBBY BETZ
Address : 8 IRONBARK CLOSE WARABROOK
 NEW SOUTH WALES 4053
Telephone : 02 4968 4468
Project : NEW20P-0141 ADW Johnson
Order number : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : EN/333
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 7
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555
Date Samples Received : 21-Oct-2020 13:00
Date Analysis Commenced : 23-Oct-2020
Issue Date : 29-Oct-2020 09:48



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. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	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), Dibenzo(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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above 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.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T.19.10.20	----	----	----	----
Client sampling date / time				19-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2036912-001	-----	-----	-----	-----
Result				----	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.1	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	40	----	----	----	----
Copper	7440-50-8	5	mg/kg	87	----	----	----	----
Lead	7439-92-1	5	mg/kg	12	----	----	----	----
Nickel	7440-02-0	2	mg/kg	2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	32	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T.19.10.20	----	----	----	----
Client sampling date / time					19-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2036912-001	-----	-----	-----	-----
				Result	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5	0.05	mg/kg		<0.05	----	----	----	----
	0-2								
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T.19.10.20	----	----	----	----
Client sampling date / time					19-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2036912-001	-----	-----	-----	-----
				Result	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T.19.10.20	----	----	----	----
				Client sampling date / time	19-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2036912-001	-----	-----	-----	-----
				Result	----	----	----	----	----
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		86.1	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		63.7	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		84.7	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		87.4	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		72.4	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.6	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		103	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		94.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		92.9	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		90.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		97.0	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
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

QUALITY CONTROL REPORT

Work Order	: ES2036912	Page	: 1 of 10
Client	: QUALTEST LABORATORY(NSW) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: LIBBY BETZ	Contact	: Customer Services ES
Address	: 8 IRONBARK CLOSE WARABROOK NEW SOUTH WALES 4053	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4968 4468	Telephone	: +61-2-8784 8555
Project	: NEW20P-0141 ADW Johnson	Date Samples Received	: 21-Oct-2020
Order number	: ----	Date Analysis Commenced	: 23-Oct-2020
C-O-C number	: ----	Issue Date	: 29-Oct-2020
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		



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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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	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

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**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3327113)									
ES2036912-001	T.19.10.20	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	40	35	11.5	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	87	80	9.08	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	29	8.22	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3327115)									
ES2036912-001	T.19.10.20	EA055: Moisture Content	----	0.1	%	25.1	23.9	4.66	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3327112)									
ES2036912-001	T.19.10.20	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3327258)									
ES2036997-008	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3322758) - continued									
ES2036997-008	Anonymous	EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
ES2036997-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3322758)									
ES2036997-008	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3322758) - continued									
ES2036997-008	Anonymous	EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2036997-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3322757)							
ES2036997-008	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
		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



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3322757) - continued									
ES2036997-008	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		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
ES2036997-001	Anonymous	EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 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
		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	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		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: 3322756)									
ES2036997-008	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
ES2036997-001	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 Petroleum Hydrocarbons (QC Lot: 3324700)									
ES2036912-001	T.19.10.20	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2036997-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit

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 Work Order : ES2036912
 Client : QUALTEST LABORATORY(NSW) PTY LTD
 Project : NEW20P-0141 ADW Johnson



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3322756)									
ES2036997-008	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
ES2036997-001	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3324700)									
ES2036912-001	T.19.10.20	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2036997-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 3324700)									
ES2036912-001	T.19.10.20	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	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		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
ES2036997-005	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	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		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 Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (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**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3327113)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	95.1	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	106	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	95.2	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	98.7	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.1 mg/kg	92.7	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	90.5	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	76.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3327112)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	73.7	70.0	105
EP068A: Organochlorine Pesticides (OC) (QCLot: 3322758)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	66.0	116
EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.0	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	69.0	115
EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	62.0	124
EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	95.1	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	86.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3322758)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	62.0	128



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3322758) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	74.9	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	90.6	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3322757)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.5	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	100	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.7	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.7	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.6	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	100	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	92.7	68.0	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	86.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	90.3	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	80.5	61.0	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	77.1	62.0	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	76.5	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3322756)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	104	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.9	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	95.9	71.0	129



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324700)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.8	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3322756)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	99.8	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	80.9	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3324700)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.4	68.4	128
EP080: BTEXN (QCLot: 3324700)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	104	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	103	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	107	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	106	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.4	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				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3327113)							
ES2036912-001	T.19.10.20	EG005T: Arsenic	7440-38-2	50 mg/kg	97.8	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	77.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.1	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.9	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3327112)							
ES2036912-001	T.19.10.20	EG035T: Mercury	7439-97-6	5 mg/kg	83.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3322758)							
ES2036997-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	72.6	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.5	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	85.6	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	84.6	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3322758) - continued							
ES2036997-001	Anonymous	EP068: Endrin	72-20-8	2 mg/kg	84.8	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	104	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3322758)							
ES2036997-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	74.1	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.0	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	89.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	81.4	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	78.0	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3322757)							
ES2036997-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.8	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	101	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3322756)							
ES2036997-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	86.5	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	112	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	125	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3324700)							
ES2036912-001	T.19.10.20	EP080: C6 - C9 Fraction	----	32.5 mg/kg	110	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3322756)							
ES2036997-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	115	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	130	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3324700)							
ES2036912-001	T.19.10.20	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70.0	130
EP080: BTEXN (QCLot: 3324700)							
ES2036912-001	T.19.10.20	EP080: Benzene	71-43-2	2.5 mg/kg	104	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	101	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	105	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	111	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	84.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2036912	Page	: 1 of 4
Client	: QUALTEST LABORATORY(NSW) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: LIBBY BETZ	Telephone	: +61-2-8784 8555
Project	: NEW20P-0141 ADW Johnson	Date Samples Received	: 21-Oct-2020
Site	: ----	Issue Date	: 29-Oct-2020
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **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	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) T.19.10.20	19-Oct-2020	----	----	----	26-Oct-2020	02-Nov-2020	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) T.19.10.20	19-Oct-2020	26-Oct-2020	17-Apr-2021	✓	26-Oct-2020	17-Apr-2021	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) T.19.10.20	19-Oct-2020	26-Oct-2020	16-Nov-2020	✓	26-Oct-2020	16-Nov-2020	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	26-Oct-2020	02-Dec-2020	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	26-Oct-2020	02-Dec-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	26-Oct-2020	02-Dec-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	26-Oct-2020	02-Dec-2020	✓
Soil Glass Jar - Unpreserved (EP080) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	27-Oct-2020	02-Nov-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	26-Oct-2020	02-Dec-2020	✓
Soil Glass Jar - Unpreserved (EP080) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	27-Oct-2020	02-Nov-2020	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) T.19.10.20	19-Oct-2020	23-Oct-2020	02-Nov-2020	✓	27-Oct-2020	02-Nov-2020	✓



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	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	13.33	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	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	6.67	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	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	6.67	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	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	6.67	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).
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 (SnCl ₂) (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 SnCl ₂ 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)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM 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, Na ₂ SO ₄ 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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2036912

<p>Client : QUALTEST LABORATORY(NSW) PTY LTD</p> <p>Contact : LIBBY BETZ</p> <p>Address : 8 IRONBARK CLOSE WARABROOK NEW SOUTH WALES 4053</p> <p>E-mail : libbybetz@qualtest.com.au</p> <p>Telephone : 02 4968 4468</p> <p>Facsimile : 02 4960 9775</p> <p>Project : NEW20P-0141 ADW Johnson</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler :</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Customer Services ES</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p> <p>E-mail : ALSEnviro.Sydney@ALSGlobal.com</p> <p>Telephone : +61-2-8784 8555</p> <p>Facsimile : +61-2-8784 8500</p> <p>Page : 1 of 2</p> <p>Quote number : EN2018QUATES0001 (EN/333)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
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Dates

<p>Date Samples Received : 21-Oct-2020 13:00</p> <p>Client Requested Due Date : 28-Oct-2020</p>	<p>Issue Date : 22-Oct-2020</p> <p>Scheduled Reporting Date : 28-Oct-2020</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1</p> <p>Receipt Detail :</p>	<p>Security Seal : Not Available</p> <p>Temperature : 12.5°C - Ice Bricks present</p> <p>No. of samples received / analysed : 1 / 1</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- ### Summary of Sample(s) and Requested Analysis

Matrix: SOIL

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - E Moisture	SOIL - S OC/OP	SOIL - S 8 metals
ES2036912-001	19-Oct-2020 00:00	T.19.10.20	✓	✓	✓

Sample(s) have been received within the recommended holding times for the requested analysis.

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