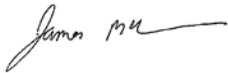


DETAILED CONTAMINATION ASSESSMENT (revision 3)

30 Swan St, Morpeth NSW

7 September 2015

Prepared by



James McMahon

Principal Environmental Scientist

EXECUTIVE SUMMARY

This report presents the findings of a Detailed Contamination Assessment (DCA) undertaken by JM Environments (JME) for Detailed Contamination Assessment (the assessment) for the subdivision of 30 Swan St, Morpeth NSW (the site), as shown in Figure 1. The site is identified as Lot 3 DP 237264 and is approximately 7,900m².

It was understood that the previous land use of the site was a railway corridor and terminus and is currently used as rural residential land use. It is proposed to rezone the site for residential land use. JME has conducted a Preliminary Contamination Assessment which concluded that the site was potentially contaminated from its previous land use. Based on that conclusion Maitland City Council (MCC) required a Detailed Contamination Assessment from a contaminated land consultant to determine if the site is suitable or can be made suitable with appropriate remediation.

The objectives were to:

- assess Areas of Environmental Concern (AEC's) and Chemicals of Concern (COC's) for the site; and
- provide recommendations on further assessment or remediation, if considered necessary;

In order to achieve the above objectives, the following scope of work was undertaken:

- review of the previous contamination assessment;
- Field Investigations;
- Laboratory Testing; and
- Preparation of this DCA report.

Based on the review of the previous contamination assessment, field observations and laboratory testing, the site is not considered suitable for residential land use do to:

- potential human exposure to arsenic at more 2.5x the human health criterion;
- potential environmental exposure of BaP at more than 2.5 times the ecological criteria; and
- the unsatisfactory aesthetic nature of the fill.

It is JME opinion that the site can be made suitable for residential land use following remediation of the site. The remediation is likely to comprise a combination of excavation and capping of hotspots/aesthetic impacts. It is recommended that a remediation action plan is developed to guide the remedial action.

Further to this, the site is zoned rural land use for which there are no relevant guidelines. The site was well grassed with no visible signs of erosion. There was limited opportunity for surface water run on as up gradient stormwater is collected by kerb and guttering. The site is underlain with alluvial clays making groundwater contamination unlikely. On this basis, JME does not consider that the current site condition triggers the duty to report legislation.

RECORD OF DISTRIBUTION

No. of copies	Report File Name	Report Status	Date	Distributed to:	Initials
1	ME4079 -Swan Street Morpeth Detailed Contamination Assessment	Final	4 December 2014	PCB Surveyors	MD
1	ME4079 -Swan Street Morpeth Detailed Contamination Assessment	Revision 1	29 June 2015	PCB Surveyors	MD
1	ME4079 -Swan Street Morpeth Detailed Contamination Assessment	Revision 2	21 July 2015	PCB Surveyors	MD
1	ME4079 -Swan Street Morpeth Detailed Contamination Assessment	Revision 3	7 September 2015	PCB Surveyors	MD

Revision 1: Additional information and interpretation in the following Sections for clarity:

Section 1: Changed the proposal from “subdivision” to “rezone”

Section 4: Comment on PID results.

Section 5.3.2: Additional BaP and Zinc results.

Section 6: Further commentary and discussion.

Figure 4: Delineation Test Pits

Figure 5: Zinc Background Locations

Revision 2: Additional sampling along former railway track footprint to assess arsenic and asbestos contamination.

Revision 3: Comment regarding “Duty to Report” added to Section 7. Proposed Lot boundaries added to Figures 3 and 4. Figure 5 added.

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1 INTRODUCTION

1.1 General

This report presents the findings of a Detailed Contamination Assessment (DCA) undertaken by JM Environments (JME) for Detailed Contamination Assessment (the assessment) for the subdivision of 30 Swan St, Morpeth NSW (the site), as shown in Figure 1. The site is identified as Lot 3 DP 237264 and is approximately 7,900m².

The work was commissioned by Pulver Cooper and Blackley Pty Ltd (PCB) on behalf of Mr Hilary Lantry in response to a JME proposal (Reference JME4079 – Fee Proposal Detailed Contamination Assessment 30 Swan St Morpeth NSW (dated 15 September 2014). It was understood that the previous land use of the site was a railway corridor and terminus and is currently used as rural residential land use.

It is proposed to rezone the site from rural to residential land use. JME has conducted a Preliminary Contamination Assessment which concluded that the site was potentially contaminated from its previous land use. Based on that conclusion Maitland City Council (MCC) requires a Detailed Contamination Assessment from a contaminated land consultant to determine if the site is suitable or can be made suitable with appropriate remediation as part of the DA submission.

1.2 Objectives

The objectives were to:

- assess Areas of Environmental Concern (AEC's) and Chemicals of Concern (COC's) for the site; and
- provide recommendations on further assessment or remediation, if considered necessary;

1.3 Scope of Work

In order to achieve the above objectives, the following scope of work was undertaken:

- review of the previous contamination assessment;
- Field Investigations;
- Laboratory Testing; and
- Preparation of this DCA report.

2 SITE DESCRIPTION

2.1 Site Location and Identification

General site information is provided below in Table 1.

TABLE 1 – SUMMARY OF SITE DETAILS

SITE ADDRESS:	The site is located at 30 Swan Street, Morpeth NSW as shown in Figure 1.
----------------------	--

SITE AREA:	Approximately 7,900m ² .
SITE IDENTIFICATION	Lot 3 DP237264 within the Local Government area of Maitland, Parish of Alnwick, County of Northumberland.
CURRENT LANDUSE:	Rural residential.
PROPOSED LANDUSE:	The proposed land use for the site is residential.
ADJOINING SITE USES:	Residential land use south and west of the site; Rural land use north and east of the site
SITE COORDINATES	Easting 372105, Northing 6378481

3 Previous Contamination Assessment

3.1 Review of Previous Contamination Assessment

A review of the Preliminary Contamination Assessment (PCA) undertaken by JM Environments (JME) for the site. The objectives of this PCA were to:

- identify potentially contaminating activities that are currently being performed on the site and that may have been performed on the site in the past;
- assess Areas of Environmental Concern (AEC's) and Chemicals of Concern (COC's) for the site; and
- provide recommendations on further assessment or remediation, if considered necessary.

In order to meet the objectives the following scope of works was undertaken:

- desktop study;
- a site walkover;
- review and collation of the above information and identification of potential Areas of Environmental Concern (AECs) and potential Chemicals of Concern (COCs);
- preparation of the PCA report.

Based on the information gained from the desk stop study it was considered that the site has been potentially contaminated from past activities on site. It was recommended that a detailed contamination site assessment which includes soil sampling and analysis is undertaken to further assess the potential contamination of the site.

It was assumed that rezoning the site for residential land use would result in single/double storey residential developments. Hence the disturbance of the soil 2m below the surface was considered unlikely into the future. Therefore further assessment of acid sulfate soils was not considered necessary.

The sites topography, drainage, geology and hydrogeology were also discussed and summarised below.

The site was relatively flat and less than 10m above sea level. Stormwater from site would drain into the paddock immediately north of the site. It is expected that the local stormwater would discharge into the Hunter River approximately 160m north of site.

The site was underlain by the Narrabeen Group (Clifton Sub-Group) from the Triassic period. The Clifton Sub-Group was described as claystone, sandstone and shale.

The site was underlain by Quaternary soils made up of gravel, sand, silt, clay “waterloo rock” (aka indurated sand or “coffee rock”), marine and freshwater deposits. There were no registered bores within a 1 kilometre radius of the Site.

It was anticipated that groundwater will be located between 2mbgs and 6mbgs of site and flow north towards the Hunter River.

The site was located on the border of Class 4 and Class 5 acid sulfate areas. Class 4 areas require an acid sulfate soil assessment be conducted for works beyond 2 metres below natural ground surface or works by which the watertable is likely to be lowered beyond 2 metres below natural ground surface. Class 5 areas require an acid sulfate soil assessment for works within 500 metres of adjacent Class 1, 2, 3, or 4 land which are likely to lower the watertable below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land.

Table 2 Areas of Concern and Chemicals of Concern

AEC	POTENTIAL CONTAMINATING ACTIVITY	POTENTIAL COCS	LIKELIHOOD OF CONTAMINATION *	COMMENT
1. Entire site	Former use as a train terminal. Uncontrolled filling across site.	Metals,TPH, PAH, BTEX,OCPs, OPPs, PCBs Metals, and Asbestos	Medium	Contamination, if any, from train use would be from the surface down. Fill of unknown origin and quality used to level the line.
2. Former engine shed	Maintenance of steam engine	TPH, PAH, BTEX, Metals, and Asbestos (brakes)	Medium-low	Contamination, if it existed would located in the upper soils.
Passenger station	Weathering and demolition of hazardous building materials	Zinc, lead and asbestos.	low	Asbestos contamination risk is considered to be low as buildings were likely to be constructed prior to asbestos use in building products.

NOTES:

* = It is important to note that this is not an assessment of the financial risk associated with the AEC in the event contamination is detected, but a qualitative assessment of the probability of contamination being detected at the potential AEC.

Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; TPH - Total Petroleum Hydrocarbons; PAH - Polycyclic Aromatic Hydrocarbons; OCP - Organochlorine Pesticides; OPP – Organophosphorus Pesticides

4 FIELD INVESTIGATION

4.1 Field Investigation

The chemical contamination investigation programme was conducted in accordance with the SAQP (See Appendix A). Investigative sampling was conducted on 2 October and 17 November 2014 and 11 July 2015. Soil sampling was conducted using an excavator on October 2. A hand auger was used to collect zinc background samples along Swan Street on 17 November and delineation samples on July 11. The samples were collected from the centre of the excavator bucket or directly from the hand auger. A clean pair of disposable gloves was used when collecting each sample. Each sample was placed into a laboratory-supplied, acid-rinsed 250mL glass jar, labelled with a unique identification number and placed in an ice-chilled cooler box. A second portion was collected during sampling on 2 October and placed into a ziplock bag. The ziplock was stood for approximately 15 minutes and the headspace was field screened for volatiles using a photoionisation detector (PID). The PID results are included on the logs. The PID ranged from 0-70ppm indicating that there was no significant concentrations of volatile organic compounds present in the samples that were screened. Potential asbestos containing materials (ACM) were collected from TP1 at 0.5m below ground surface (bgs), TP9 at 0.4mbgs and TP10 at 0.3mbgs. The ACM fragments were placed in ziplock bags.

The sample locations on the western portion of site are shown in Figure 3. The sample locations from the eastern portion of site are shown in Figure 4. The testpit logs are located in Appendix B.

4.2 Field Quality Assurance/ Quality Control

During the soil investigations, 58 primary samples were collected. In addition, six field duplicates and two field triplicates were collected and analysed with their respective primary samples to check whether the sampling and laboratory procedures adequately reproduced results. A trip BTEX spike was prepared by the laboratory and was present on site during the sampling process on October 2 and accompanied the collected samples to the laboratory to assess the potential for the loss of volatile contaminants during the trip to the laboratory.

Soil QA/QC results are presented in Summary Table 1.

Samples were kept on ice prior to transport and kept cool using ice brick during transport. One batch of soil was dispatched to the laboratory. The batches were received by the primary laboratory at temperature of 4°C. The batch was received and analysed within relevant analytical holding times.

A review of the QA/QC indicated that the relative percentage differences (RPD) of analytes for soil were within the acceptance criterion for duplicate and triplicate analysis set out in the SAQP with the exception of:

- primary sample TP1 0.0-0.1 and triplicate pair QC1A-Lead - 53%; and
- primary sample HA17 and duplicate pair QC7- arsenic – 73%.

Considering the majority of the %RPD were within the acceptance criteria, the %RPD exceedances are likely to reflect the heterogeneous nature of the contamination.

The trip spike recoveries were within acceptable limits indicating that the loss of volatile contaminants during the transport of the samples was not significant.

The laboratory internal data quality objectives (DQO) of each batch were reviewed. The DQOs were met with the exceptions of:

- 6 individual PAH duplicate's RPD were outside the laboratories acceptance criteria. The laboratory attributed these to heterogeneity of the samples. However notes the RPD were 76%, 26%, 26%, 20%, 20% and 20%. The 76% RPD was for an analyte that was detected just above the limit of reporting. In all, these RPDs are not considered to significantly affect the representative nature of the lab results.
- The matrix spike recovery for lead (sample TP7 0.8-0.9) was 140%. The laboratory attributed this to the relatively high concentration of lead in the sample compared to the spike concentration.
- The matrix spike recovery for arsenic (sample HLHA09) was 28%. The laboratory attributed this to the relatively high concentration of arsenic in the sample compared to the spike concentration.

Based on the review of QA/QC results it is considered that the analytical results are indicative of the contamination status of the site at the time of sampling.

5 RESULTS

5.1 FIELD RESULTS

5.1.1 Testpitting

Eighteen test pits were excavated across the site using an excavator on 2 October 2014. The testpit logs are located in Appendix B. The results of test pitting indicates that the northern half of the site of the site contains a variety of fill. Testpits TP1-TP3 were located in the northern eastern corner of site. The fill in these test pits contained significant amounts of red and grey ash and charcoal with some coal (See Photo 1) with depths ranging from 1-1.6mbgs.



Photo 1: Red and Grey Ash excavated from TP1 **Photo 2:** Sandstone cobbles in TP5

Testpits TP4-8, located along the northern boundary of site, contained significant amounts of sandstone cobbles and boulders (see Photo2) at depths ranging from 0.5-1.4mbgs. Test pits TP 9-11 and TP14, located on the central eastern portion of site, contained fill comprised primarily of dark grey gravelly sand and sand with trace amounts of brick rubble and metal pieces. Fragments of ACM were also located in testpits TP9 and TP10. Testpits TP12 and TP13, located centrally on the western portion of site, were typified by containing slabs of sandstone (TP12, See Photo3) and concrete (TP13).

Test pits TP15-18 were excavated along the southern boundary of site. These test pits indicate that the southern portion of site has not been filled however some anthropogenic objects e.g. small fragments of broken china indicates the topsoil has been disturbed.

In general the fill/topsoil on site is underlain by a stiff to very stiff dark grey/black alluvial clay.



Photo3: Sandstone slab in TP12.

5.2 LABORATORY ANALYSIS

Laboratory analysis was carried out by SGS Australia, Sydney, and Envirolab Pty Ltd, (Envirolab) Sydney, which are National Association of Testing Authorities (NATA) accredited laboratories for the analyses requested. The laboratory analytical reports are presented in Appendix C and summarised in Summary Table 1 (attached).

5.3 CONTAMINATION ASSESSMENT OF SOILS

5.3.1 Soil Investigation Levels

The rationale for the soil investigation levels (ILs) for the proposed residential land uses is set out in Section 10.3.2 of the SAQP. (Appendix A).

5.3.2 Comparison of Soil Analytical Results with Soil Investigation Levels

In the NEPM, the preferred approach is to examine a range of summary statistics including the contaminant range, median, arithmetic/geometric mean, standard deviation and 95% upper confidence limit (UCL).

The NEPM recommends, at the very least, the maximum and the 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.

Concentrations of BTEX, OCP, OPP, PCB were not detected above the laboratory reporting limit in the samples analysed. Concentrations of TRH, PAH, cadmium, chromium, nickel and mercury were not detected above the adopted ILs in the samples analysed. Hence these potential contaminants can be removed from the conceptual site model.

BaP was detected above the adopted IL (0.7mg/kg) in the samples collected from TP5 0.1-0.2 (1.2mg/kg), TP11 0.2-0.3 (0.8mg/kg), TP13 0.1-0.2 (1.4mg/kg) TP15 0.1-0.2 (1.8mg/kg), TP10 0.1-0.2 (0.9mg/kg), TP9 0.1-0.2 (1.2mg/kg) and TP18 1.0-0.2 (2.3mg/kg). The UCL was calculated for BaP following the removal of TP15 0.1-0.2 and TP18 1.0-0.2 from the data set as their concentration were greater than 250% of the IL. The UCL for BaP was 0.6mg/kg.

BaP-TEQ was detected above the adopted IL (3mg/kg) in the sample collected from TP18 1.0-0.2 (3.3mg/kg). The UCL was calculated for BaP-TEQ to be 1.2mg/kg.

Arsenic was detected above the adopted IL (100mg/kg) in the sample collected from TP4 0.1-0.2 (340 mg/kg), TP6 0.0-0.1 (120mg/kg), TP7 0.0-0.1 (200mg/kg), TP8 0.1-0.2 (120mg/kg), HLHA9 (330mg/kg), HLHA10 (140mg/kg), HLHA11 (180mg/kg), HLHA13 (220mg/kg) and HLHA14 (110mg/kg). The arsenic detected exceeded both the adopted HIL and EIL at these locations. The UCL was calculated for arsenic following the removal of TP4 0.1-0.2 and HLHA9 from the data set as their concentrations were greater than 250% of the IL. The UCL for arsenic in surface samples was 110mg/kg.

Copper was detected above the adopted IL (60mg/kg) in the sample collected from TP4 0.1-0.2 (120mg/kg), TP6 0.0-0.1 (61mg/kg), TP7 0.0-0.1 (75mg/kg) and TP13 0.1-0.2 (66mg/kg). The UCL for copper was calculated to be 44mg/kg.

Lead was detected above the adopted IL (300mg/kg) in the sample collected from TP13 0.1-0.2 (400mg/kg) and TP18 1.0-0.2 (550mg/kg). The UCL for lead was calculated to be 44mg/kg.

Zinc was detected above the adopted IL (195mg/kg) at locations TP2 0.0-0.1 (350mg/kg), TP15 0.4-0.5 (200mg/kg), TP9 0.1-0.2 (310mg/kg), TP10 0.1-0.2 (200mg/kg), TP13 0.1-0.2 (330mg/kg) and TP18 1.0-0.2 (520mg/kg). The UCL was calculated for zinc following the removal of TP18 0.1-0.2 from the data set as its concentration was greater than 250% of the IL. The UCL for zinc was 150mg/kg.

Five surface samples were collected along Swan Street to assess the zinc background concentration for Swan Street. The zinc concentrations ranged between 99mg/kg-1,100mg/kg with an average concentration of 570 mg/kg.

5.3.3 Asbestos

Potential ACM fragments were collected from three test pits, TP1, TP9 and TP10. Laboratory analysis confirmed the presence of asbestos in each of the fragments. A sample of surface soil was collected from TP2, HLHA9, HLHA10, HLHA13 and HLHA14 and analysed for presence of asbestos. No asbestos was detected.

5.3.4 Soil Aesthetics

Aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. The NEPM recommends that caution should be used for assessing sensitive land uses, such as residential, when large quantities of various fill types and demolition rubble are present. Test pitting of site indicates that the site is aesthetically impacted by the presence of large quantities of various types of shallow fill in the former railway track footprint.

6 DISCUSSION

Based on the historical review it appears the site was likely to be contaminated from its past land use as a train station/terminal. It is understood from the site history that there has been little or no cutting or filling of the site since the train line had been removed.

Test pitting of the site indicated that it had been filled with various materials including but not limited to ash, sandstone cobbles, boulders and slabs, concrete and brick. The grey and red ash located in the north eastern corner of site probably resulted from cleaning out the coal fired furnace of the steam trains that used the line. The grey and red ash presents as a claystone gravelly material and the laboratory testing indicates that the ash is not significantly contaminated. It is possible that the fill along the northern boundary was placed as part of the rail line construction.

The UCL95 for the surface arsenic concentrations was 110mg/kg and arsenic detection Delineation of the arsenic contamination was attempted in fieldwork undertaken on 17 November 2014 (test pitting) and 11 July 2015 (hand auger). Two samples were collected from each test pit. Concentrations of arsenic in samples collected from the upper soil profile (0.1-0.3mbgs) in the test pits ranged from 22mg/kg-1,000mg/kg. Soil samples collected from depth (0.8-1.3mbgs) in the test pits had concentrations between 27mg/kg-94mg/kg. Based on the results is considered the arsenic contamination identified in TP4 is delineated to the west by TP5, to the south by TP11, to the east by HLHA18. The delineation test pits are shown in Figure 4. Hand auger samples collected from the western portion of site indicate that the former railway track footprint is also contaminated with arsenic above HIL.

The UCL for zinc, 150mg/kg, was below the adopted IL of 195mg/kg. One sample collected from TP18 marginally exceeded the 250% IL (490mg/kg) at 520mg/kg. It is important to note that that the EIL for zinc was adopted as the IL without consideration of the background concentration of zinc. Soil samples were collected along Swan Street were collected to assess the background zinc concentration. The zinc background hand auger locations are shown in Figure 5. Section 3.4.2 of the NEPM calls for a pragmatic risk-based approach be taken in applying EILs and ESLs in residential land use settings. Given that the samples collected off site from along Swan Street had an average concentration of 570mg/kg, the exceedance of zinc at TP18 is not considered significant, from a pragmatic view point.

BaP-TEQ had one minor exceedance (by 10%) of the HIL at HLTP18 and as such BaP-TEQ (including the subset of compounds that make up BaP-TEQ e.g. BaP) is considered not cause a significant risk to human health.

Asbestos in soil was not detected in the soil samples collected from locations TP2, HLHA9, HLHA10, HLHA13 and HAHL14 indicating that asbestos fibre contamination, if any, from the wearing of train brake pads is not significant.

It is also noted the contamination exceedances were in samples collected at or near the site surface. Therefore some form of remediation would be required to prevent impact on future residential land users or the surrounding environment.

7 CONCLUSIONS and RECOMMENDATIONS

Based on the review of the previous contamination assessment, field observations and laboratory testing, the site is not considered suitable for residential land use do to:

- potential human exposure to arsenic at more than the human health criterion;
- potential environmental exposure of BaP at more than 2.5 times the ecological criteria; and
- the unsatisfactory aesthetic nature of the fill.

It is JME opinion that the site can be made suitable for residential land use following remediation of the site. The remediation is likely to comprise a combination of excavation and

capping of hotspots/aesthetic impacts. It is recommended that a remediation action plan is developed to guide the remedial action.

Further to this, the site is zoned rural land use for which there are no relevant guidelines. The site was well grassed with no visible signs of erosion. There was limited opportunity for surface water run on as up gradient stormwater is collected by kerb and guttering. The site is underlain with alluvial clays making groundwater contamination unlikely. On this basis, JME does not consider that the current site condition triggers the duty to report legislation.

8 LIMITATIONS

The findings within this report are the result of discrete/specific sampling practices used in accordance with normal practices and standards. To the best of our knowledge they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

It is the nature of contaminated site investigations that the degree of variability in site conditions cannot be known completely and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data.

The investigations undertaken were limited by access constraints and are considered to provide an assessment of the likely contamination conditions at the locations sampled.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with JME understanding of the client's brief and general accepted practice for environmental consulting.

This report was prepared for Hilary Lantry with the objective of assessing the presence of contamination on the site that could potentially impact on the use of the property for residential use. No warranty, expressed or implied, is made as to the information and professional advice included in this report. The report is not intended for other parties or other uses. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

Figures



Notes:

1) <https://six.nsw.gov.au/>

2) Subject Site



CLIENT:

Mr H Lantry

PROJECT TITLE: Rezoning Project

30 Swan Street, Morpeth NSW

PROJECT: JME4079

DWG #: 1

REVISION: 1

SCALE: NTS

DATE: 21/03/2014

DESIGNED: JMc

DRAWN: JMc

STATUS: NFC

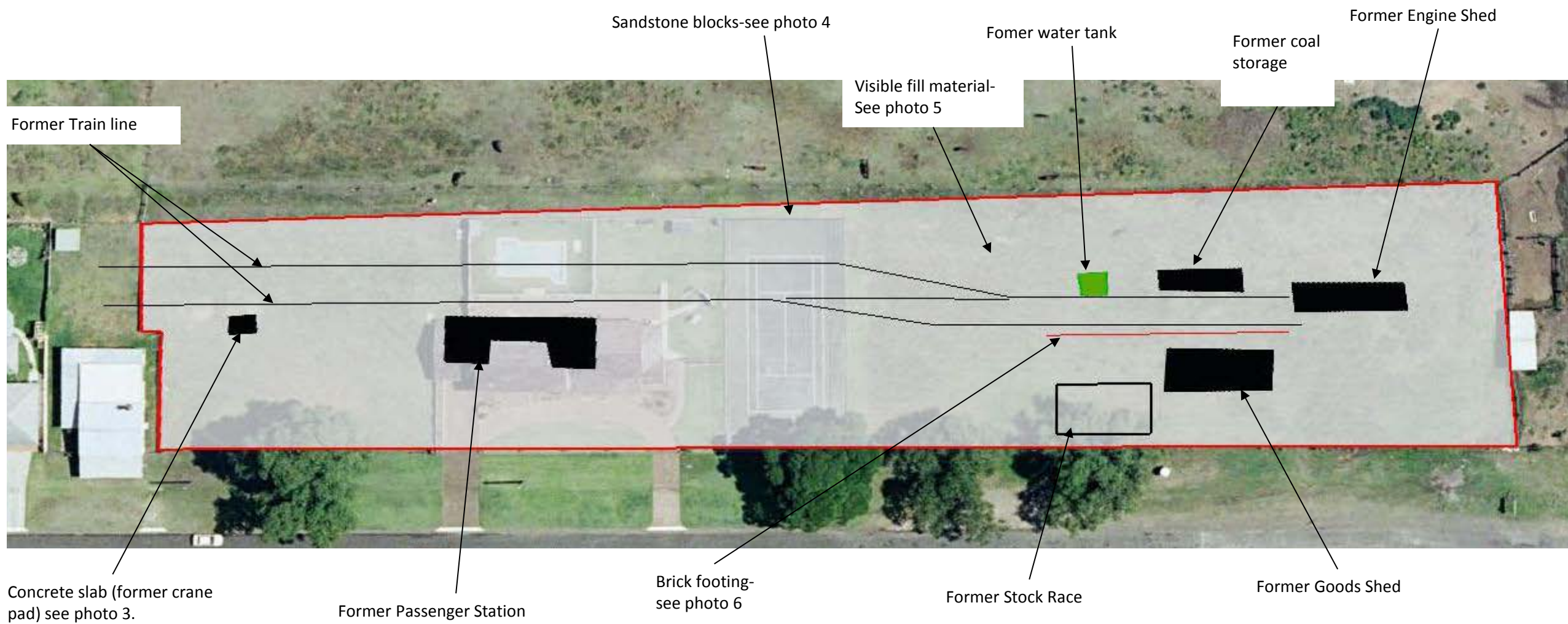
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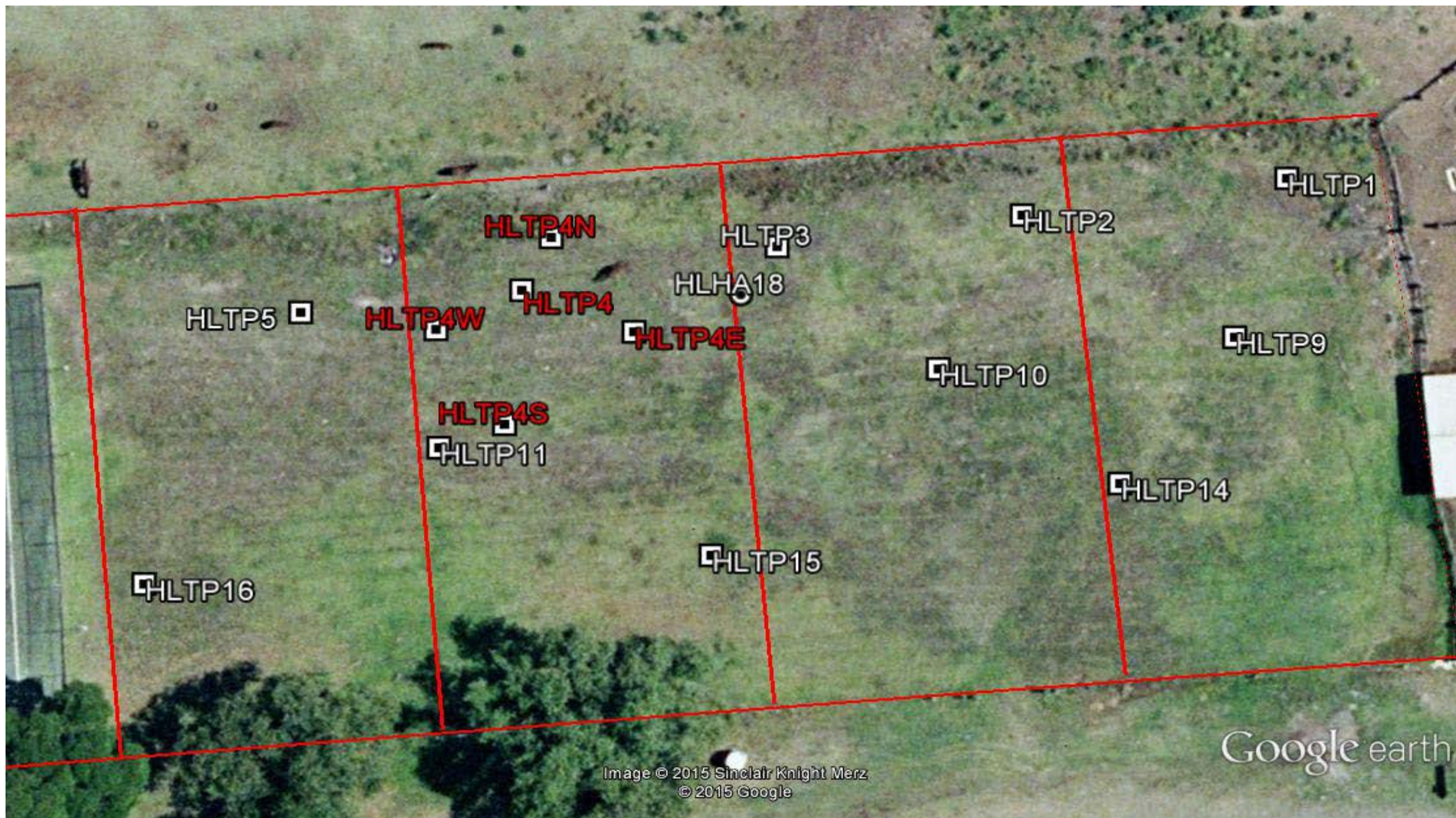
Site Location Plan

FIGURE NUMBER: 1





Notes: 1) Google Earth 2) Subject Site		Client	PROJECT:	JME4079	DESIGNED:	JMc	FIGURE TITLE: Site Features Plan  FIGURE NUMBER: 2
		Mr H Lantry	DWG #:	1	DRAWN:	JMc	
			REVISION:	1	STATUS:	NFC	
	PROJECT TITLE: Rezoning Project 30 Swan Street, Morpeth NSW	SCALE:	NTS				
		DATE:	20/12/2013				



Notes:

- 1) Google Earth 2006
- 2) Subject Site [REDACTED]
- 3) **RED TYPE** indicates arsenic exceedance of HIL



Client:

Mr H Lantry

PROJECT TITLE: **Rezoning Project**

30 Swan Street, Morpeth NSW

PROJECT: JME4079

DWG #: 1

REVISION: 1

SCALE: NTS

DATE: 21/07/2015

DESIGNED: JMc

DRAWN: JMc

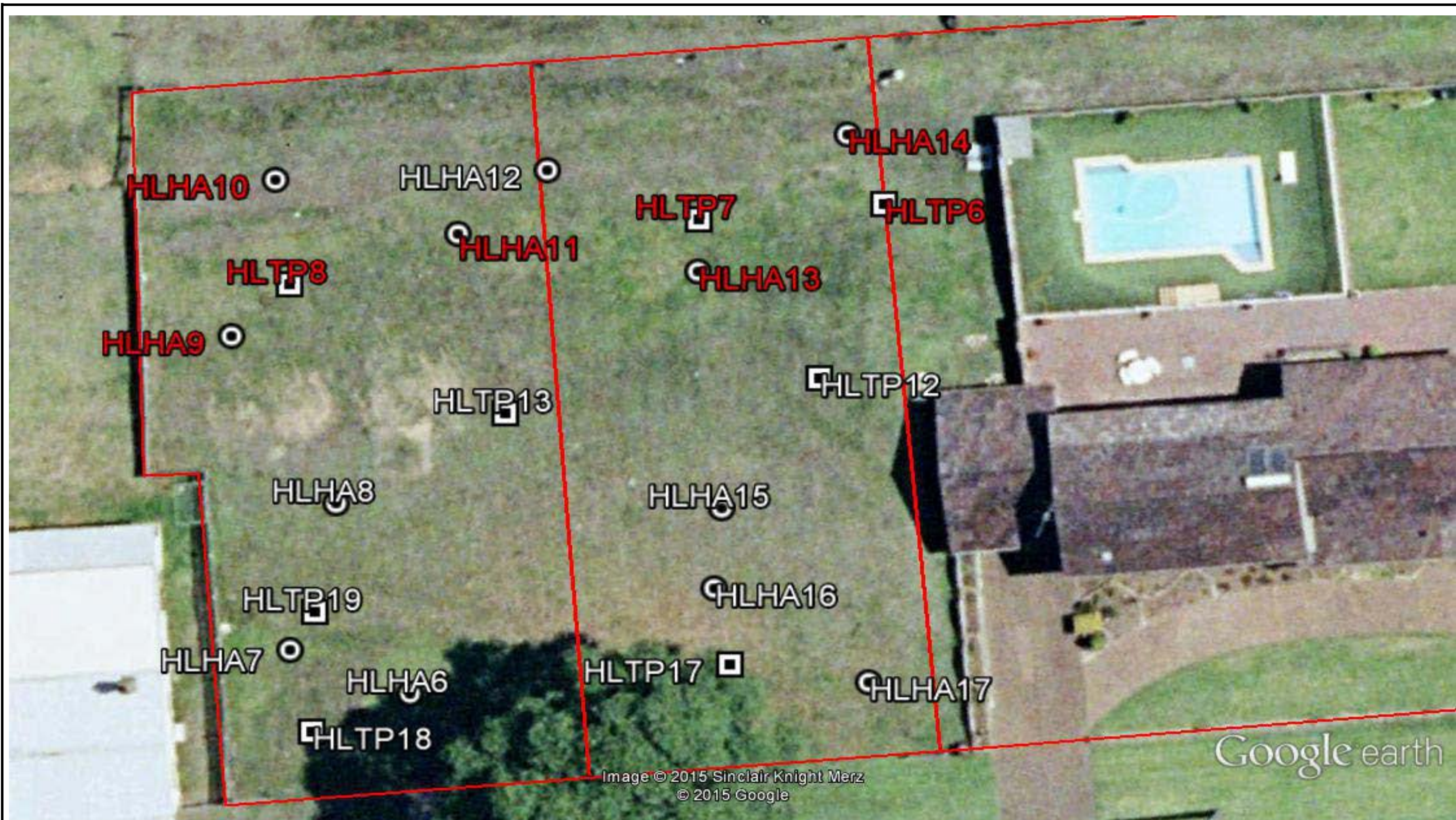
STATUS: NFC

FIGURE TITLE:

**Eastern Portion of Site
Sampling Location Plan**

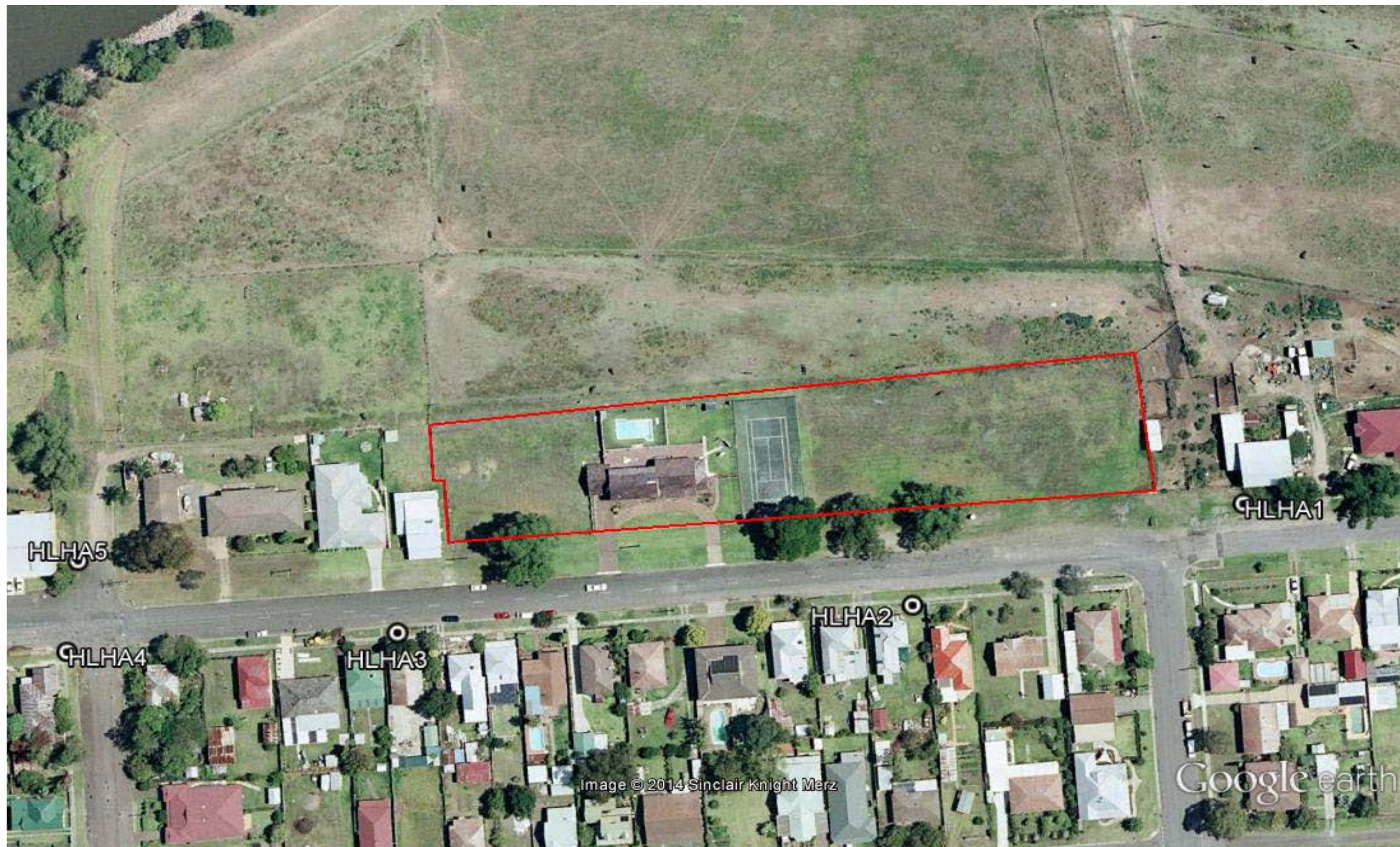
FIGURE NUMBER: **3**





Notes: 1) Google Earth 2006 2) Subject Site  3) RED TYPE indicates arsenic exceedance of HIL		Client: Mr H Lantry	PROJECT:	JME4079	DESIGNED:	JMc	FIGURE TITLE: Western Portion of Site Sampling Location Plan		
			DWG #:	1	DRAWN:	JMc			FIGURE NUMBER: 4
			REVISION:	1	STATUS:	NFC			
	SCALE:	NTS							
	DATE:	4/12/2014							
PROJECT TITLE: Rezoning Project 30 Swan Street, Morpeth NSW									





Notes: 1) Google Earth 2006 2) Subject Site 		Client:	PROJECT:	JME4079	DESIGNED:	JMc	FIGURE TITLE: Offsite Zinc Background Sampling Location Plan		
		Mr H Lantry	DWG #:	1	DRAWN:	JMc			STATUS: NFC
			REVISION:	1					
	PROJECT TITLE: Rezoning Project		SCALE:	NTS				FIGURE NUMBER: 5	
	30 Swan Street, Morpeth NSW		DATE:	4/12/2014					

Summary Tables

		Description			TP1 0.0-0.1	QC1	%	QC1A	%	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1	TP2 1.1-1.2	TP4 0.1-0.2	TP4E 0.1-0.2	TP4E 0.8-0.9
		Sample Date			2/10/2014	2/10/2014	RPD	2/10/2014	RPD	2/10/2014	2/10/2014	2/10/2014	2/10/2014	2/10/2014	17/11/2014	17/11/2014
		Matrix	HIL	EIL	Soil	Soil		Soil		Soil	Material	Soil	Soil	Soil	Soil	Soil
Analyte Name	Units	Reporting Limit			Result	Result		Result		Result	Result	Result	Result	Result	Result	Result
Benzene	mg/kg	0.1	-	65	<0.1	<0.1	0%	<0.2	0%	<0.1	-	<0.1	<0.1	<0.1	-	-
Toluene	mg/kg	0.1	160	105	<0.1	<0.1	0%	<0.5	0%	<0.1	-	<0.1	<0.1	<0.1	-	-
Ethylbenzene	mg/kg	0.1	55	-	<0.1	<0.1	0%	<1	0%	<0.1	-	<0.1	<0.1	<0.1	-	-
xylene	mg/kg	0.2	40	45	<0.3	<0.3	0%	<3	0%	<0.3	-	<0.3	<0.3	<0.3	-	-
TRH C6-C10 (F1)	mg/kg	25	45	180	<25	<25	0%	<25	0%	<25	-	<25	<25	<25	-	-
TRH >C10-C16 (F2)	mg/kg	25	110	120	<25	<25	0%	<50	0%	<25	-	65	<25	37	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	1,300	<90	<90	0%	<100	0%	<90	-	330	<90	250	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	5,600	<120	<120	0%	<100	0%	<120	-	<120	<120	<120	-	-
Naphthalene	mg/kg		-	170	<0.1	<0.1	0%	<0.1	0%	<0.1	-	0.1	<0.1	<0.1	-	-
Benzo(a)pyrene	mg/kg	0.1	-	0.7	<0.1	<0.1	0%	<0.05	0%	<0.1	-	0.2	<0.1	0.7	-	-
BaP TEQ	TEQ	0.2	3	-	<0.3	<0.3	0%	<0.5	0%	<0.3	-	0.4	<0.3	1.0	-	-
Total PAH	mg/kg	0.8	300	-	<0.8	<0.8	0%	0.21	0%	<0.8	-	3.8	<0.8	8.9	-	-
DDT+DDE+DDD	mg/kg	0.1	240	180	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin and dieldrin	mg/kg	0.1	6	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.1	50	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.1	270	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.2	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.1	6	-	-	-	-	-	-	-	-	-	-	-	-	-
HCB	mg/kg	0.1	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.1	300	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	0.1	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	0.2	160	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs	mg/kg	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH Units	0	-	-	4.5	N.A.				N.A.	-	N.A.	5.1	4.8	-	-
CEC	meq/100g	0.02	-	-	5.0	N.A.				N.A.	-	N.A.	19	11	-	-
Arsenic, As	mg/kg	3	100	100	100	80	22%	120	18%	<3	-	45	7	340	280	27
Cadmium, Cd	mg/kg	0.3	20	3	<0.3	<0.3	0%	<0.4	0%	<0.3	-	0.6	<0.3	0.4	-	-
Chromium, Cr	mg/kg	0.3	100	400	5.6	4.3	26%	5.8	4%	17	-	16	16	7.8	-	-
Copper, Cu	mg/kg	0.5	6000	60	49	42	15%	56	13%	7.8	-	59	9.7	120	-	-
Lead, Pb	mg/kg	1	300	1100	110	99	11%	190	53%	17	-	120	8	140	-	-
Nickel, Ni	mg/kg	0.5	400	30	29	27	7%	36	22%	16	-	30	12	21	-	-
Zinc, Zn	mg/kg	0.5	7400	195	86	86	0%	123	35%	190	-	350	52	86	-	-
Mercury	mg/kg	0.01	40	1	0.42	0.32	27%	0.38	10%	0.03	-	0.14	<0.01	0.14	-	-
Asbestos	Detected				-	-				-	Yes	No	-	-	-	-

		Description			HLHA9	HLHA10	HLHA11	HLHA12	HLHA13	HLHA14	HLHA15	HLHA16	HLHA17	QC7	%	HLHA18
		Sample Date			11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	11/07/2015	RPD	11/07/2015
		Matrix	HIL	EIL	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil
Analyte Name	Units	Reporting Limit			Result	Result	Result	Result	Result	Result	Result	Result	Result	Result		Result
Benzene	mg/kg	0.1	-	65	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1	160	105	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1	55	-	-	-	-	-	-	-	-	-	-	-	-	-
xylene	mg/kg	0.2	40	45	-	-	-	-	-	-	-	-	-	-	-	-
TRH C6-C10 (F1)	mg/kg	25	45	180	-	-	-	-	-	-	-	-	-	-	-	-
TRH >C10-C16 (F2)	mg/kg	25	110	120	-	-	-	-	-	-	-	-	-	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	1,300	-	-	-	-	-	-	-	-	-	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	5,600	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg		-	170	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.1	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
BaP TEQ	TEQ	0.2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PAH	mg/kg	0.8	300	-	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.1	240	180	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin and dieldrin	mg/kg	0.1	6	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.1	50	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.1	270	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.2	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.1	6	-	-	-	-	-	-	-	-	-	-	-	-	-
HCB	mg/kg	0.1	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.1	300	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	0.1	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	0.2	160	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs	mg/kg	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH Units	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CEC	meq/100g	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic, As	mg/kg	3	100	100	330	140	180	93	220	110	50	10	39	21	73%	63
Cadmium, Cd	mg/kg	0.3	20	3	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Cr	mg/kg	0.3	100	400	-	-	-	-	-	-	-	-	-	-	-	-
Copper, Cu	mg/kg	0.5	6000	60	-	-	-	-	-	-	-	-	-	-	-	-
Lead, Pb	mg/kg	1	300	1100	-	-	-	-	-	-	-	-	-	-	-	-
Nickel, Ni	mg/kg	0.5	400	30	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, Zn	mg/kg	0.5	7400	195	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.01	40	1	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Detected				No	No	-	No	No	-	-	-	-	-	-	No

Appendix A

Sampling and Analysis Quality Plan

1 Sampling Analysis Quality Plan

1.1 Step 1 State the Problem

The previous land use of the site was a railway corridor and terminus and is currently used as rural residential land use. The site is not considered to be grossly impacted by the past land uses however there remains a potential that isolated practices on site may have caused localised areas of contamination that may have rendered the site not suitable for the proposed low density residential land use.

The objectives of the SAQP are to:

- Define the vertical and lateral study boundaries of the Detailed Site Contamination Assessment;
- Identify the investigation criteria that the soil and groundwater results will be compared against;
- Define the sampling methodologies to be undertaken in order to assess soil contamination across the site;
- Describe the quality assurance/quality control (QA/QC) procedures to be undertaken while sampling;
- Describe the Data Quality Indicators that will be adopted during the assessment;
- Identify a contingency plan for unexpected conditions.

1.2 Step 2- Identify the Decisions

The decisions that are required to be made are:

- Is there soil on the site that would require remediation for the site to be considered suitable for the proposed land use?
- Is there soil contamination present that may pose a significant risk of harm to human health and the environment?
- Is there soil contamination on, under or emanating from the site that would trigger a statutory clean-up notice or remediation order being placed on the site by a relevant government authority?

1.3 Step 3-Identify the Inputs into the Decision

The primary inputs to the decisions described in Step 2 are:

- The assumption that the site will be used for residential land use and groundwater will not be used on the site;
- Results of the previous environmental investigation;
- Location, distribution, vertical extent and sampling intervals of the sampling locations at the site;
- Field measurements and observations made during the sampling phase part of the works;
- Analytical results of the soil samples collected by JME; and

- Assessment of analytical results against the investigation criteria detailed below.

1.3.1 Vertical and Lateral Boundaries of the Study

1.3.2 Investigation Criteria

Soil investigation levels for residential land uses, which are considered relevant to the proposed land use, were established from the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (amended 2013) Schedule B1, Guideline on Investigation Levels for Soil and Groundwaterⁱ

The NEPM provides a framework for the use of investigation and screening levels. The framework is based on a matrix of human health and ecological soil and groundwater investigation and screening levels and guidance for specific contaminants. The selection of the most appropriate investigation levels for use in a range of environmental settings and land use scenarios should consider factors including the protection of human health, ecosystems, groundwater resources and aesthetics. A balance between the use of generic soil, soil vapour and groundwater criteria and site-specific considerations is essential practice in site assessment.

The soil investigation levels (ILs) have been developed from:

- Table 1A(1) Health investigation levels for soil contaminants-Residential A;
- Table 1A(3) Soil HSLs for vapour intrusion (mg/kg)-Clay HSL A and HSL B Low-high density residential;
- Table 1B(1) Soil-specific added contaminants for aged zinc-Urban residential/public open space (dependent on soil pH and CEC);
- Table 1B(2) Soil-specific added contaminant limits for aged copper in soils-Urban residential/public open space (dependent on soil pH or CEC);
- Table 1B(3) Soil-specific added contaminant limits for aged chromium III (dependent on %clay) and nickel in soil (dependent on CEC)-Urban residential/public open space;
- Table 1B(4) Generic added contaminant limits for lead in soils irrespective of their physicochemical properties-Urban residential/public open space;
- Table 1B(5) Generic EILs for aged As, fresh DDT and fresh naphthalene in soils irrespective of their physicochemical properties-Urban residential/public open space;
- Table 1B(6) ESLs for TRH fractions F1 – F4, BTEX and benzo[a]pyrene in soil-Urban residential/public open space with fine soil texture; and
- Table 1 B(7) Management Limits for TPH fractions F1 - F4 in soil-residential .

Ecological investigation levels (EILs) for the protection of terrestrial ecosystems have been derived for common contaminants in soil based on a species sensitivity distribution (SSD) model developed for Australian conditions. EILs have been derived for As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn.

The methodology assumes that the ecosystem is adapted to the ambient background concentration (ABC) for the locality and that it is only adding contaminants over and above this background concentration which has an adverse effect on the environment.

The ABC of a contaminant is the soil concentration in a specified locality that is the sum of the naturally occurring background level and the contaminant levels that have been introduced from diffuse or non-point sources by general anthropogenic activity not attributed to industrial, commercial, or agricultural activities, for example, motor vehicle emissions.

ABCs for old and new suburbs and high and low traffic areas for New South Wales, Queensland, South Australia and Victoria for Zn, Cu, Ni, Pb, and CrIII are included in Table 14 of Schedule B5c of the NEPM.

An added contaminant limit (ACL) is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required. The EIL is derived by summing the ACL and the ABC. By this method a site specific EIL for Zn of 195mg/kg was derived.

No EILs are listed for cadmium or mercury hence the provisional phototoxicity based investigation levels from column 5 of Appendix II of the Guidelines for the NSW Site Auditor Scheme (2nd edition) have been adopted for this assessment.

Where a CoC has an investigation level listed in more than one table the more conservative value was adopted as the ESL. Tables 1B (1-3) requires cation exchange capacity (CEC) and soil pH be calculated in order to select ESL values for zinc, chromium, copper and nickel. CEC and pH was analysed in selected natural surface soils as it is expected these type of soils to dominate the site and where contamination is likely to be mobilised to. Based on laboratory results, pH 4.5 and a CEC of 10meq/100g were used to select the ESLs. Where ESLs and HSLs are dependent on particle size it was assumed that the natural soils were predominantly sand with a clay content of 5% based on field observations. The adopted HILs, ESLs and HSLs are shown in Table 1.

Should the preliminary ACM assessment indicate significant asbestos contamination in soil is likely the >2.36mm fraction of soil will analysed for the presence or absence of asbestos fines to a detection limit of 0.001% w/w (NEPM Table 7. Health screening levels for asbestos contamination in soil-Residential A.

TABLE 1: Adopted HILs, ESLs and HSLs

Analyte Name	Units	HIL	ESL	HSL
Benzene	mg/kg	-	65	0.5
Toluene	mg/kg	-	105	160
Ethylbenzene	mg/kg	-	-	55
Xylenes	mg/kg	-	45	40
TRH C6-C10 (F1)	mg/kg	-	180	45
TRH >C10-C16 (F2)	mg/kg	-	120	110
TRH >C16-C34 (F3)	mg/kg	-	1,300	-
TRH >C34-C40 (F4)	mg/kg	-	5,600	-
Naphthalene		-	-	3
Benzo(a)pyrene	mg/kg	-	0.7	-
BaP TEQ	TEQ	3	-	-
Total PAH	mg/kg	300	-	-
DDT+DDE+DDD	mg/kg	240	180	-
Aldrin and dieldrin	mg/kg	6	-	-
Chlordane	mg/kg	50	-	-

Analyte Name	Units	HIL	ESL	HSL
Endosulfan	mg/kg	270	-	-
Endrin	mg/kg	10	-	-
Heptachlor	mg/kg	6	-	-
HCB	mg/kg	10	-	-
Methoxychlor	mg/kg	300	-	-
Mirex	mg/kg	10	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	160	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-
Total Phenols	mg/kg	3000	-	-
Arsenic, As	mg/kg	100	100	-
Cadmium, Cd	mg/kg	20	3	-
Chromium, Cr	mg/kg	100	320	-
Copper, Cu	mg/kg	6000	60	-
Lead, Pb	mg/kg	300	1,100	-
Nickel, Ni	mg/kg	400	350	-
Zinc, Zn	mg/kg	7400	95	-
Mercury	mg/kg	40	1	-
Asbestos-Bonded ACM	%w/w	0.01	-	-
Asbestos Fines	%w/w	0.001	-	-

1.3.3 Soil Aesthetic Issues

The following characteristics will be considered when assessing the aesthetics of the site:

- malodorous soil;
- anthropogenic waste; and
- stained soils.

1.4 Step 4 – Define the Site Boundaries

The lateral boundary of the study is defined as the site boundaries as designated by fencing. Based on the historical data it is anticipated that contamination if any, will be localised and limited to the upper surface soils and likely to be have a physical marker such as ashes/charcoal, soil staining or waste metal building materials. The groundwater on site was not likely to be contaminated from past or present activities on site and is excluded from further assessment.

1.5 Step 5 – Develop a Decision Rule

The decision rule for the investigation area will be as follows:

- If the results of the analytical data validation are acceptable with respect to the data quality indicators, then the data will be deemed suitable for the purposes of this investigation;
- If all concentrations of soil samples collected are below the investigation levels, then no further assessment or remediation will be required with respect to that chemical/soil unit; and

- If concentrations of a particular contaminant in one or more soil samples collected from the investigation area are above the investigation levels, then either further assessment (to assess the extent of contamination) and /or remediation would be required to address that contaminant. For areas/soil units where there is sufficient data, statistical analysis (based on 95% UCL) may be used to assess the significance of the data.

1.6 Step 6 – Specify Limits on Decision Errors

There are two types of decision errors:

- Sampling errors, which occur when the samples collected are not representative of the conditions within the investigation area; and
- Measurement errors, which occur during sample collection, handling, preparation, analysis and data production.

These errors may lead the decision maker to make the following errors:

- Deciding that the investigation area is suitable for residential land use when it is actually not; and
- Deciding that the investigation area is not suitable for residential land use when it actually is.

An assessment will be made as to the likelihood of a decision error being made based on the results of the QA/QC assessment and the closeness of the data to the investigation criteria. Additionally, where a sufficient number of samples are available for a particular contaminant/unit, the 95% UCL of the arithmetic average of the contaminants will be used to assess the suitability for residential land use.

1.7 Optimise the Design for Obtaining Data

1.7.1 Sampling Pattern Rationale

Chemical Contamination

The site history indicated that chemical contamination, if present, was likely to exist in areas the former train line, train maintenance and buildings existed which incorporates the majority of the site. Therefore a grid sampling regime will be undertaken to assess these areas. Using this rationale it also assumed that contamination, if any, will be limited to the upper soil surface and areas of fill. The proposed sampling locations are shown in Figure 4.

Samples on site will be collected using an excavator. Samples will be collected from the centre of the excavator bucket. In the case of assessing zinc background concentrations a hand auger will be used. The auger will be decontaminated before a sample is collected by scrubbing the auger in a solution of tap water and Decon 90 followed by rinsing in tap water. Samples will be collected from the auger using disposable nitrile gloves. A new pair of gloves will be worn for each sample. Soil samples will be placed in laboratory supplied glass jars with Teflon® lined lids. Each jar will be labelled with a unique identifier. The jars will be placed in 200µm plastic bags. The plastic bags will be sealed and placed in an ice filled cooler box awaiting transportation to the laboratory under chain of custody conditions.

1.7.2 Sample Analysis and Analytical Methods

Primary and duplicate samples collected will be forwarded to the SGS laboratory for the analysis required. Laboratory analysis will be in accordance with the requirements of the NEPM

(Schedule B3) and will be referenced to USEPA or APHA methods. A summary of the SGS analytical method references are presented in **Table 2** below.

Triplicate samples collected will be forwarded to the Envirolab Pty Ltd for the analysis required. Laboratory analysis will be in accordance with the requirements of the NEPM (Schedule B3) and will be referenced to USEPA or APHA methods.

Table 2 - Summary of Analytical Method References

Analysis	Medium	SGS	Envirolab
TPH/TRH	Soil	USEPA 3550/8000	USEPA 8260 + 8000
BTEX	Soil	USEPA 8260	USEPA 8260 / 5030 (P/T)
PAH	Soil	USEPA 8270D	USEPA 8270
OPP/OCP/PCB	Soil	USEPA 8080/8081/8270	USEPA 8081/8270
Phenols	Soil	APHA 5530	APHA 5530
Metals	Soil	USEPA 6020	USEPA 6020A (ICP) USEPA 200.8 (PREP)
Mercury	Soil	APHA 3112 B	USEPA 7471A
Asbestos	material	AS4964-2004	AS4964-2004

1.7.3 Quality Assurance / Quality Control Plan

The quality assurance / quality control (QA/QC) plan is designed to achieve predetermined data quality indicators (DQIs) that will demonstrate accuracy, precision, comparability, representativeness and completeness of the data generated.

The quality assurance / quality control (QA/QC) plan is designed to achieve predetermined data quality indicators (DQIs) that will demonstrate accuracy, precision, comparability, representativeness and completeness of the data generated.

Data Quality Indicators for the Project

Data quality indicators (DQIs) for the project will be based on the field and laboratory considerations in the table in Appendix V of NSW DEC (2006). Specific DQIs for field and laboratory QA/QC samples are as shown in the Table 3 (below).

Table 3 - Data Quality Indicators

Type of Quality Control Sample	Control Limit
Duplicate and Triplicate Samples	RPDs within 50% for analyte concentrations greater than 5 x RL

Type of Quality Control Sample	Control Limit
Rinsate Samples (deionised water)	Analytes not detected at concentrations greater than the blank deionised water.
Spikes	Laboratory spike acceptance limits are a “live” range and updated regularly. The laboratory acceptance limits at the time of analysis will be used.
Blanks	Analytes not detected

The QA/QC review will include checking of the DQIs against completeness, comparability, representativeness, precision and accuracy of the data.

Sampling Protocols

The following sampling protocols will be undertaken during the project:

- A fresh pair of nitrile gloves will be worn when handling soil samples.
- Soil samples will be placed in laboratory supplied jars with Teflon lined lids for all analysis with the exception of asbestos or food grade ziplock bags for asbestos analysis. Note that heavy metal samples may be collected in either laboratory supplied glass jars with Teflon lined lids or food grade ziplock bags.
- Soils samples in glass jars will be placed on ice awaiting dispatch to the laboratory;
- A Chain of Custody will accompany the samples to the laboratory which will include (but not limited to):
 - the sample identification of each sample;
 - date sampled;
 - date dispatched to the laboratory;
- The samples shall be dispatched within two days of collection to avoid holding time exceedances.

Field Quality Control Samples

The following quality control samples will be collected in the field:

- Intra-laboratory duplicates will be collected at the rate of 1 per 10 primary samples collected;
- Inter-laboratory duplicates will be collected at the rate of 1 per 20 primary samples collected;
- A rinsate sample for every day that non dedicated or non-disposal sampling equipment is utilised;
- Rinsate water will be deionised water purchased from a hardware store;

Laboratory Quality Control

Laboratory Quality Control would include the following:

- The laboratory analysis of samples will be undertaken by a NATA accredited environmental testing laboratory;
- The NATA accredited environmental testing laboratory will implement a quality control plan conforming to the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) Schedule B(3) Guidelines for Analysis of Potentially Contaminated Soils;
- The laboratory will perform reagent blanks, spike samples, duplicate spikes, matrix spikes, and surrogates spikes and duplicates to assess the laboratory quality control.
- The laboratory will extract and/or analyse the samples within the required holding times. A summary of the holding times for extraction and/or analysis for the chemical of concerns in this project is shown in Table 4.

Table 4: Extraction and Analysis Holding Time Summary

Analysis	Medium	Extraction	Analysis
TPH/TRH	Soil	14 days	28 days from extraction
BTEX	Soil	7 days	28 days from extraction
PAH	Soil	14 days	28 days from extraction
OPP/OCP/PCB	Soil	USEPA 8080/8081/8270	USEPA 8081/8270
Phenols	Soil	APHA 5530	APHA 5530
Metals	Soil	6 months	6 months
Mercury	Soil	28 days	28 days
Asbestos	Soil	Not applicable	Not applicable
CEC	Soil	28 days	28 days
pH(CaCl ₂)	Soil	7 days	7 days

1.7.4 Data Quality Indicator Review

A review of the DQIs will be undertaken to assess the usability and representative nature of the data generated from the project. The outcome of the DQIs assessment will either:

- recommend the data is suitable to be used for the project; or
- limit the suitability of the data to be used, or
- recommend further contamination/validation sampling.

Appendix B

Test Pit Logs

PROJECT No: JME4079

SITE: 30 Swan Street Morpeth

CLIENT: Hilary Lantry

CONTRACTOR: Lantry Plumbing Pty Ltd

TEST PIT LOG: TP1

DATE: 3/10/2014

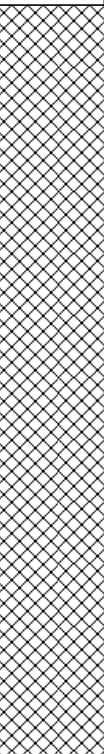
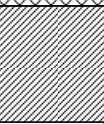
LOGGED BY: JMc

TOTAL DEPTH: 1.5

LONGITUDE: 151.636203

LATITUDE: -32.723813

ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		gravel sand grey ash red ash tile			TP1 0.0-0.1 QC1 QC1A	FILL: tile fragment cement sheeting
1						
		CLAY high plasticity dark grey (stained?)		70	TP1 1.3-1.4	FILL/ALLUVIUM?
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: 0.85

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP2
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.2
LONGITUDE: 151.636002
LATITUDE: -32.723838
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface gravel sand grey ash red ash tile brick		1.3	TP2 0.0-0.1	FILL
1		CLAY high plasticity grey with rusty red mottle		50	TP2 1.1-1.2	ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP3
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.8
LONGITUDE: 151.635816
LATITUDE: -32.72386
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		concrete slab and rubble brick sandstone coal sand fine grained black		0	TP3 0.1-0.2	FILL
1						
		CLAY high plasticity grey with rusty red mottle				ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP4
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 0.8
LONGITUDE: 151.635626
LATITUDE: -32.723884
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		silt sand railway ballast charcoal coal		0	TP4 0.1-0.2	FILL
		Boulders of SANDSTONE orange and yellow and white				FILL
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP5
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.4
LONGITUDE: 151.635456
LATITUDE: -32.723904
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		clayey SAND dark brown fine-medium grained brick		0	TP5 0.1-0.2	FILL
		boulders of SANDSTONE with sand fine-medium grained white and orange and grey with a trace of gravel		0		FILL
1						
					TP5 1.3-1.4	
2						

NOTES

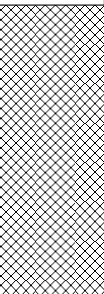
Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP6
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 0.5
LONGITUDE: 151.634624
LATITUDE: -32.723968
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface gravelly SAND fine-medium grained grey angular gravel some rounded cobbles		0	TP6 0.1-0.2.	FILL: brick and tile fragments redundant stormwater pipe@0.5m
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP7
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.2
LONGITUDE: 151.634515
LATITUDE: -32.723972
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		gravelly SAND fine-medium grained grey poorly graded with sandstone cobbles		0	TP7 0.0-0.1	FILL: brick fragments and trace of ash
1		SAND medium-coarse grained orange and black moist		75	TP7 0.8-0.9	FILL
		CLAY very stiff high plasticity grey with orange mottle				ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP8
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.1
LONGITUDE: 151.634277
LATITUDE: -32.724001
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		sandy COBBLES angular sandstone orange and red fine grained grey		0	TP8 0.1-0.2	FILL
		SAND orange and red		0		FILL
1		CLAY high plasticity grey with feint orange mottle			TP8 0.9-1.0 QC3 QC3A	ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

TEST PIT LOG: TP9

LONGITUDE: 151.636161

SITE: 30 Swan Street Morpeth

DATE: 3/10/2014

LATITUDE: -32.723921

CLIENT: Hilary Lantry

LOGGED BY: JMc

ELEVATION: 0

CONTRACTOR: Lantry Plumbing Pty Ltd

TOTAL DEPTH: 1

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface gravelly SAND fine-medium grained grey rounded and angular poorly graded		0	TP9 0.1-0.2	
		CLAY medium-high plasticity grey with orange mottle			TP9 0.7-0.8	FILL: tile fragments, wood ACM fragment moist at clay interface
1						ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP10
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 0.8
LONGITUDE: 151.635937
LATITUDE: -32.723942
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		gravelly SAND medium grey-dark grey angular poorly graded blue		21	TP10 0.1-0.2	FILL: ACM fragment, brick rubble, piece of metal
		CLAY medium plasticity grey with orange mottle				ALLUVIUM
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP11
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.3
LONGITUDE: 151.635562
LATITUDE: -32.723995
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		SAND fine-medium grained dark grey/dark brown with clumps of clay and traces of gravel		0	TP11 0.2-0.3	FILL: fragments of China, concrete
1		CLAY low plasticity grey with orange mottle			TP11 1.2-1.3	ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

TEST PIT LOG: TP12

LONGITUDE: 151.634581

SITE: 30 Swan Street Morpeth

DATE: 3/10/2014

LATITUDE: -32.724058

CLIENT: Hilary Lantry

LOGGED BY: JMc

ELEVATION: 0

CONTRACTOR: Lantry Plumbing Pty Ltd

TOTAL DEPTH: 0.1

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface sandy COBBLES angular sandstone light grey and pale orange			TP12 0.0-0.1	FILL: Refusal on sandstone slabs
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP13
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.1
LONGITUDE: 151.634402
LATITUDE: -32.724076
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface cobbly SAND fine-medium grained grey angular sandstone light grey		0	TP13 0.1-0.2	FILL concrete slabs
1		CLAY medium plasticity grey with orange red mottle				ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

SITE: 30 Swan Street Morpeth

CLIENT: Hilary Lantry

CONTRACTOR: Lantry Plumbing Pty Ltd

TEST PIT LOG: TP14

DATE: 3/10/2014

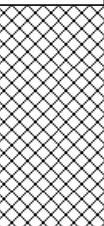
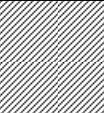
LOGGED BY: JMc

TOTAL DEPTH: 0.6

LONGITUDE: 151.636072

LATITUDE: -32.724019

ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		gravelly cobbly SAND fine-medium grained grey rounded coarse blue angular grey			TP14 0.1-0.2	FILL: used coarse river gravel and railway ballast
		CLAY medium-high plasticity grey with orange mottle				ALLUVIUM
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

SITE: 30 Swan Street Morpeth

CLIENT: Hilary Lantry

CONTRACTOR: Lantry Plumbing Pty Ltd

TEST PIT LOG: TP15

DATE: 3/10/2014

LOGGED BY: JMc

TOTAL DEPTH: 0.5

LONGITUDE: 151.635766

LATITUDE: -32.724066

ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface				
		CLAY dry low plasticity grey			TP15	TOPSOIL
		CLAY very stiff low plasticity dark grey/black			0.1-0.2 QC2	ALLUVIUM
					TP15	
					0.4-0.5	
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

SITE: 30 Swan Street Morpeth

CLIENT: Hilary Lantry

CONTRACTOR: Lantry Plumbing Pty Ltd

TEST PIT LOG: TP16

DATE: 3/10/2014

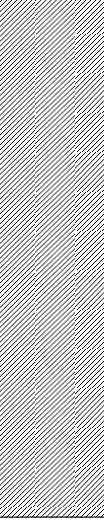
LOGGED BY: JMc

TOTAL DEPTH: 1

LONGITUDE: 151.635343

LATITUDE: -32.724085

ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface CLAY very stiff low plasticity dark grey/black			TP16 0.0-0.1	TOPSOIL/FILL: metal pipe brick ALLUVIUM
		CLAY very stiff low plasticity dark grey/black				
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079

SITE: 30 Swan Street Morpeth

CLIENT: Hilary Lantry

CONTRACTOR: Lantry Plumbing Pty Ltd

TEST PIT LOG: TP17

DATE: 3/10/2014

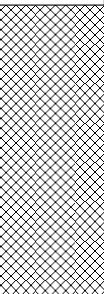
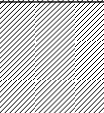
LOGGED BY: JMc

TOTAL DEPTH: 0.7

LONGITUDE: 151.63451

LATITUDE: -32.7242

ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface silty SAND fine grained brown		0		TOPSOIL: some pieces of glass and China near the surface
		sandy CLAY low plasticity dark grey fine grained				ALLUVIUM
1						
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

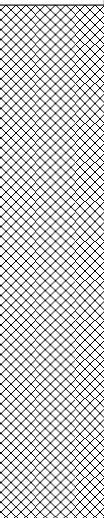
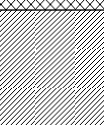
First Occurrence of Groundwater: None encountered

Static Groundwater Level:

Reviewed By: JMc

FILE

PROJECT No: JME4079
SITE: 30 Swan Street Morpeth
CLIENT: Hilary Lantry
CONTRACTOR: Lantry Plumbing Pty Ltd
TEST PIT LOG: TP18
DATE: 3/10/2014
LOGGED BY: JMc
TOTAL DEPTH: 1.1
LONGITUDE: 151.634295
LATITUDE: -32.724182
ELEVATION: 0

DEPTH (m)	LEGEND	DESCRIPTION	ODOUR	PID (ppmv)	SAMPLE LABEL	REMARKS
0		Ground Surface silty SAND fine grained brown		0	TP18 0.1-0.2	TOPSOIL/FILL: some brick fragments@0.4-0.5m
1		CLAY very stiff low plasticity dark grey black				ALLUVIUM
2						

NOTES

Descriptions are based on observations and hand testing of grab samples. Mechanical Tests were not performed unless otherwise stated.

First Occurrence of Groundwater: None encountered
Static Groundwater Level:

Reviewed By: JMc

FILE

Appendix C

Laboratory Documentation



Page 1 of 4

Company Name:	JM Environments	Project Name/No:
Address:	37 Tooke St	Purchase Order No:
	COOKS HILL NSW 2300	Results Required By:
		Telephone:
Contact Name:	James McMahon	Facsimile:
		Email:

JME407f
JME407f
std
0427 893 668
james@imenvironments.com

james@jmenvironments.com

RECEIVED

03 OCT 2014

ME-131890

ID	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH/BTEX/PAH/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals/Total	pH/CEC (each)	Asbestos
TP1 0-0-0-1	1		X			X	X		X	
TP1 1-3-1-4	2		X			X	X			
TP1 1-0-1-1	3		X			X		X	X	
TP2 0-0-0-1	4		X			X			X	
TP2 1-1-1-2	5		X			X		X		
TP3 0-1-0-2	6		X			X				
TP4 0-1-0-2	7		X			X		X		
TP5 0-1-0-2	8		X			X				
TP5 0-3-1-4	9		X			X			X	
TP6 0-1-0-2	10		X			X				

RECEIVED
03 OCT 2014
SE131890

Comp 1

P10 70

P10 1.3.

P10 50.

P10 0.

P10 0.

Comp 2 + TP10-2-0-3

Date/Time: 2/10/2014 5:00pm

Received By: TNT

Date/Time/02/10/2014 5:00pm

Date/Time:

Received By:

Date/Time

Samples Intact:	Yes/No
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes
19	Yes
20	Yes
21	Yes
22	Yes
23	Yes
24	Yes
25	Yes
26	Yes
27	Yes
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29	Yes
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85	Yes
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88	Yes
89	Yes
90	Yes
91	Yes
92	Yes
93	Yes
94	Yes
95	Yes
96	Yes
97	Yes
98	Yes
99	Yes
100	Yes

1

0

11-10-11 N ENVI196210

Sample Date: 2/10/2014

Comments: Dissolved heavy metals



CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 2/10/2014

Page 2 of 4

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

Company Name: JM Environments
Address: 37 Tooke St
COOKS HILL NSW 2300
Contact Name: James McMahon

Project Name/No: JME4077
Purchase Order No: JME4077
Results Required By: std
Telephone: 0427 893 668
Facsimile:
Email: james@jmenvironments.com

ID	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH/BTEX/PAH/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals/Total	pH/CEC										
TP11 0.2-0.3	11					X			X										
TP4 1.2-1.3	12					X													
TP15 0.1-0.2	13					X													
TP15 0.4-0.5	19					X			X										
TP10 0.1-0.2	15					X													
TP14 0.1-0.2	16					X													
TP9 0.1-0.2	17					X													
TP9 0.1-0.2	135					X													
TP9 0.1-0.2	18					X													
TP6 0.0-0.1	19					X			X										
TP7 0.0-0.1	20					X													
Relinquished By: JMcMahon		Date/Time: 2/10/2014 5:00pm		Received By: TNT		Date/Time: 02/10/2014 5:00pm													
Relinquished By:		Date/Time:		Received By:		Date/Time: 3/10/14 9:00													
Samples Intact: Yes/No		Temperature: Ambient/Chilled		Sample Cooler Sealed: Yes/No		Laboratory Quotation No: ENV1126319													
Sample Date: 2/10/2014		Comments: Dissolved heavy metals																	



CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 2/10/2014

Page 3 of 4

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

Company Name:	JM Environments	Project Name/No:	JME4077
Address:	37 Tooke St	Purchase Order No:	JME4077
	COOKS HILL NSW 2300	Results Required By:	std
Contact Name:	James McMahon	Telephone:	0427 893 668
		Facsimile:	
		Email:	james@jmenvironments.com

ID	Lab Sample ID									pH/CEC	OC/PCB	Comments	
		WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH/BTEX/PAH/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals	TRH/BTEX/PAH/OC/OP/PCB/8metals/Total					
TP7 0.8-0.9	21					X	X	X	X			COMP3	
TP8 0.1-0.2	22					X	X	X	X			COMP3	
TP8 0.9-1.0	23					X	X	X	X			COMP3	
TP13 0.1-0.2	24					X	X	X	X				
TP12 0.0-0.1	25					X	X	X	X				
TP17 0.1-0.2	26					X	X	X	X				
TP18 0.1-0.2	27					X	X	X	X				
COMP1	28					X	X	X	X				
COMP2	29					X	X	X	X				
COMP3	30					X	X	X	X				
Relinquished By: JMcMahon		Date/Time: 2/10/2014 5:00pm		Received By: TNT		Date/Time: 2/10/2014 5:00pm							
Relinquished By:		Date/Time:		Received By:		Date/Time:							
Samples Intact: Yes/No		Temperature: Ambient/Chilled		Sample Cooler Sealed: Yes/No		Laboratory Quotation No: ENV1126319							
Sample Date: 2/10/2014		Comments: Dissolved heavy metals											



X

AU.SampleReceipt.Sydney (Sydney)

From: James McMahon [james@jmenvironments.com]
Sent: Friday, 3 October 2014 11:55 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Hi Emily,

TP1 1.0-1.1 Asbestos only
TP9_0.0-0.1 and TP10_0.1-0.2 bagged samples-material. These are marked for asbestos testing??

-----Original Message-----

From: AU.SampleReceipt.Sydney (Sydney)
[mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Friday, 3 October 2014 11:20 AM
To: James McMahon
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Dear James,

TP1_1.0-1.1-Bag only supplied-Material. No jar received.
TP9_0.0-0.1 and TP10_0.1-0.2 bagged samples-material.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

-----Original Message-----

From: James McMahon [mailto:james@jmenvironments.com]
Sent: Friday, 3 October 2014 10:53 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Hi Wonnice,

You should receive a batch of soils from me this morning. Could send me a copy of the COC when they arrive?

Thanks

James McMahon
0427 893 668

james@jmenvironments.com

-----Original Message-----

From: AU.Samplerreceipt.Sydney@SGS.com
[mailto:AU.Samplerreceipt.Sydney@SGS.com]
Sent: Friday, 3 October 2014 9:05 AM
To: james@jmenvironments.com
Subject: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Dear James McMahon,

AU.SampleReceipt.Sydney (Sydney)

From: James McMahon [james@jmenvironments.com]
Sent: Friday, 3 October 2014 12:50 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Hi Emily

Just to be sure both TP8 samples are to be tested for TPH/BTEX/PAH/8 heavy metals. Thanks

James McMahon
0427 893 668
james@jmenvironments.com

-----Original Message-----

From: AU.SampleReceipt.Sydney (Sydney)
[<mailto:AU.SampleReceipt.Sydney@sgs.com>]
Sent: Friday, 3 October 2014 11:20 AM
To: James McMahon
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Dear James,

TP1_1.0-1.1-Bag only supplied-Material. No jar received.
TP9_0.0-0.1 and TP10_0.1-0.2 bagged samples-material.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

-----Original Message-----

From: James McMahon [<mailto:james@jmenvironments.com>]
Sent: Friday, 3 October 2014 10:53 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SGS Sample Receipt Advice (Ref: JME2019, Lab Ref: SE131840)

Hi Wonnies,

You should receive a batch of soils from me this morning. Could send me a copy of the COC when they arrive?

Thanks
James McMahon
0427 893 668
james@jmenvironments.com

-----Original Message-----

From: AU.Samplerreceipt.Sydney@SGS.com
[<mailto:AU.Samplerreceipt.Sydney@SGS.com>]
Sent: Friday, 3 October 2014 9:05 AM
To: james@jmenvironments.com

SGS

SE131890

Job:

1/25/7-14/16/18-27
31-33

3
4.6
15.17
34-35
36

Matrix

250 JAR
125 JAR
BAG

1L UP P
500 UP P
250 ZnAcetate P
250 / 500 NaOH BP
125 / 250 UP P
125 / 250 Metal Total*
125 / 250 Metal Filtered*
125 HCl P
1L UP AG
500 / 1L H₂SO₄ AG
125 / 250 H₂SO₄ P
100 / 200 UP AG
40 ~~100~~ GV
250 UP OPAQUE P
500 NaThio STERILE P
200 NaThio STERILE P

~~1 Soil on Hold~~

Storage Location

Bottles Supplied By

Comment

Cooling Method

S822-3
SGS
F11

ASB
Client
-

S822-3
SGS
F11

"
"
F11/9

ASB
SGS
Note: bags provided are metal samples

S823
SGS

Temp

QC

Good Order

CV N

Clearly Labelled

CV N

Correct Pres.

CV N

No Head-space

CV N / NA

Sufficient Vol

CV N

Doc Date

03/16

Doc Type

WOL

Complete Docs

CV N

Requested TAT

SGS

HOLD HERE

RECEIVER'S COPY - A division of TNT Australia Pty Limited ABN 41 000 495 269
TNT Express - A division of TNT Australia Pty Limited ABN 41 000 495 269
DOMESTIC CONSIGNMENT NOTE
AT004089

AUSTRALIA WIDE PICK UPS

13 11 50

or visit www.tnt.com.au

Booking reference No

DC V0211



Con Note No 9800 5549 8216

Sender JM Environments			Receiver SGS AUSTRALIA		
Address 37 Tooke St			Address UNIT 16, 33 MADDOX STREET		
Town/City COOKS HILL	State NSW	Postcode 2300	Town/City ALEXANDRIA	State NSW	Postcode 2015
Contact Name James		Phone 0427 893 668	Contact Name C/O 5258	Phone 02 8594 0400	

Freight Charges to be paid by?

Notwithstanding the box you may have marked, by sending these goods you as the sender are accepting ultimate responsibility to pay the freight charges incurred.

Sender ☐ Receiver ☐ Third Party ☒Account Number to be charged **TNT****20003191**SELECT SERVICE (please X): WARNING: If no service selected, Road Express applies and may result in a delayed delivery. For service availability, check www.tnt.com.au

☐	☐	☐	☐	☒	☐
Sameday	9:00 Express	10:00 Express	12:00 Express	Overnight Express	Road Express

Saturday, weekend or after hours services are only available using "Sameday".

Special Instructions (eg. Saturday delivery)

Third Party Name/Address

Postcode

Your Ref. No	Description of Packaging (eg. cartons, pallets, satchels)	No. of Items	Declared Weight Kgs	Declared Cubic (cm x cm x cm)			Qty
Line 1 Details				L(cm)	W(cm)	H(cm)	
	1 Esky	1	7	X	X		
Line 2 Details							
				X	X		
Line 3 Details							
				X	X		

EXTENDED WARRANTY:**Automatic Transit Warranty (ATW)**

Unless you have previously elected to not have ATW with TNT, an ATW charge is added to the freight charge, and we agree to deliver the goods pursuant to condition 14 of this consignment note (see reverse). The maximum value for ATW is \$1,000.

TNT Extended Warranty (TEW)

If you require TEW please state the sum required and the class in the boxes below. (See condition 14 overleaf) Requests for TEW in excess of \$10,000 require prior written approval from TNT. The maximum value for which we will extend the warranty is \$40,000. Call 13 11 50 for details.

Class Sum required

NOT FOR DANGEROUS GOODS:

This consignment note can not be used for dangerous goods. By signing below, you confirm that this consignment does not contain dangerous goods.

Agreement: We submit the goods described above for carriage and agree that the Terms and Conditions of Carriage and Other Services available at www.tnt.com.au see overleaf for details and TNT's Rate Agreement (if applicable) apply to the carriage of these goods.

Sender's Signature

Date

WE ARE NOT COMMON CARRIERS. TNT Australia Pty Limited Trading as TNT Express ABN 41 000 495 269

Total

Driver's use only

Pick up

Time Date

Delivery

Time Date

Run Number

Run Number

Terms of Trade:
14 Days from
Invoice Date



SAMPLE RECEIPT ADVICE

SE131890

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone (Not specified)
Facsimile (Not specified)
Email james@jmenvironments.com

Project JME4079
Order Number JME4079
Samples 36

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 3/10/2014
Report Due Mon 13/10/2014
SGS Reference SE131890

SUBMISSION DETAILS

This is to confirm that 36 samples were received on Friday 3/10/2014. Results are expected to be ready by Monday 13/10/2014. Please quote SGS reference SE131890 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	33 Soils, 3 Materials	Type of documentation received	COC
Date documentation received	3/10/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.0°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

As per client's request via telephone, sample TP1 1.0-1.1 will be analysed for asbestos in material only; samples TP10 0.1-0.2 and TP9 0.1-0.2 will be split into two each (soil portion/material portion) and analysed separately for TRH/BTEX/PAH/8metals in soil and asbestos in material, respectively; sample TP7 0.8-0.9 and TP12 0.0-0.1 will be analysed for TRH/BTEX/PAH/8metals/pH(CaCl2)/CEC; sample COMP3 will be analysed for OC/PCB only; and Trip spike will be analysed for BTEX.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx> as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

CLIENT DETAILS

Client JM ENVIRONMENTS

Project JME4079

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	pH in Soil CaCl2 Extract	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP1 0.0-0.1	13	25	1	10	12	8
002	TP1 1.3-1.4	-	25	-	10	12	8
004	TP2 0.0-0.1	-	25	-	10	12	8
005	TP2 1.1-1.2	13	25	1	10	12	8
007	TP4 0.1-0.2	13	25	1	10	12	8
008	TP5 0.1-0.2	-	25	-	10	12	8
009	TP5 1.3-1.4	13	25	1	10	12	8
010	TP16 0.1-0.2	-	25	-	10	12	8
011	TP11 0.2-0.3	13	25	1	10	12	8
012	TP11 1.2-1.3	-	25	-	10	12	8
013	TP15 0.1-0.2	-	25	-	10	12	8
014	TP15 0.4-0.5	13	25	1	10	12	8
015	TP10 0.1-0.2	-	25	-	10	12	8
016	TP14 0.1-0.2	-	25	-	10	12	8
017	TP9 0.1-0.2	-	25	-	10	12	8
018	TP9 0.7-0.8	-	25	-	10	12	8
019	TP6 0.0-0.1	13	25	1	10	12	8
020	TP7 0.0-0.1	-	25	-	10	12	8
021	TP7 0.8-0.9	13	25	1	10	12	8
022	TP8 0.1-0.2	-	25	-	10	12	8
023	TP8 0.9-1.0	-	25	-	10	12	8
024	TP13 0.1-0.2	-	25	-	10	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME4079**

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	pH in Soil CaCl2 Extract	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	TP12 0.0-0.1	13	-	25	-	1	10	12	8
026	TP17 0.1-0.2	-	-	25	-	-	10	12	8
027	TP18 1.0-0.2	-	-	25	-	-	10	12	8
028	Comp 1	-	28	-	11	-	-	-	-
029	Comp 2	-	28	-	11	-	-	-	-
030	Comp 3	-	28	-	11	-	-	-	-
031	QC1	-	-	25	-	-	10	12	8
032	QC2	-	-	25	-	-	10	12	8
033	QC3	-	-	25	-	-	10	12	8
036	Trip Spike	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.

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Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME4079**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Fibre Identification in soil	Mercury in Soil	Moisture Content	Total Recoverable Metals in Soil by ICPOES from
001	TP1 0.0-0.1	-	-	1	1	7
002	TP1 1.3-1.4	-	-	1	1	7
003	TP1 1.0-1.1	1	-	-	-	-
004	TP2 0.0-0.1	-	2	1	1	7
005	TP2 1.1-1.2	-	-	1	1	7
007	TP4 0.1-0.2	-	-	1	1	7
008	TP5 0.1-0.2	-	-	1	1	7
009	TP5 1.3-1.4	-	-	1	1	7
010	TP16 0.1-0.2	-	-	1	1	7
011	TP11 0.2-0.3	-	-	1	1	7
012	TP11 1.2-1.3	-	-	1	1	7
013	TP15 0.1-0.2	-	-	1	1	7
014	TP15 0.4-0.5	-	-	1	1	7
015	TP10 0.1-0.2	-	-	1	1	7
016	TP14 0.1-0.2	-	-	1	1	7
017	TP9 0.1-0.2	-	-	1	1	7
018	TP9 0.7-0.8	-	-	1	1	7
019	TP6 0.0-0.1	-	-	1	1	7
020	TP7 0.0-0.1	-	-	1	1	7
021	TP7 0.8-0.9	-	-	1	1	7
022	TP8 0.1-0.2	-	-	1	1	7
023	TP8 0.9-1.0	-	-	1	1	7
024	TP13 0.1-0.2	-	-	1	1	7

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME4079**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Mercury in Soil	Moisture Content	Total Recoverable Metals in Soil by ICPOES from
025	TP12 0.0-0.1	-	1	1	7
026	TP17 0.1-0.2	-	1	1	7
027	TP18 1.0-0.2	-	1	1	7
028	Comp 1	-	-	1	-
029	Comp 2	-	-	1	-
030	Comp 3	-	-	1	-
031	QC1	-	1	1	7
032	QC2	-	1	1	7
033	QC3	-	1	1	7
034	TP10 0.1-0.2	1	-	-	-
035	TP9 0.1-0.2	1	-	-	-

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone (Not specified)
Facsimile (Not specified)
Email james@jmenvironments.com

Project JME4079
Order Number JME4079
Samples 36
Date Started 07 Oct 2014

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference SE131890 R0
Report Number 0000092979
Date Reported 13 Oct 2014
Date Received 03 Oct 2014

COMMENTS

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

No respirable fibres detected in all samples using trace analysis technique

Asbestos analysed by Approved Identifier Yusuf Kuthpudin and Ravee Sivasubramaniam.

SIGNATORIES



Andy Sutton
Senior Organic Chemist



Dong Liang
Metals/Inorganics Team Leader



Jaimie Cheung
Metals Chemist



Ly Kim Ha
Organic Section Head



Ravee Sivasubramaniam
Asbestos Analyst

Parameter	Units	LOR	Sample Number	SE131890.001	SE131890.002	SE131890.003	SE131890.004
			Sample Matrix	Soil	Soil	Material	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP1 0.0-0.1	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	-	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	-	<0.1
-------------	-------	-----	------	------	---	------

Surrogates

Dibromofluoromethane (Surrogate)	%	-	78	97	-	95
d4-1,2-dichloroethane (Surrogate)	%	-	80	97	-	94
d8-toluene (Surrogate)	%	-	75	92	-	91
Bromofluorobenzene (Surrogate)	%	-	93	107	-	103

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	-	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	-	<25
TRH C6-C9	mg/kg	20	<20	<20	-	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	78	97	-	95
d4-1,2-dichloroethane (Surrogate)	%	-	80	97	-	94
d8-toluene (Surrogate)	%	-	75	92	-	91
Bromofluorobenzene (Surrogate)	%	-	93	107	-	103

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-	<25

Parameter	Sample Number		SE131890.001	SE131890.002	SE131890.003	SE131890.004
	Sample Matrix		Soil	Soil	Material	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP1 0.0-0.1	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1
Units	LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	<20	-	47
TRH C15-C28	mg/kg	45	<45	<45	-	250
TRH C29-C36	mg/kg	45	<45	<45	-	140
TRH C37-C40	mg/kg	100	<100	<100	-	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	-	430
TRH C10-C40 Total	mg/kg	210	<210	<210	-	430

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	<25	-	65
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	-	65
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-	330
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	<0.1	-	0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-	0.6
Anthracene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Fluoranthene	mg/kg	0.1	0.1	<0.1	-	0.6
Pyrene	mg/kg	0.1	0.1	<0.1	-	0.6
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	0.3
Chrysene	mg/kg	0.1	<0.1	<0.1	-	0.3
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	0.4
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	0.2
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	<0.2	-	0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	-	0.4
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	-	0.3
Total PAH	mg/kg	0.8	<0.8	<0.8	-	3.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	100	-	108
2-fluorobiphenyl (Surrogate)	%	-	90	80	-	92
d14-p-terphenyl (Surrogate)	%	-	100	108	-	106

Parameter	Sample Number		SE131890.001	SE131890.002	SE131890.003	SE131890.004
	Sample Matrix		Soil	Soil	Material	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP1 0.0-0.1	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Sample Number		SE131890.001	SE131890.002	SE131890.003	SE131890.004
	Sample Matrix		Soil	Soil	Material	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP1 0.0-0.1	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1
Units	LOR					

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	4.5	-	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	18	-	-	-
Exchangeable Sodium, Na	meq/100g	0.01	0.08	-	-	-
Exchangeable Sodium Percentage*	%	0.1	1.5	-	-	-
Exchangeable Potassium, K	mg/kg	2	260	-	-	-
Exchangeable Potassium, K	meq/100g	0.01	0.67	-	-	-
Exchangeable Potassium Percentage*	%	0.1	13.5	-	-	-
Exchangeable Calcium, Ca	mg/kg	2	650	-	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	3.3	-	-	-
Exchangeable Calcium Percentage*	%	0.1	65.4	-	-	-
Exchangeable Magnesium, Mg	mg/kg	2	120	-	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	0.98	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	19.6	-	-	-
Cation Exchange Capacity	meq/100g	0.02	5.0	-	-	-

Parameter	Sample Number		SE131890.001	SE131890.002	SE131890.003	SE131890.004
	Sample Matrix		Soil	Soil	Material	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP1 0.0-0.1	TP1 1.3-1.4	TP1 1.0-1.1	TP2 0.0-0.1
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	100	<3	-	45
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	-	0.6
Chromium, Cr	mg/kg	0.3	5.6	17	-	16
Copper, Cu	mg/kg	0.5	49	7.8	-	59
Lead, Pb	mg/kg	1	110	17	-	120
Nickel, Ni	mg/kg	0.5	29	16	-	30
Zinc, Zn	mg/kg	0.5	86	190	-	350

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.42	0.03	-	0.14
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	No
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	<0.01
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	Yes	-
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Moisture Content Method: AN002

% Moisture	%	0.5	6.5	23	-	14
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Parameter	Units	LOR	Sample Number	SE131890.005	SE131890.006	SE131890.007	SE131890.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP2 1.1-1.2	TP3 0.1-0.2	TP4 0.1-0.2	TP5 0.1-0.2

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	-	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	-	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	-	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	-	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	103	-	97	87
d4-1,2-dichloroethane (Surrogate)	%	-	106	-	98	87
d8-toluene (Surrogate)	%	-	98	-	91	80
Bromofluorobenzene (Surrogate)	%	-	110	-	99	88

Totals

Total Xylenes*	mg/kg	0.3	<0.3	-	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	-	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	-	<25	<25
TRH C6-C9	mg/kg	20	<20	-	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	103	-	97	87
d4-1,2-dichloroethane (Surrogate)	%	-	106	-	98	87
d8-toluene (Surrogate)	%	-	98	-	91	80
Bromofluorobenzene (Surrogate)	%	-	110	-	99	88

VPF F Bands

Benzene (F0)	mg/kg	0.1	<0.1	-	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-	<25	<25

Parameter	Sample Number		SE131890.005	SE131890.006	SE131890.007	SE131890.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP2 1.1-1.2	TP3 0.1-0.2	TP4 0.1-0.2	TP5 0.1-0.2
Units	LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	-	26	<20
TRH C15-C28	mg/kg	45	<45	-	180	69
TRH C29-C36	mg/kg	45	<45	-	95	<45
TRH C37-C40	mg/kg	100	<100	-	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	-	300	<110
TRH C10-C40 Total	mg/kg	210	<210	-	300	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	-	37	<25
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	-	37	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	-	250	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	-	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	-	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	-	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	-	0.8	0.3
Anthracene	mg/kg	0.1	<0.1	-	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	-	1.6	1.4
Pyrene	mg/kg	0.1	<0.1	-	1.7	1.6
Benzo(a)anthracene	mg/kg	0.1	<0.1	-	0.8	1.3
Chrysene	mg/kg	0.1	<0.1	-	0.6	0.6
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	1.2	2.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	0.2	0.3
Benzo(a)pyrene	mg/kg	0.1	<0.1	-	0.7	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	0.7	1.4
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	-	<0.1	0.2
Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	0.3	0.6
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	-	0.9	1.9
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	-	1.0	1.9
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	-	1.0	1.9
Total PAH	mg/kg	0.8	<0.8	-	8.9	11

Surrogates

d5-nitrobenzene (Surrogate)	%	-	116	-	110	112
2-fluorobiphenyl (Surrogate)	%	-	82	-	92	90
d14-p-terphenyl (Surrogate)	%	-	110	-	108	112

Parameter	Sample Number		SE131890.005	SE131890.006	SE131890.007	SE131890.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP2 1.1-1.2	TP3 0.1-0.2	TP4 0.1-0.2	TP5 0.1-0.2
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Units	LOR	Sample Number	SE131890.005	SE131890.006	SE131890.007	SE131890.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP2 1.1-1.2	TP3 0.1-0.2	TP4 0.1-0.2	TP5 0.1-0.2

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	5.1	-	4.8	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	130	-	40	-
Exchangeable Sodium, Na	meq/100g	0.01	0.58	-	0.17	-
Exchangeable Sodium Percentage*	%	0.1	3.0	-	1.6	-
Exchangeable Potassium, K	mg/kg	2	530	-	160	-
Exchangeable Potassium, K	meq/100g	0.01	1.4	-	0.42	-
Exchangeable Potassium Percentage*	%	0.1	7.0	-	3.8	-
Exchangeable Calcium, Ca	mg/kg	2	2200	-	1800	-
Exchangeable Calcium, Ca	meq/100g	0.01	11	-	8.8	-
Exchangeable Calcium Percentage*	%	0.1	57.1	-	78.6	-
Exchangeable Magnesium, Mg	mg/kg	2	780	-	220	-
Exchangeable Magnesium, Mg	meq/100g	0.02	6.4	-	1.8	-
Exchangeable Magnesium Percentage*	%	0.1	32.9	-	16.1	-
Cation Exchange Capacity	meq/100g	0.02	19	-	11	-

Parameter	Sample Number		SE131890.005	SE131890.006	SE131890.007	SE131890.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP2 1.1-1.2	TP3 0.1-0.2	TP4 0.1-0.2	TP5 0.1-0.2
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	7	-	340	96
Cadmium, Cd	mg/kg	0.3	<0.3	-	0.4	<0.3
Chromium, Cr	mg/kg	0.3	16	-	7.8	5.8
Copper, Cu	mg/kg	0.5	9.7	-	120	31
Lead, Pb	mg/kg	1	8	-	140	190
Nickel, Ni	mg/kg	0.5	12	-	21	11
Zinc, Zn	mg/kg	0.5	52	-	86	51

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	<0.01	-	0.14	0.12
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	22	-	14	11
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Parameter	Units	LOR	Sample Number	SE131890.009	SE131890.010	SE131890.011	SE131890.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP5 1.3-1.4	TP16 0.1-0.2	TP11 0.2-0.3	TP11 1.2-1.3

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	100	98	96	119
d4-1,2-dichloroethane (Surrogate)	%	-	103	100	96	122
d8-toluene (Surrogate)	%	-	91	92	89	115
Bromofluorobenzene (Surrogate)	%	-	104	108	97	120

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	100	98	96	119
d4-1,2-dichloroethane (Surrogate)	%	-	103	100	96	122
d8-toluene (Surrogate)	%	-	91	92	89	115
Bromofluorobenzene (Surrogate)	%	-	104	108	97	120

VPF F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR
Sample Number	SE131890.009	SE131890.010
Sample Matrix	Soil	Soil
Sample Date	02 Oct 2014	02 Oct 2014
Sample Name	TP5 1.3-1.4	TP16 0.1-0.2
		TP11 0.2-0.3
		TP11 1.2-1.3

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	110	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	150	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	<25	26	<25
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	26	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	130	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.7	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	0.1	0.2	<0.1	1.6	<0.1
Pyrene	mg/kg	0.1	0.2	<0.1	1.5	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.1	<0.1	0.8	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.6	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	<0.1	1.3	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)pyrene	mg/kg	0.1	0.1	<0.1	0.8	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	<0.1	1.0	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.1	<0.1	0.5	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	<0.2	1.2	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	1.2	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.2	<0.2	1.2	<0.2
Total PAH	mg/kg	0.8	1.4	<0.8	9.4	<0.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	118	124	116	110
2-fluorobiphenyl (Surrogate)	%	-	86	86	90	82
d14-p-terphenyl (Surrogate)	%	-	114	114	110	106

Parameter	Sample Number		SE131890.009	SE131890.010	SE131890.011	SE131890.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP5 1.3-1.4	TP16 0.1-0.2	TP11 0.2-0.3	TP11 1.2-1.3
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Sample Number		SE131890.009	SE131890.010	SE131890.011	SE131890.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP5 1.3-1.4	TP16 0.1-0.2	TP11 0.2-0.3	TP11 1.2-1.3
Units	LOR					

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	4.7	-	4.8	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	32	-	31	-
Exchangeable Sodium, Na	meq/100g	0.01	0.14	-	0.14	-
Exchangeable Sodium Percentage*	%	0.1	1.6	-	1.1	-
Exchangeable Potassium, K	mg/kg	2	360	-	310	-
Exchangeable Potassium, K	meq/100g	0.01	0.92	-	0.80	-
Exchangeable Potassium Percentage*	%	0.1	10.6	-	6.3	-
Exchangeable Calcium, Ca	mg/kg	2	1000	-	1800	-
Exchangeable Calcium, Ca	meq/100g	0.01	5.2	-	8.8	-
Exchangeable Calcium Percentage*	%	0.1	60.0	-	69.7	-
Exchangeable Magnesium, Mg	mg/kg	2	300	-	350	-
Exchangeable Magnesium, Mg	meq/100g	0.02	2.4	-	2.9	-
Exchangeable Magnesium Percentage*	%	0.1	27.8	-	22.9	-
Cation Exchange Capacity	meq/100g	0.02	8.7	-	13	-

Parameter	Sample Number		SE131890.009	SE131890.010	SE131890.011	SE131890.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP5 1.3-1.4	TP16 0.1-0.2	TP11 0.2-0.3	TP11 1.2-1.3
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	28	<3	26	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	4.1	10	6.0	19
Copper, Cu	mg/kg	0.5	11	5.0	39	10
Lead, Pb	mg/kg	1	54	14	200	14
Nickel, Ni	mg/kg	0.5	4.4	1.8	15	9.8
Zinc, Zn	mg/kg	0.5	20	12	110	66

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.08	<0.01	0.34	0.03
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	13	20	13	15
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Parameter	Units	LOR	Sample Number	SE131890.013	SE131890.014	SE131890.015	SE131890.016
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP15 0.1-0.2	TP15 0.4-0.5	TP10 0.1-0.2	TP14 0.1-0.2

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	98	91	92	89
d4-1,2-dichloroethane (Surrogate)	%	-	97	91	95	91
d8-toluene (Surrogate)	%	-	89	84	85	83
Bromofluorobenzene (Surrogate)	%	-	96	90	94	92

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	98	91	92	89
d4-1,2-dichloroethane (Surrogate)	%	-	97	91	95	91
d8-toluene (Surrogate)	%	-	89	84	85	83
Bromofluorobenzene (Surrogate)	%	-	96	90	94	92

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Sample Number		SE131890.013	SE131890.014	SE131890.015	SE131890.016
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP15 0.1-0.2	TP15 0.4-0.5	TP10 0.1-0.2	TP14 0.1-0.2
Units	LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	83	<45	110	64
TRH C29-C36	mg/kg	45	53	<45	66	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	140	<110	180	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	120	<90	160	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	1.0	<0.1	0.6	0.3
Anthracene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	2.9	<0.1	1.7	0.6
Pyrene	mg/kg	0.1	3.4	<0.1	1.7	0.7
Benzo(a)anthracene	mg/kg	0.1	1.4	<0.1	0.8	0.3
Chrysene	mg/kg	0.1	0.9	<0.1	0.6	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	2.4	<0.1	1.4	0.5
Benzo(k)fluoranthene	mg/kg	0.1	0.4	<0.1	0.2	0.1
Benzo(a)pyrene	mg/kg	0.1	1.8	<0.1	0.9	0.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	2.2	<0.1	1.1	0.4
Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	<0.1	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	1.2	<0.1	0.6	0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	2.6	<0.2	1.4	0.5
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	2.6	<0.3	1.4	0.6
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	2.6	<0.2	1.4	0.5
Total PAH	mg/kg	0.8	18	<0.8	9.9	3.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	118	108	118	116
2-fluorobiphenyl (Surrogate)	%	-	92	82	88	88
d14-p-terphenyl (Surrogate)	%	-	114	114	108	110

Parameter	Sample Number		SE131890.013	SE131890.014	SE131890.015	SE131890.016
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP15 0.1-0.2	TP15 0.4-0.5	TP10 0.1-0.2	TP14 0.1-0.2
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Units	LOR	Sample Number	SE131890.013	SE131890.014	SE131890.015	SE131890.016
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP15 0.1-0.2	TP15 0.4-0.5	TP10 0.1-0.2	TP14 0.1-0.2

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	-	4.3	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	-	440	-	-
Exchangeable Sodium, Na	meq/100g	0.01	-	1.9	-	-
Exchangeable Sodium Percentage*	%	0.1	-	9.2	-	-
Exchangeable Potassium, K	mg/kg	2	-	400	-	-
Exchangeable Potassium, K	meq/100g	0.01	-	1.0	-	-
Exchangeable Potassium Percentage*	%	0.1	-	5.0	-	-
Exchangeable Calcium, Ca	mg/kg	2	-	840	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	-	4.2	-	-
Exchangeable Calcium Percentage*	%	0.1	-	20.3	-	-
Exchangeable Magnesium, Mg	mg/kg	2	-	1700	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	-	14	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	65.6	-	-
Cation Exchange Capacity	meq/100g	0.02	-	21	-	-

Parameter	Sample Number		SE131890.013	SE131890.014	SE131890.015	SE131890.016
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP15 0.1-0.2	TP15 0.4-0.5	TP10 0.1-0.2	TP14 0.1-0.2
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	5	<3	49	12
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.4	<0.3
Chromium, Cr	mg/kg	0.3	13	12	5.7	11
Copper, Cu	mg/kg	0.5	19	7.8	33	17
Lead, Pb	mg/kg	1	48	8	150	47
Nickel, Ni	mg/kg	0.5	9.6	5.5	14	10
Zinc, Zn	mg/kg	0.5	76	9.1	200	70

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.07	<0.01	0.03	0.06
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	16	21	11	5.4
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Parameter	Units	LOR	Sample Number	SE131890.017	SE131890.018	SE131890.019	SE131890.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP9 0.1-0.2	TP9 0.7-0.8	TP6 0.0-0.1	TP7 0.0-0.1

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	104	100	89
d4-1,2-dichloroethane (Surrogate)	%	-	96	97	100	92
d8-toluene (Surrogate)	%	-	86	80	91	82
Bromofluorobenzene (Surrogate)	%	-	91	98	98	91

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	104	100	89
d4-1,2-dichloroethane (Surrogate)	%	-	96	97	100	92
d8-toluene (Surrogate)	%	-	86	80	91	82
Bromofluorobenzene (Surrogate)	%	-	91	98	98	91

VPF F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE131890.017 Soil 02 Oct 2014 TP9 0.1-0.2	SE131890.018 Soil 02 Oct 2014 TP9 0.7-0.8	SE131890.019 Soil 02 Oct 2014 TP6 0.0-0.1	SE131890.020 Soil 02 Oct 2014 TP7 0.0-0.1
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TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	51	<20	<20	23
TRH C15-C28	mg/kg	45	290	<45	100	130
TRH C29-C36	mg/kg	45	100	<45	<45	51
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	440	<110	<110	210
TRH C10-C40 Total	mg/kg	210	440	<210	<210	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	75	<25	<25	34
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	75	<25	<25	34
TRH >C16-C34 (F3)	mg/kg	90	350	<90	130	170
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	0.2	<0.1	<0.1	0.1
1-methylnaphthalene	mg/kg	0.1	0.3	<0.1	<0.1	0.2
Acenaphthylene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	1.6	<0.1	0.5	0.3
Anthracene	mg/kg	0.1	0.2	<0.1	0.1	<0.1
Fluoranthene	mg/kg	0.1	2.6	<0.1	1.4	0.2
Pyrene	mg/kg	0.1	2.7	<0.1	1.5	0.2
Benzo(a)anthracene	mg/kg	0.1	1.8	<0.1	1.0	0.2
Chrysene	mg/kg	0.1	1.1	<0.1	0.5	0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	1.7	<0.1	1.1	0.1
Benzo(k)fluoranthene	mg/kg	0.1	0.4	<0.1	0.2	<0.1
Benzo(a)pyrene	mg/kg	0.1	1.2	<0.1	0.7	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.1	<0.1	0.6	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.5	<0.1	0.3	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	1.9	<0.2	1.0	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	1.9	<0.3	1.1	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	1.9	<0.2	1.0	<0.2
Total PAH	mg/kg	0.8	16	<0.8	8.1	1.7

Surrogates

d5-nitrobenzene (Surrogate)	%	-	112	120	118	106
2-fluorobiphenyl (Surrogate)	%	-	96	90	84	84
d14-p-terphenyl (Surrogate)	%	-	116	110	106	100

Parameter	Sample Number		SE131890.017	SE131890.018	SE131890.019	SE131890.020
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP9 0.1-0.2	TP9 0.7-0.8	TP6 0.0-0.1	TP7 0.0-0.1
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Sample Number		SE131890.017	SE131890.018	SE131890.019	SE131890.020
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP9 0.1-0.2	TP9 0.7-0.8	TP6 0.0-0.1	TP7 0.0-0.1
Units	LOR					

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	-	-	5.3	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	-	-	38	-
Exchangeable Sodium, Na	meq/100g	0.01	-	-	0.16	-
Exchangeable Sodium Percentage*	%	0.1	-	-	1.3	-
Exchangeable Potassium, K	mg/kg	2	-	-	200	-
Exchangeable Potassium, K	meq/100g	0.01	-	-	0.51	-
Exchangeable Potassium Percentage*	%	0.1	-	-	4.2	-
Exchangeable Calcium, Ca	mg/kg	2	-	-	1800	-
Exchangeable Calcium, Ca	meq/100g	0.01	-	-	9.0	-
Exchangeable Calcium Percentage*	%	0.1	-	-	72.9	-
Exchangeable Magnesium, Mg	mg/kg	2	-	-	330	-
Exchangeable Magnesium, Mg	meq/100g	0.02	-	-	2.7	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	21.6	-
Cation Exchange Capacity	meq/100g	0.02	-	-	12	-

Parameter	Sample Number		SE131890.017	SE131890.018	SE131890.019	SE131890.020
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP9 0.1-0.2	TP9 0.7-0.8	TP6 0.0-0.1	TP7 0.0-0.1
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	14	<3	120	200
Cadmium, Cd	mg/kg	0.3	0.6	<0.3	0.4	0.3
Chromium, Cr	mg/kg	0.3	8.6	11	6.8	4.8
Copper, Cu	mg/kg	0.5	26	38	61	75
Lead, Pb	mg/kg	1	170	73	100	150
Nickel, Ni	mg/kg	0.5	17	15	13	14
Zinc, Zn	mg/kg	0.5	310	140	87	66

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.07	0.11	0.28	0.13
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	9.8	34	14	9.7
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Parameter	Units	LOR	Sample Number	SE131890.021	SE131890.022	SE131890.023	SE131890.024
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP7 0.8-0.9	TP8 0.1-0.2	TP8 0.9-1.0	TP13 0.1-0.2

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	89	85	83	94
d4-1,2-dichloroethane (Surrogate)	%	-	91	87	85	94
d8-toluene (Surrogate)	%	-	81	77	78	87
Bromofluorobenzene (Surrogate)	%	-	93	86	92	96

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	89	85	83	94
d4-1,2-dichloroethane (Surrogate)	%	-	91	87	85	94
d8-toluene (Surrogate)	%	-	81	77	78	87
Bromofluorobenzene (Surrogate)	%	-	93	86	92	96

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Sample Number		SE131890.021	SE131890.022	SE131890.023	SE131890.024
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP7 0.8-0.9	TP8 0.1-0.2	TP8 0.9-1.0	TP13 0.1-0.2
	Units	LOR				

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	50	<45	120
TRH C29-C36	mg/kg	45	<45	<45	<45	54
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	180
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	27
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	<25	27
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	160
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.1	<0.1	1.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2
Fluoranthene	mg/kg	0.1	<0.1	0.3	<0.1	2.5
Pyrene	mg/kg	0.1	<0.1	0.3	<0.1	2.4
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.2	<0.1	1.4
Chrysene	mg/kg	0.1	<0.1	0.1	<0.1	1.0
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.2	<0.1	2.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	0.3
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.1	<0.1	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.2	<0.1	1.5
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	0.8
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	0.2	<0.2	2.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	0.3	<0.3	2.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	0.3	<0.2	2.1
Total PAH	mg/kg	0.8	<0.8	1.7	<0.8	15

Surrogates

d5-nitrobenzene (Surrogate)	%	-	114	116	114	110
2-fluorobiphenyl (Surrogate)	%	-	74	88	84	92
d14-p-terphenyl (Surrogate)	%	-	102	112	114	110

Parameter	Sample Number		SE131890.021	SE131890.022	SE131890.023	SE131890.024
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP7 0.8-0.9	TP8 0.1-0.2	TP8 0.9-1.0	TP13 0.1-0.2
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Units	LOR
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PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	4.8	-	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	64	-	-	-
Exchangeable Sodium, Na	meq/100g	0.01	0.28	-	-	-
Exchangeable Sodium Percentage*	%	0.1	2.9	-	-	-
Exchangeable Potassium, K	mg/kg	2	160	-	-	-
Exchangeable Potassium, K	meq/100g	0.01	0.42	-	-	-
Exchangeable Potassium Percentage*	%	0.1	4.3	-	-	-
Exchangeable Calcium, Ca	mg/kg	2	1300	-	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	6.7	-	-	-
Exchangeable Calcium Percentage*	%	0.1	68.7	-	-	-
Exchangeable Magnesium, Mg	mg/kg	2	290	-	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	2.3	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	24.1	-	-	-
Cation Exchange Capacity	meq/100g	0.02	9.7	-	-	-

Parameter	Sample Number		SE131890.021	SE131890.022	SE131890.023	SE131890.024
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP7 0.8-0.9	TP8 0.1-0.2	TP8 0.9-1.0	TP13 0.1-0.2
	Units	LOR				

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	7	120	4	30
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	1.0
Chromium, Cr	mg/kg	0.3	7.7	4.6	16	9.6
Copper, Cu	mg/kg	0.5	12	37	10	66
Lead, Pb	mg/kg	1	46	72	13	400
Nickel, Ni	mg/kg	0.5	4.7	6.5	8.7	14
Zinc, Zn	mg/kg	0.5	22	42	17	330

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.05	0.05	0.02	0.20
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	19	8.3	24	5.8
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Parameter	Units	LOR	Sample Number	SE131890.025	SE131890.026	SE131890.027	SE131890.028
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP12 0.0-0.1	TP17 0.1-0.2	TP18 1.0-0.2	Comp 1

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	-

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	85	110	-
d4-1,2-dichloroethane (Surrogate)	%	-	93	86	111	-
d8-toluene (Surrogate)	%	-	90	80	106	-
Bromofluorobenzene (Surrogate)	%	-	94	85	93	-

Totals

Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	-

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	<20	-

Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	85	110	-
d4-1,2-dichloroethane (Surrogate)	%	-	93	86	111	-
d8-toluene (Surrogate)	%	-	90	80	106	-
Bromofluorobenzene (Surrogate)	%	-	94	85	93	-

VPF F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	-

Parameter	Sample Number		SE131890.025	SE131890.026	SE131890.027	SE131890.028
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP12 0.0-0.1	TP17 0.1-0.2	TP18 1.0-0.2	Comp 1
Units	LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	48	68	-
TRH C29-C36	mg/kg	45	<45	60	100	-
TRH C37-C40	mg/kg	100	<100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	170	-
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	-

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	-
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	130	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	0.2	0.4	1.6	-
Anthracene	mg/kg	0.1	<0.1	<0.1	0.2	-
Fluoranthene	mg/kg	0.1	0.5	1.1	3.9	-
Pyrene	mg/kg	0.1	0.5	1.0	4.2	-
Benzo(a)anthracene	mg/kg	0.1	0.2	0.5	1.8	-
Chrysene	mg/kg	0.1	0.2	0.3	1.2	-
Benzo(b&j)fluoranthene	mg/kg	0.1	0.4	0.7	3.1	-
Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.2	0.5	-
Benzo(a)pyrene	mg/kg	0.1	0.3	0.5	2.3	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.4	0.7	2.6	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	0.3	-
Benzo(ghi)perylene	mg/kg	0.1	0.2	0.4	1.4	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	0.4	0.7	3.3	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	0.5	0.8	3.3	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.5	0.8	3.3	-
Total PAH	mg/kg	0.8	3.2	6.0	23	-

Surrogates

d5-nitrobenzene (Surrogate)	%	-	114	118	118	-
2-fluorobiphenyl (Surrogate)	%	-	86	86	88	-
d14-p-terphenyl (Surrogate)	%	-	110	108	114	-

Parameter	Units	LOR	Sample Number	SE131890.025	SE131890.026	SE131890.027	SE131890.028
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP12 0.0-0.1	TP17 0.1-0.2	TP18 1.0-0.2	Comp 1

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	<0.1
Alpha BHC	mg/kg	0.1	-	-	-	<0.1
Lindane	mg/kg	0.1	-	-	-	<0.1
Heptachlor	mg/kg	0.1	-	-	-	<0.1
Aldrin	mg/kg	0.1	-	-	-	<0.1
Beta BHC	mg/kg	0.1	-	-	-	<0.1
Delta BHC	mg/kg	0.1	-	-	-	<0.1
Heptachlor epoxide	mg/kg	0.1	-	-	-	<0.1
o,p'-DDE	mg/kg	0.1	-	-	-	<0.1
Alpha Endosulfan	mg/kg	0.2	-	-	-	<0.2
Gamma Chlordane	mg/kg	0.1	-	-	-	<0.1
Alpha Chlordane	mg/kg	0.1	-	-	-	<0.1
trans-Nonachlor	mg/kg	0.1	-	-	-	<0.1
p,p'-DDE	mg/kg	0.1	-	-	-	<0.1
Dieldrin	mg/kg	0.2	-	-	-	<0.2
Endrin	mg/kg	0.2	-	-	-	<0.2
o,p'-DDD	mg/kg	0.1	-	-	-	<0.1
o,p'-DDT	mg/kg	0.1	-	-	-	<0.1
Beta Endosulfan	mg/kg	0.2	-	-	-	<0.2
p,p'-DDD	mg/kg	0.1	-	-	-	<0.1
p,p'-DDT	mg/kg	0.1	-	-	-	<0.1
Endosulfan sulphate	mg/kg	0.1	-	-	-	<0.1
Endrin Aldehyde	mg/kg	0.1	-	-	-	<0.1
Methoxychlor	mg/kg	0.1	-	-	-	<0.1
Endrin Ketone	mg/kg	0.1	-	-	-	<0.1
Isodrin	mg/kg	0.1	-	-	-	<0.1
Mirex	mg/kg	0.1	-	-	-	<0.1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	91
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Parameter	Units	LOR	Sample Number	SE131890.025	SE131890.026	SE131890.027	SE131890.028
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	TP12 0.0-0.1	TP17 0.1-0.2	TP18 1.0-0.2	Comp 1

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	<0.2
Arochlor 1221	mg/kg	0.2	-	-	-	<0.2
Arochlor 1232	mg/kg	0.2	-	-	-	<0.2
Arochlor 1242	mg/kg	0.2	-	-	-	<0.2
Arochlor 1248	mg/kg	0.2	-	-	-	<0.2
Arochlor 1254	mg/kg	0.2	-	-	-	<0.2
Arochlor 1260	mg/kg	0.2	-	-	-	<0.2
Arochlor 1262	mg/kg	0.2	-	-	-	<0.2
Arochlor 1268	mg/kg	0.2	-	-	-	<0.2
Total PCBs (Arochors)	mg/kg	1	-	-	-	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	91
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	4.8	-	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	19	-	-	-
Exchangeable Sodium, Na	meq/100g	0.01	0.08	-	-	-
Exchangeable Sodium Percentage*	%	0.1	0.9	-	-	-
Exchangeable Potassium, K	mg/kg	2	370	-	-	-
Exchangeable Potassium, K	meq/100g	0.01	0.94	-	-	-
Exchangeable Potassium Percentage*	%	0.1	10.6	-	-	-
Exchangeable Calcium, Ca	mg/kg	2	1100	-	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	5.5	-	-	-
Exchangeable Calcium Percentage*	%	0.1	61.3	-	-	-
Exchangeable Magnesium, Mg	mg/kg	2	290	-	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	2.4	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	27.2	-	-	-
Cation Exchange Capacity	meq/100g	0.02	8.9	-	-	-

Parameter	Sample Number		SE131890.025	SE131890.026	SE131890.027	SE131890.028
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		TP12 0.0-0.1	TP17 0.1-0.2	TP18 1.0-0.2	Comp 1
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	5	4	9	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.7	-
Chromium, Cr	mg/kg	0.3	4.7	11	9.9	-
Copper, Cu	mg/kg	0.5	22	13	41	-
Lead, Pb	mg/kg	1	56	160	550	-
Nickel, Ni	mg/kg	0.5	4.8	6.6	11	-
Zinc, Zn	mg/kg	0.5	63	120	520	-

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.04	0.09	0.21	-
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	7.1	15	16	21
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Parameter	Units	LOR	Sample Number	SE131890.029	SE131890.030	SE131890.031	SE131890.032
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	Comp 2	Comp 3	QC1	QC2

VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	-	-	<0.1	<0.1
Toluene	mg/kg	0.1	-	-	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	-	-	<0.1	<0.1
m/p-xylene	mg/kg	0.2	-	-	<0.2	<0.2
o-xylene	mg/kg	0.1	-	-	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	-	-	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	-	-	106	95
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	106	97
d8-toluene (Surrogate)	%	-	-	-	98	87
Bromofluorobenzene (Surrogate)	%	-	-	-	100	94

Totals

Total Xylenes*	mg/kg	0.3	-	-	<0.3	<0.3
Total BTEX*	mg/kg	0.6	-	-	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	-	-	<25	<25
TRH C6-C9	mg/kg	20	-	-	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	-	-	106	95
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	106	97
d8-toluene (Surrogate)	%	-	-	-	98	87
Bromofluorobenzene (Surrogate)	%	-	-	-	100	94

VPH F Bands

Benzene (F0)	mg/kg	0.1	-	-	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-	<25	<25

Parameter	Sample Number		SE131890.029	SE131890.030	SE131890.031	SE131890.032
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		Comp 2	Comp 3	QC1	QC2
Units	LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	-	-	<20	<20
TRH C15-C28	mg/kg	45	-	-	<45	73
TRH C29-C36	mg/kg	45	-	-	50	76
TRH C37-C40	mg/kg	100	-	-	<100	<100
TRH C10-C36 Total	mg/kg	110	-	-	<110	150
TRH C10-C40 Total	mg/kg	210	-	-	<210	<210

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	-	-	<25	<25
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	-	-	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	-	-	<90	130
TRH >C34-C40 (F4)	mg/kg	120	-	-	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	-	-	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	-	-	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	-	-	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	-	-	<0.1	0.1
Acenaphthene	mg/kg	0.1	-	-	<0.1	<0.1
Fluorene	mg/kg	0.1	-	-	<0.1	<0.1
Phenanthrene	mg/kg	0.1	-	-	<0.1	1.0
Anthracene	mg/kg	0.1	-	-	<0.1	0.2
Fluoranthene	mg/kg	0.1	-	-	0.1	3.1
Pyrene	mg/kg	0.1	-	-	0.1	3.6
Benzo(a)anthracene	mg/kg	0.1	-	-	<0.1	1.6
Chrysene	mg/kg	0.1	-	-	<0.1	1.1
Benzo(b&j)fluoranthene	mg/kg	0.1	-	-	<0.1	2.6
Benzo(k)fluoranthene	mg/kg	0.1	-	-	<0.1	0.4
Benzo(a)pyrene	mg/kg	0.1	-	-	<0.1	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-	<0.1	2.3
Dibenzo(a&h)anthracene	mg/kg	0.1	-	-	<0.1	0.2
Benzo(ghi)perylene	mg/kg	0.1	-	-	<0.1	1.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	-	-	<0.2	2.9
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	-	-	<0.3	2.9
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	-	-	<0.2	2.9
Total PAH	mg/kg	0.8	-	-	<0.8	20

Surrogates

d5-nitrobenzene (Surrogate)	%	-	-	-	120	116
2-fluorobiphenyl (Surrogate)	%	-	-	-	84	86
d14-p-terphenyl (Surrogate)	%	-	-	-	104	106

Parameter	Sample Number		SE131890.029	SE131890.030	SE131890.031	SE131890.032
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		Comp 2	Comp 3	QC1	QC2
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
Lindane	mg/kg	0.1	<0.1	<0.1	-	-
Heptachlor	mg/kg	0.1	<0.1	<0.1	-	-
Aldrin	mg/kg	0.1	<0.1	<0.1	-	-
Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
Delta BHC	mg/kg	0.1	<0.1	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
Dieldrin	mg/kg	0.2	<0.2	<0.2	-	-
Endrin	mg/kg	0.2	<0.2	<0.2	-	-
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
Mirex	mg/kg	0.1	<0.1	<0.1	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87	82	-	-
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Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE131890.029 Soil 02 Oct 2014 Comp 2	SE131890.030 Soil 02 Oct 2014 Comp 3	SE131890.031 Soil 02 Oct 2014 QC1	SE131890.032 Soil 02 Oct 2014 QC2
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PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
Total PCBs (Arochors)	mg/kg	1	<1	<1	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87	82	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	-	-	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	-	-	-	-
Exchangeable Sodium, Na	meq/100g	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	mg/kg	2	-	-	-	-
Exchangeable Potassium, K	meq/100g	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	mg/kg	2	-	-	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	mg/kg	2	-	-	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	meq/100g	0.02	-	-	-	-

Parameter	Sample Number		SE131890.029	SE131890.030	SE131890.031	SE131890.032
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		Comp 2	Comp 3	QC1	QC2
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	-	-	80	6
Cadmium, Cd	mg/kg	0.3	-	-	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	-	-	4.3	15
Copper, Cu	mg/kg	0.5	-	-	42	24
Lead, Pb	mg/kg	1	-	-	99	48
Nickel, Ni	mg/kg	0.5	-	-	27	11
Zinc, Zn	mg/kg	0.5	-	-	86	76

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	-	-	0.32	0.06
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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Moisture Content Method: AN002

% Moisture	%	0.5	11	18	7.5	16
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Parameter	Units	LOR
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VOC's in Soil Method: AN433/AN434

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	-	-	[81%]
Toluene	mg/kg	0.1	<0.1	-	-	[93%]
Ethylbenzene	mg/kg	0.1	<0.1	-	-	[89%]
m/p-xylene	mg/kg	0.2	<0.2	-	-	[82%]
o-xylene	mg/kg	0.1	<0.1	-	-	[82%]

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	-	-	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	-	-	88
d4-1,2-dichloroethane (Surrogate)	%	-	93	-	-	88
d8-toluene (Surrogate)	%	-	83	-	-	88
Bromofluorobenzene (Surrogate)	%	-	90	-	-	117

Totals

Total Xylenes*	mg/kg	0.3	<0.3	-	-	-
Total BTEX*	mg/kg	0.6	<0.6	-	-	-

Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C10	mg/kg	25	<25	-	-	-
TRH C6-C9	mg/kg	20	<20	-	-	-

Surrogates

Dibromofluoromethane (Surrogate)	%	-	94	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	93	-	-	-
d8-toluene (Surrogate)	%	-	83	-	-	-
Bromofluorobenzene (Surrogate)	%	-	90	-	-	-

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	-	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-	-	-

Parameter	Units	LOR
Sample Number	SE131890.033	SE131890.034
Sample Matrix	Soil	Material
Sample Date	02 Oct 2014	02 Oct 2014
Sample Name	QC3	TP10 0.1-0.2
		TP9 0.1-0.2
		SE131890.036
		Soil
		02 Oct 2014
		Trip Spike

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	<20	-	-	-
TRH C15-C28	mg/kg	45	<45	-	-	-
TRH C29-C36	mg/kg	45	<45	-	-	-
TRH C37-C40	mg/kg	100	<100	-	-	-
TRH C10-C36 Total	mg/kg	110	<110	-	-	-
TRH C10-C40 Total	mg/kg	210	<210	-	-	-

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	<25	-	-	-
TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	<90	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	<120	-	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420

Naphthalene	mg/kg	0.1	<0.1	-	-	-
2-methylnaphthalene	mg/kg	0.1	<0.1	-	-	-
1-methylnaphthalene	mg/kg	0.1	<0.1	-	-	-
Acenaphthylene	mg/kg	0.1	<0.1	-	-	-
Acenaphthene	mg/kg	0.1	<0.1	-	-	-
Fluorene	mg/kg	0.1	<0.1	-	-	-
Phenanthrene	mg/kg	0.1	<0.1	-	-	-
Anthracene	mg/kg	0.1	<0.1	-	-	-
Fluoranthene	mg/kg	0.1	<0.1	-	-	-
Pyrene	mg/kg	0.1	<0.1	-	-	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-	-
Chrysene	mg/kg	0.1	<0.1	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	-	-	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	-	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	-	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	-	-	-
Total PAH	mg/kg	0.8	<0.8	-	-	-

Surrogates

d5-nitrobenzene (Surrogate)	%	-	120	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	86	-	-	-
d14-p-terphenyl (Surrogate)	%	-	112	-	-	-

Parameter	Sample Number		SE131890.033	SE131890.034	SE131890.035	SE131890.036
	Sample Matrix		Soil	Material	Material	Soil
	Sample Date		02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
	Sample Name		QC3	TP10 0.1-0.2	TP9 0.1-0.2	Trip Spike
Units	LOR					

OC Pesticides in Soil Method: AN400/AN420

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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Parameter	Units	LOR	Sample Number	SE131890.033	SE131890.034	SE131890.035	SE131890.036
			Sample Matrix	Soil	Material	Material	Soil
			Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
			Sample Name	QC3	TP10 0.1-0.2	TP9 0.1-0.2	Trip Spike

PCBs in Soil Method: AN400/AN420

Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochors)	mg/kg	1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
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pH in Soil CaCl2 Extract Method: AN103

pH Soil CaCl2 Extract	pH Units	-	-	-	-	-
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Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122

Exchangeable Sodium, Na	mg/kg	2	-	-	-	-
Exchangeable Sodium, Na	meq/100g	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	mg/kg	2	-	-	-	-
Exchangeable Potassium, K	meq/100g	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	mg/kg	2	-	-	-	-
Exchangeable Calcium, Ca	meq/100g	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	mg/kg	2	-	-	-	-
Exchangeable Magnesium, Mg	meq/100g	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	meq/100g	0.02	-	-	-	-

Parameter	Units	LOR
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Sample Number	SE131890.033	SE131890.034	SE131890.035	SE131890.036
Sample Matrix	Soil	Material	Material	Soil
Sample Date	02 Oct 2014	02 Oct 2014	02 Oct 2014	02 Oct 2014
Sample Name	QC3	TP10 0.1-0.2	TP9 0.1-0.2	Trip Spike

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	3	4	-	-	-
Cadmium, Cd	mg/kg	0.3	<0.3	-	-	-
Chromium, Cr	mg/kg	0.3	13	-	-	-
Copper, Cu	mg/kg	0.5	14	-	-	-
Lead, Pb	mg/kg	1	49	-	-	-
Nickel, Ni	mg/kg	0.5	8.4	-	-	-
Zinc, Zn	mg/kg	0.5	21	-	-	-

Mercury in Soil Method: AN312

Mercury	mg/kg	0.01	0.06	-	-	-
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	-	-	-	-
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SemiQuant

Estimated Fibres	%w/w	0.01	-	-	-	-
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Fibre ID in bulk materials Method: AN602

FibreID

Asbestos Detected	No unit	-	-	Yes	Yes	-
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Moisture Content Method: AN002

% Moisture	%	0.5	24	-	-	-
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MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: ME-(AU)-[ENV]AN122

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Exchangeable Sodium, Na	LB065251	mg/kg	2		116%
Exchangeable Sodium, Na	LB065251	meq/100g	0.01	<0.01	NA
Exchangeable Sodium Percentage*	LB065251	%	0.1	32.9	NA
Exchangeable Potassium, K	LB065251	mg/kg	2		105%
Exchangeable Potassium, K	LB065251	meq/100g	0.01	<0.01	NA
Exchangeable Potassium Percentage*	LB065251	%	0.1	<0.1	NA
Exchangeable Calcium, Ca	LB065251	mg/kg	2		104%
Exchangeable Calcium, Ca	LB065251	meq/100g	0.01	<0.01	NA
Exchangeable Calcium Percentage*	LB065251	%	0.1	<0.1	NA
Exchangeable Magnesium, Mg	LB065251	mg/kg	2		100%
Exchangeable Magnesium, Mg	LB065251	meq/100g	0.02	<0.02	NA
Exchangeable Magnesium Percentage*	LB065251	%	0.1	176.8	NA
Cation Exchange Capacity	LB065251	meq/100g	0.02	<0.02	NA

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB065258	mg/kg	0.01	<0.01	0 - 7%	99%	84%
	LB065336	mg/kg	0.01	<0.01	0 - 8%	100%	85%

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

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB065080	%	0.5	0 - 7%

OC Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Hexachlorobenzene (HCB)	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Alpha BHC	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Lindane	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Heptachlor	LB065060	mg/kg	0.1	<0.1		97%
	LB065061	mg/kg	0.1	<0.1	0%	78%
Aldrin	LB065060	mg/kg	0.1	<0.1		102%
	LB065061	mg/kg	0.1	<0.1	0%	77%
Beta BHC	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Delta BHC	LB065060	mg/kg	0.1	<0.1		93%
	LB065061	mg/kg	0.1	<0.1	0%	75%
Heptachlor epoxide	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
o,p'-DDE	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Alpha Endosulfan	LB065060	mg/kg	0.2	<0.2		NA
	LB065061	mg/kg	0.2	<0.2	0%	NA
Gamma Chlordane	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Alpha Chlordane	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
trans-Nonachlor	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
p,p'-DDE	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Dieldrin	LB065060	mg/kg	0.2	<0.2		97%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OC Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420 (continued)

				MB	DUP %RPD	LCS %Recovery
Dieldrin	LB065061	mg/kg	0.2	<0.2	0%	75%
Endrin	LB065060	mg/kg	0.2	<0.2		103%
	LB065061	mg/kg	0.2	<0.2	0%	77%
o,p'-DDD	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
o,p'-DDT	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Beta Endosulfan	LB065060	mg/kg	0.2	<0.2		NA
	LB065061	mg/kg	0.2	<0.2	0%	NA
p,p'-DDD	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
p,p'-DDT	LB065060	mg/kg	0.1	<0.1		78%
	LB065061	mg/kg	0.1	<0.1	0%	77%
Endosulfan sulphate	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Endrin Aldehyde	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Methoxychlor	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Endrin Ketone	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Isodrin	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA
Mirex	LB065060	mg/kg	0.1	<0.1		NA
	LB065061	mg/kg	0.1	<0.1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB065060	%	-	87%		100%
	LB065061	%	-	84%	3%	87%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-(ENV)AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Naphthalene	LB065060	mg/kg	0.1	<0.1	0 - 10%	92%	106%	0%
	LB065061	mg/kg	0.1	<0.1	0%	108%	107%	2%
2-methylnaphthalene	LB065060	mg/kg	0.1	<0.1	0 - 24%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	0%	NA	NA	NA
1-methylnaphthalene	LB065060	mg/kg	0.1	<0.1	14 - 38%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	0%	NA	NA	NA
Acenaphthylene	LB065060	mg/kg	0.1	<0.1	0 - 22%	96%	95%	6%
	LB065061	mg/kg	0.1	<0.1	8%	97%	101%	2%
Acenaphthene	LB065060	mg/kg	0.1	<0.1	0 - 31%	98%	94%	6%
	LB065061	mg/kg	0.1	<0.1	0%	96%	99%	2%
Fluorene	LB065060	mg/kg	0.1	<0.1	0 - 26%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	0%	NA	NA	NA
Phenanthrene	LB065060	mg/kg	0.1	<0.1	28 - 36%	102%	97%	3%
	LB065061	mg/kg	0.1	<0.1	4%	103%	102%	2%
Anthracene	LB065060	mg/kg	0.1	<0.1	11 - 33%	99%	109%	6%
	LB065061	mg/kg	0.1	<0.1	5%	99%	102%	1%
Fluoranthene	LB065060	mg/kg	0.1	<0.1	24 - 25%	106%	106%	26%
	LB065061	mg/kg	0.1	<0.1	3%	104%	102%	1%
Pyrene	LB065060	mg/kg	0.1	<0.1	18 - 21%	101%	95%	27%
	LB065061	mg/kg	0.1	<0.1	11%	105%	98%	4%
Benzo(a)anthracene	LB065060	mg/kg	0.1	<0.1	23 - 32%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	1%	NA	NA	NA
Chrysene	LB065060	mg/kg	0.1	<0.1	15 - 24%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	15%	NA	NA	NA
Benzo(b&j)fluoranthene	LB065060	mg/kg	0.1	<0.1	8 - 24%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	4%	NA	NA	NA
Benzo(k)fluoranthene	LB065060	mg/kg	0.1	<0.1	15 - 76%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	8%	NA	NA	NA
Benzo(a)pyrene	LB065060	mg/kg	0.1	<0.1	19 - 27%	97%	94%	3%
	LB065061	mg/kg	0.1	<0.1	7%	124%	106%	6%
Indeno(1,2,3-cd)pyrene	LB065060	mg/kg	0.1	<0.1	21 - 22%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	5%	NA	NA	NA
Dibenzo(a&h)anthracene	LB065060	mg/kg	0.1	<0.1	22 - 36%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	9%	NA	NA	NA
Benzo(ghi)perylene	LB065060	mg/kg	0.1	<0.1	21 - 22%	NA	NA	NA
	LB065061	mg/kg	0.1	<0.1	7%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	LB065060	TEQ	0.2	<0.2	20 - 26%	NA	NA	NA
	LB065061	TEQ	0.2	<0.2	6%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	LB065060	TEQ (mg/kg)	0.3	<0.3	20 - 26%	NA	NA	NA
	LB065061	TEQ (mg/kg)	0.3	<0.3	6%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	LB065060	TEQ (mg/kg)	0.2	<0.2	20 - 26%	NA	NA	NA
	LB065061	TEQ (mg/kg)	0.2	<0.2	6%	NA	NA	NA
Total PAH	LB065060	mg/kg	0.8	<0.8	22 - 24%	NA	NA	NA
	LB065061	mg/kg	0.8	<0.8	6%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
d5-nitrobenzene (Surrogate)	LB065060	%	-	96%	7 - 9%	84%	116%	2%
	LB065061	%	-	104%	5%	110%	118%	7%
2-fluorobiphenyl (Surrogate)	LB065060	%	-	98%	5 - 7%	88%	90%	2%
	LB065061	%	-	78%	2%	82%	88%	12%
d14-p-terphenyl (Surrogate)	LB065060	%	-	110%	2 - 6%	104%	108%	2%
	LB065061	%	-	98%	2%	100%	108%	12%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arochlor 1016	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1221	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1232	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1242	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1248	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1254	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1260	LB065061	mg/kg	0.2	<0.2	0%	80%
Arochlor 1262	LB065061	mg/kg	0.2	<0.2	0%	NA
Arochlor 1268	LB065061	mg/kg	0.2	<0.2	0%	NA
Total PCBs (Arochlors)	LB065061	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB065061	%	-	84%	3%	83%

pH in Soil CaCl2 Extract Method: ME-(AU)-[ENV]AN103

Parameter	QC Reference	Units	LOR	DUP %RPD	LCS %Recovery
pH Soil CaCl2 Extract	LB065212	pH Units	-	4%	NA

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB065256	mg/kg	3	<3	2 - 28%	97%	98%
	LB065335	mg/kg	3	<3	2 - 14%	99%	96%
Cadmium, Cd	LB065256	mg/kg	0.3	<0.3	0 - 1%	99%	102%
	LB065335	mg/kg	0.3	<0.3	0%	100%	95%
Chromium, Cr	LB065256	mg/kg	0.3	<0.3	0 - 24%	101%	106%
	LB065335	mg/kg	0.3	<0.3	1 - 2%	99%	96%
Copper, Cu	LB065256	mg/kg	0.5	<0.5	0 - 3%	96%	94%
	LB065335	mg/kg	0.5	<0.5	3%	100%	91%
Lead, Pb	LB065256	mg/kg	1	<1	1 - 7%	99%	105%
	LB065335	mg/kg	1	<1	2 - 4%	101%	140%
Nickel, Ni	LB065256	mg/kg	0.5	<0.5	3 - 6%	99%	110%
	LB065335	mg/kg	0.5	<0.5	2 - 12%	100%	94%
Zinc, Zn	LB065256	mg/kg	0.5	<0.5	2%	99%	97%
	LB065335	mg/kg	0.5	<0.5	5%	102%	96%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH C10-C14	LB065060	mg/kg	20	<20	0%	78%	90%	3%
	LB065061	mg/kg	20	<20	0%	90%		NA
TRH C15-C28	LB065060	mg/kg	45	<45	10 - 23%	85%	95%	3%
	LB065061	mg/kg	45	<45	9%	93%		NA
TRH C29-C36	LB065060	mg/kg	45	<45	9 - 10%	78%	78%	3%
	LB065061	mg/kg	45	<45	14%	80%		NA
TRH C37-C40	LB065060	mg/kg	100	<100	0%	NA	NA	NA
	LB065061	mg/kg	100	<100	0%	NA		NA
TRH C10-C36 Total	LB065060	mg/kg	110	<110	10 - 21%	NA	NA	NA
	LB065061	mg/kg	110	<110	11%	NA		NA
TRH C10-C40 Total	LB065060	mg/kg	210	<210	0 - 10%	NA	NA	NA
	LB065061	mg/kg	210	<210	0%	NA		NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH >C10-C16 (F2)	LB065060	mg/kg	25	<25	0%	80%	90%	3%
	LB065061	mg/kg	25	<25	0%	90%		NA
TRH >C10-C16 (F2) minus Naphthalene	LB065060	mg/kg	25	<25	0%	NA	NA	NA
	LB065061	mg/kg	25	<25	0%	NA		NA
TRH >C16-C34 (F3)	LB065060	mg/kg	90	<90	10 - 23%	85%	93%	0%
	LB065061	mg/kg	90	<90	11%	93%		NA
TRH >C34-C40 (F4)	LB065060	mg/kg	120	<120	0%	80%	NA	NA
	LB065061	mg/kg	120	<120	0%	75%		NA

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB065057	mg/kg	0.1	<0.1	0%	77%	81%
	LB065058	mg/kg	0.1	<0.1	0%	73%	77%
Toluene	LB065057	mg/kg	0.1	<0.1	0%	76%	79%
	LB065058	mg/kg	0.1	<0.1	0%	79%	76%
Ethylbenzene	LB065057	mg/kg	0.1	<0.1	0%	80%	77%
	LB065058	mg/kg	0.1	<0.1	0%	81%	74%
m/p-xylene	LB065057	mg/kg	0.2	<0.2	0%	87%	74%
	LB065058	mg/kg	0.2	<0.2	0%	80%	76%
o-xylene	LB065057	mg/kg	0.1	<0.1	0%	86%	74%
	LB065058	mg/kg	0.1	<0.1	0%	78%	76%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB065057	mg/kg	0.1	<0.1	0%	NA	NA
	LB065058	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB065057	%	-	95%	4 - 12%	107%	113%
	LB065058	%	-	96%	13%	95%	107%
d4-1,2-dichloroethane (Surrogate)	LB065057	%	-	96%	4 - 12%	106%	112%
	LB065058	%	-	97%	11%	94%	109%
d8-toluene (Surrogate)	LB065057	%	-	92%	6 - 14%	106%	113%
	LB065058	%	-	91%	10%	93%	102%
Bromofluorobenzene (Surrogate)	LB065057	%	-	94%	8 - 14%	119%	98%
	LB065058	%	-	93%	5%	107%	102%

Totals

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434 (continued)

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes*	LB065057	mg/kg	0.3	<0.3	0%	NA	NA
	LB065058	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX*	LB065057	mg/kg	0.6	<0.6	0%	NA	NA
	LB065058	mg/kg	0.6	<0.6	0%	NA	NA

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB065057	mg/kg	25	<25	0%	91%	93%
	LB065058	mg/kg	25	<25	0%	92%	93%
TRH C6-C9	LB065057	mg/kg	20	<20	0%	86%	93%
	LB065058	mg/kg	20	<20	0%	87%	89%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB065057	%	-	95%	4 - 12%	107%	113%
	LB065058	%	-	96%	13%	95%	107%
d4-1,2-dichloroethane (Surrogate)	LB065057	%	-	96%	4 - 12%	106%	112%
	LB065058	%	-	97%	11%	94%	109%
d8-toluene (Surrogate)	LB065057	%	-	92%	6 - 14%	106%	113%
	LB065058	%	-	91%	10%	93%	102%
Bromofluorobenzene (Surrogate)	LB065057	%	-	94%	8 - 14%	119%	98%
	LB065058	%	-	93%	5%	107%	102%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB065057	mg/kg	0.1	<0.1	0%	NA	NA
	LB065058	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB065057	mg/kg	25	<25	0%	112%	133%
	LB065058	mg/kg	25	<25	0%	125%	135%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.						
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.						
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.						
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.						
AN103	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.						
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1 M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pretreated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.						
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: <table> <tr> <td>ESP < 6%</td><td>non-sodic</td></tr> <tr> <td>ESP 6-15%</td><td>sodic</td></tr> <tr> <td>ESP >15%</td><td>strongly sodic</td></tr> </table> Method is referenced to Rayment and Higginson, 1992, sections 15D3 and 15N1.-	ESP < 6%	non-sodic	ESP 6-15%	sodic	ESP >15%	strongly sodic
ESP < 6%	non-sodic						
ESP 6-15%	sodic						
ESP >15%	strongly sodic						
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500						
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)						
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.						
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.						

METHOD

METHODOLOGY SUMMARY

AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
^	Performed by outside laboratory.	-	The sample was not analysed for this analyte
		NVL	Not Validated

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE131890 R0

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Project JME4079
Order Number JME4079
Samples 36

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SGS Reference SE131890 R0
Report Number 0000092981
Date Reported 13 Oct 2014

COMMENTS

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

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

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

Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	6 items
LCS	OC Pesticides in Soil	1 item
Matrix Spike	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	1 item

SAMPLE SUMMARY

Sample counts by matrix	33 Soils, 3 Materials	Type of documentation received	COC
Date documentation received	3/10/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.0°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065251	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	13 Oct 2014

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP2 0.0-0.1	SE131890.004	LB065231	02 Oct 2014	03 Oct 2014	02 Oct 2015	09 Oct 2014	02 Oct 2015	13 Oct 2014

Mercury In Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065258	02 Oct 2014	03 Oct 2014	30 Oct 2014	09 Oct 2014	30 Oct 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
QC1	SE131890.031	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
QC2	SE131890.032	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014
QC3	SE131890.033	LB065336	02 Oct 2014	03 Oct 2014	30 Oct 2014	13 Oct 2014	30 Oct 2014	13 Oct 2014

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP3 0.1-0.2	SE131890.006	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	09 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014



HOLDING TIME SUMMARY

SE131890 R0

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

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

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

Moisture Content (continued)

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP10 0.1-0.2	SE131890.015	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
Comp 1	SE131890.028	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
Comp 2	SE131890.029	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
Comp 3	SE131890.030	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
QC1	SE131890.031	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
QC2	SE131890.032	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014
QC3	SE131890.033	LB065080	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	12 Oct 2014	08 Oct 2014

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 1	SE131890.028	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 2	SE131890.029	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 3	SE131890.030	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC1	SE131890.031	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC2	SE131890.032	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC3	SE131890.033	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP5 0.1-0.2	SE131890.008	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 1	SE131890.028	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
Comp 2	SE131890.029	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
Comp 3	SE131890.030	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
QC1	SE131890.031	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC2	SE131890.032	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC3	SE131890.033	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 1	SE131890.028	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 2	SE131890.029	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Comp 3	SE131890.030	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC1	SE131890.031	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC2	SE131890.032	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC3	SE131890.033	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014



HOLDING TIME SUMMARY

SE131890 R0

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

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

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

pH in Soil CaCl₂ Extract

Method: ME-(AU)-[ENV]AN103

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065212	02 Oct 2014	03 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014	09 Oct 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065256	02 Oct 2014	03 Oct 2014	31 Mar 2015	09 Oct 2014	31 Mar 2015	13 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
QC1	SE131890.031	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
QC2	SE131890.032	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014
QC3	SE131890.033	LB065335	02 Oct 2014	03 Oct 2014	31 Mar 2015	13 Oct 2014	31 Mar 2015	13 Oct 2014

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065060	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014



HOLDING TIME SUMMARY

SE131890 R0

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7 0.8-0.9	SE131890.021	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
Comp 1	SE131890.028	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
Comp 2	SE131890.029	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
Comp 3	SE131890.030	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
QC1	SE131890.031	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
QC2	SE131890.032	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014
QC3	SE131890.033	LB065061	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	13 Oct 2014

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP14 0.1-0.2	SE131890.016	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC1	SE131890.031	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC2	SE131890.032	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC3	SE131890.033	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Trip Spike	SE131890.036	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1 0.0-0.1	SE131890.001	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP1 1.3-1.4	SE131890.002	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 0.0-0.1	SE131890.004	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP2 1.1-1.2	SE131890.005	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP4 0.1-0.2	SE131890.007	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 0.1-0.2	SE131890.008	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP5 1.3-1.4	SE131890.009	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP16 0.1-0.2	SE131890.010	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 0.2-0.3	SE131890.011	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP11 1.2-1.3	SE131890.012	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.1-0.2	SE131890.013	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP15 0.4-0.5	SE131890.014	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP10 0.1-0.2	SE131890.015	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

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

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP14 0.1-0.2	SE131890.016	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.1-0.2	SE131890.017	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP9 0.7-0.8	SE131890.018	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP6 0.0-0.1	SE131890.019	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.0-0.1	SE131890.020	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP7 0.8-0.9	SE131890.021	LB065057	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.1-0.2	SE131890.022	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP8 0.9-1.0	SE131890.023	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP13 0.1-0.2	SE131890.024	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP12 0.0-0.1	SE131890.025	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP17 0.1-0.2	SE131890.026	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
TP18 1.0-0.2	SE131890.027	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC1	SE131890.031	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC2	SE131890.032	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
QC3	SE131890.033	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014
Trip Spike	SE131890.036	LB065058	02 Oct 2014	03 Oct 2014	16 Oct 2014	07 Oct 2014	16 Nov 2014	10 Oct 2014

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

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

OC Pesticides In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	Comp 1	SE131890.028	%	60 - 130%	91
	Comp 2	SE131890.029	%	60 - 130%	87
	Comp 3	SE131890.030	%	60 - 130%	82

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1 0.0-0.1	SE131890.001	%	70 - 130%	90
	TP1 1.3-1.4	SE131890.002	%	70 - 130%	80
	TP2 0.0-0.1	SE131890.004	%	70 - 130%	92
	TP2 1.1-1.2	SE131890.005	%	70 - 130%	82
	TP4 0.1-0.2	SE131890.007	%	70 - 130%	92
	TP5 0.1-0.2	SE131890.008	%	70 - 130%	90
	TP5 1.3-1.4	SE131890.009	%	70 - 130%	86
	TP16 0.1-0.2	SE131890.010	%	70 - 130%	86
	TP11 0.2-0.3	SE131890.011	%	70 - 130%	90
	TP11 1.2-1.3	SE131890.012	%	70 - 130%	82
	TP15 0.1-0.2	SE131890.013	%	70 - 130%	92
	TP15 0.4-0.5	SE131890.014	%	70 - 130%	82
	TP10 0.1-0.2	SE131890.015	%	70 - 130%	88
	TP14 0.1-0.2	SE131890.016	%	70 - 130%	88
	TP9 0.1-0.2	SE131890.017	%	70 - 130%	96
	TP9 0.7-0.8	SE131890.018	%	70 - 130%	90
	TP6 0.0-0.1	SE131890.019	%	70 - 130%	84
	TP7 0.0-0.1	SE131890.020	%	70 - 130%	84
	TP7 0.8-0.9	SE131890.021	%	70 - 130%	74
	TP8 0.1-0.2	SE131890.022	%	70 - 130%	88
	TP8 0.9-1.0	SE131890.023	%	70 - 130%	84
	TP13 0.1-0.2	SE131890.024	%	70 - 130%	92
	TP12 0.0-0.1	SE131890.025	%	70 - 130%	86
	TP17 0.1-0.2	SE131890.026	%	70 - 130%	86
	TP18 1.0-0.2	SE131890.027	%	70 - 130%	88
	QC1	SE131890.031	%	70 - 130%	84
	QC2	SE131890.032	%	70 - 130%	86
	QC3	SE131890.033	%	70 - 130%	86
d14-p-terphenyl (Surrogate)	TP1 0.0-0.1	SE131890.001	%	70 - 130%	100
	TP1 1.3-1.4	SE131890.002	%	70 - 130%	108
	TP2 0.0-0.1	SE131890.004	%	70 - 130%	106
	TP2 1.1-1.2	SE131890.005	%	70 - 130%	110
	TP4 0.1-0.2	SE131890.007	%	70 - 130%	108
	TP5 0.1-0.2	SE131890.008	%	70 - 130%	112
	TP5 1.3-1.4	SE131890.009	%	70 - 130%	114
	TP16 0.1-0.2	SE131890.010	%	70 - 130%	114
	TP11 0.2-0.3	SE131890.011	%	70 - 130%	110
	TP11 1.2-1.3	SE131890.012	%	70 - 130%	106
	TP15 0.1-0.2	SE131890.013	%	70 - 130%	114
	TP15 0.4-0.5	SE131890.014	%	70 - 130%	114
	TP10 0.1-0.2	SE131890.015	%	70 - 130%	108
	TP14 0.1-0.2	SE131890.016	%	70 - 130%	110
	TP9 0.1-0.2	SE131890.017	%	70 - 130%	116
	TP9 0.7-0.8	SE131890.018	%	70 - 130%	110
	TP6 0.0-0.1	SE131890.019	%	70 - 130%	106
	TP7 0.0-0.1	SE131890.020	%	70 - 130%	100
	TP7 0.8-0.9	SE131890.021	%	70 - 130%	102
	TP8 0.1-0.2	SE131890.022	%	70 - 130%	112
	TP8 0.9-1.0	SE131890.023	%	70 - 130%	114
	TP13 0.1-0.2	SE131890.024	%	70 - 130%	110
	TP12 0.0-0.1	SE131890.025	%	70 - 130%	110
	TP17 0.1-0.2	SE131890.026	%	70 - 130%	108
	TP18 1.0-0.2	SE131890.027	%	70 - 130%	114
	QC1	SE131890.031	%	70 - 130%	104
	QC2	SE131890.032	%	70 - 130%	106

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	QC3	SE131890.033	%	70 - 130%	112
d5-nitrobenzene (Surrogate)	TP1 0.0-0.1	SE131890.001	%	70 - 130%	94
	TP1 1.3-1.4	SE131890.002	%	70 - 130%	100
	TP2 0.0-0.1	SE131890.004	%	70 - 130%	108
	TP2 1.1-1.2	SE131890.005	%	70 - 130%	116
	TP4 0.1-0.2	SE131890.007	%	70 - 130%	110
	TP5 0.1-0.2	SE131890.008	%	70 - 130%	112
	TP5 1.3-1.4	SE131890.009	%	70 - 130%	118
	TP16 0.1-0.2	SE131890.010	%	70 - 130%	124
	TP11 0.2-0.3	SE131890.011	%	70 - 130%	116
	TP11 1.2-1.3	SE131890.012	%	70 - 130%	110
	TP15 0.1-0.2	SE131890.013	%	70 - 130%	118
	TP15 0.4-0.5	SE131890.014	%	70 - 130%	108
	TP10 0.1-0.2	SE131890.015	%	70 - 130%	118
	TP14 0.1-0.2	SE131890.016	%	70 - 130%	116
	TP9 0.1-0.2	SE131890.017	%	70 - 130%	112
	TP9 0.7-0.8	SE131890.018	%	70 - 130%	120
	TP6 0.0-0.1	SE131890.019	%	70 - 130%	118
	TP7 0.0-0.1	SE131890.020	%	70 - 130%	106
	TP7 0.8-0.9	SE131890.021	%	70 - 130%	114
	TP8 0.1-0.2	SE131890.022	%	70 - 130%	116
	TP8 0.9-1.0	SE131890.023	%	70 - 130%	114
	TP13 0.1-0.2	SE131890.024	%	70 - 130%	110
	TP12 0.0-0.1	SE131890.025	%	70 - 130%	114
	TP17 0.1-0.2	SE131890.026	%	70 - 130%	118
	TP18 1.0-0.2	SE131890.027	%	70 - 130%	118
	QC1	SE131890.031	%	70 - 130%	120
	QC2	SE131890.032	%	70 - 130%	116
	QC3	SE131890.033	%	70 - 130%	120

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	Comp 1	SE131890.028	%	60 - 130%	91
	Comp 2	SE131890.029	%	60 - 130%	87
	Comp 3	SE131890.030	%	60 - 130%	82

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1 0.0-0.1	SE131890.001	%	60 - 130%	93
	TP1 1.3-1.4	SE131890.002	%	60 - 130%	107
	TP2 0.0-0.1	SE131890.004	%	60 - 130%	103
	TP2 1.1-1.2	SE131890.005	%	60 - 130%	110
	TP4 0.1-0.2	SE131890.007	%	60 - 130%	99
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	88
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	104
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	108
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	97
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	120
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	96
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	90
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	94
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	92
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	91
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	98
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	98
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	91
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	93
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	86
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	92
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	96
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	94
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	85

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP18 1.0-0.2	SE131890.027	%	60 - 130%	93
	QC1	SE131890.031	%	60 - 130%	100
	QC2	SE131890.032	%	60 - 130%	94
	QC3	SE131890.033	%	60 - 130%	90
	Trip Spike	SE131890.036	%	60 - 130%	117
d4-1,2-dichloroethane (Surrogate)	TP1 0.0-0.1	SE131890.001	%	60 - 130%	80
	TP1 1.3-1.4	SE131890.002	%	60 - 130%	97
	TP2 0.0-0.1	SE131890.004	%	60 - 130%	94
	TP2 1.1-1.2	SE131890.005	%	60 - 130%	106
	TP4 0.1-0.2	SE131890.007	%	60 - 130%	98
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	87
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	103
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	100
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	96
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	122
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	97
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	91
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	95
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	91
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	96
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	97
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	100
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	92
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	91
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	87
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	85
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	94
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	93
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	86
	TP18 1.0-0.2	SE131890.027	%	60 - 130%	111
	QC1	SE131890.031	%	60 - 130%	106
	QC2	SE131890.032	%	60 - 130%	97
	QC3	SE131890.033	%	60 - 130%	93
	Trip Spike	SE131890.036	%	60 - 130%	88
d8-toluene (Surrogate)	TP1 0.0-0.1	SE131890.001	%	60 - 130%	75
	TP1 1.3-1.4	SE131890.002	%	60 - 130%	92
	TP2 0.0-0.1	SE131890.004	%	60 - 130%	91
	TP2 1.1-1.2	SE131890.005	%	60 - 130%	98
	TP4 0.1-0.2	SE131890.007	%	60 - 130%	91
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	80
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	91
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	92
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	89
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	115
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	89
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	84
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	85
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	83
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	86
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	80
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	91
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	82
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	81
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	77
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	78
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	87
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	90
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	80
	TP18 1.0-0.2	SE131890.027	%	60 - 130%	106
	QC1	SE131890.031	%	60 - 130%	98
	QC2	SE131890.032	%	60 - 130%	87

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	QC3	SE131890.033	%	60 - 130%	83
	Trip Spike	SE131890.036	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	TP1 0.0-0.1	SE131890.001	%	60 - 130%	78
	TP1 1.3-1.4	SE131890.002	%	60 - 130%	97
	TP2 0.0-0.1	SE131890.004	%	60 - 130%	95
	TP2 1.1-1.2	SE131890.005	%	60 - 130%	103
	TP4 0.1-0.2	SE131890.007	%	60 - 130%	97
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	87
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	100
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	98
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	96
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	119
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	98
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	91
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	92
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	89
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	94
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	104
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	100
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	89
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	89
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	85
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	83
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	94
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	94
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	85
	TP18 1.0-0.2	SE131890.027	%	60 - 130%	110
	QC1	SE131890.031	%	60 - 130%	106
	QC2	SE131890.032	%	60 - 130%	95
	QC3	SE131890.033	%	60 - 130%	94
	Trip Spike	SE131890.036	%	60 - 130%	88

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1 0.0-0.1	SE131890.001	%	60 - 130%	93
	TP1 1.3-1.4	SE131890.002	%	60 - 130%	107
	TP2 0.0-0.1	SE131890.004	%	60 - 130%	103
	TP2 1.1-1.2	SE131890.005	%	60 - 130%	110
	TP4 0.1-0.2	SE131890.007	%	60 - 130%	99
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	88
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	104
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	108
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	97
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	120
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	96
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	90
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	94
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	92
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	91
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	98
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	98
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	91
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	93
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	86
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	92
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	96
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	94
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	85
	TP18 1.0-0.2	SE131890.027	%	60 - 130%	93
	QC1	SE131890.031	%	60 - 130%	100
	QC2	SE131890.032	%	60 - 130%	94

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

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

Volatile Petroleum Hydrocarbons In Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QC3	SE131890.033	%	60 - 130%	90
	d4-1,2-dichloroethane (Surrogate)	TP1 0.0-0.1	%	60 - 130%	80
		TP1 1.3-1.4	%	60 - 130%	97
		TP2 0.0-0.1	%	60 - 130%	94
		TP2 1.1-1.2	%	60 - 130%	106
		TP4 0.1-0.2	%	60 - 130%	98
		TP5 0.1-0.2	%	60 - 130%	87
		TP5 1.3-1.4	%	60 - 130%	103
		TP16 0.1-0.2	%	60 - 130%	100
		TP11 0.2-0.3	%	60 - 130%	96
		TP11 1.2-1.3	%	60 - 130%	122
		TP15 0.1-0.2	%	60 - 130%	97
		TP15 0.4-0.5	%	60 - 130%	91
		TP10 0.1-0.2	%	60 - 130%	95
		TP14 0.1-0.2	%	60 - 130%	91
		TP9 0.1-0.2	%	60 - 130%	96
		TP9 0.7-0.8	%	60 - 130%	97
		TP6 0.0-0.1	%	60 - 130%	100
		TP7 0.0-0.1	%	60 - 130%	92
		TP7 0.8-0.9	%	60 - 130%	91
		TP8 0.1-0.2	%	60 - 130%	87
		TP8 0.9-1.0	%	60 - 130%	85
		TP13 0.1-0.2	%	60 - 130%	94
		TP12 0.0-0.1	%	60 - 130%	93
		TP17 0.1-0.2	%	60 - 130%	86
		TP18 1.0-0.2	%	60 - 130%	111
		QC1	%	60 - 130%	106
		QC2	%	60 - 130%	97
		QC3	%	60 - 130%	93
d8-toluene (Surrogate)		TP1 0.0-0.1	%	60 - 130%	75
		TP1 1.3-1.4	%	60 - 130%	92
		TP2 0.0-0.1	%	60 - 130%	91
		TP2 1.1-1.2	%	60 - 130%	98
		TP4 0.1-0.2	%	60 - 130%	91
		TP5 0.1-0.2	%	60 - 130%	80
		TP5 1.3-1.4	%	60 - 130%	91
		TP16 0.1-0.2	%	60 - 130%	92
		TP11 0.2-0.3	%	60 - 130%	89
		TP11 1.2-1.3	%	60 - 130%	115
		TP15 0.1-0.2	%	60 - 130%	89
		TP15 0.4-0.5	%	60 - 130%	84
		TP10 0.1-0.2	%	60 - 130%	85
		TP14 0.1-0.2	%	60 - 130%	83
		TP9 0.1-0.2	%	60 - 130%	86
		TP9 0.7-0.8	%	60 - 130%	80
		TP6 0.0-0.1	%	60 - 130%	91
		TP7 0.0-0.1	%	60 - 130%	82
		TP7 0.8-0.9	%	60 - 130%	81
		TP8 0.1-0.2	%	60 - 130%	77
		TP8 0.9-1.0	%	60 - 130%	78
		TP13 0.1-0.2	%	60 - 130%	87
		TP12 0.0-0.1	%	60 - 130%	90
		TP17 0.1-0.2	%	60 - 130%	80
		TP18 1.0-0.2	%	60 - 130%	106
		QC1	%	60 - 130%	98
		QC2	%	60 - 130%	87
		QC3	%	60 - 130%	83
Dibromofluoromethane (Surrogate)		TP1 0.0-0.1	%	60 - 130%	78
		TP1 1.3-1.4	%	60 - 130%	97
		TP2 0.0-0.1	%	60 - 130%	95
		TP2 1.1-1.2	%	60 - 130%	103

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP4 0.1-0.2	SE131890.007	%	60 - 130%	97
	TP5 0.1-0.2	SE131890.008	%	60 - 130%	87
	TP5 1.3-1.4	SE131890.009	%	60 - 130%	100
	TP16 0.1-0.2	SE131890.010	%	60 - 130%	98
	TP11 0.2-0.3	SE131890.011	%	60 - 130%	96
	TP11 1.2-1.3	SE131890.012	%	60 - 130%	119
	TP15 0.1-0.2	SE131890.013	%	60 - 130%	98
	TP15 0.4-0.5	SE131890.014	%	60 - 130%	91
	TP10 0.1-0.2	SE131890.015	%	60 - 130%	92
	TP14 0.1-0.2	SE131890.016	%	60 - 130%	89
	TP9 0.1-0.2	SE131890.017	%	60 - 130%	94
	TP9 0.7-0.8	SE131890.018	%	60 - 130%	104
	TP6 0.0-0.1	SE131890.019	%	60 - 130%	100
	TP7 0.0-0.1	SE131890.020	%	60 - 130%	89
	TP7 0.8-0.9	SE131890.021	%	60 - 130%	89
	TP8 0.1-0.2	SE131890.022	%	60 - 130%	85
	TP8 0.9-1.0	SE131890.023	%	60 - 130%	83
	TP13 0.1-0.2	SE131890.024	%	60 - 130%	94
	TP12 0.0-0.1	SE131890.025	%	60 - 130%	94
	TP17 0.1-0.2	SE131890.026	%	60 - 130%	85
	TP18 1.0-0.2	SE131890.027	%	60 - 130%	110
	QC1	SE131890.031	%	60 - 130%	106
	QC2	SE131890.032	%	60 - 130%	95
	QC3	SE131890.033	%	60 - 130%	94

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

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

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

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

Sample Number	Parameter	Units	LOR
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Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065258.001	Mercury	mg/kg	0.01	<0.01
LB065336.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065061.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065060.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(a,h)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH	mg/kg	0.8	<0.8
	d5-nitrobenzene (Surrogate)	%	-	96
	2-fluorobiphenyl (Surrogate)	%	-	98
	d14-p-terphenyl (Surrogate)	%	-	110
LB065061.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB065061.001	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(a,h)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	104
	2-fluorobiphenyl (Surrogate)	%	-	78
	d14-p-terphenyl (Surrogate)	%	-	98

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065061.001	Arochlor 1016	mg/kg	0.2	<0.2
	Arochlor 1221	mg/kg	0.2	<0.2
	Arochlor 1232	mg/kg	0.2	<0.2
	Arochlor 1242	mg/kg	0.2	<0.2
	Arochlor 1248	mg/kg	0.2	<0.2
	Arochlor 1254	mg/kg	0.2	<0.2
	Arochlor 1260	mg/kg	0.2	<0.2
	Arochlor 1262	mg/kg	0.2	<0.2
	Arochlor 1268	mg/kg	0.2	<0.2
	Total PCBs (Arochlors)	mg/kg	1	<1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	84

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN400/AN320

Sample Number	Parameter	Units	LOR	Result
LB065256.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB065335.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065060.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB065061.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

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

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

VOC's in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065057.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1
		Toluene	mg/kg	0.1
		Ethylbenzene	mg/kg	0.1
		m/p-xylene	mg/kg	0.2
		o-xylene	mg/kg	0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX*	mg/kg	0.6
LB065058.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1
		Toluene	mg/kg	0.1
		Ethylbenzene	mg/kg	0.1
		m/p-xylene	mg/kg	0.2
		o-xylene	mg/kg	0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX*	mg/kg	0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB065057.001	Surrogates	TRH C6-C9	mg/kg	20
		Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
LB065058.001	Surrogates	TRH C6-C9	mg/kg	20
		Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

Mercury in Soil

Method: ME-(AU)-[ENV]JAN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.012	LB065258.014	Mercury	mg/kg	0.01	0.03	0.03	188	0
SE131890.020	LB065258.023	Mercury	mg/kg	0.01	0.13	0.12	71	7
SE131890.033	LB065336.014	Mercury	mg/kg	0.01	0.06	0.05	119	8
SE132071.013	LB065336.021	Mercury	mg/kg	0.01	<0.01	<0.01	200	0

Moisture Content

Method: ME-(AU)-[ENV]JAN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.011	LB065080.011	% Moisture	%w/w	0.5	13	12	38	5
SE131890.021	LB065080.022	% Moisture	%	0.5	19	21	35	7
SE131890.031	LB065080.033	% Moisture	%	0.5	7.5	7.8	43	4
SE131890.033	LB065080.036	% Moisture	%	0.5	24	24	34	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]JAN400/AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.029	LB065061.014	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.011	LB065060.018	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	155	0
		1-methylnaphthalene	mg/kg	0.1	0.1	0.2	101	14
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	163	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	0.7	0.9	43	36
		Anthracene	mg/kg	0.1	0.1	0.1	113	33
		Fluoranthene	mg/kg	0.1	1.6	2.0	36	25
		Pyrene	mg/kg	0.1	1.5	1.9	36	21
		Benzo(a)anthracene	mg/kg	0.1	0.8	1.1	41	32
		Chrysene	mg/kg	0.1	0.6	0.7	46	24
		Benzo(b&j)fluoranthene	mg/kg	0.1	1.3	1.4	37	8
		Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.4	64	76 Ⓢ
		Benzo(a)pyrene	mg/kg	0.1	0.8	1.0	41	27
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.0	1.2	39	22
		Dibenzo(a&h)anthracene	mg/kg	0.1	0.1	0.2	104	22

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.011	LB065060.018	Benzo(ghi)perylene	mg/kg	0.1	0.5	0.6	49	21
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	1.2	1.6	24	26 @
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	1.2	1.6	31	26
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	1.2	1.6	24	26 @
		Total PAH	mg/kg	0.8	9.4	12	37	24
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	30	7
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	5
SE131890.032	LB065061.020	d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	6
		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	0.1	0.1	110	8
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	1.0	1.0	40	4
		Anthracene	mg/kg	0.1	0.2	0.2	84	5
		Fluoranthene	mg/kg	0.1	3.1	3.0	33	3
		Pyrene	mg/kg	0.1	3.6	3.2	33	11
		Benzo(a)anthracene	mg/kg	0.1	1.6	1.6	36	1
		Chrysene	mg/kg	0.1	1.1	0.9	40	15
		Benzo(b&j)fluoranthene	mg/kg	0.1	2.6	2.5	34	4
		Benzo(k)fluoranthene	mg/kg	0.1	0.4	0.4	57	8
		Benzo(a)pyrene	mg/kg	0.1	2.0	1.8	35	7
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	2.3	2.2	34	5
		Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	0.2	73	9
		Benzo(ghi)perylene	mg/kg	0.1	1.3	1.2	38	7
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	2.9	2.7	17	6
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	2.9	2.7	21	6
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	2.9	2.7	17	6
		Total PAH	mg/kg	0.8	20	18	34	6
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	5
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE131895.001	LB065060.028	Naphthalene	mg/kg	0.1	0.3	0.3	63	10
		2-methylnaphthalene	mg/kg	0.1	0.2	0.2	89	24
		1-methylnaphthalene	mg/kg	0.1	0.1	0.2	93	38
		Acenaphthylene	mg/kg	0.1	0.5	0.6	48	22
		Acenaphthene	mg/kg	0.1	0.5	0.7	47	31
		Fluorene	mg/kg	0.1	0.6	0.8	45	26
		Phenanthrene	mg/kg	0.1	4.8	6.4	32	28
		Anthracene	mg/kg	0.1	1.0	1.1	39	11
		Fluoranthene	mg/kg	0.1	9.3	12	31	24
		Pyrene	mg/kg	0.1	8.6	10	31	18
		Benzo(a)anthracene	mg/kg	0.1	4.6	5.8	32	23
		Chrysene	mg/kg	0.1	3.6	4.1	33	15
		Benzo(b&j)fluoranthene	mg/kg	0.1	5.8	7.4	32	24
		Benzo(k)fluoranthene	mg/kg	0.1	2.0	2.3	35	15
		Benzo(a)pyrene	mg/kg	0.1	5.2	6.3	32	19
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	4.7	5.8	32	21
		Dibenzo(a&h)anthracene	mg/kg	0.1	0.3	0.4	63	36
		Benzo(ghi)perylene	mg/kg	0.1	3.2	4.0	33	22
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	7.2	8.9	12	20 @
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	7.2	8.9	14	20 @
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	7.2	8.9	12	20 @
		Total PAH	mg/kg	0.8	55	69	31	22
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	30	9
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

PCBs in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.029	LB065061.014	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)		mg/kg	1	<1	<1	200
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)		mg/kg	-	0	0	30	3

pH in Soil CaCl2 Extract

Method: ME-(AU)-[ENV]AN103

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.025	LB065212.012	pH Soil CaCl2 Extract	pH Units	-	4.8	5.0	32	4

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.012	LB065256.014	Arsenic, As	mg/kg	3	<3	<3	71	28
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	197	0
		Chromium, Cr	mg/kg	0.3	19	19	33	0
		Copper, Cu	mg/kg	0.5	10	10	35	3
		Lead, Pb	mg/kg	1	14	14	37	1
		Nickel, Ni	mg/kg	0.5	9.8	10	35	3
		Zinc, Zn	mg/kg	0.5	66	67	33	2
SE131890.020	LB065256.023	Arsenic, As	mg/kg	3	200	200	30	2
		Cadmium, Cd	mg/kg	0.3	0.3	<0.3	131	1
		Chromium, Cr	mg/kg	0.3	4.8	6.2	39	24
		Copper, Cu	mg/kg	0.5	75	75	31	0
		Lead, Pb	mg/kg	1	150	160	31	7
		Nickel, Ni	mg/kg	0.5	14	15	33	6
		Zinc, Zn	mg/kg	0.5	66	64	33	2
SE131890.033	LB065335.014	Arsenic, As	mg/kg	3	4	4	55	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	13	12	34	1
		Copper, Cu	mg/kg	0.5	14	13	34	3
		Lead, Pb	mg/kg	1	49	47	32	4
		Nickel, Ni	mg/kg	0.5	8.4	8.3	36	2
		Zinc, Zn	mg/kg	0.5	21	20	40	5
SE132071.013	LB065335.023	Arsenic, As	mg/kg	3	7	9	43	14
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	156	0
		Chromium, Cr	mg/kg	0.3	8.3	8.5	36	2
		Copper, Cu	mg/kg	0.5	16	16	33	3
		Lead, Pb	mg/kg	1	25	26	34	2
		Nickel, Ni	mg/kg	0.5	1.2	1.4	68	12
		Zinc, Zn	mg/kg	0.5	15	16	43	5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.011	LB065060.018	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	110	130	68	23
		TRH C29-C36	mg/kg	45	<45	49	130	9
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	150	180	97	21
		TRH C10-C40 Total	mg/kg	210	<210	<210	158	0
		TRH F Bands	mg/kg	25	26	26	126	0
		TRH >C10-C16 (F2)	mg/kg	25	26	26	126	0
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	26	26	126	0
		TRH >C16-C34 (F3)	mg/kg	90	130	170	90	23
SE131890.032	LB065061.019	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
		TRH C10-C14	mg/kg	20	<20	<20	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.032	LB065061.019	TRH C15-C28	mg/kg	45	73	67	94	9
		TRH C29-C36	mg/kg	45	76	66	93	14
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	150	130	108	11
		TRH C10-C40 Total	mg/kg	210	<210	<210	179	0
		TRH F Bands	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	130	120	103	11
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE131895.001	LB065060.028	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	140	150	61	10
		TRH C29-C36	mg/kg	45	84	93	81	10
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	220	250	77	10
		TRH C10-C40 Total	mg/kg	210	220	250	120	10
		TRH F Bands	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	200	220	73	10
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.012	LB065057.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
		Ethylbenzene		mg/kg	0.1	<0.1	<0.1	200	0
		m/p-xylene		mg/kg	0.2	<0.2	<0.2	200	0
		o-xylene		mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5.3	50	12
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.1	5.4	50	12
			d8-toluene (Surrogate)	mg/kg	-	5.7	5.0	50	14
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	5.2	50	14
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
SE131890.021	LB065057.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
		Ethylbenzene		mg/kg	0.1	<0.1	<0.1	200	0
		m/p-xylene		mg/kg	0.2	<0.2	<0.2	200	0
		o-xylene		mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	4.3	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.1	3.8	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.3	50	8
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
SE131890.033	LB065058.013	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200
		Ethylbenzene		mg/kg	0.1	<0.1	<0.1	200	0
		m/p-xylene		mg/kg	0.2	<0.2	<0.2	200	0
		o-xylene		mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	4.1	50	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.1	50	11
			d8-toluene (Surrogate)	mg/kg	-	4.1	3.7	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.3	50	5
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.012	LB065057.014	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5.3	30	12
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.1	5.4	30	12
		d8-toluene (Surrogate)	mg/kg	-	5.7	5.0	30	14
		Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	5.2	30	14
		VPH F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE131890.021	LB065057.024	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	4.3	30	4
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	30	4
		d8-toluene (Surrogate)	mg/kg	-	4.1	3.8	30	6
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.3	30	8
		VPH F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE131890.033	LB065058.013	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	4.1	30	13
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.1	30	11
		d8-toluene (Surrogate)	mg/kg	-	4.1	3.7	30	10
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.3	30	5
		VPH F Bands						
		Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065251.002	Exchangeable Sodium, Na	mg/kg	2	NA	160	80 - 120	116
	Exchangeable Potassium, K	mg/kg	2	NA	330	80 - 120	105
	Exchangeable Calcium, Ca	mg/kg	2	NA	4347	80 - 120	104
	Exchangeable Magnesium, Mg	mg/kg	2	NA	1578	80 - 120	100

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065258.002	Mercury	mg/kg	0.01	0.20	0.2	70 - 130	99
LB065336.002	Mercury	mg/kg	0.01	0.20	0.2	70 - 130	100

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065061.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	78
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	77
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	75
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	75
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	77
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	77
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.15	40 - 130	87†

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065060.002	Naphthalene	mg/kg	0.1	3.7	4	60 - 140	92
	Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	96
	Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	98
	Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
	Anthracene	mg/kg	0.1	4.0	4	60 - 140	99
	Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	106
	Pyrene	mg/kg	0.1	4.1	4	60 - 140	101
	Benzo(a)pyrene	mg/kg	0.1	3.9	4	60 - 140	97
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
LB065061.002	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104
	Naphthalene	mg/kg	0.1	4.3	4	60 - 140	108
	Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
	Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	96
	Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
	Anthracene	mg/kg	0.1	4.0	4	60 - 140	99
	Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	104
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	105
	Benzo(a)pyrene	mg/kg	0.1	5.0	4	60 - 140	124
	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	110
Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065061.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	80

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065256.002	Arsenic, As	mg/kg	3	49	50	80 - 120	97
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	101
	Copper, Cu	mg/kg	0.5	48	50	80 - 120	96
	Lead, Pb	mg/kg	1	50	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	99
LB065335.002	Arsenic, As	mg/kg	3	49	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	100

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065335.002	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	100
	Lead, Pb	mg/kg	1	51	50	80 - 120	101
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	51	50	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065060.002	TRH C10-C14	mg/kg	20	31	40	60 - 140	78
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	85
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	78
	TRH F Bands						
	TRH >C10-C16 (F2)	mg/kg	25	32	40	60 - 140	80
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
LB065061.002	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80
	TRH C10-C14	mg/kg	20	36	40	60 - 140	90
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	93
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands						
	TRH >C10-C16 (F2)	mg/kg	25	36	40	60 - 140	90
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	93
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB065057.002	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140	77
	Aromatic	Toluene	mg/kg	0.1	2.2	2.9	60 - 140	76
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	80
		m/p-xylene	mg/kg	0.2	5.1	5.8	60 - 140	87
		o-xylene	mg/kg	0.1	2.5	2.9	60 - 140	86
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	106
		d8-toluene (Surrogate)	mg/kg	-	5.3	5	60 - 140	106
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	119
	LB065058.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140
Aromatic		Toluene	mg/kg	0.1	2.3	2.9	60 - 140	79
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	81
		m/p-xylene	mg/kg	0.2	4.6	5.8	60 - 140	80
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	78
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.4	5	60 - 140	107

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB065057.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	91	
	TRH C6-C9	mg/kg	20	20	23.2	60 - 140	86	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	107
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	106
		d8-toluene (Surrogate)	mg/kg	-	5.3	5	60 - 140	106
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	119
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	112
LB065058.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	92	
	TRH C6-C9	mg/kg	20	20	23.2	60 - 140	87	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	125

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.001	LB065258.004	Mercury	mg/kg	0.01	0.59	0.42	0.2	84
SE131890.021	LB065336.004	Mercury	mg/kg	0.01	0.22	0.05	0.2	85

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.007	LB065060.011	Naphthalene	mg/kg	0.1	4.3	<0.1	4	106
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	3.9	<0.1	4	95
		Acenaphthene	mg/kg	0.1	3.8	<0.1	4	94
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.7	0.8	4	97
		Anthracene	mg/kg	0.1	4.5	<0.1	4	109
		Fluoranthene	mg/kg	0.1	5.8	1.6	4	106
		Pyrene	mg/kg	0.1	5.5	1.7	4	95
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.8	-	-
		Chrysene	mg/kg	0.1	<0.1	0.6	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	1.2	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.2	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.4	0.7	4	94
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.7	-	-
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.3	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.4	0.9	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.5	1.0	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.5	1.0	-	-
		Total PAH	mg/kg	0.8	37	8.9	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	-	116
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	108
SE131890.022	LB065061.007	Naphthalene	mg/kg	0.1	4.3	<0.1	4	107
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	101
		Acenaphthene	mg/kg	0.1	4.0	<0.1	4	99
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.2	0.1	4	102
		Anthracene	mg/kg	0.1	4.1	<0.1	4	102
		Fluoranthene	mg/kg	0.1	4.3	0.3	4	102
		Pyrene	mg/kg	0.1	4.2	0.3	4	98
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.2	-	-
		Chrysene	mg/kg	0.1	<0.1	0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.2	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.4	0.1	4	106
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.2	-	-
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.4	0.2	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.5	0.3	-	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.4	0.3	-	-
		Total PAH	mg/kg	0.8	33	1.7	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	-	118
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	-	108

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.001	LB065256.004	Arsenic, As	mg/kg	3	150	100	50	98
		Cadmium, Cd	mg/kg	0.3	51	<0.3	50	102
		Chromium, Cr	mg/kg	0.3	58	5.6	50	106
		Copper, Cu	mg/kg	0.5	96	49	50	94
		Lead, Pb	mg/kg	1	170	110	50	105
		Nickel, Ni	mg/kg	0.5	84	29	50	110
		Zinc, Zn	mg/kg	0.5	130	86	50	97
SE131890.021	LB065335.004	Arsenic, As	mg/kg	3	55	7	50	96
		Cadmium, Cd	mg/kg	0.3	48	<0.3	50	95
		Chromium, Cr	mg/kg	0.3	56	7.7	50	96
		Copper, Cu	mg/kg	0.5	58	12	50	91
		Lead, Pb	mg/kg	1	120	46	50	140 @
		Nickel, Ni	mg/kg	0.5	52	4.7	50	94
		Zinc, Zn	mg/kg	0.5	69	22	50	96

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.002	LB065060.008	TRH C10-C14	mg/kg	20	36	<20	40	90
		TRH C15-C28	mg/kg	45	<45	<45	40	95
		TRH C29-C36	mg/kg	45	<45	<45	40	78
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
		TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands						
		TRH >C10-C16 (F2)	mg/kg	25	36	<25	40	90
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	36	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	93
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.001	LB065057.004	Monocyclic	Benzene	mg/kg	0.1	2.4	<0.1	2.9	81
			Aromatic	Toluene	mg/kg	0.1	2.3	<0.1	2.9
		Ethylbenzene		mg/kg	0.1	2.2	<0.1	2.9	77
		m/p-xylene		mg/kg	0.2	4.3	<0.2	5.8	74
		o-xylene		mg/kg	0.1	2.2	<0.1	2.9	74
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	<0.1	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	3.9	5	113
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	4.0	5	112
			d8-toluene (Surrogate)	mg/kg	-	5.6	3.8	5	113
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	4.6	5	98
		Totals	Total Xylenes*	mg/kg	0.3	6.5	<0.3	-	-
			Total BTEX*	mg/kg	0.6	13	<0.6	-	-
SE131890.022	LB065058.004	Monocyclic	Benzene	mg/kg	0.1	2.2	<0.1	2.9	77
			Aromatic	Toluene	mg/kg	0.1	2.2	<0.1	2.9
		Ethylbenzene		mg/kg	0.1	2.2	<0.1	2.9	74
		m/p-xylene		mg/kg	0.2	4.4	<0.2	5.8	76
		o-xylene		mg/kg	0.1	2.2	<0.1	2.9	76
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	<0.1	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	4.3	5	107
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.3	5	109
			d8-toluene (Surrogate)	mg/kg	-	5.1	3.9	5	102
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.3	5	102
		Totals	Total Xylenes*	mg/kg	0.3	6.6	<0.3	-	-
			Total BTEX*	mg/kg	0.6	13	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE131890.001	LB065057.004	TRH C6-C10	mg/kg	25	<25	<25	24.65	93	
		TRH C6-C9	mg/kg	20	22	<20	23.2	93	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	3.9	5	113
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	4.0	5	112	
		d8-toluene (Surrogate)	mg/kg	-	5.6	3.8	5	113	

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE131890.001	LB065057.004	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	4.6	5	98
		VPH F	Benzene (F0)	mg/kg	0.1	2.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133
SE131890.022	LB065058.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	93
			TRH C6-C9	mg/kg	20	21	<20	23.2	89
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	4.3	5	107
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.3	5	109
			d8-toluene (Surrogate)	mg/kg	-	5.1	3.9	5	102
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.3	5	102
		VPH F	Benzene (F0)	mg/kg	0.1	2.2	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	135

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.007	LB065060.012	Naphthalene	mg/kg	0.1	4.3	4.3	32	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
		Acenaphthylene	mg/kg	0.1	3.9	4.1	33	6
		Acenaphthene	mg/kg	0.1	3.8	4.0	33	6
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	-
		Phenanthrene	mg/kg	0.1	4.7	4.5	32	3
		Anthracene	mg/kg	0.1	4.5	4.2	32	6
		Fluoranthene	mg/kg	0.1	5.8	4.9	32	26
		Pyrene	mg/kg	0.1	5.5	4.6	32	27
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(a)pyrene	mg/kg	0.1	4.4	4.3	32	3
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	-
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.4	4.3	15	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.5	4.4	17	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.5	4.4	15	-
		Total PAH	mg/kg	0.8	37	35	32	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	2
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE131890.022	LB065061.008	Naphthalene	mg/kg	0.1	4.3	4.2	32	2
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
		Acenaphthylene	mg/kg	0.1	4.1	4.0	32	2
		Acenaphthene	mg/kg	0.1	4.0	4.0	33	2
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	-
		Phenanthrene	mg/kg	0.1	4.2	4.1	32	2
		Anthracene	mg/kg	0.1	4.1	4.1	32	1
		Fluoranthene	mg/kg	0.1	4.3	4.4	32	1
		Pyrene	mg/kg	0.1	4.2	4.1	32	4
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(a)pyrene	mg/kg	0.1	4.4	4.7	32	6
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	-
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.4	4.7	14	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.5	4.8	16	-
		Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.4	4.7	14	-
		Total PAH	mg/kg	0.8	33	33	32	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	7
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	12
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	12

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN403

QC Sample	Sample Number	Parameter	Units	LOR
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Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE131890.002	LB065060.009	TRH C10-C14	mg/kg	20	36	37	85	3
		TRH C15-C28	mg/kg	45	<45	<45	147	3
		TRH C29-C36	mg/kg	45	<45	<45	173	3
		TRH C37-C40	mg/kg	100	<100	<100	200	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	133	-
		TRH C10-C40 Total	mg/kg	210	<210	<210	200	-
		TRH F Bands						
		TRH >C10-C16 (F2)	mg/kg	25	36	37	98	3
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25	36	37	98	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
SE131890.020	LB065061.005	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	-
		TRH C10-C14	mg/kg	20		55		
		TRH C15-C28	mg/kg	45		150		
		TRH C29-C36	mg/kg	45		74		
		TRH C37-C40	mg/kg	100		<100		
		TRH C10-C36 Total	mg/kg	110		270		
		TRH C10-C40 Total	mg/kg	210		270		
		TRH F Bands						
		TRH >C10-C16 (F2)	mg/kg	25		64		
		TRH >C10-C16 (F2) minus Naphthalene	mg/kg	25		64		
		TRH >C16-C34 (F3)	mg/kg	90		170		
		TRH >C34-C40 (F4)	mg/kg	120		<120		

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

- * Non-accredited analysis.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

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

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

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CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone (Not specified)
Facsimile (Not specified)
Email james@jmenvironments.com

Project JME4079
Order Number JME4079
Samples 36

LABORATORY DETAILS

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Telephone +61 2 8594 0400
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SGS Reference SE131890 R0
Report Number 0000092980
Date Reported 13 Oct 2014
Date Received 03 Oct 2014

COMMENTS

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

No respirable fibres detected in all samples using trace analysis technique

Asbestos analysed by Approved Identifier Yusuf Kuthpudin and Ravee Sivasubramaniam.

SIGNATORIES



Andy Sutton
Senior Organic Chemist



Dong Liang
Metals/Inorganics Team Leader



Jaimie Cheung
Metals Chemist



Ly Kim Ha
Organic Section Head



Ravee Sivasubramaniam
Asbestos Analyst



ANALYTICAL REPORT

SE131890 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE131890.004	TP2 0.0-0.1	Soil	94g Soil,rocks	02 Oct 2014	No Asbestos Found Organic Fibres Detected	<0.01

RESULTS

Fibre ID in bulk materials

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE131890.003	TP1 1.0-1.1	Other	50x30x4mm Cement sheet fragments	02 Oct 2014	Chrysotile Asbestos Detected	
SE131890.034	TP10 0.1-0.2	Other	50x40x5mm Cement sheet fragments	02 Oct 2014	Amosite & Chrysotile Asbestos Detected	
SE131890.035	TP9 0.1-0.2	Other	50x25x4mm Cement sheet fragments	02 Oct 2014	Chrysotile Asbestos Detected	

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

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

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

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date 17/11/2014

Page 1 of 2

SGS Environmental Services

Unit 16, 33 Maddox Street

Alexandria NSW 2015

Telephone No: (02) 85940400

Facsimile No: (02) 85940499

Email: au.samplerreceipt.sydney@sgs.com

Company Name:

JM Environments

Address:

37 Tooke St

COOKS HILL NSW 2300

Contact Name:

James McMahon

Project Name/No.:

JME4079

Purchase Order No:

JME4079

Results Required By:

std

Telephone:

0427 893 668

Facsimile:

Email:

james@jmenvironments.com

[illegible]

Date/Time: 17/11/2014 4:00pm

Received By: TNT

Date/Time 17/11/2014 4:00pm

Date/Time:

Received By:

Date/Time 13/11/12

Temperature: Ambient / Chilled

Sample Cooler Sealed: Yes / No

Laboratory Quotation No: ENVII26319



SC133376

Job:

1-13, 15

14

5

1

Matrix

250 JAR

125 JAR

BAG

1L UP P

500 UP P

250 ZnAcetate P

250 / 500 NaOH BP

125 / 250 UP P

125 / 250 Metal Total*

125 / 250 Metal Filtered*

125 HCl P

1L UP AG

500 / 1L H₂SO₄ AG

125 / 250 H₂SO₄ P

100 / 200 UP AG

40 NaThio GV

250 UP OPAQUE P

500 NaThio STERILE P

200 NaThio STERILE P

Storage Location

Bottles Supplied By

Comment

Cooling Method

CP

Temp

90C

Good Order

(Y) N

Clearly Labelled

(Y) N

Correct Pres.

(X) N

No Head-space

(Y) N / NA

Sufficient Vol

(Y) N

Doc Date

18/11

Doc Type

LOC

Complete Docs

(Y) N

Requested TAT

Star



SAMPLE RECEIPT ADVICE

SE133376

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone (Not specified)
Facsimile (Not specified)
Email james@jmenvironments.com

Project JME4079
Order Number JME4079
Samples 15

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Tue 18/11/2014
Report Due Tue 25/11/2014
SGS Reference SE133376

SUBMISSION DETAILS

This is to confirm that 15 samples were received on Tuesday 18/11/2014. Results are expected to be ready by Tuesday 25/11/2014. Please quote SGS reference SE133376 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	15 Soils	Type of documentation received	COC
Date documentation received	18/11/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.0°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx> as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.



SAMPLE RECEIPT ADVICE

SE133376

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME4079**

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	Total Recoverable Metals in Soil by ICPOES from
001	TP4E 0.1-0.2	1	1
002	TP4E 0.8-0.9	1	1
003	TP4N 0.1-0.2	1	1
004	TP4N 1.1-1.2	1	1
005	TP4S 0.1-0.2	1	1
006	TP4S 0.3-0.4	1	1
007	TP4S 1.2-1.3	1	1
008	TP4W 0.1-0.2	1	1
009	TP4W 0.2-0.3	1	1
010	HLHA1	1	1
011	HLHA2	1	1
012	HLHA3	1	1
013	HLHA4	1	1
014	HLHA5	1	1
015	QC4	1	1

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone (Not specified)
Facsimile (Not specified)
Email james@jmenvironments.com

Project JME4079
Order Number JME4079
Samples 15
Date Started 24 Nov 2014

LABORATORY DETAILS

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Email au.environmental.sydney@sgs.com

SGS Reference SE133376 R0
Report Number 0000096509
Date Reported 25 Nov 2014
Date Received 18 Nov 2014

COMMENTS

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

SIGNATORIES



Dong Liang
Metals/Inorganics Team Leader



Ly Kim Ha
Organic Section Head



ANALYTICAL REPORT

SE133376 R0

Parameter	Sample Number	SE133376.001	SE133376.002	SE133376.003	SE133376.004
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Date	17 Nov 2014	17 Nov 2014	17 Nov 2014	17 Nov 2014
	Sample Name	TP4E 0.1-0.2	TP4E 0.8-0.9	TP4N 0.1-0.2	TP4N 1.1-1.2
Units		LOR			

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	1	280	27	380	91
Zinc, Zn	mg/kg	2	-	-	-	-

Moisture Content Method: AN002

% Moisture	%	0.5	6.0	11.1	8.9	9.1
------------	---	-----	-----	------	-----	-----

Parameter	Sample Number		SE133376.005	SE133376.006	SE133376.007	SE133376.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		17 Nov 2014	17 Nov 2014	17 Nov 2014	17 Nov 2014
	Sample Name		TP4S 0.1-0.2	TP4S 0.3-0.4	TP4S 1.2-1.3	TP4W 0.1-0.2
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	1	1000	22	94	160
Zinc, Zn	mg/kg	2	-	-	-	-

Moisture Content Method: AN002

% Moisture	%	0.5	10.3	1.4	21.4	5.5
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ANALYTICAL REPORT

SE133376 R0

Parameter	Sample Number	SE133376.009	SE133376.010	SE133376.011	SE133376.012
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Date	17 Nov 2014	17 Nov 2014	17 Nov 2014	17 Nov 2014
	Sample Name	TP4W 0.2-0.3	HLHA1	HLHA2	HLHA3
	Units	LOR			

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	1	380	-	-	-
Zinc, Zn	mg/kg	2	-	99	660	180

Moisture Content Method: AN002

% Moisture	%	0.5	7.0	8.3	16.9	11.5
------------	---	-----	-----	-----	------	------

	Sample Number	SE133376.013	SE133376.014	SE133376.015
	Sample Matrix	Soil	Soil	Soil
	Sample Date	17 Nov 2014	17 Nov 2014	17 Nov 2014
	Sample Name	HLHA4	HLHA5	QC4
Parameter	Units	LOR		

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320

Arsenic, As	mg/kg	1	-	-	82
Zinc, Zn	mg/kg	2	1100	800	-

Moisture Content Method: AN002

% Moisture	%	0.5	12.3	5.6	11.9
------------	---	-----	------	-----	------

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB067952	%	0.5	4 - 11%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB067960	mg/kg	1	<1	0%	100%	138%
Zinc, Zn	LB067960	mg/kg	2	<2	1 - 3%	96%	

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
^	Performed by outside laboratory.	-	The sample was not analysed for this analyte
		NVL	Not Validated

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE133376 R0

CLIENT DETAILS

Contact James McMahon
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Telephone (Not specified)
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Project JME4079
Order Number JME4079
Samples 15

LABORATORY DETAILS

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SGS Reference SE133376 R0
Report Number 0000096510
Date Reported 25 Nov 2014

COMMENTS

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

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

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

Matrix Spike	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	1 item
--------------	--	--------

SAMPLE SUMMARY

Sample counts by matrix	15 Soils	Type of documentation received	COC
Date documentation received	18/11/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.0°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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

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

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP4E 0.1-0.2	SE133376.001	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4E 0.8-0.9	SE133376.002	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4N 0.1-0.2	SE133376.003	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4N 1.1-1.2	SE133376.004	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4S 0.1-0.2	SE133376.005	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4S 0.3-0.4	SE133376.006	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4S 1.2-1.3	SE133376.007	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4W 0.1-0.2	SE133376.008	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
TP4W 0.2-0.3	SE133376.009	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
HLHA1	SE133376.010	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
HLHA2	SE133376.011	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
HLHA3	SE133376.012	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
HLHA4	SE133376.013	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
HLHA5	SE133376.014	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014
QC4	SE133376.015	LB067952	17 Nov 2014	18 Nov 2014	01 Dec 2014	24 Nov 2014	29 Nov 2014	25 Nov 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP4E 0.1-0.2	SE133376.001	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4E 0.8-0.9	SE133376.002	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4N 0.1-0.2	SE133376.003	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4N 1.1-1.2	SE133376.004	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4S 0.1-0.2	SE133376.005	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4S 0.3-0.4	SE133376.006	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4S 1.2-1.3	SE133376.007	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4W 0.1-0.2	SE133376.008	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
TP4W 0.2-0.3	SE133376.009	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
HLHA1	SE133376.010	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
HLHA2	SE133376.011	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
HLHA3	SE133376.012	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
HLHA4	SE133376.013	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
HLHA5	SE133376.014	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014
QC4	SE133376.015	LB067960	17 Nov 2014	18 Nov 2014	16 May 2015	24 Nov 2014	16 May 2015	25 Nov 2014

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

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

No surrogates were required for this job.

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result
LB067960.001	Arsenic, As	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE133376.010	LB067952.011	% Moisture	%w/w	0.5	8.3	7.4	43	11
SE133377.005	LB067952.022	% Moisture	%	0.5	13.05418719213.399503722C		38	3
SE133377.009	LB067952.027	% Moisture	%	0.5	13.45707656614.0077821011		37	4

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE133376.010	LB067960.014	Zinc, Zn	mg/kg	2	99	97	32	3
SE133377.004	LB067960.024	Arsenic, As	mg/kg	1	-0.12907008380.1164916272		200	0
		Zinc, Zn	mg/kg	2	6.68718178356.6009341176		60	1



LABORATORY CONTROL SAMPLES

SE133376 R0

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB067960.002	Arsenic, As	mg/kg	1	50	50	80 - 120	100
	Zinc, Zn	mg/kg	2	48	50	80 - 120	96

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE133376.001	LB067960.004	Arsenic, As	mg/kg	1	350	280	50	138 ⑤

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

- * Non-accredited analysis.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE141422 R0

CLIENT DETAILS

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Project **JME4079**
Order Number **JME4079**
Samples 15

LABORATORY DETAILS

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SGS Reference SE141422 R0
Report Number 0000116026
Date Reported 21 Jul 2015

COMMENTS

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

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

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

Matrix Spike	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	1 item
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SAMPLE SUMMARY

Sample counts by matrix	15 Soils	Type of documentation received	COC
Date documentation received	14/7/2015	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	2.8°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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

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

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
HLHA9	SE141422.004	LB081344	11 Jul 2015	14 Jul 2015	10 Jul 2016	20 Jul 2015	10 Jul 2016	21 Jul 2015
HLHA10	SE141422.005	LB081344	11 Jul 2015	14 Jul 2015	10 Jul 2016	20 Jul 2015	10 Jul 2016	21 Jul 2015
HLHA12	SE141422.007	LB081344	11 Jul 2015	14 Jul 2015	10 Jul 2016	20 Jul 2015	10 Jul 2016	21 Jul 2015
HLHA13	SE141422.008	LB081344	11 Jul 2015	14 Jul 2015	10 Jul 2016	20 Jul 2015	10 Jul 2016	21 Jul 2015
HLHA18	SE141422.015	LB081344	11 Jul 2015	14 Jul 2015	10 Jul 2016	20 Jul 2015	10 Jul 2016	21 Jul 2015

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
HLHA6	SE141422.001	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA7	SE141422.002	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA8	SE141422.003	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA9	SE141422.004	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA10	SE141422.005	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA11	SE141422.006	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA12	SE141422.007	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA13	SE141422.008	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA14	SE141422.009	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA15	SE141422.010	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA16	SE141422.011	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA17	SE141422.012	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
QC6	SE141422.013	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
QC7	SE141422.014	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015
HLHA18	SE141422.015	LB081140	11 Jul 2015	14 Jul 2015	25 Jul 2015	16 Jul 2015	21 Jul 2015	20 Jul 2015

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
HLHA6	SE141422.001	LB081274	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA7	SE141422.002	LB081274	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA8	SE141422.003	LB081274	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA9	SE141422.004	LB081274	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA10	SE141422.005	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA11	SE141422.006	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA12	SE141422.007	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA13	SE141422.008	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA14	SE141422.009	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA15	SE141422.010	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA16	SE141422.011	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA17	SE141422.012	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
QC6	SE141422.013	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
QC7	SE141422.014	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015
HLHA18	SE141422.015	LB081276	11 Jul 2015	14 Jul 2015	07 Jan 2016	20 Jul 2015	07 Jan 2016	21 Jul 2015

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

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

No surrogates were required for this job.

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result
LB081274.001	Arsenic, As	mg/kg	1	<1
LB081276.001	Arsenic, As	mg/kg	1	<1

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE141406.010	LB081140.011	% Moisture	%w/w	1	17.87128712876.889632107C		36	6
SE141421.007	LB081140.022	% Moisture	%w/w	1	12	11	39	9
SE141422.007	LB081140.033	% Moisture	%w/w	1	23.4	25.5	34	9
SE141422.015	LB081140.042	% Moisture	%w/w	1	13.3	15.3	37	14

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE141421.005	LB081274.014	Arsenic, As	mg/kg	1	4	5	53	20
SE141422.004	LB081274.024	Arsenic, As	mg/kg	1	330	320	30	4
SE141422.014	LB081276.014	Arsenic, As	mg/kg	1	21	20	35	3
SE141513.004	LB081276.023	Arsenic, As	mg/kg	1	<3	<3	103	5

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB081274.002	Arsenic, As	mg/kg	1	48	50	80 - 120	97
LB081276.002	Arsenic, As	mg/kg	1	50	50	80 - 120	100

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

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

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE141086A.02	LB081274.004	Arsenic, As	mg/kg	1	45	9.47543943889	50	71
SE141422.005	LB081276.004	Arsenic, As	mg/kg	1	160	140	50	28 Ⓢ

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

- * NATA accreditation does not cover the performance of this service.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

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

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

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Project JME4079
Order Number JME4079
Samples 15
Date Started 17 Jul 2015

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SGS Reference SE141422 R0
Report Number 0000116024
Date Reported 21 Jul 2015
Date Received 14 Jul 2015

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Andy Sutton
Senior Organic Chemist



Dong Liang
Metals/Inorganics Team Leader



Ravee Sivasubramaniam
Asbestos Analyst / Hygiene Team Lead



ANALYTICAL REPORT

SE141422 R0

Parameter	Sample Number		SE141422.001	SE141422.002	SE141422.003	SE141422.004
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		11 Jul 2015	11 Jul 2015	11 Jul 2015	11 Jul 2015
	Sample Name		HLHA6	HLHA7	HLHA8	HLHA9
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320 Tested: 20/7/2015

Arsenic, As	mg/kg	1	11	5	14	330
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Fibre Identification in soil Method: AN602 Tested: -

FibreID

Asbestos Detected	No unit	-	-	-	-	No
-------------------	---------	---	---	---	---	----

SemiQuant

Estimated Fibres*	%w/w	0.01	-	-	-	<0.01
-------------------	------	------	---	---	---	-------

Moisture Content Method: AN002 Tested: 16/7/2015

% Moisture	%w/w	1	21.6	34.6	34.1	25.6
% Total Solids	%w/w	1	78.4	65.4	65.9	74.4



ANALYTICAL REPORT

SE141422 R0

Parameter	Sample Number		SE141422.005	SE141422.006	SE141422.007	SE141422.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		11 Jul 2015	11 Jul 2015	11 Jul 2015	11 Jul 2015
	Sample Name		HLHA10	HLHA11	HLHA12	HLHA13
Parameter	Units	LOR				

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320 Tested: 20/7/2015

Arsenic, As	mg/kg	1	140	180	93	220
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Fibre Identification in soil Method: AN602 Tested: 20/7/2015

FibreID

Asbestos Detected	No unit	-	No	-	No	No
-------------------	---------	---	----	---	----	----

SemiQuant

Estimated Fibres*	%w/w	0.01	<0.01	-	<0.01	<0.01
-------------------	------	------	-------	---	-------	-------

Moisture Content Method: AN002 Tested: 16/7/2015

% Moisture	%w/w	1	30.2	26.1	23.4	21.8
% Total Solids	%w/w	1	69.8	73.9	76.6	78.2



ANALYTICAL REPORT

SE141422 R0

Parameter	Sample Number		SE141422.009	SE141422.010	SE141422.011	SE141422.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		11 Jul 2015	11 Jul 2015	11 Jul 2015	11 Jul 2015
	Sample Name		HLHA14	HLHA15	HLHA16	HLHA17
Units	LOR					

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320 Tested: 20/7/2015

Arsenic, As	mg/kg	1	110	50	10	39
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Fibre Identification in soil Method: AN602 Tested: -

FibreID

Asbestos Detected	No unit	-	-	-	-	-
-------------------	---------	---	---	---	---	---

SemiQuant

Estimated Fibres*	%w/w	0.01	-	-	-	-
-------------------	------	------	---	---	---	---

Moisture Content Method: AN002 Tested: 16/7/2015

% Moisture	%w/w	1	26.9	13.9	21.1	15.9
% Total Solids	%w/w	1	73.1	86.1	78.9	84.1



ANALYTICAL REPORT

SE141422 R0

Parameter	Sample Number	SE141422.013	SE141422.014	SE141422.015
	Sample Matrix	Soil	Soil	Soil
	Sample Date	11 Jul 2015	11 Jul 2015	11 Jul 2015
	Sample Name	QC6	QC7	HLHA18
	Units	LOR		

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320 Tested: 20/7/2015

Arsenic, As	mg/kg	1	7	21	63
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Fibre Identification in soil Method: AN602 Tested: -

FibreID

Asbestos Detected	No unit	-	-	-	No
-------------------	---------	---	---	---	----

SemiQuant

Estimated Fibres*	%w/w	0.01	-	-	<0.01
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Moisture Content Method: AN002 Tested: 16/7/2015

% Moisture	%w/w	1	18.6	16.9	13.3
% Total Solids	%w/w	1	81.4	83.1	86.7

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB081140	%w/w	1	9 - 14%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB081274	mg/kg	1	<1	4 - 20%	97%	71%
	LB081276	mg/kg	1	<1	3 - 5%	100%	28%

METHOD

METHODOLOGY SUMMARY

AN002

The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.

AN040

A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.

AN040/AN320

A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).

AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-

- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);
- (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and
- (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

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

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

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Project JME4079
Order Number JME4079
Samples 5

LABORATORY DETAILS

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SGS Reference SE141422 R0
Report Number 0000116025
Date Reported 21 Jul 2015
Date Received 14 Jul 2015

COMMENTS

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

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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



Andy Sutton
Senior Organic Chemist



Dong Liang
Metals/Inorganics Team Leader



Ravee Sivasubramaniam
Asbestos Analyst / Hygiene Team Lead

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est. %w/w*
SE141422.004	HLHA9	Soil	197g Sand, Soil, Rocks	11 Jul 2015	No Asbestos Found Organic Fibres Detected	<0.01
SE141422.005	HLHA10	Soil	244g Sand, Soil, Rocks	11 Jul 2015	No Asbestos Found Organic Fibres Detected	<0.01
SE141422.007	HLHA12	Soil	143g Sand, Soil, Rocks	11 Jul 2015	No Asbestos Found Organic Fibres Detected	<0.01
SE141422.008	HLHA13	Soil	148g Sand, Soil, Rocks	11 Jul 2015	No Asbestos Found Organic Fibres Detected	<0.01
SE141422.015	HLHA18	Soil	436g Sand, Soil, Rocks	11 Jul 2015	No Asbestos Found Organic Fibres Detected	<0.01

METHOD

METHODOLOGY SUMMARY

AN602

Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.

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FOOTNOTES

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

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

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

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

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

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