

METHOD

METHODOLOGY SUMMARY

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).

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

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

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE205282A R0

CLIENT DETAILS

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Project **PS119057 - Wentworthville PS Block H**
Order Number **PS119057**
Samples 3

LABORATORY DETAILS

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SGS Reference **SE205282A R0**
Date Received 27 Apr 2020
Date Reported 28 Apr 2020

COMMENTS

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

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

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

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	27/4/2020@4:15PM	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	20°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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.

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
STP01_0.3	SE205282A.001	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01A_0.3	SE205282A.002	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01B_0.3	SE205282A.003	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
STP01_0.3	SE205282A.001	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01A_0.3	SE205282A.002	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01B_0.3	SE205282A.003	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
STP01_0.3	SE205282A.001	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01A_0.3	SE205282A.002	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020
STP01B_0.3	SE205282A.003	LB198221	20 Apr 2020	27 Apr 2020	04 May 2020	27 Apr 2020	06 Jun 2020	28 Apr 2020



SURROGATES

SE205282A R0

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

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason 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)AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	STP01_0.3	SE205282A.001	%	60 - 130%	106
	STP01A_0.3	SE205282A.002	%	60 - 130%	107
	STP01B_0.3	SE205282A.003	%	60 - 130%	103

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	STP01_0.3	SE205282A.001	%	60 - 130%	93
	STP01A_0.3	SE205282A.002	%	60 - 130%	95
	STP01B_0.3	SE205282A.003	%	60 - 130%	95
d14-p-terphenyl (Surrogate)	STP01_0.3	SE205282A.001	%	60 - 130%	85
	STP01A_0.3	SE205282A.002	%	60 - 130%	90
	STP01B_0.3	SE205282A.003	%	60 - 130%	89

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	STP01_0.3	SE205282A.001	%	60 - 130%	106
	STP01A_0.3	SE205282A.002	%	60 - 130%	107
	STP01B_0.3	SE205282A.003	%	60 - 130%	103

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.

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB198221.001	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)	%	-	113

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB198221.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	102
Surrogates	d14-p-terphenyl (Surrogate)	%	-	97

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB198221.001	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 (Arochors)	mg/kg	1	<1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	113

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.

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE205382A.003	LB198221.010	Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
		Alpha BHC	mg/kg	0.1	0	0	200	0
		Lindane	mg/kg	0.1	0	0	200	0
		Heptachlor	mg/kg	0.1	0	0	200	0
		Aldrin	mg/kg	0.1	0	0	200	0
		Beta BHC	mg/kg	0.1	0	0	200	0
		Delta BHC	mg/kg	0.1	0	0	200	0
		Heptachlor epoxide	mg/kg	0.1	0	0	200	0
		o,p'-DDE	mg/kg	0.1	0	0	200	0
		Alpha Endosulfan	mg/kg	0.2	0	0	200	0
		Gamma Chlordane	mg/kg	0.1	0	0	200	0
		Alpha Chlordane	mg/kg	0.1	0	0	200	0
		trans-Nonachlor	mg/kg	0.1	0	0	200	0
		p,p'-DDE	mg/kg	0.1	0	0	200	0
		Dieldrin	mg/kg	0.2	0	0	200	0
		Endrin	mg/kg	0.2	0	0	200	0
		o,p'-DDD	mg/kg	0.1	0	0	200	0
		o,p'-DDT	mg/kg	0.1	0	0	200	0
		Beta Endosulfan	mg/kg	0.2	0	0	200	0
		p,p'-DDD	mg/kg	0.1	0	0	200	0
		p,p'-DDT	mg/kg	0.1	0	0	200	0
		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
		Endrin Aldehyde	mg/kg	0.1	0	0	200	0
		Methoxychlor	mg/kg	0.1	0	0	200	0
		Endrin Ketone	mg/kg	0.1	0	0	200	0
		Isodrin	mg/kg	0.1	0	0	200	0
		Mirex	mg/kg	0.1	0	0	200	0
		Total CLP OC Pesticides	mg/kg	1	0	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.154	0.155	30	1

OP Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE205382A.003	LB198221.010	Dichlorvos	mg/kg	0.5	0	0	200	0
		Dimethoate	mg/kg	0.5	0	0.0008107758	200	0
		Diazinon (Dimpylate)	mg/kg	0.5	0.00480747400	0.0126344534	200	0
		Fenitrothion	mg/kg	0.2	0	0	200	0
		Malathion	mg/kg	0.2	0	0.0052464292	200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0.0011432085	200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	0	0	200	0
		Bromophos Ethyl	mg/kg	0.2	0	0	200	0
		Methidathion	mg/kg	0.5	0	0	200	0
		Ethion	mg/kg	0.2	0	0	200	0
		Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Total OP Pesticides*	mg/kg	1.7	0	0	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.425	0.4771010153	30	12
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.438	0.4284300037	30	2

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE205382A.003	LB198221.010	Arochlor 1016	mg/kg	0.2	0	0	200	0
		Arochlor 1221	mg/kg	0.2	0	0	200	0
		Arochlor 1232	mg/kg	0.2	0	0	200	0
		Arochlor 1242	mg/kg	0.2	0	0	200	0
		Arochlor 1248	mg/kg	0.2	0	0	200	0
		Arochlor 1254	mg/kg	0.2	0	0	200	0
		Arochlor 1260	mg/kg	0.2	0	0	200	0
		Arochlor 1262	mg/kg	0.2	0	0	200	0
		Arochlor 1268	mg/kg	0.2	0	0	200	0
		Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.154	0.155	30	1

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.

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB198221.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	88
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	96
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	94
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	91
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	89
	p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	71
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	40 - 130	111

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB198221.002	Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	87
	Diazinon (Dimpylate)	mg/kg	0.5	2.2	2	60 - 140	112
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.5	2	60 - 140	123
	Ethion	mg/kg	0.2	2.3	2	60 - 140	113
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB198221.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	79



MATRIX SPIKES

SE205282A R0

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.

QC Sample	Sample Number	Parameter	Units	LOR
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MATRIX SPIKE DUPLICATES

SE205282A R0

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: <https://www.sgs.com.au/-/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf>

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

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Yin, Emily (Sydney)

From: AU.Environmental.Sydney (Sydney)
Sent: Monday, 27 April 2020 4:31 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: FW: [EXTERNAL] RE: Report Job SE205282, your reference PS119057 - Wentworthville PS Block H, order number PS119057

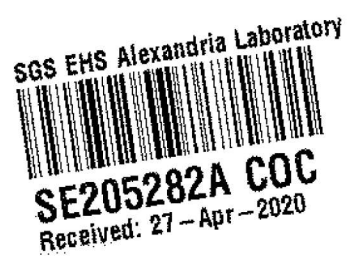
Hi Emily,

1 day TAT, thanks.

One more is coming.

Kind Regards,

Huong Crawford
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Production Manager
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Web: www.au.sgs.com
View Your Results Online: engage.sgs.com



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

From: Donovan, Hamish <Hamish.Donovan@wsp.com>
Sent: Monday, 27 April 2020 4:15 PM
To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>
Cc: Bowe, Leila <Leila.Bowe@wsp.com>; Talukder, Poushali <Poushali.Talukder@wsp.com>
Subject: [EXTERNAL] RE: Report Job SE205282, your reference PS119057 - Wentworthville PS Block H, order number PS119057

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

Hi team

Can I please schedule: OCP/OPP and PCBs on:

- STP01_0.3
- STP01A_0.3
- STP01B_0.3

24h TAT please.

(a second email coming as well)



SAMPLE RECEIPT ADVICE

SE205282A

CLIENT DETAILS

Contact Hamish Donovan
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NSW 2000

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Email Hamish.Donovan@wsp.com

Project **PS119057 - Wentworthville PS Block H**
Order Number **PS119057**
Samples 3

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
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Samples Received Mon 27/4/2020
Report Due Tue 28/4/2020
SGS Reference **SE205282A**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Monday 27/4/2020. Results are expected to be ready by COB Tuesday 28/4/2020. Please quote SGS reference SE205282A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	27/4/2020@4:15PM	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	20°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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

COMMENTS

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



SAMPLE RECEIPT ADVICE

SE205282A

CLIENT DETAILS

Client **WSP AUSTRALIA PTY LIMITED**

Project **PS119057 - Wentworhville PS Block H**

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PCBs in Soil
001	STP01_0.3	29	14	11
002	STP01A_0.3	29	14	11
003	STP01B_0.3	29	14	11

The above table represents SGS' 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 Hamish Donovan
 Client WSP AUSTRALIA PTY LIMITED
 Address Level 27, Ernst & Young Centre
 680 George St
 NSW 2000

Telephone 02 9272 1453
 Facsimile 02 9272 5101
 Email Hamish.Donovan@wsp.com

Project **PS119057 - WWPS Bikh Sewer+Ramp**
 Order Number **PS119057**
 Samples 6

LABORATORY DETAILS

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SGS Reference **SE208104 R0**
 Date Received 30/6/2020
 Date Reported 1/7/2020

COMMENTS

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

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

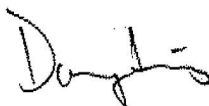
A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample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

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES



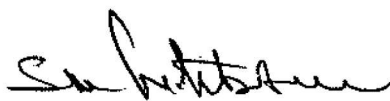
Bennet LO
 Senior Organic Chemist/Metals Chemist



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



Yusuf KUTHPUDIN
 Asbestos Analyst



ANALYTICAL RESULTS

SE208104 R0

VOC's in Soil [AN433] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			-
			26/6/2020 SE208104.006
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1



ANALYTICAL RESULTS

SE208104 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			-
			26/6/2020 SE208104.006
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25



ANALYTICAL RESULTS

SE208104 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	49
TRH C29-C36	mg/kg	45	48	<45	<45	<45	46
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			-
			26/6/2020 SE208104.006
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			26/6/2020 SE208104.006
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1
Pyrene	mg/kg	0.1	0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	-



ANALYTICAL RESULTS

SE208104 R0

OC Pesticides in Soil [AN420] Tested: 30/6/2020 (continued)

			R02_0.2-0.3
			SOIL
			-
			26/6/2020
			SE208104.006
PARAMETER	UOM	LOR	
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	-
Total CLP OC Pesticides	mg/kg	1	-



ANALYTICAL RESULTS

SE208104 R0

OP Pesticides in Soil [AN420] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7



ANALYTICAL RESULTS

SE208104 R0

PCBs in Soil [AN420] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	-

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			-
			26/6/2020 SE208104.006
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 (Arochlors)	mg/kg	1	-



ANALYTICAL RESULTS

SE208104 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004	26/6/2020 SE208104.005
Arsenic, As	mg/kg	1	8	14	7	5	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	18	16	9.4	8.0	10
Copper, Cu	mg/kg	0.5	11	13	7.3	11	9.2
Lead, Pb	mg/kg	1	48	13	25	63	14
Nickel, Ni	mg/kg	0.5	5.7	4.3	3.1	2.8	5.3
Zinc, Zn	mg/kg	2	58	28	38	73	29

PARAMETER	UOM	LOR	R02_0.2-0.3
			SOIL
			-
			26/6/2020 SE208104.006
Arsenic, As	mg/kg	1	6
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	8.4
Copper, Cu	mg/kg	0.5	14
Lead, Pb	mg/kg	1	39
Nickel, Ni	mg/kg	0.5	5.2
Zinc, Zn	mg/kg	2	55



ANALYTICAL RESULTS

SE208104 R0

Mercury in Soil [AN312] Tested: 30/6/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL -	SOIL -	SOIL -	SOIL -	SOIL -
			26/6/2020	26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004	SE208104.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			R02_0.2-0.3
			SOIL -
			26/6/2020
PARAMETER	UOM	LOR	SE208104.006
Mercury	mg/kg	0.05	<0.05



ANALYTICAL RESULTS

SE208104 R0

Moisture Content [AN002] Tested: 30/6/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3	R01_0.2-0.3
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			26/6/2020	26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004	SE208104.005
% Moisture	%w/w	1	12.3	23.0	11.6	9.4	17.9

			R02_0.2-0.3
			SOIL
			-
			26/6/2020
PARAMETER	UOM	LOR	SE208104.006
% Moisture	%w/w	1	16.2



ANALYTICAL RESULTS

SE208104 R0

Fibre Identification in soil [AN602] Tested: 30/6/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004
Asbestos Detected	No unit	-	No	No	No	No



ANALYTICAL RESULTS

SE208104 R0

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC [AN006] Tested: 30/6/2020

PARAMETER	UOM	LOR	SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020 SE208104.001	26/6/2020 SE208104.002	26/6/2020 SE208104.003	26/6/2020 SE208104.004
pH 1:20	pH Units	-	5.6	5.3	5.6	5.7
pH 1:20 plus HCL	pH Units	-	1.7	1.7	1.7	1.7
Extraction Solution Used	No unit	-	1	1	1	1
Mass of Sample Used*	g	-	25	25	25	25
Volume of ExtractionSolution Used*	mL	-	500	500	500	500
pH TCLP after 18 hours	pH Units	-	5.0	5.0	5.0	5.0



ANALYTICAL RESULTS

SE208104 R0

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract [AN420] Tested: 1/7/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1



ANALYTICAL RESULTS

SE208104 R0

Metals in TCLP Extract by ICPOES [AN320] Tested: 1/7/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004
Arsenic, As	mg/L	0.02	<0.02	<0.02	<0.02	<0.02
Cadmium, Cd	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Chromium, Cr	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Copper, Cu	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Lead, Pb	mg/L	0.02	<0.02	<0.02	<0.02	<0.02
Nickel, Ni	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Zinc, Zn	mg/L	0.01	0.19	<0.01	0.11	0.21



ANALYTICAL RESULTS

SE208104 R0

Mercury in TCLP Extract [AN311(Perth) /AN312] Tested: 1/7/2020

			SI01_0.1-0.2	SI01_0.3-0.4	SI02_0.2-0.3	SI03_0.2-0.3
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			26/6/2020	26/6/2020	26/6/2020	26/6/2020
PARAMETER	UOM	LOR	SE208104.001	SE208104.002	SE208104.003	SE208104.004
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001

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.
AN006	Contaminants of interest in a waste material are leached out of the waste with a selected leaching solution under controlled conditions. The ratio of sample to extraction fluid is 100g to 2L (1 to 20 by mass). The concentration of each contaminant of interest is determined in the leachate by appropriate methods after separation from the sample by filtering. Base on USEPA 1311.
AN006	Extraction Fluid #1: This fluid is made by combining 128.6mL of dilute sodium hydroxide solution and 11.5mL glacial acetic acid with water and diluting to a volume of 2 litres. The pH of this fluid should be 4.93 ± 0.05 .
AN006	Extraction Fluid #2: This fluid is made by diluting 5.7mL glacial acetic acid with water to a volume of 1 litre. The pH of this fluid should be 2.88 ± 0.05 .
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth) /AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
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
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

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

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received. Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

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

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

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE208104 R0

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Project **PS119057 - WWPS Bikh Sewer+Ramp**
Order Number **PS119057**
Samples 6

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SGS Reference **SE208104 R0**
Date Received 30 Jun 2020
Date Reported 01 Jul 2020

COMMENTS

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

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

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

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	6 Soil
Date documentation received	30/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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
SI01_0.1-0.2	SE208104.001	LB203085	26 Jun 2020	30 Jun 2020	26 Jun 2021	30 Jun 2020	26 Jun 2021	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203085	26 Jun 2020	30 Jun 2020	26 Jun 2021	30 Jun 2020	26 Jun 2021	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203085	26 Jun 2020	30 Jun 2020	26 Jun 2021	30 Jun 2020	26 Jun 2021	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203085	26 Jun 2020	30 Jun 2020	26 Jun 2021	30 Jun 2020	26 Jun 2021	01 Jul 2020

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203095	26 Jun 2020	30 Jun 2020	24 Jul 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020

Mercury in TCLP Extract

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203137	26 Jun 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020	24 Jul 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203137	26 Jun 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020	24 Jul 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203137	26 Jun 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020	24 Jul 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203137	26 Jun 2020	30 Jun 2020	24 Jul 2020	01 Jul 2020	24 Jul 2020	01 Jul 2020

Metals in TCLP Extract by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203136	26 Jun 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020	23 Dec 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203136	26 Jun 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020	23 Dec 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203136	26 Jun 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020	23 Dec 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203136	26 Jun 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020	23 Dec 2020	01 Jul 2020

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203068	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	05 Jul 2020	01 Jul 2020

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

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 TCLP Extract

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203143	26 Jun 2020	30 Jun 2020	17 Jul 2020	01 Jul 2020	10 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203143	26 Jun 2020	30 Jun 2020	17 Jul 2020	01 Jul 2020	10 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203143	26 Jun 2020	30 Jun 2020	17 Jul 2020	01 Jul 2020	10 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203143	26 Jun 2020	30 Jun 2020	17 Jul 2020	01 Jul 2020	10 Aug 2020	01 Jul 2020

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC

Method: ME-(AU)-[ENV]AN006

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203086	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	10 Jul 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203086	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	10 Jul 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203086	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	10 Jul 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203086	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	10 Jul 2020	01 Jul 2020

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203092	26 Jun 2020	30 Jun 2020	23 Dec 2020	30 Jun 2020	23 Dec 2020	01 Jul 2020

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
SI01_0.1-0.2	SE208104.001	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203067	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SI01_0.1-0.2	SE208104.001	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI01_0.3-0.4	SE208104.002	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI02_0.2-0.3	SE208104.003	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
SI03_0.2-0.3	SE208104.004	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R01_0.2-0.3	SE208104.005	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020
R02_0.2-0.3	SE208104.006	LB203066	26 Jun 2020	30 Jun 2020	10 Jul 2020	30 Jun 2020	09 Aug 2020	01 Jul 2020

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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	99
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	104
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	97
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	97

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	93
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	71
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	95
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	87
d14-p-terphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	88
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	87
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	91
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	85

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	70 - 130%	93
	SI01_0.3-0.4	SE208104.002	%	70 - 130%	71
	SI02_0.2-0.3	SE208104.003	%	70 - 130%	95
	SI03_0.2-0.3	SE208104.004	%	70 - 130%	87
	R01_0.2-0.3	SE208104.005	%	70 - 130%	72
	R02_0.2-0.3	SE208104.006	%	70 - 130%	76
d14-p-terphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	70 - 130%	88
	SI01_0.3-0.4	SE208104.002	%	70 - 130%	87
	SI02_0.2-0.3	SE208104.003	%	70 - 130%	91
	SI03_0.2-0.3	SE208104.004	%	70 - 130%	85
	R01_0.2-0.3	SE208104.005	%	70 - 130%	91
	R02_0.2-0.3	SE208104.006	%	70 - 130%	88
d5-nitrobenzene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	70 - 130%	73
	SI01_0.3-0.4	SE208104.002	%	70 - 130%	77
	SI02_0.2-0.3	SE208104.003	%	70 - 130%	75
	SI03_0.2-0.3	SE208104.004	%	70 - 130%	75
	R01_0.2-0.3	SE208104.005	%	70 - 130%	77
	R02_0.2-0.3	SE208104.006	%	70 - 130%	78

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	40 - 130%	70
	SI01_0.3-0.4	SE208104.002	%	40 - 130%	77
	SI02_0.2-0.3	SE208104.003	%	40 - 130%	79
	SI03_0.2-0.3	SE208104.004	%	40 - 130%	57
d14-p-terphenyl (Surrogate)	SI01_0.1-0.2	SE208104.001	%	40 - 130%	92
	SI01_0.3-0.4	SE208104.002	%	40 - 130%	92
	SI02_0.2-0.3	SE208104.003	%	40 - 130%	92
	SI03_0.2-0.3	SE208104.004	%	40 - 130%	77
d5-nitrobenzene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	40 - 130%	56
	SI01_0.3-0.4	SE208104.002	%	40 - 130%	58
	SI02_0.2-0.3	SE208104.003	%	40 - 130%	57
	SI03_0.2-0.3	SE208104.004	%	40 - 130%	50

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	99
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	104
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	97
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	97

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	90
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	86

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

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason 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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SI02_0.2-0.3	SE208104.003	%	60 - 130%	88
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	83
	R01_0.2-0.3	SE208104.005	%	60 - 130%	94
	R02_0.2-0.3	SE208104.006	%	60 - 130%	100
d4-1,2-dichloroethane (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	101
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	96
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	105
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	97
	R01_0.2-0.3	SE208104.005	%	60 - 130%	94
	R02_0.2-0.3	SE208104.006	%	60 - 130%	100
d8-toluene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	100
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	96
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	98
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	100
	R01_0.2-0.3	SE208104.005	%	60 - 130%	98
	R02_0.2-0.3	SE208104.006	%	60 - 130%	106

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	90
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	86
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	88
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	83
	R01_0.2-0.3	SE208104.005	%	60 - 130%	94
	R02_0.2-0.3	SE208104.006	%	60 - 130%	100
d4-1,2-dichloroethane (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	101
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	96
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	105
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	97
	R01_0.2-0.3	SE208104.005	%	60 - 130%	94
	R02_0.2-0.3	SE208104.006	%	60 - 130%	100
d8-toluene (Surrogate)	SI01_0.1-0.2	SE208104.001	%	60 - 130%	100
	SI01_0.3-0.4	SE208104.002	%	60 - 130%	96
	SI02_0.2-0.3	SE208104.003	%	60 - 130%	98
	SI03_0.2-0.3	SE208104.004	%	60 - 130%	100
	R01_0.2-0.3	SE208104.005	%	60 - 130%	98
	R02_0.2-0.3	SE208104.006	%	60 - 130%	106

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203095.001	Mercury	mg/kg	0.05	-1.25E-005

Mercury in TCLP Extract

Method: ME-(AU)-(ENV)AN311(Perth) /AN312

Sample Number	Parameter	Units	LOR	Result
LB203137.001	Mercury	mg/L	0.0001	0.0262

Metals in TCLP Extract by ICPOES

Method: ME-(AU)-(ENV)AN320

Sample Number	Parameter	Units	LOR	Result
LB203136.001	Arsenic, As	mg/L	0.02	<0.02
	Cadmium, Cd	mg/L	0.001	<0.001
	Chromium, Cr	mg/L	0.005	<0.005
	Copper, Cu	mg/L	0.005	<0.005
	Lead, Pb	mg/L	0.02	<0.02
	Nickel, Ni	mg/L	0.005	<0.005
	Zinc, Zn	mg/L	0.01	<0.01

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203067.001	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)	%	-	105

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203067.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	79
	d14-p-terphenyl (Surrogate)	%	-	98
Surrogates				

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

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

Sample Number	Parameter	Units	LOR	Result
LB203067.001	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(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
Surrogates	d5-nitrobenzene (Surrogate)	%	-	81
	2-fluorobiphenyl (Surrogate)	%	-	79
	d14-p-terphenyl (Surrogate)	%	-	98

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

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

Sample Number	Parameter	Units	LOR	Result
LB203143.001	Benzo(a)pyrene	µg/L	0.1	<0.1
	d5-nitrobenzene (Surrogate)	%	-	52
	2-fluorobiphenyl (Surrogate)	%	-	62
	d14-p-terphenyl (Surrogate)	%	-	78

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203067.001	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)	%	-	105

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

Method: ME-(AU)-[ENV]AN40/AN320

Sample Number	Parameter	Units	LOR	Result
LB203092.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203067.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

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

Sample Number	Parameter	Units	LOR
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METHOD BLANKS

SE208104 R0

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

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

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB203066.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
		Naphthalene	mg/kg	0.1	<0.1
	Polycyclic VOCs				
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	102
		Bromofluorobenzene (Surrogate)	%	-	91
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB203066.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	108



DUPLICATES

SE208104 R0

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]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.001	LB203095.018	Mercury	mg/kg	0.05	0.04712496160	0.0579167864	125	15
SE208120.005	LB203095.014	Mercury	mg/kg	0.05	0.01777768360	0.0217158709	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.001	LB203068.015	% Moisture	%w/w	1	14.91525423725	0.0300601207	37	1
SE208120.005	LB203068.011	% Moisture	%w/w	1	13.09328968904	6.6616541353	37	11

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.007	LB203067.019	Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
		Alpha BHC	mg/kg	0.1	0	0	200	0
		Lindane	mg/kg	0.1	0	0	200	0
		Heptachlor	mg/kg	0.1	0	0	200	0
		Aldrin	mg/kg	0.1	0	0	200	0
		Beta BHC	mg/kg	0.1	0	0	200	0
		Delta BHC	mg/kg	0.1	0	0	200	0
		Heptachlor epoxide	mg/kg	0.1	0	0	200	0
		o,p'-DDE	mg/kg	0.1	0	0	200	0
		Alpha Endosulfan	mg/kg	0.2	0	0	200	0
		Gamma Chlordane	mg/kg	0.1	0	0	200	0
		Alpha Chlordane	mg/kg	0.1	0	0	200	0
		trans-Nonachlor	mg/kg	0.1	0	0	200	0
		p,p'-DDE	mg/kg	0.1	0	0	200	0
		Dieldrin	mg/kg	0.2	0	0	200	0
		Endrin	mg/kg	0.2	0	0	200	0
		o,p'-DDD	mg/kg	0.1	0	0	200	0
		o,p'-DDT	mg/kg	0.1	0	0	200	0
		Beta Endosulfan	mg/kg	0.2	0	0	200	0
		p,p'-DDD	mg/kg	0.1	0	0	200	0
		p,p'-DDT	mg/kg	0.1	0	0	200	0
		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
		Endrin Aldehyde	mg/kg	0.1	0	0	200	0
		Methoxychlor	mg/kg	0.1	0	0	200	0
		Endrin Ketone	mg/kg	0.1	0	0	200	0
		Isodrin	mg/kg	0.1	0	0	200	0
		Mirex	mg/kg	0.1	0	0	200	0
				Total CLP OC Pesticides	mg/kg	1	0	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.144	0.116	30	22

OP Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE208120.005	LB203067.014	Dichlorvos	mg/kg	0.5	0	0	200	0	
		Dimethoate	mg/kg	0.5	0	0	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	0.03287530430	0.0827601094	200	0	
		Fenitrothion	mg/kg	0.2	0	0	200	0	
		Malathion	mg/kg	0.2	0	0	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	0	0	200	0	
		Bromophos Ethyl	mg/kg	0.2	0	0	200	0	
		Methidathion	mg/kg	0.5	0	0.0005648435	200	0	
		Ethion	mg/kg	0.2	0	0	200	0	
		Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0	
		Total OP Pesticides*	mg/kg	1.7	0	0	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.46236110290	0.3668895606	30	23
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.45875390850	0.4299296470	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.005	LB203067.014	Naphthalene	mg/kg	0.1	0.00154107790.0014048251	200	0	
		2-methylnaphthalene	mg/kg	0.1	0	0.0007060983	200	0
		1-methylnaphthalene	mg/kg	0.1	0.0011153634	0	200	0
		Acenaphthylene	mg/kg	0.1	0.0022593781	0	200	0
		Acenaphthene	mg/kg	0.1	0	0.0016803058	200	0
		Fluorene	mg/kg	0.1	0	0	200	0
		Phenanthrene	mg/kg	0.1	0.02692748490.0683745749	200	0	
		Anthracene	mg/kg	0.1	0.02454234710.0543480636	200	0	
		Fluoranthene	mg/kg	0.1	0.06624434830.1256724892	134	23	
		Pyrene	mg/kg	0.1	0.06539306800.1205323773	138	19	
		Benzo(a)anthracene	mg/kg	0.1	0.06189372130.0462107070	200	0	
		Chrysene	mg/kg	0.1	0.05033902990.0850005866	178	0	
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.04816328600.0771135035	190	0	
		Benzo(k)fluoranthene	mg/kg	0.1	0.06094928220.0973613029	156	0	
		Benzo(a)pyrene	mg/kg	0.1	0.02921005840.0502620638	200	0	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.01060414030.0241088896	200	0	
		Dibenzo(ah)anthracene	mg/kg	0.1	0.0011602886	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.01269815060.0300389739	200	0	
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.242	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.121	0.121	175	0
		Total PAH (18)	mg/kg	0.8	0	0.2462048665	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.38155567540.3737652879	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.46236110290.3668895606	30	23
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.45875390850.4299296470	30	6

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.007	LB203067.019	Arochlor 1016	mg/kg	0.2	0	0	200	0
		Arochlor 1221	mg/kg	0.2	0	0	200	0
		Arochlor 1232	mg/kg	0.2	0	0	200	0
		Arochlor 1242	mg/kg	0.2	0	0	200	0
		Arochlor 1248	mg/kg	0.2	0	0	200	0
		Arochlor 1254	mg/kg	0.2	0	0	200	0
		Arochlor 1260	mg/kg	0.2	0	0	200	0
		Arochlor 1262	mg/kg	0.2	0	0	200	0
		Arochlor 1268	mg/kg	0.2	0	0	200	0
		Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.144	0.116	30	22

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.001	LB203092.020	Arsenic, As	mg/kg	1	5.98170222338.0862505555		44	30
		Cadmium, Cd	mg/kg	0.3	0.12369072090.1147316666		200	0
		Chromium, Cr	mg/kg	0.5	13.43963661488.1597841666		33	30
		Copper, Cu	mg/kg	0.5	9.586741742712.0897327777		35	23
		Nickel, Ni	mg/kg	0.5	7.23472240079.2111805555		36	24
		Lead, Pb	mg/kg	1	53.57561688773.9366305555		32	32
		Zinc, Zn	mg/kg	2	14.71485027656.967844444		31	31 ↑
SE208120.005	LB203092.016	Arsenic, As	mg/kg	1	12.03294656891.3367338211		39	6
		Cadmium, Cd	mg/kg	0.3	0.13883986240.1085213008		200	0
		Chromium, Cr	mg/kg	0.5	15.77686806434.6676828861		33	7
		Copper, Cu	mg/kg	0.5	6.77842835136.3812395934		38	6
		Nickel, Ni	mg/kg	0.5	3.77245023423.4988764227		44	8
		Lead, Pb	mg/kg	1	24.34832765222.4751356097		34	8
		Zinc, Zn	mg/kg	2	35.65889246851.5055191056		33	24

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.005	LB203067.014	TRH C10-C14	mg/kg	20	0	0	200	0
		TRH C15-C28	mg/kg	45	0	0	200	0
		TRH C29-C36	mg/kg	45	0	0	200	0

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 %
SE208120.005	LB203067.014	TRH C37-C40	mg/kg	100	0	0	200	0
		TRH C10-C36 Total	mg/kg	110	0	0	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
	TRH F Bands	TRH >C10-C16	mg/kg	25	0	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
		TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.001	LB203066.018	Monocyclic	Benzene	mg/kg	0.1	0.00381028120.0034725207	200	0
		Aromatic	Toluene	mg/kg	0.1	0.02276597470.0227910901	200	0
			Ethylbenzene	mg/kg	0.1	0.01036230180.0101675774	200	0
			m/p-xylene	mg/kg	0.2	0.01659904080.0163256741	200	0
			o-xylene	mg/kg	0.1	0.00328770680.0032513950	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.00188131690.0016168735	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.04637694039.7517728733	50	3
			d8-toluene (Surrogate)	mg/kg	-	10.20099608830.0023354686	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.67388898809.7093418998	50	0
		Totals	Total Xylenes	mg/kg	0.3	0.01988674770.0195770691	200	0
			Total BTEX	mg/kg	0.6	0	200	0
SE208120.005	LB203066.014	Monocyclic	Benzene	mg/kg	0.1	0.00341739940.0034089449	200	0
		Aromatic	Toluene	mg/kg	0.1	0.02437498540.0240892901	200	0
			Ethylbenzene	mg/kg	0.1	0.01045328730.0102717511	200	0
			m/p-xylene	mg/kg	0.2	0.01653275060.0164796464	200	0
			o-xylene	mg/kg	0.1	0.00313404200.0030518472	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.00109599380.0012260646	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.950649829710.2510025286	50	3
			d8-toluene (Surrogate)	mg/kg	-	10.34216147330.6639886702	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.69005152549.8724584892	50	2
		Totals	Total Xylenes	mg/kg	0.3	0.01966679260.0195314936	200	0
			Total BTEX	mg/kg	0.6	0	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208120.001	LB203066.018	TRH C6-C10	mg/kg	25	0	0	200	0
		TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.04637694039.7517728733	30	3
		d8-toluene (Surrogate)	mg/kg	-	10.20099608830.0023354686	30	2	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.67388898809.7093418998	30	0	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.00381028120.0034725207	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
		TRH C6-C10	mg/kg	25	0	0	200	0
SE208120.005	LB203066.014	TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.950649829710.2510025286	30	3
		d8-toluene (Surrogate)	mg/kg	-	10.34216147330.6639886702	30	3	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.69005152549.8724584892	30	2	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.00341739940.0034089449	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
		TRH C6-C10	mg/kg	25	0	0	200	0
		TRH C6-C9	mg/kg	20	0	0	200	0

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203095.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	98

Metals in TCLP Extract by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203136.002	Arsenic, As	mg/L	0.02	0.50	0.5	80 - 120	99
	Cadmium, Cd	mg/L	0.001	0.45	0.5	80 - 120	90
	Chromium, Cr	mg/L	0.005	0.49	0.5	80 - 120	97
	Copper, Cu	mg/L	0.005	0.48	0.5	80 - 120	96
	Lead, Pb	mg/L	0.02	0.48	0.5	80 - 120	97
	Nickel, Ni	mg/L	0.005	0.48	0.5	80 - 120	97
	Zinc, Zn	mg/L	0.01	0.49	0.5	80 - 120	98

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203067.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	118
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	123
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	124
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	120
	Endrin	mg/kg	0.2	0.2	0.2	60 - 140	116
	p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	71
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	105

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203067.002	Dichlorvos	mg/kg	0.5	1.4	2	60 - 140	71
	Diazinon (Dimpylate)	mg/kg	0.5	1.4	2	60 - 140	71
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.3	2	60 - 140	65
	Ethion	mg/kg	0.2	1.2	2	60 - 140	61
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB203067.002	Naphthalene	mg/kg	0.1	3.8	4	60 - 140	94	
	Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	98	
	Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	96	
	Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	95	
	Anthracene	mg/kg	0.1	4.1	4	60 - 140	102	
	Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	97	
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	104	
	Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	105	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
d14-p-terphenyl (Surrogate)		mg/kg	-	0.4	0.5	40 - 130	77	

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB203143.002	Surrogates	Benzo(a)pyrene	µg/L	0.1	32	40	60 - 140	79
		d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	56
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	68
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	86

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203067.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	73

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

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

Sample Number	Parameter	Units	LOR
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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 Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203092.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	5.2	5.41	80 - 120	96
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	101
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	100
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	270	273	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203067.002	TRH C10-C14	mg/kg	20	49	40	60 - 140	123
	TRH C15-C28	mg/kg	45	46	40	60 - 140	115
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	mg/kg	25	49	40	60 - 140	123
	TRH >C10-C16	mg/kg	25	49	40	60 - 140	123
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	100
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	70

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203066.002	Monocyclic	Benzene	mg/kg	0.1	3.7	5	60 - 140	74
	Aromatic	Toluene	mg/kg	0.1	4.0	5	60 - 140	80
		Ethylbenzene	mg/kg	0.1	3.8	5	60 - 140	76
		m/p-xylene	mg/kg	0.2	7.6	10	60 - 140	76
		o-xylene	mg/kg	0.1	3.8	5	60 - 140	76
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
		d8-toluene (Surrogate)	mg/kg	-	11.8	10	70 - 130	118
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.3	10	70 - 130	113

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB203066.002	TRH C6-C10	mg/kg	25	66	92.5	60 - 140	72	
	TRH C6-C9	mg/kg	20	62	80	60 - 140	77	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	62.5	60 - 140	70

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	Original	Spike	Recovery%
SE208104.002	LB203095.005	Mercury	mg/kg	0.05	<0.05	0.2	81

OC Pesticides in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor	mg/kg	0.1	0.3	<0.1	0.2	130
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	123
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	122
		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	0.3	<0.2	0.2	126
		Endrin	mg/kg	0.2	0.2	<0.2	0.2	122
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	116
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Total CLP OC Pesticides		mg/kg	1	<1	<1	-
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	-	98	

OP Pesticides in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	Dichlorvos	mg/kg	0.5	1.4	<0.5	2	72
		Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	80
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
		Malathion	mg/kg	0.2	<0.2	<0.2	-	-
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	<0.2	2	102
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
		Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
		Ethion	mg/kg	0.2	1.5	<0.2	2	76
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Total OP Pesticides*	mg/kg	1.7	6.6	<1.7	-	-
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	81

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	Naphthalene	mg/kg	0.1	3.7	<0.1	4	93
		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	99
		Acenaphthene	mg/kg	0.1	3.9	<0.1	4	96
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	3.6	<0.1	4	89

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	Anthracene	mg/kg	0.1	3.9	<0.1	4	96
		Fluoranthene	mg/kg	0.1	3.8	<0.1	4	94
		Pyrene	mg/kg	0.1	4.1	<0.1	4	100
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	98
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.1	<0.3	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
		Total PAH (18)	mg/kg	0.8	31	<0.8	-	-
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	77
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	81

PCBs in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1260	mg/kg	0.2	0.5	<0.2	0.4	117
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates						
		Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	97

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE208104.002	LB203092.006	Arsenic, As	mg/kg	1	14	50	81
		Cadmium, Cd	mg/kg	0.3	<0.3	50	87
		Chromium, Cr	mg/kg	0.5	16	50	88
		Copper, Cu	mg/kg	0.5	13	50	96
		Nickel, Ni	mg/kg	0.5	4.3	50	93
		Lead, Pb	mg/kg	1	13	50	87
		Zinc, Zn	mg/kg	2	28	50	91

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203067.004	TRH C10-C14	mg/kg	20	57	<20	40	138
		TRH C15-C28	mg/kg	45	53	<45	40	133
		TRH C29-C36	mg/kg	45	110	48	40	163 ↑
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	220	<110	-	-
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	56	<25	40	140
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	56	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	130	<90	40	130
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203066.004	Monocyclic						
		Benzene	mg/kg	0.1	3.2	<0.1	5	64
		Aromatic						
		Toluene	mg/kg	0.1	3.5	<0.1	5	70
		Ethylbenzene	mg/kg	0.1	3.4	<0.1	5	68
		m/p-xylene	mg/kg	0.2	6.9	<0.2	10	68
		o-xylene	mg/kg	0.1	3.4	<0.1	5	68



MATRIX SPIKES

SE208104 R0

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.

VOC's in Soil (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203066.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.4	10.1	104
			d8-toluene (Surrogate)	mg/kg	-	11.0	10.0	110
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.6	9.0	106
		Totals	Total Xylenes	mg/kg	0.3	10	<0.3	-
			Total BTEX	mg/kg	0.6	20	<0.6	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208104.001	LB203066.004		TRH C6-C10	mg/kg	25	59	<25	64
			TRH C6-C9	mg/kg	20	54	<20	68
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.4	10.1	104
			d8-toluene (Surrogate)	mg/kg	-	11.0	10.0	110
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.6	9.0	106
		VPH F	Benzene (F0)	mg/kg	0.1	3.2	<0.1	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	<25	62



MATRIX SPIKE DUPLICATES

SE208104 R0

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: <https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf>

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

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 Order Number **PS119057**
 Samples 4

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 SGS Reference **SE208104 R0**
 Date Received 30 Jun 2020
 Date Reported 01 Jul 2020

COMMENTS

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

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

A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures.

We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environmental Services recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

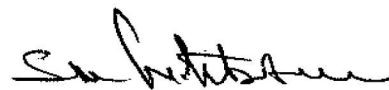
SIGNATORIES



Bennet LO
 Senior Organic Chemist/Metals Chemis



Ly Kim HA
 Organic Section Head



Yusuf KUTHPUDIN
 Asbestos Analyst



ANALYTICAL REPORT

SE208104 R0

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE208104.001	SI01_0.1-0.2	Soil	16g Clay, Sand, Soil, Rocks	26 Jun 2020	No Asbestos Found Organic Fibres Detected	
SE208104.002	SI01_0.3-0.4	Soil	15g Clay, Rocks	26 Jun 2020	No Asbestos Found	
SE208104.003	SI02_0.2-0.3	Soil	45g Clay, Sand, Soil, Rocks	26 Jun 2020	No Asbestos Found	
SE208104.004	SI03_0.2-0.3	Soil	43g Clay, Sand, Soil, Rocks	26 Jun 2020	No Asbestos Found	

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

FOOTNOTES

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.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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This test report shall not be reproduced, except in full.



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

(once)

SGS EHS Sydney COC

SE208104



SGS ID	Client Sample ID	Report ID
1	SI01_0.1-0.2	
2	SI01_0.3-0.4	
3	SI02_0.2-0.3	
4	SI03_0.2-0.3	
5	R01_0.2-0.3	
6	R02_0.2-0.3	
	QC01	
	QC01-A	
	SI01_0.3-0.4	
	SI03_0.2-0.3	

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

Company Name:	WSP	Project Name/No:	PS119057 - WMPS BKH Sewer + Ramp
Address:	Level 27, Ernst & Young Centre 680 George Street Sydney NSW 2000	Purchase Order No:	PS119057
Contact Name:	Hamish Donovan / Cleo WU	Results Required Date:	24h TAT
Quotation No:	SY141023-1-IS	Telephone:	D: 0400 359 547
		Email Results to:	Hamish.Donovan@wsp.com; Cleo.Wu@wsp.com

Matrix (Tick as appropriate)		ANALYSIS REQUESTED						Additional Report Formats	
Soil Sample	Water Sample	FRAGMENT	NO. OF CONTAINERS	CL17	Asbestos P/A	ON HOLD	TRH, BTEXN, PAH, 8 Metals (As, Cd, Cr, Ni, Pb, Zn, Hg)	TRH, BTEXN	TCLP - BAP + 8 Metals
X			J	X	X				X
X			J	X	X				X
X			J	X	X				X
X			J	X	X				X
X			J			X			
X			J			X			
	X		J						
	X		J						
		X	B		X				
		X	B		X				

Notes/Guidelines/LOR/
Special Instructions
sub-sample jar for asbestos analysis
sub-sample jar for asbestos analysis
sub-sample jar for asbestos analysis
sub-sample jar for asbestos analysis

Relinquished By: / WSP: Cleo Wu	Date/Time: 26/06/2020	Received By: <i>P. Subing</i>	Date/Time: 30/06/20 @ 1.15
Relinquished By:	Date/Time:	Received By:	Date/Time:
Amplified Intact: <i>Yes</i> / No	Temperature: 12.5 °C	Sample Security Sealed: Yes / No	Hazards: e.g. may contain Asbestos

Comments / Subcontracting details:

Yin, Emily (Sydney)

From: Donovan, Hamish <Hamish.Donovan@wsp.com>
Sent: Tuesday, 30 June 2020 1:39 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: [EXTERNAL] Esky Pick up

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

Okay thanks Emily, think they are with our WSP asbestos lab.

Cheers,

Hamish Donovan
Senior Environmental Scientist



T: +61 2 92725532
M: +61 400 359547
Hamish.Donovan@wsp.com

WSP Australia Pty Limited
Level 27, 680 George Street
Sydney, NSW
2000 Australia

wsp.com

From: AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Sent: Tuesday, 30 June 2020 1:36 PM
To: Donovan, Hamish <Hamish.Donovan@wsp.com>
Subject: FW: [EXTERNAL] Esky Pick up

Thank You.

S101_0.3-0.4 and S103_0.2-0.3 Fragment samples not received.

Regards,

Emily Yin
Environment, Health & Safety
Sample Receipt

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

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



SAMPLE RECEIPT ADVICE

SE208104

CLIENT DETAILS

Contact Hamish Donovan
Client WSP AUSTRALIA PTY LIMITED
Address Level 27, Ernst & Young Centre
680 George St
NSW 2000

Telephone 02 9272 1453
Facsimile 02 9272 5101
Email Hamish.Donovan@wsp.com

Project **PS119057 - WWPS BlkH Sewer+Ramp**
Order Number **PS119057**
Samples 6

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 30/6/2020
Report Due Wed 1/7/2020
SGS Reference **SE208104**

SUBMISSION DETAILS

This is to confirm that 6 samples were received on Tuesday 30/6/2020. Results are expected to be ready by COB Wednesday 1/7/2020. Please quote SGS reference SE208104 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	6 Soil
Date documentation received	30/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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

COMMENTS

Sampling date was not provided. It is assumed to be as date samples were relinquished.
A separate portion was not supplied for Asbestos analysis. A sub-sample will be used from the jar provided.
2 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

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SAMPLE RECEIPT ADVICE

SE208104

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS119057 - WWPS BkH Sewer+Ramp

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	SI01_0.1-0.2	29	14	26	11	7	10	11	7
002	SI01_0.3-0.4	29	14	26	11	7	10	11	7
003	SI02_0.2-0.3	29	14	26	11	7	10	11	7
004	SI03_0.2-0.3	29	14	26	11	7	10	11	7
005	R01_0.2-0.3	-	-	26	-	7	10	11	7
006	R02_0.2-0.3	-	-	26	-	7	10	11	7

CONTINUED OVERLEAF

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



SAMPLE RECEIPT ADVICE

SE208104

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS119057 - WWPS BIKH Sewer+Ramp

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	PAH (Polynuclear Aromatic Hydrocarbons) in TCLP	TCLP (Toxicity Characteristic Leaching
001	SI01_0.1-0.2	1	1	1	4	6
002	SI01_0.3-0.4	1	1	1	4	6
003	SI02_0.2-0.3	1	1	1	4	6
004	SI03_0.2-0.3	1	1	1	4	6
005	R01_0.2-0.3	-	1	1	-	-
006	R02_0.2-0.3	-	1	1	-	-

CONTINUED OVERLEAF

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



SAMPLE RECEIPT ADVICE

SE208104

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS119057 - WWPS BkH Sewer+Ramp

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in TCLP Extract	Metals in TCLP Extract by ICPOES
001	SI01_0.1-0.2	1	7
002	SI01_0.3-0.4	1	7
003	SI02_0.2-0.3	1	7
004	SI03_0.2-0.3	1	7

The above table represents SGS' 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 Hamish Donovan
Client WSP AUSTRALIA PTY LIMITED
Address Level 27, Ernst & Young Centre
 680 George St
 NSW 2000

Telephone 02 9272 1453
Facsimile 02 9272 5101
Email Hamish.Donovan@wsp.com
Project **PS119057 - WWPS BkH Sewer+Ramp**
Order Number **PS119057**
Samples 6

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 **SE208104A R0**
Date Received 2/7/2020
Date Reported 3/7/2020

COMMENTS

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

SIGNATORIES



Ly Kim HA
 Organic Section Head



ANALYTICAL RESULTS

SE208104A R0

OC Pesticides in Soil [AN420] Tested: 2/7/2020

PARAMETER	UOM	LOR	R01_0.2-0.3	R02_0.2-0.3
			SOIL	SOIL
			-	-
			26/6/2020 SE208104A.005	26/6/2020 SE208104A.006
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<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
Total CLP OC Pesticides	mg/kg	1	<1	<1



ANALYTICAL RESULTS

SE208104A R0

OP Pesticides in Soil [AN420] Tested: 2/7/2020

			R01_0.2-0.3	R02_0.2-0.3
			SOIL	SOIL
			-	-
			26/6/2020	26/6/2020
			SE208104A.005	SE208104A.006
PARAMETER	UOM	LOR		
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7



ANALYTICAL RESULTS

SE208104A R0

PCBs in Soil [AN420] Tested: 2/7/2020

			R01_0.2-0.3	R02_0.2-0.3
			SOIL	SOIL
			-	-
			26/6/2020	26/6/2020
			SE208104A.005	SE208104A.006
PARAMETER	UOM	LOR		
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 (Arochlors)	mg/kg	1	<1	<1

METHOD

METHODOLOGY SUMMARY

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).

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

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

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE208104A R0

CLIENT DETAILS

Contact Hamish Donovan
Client WSP AUSTRALIA PTY LIMITED
Address Level 27, Ernst & Young Centre
680 George St
NSW 2000

Telephone 02 9272 1453
Facsimile 02 9272 5101
Email Hamish.Donovan@wsp.com

Project **PS119057 - WWPS Bikh Sewer+Ramp**
Order Number **PS119057**
Samples 6

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 **SE208104A R0**
Date Received 02 Jul 2020
Date Reported 03 Jul 2020

COMMENTS

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

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

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

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	2/7/2020@2:23PM	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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.

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
R01_0.2-0.3	SE208104A.005	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020
R02_0.2-0.3	SE208104A.006	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
R01_0.2-0.3	SE208104A.005	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020
R02_0.2-0.3	SE208104A.006	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
R01_0.2-0.3	SE208104A.005	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020
R02_0.2-0.3	SE208104A.006	LB203341	26 Jun 2020	02 Jul 2020	10 Jul 2020	02 Jul 2020	11 Aug 2020	03 Jul 2020

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)JAN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	R01_0.2-0.3	SE208104A.005	%	60 - 130%	105
	R02_0.2-0.3	SE208104A.006	%	60 - 130%	104

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	R01_0.2-0.3	SE208104A.005	%	60 - 130%	78
	R02_0.2-0.3	SE208104A.006	%	60 - 130%	77
d14-p-terphenyl (Surrogate)	R01_0.2-0.3	SE208104A.005	%	60 - 130%	91
	R02_0.2-0.3	SE208104A.006	%	60 - 130%	92

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	R01_0.2-0.3	SE208104A.005	%	60 - 130%	105
	R02_0.2-0.3	SE208104A.006	%	60 - 130%	104

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.

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203341.001	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)	%	-	100

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203341.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	92
	d14-p-terphenyl (Surrogate)	%	-	96
Surrogates				

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB203341.001	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
	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100
Surrogates				

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

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: $MAD = 100 \times \frac{SDL}{Mean} + LR$

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

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

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208104A.006	LB203341.012	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	4

PCBs in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208104A.006	LB203341.012	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	4

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.

OC Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203341.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	122
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	123
	Delta BHC	mg/kg	0.1	0.3	0.2	60 - 140	126
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	120
	Endrin	mg/kg	0.2	0.2	0.2	60 - 140	117
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	96
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	102

OP Pesticides in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203341.002	Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	95
	Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	88
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	95
	Ethion	mg/kg	0.2	1.9	2	60 - 140	93
	Surrogates	2-fluorobiphenyl (Surrogate)	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	-	0.4	0.5	40 - 130	86

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB203341.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	73



MATRIX SPIKES

SE208104A R0

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.

QC Sample	Sample Number	Parameter	Units	LOR
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MATRIX SPIKE DUPLICATES

SE208104A R0

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: <https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf>

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

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Cc: Wu, Cleo <Cleo.Wu@wsp.com>; AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Subject: RE: [EXTERNAL] RE: Report Job SE208104, your reference PS119057 - WWPS BlkH Sewer+Ramp, order number PS119057

Hi Hamish,

Sorry for the late reply, it's been crazy here.

What sort of TAT would you like? One day, due tomorrow?

Kind Regards,

Huong Crawford
Environment, Health & Safety
Production Manager
SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Phone: +61 (0)2 8594 0403
Fax: + 61 (0)2 8594 0499
E-mail: Huong.Crawford@sgs.com
Web: www.au.sgs.com
View Your Results Online: engage.sgs.com

SGS EHS Alexandria Laboratory



SE208104A COC

Received: 02-Jul-2020

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

From: Donovan, Hamish <Hamish.Donovan@wsp.com>

Sent: Thursday, 2 July 2020 2:23 PM

To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>; Wu, Cleo <Cleo.Wu@wsp.com>

Subject: [EXTERNAL] RE: Report Job SE208104, your reference PS119057 - WWPS BlkH Sewer+Ramp, order number PS119057

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

Hi team,

Can you please add OCP/OPP and PCB analysis for samples R01 and R02?

Cheers,

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

From: AU.Environmental.Sydney@SGS.com <AU.Environmental.Sydney@SGS.com>

Sent: Wednesday, 1 July 2020 5:59 PM

To: Wu, Cleo <Cleo.Wu@wsp.com>; Donovan, Hamish <Hamish.Donovan@wsp.com>

Subject: Report Job SE208104, your reference PS119057 - WWPS BlkH Sewer+Ramp, order number PS119057

Dear valued customer,

Please find attached the report for SGS job SE208104, your reference PS119057 - WWPS BlkH Sewer+Ramp, order number PS119057.

Yin, Emily (Sydney)

From: AU.Environmental.Sydney (Sydney)
Sent: Thursday, 2 July 2020 4:11 PM
To: Donovan, Hamish
Cc: Wu, Cleo; AU.SampleReceipt.Sydney (Sydney)
Subject: RE: [EXTERNAL] RE: Report Job SE208104, your reference PS119057 - WWPS Bikh Sewer+Ramp, order number PS119057

Hi Hamish,

Thanks, we are under the pump atm but will do our best to report this job tomorrow.

Hi Emily,

Please book this in for tomorrow due, thanks.

Kind Regards,

Huong Crawford
Environment, Health & Safety
Production Manager
SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Phone: +61 (0)2 8594 0403
Fax: + 61 (0)2 8594 0499
E-mail: Huong.Crawford@sgs.com
Web: www.au.sgs.com
View Your Results Online: engage.sgs.com

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

From: Donovan, Hamish <Hamish.Donovan@wsp.com>
Sent: Thursday, 2 July 2020 4:05 PM
To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>
Cc: Wu, Cleo <Cleo.Wu@wsp.com>; AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Subject: RE: [EXTERNAL] RE: Report Job SE208104, your reference PS119057 - WWPS Bikh Sewer+Ramp, order number PS119057

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

Sorry, I should have specified. Yes, 24 hour if at all possible.

Thanks,

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

From: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>
Sent: Thursday, 2 July 2020 4:02 PM
To: Donovan, Hamish <Hamish.Donovan@wsp.com>



SAMPLE RECEIPT ADVICE

SE208104A

CLIENT DETAILS

Contact Hamish Donovan
Client WSP AUSTRALIA PTY LIMITED
Address Level 27, Ernst & Young Centre
680 George St
NSW 2000

Telephone 02 9272 1453
Facsimile 02 9272 5101
Email Hamish.Donovan@wsp.com

Project **PS119057 - WWPS BlkH Sewer+Ramp**
Order Number **PS119057**
Samples 6

LABORATORY DETAILS

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

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

Samples Received Thu 2/7/2020
Report Due Fri 3/7/2020
SGS Reference **SE208104A**

SUBMISSION DETAILS

This is to confirm that 6 samples were received on Thursday 2/7/2020. Results are expected to be ready by COB Friday 3/7/2020. Please quote SGS reference SE208104A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	2/7/2020@2:23PM	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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

COMMENTS

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SAMPLE RECEIPT ADVICE

SE208104A

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS119057 - WWPS Bikh Sewer+Ramp

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PCBs in Soil
005	R01_0.2-0.3	29	14	11
006	R02_0.2-0.3	29	14	11

The above table represents SGS' 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 Hamish Donovan
 Client WSP AUSTRALIA PTY LIMITED
 Address Level 27, Ernst & Young Centre
 680 George St
 NSW 2000

Telephone 02 9272 1453
 Facsimile 02 9272 5101
 Email Hamish.Donovan@wsp.com

Project **PS119057-WWPS Blk F Ramp 9**
 Order Number **PS119057**
 Samples 6

LABORATORY DETAILS

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

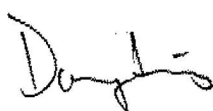
Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

SGS Reference **SE208604 R0**
 Date Received 13/7/2020
 Date Reported 14/7/2020

COMMENTS

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

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



ANALYTICAL RESULTS

SE208604 R0

VOC's in Soil [AN433] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06	TB120720	TS120720
			SOIL - 12/7/2020 SE208604.001	SOIL - 12/7/2020 SE208604.002	SOIL - 12/7/2020 SE208604.003	SOIL - 12/7/2020 SE208604.005	SOIL - 12/7/2020 SE208604.006
PARAMETER	UOM	LOR					
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[109%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[110%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[108%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[108%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[102%]
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	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-



ANALYTICAL RESULTS

SE208604 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06
			SOIL	SOIL	SOIL
			-	-	-
			12/7/2020	12/7/2020	12/7/2020
			SE208604.001	SE208604.002	SE208604.003
PARAMETER	UOM	LOR			
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25



ANALYTICAL RESULTS

SE208604 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06	TB120720
			SOIL -	SOIL -	SOIL -	SOIL -
			12/7/2020	12/7/2020	12/7/2020	12/7/2020
PARAMETER	UOM	LOR	SE208604.001	SE208604.002	SE208604.003	SE208604.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 13/7/2020

PARAMETER	UOM	LOR	Block H BR02	Block H BR04	Block H BR06
			SOIL	SOIL	SOIL
			12/7/2020 SE208604.001	12/7/2020 SE208604.002	12/7/2020 SE208604.003
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	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)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, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8



ANALYTICAL RESULTS

SE208604 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06
			SOIL -	SOIL -	SOIL -
			12/7/2020	12/7/2020	12/7/2020
			SE208604.001	SE208604.002	SE208604.003
PARAMETER	UOM	LOR			
Arsenic, As	mg/kg	1	9	9	10
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	14	14
Copper, Cu	mg/kg	0.5	12	8.1	14
Lead, Pb	mg/kg	1	12	20	53
Nickel, Ni	mg/kg	0.5	3.3	4.0	4.0
Zinc, Zn	mg/kg	2	17	29	92



ANALYTICAL RESULTS

SE208604 R0

Mercury in Soil [AN312] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06
			SOIL	SOIL	SOIL
			-	-	-
			12/7/2020	12/7/2020	12/7/2020
			SE208604.001	SE208604.002	SE208604.003
PARAMETER	UOM	LOR			
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05



ANALYTICAL RESULTS

SE208604 R0

Moisture Content [AN002] Tested: 13/7/2020

			Block H BR02	Block H BR04	Block H BR06	TB120720
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			12/7/2020	12/7/2020	12/7/2020	12/7/2020
PARAMETER	UOM	LOR	SE208604.001	SE208604.002	SE208604.003	SE208604.005
% Moisture	%w/w	1	19.3	14.4	9.8	<1.0



ANALYTICAL RESULTS

SE208604 R0

VOCs in Water [AN433] Tested: 14/7/2020

			RB120720
			WATER
			-
			12/7/2020
PARAMETER	UOM	LOR	SE208604.004
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5



ANALYTICAL RESULTS

SE208604 R0

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 14/7/2020

			RB120720
			WATER
			-
			12/7/2020
PARAMETER	UOM	LOR	SE208604.004
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50



ANALYTICAL RESULTS

SE208604 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 14/7/2020

			RB120720
			WATER
			-
			12/7/2020
PARAMETER	UOM	LOR	SE208604.004
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320



ANALYTICAL RESULTS

SE208604 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 14/7/2020

			RB120720
			WATER
			-
			12/7/2020
PARAMETER	UOM	LOR	SE208604.004
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	<1



ANALYTICAL RESULTS

SE208604 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 13/7/2020

			RB120720
			WATER
			-
			12/7/2020
PARAMETER	UOM	LOR	SE208604.004
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5



ANALYTICAL RESULTS

SE208604 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 14/7/2020

			RB120720
			WATER
			-
			12/7/2020
			SE208604.004
PARAMETER	UOM	LOR	
Mercury	mg/L	0.0001	<0.0001

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.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
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
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

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

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE208604 R0

CLIENT DETAILS

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Project **PS119057-WWPS Blk F Ramp 9**
Order Number **PS119057**
Samples 6

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SGS Reference **SE208604 R0**
Date Received 13 Jul 2020
Date Reported 14 Jul 2020

COMMENTS

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

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

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

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	5 Soil, 1 Water
Date documentation received	13/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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

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

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

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204153	12 Jul 2020	13 Jul 2020	09 Aug 2020	14 Jul 2020	09 Aug 2020	14 Jul 2020

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204121	12 Jul 2020	13 Jul 2020	09 Aug 2020	13 Jul 2020	09 Aug 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204121	12 Jul 2020	13 Jul 2020	09 Aug 2020	13 Jul 2020	09 Aug 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204121	12 Jul 2020	13 Jul 2020	09 Aug 2020	13 Jul 2020	09 Aug 2020	14 Jul 2020

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204114	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	18 Jul 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204114	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	18 Jul 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204114	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	18 Jul 2020	14 Jul 2020
TB120720	SE208604.005	LB204114	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	18 Jul 2020	14 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TB120720	SE208604.005	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204148	12 Jul 2020	13 Jul 2020	19 Jul 2020	14 Jul 2020	23 Aug 2020	14 Jul 2020

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204119	12 Jul 2020	13 Jul 2020	08 Jan 2021	13 Jul 2020	08 Jan 2021	14 Jul 2020
Block H BR04	SE208604.002	LB204119	12 Jul 2020	13 Jul 2020	08 Jan 2021	13 Jul 2020	08 Jan 2021	14 Jul 2020
Block H BR06	SE208604.003	LB204119	12 Jul 2020	13 Jul 2020	08 Jan 2021	13 Jul 2020	08 Jan 2021	14 Jul 2020

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204130	12 Jul 2020	13 Jul 2020	08 Jan 2021	13 Jul 2020	08 Jan 2021	14 Jul 2020

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
Block H BR02	SE208604.001	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TB120720	SE208604.005	LB204127	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204148	12 Jul 2020	13 Jul 2020	19 Jul 2020	14 Jul 2020	23 Aug 2020	14 Jul 2020

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TB120720	SE208604.005	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TS120720	SE208604.006	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204155	12 Jul 2020	13 Jul 2020	19 Jul 2020	14 Jul 2020	23 Aug 2020	14 Jul 2020



HOLDING TIME SUMMARY

SE208604 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.

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Block H BR02	SE208604.001	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR04	SE208604.002	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
Block H BR06	SE208604.003	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TB120720	SE208604.005	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020
TS120720	SE208604.006	LB204126	12 Jul 2020	13 Jul 2020	26 Jul 2020	13 Jul 2020	22 Aug 2020	14 Jul 2020

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB120720	SE208604.004	LB204155	12 Jul 2020	13 Jul 2020	19 Jul 2020	14 Jul 2020	23 Aug 2020	14 Jul 2020

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	Block H BR02	SE208604.001	%	70 - 130%	76
	Block H BR04	SE208604.002	%	70 - 130%	82
	Block H BR06	SE208604.003	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	Block H BR02	SE208604.001	%	70 - 130%	82
	Block H BR04	SE208604.002	%	70 - 130%	88
	Block H BR06	SE208604.003	%	70 - 130%	86
d5-nitrobenzene (Surrogate)	Block H BR02	SE208604.001	%	70 - 130%	76
	Block H BR04	SE208604.002	%	70 - 130%	84
	Block H BR06	SE208604.003	%	70 - 130%	78

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB120720	SE208604.004	%	40 - 130%	68
d14-p-terphenyl (Surrogate)	RB120720	SE208604.004	%	40 - 130%	86
d5-nitrobenzene (Surrogate)	RB120720	SE208604.004	%	40 - 130%	54

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	73
	Block H BR04	SE208604.002	%	60 - 130%	69
	Block H BR06	SE208604.003	%	60 - 130%	72
	TB120720	SE208604.005	%	60 - 130%	75
	TS120720	SE208604.006	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	94
	Block H BR04	SE208604.002	%	60 - 130%	90
	Block H BR06	SE208604.003	%	60 - 130%	92
	TB120720	SE208604.005	%	60 - 130%	95
	TS120720	SE208604.006	%	60 - 130%	96
d8-toluene (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	122
	Block H BR04	SE208604.002	%	60 - 130%	115
	Block H BR06	SE208604.003	%	60 - 130%	120
	TB120720	SE208604.005	%	60 - 130%	122
	TS120720	SE208604.006	%	60 - 130%	123

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB120720	SE208604.004	%	40 - 130%	99
d4-1,2-dichloroethane (Surrogate)	RB120720	SE208604.004	%	40 - 130%	117
d8-toluene (Surrogate)	RB120720	SE208604.004	%	40 - 130%	104

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	73
	Block H BR04	SE208604.002	%	60 - 130%	69
	Block H BR06	SE208604.003	%	60 - 130%	72
d4-1,2-dichloroethane (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	94
	Block H BR04	SE208604.002	%	60 - 130%	90
	Block H BR06	SE208604.003	%	60 - 130%	92
d8-toluene (Surrogate)	Block H BR02	SE208604.001	%	60 - 130%	122
	Block H BR04	SE208604.002	%	60 - 130%	115
	Block H BR06	SE208604.003	%	60 - 130%	120

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB120720	SE208604.004	%	40 - 130%	99
d4-1,2-dichloroethane (Surrogate)	RB120720	SE208604.004	%	40 - 130%	117
d8-toluene (Surrogate)	RB120720	SE208604.004	%	40 - 130%	104