Parameter	Units	LOR	Sample Number: SE100739.001 Sample Matrix: Soil Sample Date: 21 Jun 2011 Sample Name: BH15_(1.0-1.1m)	SE100739.002 Soil 21 Jun 2011 BH15_(2.5-2.6m)	SE100739.003 Soil 21 Jun 2011 BH15_(4.0-4.1m)	SE100739.004 Soil 21 Jun 2011 BH15_(7.5-7.6m)
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434						
TRH C6-C9	mg/kg	20	<20	<20	-	-
Benzene	mg/kg	0.1	<0.1	<0.1	-	-
Toluene	mg/kg	0.1	<0.1	<0.1	-	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-
m/p-xylene	mg/kg	1	<1	<1	-	-
o-xylene	mg/kg	0.5	<0.5	<0.5	-	-
Total Xylenes	mg/kg	0.3	<0.3	<0.3	-	-
Total BTEX*	mg/kg	2.7	<2.7	<2.7	-	-
Surrogates						
Trifluorotoluene (Surrogate)	%	-	**60**	**76**	-	-
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403						
TRH C10-C14	mg/kg	20	<20	<20	-	-
TRH C15-C28	mg/kg	50	<50	<50	-	-
TRH C29-C36	mg/kg	50	<50	<50	-	-
Surrogates						
TRH (Surrogate)	%	-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420						
Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
Phenanthrene	mg/kg	0.1	**0.1**	<0.1	-	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Fluoranthene	mg/kg	0.1	**0.2**	<0.1	-	-
Pyrene	mg/kg	0.1	**0.3**	<0.1	-	-
Benzo(a)anthracene	mg/kg	0.1	**0.2**	<0.1	-	-
Chrysene	mg/kg	0.1	**0.1**	<0.1	-	-
Benzo(b)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	0.05	**0.06**	<0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
Total PAH	mg/kg	1.75	<1.8↑	<1.8↑	-	-
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**77**	**79**	-	-
2-fluorobiphenyl (Surrogate)	%	-	**77**	**77**	-	-
d14-p-terphenyl (Surrogate)	%	-	**79**	**91**	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE100739.001 Soil 21 Jun 2011 BH15_(1.0-1.1m)	SE100739.002 Soil 21 Jun 2011 BH15_(2.5-2.6m)	SE100739.003 Soil 21 Jun 2011 BH15_(4.0-4.1m)	SE100739.004 Soil 21 Jun 2011 BH15_(7.5-7.6m)
Field pH for Acid Sulphate Soil Method: AN104						
PHf	pH Units	-	-	-	**8.4**	**7.2**
PHfox	pH Units	-	-	-	**6.9**	**6.9**
Reaction*	No unit	-	-	-	XX	XX
pH Difference*	pH Units	-10	-	-	**1.5**	**0.3**
Metals in Soil by ICPOES from EPA 200.8 Digest (SYDNEY) Method: AN040/AN320						
Arsenic, As	mg/kg	3	**6**	**11**	-	-
Cadmium, Cd	mg/kg	0.3	<0.3	**0.5**	-	-
Chromium, Cr	mg/kg	0.3	**12**	**31**	-	-
Copper, Cu	mg/kg	0.5	**61**	**79**	-	-
Lead, Pb	mg/kg	1	**110**	**300**	-	-
Nickel, Ni	mg/kg	0.5	**3.7**	**14**	-	-
Zinc, Zn	mg/kg	0.5	**100**	**100**	-	-
Mercury in Soil Method: AN312						
Mercury	mg/kg	0.05	**0.74**	**2.2**	-	-
Fibre Identification in soil Method: AN602						
FibreID						
Asbestos Detected	No unit	-	No	No	-	-
Moisture Content Method: AN234						
% Moisture	%	0.5	**16**	**32**	**23**	**16**

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

Field pH for Acid Sulphate Soil Method: ME-(AU)-[ENV]AN104

Parameter	QC Reference	Units	LOR	DUP %RPD	LCS %Recovery
PHf	LB002906	pH Units	-	1%	NA
PHfox	LB002906	pH Units	-	3%	

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB002898	mg/kg	0.05	<0.05	19%	109%	91%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB002896	mg/kg	3	<3	8%	99%	90%
Cadmium, Cd	LB002896	mg/kg	0.3	<0.3	0%	101%	95%
Chromium, Cr	LB002896	mg/kg	0.3	<0.3	19%	102%	97%
Copper, Cu	LB002896	mg/kg	0.5	<0.5	5%	103%	98%
Lead, Pb	LB002896	mg/kg	1	<1	1%	100%	76%
Nickel, Ni	LB002896	mg/kg	0.5	<0.5	4%	99%	93%
Zinc, Zn	LB002896	mg/kg	0.5	<0.5	1%	99%	41%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB002805	mg/kg	0.1	<0.1	0%	122%
Acenaphthylene	LB002805	mg/kg	0.1	<0.1	NVL	117%
Acenaphthene	LB002805	mg/kg	0.1	<0.1	0%	123%
Fluorene	LB002805	mg/kg	0.1	<0.1	0%	NA
Phenanthrene	LB002805	mg/kg	0.1	<0.1	18%	117%
Anthracene	LB002805	mg/kg	0.1	<0.1	0%	122%
Fluoranthene	LB002805	mg/kg	0.1	<0.1	4%	119%
Pyrene	LB002805	mg/kg	0.1	<0.1	0%	128%
Benzo(a)anthracene	LB002805	mg/kg	0.1	<0.1	0%	NA
Chrysene	LB002805	mg/kg	0.1	<0.1	18%	NA
Benzo(b)fluoranthene	LB002805	mg/kg	0.1	<0.1	26%	NA
Benzo(k)fluoranthene	LB002805	mg/kg	0.1	<0.1	0%	NA
Benzo(a)pyrene	LB002805	mg/kg	0.05	<0.05	0%	121%
Indeno(1,2,3-cd)pyrene	LB002805	mg/kg	0.1	<0.1	0%	NA
Dibenzo(a&h)anthracene	LB002805	mg/kg	0.1	<0.1	0%	NA
Benzo(ghi)perylene	LB002805	mg/kg	0.1	<0.1	0%	NA
Total PAH	LB002805	mg/kg	1.75	<1.8	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB002805	%	-	118%	3%	113%
2-fluorobiphenyl (Surrogate)	LB002805	%	-	107%	14%	112%
d14-p-terphenyl (Surrogate)	LB002805	%	-	93%	3%	82%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB002805	mg/kg	20	<20	0%	105%
TRH C15-C28	LB002805	mg/kg	50	<50	0%	103%
TRH C29-C36	LB002805	mg/kg	50	<50	0%	115%

QC SUMMARY

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

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
TRH C6-C9	LB002810	mg/kg	20	<20	130%	117%
Benzene	LB002810	mg/kg	0.1	<0.1	93%	118%
Toluene	LB002810	mg/kg	0.1	<0.1	95%	123%
Ethylbenzene	LB002810	mg/kg	0.1	<0.1	95%	126%
m/p-xylene	LB002810	mg/kg	1	<1	96%	125%
o-xylene	LB002810	mg/kg	0.5	<0.5	92%	125%
Total Xylenes	LB002810	mg/kg	0.3	<0.3	95%	125%
Total BTEX*	LB002810	mg/kg	2.7	<2.7	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
Trifluorotoluene (Surrogate)	LB002810	%	-	85%	75%	61%

METHOD	METHODOLOGY SUMMARY
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 analsysis by ASS or ICP as per USEPA Method 200.8.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN104	pHF is determined on an extract of approximately 2g of as received sample in approximately 10 mL of deionised water with pH determined after standing 30 minutes.
AN104	pHFox is determined on an extract of approximately 2g of as received sample with a few mLs of 30% hydrogen peroxide (adjusted to pH 4.5 to 5.5) with the extract reaction being rated from slight to extreme, with pH determined after reaction is complete and extract has cooled. Referenced to ASS Laboratory Methods Guidelines, method 23Af-Bf, 2004.
AN234	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.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
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. Accreditation does not cover the identification of Organic or Synthetic Mineral Fibres.

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

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Project	**GEOTLCOV24303AA - Additional**
Order Number	**92503**
Samples	1

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SGS Reference	SE100739A R0
Report Number	0000004769
Date Reported	04 Aug 2011
Date Received	22 Jun 2011

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Dong Liang
Inorganics Metals Team Leader

Edward Ibrahim
Business Manager

Parameter	Units	LOR	Sample Number SE100739A.002 Sample Matrix Soil Sample Date 21 Jun 2011 Sample Name BH15_2.5-2.6
TCLP (Toxicity Characteristic Leaching Procedure) Method: AN006			
pH 1:20	pH Units	-	**9.5**
pH 1:20 plus HCL	pH Units	-	**2.0**
Extraction Solution Used	No unit	-	**1**
Mass of Sample Used*	g	-	**13**
Volume of ExtractionSolution Used*	mL	-	**250**
pH TCLP after 18 hours	pH Units	-	**5.3**
Metals in Soil (TCLP) by ICPOES Method: AN320/AN321			
Lead, Pb	mg/L	0.02	**0.11**

QC SUMMARY

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

Metals in Soil (TCLP) by ICPOES **Method: ME-(AU)-[ENV]AN320/AN321**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Lead, Pb	LB003711	mg/L	0.02	<0.020	NA

METHOD SUMMARY

SE100739A R0

METHOD	METHODOLOGY SUMMARY
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.
AN320/AN321	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/AN321	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.

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

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Order Number	**89576**
Samples	3

LABORATORY DETAILS

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SGS Reference	SE100820 R0
Report Number	0000003986
Date Reported	11 Jul 2011
Date Received	05 Jul 2011

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

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Huong Crawford
Laboratory Manager

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Ly Kim Ha
Organics Supervisor

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE100820.001 Water 04 Jul 2011 BH1	SE100820.002 Water 04 Jul 2011 TS	SE100820.003 Water 04 Jul 2011 TB
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434					
TRH C6-C9	µg/L	40	<40	-	<40
Benzene	µg/L	0.5	<0.5	[102%]	<0.5
Toluene	µg/L	0.5	<0.5	[100%]	<0.5
Ethylbenzene	µg/L	0.5	<0.5	[98%]	<0.5
m/p-xylene	µg/L	1	<1	[97%]	<1
o-xylene	µg/L	0.5	<0.5	[98%]	<0.5
Total BTEX*	µg/L	3	<3	[99%]	<3
Total Xylenes*	µg/L	1.5	<1.5	[98%]	<1.5
Surrogates					
Trifluorotoluene (Surrogate)	%	-	**73**	**68**	**69**
Dibromofluoromethane (Surrogate)	%	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403					
TRH C10-C14	µg/L	100	<100	-	-
TRH C15-C28	µg/L	200	<200	-	-
TRH C29-C36	µg/L	200	<200	-	-
Surrogates					
TRH (Surrogate)	%	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420					
Naphthalene	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)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(a&h)anthracene	µg/L	0.1	<0.1	-	-
Benzo(ghi)perylene	µg/L	0.1	<0.1	-	-
Total PAH (18)*	µg/L	1	<1	-	-
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	**106**	-	-
2-fluorobiphenyl (Surrogate)	%	-	**101**	-	-
d14-p-terphenyl (Surrogate)	%	-	**80**	-	-

Parameter	Units	LOR	Sample Number: SE100820.001 Sample Matrix: Water Sample Date: 04 Jul 2011 Sample Name: BH1	SE100820.002 Water 04 Jul 2011 TS	SE100820.003 Water 04 Jul 2011 TB
Trace Metals (Dissolved) in Water by ICPMS Method: AN318					
Arsenic, As	µg/L	1	**2**	-	-
Cadmium, Cd	µg/L	0.1	**0.2**	-	-
Chromium, Cr	µg/L	1	**7**	-	-
Copper, Cu	µg/L	1	**21**	-	-
Lead, Pb	µg/L	1	**9**	-	-
Nickel, Ni	µg/L	1	**3**	-	-
Zinc, Zn	µg/L	1	**530**	-	-
Mercury (dissolved) in Water Method: AN311/AN312					
Mercury	mg/L	0.0001	<0.0001	-	-

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

Mercury (dissolved) in Water **Method: ME-(AU)-[ENV]AN311/AN312**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Mercury	LB003152	mg/L	0.0001	<0.0001	110%

PAH (Polynuclear Aromatic Hydrocarbons) in Water **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB003126	µg/L	0.1	<0.1	107%
Acenaphthylene	LB003126	µg/L	0.1	<0.1	113%
Acenaphthene	LB003126	µg/L	0.1	<0.1	107%
Fluorene	LB003126	µg/L	0.1	<0.1	NA
Phenanthrene	LB003126	µg/L	0.1	<0.1	112%
Anthracene	LB003126	µg/L	0.1	<0.1	107%
Fluoranthene	LB003126	µg/L	0.1	<0.1	107%
Pyrene	LB003126	µg/L	0.1	<0.1	112%
Benzo(a)anthracene	LB003126	µg/L	0.1	<0.1	NA
Chrysene	LB003126	µg/L	0.1	<0.1	NA
Benzo(b)fluoranthene	LB003126	µg/L	0.1	<0.1	NA
Benzo(k)fluoranthene	LB003126	µg/L	0.1	<0.1	NA
Benzo(a)pyrene	LB003126	µg/L	0.1	<0.1	108%
Indeno(1,2,3-cd)pyrene	LB003126	µg/L	0.1	<0.1	NA
Dibenzo(a&h)anthracene	LB003126	µg/L	0.1	<0.1	NA
Benzo(ghi)perylene	LB003126	µg/L	0.1	<0.1	NA
Total PAH (18)*	LB003126	µg/L	1	<1	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB003126	%	-	122%	107%
2-fluorobiphenyl (Surrogate)	LB003126	%	-	96%	117%
d14-p-terphenyl (Surrogate)	LB003126	%	-	95%	98%

Trace Metals (Dissolved) in Water by ICPMS **Method: ME-(AU)-[ENV]AN318**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arsenic, As	LB003174	µg/L	1	<1	0%	105%
Cadmium, Cd	LB003174	µg/L	0.1	<0.1	13%	99%
Chromium, Cr	LB003174	µg/L	1	<1	11%	104%
Copper, Cu	LB003174	µg/L	1	<1	5%	107%
Lead, Pb	LB003174	µg/L	1	<1	7%	105%
Nickel, Ni	LB003174	µg/L	1	<1	0%	104%
Zinc, Zn	LB003174	µg/L	1	<1	1%	105%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C10-C14	LB003126	µg/L	100	<100	96%
TRH C15-C28	LB003126	µg/L	200	<200	93%
TRH C29-C36	LB003126	µg/L	200	<200	95%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C6-C9	LB003180	µg/L	40	<40	126%
Benzene	LB003180	µg/L	0.5	<0.5	98%
Toluene	LB003180	µg/L	0.5	<0.5	99%
Ethylbenzene	LB003180	µg/L	0.5	<0.5	99%
m/p-xylene	LB003180	µg/L	1	<1	97%
o-xylene	LB003180	µg/L	0.5	<0.5	98%
Total BTEX*	LB003180	µg/L	3	<3	NA

QC SUMMARY

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

Volatile Petroleum Hydrocarbons in Water **Method: ME-(AU)-[ENV]AN433/AN434 (continued)**

				MB	LCS %Recovery
Total Xylenes*	LB003180	µg/L	1.5	<1.5	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Trifluorotoluene (Surrogate)	LB003180	%	-	81%	71%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN311/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.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
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.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Nalin De Silva
Client	Coffey Geotechnics Pty Ltd
Address	8/12 Mars Road LANE COVE WEST LANE COVE WEST NSW 2266
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	Nalin_DeSilva@coffey.com
Project	**GEOTLCOV24303AA-Syd Ent Centre**
Order Number	**89580**
Samples	5

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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SGS Reference	SE100882 R0
Report Number	0000004121
Date Reported	14 Jul 2011
Date Received	12 Jul 2011

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Dong Liang
Inorganics Metals Team Leader

Edward Ibrahim
Business Manager

Huong Crawford
Laboratory Manager

Ly Kim Ha
Organics Supervisor

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE100882.001 Water 12 Jul 2011 BH12	SE100882.002 Water 12 Jul 2011 BH13	SE100882.003 Water 12 Jul 2011 DUP1	SE100882.004 Water 12 Jul 2011 TS	SE100882.005 Water 12 Jul 2011 TB
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434							
TRH C6-C9	µg/L	40	<40	<40	<40	-	<40
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	[95%]	<0.5
Toluene	µg/L	0.5	**13**	<0.5	<0.5	[98%]	<0.5
Ethylbenzene	µg/L	0.5	**0.5**	<0.5	<0.5	[100%]	<0.5
m/p-xylene	µg/L	1	**3**	<1	<1	[96%]	<1
o-xylene	µg/L	0.5	**1.4**	<0.5	<0.5	[96%]	<0.5
Total BTEX*	µg/L	3	**18**	<3	<3	[97%]	<3
Total Xylenes*	µg/L	1.5	**4.0**	<1.5	<1.5	[96%]	<1.5
Surrogates							
Trifluorotoluene (Surrogate)	%	-	**89**	**86**	**83**	**90**	**79**
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403							
TRH C10-C14	µg/L	100	<100	<100	<100	-	-
TRH C15-C28	µg/L	200	<200	<200	<200	-	-
TRH C29-C36	µg/L	200	<200	<200	<200	-	-
Surrogates							
TRH (Surrogate)	%	-	-	-	-		
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420							
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Benzo(b)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Dibenzo(a&h)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Total PAH (18)*	µg/L	1	<1	<1	<1	-	-
Surrogates							
d5-nitrobenzene (Surrogate)	%	-	**121**	**115**	**117**		
2-fluorobiphenyl (Surrogate)	%	-	**96**	**95**	**87**		
d14-p-terphenyl (Surrogate)	%	-	**110**	**108**	**110**		

Parameter	Units	LOR	Sample Number: SE100882.001 Sample Matrix: Water Sample Date: 12 Jul 2011 Sample Name: BH12	SE100882.002 Water 12 Jul 2011 BH13	SE100882.003 Water 12 Jul 2011 DUP1	SE100882.004 Water 12 Jul 2011 TS	SE100882.005 Water 12 Jul 2011 TB
Trace Metals (Dissolved) in Water by ICPMS Method: AN318							
Arsenic, As	µg/L	1	<1	**8**	**9**	-	-
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1	-	-
Chromium, Cr	µg/L	1	<1	<1	<1	-	-
Copper, Cu	µg/L	1	**4**	**3**	**2**	-	-
Lead, Pb	µg/L	1	<1	<1	<1	-	-
Nickel, Ni	µg/L	1	**3**	**3**	**3**	-	-
Zinc, Zn	µg/L	1	**250**	**160**	**190**	-	-
Mercury (dissolved) in Water Method: AN311/AN312							
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	-	-

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

Mercury (dissolved) in Water **Method: ME-(AU)-[ENV]AN311/AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB003261	mg/L	0.0001	<0.0001	0%	102%	104%

PAH (Polynuclear Aromatic Hydrocarbons) in Water **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB003260	µg/L	0.1	<0.1	86%
Acenaphthylene	LB003260	µg/L	0.1	<0.1	72%
Acenaphthene	LB003260	µg/L	0.1	<0.1	83%
Fluorene	LB003260	µg/L	0.1	<0.1	NA
Phenanthrene	LB003260	µg/L	0.1	<0.1	84%
Anthracene	LB003260	µg/L	0.1	<0.1	101%
Fluoranthene	LB003260	µg/L	0.1	<0.1	85%
Pyrene	LB003260	µg/L	0.1	<0.1	96%
Benzo(a)anthracene	LB003260	µg/L	0.1	<0.1	NA
Chrysene	LB003260	µg/L	0.1	<0.1	NA
Benzo(b)fluoranthene	LB003260	µg/L	0.1	<0.1	NA
Benzo(k)fluoranthene	LB003260	µg/L	0.1	<0.1	NA
Benzo(a)pyrene	LB003260	µg/L	0.1	<0.1	95%
Indeno(1,2,3-cd)pyrene	LB003260	µg/L	0.1	<0.1	NA
Dibenzo(a&h)anthracene	LB003260	µg/L	0.1	<0.1	NA
Benzo(ghi)perylene	LB003260	µg/L	0.1	<0.1	NA
Total PAH (18)*	LB003260	µg/L	1	<1	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB003260	%	-	124%	106%
2-fluorobiphenyl (Surrogate)	LB003260	%	-	114%	128%
d14-p-terphenyl (Surrogate)	LB003260	%	-	123%	106%

Trace Metals (Dissolved) in Water by ICPMS **Method: ME-(AU)-[ENV]AN318**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB003264	µg/L	1	<1	1%	93%	106%
Cadmium, Cd	LB003264	µg/L	0.1	<0.1	0%	92%	90%
Chromium, Cr	LB003264	µg/L	1	<1	0%	90%	90%
Copper, Cu	LB003264	µg/L	1	<1	1%	87%	90%
Lead, Pb	LB003264	µg/L	1	<1	0%	102%	87%
Nickel, Ni	LB003264	µg/L	1	<1	1%	91%	84%
Zinc, Zn	LB003264	µg/L	1	<1	3%	92%	20%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB003260	µg/L	100	<100	11%	115%
TRH C15-C28	LB003260	µg/L	200	<200	6%	118%
TRH C29-C36	LB003260	µg/L	200	<200	5%	119%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C6-C9	LB003281	µg/L	40	<40	114%
Benzene	LB003281	µg/L	0.5	<0.5	110%
Toluene	LB003281	µg/L	0.5	<0.5	115%
Ethylbenzene	LB003281	µg/L	0.5	<0.5	113%
m/p-xylene	LB003281	µg/L	1	<1	112%
o-xylene	LB003281	µg/L	0.5	<0.5	110%
Total BTEX*	LB003281	µg/L	3	<3	NA

QC SUMMARY

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

Volatile Petroleum Hydrocarbons in Water **Method: ME-(AU)-[ENV]AN433/AN434 (continued)**

				MB	LCS %Recovery
Total Xylenes*	LB003281	µg/L	1.5	<1.5	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Trifluorotoluene (Surrogate)	LB003281	%	-	83%	89%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN311/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.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
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.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf

Stage 2 – Detailed Site Investigation: Sydney International Convention Exhibition and Entertainment Precinct (SICEEP), Darling Harbour, Sydney.(Coffey Geotechnics; June 2012b)
Laboratory Certificates

Site Investigation - Factual Report
Haymarket Precinct, Darling Harbour, Sydney NSW

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

81295

coffey environments

- Adelaide: Tel (08) 7221 3500 Fax (08) 8172 1968, Level 1, 2-3 Greenhill Road, Wayville SA 5034
- Brisbane: Tel (07) 3608 2500 Fax (07) 3852 2805, 47 Doggett Street, Newstead QLD 4006, Email: Brisbane.Admin@coffey.com.au
- Hobart: Tel (03) 6208 6860 Fax (03) 6208 6869, Suite 2, 31-33 Tower Road, New Town TAS 7008
- Melbourne: Tel (03) 9473 1400 Fax (03) 9473 1450, 126 Trenerry Crescent, Abbotsford VIC 3067
- Perth: Tel (08) 9355 7100 Fax (08) 9355 7197, 89-91 Burswood Road, Burswood WA 6100
- Sydney: Tel: (02) 8083 1600 Fax (02) 8765 0762, Level 1, 3 Rider Boulevard, Rhodes, NSW 2138
- Philippines: Tel (+63) (2) 636 8287 Fax (+63) (2) 687 3518, 3rd Floor, JMT Building, ADB Avenue, Ortigas Centre, Pasig City, Metro Manila; Philippines
- Lane Cove: Tel: (02) 9911 1000 Fax (02) 9911 1002, 8/12 Mars Road, Lane Cove West, NSW 2066
- ACT: Tel: (02) 6248 7366 Fax (02) 6248 7157, 2/54 Northbourne Avenue, Canberra ACT 2601
- Dilhorn House: Tel: (08) 9328 3488 Fax (08) 9328 3588, Dilhorn House, 2 Bulwer Street, Perth, WA 6000

Project No: GEOTLCON24303AC
Task No:
Project Name: SICEEP
Laboratory: SGS
Samplers Name: Adriana Corona Mothe
Project Manager: Matthew Locke / Sara
Special Instructions: Samples to be STORAGE for 36 months. Keep soil after analyses
Coffey will organize pick-up of ALL remaining soil.
Metals: As, Cd, Cr, Cu, Pb, Ni, Zn, Hg

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)	BTEX / TPH C6-C36	METALS (Specify)	PAHs / PHENOLS	OCs / OPs	Asbestos	VHC	VOC	SVOC	NOTES
	BH27_0.15-0.2	BH27	0.15-0.2	17.04.12	-	Soil	1 jar + 1 bag + Ice	5 days		HOLD							
	BH23_0.1-0.15	BH23	0.1-0.15	"	12:30	Soil	"	"		HOLD							
1	BH29_0.4-0.5	BH29	0.4-0.5		-							/					
2	BH29_0.9-1.0		0.9-1.0		-				/	/	/						
3	BH29_2.0-2.1		2.0-2.1		-				/	/	/						
4	BH29_3.5-3.7		3.5-3.7		-				/	/	/						
	BH29_4.5		4.5		-												
5	DUP1		-		-				/	/	/						
6	BH25_0.4-0.5	BH25		18.04.12					/	/	/	/					
7	BH25_0.5-0.6								/	/	/						
	BH25_1.5-1.7																
	BH25_3.0-3.4																
8	BH25_4.5-4.9								/	/	/	XXX					
9	BH25_6.0-6.4								/	/	/						
	BH25_7.5-7.9																

SGS 18/04/12 2.35 pm
SS
Cooler Pack
Temperature on Pr... 3.6
8782, ASB
SE107335

RELINQUISHED BY:		RECEIVED BY:	
Signature: [redacted]	Date: 18-04-12	Signature: SS	Date: 18/4
Company: Coffey Environments	Time: 14:37	Company:	Time: 2.35
Signature:	Date:	Signature:	Date:
Company:	Time:	Company:	Time:

Sample Receipt Advice: *(Lab Use Only)*

- All Samples Received in Good Condition . . . ☒
- All Documentation is in Proper Order . . . . . ☒
- Samples Received Properly Chilled . . . . . ☒

Lab. Ref/Batch No. SE 107335

* **Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

81296

coffey environments

- **Adelaide:** Tel (08) 7221 3500 Fax (08) 8172 1968 Level 1, 2-3 Greenhill Road, Wayville SA 5034
- **Brisbane:** Tel (07) 3608 2500 Fax (07) 3852 2805 47 Doggett Street, Newstead QLD 4006 Email: Brisbane.Admin@coffey.com.au
- **Hobart:** Tel (03) 6208 6860 Fax (03) 6208 6869 Suite 2, 31-33 Tower Road, New Town TAS 7008
- **Melbourne:** Tel (03) 9473 1400 Fax (03) 9473 1450 126 Trenerry Crescent, Abbotsford VIC 3067
- **Perth:** Tel (08) 9355 7100 Fax (08) 9355 7197 89-91 Burswood Road, Burswood WA 6100
- **Sydney:** Tel: (02) 8083 1600 Fax (02) 8765 0762 Level 1, 3 Rider Boulevard, Rhodes, NSW 2138
- **Lane Cove:** Tel: (02) 9911 1000 Fax (02) 9911 1002 8/12 Mars Road, Lane Cove West, NSW 2066
- **ACT:** Tel: (02) 6248 7366 Fax (02) 6248 7157 2/54 Northbourne Avenue, Canberra ACT 2601
- **Dilhorn House:** Tel: (08) 9328 3488 Fax (08) 9328 3588 Dilhorn House, 2 Bulwer Street, Perth, WA 6000
- **Philippines:** Tel (+63) (2) 636 8287 Fax (+63) (2) 687 3518 3rd Floor, JMT Building, ADB Avenue, Ortigas Centre, Pasig City, Metro Manila; Philippines

Project No: GEOTLCOV24303AC
Task No:
Project Name: SICEEP
Laboratory: SGS
Samplers Name: Adriana Corona Motte
Project Manager: Matthew Locke / Sara Bomasenduran
Special Instructions: As COC 81295

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)	BTEX / TPH C6-C9	METALS (Specify) 8 metals	PAHs / PHENOLS	OCs / OPs	BTEX	TPH C6-C36	NOTES
10	DUP2	–	–	18.04.12	–	Soil	1 jar + ice	5days	X	X	X	X	X		
	~~DUP2A~~	–	–	"	–	"	"								~~Spare~~
11	TB1	–	–	"	–	"	1 jar + ice						X		
12	TS1	–	–	"	–	"	1 vial + ice		X						

RELINQUISHED BY:

Signature: [redacted] Date: 18.04.12
Company: Coffey Environments Time: 14:37
Signature: Date:
Company: Time:

RECEIVED BY:

Signature: Date: 18/4/12
Company: SGS Time: 2.15
Signature: Date:
Company: Time:

Sample Receipt Advice: *(Lab Use Only)*

All Samples Received in Good Condition . . . ☐
All Documentation is in Proper Order . . . . . ☑
Samples Received Properly Chilled . . . . . ☑

Lab. Ref/Batch No. SE 107335

*** Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

GOWANS PRINTERS 02 9755 3545

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
Address	Unit 8, 12 Mars Road NSW 2066
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**81295-6**
Samples	11

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	SE107335 R0
Report Number	0000026523
Date Reported	01 May 2012
Date Received	18 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Dong Liang
Inorganics Metals Team Leader

Huong Crawford
Laboratory Manager

Ravee Sivasubramaniam
Hygienist

Parameter	Units	LOR	Sample Number: SE107335.001 Sample Matrix: Soil Sample Date: 17 Apr 2012 Sample Name: BH29_0.4-0.5	SE107335.002 Soil 17 Apr 2012 BH29_0.9-1.0	SE107335.003 Soil 17 Apr 2012 BH29_2.0-2.1	SE107335.004 Soil 18 Apr 2012 BH25_1.5-1.7	SE107335.005 Soil 17 Apr 2012 Dup 1
VOC's in Soil Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
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
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	**94**	**94**	**93**	**93**	**93**
d4-1,2-dichloroethane (Surrogate)	%	-	**102**	**102**	**100**	**100**	**102**
d8-toluene (Surrogate)	%	-	**102**	**101**	**101**	**101**	**101**
Bromofluorobenzene (Surrogate)	%	-	**92**	**94**	**93**	**91**	**89**
Totals							
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	-	**0**	**0**	**0**	**0**	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434							
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Surrogates							
Trifluorotoluene (Surrogate)	%	-	**86**	**79**	**78**	**74**	**76**
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20	**20**	<20	<20	<20	<20
TRH C15-C28	mg/kg	50	**2500**	**840**	<50	**190**	<50
TRH C29-C36	mg/kg	50	**1700**	**380**	<50	**55**	<50
Surrogates							
TRH (Surrogate)	%	-	-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	mg/kg	0.1	**0.1**	**2.6**	<0.1	**0.2**	<0.1
Acenaphthylene	mg/kg	0.1	**0.1**	**4.7**	<0.1	**0.5**	**0.1**
Acenaphthene	mg/kg	0.1	**0.2**	**2.5**	<0.1	**0.2**	<0.1
Fluorene	mg/kg	0.1	**0.3**	**5.5**	<0.1	**0.5**	**0.2**
Phenanthrene	mg/kg	0.1	**3.2**	**69**	**0.6**	**3.1**	**1.9**
Anthracene	mg/kg	0.1	**0.7**	**13**	**0.2**	**1.2**	**0.5**
Fluoranthene	mg/kg	0.1	**1.5**	**53**	**0.5**	**3.9**	**1.6**
Pyrene	mg/kg	0.1	**1.3**	**51**	**0.5**	**3.7**	**1.6**
Benzo(a)anthracene	mg/kg	0.1	**0.8**	**26**	**0.2**	**2.2**	**0.6**
Chrysene	mg/kg	0.1	**0.8**	**14**	**0.2**	**1.4**	**0.5**
Benzo(b)fluoranthene	mg/kg	0.1	**0.7**	**21**	**0.2**	**1.9**	**0.6**
Benzo(k)fluoranthene	mg/kg	0.1	**0.4**	**5.6**	**0.1**	**0.7**	**0.2**
Benzo(a)pyrene	mg/kg	0.1	**0.5**	**16**	**0.1**	**1.6**	**0.5**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.3**	**8.1**	<0.1	**0.7**	**0.2**
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	**2.5**	<0.1	**0.2**	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.5**	**9.3**	<0.1	**0.8**	**0.3**
Total PAH (Vic EPA)	mg/kg	0.8	**11**	**300**	**2.3**	**23**	**8.5**
Surrogates							
d5-nitrobenzene (Surrogate)	%	-	**116**	**102**	**104**	**124**	**113**
2-fluorobiphenyl (Surrogate)	%	-	**100**	**125**	**116**	**118**	**112**

Parameter	Units	LOR	Sample Number: SE107335.001 Sample Matrix: Soil Sample Date: 17 Apr 2012 Sample Name: BH29_0.4-0.5	SE107335.002 Soil 17 Apr 2012 BH29_0.9-1.0	SE107335.003 Soil 17 Apr 2012 BH29_2.0-2.1	SE107335.004 Soil 18 Apr 2012 BH25_1.5-1.7	SE107335.005 Soil 17 Apr 2012 Dup 1
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)							
d14-p-terphenyl (Surrogate)	%	-	119	117	121	125	113
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320							
Arsenic, As	mg/kg	3	<3	4	3	12	5
Cadmium, Cd	mg/kg	0.3	0.3	0.3	<0.3	0.4	<0.3
Chromium, Cr	mg/kg	0.3	22	8.9	4.7	9.9	10
Copper, Cu	mg/kg	0.5	80	83	5.5	41	22
Lead, Pb	mg/kg	1	24	230	6	93	41
Nickel, Ni	mg/kg	0.5	38	9.6	<0.5	16	2.0
Zinc, Zn	mg/kg	0.5	71	310	3.5	100	29
Mercury in Soil Method: AN312							
Mercury	mg/kg	0.05	0.30	2.1	<0.05	0.26	0.17
Fibre Identification in soil Method: AN602							
FibreID							
Asbestos Detected	No unit	-	No	-	-	-	-
SemiQuant							
Estimated Fibres	%w/w	0.01	<0.01	-	-	-	-
Moisture Content Method: AN002							
% Moisture	%	0.5	6.1	17	18	14	22

Parameter	Units	LOR	Sample Number: SE107335.006 Sample Matrix: Soil Sample Date: 18 Apr 2012 Sample Name: BH25_0.4-0.5	SE107335.007 Soil 18 Apr 2012 BH25_0.5-0.6	SE107335.008 Soil 18 Apr 2012 BH25_4.5-4.9	SE107335.009 Soil 18 Apr 2012 Dup 2	SE107335.010 Soil 18 Apr 2012 TB1
VOC's in Soil Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
Benzene	mg/kg	0.1	-	<0.1	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	-	<0.1	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	-	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	-	93	95	91	92
d4-1,2-dichloroethane (Surrogate)	%	-	-	101	100	100	101
d8-toluene (Surrogate)	%	-	-	103	101	100	102
Bromofluorobenzene (Surrogate)	%	-	-	92	85	81	86
Totals							
Total Xylenes*	mg/kg	0.3	-	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	-	-	0	0	0	0
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434							
TRH C6-C9	mg/kg	20	-	<20	<20	<20	<20
Surrogates							
Trifluorotoluene (Surrogate)	%	-	-	79	76	100	98
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE107335.006 Soil 18 Apr 2012 BH25_0.4-0.5	SE107335.007 Soil 18 Apr 2012 BH25_0.5-0.6	SE107335.008 Soil 18 Apr 2012 BH25_4.5-4.9	SE107335.009 Soil 18 Apr 2012 Dup 2	SE107335.010 Soil 18 Apr 2012 TB1
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434 (continued)								
Bromofluorobenzene (Surrogate)	%	-		-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403								
TRH C10-C14	mg/kg	20		-	<20	<20	<20	-
TRH C15-C28	mg/kg	50		-	<50	<50	<50	-
TRH C29-C36	mg/kg	50		-	<50	<50	<50	-
Surrogates								
TRH (Surrogate)	%	-		-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420								
Naphthalene	mg/kg	0.1		-	<0.1	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1		-	<0.1	**0.1**	<0.1	-
Acenaphthene	mg/kg	0.1		-	<0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1		-	<0.1	**0.1**	<0.1	-
Phenanthrene	mg/kg	0.1		-	<0.1	**0.8**	<0.1	-
Anthracene	mg/kg	0.1		-	<0.1	**0.3**	<0.1	-
Fluoranthene	mg/kg	0.1		-	<0.1	**1.0**	<0.1	-
Pyrene	mg/kg	0.1		-	<0.1	**1.0**	<0.1	-
Benzo(a)anthracene	mg/kg	0.1		-	<0.1	**0.6**	<0.1	-
Chrysene	mg/kg	0.1		-	<0.1	**0.4**	<0.1	-
Benzo(b)fluoranthene	mg/kg	0.1		-	<0.1	**0.6**	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1		-	<0.1	**0.3**	<0.1	-
Benzo(a)pyrene	mg/kg	0.1		-	<0.1	**0.5**	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1		-	<0.1	**0.2**	<0.1	-
Dibenzo(a&h)anthracene	mg/kg	0.1		-	<0.1	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1		-	<0.1	**0.3**	<0.1	-
Total PAH (Vic EPA)	mg/kg	0.8		-	<0.8	**6.0**	<0.8	-
Surrogates								
d5-nitrobenzene (Surrogate)	%	-		-	**117**	**126**	**109**	-
2-fluorobiphenyl (Surrogate)	%	-		-	**111**	**104**	**104**	-
d14-p-terphenyl (Surrogate)	%	-		-	**119**	**118**	**122**	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320								
Arsenic, As	mg/kg	3		-	**4**	**12**	**5**	-
Cadmium, Cd	mg/kg	0.3		-	<0.3	**0.3**	<0.3	-
Chromium, Cr	mg/kg	0.3		-	**7.3**	**21**	**8.7**	-
Copper, Cu	mg/kg	0.5		-	**23**	**63**	**36**	-
Lead, Pb	mg/kg	1		-	**13**	**91**	**14**	-
Nickel, Ni	mg/kg	0.5		-	**5.0**	**4.8**	**9.8**	-
Zinc, Zn	mg/kg	0.5		-	**33**	**95**	**39**	-
Mercury in Soil Method: AN312								
Mercury	mg/kg	0.05		-	**0.07**	**0.18**	<0.05	-
Fibre Identification in soil Method: AN602								
FibreID								
Asbestos Detected	No unit	-		No	No	-	-	-
SemiQuant								
Estimated Fibres	%w/w	0.01		<0.01	<0.01	-	-	-
Moisture Content Method: AN002								
% Moisture	%	0.5		-	**18**	**13**	**20**	<0.5

Parameter	Units	LOR	Sample Number: SE107335.011 Sample Matrix: Soil Sample Date: 18 Apr 2012 Sample Name: TS1
VOC's in Soil Method: AN433/AN434			
Monocyclic Aromatic Hydrocarbons			
Benzene	mg/kg	0.1	[94%]
Toluene	mg/kg	0.1	[94%]
Ethylbenzene	mg/kg	0.1	[92%]
m/p-xylene	mg/kg	0.2	[93%]
o-xylene	mg/kg	0.1	[91%]
Surrogates			
Dibromofluoromethane (Surrogate)	%	-	**99**
d4-1,2-dichloroethane (Surrogate)	%	-	**102**
d8-toluene (Surrogate)	%	-	**101**
Bromofluorobenzene (Surrogate)	%	-	**81**
Totals			
Total Xylenes*	mg/kg	0.3	-
Total BTEX*	mg/kg	-	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434			
TRH C6-C9	mg/kg	20	-
Surrogates			
Trifluorotoluene (Surrogate)	%	-	-
Dibromofluoromethane (Surrogate)	%	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-
d8-toluene (Surrogate)	%	-	-
Bromofluorobenzene (Surrogate)	%	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403			
TRH C10-C14	mg/kg	20	-
TRH C15-C28	mg/kg	50	-
TRH C29-C36	mg/kg	50	-
Surrogates			
TRH (Surrogate)	%	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420			
Naphthalene	mg/kg	0.1	-
Acenaphthylene	mg/kg	0.1	-
Acenaphthene	mg/kg	0.1	-
Fluorene	mg/kg	0.1	-
Phenanthrene	mg/kg	0.1	-
Anthracene	mg/kg	0.1	-
Fluoranthene	mg/kg	0.1	-
Pyrene	mg/kg	0.1	-
Benzo(a)anthracene	mg/kg	0.1	-
Chrysene	mg/kg	0.1	-
Benzo(b)fluoranthene	mg/kg	0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	-
Benzo(a)pyrene	mg/kg	0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-
Dibenzo(a&h)anthracene	mg/kg	0.1	-
Benzo(ghi)perylene	mg/kg	0.1	-
Total PAH (Vic EPA)	mg/kg	0.8	-

Parameter	Units	LOR	Sample Number SE107335.011 Sample Matrix Soil Sample Date 18 Apr 2012 Sample Name TS1
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)			
Surrogates			
d5-nitrobenzene (Surrogate)	%	-	-
2-fluorobiphenyl (Surrogate)	%	-	-
d14-p-terphenyl (Surrogate)	%	-	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320			
Arsenic, As	mg/kg	3	-
Cadmium, Cd	mg/kg	0.3	-
Chromium, Cr	mg/kg	0.3	-
Copper, Cu	mg/kg	0.5	-
Lead, Pb	mg/kg	1	-
Nickel, Ni	mg/kg	0.5	-
Zinc, Zn	mg/kg	0.5	-
Mercury in Soil Method: AN312			
Mercury	mg/kg	0.05	-
Fibre Identification in soil Method: AN602			
FibreID			
Asbestos Detected	No unit	-	-
SemiQuant			
Estimated Fibres	%w/w	0.01	-
Moisture Content Method: AN002			
% Moisture	%	0.5	-

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

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Mercury	LB018680	mg/kg	0.05	<0.05	0%	98%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB018626	mg/kg	0.1	<0.1	104%	98%	92%
Acenaphthylene	LB018626	mg/kg	0.1	<0.1	29%	106%	102%
Acenaphthene	LB018626	mg/kg	0.1	<0.1	24%	99%	95%
Fluorene	LB018626	mg/kg	0.1	<0.1	55%	NA	NA
Phenanthrene	LB018626	mg/kg	0.1	<0.1	20%	106%	109%
Anthracene	LB018626	mg/kg	0.1	<0.1	31%	105%	98%
Fluoranthene	LB018626	mg/kg	0.1	<0.1	14%	108%	111%
Pyrene	LB018626	mg/kg	0.1	<0.1	14%	110%	110%
Benzo(a)anthracene	LB018626	mg/kg	0.1	<0.1	38%	NA	NA
Chrysene	LB018626	mg/kg	0.1	<0.1	5%	NA	NA
Benzo(b)fluoranthene	LB018626	mg/kg	0.1	<0.1	23%	NA	NA
Benzo(k)fluoranthene	LB018626	mg/kg	0.1	<0.1	21%	NA	NA
Benzo(a)pyrene	LB018626	mg/kg	0.1	<0.1	9%	118%	109%
Indeno(1,2,3-cd)pyrene	LB018626	mg/kg	0.1	<0.1	18%	NA	NA
Dibenzo(a&h)anthracene	LB018626	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB018626	mg/kg	0.1	<0.1	6%	NA	NA
Total PAH (Vic EPA)	LB018626	mg/kg	0.8	<0.8	18%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB018626	%	-	103%	6%	106%	116%
2-fluorobiphenyl (Surrogate)	LB018626	%	-	98%	17%	103%	105%
d14-p-terphenyl (Surrogate)	LB018626	%	-	112%	1%	117%	113%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB018677	mg/kg	3	<3	27%	100%	90%
Cadmium, Cd	LB018677	mg/kg	0.3	<0.3	0%	98%	89%
Chromium, Cr	LB018677	mg/kg	0.3	<0.3	16%	98%	
Copper, Cu	LB018677	mg/kg	0.5	<0.5	36%	100%	80%
Lead, Pb	LB018677	mg/kg	1	<1	3 - 5%	99%	93%
Nickel, Ni	LB018677	mg/kg	0.5	<0.5	4%	100%	88%
Zinc, Zn	LB018677	mg/kg	0.5	<0.5	7%	100%	90%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB018626	mg/kg	20	<20	0 - 22%	105%	115%
TRH C15-C28	LB018626	mg/kg	50	<50	0 - 16%	98%	420%
TRH C29-C36	LB018626	mg/kg	50	<50	0 - 24%	93%	105%

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

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Benzene	LB018544	mg/kg	0.1	<0.1	0%	110%
Toluene	LB018544	mg/kg	0.1	<0.1	0%	114%
Ethylbenzene	LB018544	mg/kg	0.1	<0.1	0%	101%
m/p-xylene	LB018544	mg/kg	0.2	<0.2	0%	109%
o-xylene	LB018544	mg/kg	0.1	<0.1	0%	111%

Surrogates

QC SUMMARY

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

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB018544	%	-	96%	1%	93%
d4-1,2-dichloroethane (Surrogate)	LB018544	%	-	101%	1%	99%
d8-toluene (Surrogate)	LB018544	%	-	102%	1%	103%
Bromofluorobenzene (Surrogate)	LB018544	%	-	85%	1%	94%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Xylenes*	LB018544	mg/kg	0.3	<0.3	0%	NA
Total BTEX*	LB018544	mg/kg	-	0	NA	NA

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C6-C9	LB018544	mg/kg	20	<20	0%	115%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Trifluorotoluene (Surrogate)	LB018544	%	-	78%	8%	82%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
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 analsysis by ASS or ICP as per USEPA Method 200.8.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
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Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**81295-6**
Samples	11

LABORATORY DETAILS

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SGS Reference	SE107335 R0
Report Number	0000026525
Date Reported	01/05/2012 18:36:35
Date Received	18 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Dong Liang
Inorganics Metals Team Leader

Huong Crawford
Laboratory Manager

Ravee Sivasubramaniam
Hygienist

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE107335.001	BH29_0.4-0.5	Soil	74g Soil,clay,rocks	17 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01
SE107335.006	BH25_0.4-0.5	Soil	45g Soil,clay,rocks	18 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01
SE107335.007	BH25_0.5-0.6	Soil	30g Soil,clay,rocks	18 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

SE107335 R0

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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite			

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

STATEMENT OF QA/QC PERFORMANCE

SE107335 R0

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
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Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**81295-6**
Samples	11

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Email	au.environmental.sydney@sgs.com
SGS Reference	SE107335 R0
Report Number	0000026524
Date Reported	01 May 2012

COMMENTS

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

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

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

Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	2 items
	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	1 item
Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	11 Soils	Type of documentation received	COC
Date documentation received	19/4/12@10:50am	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE107335 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.

Fibre Identification in soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018942	17 Apr 2012	18 Apr 2012	17 Apr 2013	27 Apr 2012	17 Apr 2013	27 Apr 2012
BH25_0.4-0.5	SE107335.006	LB018942	18 Apr 2012	18 Apr 2012	18 Apr 2013	27 Apr 2012	18 Apr 2013	27 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018942	18 Apr 2012	18 Apr 2012	18 Apr 2013	27 Apr 2012	18 Apr 2013	27 Apr 2012

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018680	17 Apr 2012	18 Apr 2012	15 May 2012	24 Apr 2012	15 May 2012	27 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018680	17 Apr 2012	18 Apr 2012	15 May 2012	24 Apr 2012	15 May 2012	27 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018680	17 Apr 2012	18 Apr 2012	15 May 2012	24 Apr 2012	15 May 2012	27 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018680	18 Apr 2012	18 Apr 2012	16 May 2012	24 Apr 2012	16 May 2012	27 Apr 2012
Dup 1	SE107335.005	LB018680	17 Apr 2012	18 Apr 2012	15 May 2012	24 Apr 2012	15 May 2012	27 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018680	18 Apr 2012	18 Apr 2012	16 May 2012	24 Apr 2012	16 May 2012	27 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018680	18 Apr 2012	18 Apr 2012	16 May 2012	24 Apr 2012	16 May 2012	27 Apr 2012
Dup 2	SE107335.009	LB018680	18 Apr 2012	18 Apr 2012	16 May 2012	24 Apr 2012	16 May 2012	27 Apr 2012

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018588	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018588	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018588	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018588	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
Dup 1	SE107335.005	LB018588	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018588	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018588	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
Dup 2	SE107335.009	LB018588	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012
TB1	SE107335.010	LB018588	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	28 Apr 2012	24 Apr 2012

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
BH29_0.4-0.5	SE107335.001	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
Dup 1	SE107335.005	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
Dup 2	SE107335.009	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018677	17 Apr 2012	18 Apr 2012	14 Oct 2012	24 Apr 2012	14 Oct 2012	26 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018677	17 Apr 2012	18 Apr 2012	14 Oct 2012	24 Apr 2012	14 Oct 2012	26 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018677	17 Apr 2012	18 Apr 2012	14 Oct 2012	24 Apr 2012	14 Oct 2012	26 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018677	18 Apr 2012	18 Apr 2012	15 Oct 2012	24 Apr 2012	15 Oct 2012	26 Apr 2012
Dup 1	SE107335.005	LB018677	17 Apr 2012	18 Apr 2012	14 Oct 2012	24 Apr 2012	14 Oct 2012	26 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018677	18 Apr 2012	18 Apr 2012	15 Oct 2012	24 Apr 2012	15 Oct 2012	26 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018677	18 Apr 2012	18 Apr 2012	15 Oct 2012	24 Apr 2012	15 Oct 2012	26 Apr 2012
Dup 2	SE107335.009	LB018677	18 Apr 2012	18 Apr 2012	15 Oct 2012	24 Apr 2012	15 Oct 2012	26 Apr 2012

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
BH29_0.4-0.5	SE107335.001	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
Dup 1	SE107335.005	LB018626	17 Apr 2012	18 Apr 2012	01 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012
Dup 2	SE107335.009	LB018626	18 Apr 2012	18 Apr 2012	02 May 2012	23 Apr 2012	02 Jun 2012	27 Apr 2012

VOC's in Soil

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

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE107335 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.

VOC's in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
Dup 1	SE107335.005	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
Dup 2	SE107335.009	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
TB1	SE107335.010	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
TS1	SE107335.011	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH29_0.4-0.5	SE107335.001	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH29_0.9-1.0	SE107335.002	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH29_2.0-2.1	SE107335.003	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_1.5-1.7	SE107335.004	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
Dup 1	SE107335.005	LB018544	17 Apr 2012	18 Apr 2012	01 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_0.5-0.6	SE107335.007	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
BH25_4.5-4.9	SE107335.008	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
Dup 2	SE107335.009	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
TB1	SE107335.010	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	26 Apr 2012
TS1	SE107335.011	LB018544	18 Apr 2012	18 Apr 2012	02 May 2012	20 Apr 2012	30 May 2012	27 Apr 2012

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	100
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	125
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	116
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	118
	Dup 1	SE107335.005	%	60 - 130%	112
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	111
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	104
	Dup 2	SE107335.009	%	60 - 130%	104
d14-p-terphenyl (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	119
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	117
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	121
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	125
	Dup 1	SE107335.005	%	60 - 130%	113
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	119
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	118
	Dup 2	SE107335.009	%	60 - 130%	122
d5-nitrobenzene (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	116
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	102
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	104
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	124
	Dup 1	SE107335.005	%	60 - 130%	113
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	117
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	126
	Dup 2	SE107335.009	%	60 - 130%	109

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	92
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	94
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	93
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	91
	Dup 1	SE107335.005	%	60 - 130%	89
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	92
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	85
	Dup 2	SE107335.009	%	60 - 130%	81
	TB1	SE107335.010	%	60 - 130%	86
	TS1	SE107335.011	%	60 - 130%	81
d4-1,2-dichloroethane (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	102
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	102
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	100
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	100
	Dup 1	SE107335.005	%	60 - 130%	102
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	101
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	100
	Dup 2	SE107335.009	%	60 - 130%	100
	TB1	SE107335.010	%	60 - 130%	101
	TS1	SE107335.011	%	60 - 130%	102
d8-toluene (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	102
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	101
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	101
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	101
	Dup 1	SE107335.005	%	60 - 130%	101
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	103
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	101
	Dup 2	SE107335.009	%	60 - 130%	100
	TB1	SE107335.010	%	60 - 130%	102
	TS1	SE107335.011	%	60 - 130%	101
Dibromofluoromethane (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	94
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	94
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	93
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	93

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	Dup 1	SE107335.005	%	60 - 130%	93
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	93
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	95
	Dup 2	SE107335.009	%	60 - 130%	91
	TB1	SE107335.010	%	60 - 130%	92
	TS1	SE107335.011	%	60 - 130%	99

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Trifluorotoluene (Surrogate)	BH29_0.4-0.5	SE107335.001	%	60 - 130%	86
	BH29_0.9-1.0	SE107335.002	%	60 - 130%	79
	BH29_2.0-2.1	SE107335.003	%	60 - 130%	78
	BH25_1.5-1.7	SE107335.004	%	60 - 130%	74
	Dup 1	SE107335.005	%	60 - 130%	76
	BH25_0.5-0.6	SE107335.007	%	60 - 130%	79
	BH25_4.5-4.9	SE107335.008	%	60 - 130%	76
	Dup 2	SE107335.009	%	60 - 130%	100
	TB1	SE107335.010	%	60 - 130%	98

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
LB018680.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018626.001		Naphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	103
		2-fluorobiphenyl (Surrogate)	%	-	98
		d14-p-terphenyl (Surrogate)	%	-	112

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result
LB018677.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB018626.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	50	<50
	TRH C29-C36	mg/kg	50	<50

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018544.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96
		d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	102
		Bromofluorobenzene (Surrogate)	%	-	85
	Totals	Total BTEX*	mg/kg	-	0

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018544.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Trifluorotoluene (Surrogate)	%	-	78

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

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

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

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107335.009	LB018680.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE107464.004	LB018680.024	Mercury	mg/kg	0.05	0.018127136	0.0183199778	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107335.001	LB018626.004		Naphthalene	mg/kg	0.1	0.1	0.4	73	104 ②
			Acenaphthylene	mg/kg	0.1	0.1	0.2	101	29
			Acenaphthene	mg/kg	0.1	0.2	0.3	70	24
			Fluorene	mg/kg	0.1	0.3	0.6	53	55 ②
			Phenanthrene	mg/kg	0.1	3.2	4.0	33	20
			Anthracene	mg/kg	0.1	0.7	0.9	43	31
			Fluoranthene	mg/kg	0.1	1.5	1.3	37	14
			Pyrene	mg/kg	0.1	1.3	1.5	37	14
			Benzo(a)anthracene	mg/kg	0.1	0.8	1.2	40	38
			Chrysene	mg/kg	0.1	0.8	0.9	42	5
			Benzo(b)fluoranthene	mg/kg	0.1	0.7	0.8	43	23
			Benzo(k)fluoranthene	mg/kg	0.1	0.4	0.3	60	21
			Benzo(a)pyrene	mg/kg	0.1	0.5	0.6	48	9
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.3	66	18
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.5	0.5	49	6
			Total PAH (Vic EPA)	mg/kg	0.8	11	14	36	18
		Surrogates	d5-nitrobenzene (Surrogate)	%	-	116.0	109.0	30	6
			2-fluorobiphenyl (Surrogate)	%	-	100.0	119.0	30	17
			d14-p-terphenyl (Surrogate)	%	-	119.0	118.0	30	1

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107335.009	LB018677.014	Arsenic, As	mg/kg	3	5	4	92	27
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.7	7.4	34	16
		Copper, Cu	mg/kg	0.5	36	25	32	36 ②
		Lead, Pb	mg/kg	1	14	15	37	5
		Nickel, Ni	mg/kg	0.5	9.8	9.3	35	4
		Zinc, Zn	mg/kg	0.5	39	36	31	7
SE107375.014	LB018677.024	Lead, Pb	mg/kg	1	460	480	30	3

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107335.001	LB018626.004	TRH C10-C14	mg/kg	20	20	25	119	22
		TRH C15-C28	mg/kg	50	2500	2900	32	16
		TRH C29-C36	mg/kg	50	1700	2100	33	24
SE107350.003	LB018626.016	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	50	<50	<50	200	0
		TRH C29-C36	mg/kg	50	<50	<50	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107350.007	LB018544.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	%	-	93.0	92.0	50	1
			d4-1,2-dichloroethane (Surrogate)	%	-	102.0	101.0	50	1
			d8-toluene (Surrogate)	%	-	103.0	102.0	50	1
			Bromofluorobenzene (Surrogate)	%	-	84.0	85.0	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	-	0	0	200	NA

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate	Parameter	Units	LOR

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

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

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

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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107350.007	LB018544.021		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Trifluorotoluene (Surrogate)	%	-	91	84	30	8

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 %
LB018680.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018626.002		Naphthalene	mg/kg	0.1	3.9	4	60 - 140	98
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	99
		Phenanthrene	mg/kg	0.1	4.3	4	60 - 140	106
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	105
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	108
		Pyrene	mg/kg	0.1	4.4	4	60 - 140	110
		Benzo(a)pyrene	mg/kg	0.1	4.7	4	60 - 140	118
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	106.0	100	60 - 140	106
		2-fluorobiphenyl (Surrogate)	%	-	103.0	100	60 - 140	103
		d14-p-terphenyl (Surrogate)	%	-	117.0	100	60 - 140	117

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018677.002	Arsenic, As	mg/kg	3	50	50	80 - 120	100
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	98
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	100
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018626.002	TRH C10-C14	mg/kg	20	42	40	60 - 140	105
	TRH C15-C28	mg/kg	50	<50	40	60 - 140	98
	TRH C29-C36	mg/kg	50	<50	40	60 - 140	93

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018544.002	Monocyclic	Benzene	mg/kg	0.1	3.3	3	60 - 140	110
	Aromatic	Toluene	mg/kg	0.1	3.4	3	60 - 140	114
		Ethylbenzene	mg/kg	0.1	3.0	3	60 - 140	101
		m/p-xylene	mg/kg	0.2	6.4	5.9	60 - 140	109
		o-xylene	mg/kg	0.1	3.2	2.9	60 - 140	111
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	93.0	100	60 - 140	93
		d4-1,2-dichloroethane (Surrogate)	%	-	99.0	100	60 - 140	99
		d8-toluene (Surrogate)	%	-	103.0	100	60 - 140	103
		Bromofluorobenzene (Surrogate)	%	-	94.0	100	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018544.002	TRH C6-C9	mg/kg	20	28	24.4	60 - 140	115

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107335.003	LB018626.007	Naphthalene	mg/kg	0.1	3.7	<0.1	4	92
		Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	102
		Acenaphthene	mg/kg	0.1	3.8	<0.1	4	95
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.9	0.6	4	109
		Anthracene	mg/kg	0.1	4.1	0.2	4	98
		Fluoranthene	mg/kg	0.1	4.9	0.5	4	111
		Pyrene	mg/kg	0.1	4.9	0.5	4	110
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.2	-	-
		Chrysene	mg/kg	0.1	<0.1	0.2	-	-
		Benzo(b)fluoranthene	mg/kg	0.1	<0.1	0.2	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.5	0.1	4	109
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Total PAH (Vic EPA)	mg/kg	0.8	35	2.3	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	116.0	104.0	100	116
		2-fluorobiphenyl (Surrogate)	%	-	105.0	116.0	100	105
		d14-p-terphenyl (Surrogate)	%	-	113.0	121.0	100	113

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107243.070	LB018677.004	Arsenic, As	mg/kg	3	48	3.25444023569	50	90
		Cadmium, Cd	mg/kg	0.3	45	0.22372718855	50	89
		Copper, Cu	mg/kg	0.5	57	16.67517255892	50	80
		Lead, Pb	mg/kg	1	65	18.13509680134	50	93
		Nickel, Ni	mg/kg	0.5	54	9.73268097643	50	88
		Zinc, Zn	mg/kg	0.5	88	42.76363636363	50	90

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107335.002	LB018626.006	TRH C10-C14	mg/kg	20	64	<20	40	115
		TRH C15-C28	mg/kg	50	1000	840	40	420 ⑤
		TRH C29-C36	mg/kg	50	420	380	40	105

MATRIX SPIKE DUPLICATES

SE107335 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

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

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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92344

coffey environments

Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila; Philippines ..... Tel (+63) (2) 638 9686 ..... Fax (+63) (2) 687 3518
ACT: ☐ 2/54 Northbourne Ave, Canberra ACT 2601 ..... Tel (02) 6248 7366 ..... Fax (02) 6248 7157
NSW: ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138 ..... Tel (02) 8083 1600 ..... Fax (02) 8765 0762
☐ Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304 ..... Tel (02) 4016 2300 ..... Fax (02) 4016 2380
☐ 1/222 Berkeley Rd, Unanderra NSW 2526 ..... Tel (02) 4272 6071 ..... Fax (02) 4272 6075

QLD: ☐ 47 Doggett St, Newstead QLD 4006 ..... Tel (07) 3608 2500 ..... Fax (07) 3852 2805
SA: ☐ Level 1, 2-3 Greenhill Rd, Wayville SA 5034 ..... Tel (08) 7221 3500 ..... Fax (08) 8172 1968
TAS: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000 ..... Tel (03) 6108 0100 ..... Fax (03) 6108 0199
VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067 ..... Tel (03) 9473 1400 ..... Fax (03) 9473 1450
☐ Level 1, 23 West Fyans St, Newtown VIC 3220 ..... Tel (03) 5215 4600 ..... Fax (03) 5224 1368
WA: ☐ 61 Duke St, Albany WA 6330 ..... Tel (08) 9892 6400 ..... Fax (08) 9892 6444
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100 ..... Tel (08) 9355 7100 ..... Fax (08) 9355 7111
☐ Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6281 ..... Tel (08) 9756 7869 ..... Fax (08) 9756 8878

Project No: GEOTLCOV24303AC
Task No:
Project Name: SICEEP
Laboratory: SGS
Samplers Name: Adriana Corona Motte / Jocelin Wijaya
Project Manager: Matthew Locke
Special Instructions: All remaining soil to be storaged for 36 months after completion of analyses. Pleax let Matthew know when ready to pick up.

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)
1	BH11_0.5-0.6	BH11	0.5-0.6	23.04.12	–	Soil	1jar + 1bag + ice	Standard
2	BH11_1.5-1.9	"	1.5-1.9	"	–	"	"	"
	DUP6	–	–	"	–	"	1jar + ice	"
	TB4						1jar + ice	"
	TS4						1vial + ice	"
3	BH16_0.5-0.6	BH16	0.5-0.6				1jar + 1bag + ice	
4	BH16_1.5-1.9		1.5-1.9					
5	BH16_3.0-3.4		3.0-3.4					
6	BH16_4.5-4.9		4.5-4.9				1jar + ice	
	DUP8							

BTEX / TPH | METALS (Specify) & PAHs / PHENOLS | OCs / OPs | Asbestos | VHC | VOC | SVOC | ASS screening | NOTES

SGS
Received 24/04/12
by: SG
2:10 pm
Samples intact Y
Cooler Pack
3.7°C
S81 v1 WSB
SE107555

RELINQUISHED BY:

Signature: [signature] Date: 24/04/12
Company: COFFEY Time:
Signature: Date:
Company: Time:

RECEIVED BY:

Signature: [signature] Date: 24/04/12
Company: SGS Time: 2:10 pm
Signature: Date:
Company: Time:

Sample Receipt Advice: *(Lab Use Only)*

All Samples Received in Good Condition . . . ☐
All Documentation is in Proper Order . . . . . ☐
Samples Received Properly Chilled . . . . . ☐
Lab. Ref/Batch No. SE107555

*** Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

AU.SampleReceipt.Sydney (Sydney)

From: Matthew Locke [Matthew_Locke@coffey.com]
Sent: Friday, 27 April 2012 9:40 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SGS Sample Receipt Advice (Ref: GEOTLCOV24303AC-SICEEP, Lab Ref: SE107555)

Emily,
Can you please include an additional test on this lab report.
#7 The sample reference is DUP8 - Please test Sample DUP8 for BTEX / TPH, Metals (8) and PAH.

Can you please confirm receipt of this notification?

SGS REF:- SE107555A
DUE DATE:- 3/5/2012
TAT:- STANDARD

Thanks

Matt

-----Original Message-----
From: AU.Samplereceipt.Sydney@SGS.com [mailto:AU.Samplereceipt.Sydney@SGS.com]
Sent: Thursday, 26 April 2012 11:24 AM
To: Matthew Locke
Subject: SGS Sample Receipt Advice (Ref: GEOTLCOV24303AC-SICEEP, Lab Ref: SE107555)

Dear Matthew Locke,

Please be advised we have received samples for analysis as detailed in the attached documentation.

Best regards,
Emily Yin
Sample Receipt Administrator
SGS Australia Pty Ltd
Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92344

coffey environments

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Project No: GEOTLCOV24303AC
Task No:
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Laboratory: SGS
Samplers Name: Adriana Corona Motte / Jacelin Wijaya
Project Manager: Matthew Locke
Special Instructions: All remaining soil to be storaged for 36 months after completion of analyses. Please let Matthew know when ready to pick up

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)	BTEX / TPH	METALS (Standard 8)	PAHs / PHENOLS	OCs / OPs	Asbestos	VHC	VOC	SVOC	ASS screening	NOTES
1	BH11-0.5-0.6	BH11	0.5-0.6	23.04.12	–	Soil	1jar + 1bag + ice	Standard										
2	BH11-1.5-1.9	"	1.5-1.9	"	–	"	"	"										
	DUP6	–	–	"	–	"	1jar + ice	"										
	TB4						1jar + ice	"										
	TS4						1vial + ice	"										
3	BH16-0.5-0.6	BH16	0.5-0.6				1jar + 1bag + ice											
4	BH16-1.5-1.9	↓	1.5-1.9															
5	BH16-3.0-3.4		3.0-3.4															
6	BH16-4.5-4.9	↓	4.5-4.9															
7	DUP8			↓	↓	↓	1jar + ice	↓										

SGS
Received 24/04/12
SGS 2.10 pm
Y
3.7°C
S81 L, M SB
SE107555

RELINQUISHED BY:		RECEIVED BY:	
Signature:	Date: 24/04/12	Signature:	Date: 24/04/12
Company: COFFEY	Time:	Company: SGS	Time: 2.10 pm
Signature:	Date:	Signature:	Date:
Company:	Time:	Company:	Time:

Sample Receipt Advice: *(Lab Use Only)*
All Samples Received in Good Condition . . . ☑
All Documentation is in Proper Order . . . . . ☑
Samples Received Properly Chilled . . . . . ☐
Lab. Ref/Batch No. SE107555

* **Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

GOWANS PRINTERS 02 9755 3545

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
Address	Unit 8, 12 Mars Road NSW 2066
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC-SICEEP**
Order Number	**92344**
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	SE107555 R0
Report Number	0000026674
Date Reported	02 May 2012
Date Received	24 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Huong Crawford
Laboratory Manager

Ravee Sivasubramaniam
Hygienist

Parameter	Units	LOR	Sample Number: SE107555.001 Sample Matrix: Soil Sample Date: 23 Apr 2012 Sample Name: BH11_0.5-0.6	SE107555.002 Soil 23 Apr 2012 BH11_1.5-1.9	SE107555.003 Soil 23 Apr 2012 BH16_0.5-0.6	SE107555.004 Soil 23 Apr 2012 BH16_1.5-1.9	SE107555.005 Soil 23 Apr 2012 BH16_3.0-3.4
VOC's in Soil Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
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
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	**93**	**93**	**93**	**93**	**92**
d4-1,2-dichloroethane (Surrogate)	%	-	**100**	**100**	**101**	**101**	**100**
d8-toluene (Surrogate)	%	-	**103**	**102**	**101**	**102**	**101**
Bromofluorobenzene (Surrogate)	%	-	**88**	**90**	**84**	**85**	**84**
Totals							
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	-	**0**	**0**	**0**	**0**	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434							
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Surrogates							
Trifluorotoluene (Surrogate)	%	-	**90**	**81**	**88**	**86**	**74**
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	50	<50	<50	<50	<50	<50
TRH C29-C36	mg/kg	50	<50	<50	<50	<50	<50
Surrogates							
TRH (Surrogate)	%	-	-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	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	**0.4**	<0.1	**0.1**	<0.1	<0.1
Pyrene	mg/kg	0.1	**0.4**	<0.1	**0.2**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	mg/kg	0.1	**0.2**	<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	**0.2**	<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(a&h)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
Total PAH (Vic EPA)	mg/kg	0.8	**2.0**	<0.8	<0.8	<0.8	<0.8
Surrogates							
d5-nitrobenzene (Surrogate)	%	-	**110**	**112**	**118**	**111**	**113**
2-fluorobiphenyl (Surrogate)	%	-	**108**	**109**	**112**	**104**	**108**
d14-p-terphenyl (Surrogate)	%	-	**118**	**124**	**126**	**116**	**121**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320							

Parameter	Units	LOR	Sample Number: SE107555.001 Sample Matrix: Soil Sample Date: 23 Apr 2012 Sample Name: BH11_0.5-0.6	SE107555.002 Soil 23 Apr 2012 BH11_1.5-1.9	SE107555.003 Soil 23 Apr 2012 BH16_0.5-0.6	SE107555.004 Soil 23 Apr 2012 BH16_1.5-1.9	SE107555.005 Soil 23 Apr 2012 BH16_3.0-3.4
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320 (continued)							
Arsenic, As	mg/kg	3	**10**	**13**	**4**	<3	**11**
Cadmium, Cd	mg/kg	0.3	**0.4**	<0.3	**0.3**	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**21**	**20**	**5.4**	**11**	**4.8**
Copper, Cu	mg/kg	0.5	**16**	**13**	**63**	**3.6**	**0.9**
Lead, Pb	mg/kg	1	**27**	**40**	**67**	**12**	**2**
Nickel, Ni	mg/kg	0.5	**8.1**	**4.7**	**5.1**	**1.1**	**1.9**
Zinc, Zn	mg/kg	0.5	**27**	**30**	**130**	**8.0**	**3.4**
Mercury in Soil Method: AN312							
Mercury	mg/kg	0.05	**0.12**	**0.18**	**0.10**	<0.05	<0.05
Fibre Identification in soil Method: AN602							
FibreID							
Asbestos Detected	No unit	-	No	-	No	-	-
SemiQuant							
Estimated Fibres	%w/w	0.01	<0.01	-	<0.01	-	-
Moisture Content Method: AN002							
% Moisture	%	0.5	**20**	**17**	**8.2**	**14**	**22**

Parameter	Units	LOR	Sample Number: SE107555.006 Sample Matrix: Soil Sample Date: 23 Apr 2012 Sample Name: BH16_4.5-4.9
VOC's in Soil Method: AN433/AN434			
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
Surrogates			
Dibromofluoromethane (Surrogate)	%	-	**93**
d4-1,2-dichloroethane (Surrogate)	%	-	**102**
d8-toluene (Surrogate)	%	-	**103**
Bromofluorobenzene (Surrogate)	%	-	**86**
Totals			
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	-	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434			
TRH C6-C9	mg/kg	20	<20
Surrogates			
Trifluorotoluene (Surrogate)	%	-	**74**
Dibromofluoromethane (Surrogate)	%	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-
d8-toluene (Surrogate)	%	-	-
Bromofluorobenzene (Surrogate)	%	-	-

Parameter	Units	LOR	Sample Number SE107555.006 Sample Matrix Soil Sample Date 23 Apr 2012 Sample Name BH16_4.5-4.9
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403			
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	50	<50
TRH C29-C36	mg/kg	50	<50
Surrogates			
TRH (Surrogate)	%	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420			
Naphthalene	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)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(a&h)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Total PAH (Vic EPA)	mg/kg	0.8	<0.8
Surrogates			
d5-nitrobenzene (Surrogate)	%	-	**112**
2-fluorobiphenyl (Surrogate)	%	-	**107**
d14-p-terphenyl (Surrogate)	%	-	**122**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320			
Arsenic, As	mg/kg	3	**4**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**12**
Copper, Cu	mg/kg	0.5	**5.4**
Lead, Pb	mg/kg	1	**4**
Nickel, Ni	mg/kg	0.5	**1.9**
Zinc, Zn	mg/kg	0.5	**2.9**
Mercury in Soil Method: AN312			
Mercury	mg/kg	0.05	<0.05

Parameter	Units	LOR	Sample Number SE107555.006 Sample Matrix Soil Sample Date 23 Apr 2012 Sample Name BH16_4.5-4.9
Fibre Identification in soil Method: AN602			
FibreID			
Asbestos Detected	No unit	-	-
SemiQuant			
Estimated Fibres	%w/w	0.01	-
Moisture Content Method: AN002			
% Moisture	%	0.5	**21**

QC SUMMARY

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

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB019142	mg/kg	0.05	<0.05	0%	107%	79%
	LB019143	mg/kg	0.05	<0.05	0%	110%	93%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB018848	mg/kg	0.1	<0.1	100%
Acenaphthylene	LB018848	mg/kg	0.1	<0.1	113%
Acenaphthene	LB018848	mg/kg	0.1	<0.1	102%
Fluorene	LB018848	mg/kg	0.1	<0.1	NA
Phenanthrene	LB018848	mg/kg	0.1	<0.1	107%
Anthracene	LB018848	mg/kg	0.1	<0.1	115%
Fluoranthene	LB018848	mg/kg	0.1	<0.1	111%
Pyrene	LB018848	mg/kg	0.1	<0.1	113%
Benzo(a)anthracene	LB018848	mg/kg	0.1	<0.1	NA
Chrysene	LB018848	mg/kg	0.1	<0.1	NA
Benzo(b)fluoranthene	LB018848	mg/kg	0.1	<0.1	NA
Benzo(k)fluoranthene	LB018848	mg/kg	0.1	<0.1	NA
Benzo(a)pyrene	LB018848	mg/kg	0.1	<0.1	123%
Indeno(1,2,3-cd)pyrene	LB018848	mg/kg	0.1	<0.1	NA
Dibenzo(a&h)anthracene	LB018848	mg/kg	0.1	<0.1	NA
Benzo(ghi)perylene	LB018848	mg/kg	0.1	<0.1	NA
Total PAH (Vic EPA)	LB018848	mg/kg	0.8	<0.8	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB018848	%	-	107%	115%
2-fluorobiphenyl (Surrogate)	LB018848	%	-	107%	110%
d14-p-terphenyl (Surrogate)	LB018848	%	-	113%	127%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB019136	mg/kg	3	<3	2 - 17%	96%	
	LB019137	mg/kg	3	<3	13 - 17%	96%	83%
Cadmium, Cd	LB019136	mg/kg	0.3	<0.3	0%	96%	
	LB019137	mg/kg	0.3	<0.3	4 - 8%	97%	89%
Chromium, Cr	LB019136	mg/kg	0.3	<0.3	3%	97%	
	LB019137	mg/kg	0.3	<0.3	2 - 6%	96%	81%
Copper, Cu	LB019136	mg/kg	0.5	<0.5	3 - 20%	98%	
	LB019137	mg/kg	0.5	<0.5	2 - 3%	93%	88%
Lead, Pb	LB019136	mg/kg	1	<1	10 - 21%	98%	79%
	LB019137	mg/kg	1	<1	9 - 21%	97%	85%
Nickel, Ni	LB019136	mg/kg	0.5	<0.5	2%	99%	
	LB019137	mg/kg	0.5	<0.5	3 - 5%	98%	90%
Zinc, Zn	LB019136	mg/kg	0.5	<0.5	3 - 27%	105%	89%
	LB019137	mg/kg	0.5	<0.5	5 - 17%	98%	90%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C10-C14	LB018848	mg/kg	20	<20	105%
TRH C15-C28	LB018848	mg/kg	50	<50	103%
TRH C29-C36	LB018848	mg/kg	50	<50	100%

QC SUMMARY

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

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

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB018849	mg/kg	0.1	<0.1	0%	102%	105%
Toluene	LB018849	mg/kg	0.1	<0.1	0%	95%	98%
Ethylbenzene	LB018849	mg/kg	0.1	<0.1	0%	92%	98%
m/p-xylene	LB018849	mg/kg	0.2	<0.2	0%	98%	104%
o-xylene	LB018849	mg/kg	0.1	<0.1	0%	98%	106%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB018849	%	-	96%	0%	93%	93%
d4-1,2-dichloroethane (Surrogate)	LB018849	%	-	101%	0%	100%	100%
d8-toluene (Surrogate)	LB018849	%	-	102%	2%	103%	104%
Bromofluorobenzene (Surrogate)	LB018849	%	-	87%	2%	98%	96%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes*	LB018849	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX*	LB018849	mg/kg	-	0	NA	NA	NA

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C9	LB018849	mg/kg	20	<20	0%	110%	115%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Trifluorotoluene (Surrogate)	LB018849	%	-	88%	7%	85%	82%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
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 analsysis by ASS or ICP as per USEPA Method 200.8.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
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Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC-SICEEP**
Order Number	**92344**
Samples	6

LABORATORY DETAILS

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SGS Reference	SE107555 R0
Report Number	0000026676
Date Reported	02/05/2012 17:07:30
Date Received	24 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Huong Crawford
Laboratory Manager

Ravee Sivasubramaniam
Hygienist

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE107555.001	BH11_0.5-0.6	Soil	22g Clay,soil,rocks	23 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01
SE107555.003	BH16_0.5-0.6	Soil	54g Soil,rocks	23 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

SE107555 R0

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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite			

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

STATEMENT OF QA/QC PERFORMANCE

SE107555 R0

CLIENT DETAILS

Contact	Matthew Locke
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Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC-SICEEP**
Order Number	**92344**
Samples	6

LABORATORY DETAILS

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SGS Reference	SE107555 R0
Report Number	0000026675
Date Reported	02 May 2012

COMMENTS

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

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

All Data Quality Objectives were met.

SAMPLE SUMMARY

Sample counts by matrix	6 Soils	Type of documentation received	COC
Date documentation received	24/4/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE107555 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.

Fibre Identification in soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB019257	23 Apr 2012	24 Apr 2012	23 Apr 2013	02 May 2012	23 Apr 2013	02 May 2012
BH16_0.5-0.6	SE107555.003	LB019257	23 Apr 2012	24 Apr 2012	23 Apr 2013	02 May 2012	23 Apr 2013	02 May 2012

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB019142	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012
BH11_1.5-1.9	SE107555.002	LB019142	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012
BH16_0.5-0.6	SE107555.003	LB019142	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012
BH16_1.5-1.9	SE107555.004	LB019142	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012
BH16_3.0-3.4	SE107555.005	LB019143	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012
BH16_4.5-4.9	SE107555.006	LB019143	23 Apr 2012	24 Apr 2012	21 May 2012	01 May 2012	21 May 2012	02 May 2012

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012
BH11_1.5-1.9	SE107555.002	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012
BH16_0.5-0.6	SE107555.003	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012
BH16_1.5-1.9	SE107555.004	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012
BH16_3.0-3.4	SE107555.005	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012
BH16_4.5-4.9	SE107555.006	LB018878	23 Apr 2012	24 Apr 2012	07 May 2012	27 Apr 2012	02 May 2012	30 Apr 2012

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
BH11_0.5-0.6	SE107555.001	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012
BH11_1.5-1.9	SE107555.002	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012
BH16_0.5-0.6	SE107555.003	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012
BH16_1.5-1.9	SE107555.004	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012
BH16_3.0-3.4	SE107555.005	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012
BH16_4.5-4.9	SE107555.006	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	27 Apr 2012

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB019136	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012
BH11_1.5-1.9	SE107555.002	LB019136	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012
BH16_0.5-0.6	SE107555.003	LB019136	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012
BH16_1.5-1.9	SE107555.004	LB019136	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012
BH16_3.0-3.4	SE107555.005	LB019136	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012
BH16_4.5-4.9	SE107555.006	LB019137	23 Apr 2012	24 Apr 2012	20 Oct 2012	01 May 2012	20 Oct 2012	02 May 2012

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
BH11_0.5-0.6	SE107555.001	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH11_1.5-1.9	SE107555.002	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH16_0.5-0.6	SE107555.003	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH16_1.5-1.9	SE107555.004	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH16_3.0-3.4	SE107555.005	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH16_4.5-4.9	SE107555.006	LB018848	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH11_1.5-1.9	SE107555.002	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_0.5-0.6	SE107555.003	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_1.5-1.9	SE107555.004	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_3.0-3.4	SE107555.005	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_4.5-4.9	SE107555.006	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11_0.5-0.6	SE107555.001	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH11_1.5-1.9	SE107555.002	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_0.5-0.6	SE107555.003	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_1.5-1.9	SE107555.004	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012

HOLDING TIME SUMMARY

SE107555 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 (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH16_3.0-3.4	SE107555.005	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012
BH16_4.5-4.9	SE107555.006	LB018849	23 Apr 2012	24 Apr 2012	07 May 2012	26 Apr 2012	05 Jun 2012	30 Apr 2012

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	108
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	109
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	112
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	104
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	108
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	107
d14-p-terphenyl (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	118
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	124
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	126
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	116
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	121
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	122
d5-nitrobenzene (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	110
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	112
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	118
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	111
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	113
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	112

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	88
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	90
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	84
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	85
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	84
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	100
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	100
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	101
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	101
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	100
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	102
d8-toluene (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	103
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	102
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	101
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	102
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	101
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	103
Dibromofluoromethane (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	93
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	93
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	93
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	93
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	92
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	93

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Trifluorotoluene (Surrogate)	BH11_0.5-0.6	SE107555.001	%	60 - 130%	90
	BH11_1.5-1.9	SE107555.002	%	60 - 130%	81
	BH16_0.5-0.6	SE107555.003	%	60 - 130%	88
	BH16_1.5-1.9	SE107555.004	%	60 - 130%	86
	BH16_3.0-3.4	SE107555.005	%	60 - 130%	74
	BH16_4.5-4.9	SE107555.006	%	60 - 130%	74

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
LB019142.001		Mercury	mg/kg	0.05	<0.05
LB019143.001		Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018848.001		Naphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	107
		2-fluorobiphenyl (Surrogate)	%	-	107
		d14-p-terphenyl (Surrogate)	%	-	113

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result
LB019136.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB019137.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB018848.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	50	<50
	TRH C29-C36	mg/kg	50	<50

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018849.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96
		d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	102
		Bromofluorobenzene (Surrogate)	%	-	87
	Totals	Total BTEX*	mg/kg	-	0

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR

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

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

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

Sample Number		Parameter	Units	LOR	Result
LB018849.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Trifluorotoluene (Surrogate)	%	-	88

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

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

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

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107536.001	LB019142.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE107555.004	LB019142.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE107557.009	LB019143.014	Mercury	mg/kg	0.05	0.03013742670.0287802387		200	0
SE107557.020	LB019143.024	Mercury	mg/kg	0.05	0.01787625110.0220773687		200	0

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107536.004	LB019136.014	Arsenic, As	mg/kg	3	6	6	84	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	2.9	3.0	40	3
		Copper, Cu	mg/kg	0.5	3.2	3.3	45	3
		Lead, Pb	mg/kg	1	1	1	110	10
		Nickel, Ni	mg/kg	0.5	1.3	1.2	70	2
		Zinc, Zn	mg/kg	0.5	4.4	4.5	41	3
SE107555.005	LB019136.024	Arsenic, As	mg/kg	3	11	13	54	17
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	4.8	4.6	36	3
		Copper, Cu	mg/kg	0.5	0.9	1.1	80	20
		Lead, Pb	mg/kg	1	2	2	89	21
		Nickel, Ni	mg/kg	0.5	1.9	1.9	57	2
		Zinc, Zn	mg/kg	0.5	3.4	4.5	43	27
SE107557.010	LB019137.014	Arsenic, As	mg/kg	3	NVL	10	76	13
		Cadmium, Cd	mg/kg	0.3	NVL	1.4	52	4
		Chromium, Cr	mg/kg	0.3	NVL	30	31	2
		Copper, Cu	mg/kg	0.5	NVL	64	31	2
		Lead, Pb	mg/kg	1	NVL	330	30	9
		Nickel, Ni	mg/kg	0.5	NVL	12	34	5
		Zinc, Zn	mg/kg	0.5	NVL	2400	30	17
SE107557.021	LB019137.024	Arsenic, As	mg/kg	3	NVL	5	90	17
		Cadmium, Cd	mg/kg	0.3	NVL	1.1	56	8
		Chromium, Cr	mg/kg	0.3	NVL	33	31	6
		Copper, Cu	mg/kg	0.5	NVL	41	31	3
		Lead, Pb	mg/kg	1	NVL	160	31	21
		Nickel, Ni	mg/kg	0.5	NVL	10	35	3
		Zinc, Zn	mg/kg	0.5	NVL	400	30	5

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107555.006	LB018849.012	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	%	-	93.0	93.0	50	0
			d4-1,2-dichloroethane (Surrogate)	%	-	102.0	102.0	50	0
			d8-toluene (Surrogate)	%	-	103.0	101.0	50	2
			Bromofluorobenzene (Surrogate)	%	-	86.0	88.0	50	2
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	-	0	0	200	NA

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107555.006	LB018849.012		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Trifluorotoluene (Surrogate)	%	-	74	79	30	7

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 %
LB019142.002		Mercury	mg/kg	0.05	0.21	0.2	70 - 130	107
LB019143.002		Mercury	mg/kg	0.05	0.22	0.2	70 - 130	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018848.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthylene	mg/kg	0.1	4.5	4	60 - 140	113
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	102
		Phenanthrene	mg/kg	0.1	4.3	4	60 - 140	107
		Anthracene	mg/kg	0.1	4.6	4	60 - 140	115
		Fluoranthene	mg/kg	0.1	4.4	4	60 - 140	111
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	113
		Benzo(a)pyrene	mg/kg	0.1	4.9	4	60 - 140	123
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	115.0	100	60 - 140	115
		2-fluorobiphenyl (Surrogate)	%	-	110.0	100	60 - 140	110
		d14-p-terphenyl (Surrogate)	%	-	127.0	100	60 - 140	127

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB019136.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	96
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	97
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	98
	Lead, Pb	mg/kg	1	49	50	80 - 120	98
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	105
LB019137.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	97
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	96
	Copper, Cu	mg/kg	0.5	46	50	80 - 120	93
	Lead, Pb	mg/kg	1	48	50	80 - 120	97
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	98

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018848.002	TRH C10-C14	mg/kg	20	42	40	60 - 140	105
	TRH C15-C28	mg/kg	50	<50	40	60 - 140	103
	TRH C29-C36	mg/kg	50	<50	40	60 - 140	100

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018849.002	Monocyclic	Benzene	mg/kg	0.1	3.1	3	60 - 140	102
	Aromatic	Toluene	mg/kg	0.1	2.9	3	60 - 140	95
		Ethylbenzene	mg/kg	0.1	2.8	3	60 - 140	92
		m/p-xylene	mg/kg	0.2	5.8	5.9	60 - 140	98
		o-xylene	mg/kg	0.1	2.9	2.9	60 - 140	98
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	93.0	100	60 - 140	93
		d4-1,2-dichloroethane (Surrogate)	%	-	100.0	100	60 - 140	100
		d8-toluene (Surrogate)	%	-	103.0	100	60 - 140	103
		Bromofluorobenzene (Surrogate)	%	-	98.0	100	60 - 140	98

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018849.002	TRH C6-C9	mg/kg	20	27	24.4	60 - 140	110

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107484.001	LB019142.004	Mercury	mg/kg	0.05	0.31	0.14769825789	0.2	79
SE107555.005	LB019143.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	93

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107484.021	LB019136.004	Lead, Pb	mg/kg	1	53	13.62173782714	50	79
		Zinc, Zn	mg/kg	0.5	63	18.75119921156	50	89
SE107555.006	LB019137.004	Arsenic, As	mg/kg	3	46	4	50	83
		Cadmium, Cd	mg/kg	0.3	44	<0.3	50	89
		Chromium, Cr	mg/kg	0.3	52	12	50	81
		Copper, Cu	mg/kg	0.5	50	5.4	50	88
		Lead, Pb	mg/kg	1	47	4	50	85
		Nickel, Ni	mg/kg	0.5	47	1.9	50	90
		Zinc, Zn	mg/kg	0.5	48	2.9	50	90

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107554.001	LB018849.004	Monocyclic	Benzene	mg/kg	0.1	3.2	<0.1	3	105
		Aromatic	Toluene	mg/kg	0.1	2.9	<0.1	3	98
			Ethylbenzene	mg/kg	0.1	2.9	<0.1	3	98
			m/p-xylene	mg/kg	0.2	6.2	<0.2	5.9	104
			o-xylene	mg/kg	0.1	3.1	<0.1	2.9	106
		Surrogates	Dibromofluoromethane (Surrogate)	%	-	93.0	92.0	100	93
			d4-1,2-dichloroethane (Surrogate)	%	-	100.0	100.0	100	100
			d8-toluene (Surrogate)	%	-	104.0	101.0	100	104
			Bromofluorobenzene (Surrogate)	%	-	96.0	87.0	100	96
		Totals	Total Xylenes*	mg/kg	0.3	9.2	<0.3	-	-
			Total BTEX*	mg/kg	-	18	0	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107554.001	LB018849.004		TRH C6-C9	mg/kg	20	28	<20	24.4	115
		Surrogates	Trifluorotoluene (Surrogate)	%	-	82	81	-	82

MATRIX SPIKE DUPLICATES

SE107555 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

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

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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92341

coffey environments

Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila; Philippines ..... Tel (+63) (2) 638 9686 ..... Fax (+63) (2) 687 3518
ACT: ☐ 2/54 Northbourne Ave, Canberra ACT 2601 ..... Tel (02) 6248 7366 ..... Fax (02) 6248 7157
NSW: ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138 ..... Tel (02) 8083 1600 ..... Fax (02) 8765 0762
☐ Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304 ..... Tel (02) 4016 2300 ..... Fax (02) 4016 2380
☐ 1/222 Berkeley Rd, Unanderra NSW 2526 ..... Tel (02) 4272 6071 ..... Fax (02) 4272 6075

QLD: ☐ 47 Doggett St, Newstead QLD 4006 ..... Tel (07) 3608 2500 ..... Fax (07) 3852 2805
SA: ☐ Level 1, 2-3 Greenhill Rd, Wayville SA 5034 ..... Tel (08) 7221 3500 ..... Fax (08) 8172 1968
TAS: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000 ..... Tel (03) 6108 0100 ..... Fax (03) 6108 0199
VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067 ..... Tel (03) 9473 1400 ..... Fax (03) 9473 1450
☐ Level 1, 23 West Fyans St, Newtown VIC 3220 ..... Tel (03) 5215 4600 ..... Fax (03) 5224 1368
WA: ☐ 61 Duke St, Albany WA 6330 ..... Tel (08) 9892 6400 ..... Fax (08) 9892 6444
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100 ..... Tel (08) 9355 7100 ..... Fax (08) 9355 7111
☐ Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6281 ..... Tel (08) 9756 7869 ..... Fax (08) 9756 8878

Project No: GEOTLCOV24303AC
Task No:
Project Name: SICEEP
Laboratory: SGS
Samplers Name: Adriana Corona Mothe
Project Manager: Matthew Locke
Special Instructions: Keep ALL soil after analyses. Samples required to be kept for 36 months. Please advice Coffey when remaining sample can be delivered to our office.

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)
	BH1-surface	BH1	0.1-0.2	19.04.12		Soil	1jar + 2bag + ice	STANDARD
1	BH1-0.5-0.6	↓	0.5-0.6	↓		↓	↓	↓
2	BH1-1.5-1.9	↓	1.5-1.9	↓		↓	1jar + ice	↓
3	TB2	-	-	↓		↓	1vial + ice	↓
4	TS2	-	-	↓		↓	↓	↓
5	QC3	-	-	↓		↓	↓	↓
6	BH28-surface	BH28	0.1-0.2	20.04.12		↓	↓	↓
7	BH28-0.5-0.6	↓	0.5-0.6	↓		↓	↓	↓
8	BH28-1.5-1.9	↓	1.5-1.9	↓		↓	↓	↓
9	BH28-3.0-3.4	↓	3.0-3.4	↓		↓	↓	↓
	BH28-4.3-4.7	↓	4.3-4.7	↓		↓	↓	↓
	BH28-5.8-6.2	↓	5.8-6.2	↓		↓	↓	↓
10	BH28-7.3-7.8	↓	7.3-7.8	↓		↓	↓	↓
	BH28-8.8-9.2	↓	8.8-9.2	↓		↓	↓	↓
	BH28-10.3-10.7	↓	10.3-10.7	↓		↓	↓	↓

NOTES: "DUP 3"

SGS Received 24/04/12 SS 2.10 pm
Samples intact
Cooler Pack 3.6°c
S813, ASS, WD06
SE 107556

RELINQUISHED BY:

Signature: [signature] Date: 24/04/12
Company: COFFEY Time:
Signature: Date:
Company: Time:

RECEIVED BY:

Signature: [signature] Date: 24/04/12
Company: SGS Time: 2.10
Signature: Date:
Company: Time:

Sample Receipt Advice: *(Lab Use Only)*

All Samples Received in Good Condition . . . ☑
All Documentation is in Proper Order . . . . . ☐
Samples Received Properly Chilled . . . . . ☐
Lab. Ref/Batch No. SE 107556

* **Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92342

coffey environments

Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila; Philippines ..... Tel (+63) (2) 638 9686 ..... Fax (+63) (2) 687 3518
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WA: ☐ 61 Duke St, Albany WA 6330 ..... Tel (08) 9892 6400 ..... Fax (08) 9892 6444
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100 ..... Tel (08) 9355 7100 ..... Fax (08) 9355 7111
☐ Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6281 ..... Tel (08) 9756 7869 ..... Fax (08) 9756 8878

Project No: GBOTLCOV24303AC
Task No:
Project Name: SICEEP
Laboratory: SGS
Samplers Name: Adriana Corona Mathe
Project Manager: Matthew Locke / Sara Somasundaram
Special Instructions: Remaining sample to be storaged for 36 months. Advise Coffey on remaining soil availability to pickup after analyses completion

Analysis Request Section

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil ... etc)	Container Type & Preservative*	T-A-T (Specify)
	TS3	–	–	20.04.12	–	Soil	1 vial + ice	5 days
	TB3	–	–	"	–	"	Jar + ice	
11	QCA	–	–	"		Water	1g, 1pN, 2vS + ice	
12	QC4	–	–	"		Soil		
								STANDARD

Analysis Request Section: BTEX / TPH; METALS (Specify); PAHs / PHENOLS; OCs / OPs; Asbestos; VHC; VOC; SVOC; ASS Screening; NOTES

RELINQUISHED BY:		RECEIVED BY:	
Signature:	Date:	Signature:	Date: 23/04/12
Company:	Time:	Company:	Time:
Signature:	Date:	Signature:	Date:
Company:	Time:	Company:	Time:

Sample Receipt Advice: *(Lab Use Only)*

All Samples Received in Good Condition . . . ☑
All Documentation is in Proper Order . . . . . ☑
Samples Received Properly Chilled . . . . . ☑
Lab. Ref/Batch No. SE 107556

*** Container Type & Preservation Codes:** **P** - Plastic, **G** - Solvent Washed Acid Rinsed Glass Bottle, **V** - Vial, **N** - Nitric Acid Preserved
C - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
Address	Unit 8, 12 Mars Road NSW 2066
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**92341-92342**
Samples	12

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	SE107556 R0
Report Number	0000027064
Date Reported	04 May 2012
Date Received	24 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

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

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Dong Liang
Inorganics Metals Team Leader

Edward Ibrahim
Business Manager

Ravee Sivasubramaniam
Hygienist

Parameter	Units	LOR	Sample Number: SE107556.001 Sample Matrix: Soil Sample Date: 14 Apr 2012 Sample Name: BH1_0.5-0.6	SE107556.002 Soil 14 Apr 2012 BH1_1.5-1.9	SE107556.003 Soil 14 Apr 2012 TB2	SE107556.004 Soil 14 Apr 2012 TS2	SE107556.005 Soil 14 Apr 2012 QC3
VOC's in Soil Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[95%]	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[89%]	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[87%]	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[77%]	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[89%]	<0.1
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	**81**	**81**	**78**	**72**	**77**
d4-1,2-dichloroethane (Surrogate)	%	-	**100**	**100**	**99**	**92**	**96**
d8-toluene (Surrogate)	%	-	**103**	**103**	**103**	**99**	**102**
Bromofluorobenzene (Surrogate)	%	-	**98**	**98**	**99**	**108**	**104**
Totals							
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	-	<0.3
Total BTEX*	mg/kg	-	**0**	**0**	**0**	-	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434							
TRH C6-C9	mg/kg	20	<20	<20	<20	-	<20
Surrogates							
Trifluorotoluene (Surrogate)	%	-	**103**	**77**	**74**	-	**72**
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20	<20	<20	<20	-	<20
TRH C15-C28	mg/kg	50	<50	<50	<50	-	<50
TRH C29-C36	mg/kg	50	<50	<50	<50	-	<50
Surrogates							
TRH (Surrogate)	%	-	-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	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)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(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-	<0.1
Total PAH (Vic EPA)	mg/kg	0.8	<0.8	<0.8	-	-	<0.8
Surrogates							
d5-nitrobenzene (Surrogate)	%	-	**96**	**100**	-	-	**84**
2-fluorobiphenyl (Surrogate)	%	-	**88**	**88**	-	-	**80**

Parameter	Units	LOR	Sample Number: SE107556.001 Sample Matrix: Soil Sample Date: 14 Apr 2012 Sample Name: BH1_0.5-0.6	SE107556.002 Soil 14 Apr 2012 BH1_1.5-1.9	SE107556.003 Soil 14 Apr 2012 TB2	SE107556.004 Soil 14 Apr 2012 TS2	SE107556.005 Soil 14 Apr 2012 QC3
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)							
d14-p-terphenyl (Surrogate)	%	-	**98**	**98**	-	-	**94**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320							
Arsenic, As	mg/kg	3	<3	<3	-	-	<3
Cadmium, Cd	mg/kg	0.3	**0.5**	<0.3	-	-	<0.3
Chromium, Cr	mg/kg	0.3	**11**	**3.6**	-	-	**3.0**
Copper, Cu	mg/kg	0.5	**58**	**2.5**	-	-	**3.1**
Nickel, Ni	mg/kg	0.5	**92**	**1.0**	-	-	**0.7**
Lead, Pb	mg/kg	1	**24**	**7**	-	-	**11**
Zinc, Zn	mg/kg	0.5	**79**	**19**	-	-	**20**
Mercury in Soil Method: AN312							
Mercury	mg/kg	0.05	**0.13**	<0.05	-	-	<0.05
Fibre Identification in soil Method: AN602							
FibreID							
Asbestos Detected	No unit	-	No	-	-	-	-
SemiQuant							
Estimated Fibres	%w/w	0.01	<0.01	-	-	-	-
VOCs in Water Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
Benzene	µg/L	0.5	-	-	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-
Ethylbenzene	µg/L	0.5	-	-	-	-	-
m/p-xylene	µg/L	1	-	-	-	-	-
o-xylene	µg/L	0.5	-	-	-	-	-
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
Totals							
Total Xylenes	µg/L	1.5	-	-	-	-	-
Total BTEX	µg/L	3	-	-	-	-	-
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434							
TRH C6-C9	µg/L	40	-	-	-	-	-
Surrogates							
Trifluorotoluene (Surrogate)	%	-	-	-	-	-	-
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE107556.001 Soil 14 Apr 2012 BH1_0.5-0.6	SE107556.002 Soil 14 Apr 2012 BH1_1.5-1.9	SE107556.003 Soil 14 Apr 2012 TB2	SE107556.004 Soil 14 Apr 2012 TS2	SE107556.005 Soil 14 Apr 2012 QC3
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403								
TRH C10-C14	µg/L	100		-	-	-	-	-
TRH C15-C28	µg/L	200		-	-	-	-	-
TRH C29-C36	µg/L	200		-	-	-	-	-
Surrogates								
TRH (Surrogate)	%	-		-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420								
Naphthalene	µg/L	0.1		-	-	-	-	-
Acenaphthylene	µg/L	0.1		-	-	-	-	-
Acenaphthene	µg/L	0.1		-	-	-	-	-
Fluorene	µg/L	0.1		-	-	-	-	-
Phenanthrene	µg/L	0.1		-	-	-	-	-
Anthracene	µg/L	0.1		-	-	-	-	-
Fluoranthene	µg/L	0.1		-	-	-	-	-
Pyrene	µg/L	0.1		-	-	-	-	-
Benzo(a)anthracene	µg/L	0.1		-	-	-	-	-
Chrysene	µg/L	0.1		-	-	-	-	-
Benzo(b)fluoranthene	µg/L	0.1		-	-	-	-	-
Benzo(k)fluoranthene	µg/L	0.1		-	-	-	-	-
Benzo(a)pyrene	µg/L	0.1		-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1		-	-	-	-	-
Dibenzo(a&h)anthracene	µg/L	0.1		-	-	-	-	-
Benzo(ghi)perylene	µg/L	0.1		-	-	-	-	-
Total PAH (Vic EPA 16)*	µg/L	1		-	-	-	-	-
Surrogates								
d5-nitrobenzene (Surrogate)	%	-		-	-	-	-	-
2-fluorobiphenyl (Surrogate)	%	-		-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-		-	-	-	-	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318								
Arsenic, As	µg/L	1		-	-	-	-	-
Cadmium, Cd	µg/L	0.1		-	-	-	-	-
Chromium, Cr	µg/L	1		-	-	-	-	-
Copper, Cu	µg/L	1		-	-	-	-	-
Lead, Pb	µg/L	1		-	-	-	-	-
Nickel, Ni	µg/L	1		-	-	-	-	-
Zinc, Zn	µg/L	1		-	-	-	-	-
Mercury (dissolved) in Water Method: AN311/AN312								
Mercury	mg/L	0.0001		-	-	-	-	-

Parameter	Units	LOR	Sample Number: SE107556.001 Sample Matrix: Soil Sample Date: 14 Apr 2012 Sample Name: BH1_0.5-0.6	SE107556.002 Soil 14 Apr 2012 BH1_1.5-1.9	SE107556.003 Soil 14 Apr 2012 TB2	SE107556.004 Soil 14 Apr 2012 TS2	SE107556.005 Soil 14 Apr 2012 QC3
Moisture Content Method: AN002							
% Moisture	%	0.5	**19**	**20**	**17**	-	**12**

Parameter	Units	LOR	Sample Number: SE107556.006 Sample Matrix: Soil Sample Date: 20 Apr 2012 Sample Name: BH28_Surface	SE107556.007 Soil 20 Apr 2012 BH28_0.5-0.6	SE107556.008 Soil 20 Apr 2012 BH28_1.5-1.9	SE107556.009 Soil 20 Apr 2012 BH28_3.0-3.4	SE107556.010 Soil 20 Apr 2012 BH28_7.3-7.8
VOC's in Soil Method: AN433/AN434							
Monocyclic Aromatic Hydrocarbons							
Benzene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	-	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Surrogates							
Dibromofluoromethane (Surrogate)	%	-	-	**76**	**78**	**78**	**78**
d4-1,2-dichloroethane (Surrogate)	%	-	-	**97**	**98**	**97**	**98**
d8-toluene (Surrogate)	%	-	-	**101**	**103**	**102**	**102**
Bromofluorobenzene (Surrogate)	%	-	-	**100**	**99**	**99**	**101**
Totals							
Total Xylenes*	mg/kg	0.3	-	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	-	-	**0**	**0**	**0**	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434							
TRH C6-C9	mg/kg	20	-	<20	<20	<20	<20
Surrogates							
Trifluorotoluene (Surrogate)	%	-	-	**72**	**73**	**102**	**102**
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20	-	<20	<20	<20	<20
TRH C15-C28	mg/kg	50	-	<50	<50	<50	<50
TRH C29-C36	mg/kg	50	-	<50	<50	<50	<50
Surrogates							
TRH (Surrogate)	%	-	-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	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
Chrysene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	mg/kg	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

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE107556.006 Soil 20 Apr 2012 BH28_Surface	SE107556.007 Soil 20 Apr 2012 BH28_0.5-0.6	SE107556.008 Soil 20 Apr 2012 BH28_1.5-1.9	SE107556.009 Soil 20 Apr 2012 BH28_3.0-3.4	SE107556.010 Soil 20 Apr 2012 BH28_7.3-7.8
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)								
Benzo(a)pyrene	mg/kg	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
Dibenzo(a&h)anthracene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1
Total PAH (Vic EPA)	mg/kg	0.8	-	<0.8	<0.8	<0.8	<0.8
Surrogates								
d5-nitrobenzene (Surrogate)	%	-	-	**84**	**90**	**98**	**98**
2-fluorobiphenyl (Surrogate)	%	-	-	**78**	**84**	**92**	**88**
d14-p-terphenyl (Surrogate)	%	-	-	**88**	**94**	**96**	**90**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320								
Arsenic, As	mg/kg	3	-	<3	<3	**8**	<3
Cadmium, Cd	mg/kg	0.3	-	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	-	**5.7**	**2.7**	**6.6**	**6.0**
Copper, Cu	mg/kg	0.5	-	**21**	**2.0**	**8.9**	**2.8**
Nickel, Ni	mg/kg	0.5	-	**32**	**3.4**	**2.2**	**0.8**
Lead, Pb	mg/kg	1	-	**18**	**3**	**20**	**7**
Zinc, Zn	mg/kg	0.5	-	**29**	**5.3**	**7.4**	**2.2**
Mercury in Soil Method: AN312								
Mercury	mg/kg	0.05	-	**0.08**	<0.05	**0.10**	<0.05
Fibre Identification in soil Method: AN602								
FibreID								
Asbestos Detected	No unit	-	No	-	-	-	-
SemiQuant								
Estimated Fibres	%w/w	0.01	<0.01	-	-	-	-
VOCs in Water Method: AN433/AN434								
Monocyclic Aromatic Hydrocarbons								
Benzene	µg/L	0.5	-	-	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-
Ethylbenzene	µg/L	0.5	-	-	-	-	-
m/p-xylene	µg/L	1	-	-	-	-	-
o-xylene	µg/L	0.5	-	-	-	-	-
Surrogates								
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-
Totals								
Total Xylenes	µg/L	1.5	-	-	-	-	-
Total BTEX	µg/L	3	-	-	-	-	-
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434								
TRH C6-C9	µg/L	40	-	-	-	-	-
Surrogates								
Trifluorotoluene (Surrogate)	%	-	-	-	-	-	-
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE107556.006 Soil 20 Apr 2012 BH28_Surface	SE107556.007 Soil 20 Apr 2012 BH28_0.5-0.6	SE107556.008 Soil 20 Apr 2012 BH28_1.5-1.9	SE107556.009 Soil 20 Apr 2012 BH28_3.0-3.4	SE107556.010 Soil 20 Apr 2012 BH28_7.3-7.8
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434 (continued)								
d8-toluene (Surrogate)	%	-		-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-		-	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403								
TRH C10-C14	µg/L	100		-	-	-	-	-
TRH C15-C28	µg/L	200		-	-	-	-	-
TRH C29-C36	µg/L	200		-	-	-	-	-
Surrogates								
TRH (Surrogate)	%	-		-	-	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420								
Naphthalene	µg/L	0.1		-	-	-	-	-
Acenaphthylene	µg/L	0.1		-	-	-	-	-
Acenaphthene	µg/L	0.1		-	-	-	-	-
Fluorene	µg/L	0.1		-	-	-	-	-
Phenanthrene	µg/L	0.1		-	-	-	-	-
Anthracene	µg/L	0.1		-	-	-	-	-
Fluoranthene	µg/L	0.1		-	-	-	-	-
Pyrene	µg/L	0.1		-	-	-	-	-
Benzo(a)anthracene	µg/L	0.1		-	-	-	-	-
Chrysene	µg/L	0.1		-	-	-	-	-
Benzo(b)fluoranthene	µg/L	0.1		-	-	-	-	-
Benzo(k)fluoranthene	µg/L	0.1		-	-	-	-	-
Benzo(a)pyrene	µg/L	0.1		-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1		-	-	-	-	-
Dibenzo(a&h)anthracene	µg/L	0.1		-	-	-	-	-
Benzo(ghi)perylene	µg/L	0.1		-	-	-	-	-
Total PAH (Vic EPA 16)*	µg/L	1		-	-	-	-	-
Surrogates								
d5-nitrobenzene (Surrogate)	%	-		-	-	-	-	-
2-fluorobiphenyl (Surrogate)	%	-		-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-		-	-	-	-	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318								
Arsenic, As	µg/L	1		-	-	-	-	-
Cadmium, Cd	µg/L	0.1		-	-	-	-	-
Chromium, Cr	µg/L	1		-	-	-	-	-
Copper, Cu	µg/L	1		-	-	-	-	-
Lead, Pb	µg/L	1		-	-	-	-	-
Nickel, Ni	µg/L	1		-	-	-	-	-
Zinc, Zn	µg/L	1		-	-	-	-	-

Parameter	Units	LOR	Sample Number: SE107556.006 Sample Matrix: Soil Sample Date: 20 Apr 2012 Sample Name: BH28_Surface	SE107556.007 Soil 20 Apr 2012 BH28_0.5-0.6	SE107556.008 Soil 20 Apr 2012 BH28_1.5-1.9	SE107556.009 Soil 20 Apr 2012 BH28_3.0-3.4	SE107556.010 Soil 20 Apr 2012 BH28_7.3-7.8
Mercury (dissolved) in Water Method: AN311/AN312							
Mercury	mg/L	0.0001	-	-	-	-	-
Moisture Content Method: AN002							
% Moisture	%	0.5	-	**7.7**	**12**	**16**	**16**

Parameter	Units	LOR	Sample Number: SE107556.011 Sample Matrix: Water Sample Date: 20 Apr 2012 Sample Name: QCA	SE107556.012 Soil 20 Apr 2012 QC4
VOC's in Soil Method: AN433/AN434				
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
Surrogates				
Dibromofluoromethane (Surrogate)	%	-	-	**73**
d4-1,2-dichloroethane (Surrogate)	%	-	-	**98**
d8-toluene (Surrogate)	%	-	-	**102**
Bromofluorobenzene (Surrogate)	%	-	-	**99**
Totals				
Total Xylenes*	mg/kg	0.3	-	<0.3
Total BTEX*	mg/kg	-	-	**0**
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434				
TRH C6-C9	mg/kg	20	-	<20
Surrogates				
Trifluorotoluene (Surrogate)	%	-	-	**102**
Dibromofluoromethane (Surrogate)	%	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-
d8-toluene (Surrogate)	%	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403				
TRH C10-C14	mg/kg	20	-	<20
TRH C15-C28	mg/kg	50	-	<50
TRH C29-C36	mg/kg	50	-	<50
Surrogates				
TRH (Surrogate)	%	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE107556.011 Water 20 Apr 2012 QCA	SE107556.012 Soil 20 Apr 2012 QC4
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	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)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(a&h)anthracene	mg/kg	0.1		-	<0.1
Benzo(ghi)perylene	mg/kg	0.1		-	<0.1
Total PAH (Vic EPA)	mg/kg	0.8		-	<0.8
Surrogates					
d5-nitrobenzene (Surrogate)	%	-		-	**94**
2-fluorobiphenyl (Surrogate)	%	-		-	**88**
d14-p-terphenyl (Surrogate)	%	-		-	**96**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320					
Arsenic, As	mg/kg	3		-	<3
Cadmium, Cd	mg/kg	0.3		-	<0.3
Chromium, Cr	mg/kg	0.3		-	**16**
Copper, Cu	mg/kg	0.5		-	**11**
Nickel, Ni	mg/kg	0.5		-	**1.7**
Lead, Pb	mg/kg	1		-	**10**
Zinc, Zn	mg/kg	0.5		-	**8.1**
Mercury in Soil Method: AN312					
Mercury	mg/kg	0.05		-	<0.05
Fibre Identification in soil Method: AN602					
FibreID					
Asbestos Detected	No unit	-		-	-
SemiQuant					
Estimated Fibres	%w/w	0.01		-	-
VOCs in Water Method: AN433/AN434					
Monocyclic Aromatic Hydrocarbons					
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	-
Surrogates					
Dibromofluoromethane (Surrogate)	%	-		**105**	-
d4-1,2-dichloroethane (Surrogate)	%	-		**107**	-
d8-toluene (Surrogate)	%	-		**101**	-
Bromofluorobenzene (Surrogate)	%	-		**64**	-
Totals					

Parameter	Units	LOR	Sample Number: SE107556.011 Sample Matrix: Water Sample Date: 20 Apr 2012 Sample Name: QCA	Sample Number: SE107556.012 Sample Matrix: Soil Sample Date: 20 Apr 2012 Sample Name: QC4
VOCs in Water Method: AN433/AN434 (continued)				
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434				
TRH C6-C9	µg/L	40	<40	-
Surrogates				
Trifluorotoluene (Surrogate)	%	-	**101**	-
Dibromofluoromethane (Surrogate)	%	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-
d8-toluene (Surrogate)	%	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403				
TRH C10-C14	µg/L	100	<100	-
TRH C15-C28	µg/L	200	<200	-
TRH C29-C36	µg/L	200	<200	-
Surrogates				
TRH (Surrogate)	%	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420				
Naphthalene	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)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(a&h)anthracene	µg/L	0.1	<0.1	-
Benzo(ghi)perylene	µg/L	0.1	<0.1	-
Total PAH (Vic EPA 16)*	µg/L	1	<1	-
Surrogates				
d5-nitrobenzene (Surrogate)	%	-	**85**	-
2-fluorobiphenyl (Surrogate)	%	-	**78**	-
d14-p-terphenyl (Surrogate)	%	-	**83**	-

Parameter	Units	LOR	Sample Number: SE107556.011 Sample Matrix: Water Sample Date: 20 Apr 2012 Sample Name: QCA	Sample Number: SE107556.012 Sample Matrix: Soil Sample Date: 20 Apr 2012 Sample Name: QC4
Trace Metals (Dissolved) in Water by ICPMS Method: AN318				
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	1	**43**	-
Mercury (dissolved) in Water Method: AN311/AN312				
Mercury	mg/L	0.0001	<0.0001	-
Moisture Content Method: AN002				
% Moisture	%	0.5	-	**17**

QC SUMMARY

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

Mercury (dissolved) in Water **Method: ME-(AU)-[ENV]AN311/AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MSD %RPD
Mercury	LB019093	mg/L	0.0001	<0.0001	0%	118%	NA

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB019434	mg/kg	0.05	<0.05	0%	105%	85%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB018826	mg/kg	0.1	<0.1	0%	76%
Acenaphthylene	LB018826	mg/kg	0.1	<0.1	0%	97%
Acenaphthene	LB018826	mg/kg	0.1	<0.1	0%	101%
Fluorene	LB018826	mg/kg	0.1	<0.1	0%	NA
Phenanthrene	LB018826	mg/kg	0.1	<0.1	0%	97%
Anthracene	LB018826	mg/kg	0.1	<0.1	0%	102%
Fluoranthene	LB018826	mg/kg	0.1	<0.1	0%	106%
Pyrene	LB018826	mg/kg	0.1	<0.1	0%	106%
Benzo(a)anthracene	LB018826	mg/kg	0.1	<0.1	0%	NA
Chrysene	LB018826	mg/kg	0.1	<0.1	0%	NA
Benzo(b)fluoranthene	LB018826	mg/kg	0.1	<0.1	0%	NA
Benzo(k)fluoranthene	LB018826	mg/kg	0.1	<0.1	0%	NA
Benzo(a)pyrene	LB018826	mg/kg	0.1	<0.1	0%	118%
Indeno(1,2,3-cd)pyrene	LB018826	mg/kg	0.1	<0.1	0%	NA
Dibenzo(a&h)anthracene	LB018826	mg/kg	0.1	<0.1	0%	NA
Benzo(ghi)perylene	LB018826	mg/kg	0.1	<0.1	0%	NA
Total PAH (Vic EPA)	LB018826	mg/kg	0.8	<0.8	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB018826	%	-	110%	2%	100%
2-fluorobiphenyl (Surrogate)	LB018826	%	-	94%	0%	86%
d14-p-terphenyl (Surrogate)	LB018826	%	-	100%	2%	88%

PAH (Polynuclear Aromatic Hydrocarbons) in Water **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB018779	µg/L	0.1	<0.1	87%
Acenaphthylene	LB018779	µg/L	0.1	<0.1	99%
Acenaphthene	LB018779	µg/L	0.1	<0.1	89%
Fluorene	LB018779	µg/L	0.1	<0.1	NA
Phenanthrene	LB018779	µg/L	0.1	<0.1	102%
Anthracene	LB018779	µg/L	0.1	<0.1	94%
Fluoranthene	LB018779	µg/L	0.1	<0.1	107%
Pyrene	LB018779	µg/L	0.1	<0.1	108%
Benzo(a)anthracene	LB018779	µg/L	0.1	<0.1	NA
Chrysene	LB018779	µg/L	0.1	<0.1	NA
Benzo(b)fluoranthene	LB018779	µg/L	0.1	<0.1	NA
Benzo(k)fluoranthene	LB018779	µg/L	0.1	<0.1	NA
Benzo(a)pyrene	LB018779	µg/L	0.1	<0.1	105%
Indeno(1,2,3-cd)pyrene	LB018779	µg/L	0.1	<0.1	NA
Dibenzo(a&h)anthracene	LB018779	µg/L	0.1	<0.1	NA
Benzo(ghi)perylene	LB018779	µg/L	0.1	<0.1	NA
Total PAH (Vic EPA 16)*	LB018779	µg/L	1	<1	

Surrogates

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

PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: ME-(AU)-[ENV]AN420 (continued)

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB018779	%	-	94%	116%
2-fluorobiphenyl (Surrogate)	LB018779	%	-	94%	109%
d14-p-terphenyl (Surrogate)	LB018779	%	-	115%	130%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB019430	mg/kg	3	<3	0 - 8%	97%	89%
Cadmium, Cd	LB019430	mg/kg	0.3	<0.3	0%	100%	85%
Chromium, Cr	LB019430	mg/kg	0.3	<0.3	6 - 9%	97%	87%
Copper, Cu	LB019430	mg/kg	0.5	<0.5	6%	98%	78%
Nickel, Ni	LB019430	mg/kg	0.5	<0.5	2 - 7%	99%	50%
Lead, Pb	LB019430	mg/kg	1	<1	2 - 13%	99%	131%
Zinc, Zn	LB019430	mg/kg	0.5	<0.5	2 - 7%	100%	70%

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB019263	µg/L	1	<1	2%	96%	96%
Cadmium, Cd	LB019263	µg/L	0.1	<0.1	0 - 3%	96%	89%
Chromium, Cr	LB019263	µg/L	1	<1	0%	100%	93%
Copper, Cu	LB019263	µg/L	1	<1	0 - 13%	104%	85%
Lead, Pb	LB019263	µg/L	1	<1	0%	99%	87%
Nickel, Ni	LB019263	µg/L	1	<1	0 - 1%	102%	87%
Zinc, Zn	LB019263	µg/L	1	<1	0 - 8%	104%	91%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB018826	mg/kg	20	<20	0%	100%
TRH C15-C28	LB018826	mg/kg	50	<50	0%	108%
TRH C29-C36	LB018826	mg/kg	50	<50	0%	90%

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

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C10-C14	LB018779	µg/L	100	<100	101%
TRH C15-C28	LB018779	µg/L	200	<200	102%
TRH C29-C36	LB018779	µg/L	200	<200	100%

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

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Benzene	LB018816	mg/kg	0.1	<0.1	0%	103%
Toluene	LB018816	mg/kg	0.1	<0.1	0%	96%
Ethylbenzene	LB018816	mg/kg	0.1	<0.1	0%	91%
m/p-xylene	LB018816	mg/kg	0.2	<0.2	0%	97%
o-xylene	LB018816	mg/kg	0.1	<0.1	0%	99%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB018816	%	-	96%	7%	96%
d4-1,2-dichloroethane (Surrogate)	LB018816	%	-	102%	1%	102%
d8-toluene (Surrogate)	LB018816	%	-	103%	0%	104%
Bromofluorobenzene (Surrogate)	LB018816	%	-	96%	2 - 3%	107%

Totals

QC SUMMARY

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

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Xylenes*	LB018816	mg/kg	0.3	<0.3	0%	NA
Total BTEX*	LB018816	mg/kg	-	0	NA	NA

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

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB018782	µg/L	0.5	<0.5	0%	83%	102%
Toluene	LB018782	µg/L	0.5	<0.5	0%	81%	103%
Ethylbenzene	LB018782	µg/L	0.5	<0.5	0%	83%	95%
m/p-xylene	LB018782	µg/L	1	<1	0%	78%	96%
o-xylene	LB018782	µg/L	0.5	<0.5	0%	90%	98%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB018782	%	-	99%	0 - 5%	99%	108%
d4-1,2-dichloroethane (Surrogate)	LB018782	%	-	90%	3 - 8%	100%	116%
d8-toluene (Surrogate)	LB018782	%	-	101%	0%	99%	103%
Bromofluorobenzene (Surrogate)	LB018782	%	-	107%	19 - 21%	112%	105%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C6-C9	LB018816	mg/kg	20	<20	0%	110%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Trifluorotoluene (Surrogate)	LB018816	%	-	87%	0 - 3%	82%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C9	LB018782	µg/L	40	<40	0%	73%	85%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Trifluorotoluene (Surrogate)	LB018782	%	-	101%	0%	99%	103%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
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 analsysis by ASS or ICP as per USEPA Method 200.8.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN311/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, in accordance with USEPA 6020A.
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.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with diffential polarity of the elluent 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, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

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

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
Address	8/12 Mars Road LANE COVE WEST NSW 2066
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**92341-92342**
Samples	12

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	SE107556 R0
Report Number	0000027066
Date Reported	04/05/2012 17:55:43
Date Received	24 Apr 2012

COMMENTS

The document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

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

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Organics Chemist

Dong Liang
Inorganics Metals Team Leader

Edward Ibrahim
Business Manager

Ravee Sivasubramaniam
Hygienist

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE107556.001	BH1_0.5-0.6	Soil	60g Soil,rocks	14 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01
SE107556.006	BH28_Surface	Soil	60g Soil,rocks	20 Apr 2012	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

SE107556 R0

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	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite			

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

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

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

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

LABORATORY REPORT COVERSHEET

Date: 1 May 2012

To: Coffey Geotechnics Pty Ltd
8 / 12 Mars Rd
LANE COVE WEST NSW 2066

Attention: Matthew Locke

Your Reference: SE107556 - GEOTLCOV23931AA
Laboratory Report No: CE77724

Samples Received: 26/04/2012
Samples / Quantity: 1 Soil

The above samples were received intact and analysed according to your written instructions. Unless otherwise stated, solid samples are reported on a dry weight basis and liquid samples as received.

This Report must not be reproduced, except in full.

Jon Dicker
Manager
CAIRNS

Anthony Nilsson
Operations Manager
CAIRNS

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 2, 58 Comport Street, Portsmith 4870 QLD Australia
t +61 (0)7 4035 5111 f +61 (0)7 4035 5122

CLIENT: Coffey Geotechnics Pty Ltd **Laboratory Report No:** CE77724
PROJECT: SE107556 - GEOTLCOV23931AA

LABORATORY REPORT

PH Field **Our Reference** **Your Reference** **Type of Sample** **Date Sampled**	**Units**	**CE77724-1** **SE107556-9** **BH28_3.0-3.4** **Soil** **20/04/2012**
Date Extracted		26/04/2012
Date Analysed		1/05/2012
pH $_{F}$ #	pH Units	7.1
pH $_{FOx}$ #	pH Units	2.1
Field pH reaction #		XXXX

CLIENT: Coffey Geotechnics Pty Ltd **Laboratory Report No:** CE77724
PROJECT: SE107556 - GEOTLCOV23931AA

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
PH Field			
Date Extracted			
Date Analysed			
pH $_{F}$ #	pH Units	0.1	AN101
pH $_{FOx}$ #	pH Units	0.1	AN101
Field pH reaction #			Other

CLIENT: Coffey Geotechnics Pty Ltd **Laboratory Report No:** CE77724
PROJECT: SE107556 - GEOTLCOV23931AA

LABORATORY REPORT

NOTES:

LOR - Limit of Reporting.
The significance of all reported results are defined by their analytical limit of reporting.
NOTE: Rate of Reaction:
X - Slight Reaction
XX - Moderate Reaction
XXX - High Reaction
XXXX - Very vigorous, gas evolution and heat generation, commonly >80^{o}

Analysis Date: Between 26/04/12 **and** 1/05/12

STATEMENT OF QA/QC PERFORMANCE

SE107556 R0

CLIENT DETAILS

Contact	Matthew Locke
Client	Coffey Geotechnics Pty Ltd
Address	Unit 8, 12 Mars Road NSW 2066
Telephone	02 9911 1099
Facsimile	02 9911 1002
Email	matthew_locke@coffey.com
Project	**GEOTLCOV24303AC - SICEEP**
Order Number	**92341-92342**
Samples	12

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	SE107556 R0
Report Number	0000027065
Date Reported	04 May 2012

COMMENTS

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

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

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

Matrix Spike	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	2 items

SAMPLE SUMMARY

Sample counts by matrix	11 Soils, 1 Water	Type of documentation received	COC
Date documentation received	24/4/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE107556 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.

Fibre Identification in soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB019479	14 Apr 2012	24 Apr 2012	14 Apr 2013	04 May 2012	14 Apr 2013	04 May 2012
BH28_Surface	SE107556.006	LB019479	20 Apr 2012	24 Apr 2012	20 Apr 2013	04 May 2012	20 Apr 2013	04 May 2012

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QCA	SE107556.011	LB019093	20 Apr 2012	24 Apr 2012	18 May 2012	01 May 2012	18 May 2012	01 May 2012

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB019434	14 Apr 2012	24 Apr 2012	12 May 2012	04 May 2012	12 May 2012	04 May 2012
BH1_1.5-1.9	SE107556.002	LB019434	14 Apr 2012	24 Apr 2012	12 May 2012	04 May 2012	12 May 2012	04 May 2012
QC3	SE107556.005	LB019434	14 Apr 2012	24 Apr 2012	12 May 2012	04 May 2012	12 May 2012	04 May 2012
BH28_0.5-0.6	SE107556.007	LB019434	20 Apr 2012	24 Apr 2012	18 May 2012	04 May 2012	18 May 2012	04 May 2012
BH28_1.5-1.9	SE107556.008	LB019434	20 Apr 2012	24 Apr 2012	18 May 2012	04 May 2012	18 May 2012	04 May 2012
BH28_3.0-3.4	SE107556.009	LB019434	20 Apr 2012	24 Apr 2012	18 May 2012	04 May 2012	18 May 2012	04 May 2012
BH28_7.3-7.8	SE107556.010	LB019434	20 Apr 2012	24 Apr 2012	18 May 2012	04 May 2012	18 May 2012	04 May 2012
QC4	SE107556.012	LB019434	20 Apr 2012	24 Apr 2012	18 May 2012	04 May 2012	18 May 2012	04 May 2012

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB019342	14 Apr 2012	24 Apr 2012	28 Apr 2012	27 Apr 2012	02 May 2012	02 May 2012
BH1_1.5-1.9	SE107556.002	LB019342	14 Apr 2012	24 Apr 2012	28 Apr 2012	27 Apr 2012	02 May 2012	02 May 2012
TB2	SE107556.003	LB019342	14 Apr 2012	24 Apr 2012	28 Apr 2012	27 Apr 2012	02 May 2012	02 May 2012
QC3	SE107556.005	LB019342	14 Apr 2012	24 Apr 2012	28 Apr 2012	27 Apr 2012	02 May 2012	02 May 2012
BH28_0.5-0.6	SE107556.007	LB019342	20 Apr 2012	24 Apr 2012	04 May 2012	27 Apr 2012	02 May 2012	02 May 2012
BH28_1.5-1.9	SE107556.008	LB019342	20 Apr 2012	24 Apr 2012	04 May 2012	27 Apr 2012	02 May 2012	02 May 2012
BH28_3.0-3.4	SE107556.009	LB019342	20 Apr 2012	24 Apr 2012	04 May 2012	27 Apr 2012	02 May 2012	02 May 2012
BH28_7.3-7.8	SE107556.010	LB019342	20 Apr 2012	24 Apr 2012	04 May 2012	27 Apr 2012	02 May 2012	02 May 2012
QC4	SE107556.012	LB019342	20 Apr 2012	24 Apr 2012	04 May 2012	27 Apr 2012	02 May 2012	02 May 2012

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
BH1_0.5-0.6	SE107556.001	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	01 May 2012
BH1_1.5-1.9	SE107556.002	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	01 May 2012
TB2	SE107556.003	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	01 May 2012
QC3	SE107556.005	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	01 May 2012
BH28_0.5-0.6	SE107556.007	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	01 May 2012
BH28_1.5-1.9	SE107556.008	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	01 May 2012
BH28_3.0-3.4	SE107556.009	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	01 May 2012
BH28_7.3-7.8	SE107556.010	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	01 May 2012
QC4	SE107556.012	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	01 May 2012

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
QCA	SE107556.011	LB018779	20 Apr 2012	24 Apr 2012	27 Apr 2012	25 Apr 2012	04 Jun 2012	30 Apr 2012

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB019430	14 Apr 2012	24 Apr 2012	11 Oct 2012	04 May 2012	11 Oct 2012	04 May 2012
BH1_1.5-1.9	SE107556.002	LB019430	14 Apr 2012	24 Apr 2012	11 Oct 2012	04 May 2012	11 Oct 2012	04 May 2012
QC3	SE107556.005	LB019430	14 Apr 2012	24 Apr 2012	11 Oct 2012	04 May 2012	11 Oct 2012	04 May 2012
BH28_0.5-0.6	SE107556.007	LB019430	20 Apr 2012	24 Apr 2012	17 Oct 2012	04 May 2012	17 Oct 2012	04 May 2012
BH28_1.5-1.9	SE107556.008	LB019430	20 Apr 2012	24 Apr 2012	17 Oct 2012	04 May 2012	17 Oct 2012	04 May 2012
BH28_3.0-3.4	SE107556.009	LB019430	20 Apr 2012	24 Apr 2012	17 Oct 2012	04 May 2012	17 Oct 2012	04 May 2012
BH28_7.3-7.8	SE107556.010	LB019430	20 Apr 2012	24 Apr 2012	17 Oct 2012	04 May 2012	17 Oct 2012	04 May 2012
QC4	SE107556.012	LB019430	20 Apr 2012	24 Apr 2012	17 Oct 2012	04 May 2012	17 Oct 2012	04 May 2012

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
QCA	SE107556.011	LB019263	20 Apr 2012	24 Apr 2012	17 Oct 2012	02 May 2012	17 Oct 2012	03 May 2012

HOLDING TIME SUMMARY

SE107556 R0

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	04 May 2012
BH1_1.5-1.9	SE107556.002	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	04 May 2012
TB2	SE107556.003	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	04 May 2012
QC3	SE107556.005	LB018826	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	04 May 2012
BH28_0.5-0.6	SE107556.007	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	04 May 2012
BH28_1.5-1.9	SE107556.008	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	04 May 2012
BH28_3.0-3.4	SE107556.009	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	04 May 2012
BH28_7.3-7.8	SE107556.010	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	04 May 2012
QC4	SE107556.012	LB018826	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	04 May 2012

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
QCA	SE107556.011	LB018779	20 Apr 2012	24 Apr 2012	27 Apr 2012	25 Apr 2012	04 Jun 2012	30 Apr 2012

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH1_1.5-1.9	SE107556.002	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
TB2	SE107556.003	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
TS2	SE107556.004	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
QC3	SE107556.005	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_0.5-0.6	SE107556.007	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_1.5-1.9	SE107556.008	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_3.0-3.4	SE107556.009	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_7.3-7.8	SE107556.010	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
QC4	SE107556.012	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QCA	SE107556.011	LB018782	20 Apr 2012	24 Apr 2012	27 Apr 2012	25 Apr 2012	04 Jun 2012	26 Apr 2012

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.5-0.6	SE107556.001	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH1_1.5-1.9	SE107556.002	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
TB2	SE107556.003	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
TS2	SE107556.004	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
QC3	SE107556.005	LB018816	14 Apr 2012	24 Apr 2012	28 Apr 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_0.5-0.6	SE107556.007	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_1.5-1.9	SE107556.008	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_3.0-3.4	SE107556.009	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
BH28_7.3-7.8	SE107556.010	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012
QC4	SE107556.012	LB018816	20 Apr 2012	24 Apr 2012	04 May 2012	26 Apr 2012	05 Jun 2012	02 May 2012

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QCA	SE107556.011	LB018782	20 Apr 2012	24 Apr 2012	27 Apr 2012	25 Apr 2012	04 Jun 2012	26 Apr 2012

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	88
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	88
	QC3	SE107556.005	%	60 - 130%	80
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	78
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	84
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	92
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	88
	QC4	SE107556.012	%	60 - 130%	88
d14-p-terphenyl (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	98
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	98
	QC3	SE107556.005	%	60 - 130%	94
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	88
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	94
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	96
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	90
	QC4	SE107556.012	%	60 - 130%	96
d5-nitrobenzene (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	96
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	100
	QC3	SE107556.005	%	60 - 130%	84
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	84
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	90
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	98
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	98
	QC4	SE107556.012	%	60 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QCA	SE107556.011	%	40 - 130%	78
d14-p-terphenyl (Surrogate)	QCA	SE107556.011	%	40 - 130%	83
d5-nitrobenzene (Surrogate)	QCA	SE107556.011	%	40 - 130%	85

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	98
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	98
	TB2	SE107556.003	%	60 - 130%	99
	TS2	SE107556.004	%	60 - 130%	108
	QC3	SE107556.005	%	60 - 130%	104
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	100
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	99
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	99
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	101
	QC4	SE107556.012	%	60 - 130%	99
d4-1,2-dichloroethane (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	100
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	100
	TB2	SE107556.003	%	60 - 130%	99
	TS2	SE107556.004	%	60 - 130%	92
	QC3	SE107556.005	%	60 - 130%	96
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	97
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	98
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	97
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	98
	QC4	SE107556.012	%	60 - 130%	98
d8-toluene (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	103
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	103
	TB2	SE107556.003	%	60 - 130%	103
	TS2	SE107556.004	%	60 - 130%	99
	QC3	SE107556.005	%	60 - 130%	102
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	101
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	103
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	102
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	102

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

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

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	QC4	SE107556.012	%	60 - 130%	102
Dibromofluoromethane (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	81
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	81
	TB2	SE107556.003	%	60 - 130%	78
	TS2	SE107556.004	%	60 - 130%	72
	QC3	SE107556.005	%	60 - 130%	77
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	76
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	78
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	78
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	78
	QC4	SE107556.012	%	60 - 130%	73

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QCA	SE107556.011	%	60 - 130%	64
d4-1,2-dichloroethane (Surrogate)	QCA	SE107556.011	%	40 - 130%	107
d8-toluene (Surrogate)	QCA	SE107556.011	%	60 - 130%	101
Dibromofluoromethane (Surrogate)	QCA	SE107556.011	%	60 - 130%	105

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Trifluorotoluene (Surrogate)	BH1_0.5-0.6	SE107556.001	%	60 - 130%	103
	BH1_1.5-1.9	SE107556.002	%	60 - 130%	77
	TB2	SE107556.003	%	60 - 130%	74
	QC3	SE107556.005	%	60 - 130%	72
	BH28_0.5-0.6	SE107556.007	%	60 - 130%	72
	BH28_1.5-1.9	SE107556.008	%	60 - 130%	73
	BH28_3.0-3.4	SE107556.009	%	60 - 130%	102
	BH28_7.3-7.8	SE107556.010	%	60 - 130%	102
	QC4	SE107556.012	%	60 - 130%	102

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Trifluorotoluene (Surrogate)	QCA	SE107556.011	%	40 - 130%	101

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 (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB019093.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB019434.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018826.001		Naphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	110
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB018779.001		Naphthalene	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(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(a&h)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	94
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	115

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result
LB019430.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR

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

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

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB019263.001	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	1	<1

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB018826.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	50	<50
	TRH C29-C36	mg/kg	50	<50

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB018779.001	TRH C10-C14	µg/L	100	<100
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018816.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	103
		Bromofluorobenzene (Surrogate)	%	-	96
	Totals	Total BTEX*	mg/kg	-	0

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB018816.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Trifluorotoluene (Surrogate)	%	-	87

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB018782.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Trifluorotoluene (Surrogate)	%	-	101

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

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

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

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

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.011	LB019093.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE107598.017	LB019093.018	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107635.002	LB019434.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE107641.003	LB019434.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.001	LB018826.004		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Total PAH (Vic EPA)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	%	-	96.0	94.0	30	2
			2-fluorobiphenyl (Surrogate)	%	-	88.0	88.0	30	0
			d14-p-terphenyl (Surrogate)	%	-	98.0	96.0	30	2

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107635.001	LB019430.014	Arsenic, As	mg/kg	3	3	<3	126	8
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	21	20	31	6
		Copper, Cu	mg/kg	0.5	11	10	35	6
		Nickel, Ni	mg/kg	0.5	6.4	6.3	38	2
		Lead, Pb	mg/kg	1	18	16	36	13
		Zinc, Zn	mg/kg	0.5	15	15	33	2
SE107641.002	LB019430.024	Arsenic, As	mg/kg	3	<3	<3	138	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	13	14	32	9
		Copper, Cu	mg/kg	0.5	7.7	8.2	36	6
		Nickel, Ni	mg/kg	0.5	7.8	8.4	36	7
		Lead, Pb	mg/kg	1	9	9	41	2
		Zinc, Zn	mg/kg	0.5	36	38	31	7

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107653.009	LB019263.014	Arsenic, As	µg/L	1	6.064	6.19	31	2
		Cadmium, Cd	µg/L	0.1	2.606	2.539	19	3
		Chromium, Cr	µg/L	1	0.11	0.115	200	0
		Copper, Cu	µg/L	1	2.751	3.129	49	13
		Lead, Pb	µg/L	1	0.092	0.273	200	0
		Nickel, Ni	µg/L	1	80.554	80.018	16	1
		Zinc, Zn	µg/L	1	28.661	30.994	18	8
SE107762.001	LB019263.024	Arsenic, As	µg/L	1	2	1	82	2
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0

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

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

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

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

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107762.001	LB019263.024	Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	1	<1	<1	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.001	LB018826.004	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	50	<50	<50	200	0
		TRH C29-C36	mg/kg	50	<50	<50	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.005	LB018816.015	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	%	-	77.0	72.0	50	7
			d4-1,2-dichloroethane (Surrogate)	%	-	96.0	97.0	50	1
			d8-toluene (Surrogate)	%	-	102.0	102.0	50	0
			Bromofluorobenzene (Surrogate)	%	-	104.0	101.0	50	3
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	-	0	0	200	NA
SE107556.012	LB018816.021	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	%	-	73.0	78.0	50	7
			d4-1,2-dichloroethane (Surrogate)	%	-	98.0	97.0	50	1
			d8-toluene (Surrogate)	%	-	102.0	102.0	50	0
			Bromofluorobenzene (Surrogate)	%	-	99.0	101.0	50	2
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	-	0	0	200	NA

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107558.001	LB018782.008	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	102.0	107.0	30	5
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	104.0	113.0	30	8
			d8-toluene (Surrogate)	µg/L	-	101.0	101.0	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	83.0	67.0	30	21
SE107558.011	LB018782.020	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	108.0	108.0	30	0
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	111.0	114.0	30	3
			d8-toluene (Surrogate)	µg/L	-	102.0	102.0	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	87.0	72.0	30	19

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.005	LB018816.014		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Trifluorotoluene (Surrogate)	%	-	72.0	74.0	30	3
SE107556.012	LB018816.020		TRH C6-C9	mg/kg	20	<20	<20	200	0

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

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

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107556.012	LB018816.020	Surrogates	Trifluorotoluene (Surrogate)	%	-	102.0	102.0	30	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE107558.001	LB018782.008		TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	Trifluorotoluene (Surrogate)	%	-	101.0	101.0	30	0
SE107558.011	LB018782.020		TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	Trifluorotoluene (Surrogate)	%	-	102.0	102.0	30	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 (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB019093.002	Mercury	mg/L	0.0001	0.0094	0.008	80 - 120	118

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB019434.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	105

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018826.002		Naphthalene	mg/kg	0.1	3.0	4	60 - 140	76
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	101
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	97
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	106
		Pyrene	mg/kg	0.1	4.2	4	60 - 140	106
		Benzo(a)pyrene	mg/kg	0.1	4.7	4	60 - 140	118
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	100.0	100	60 - 140	100
		2-fluorobiphenyl (Surrogate)	%	-	86.0	100	60 - 140	86
		d14-p-terphenyl (Surrogate)	%	-	88.0	100	60 - 140	88

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018779.002		Naphthalene	µg/L	0.1	35	40	60 - 140	87
		Acenaphthylene	µg/L	0.1	40	40	60 - 140	99
		Acenaphthene	µg/L	0.1	36	40	60 - 140	89
		Phenanthrene	µg/L	0.1	41	40	60 - 140	102
		Anthracene	µg/L	0.1	38	40	60 - 140	94
		Fluoranthene	µg/L	0.1	43	40	60 - 140	107
		Pyrene	µg/L	0.1	43	40	60 - 140	108
		Benzo(a)pyrene	µg/L	0.1	42	40	60 - 140	105
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	116.0	100	60 - 140	116
		2-fluorobiphenyl (Surrogate)	%	-	109.0	100	60 - 140	109
		d14-p-terphenyl (Surrogate)	%	-	130.0	100	60 - 140	130

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB019430.002	Arsenic, As	mg/kg	3	48	50	80 - 120	97
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	100
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	97
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	98
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB019263.002	Arsenic, As	µg/L	1	19	20	80 - 120	96
	Cadmium, Cd	µg/L	0.1	19	20	80 - 120	96
	Chromium, Cr	µg/L	1	20	20	80 - 120	100
	Copper, Cu	µg/L	1	21	20	80 - 120	104
	Lead, Pb	µg/L	1	20	20	80 - 120	99
	Nickel, Ni	µg/L	1	20	20	80 - 120	102
	Zinc, Zn	µg/L	1	21	20	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018826.002	TRH C10-C14	mg/kg	20	40	40	60 - 140	100
	TRH C15-C28	mg/kg	50	<50	40	60 - 140	108
	TRH C29-C36	mg/kg	50	<50	40	60 - 140	90

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

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

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018779.002	TRH C10-C14	µg/L	100	1200	1200	60 - 140	101
	TRH C15-C28	µg/L	200	1200	1200	60 - 140	102
	TRH C29-C36	µg/L	200	1200	1200	60 - 140	100

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018816.002	Monocyclic	Benzene	mg/kg	0.1	3.1	3	60 - 140	103
	Aromatic	Toluene	mg/kg	0.1	2.9	3	60 - 140	96
		Ethylbenzene	mg/kg	0.1	2.7	3	60 - 140	91
		m/p-xylene	mg/kg	0.2	5.7	5.9	60 - 140	97
		o-xylene	mg/kg	0.1	2.9	2.9	60 - 140	99
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	96.0	100	60 - 140	96
		d4-1,2-dichloroethane (Surrogate)	%	-	102.0	100	60 - 140	102
		d8-toluene (Surrogate)	%	-	104.0	100	60 - 140	104
		Bromofluorobenzene (Surrogate)	%	-	107.0	100	60 - 140	107

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018782.002	Monocyclic	Benzene	µg/L	0.5	38	45.45	60 - 140	83
	Aromatic	Toluene	µg/L	0.5	37	45.45	60 - 140	81
		Ethylbenzene	µg/L	0.5	38	45.45	60 - 140	83
		m/p-xylene	µg/L	1	70	90.9	60 - 140	78
		o-xylene	µg/L	0.5	41	45.45	60 - 140	90

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018816.002	TRH C6-C9	mg/kg	20	27	24.4	60 - 140	110

Volatile Petroleum Hydrocarbons in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB018782.002	TRH C6-C9	µg/L	40	600	827	60 - 140	73

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107556.001	LB019434.004	Mercury	mg/kg	0.05	0.30	0.13	0.2	85

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107556.001	LB019430.004	Arsenic, As	mg/kg	3	46	<3	50	89
		Cadmium, Cd	mg/kg	0.3	43	0.5	50	85
		Chromium, Cr	mg/kg	0.3	55	11	50	87
		Copper, Cu	mg/kg	0.5	97	58	50	78
		Nickel, Ni	mg/kg	0.5	120	92	50	50 ⑨
		Lead, Pb	mg/kg	1	90	24	50	131 ⑨
		Zinc, Zn	mg/kg	0.5	110	79	50	70

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107645.001	LB019263.004	Arsenic, As	µg/L	1	20	1.232	20	96
		Cadmium, Cd	µg/L	0.1	18	0.002	20	89
		Chromium, Cr	µg/L	1	19	0.08	20	93
		Copper, Cu	µg/L	1	19	1.573	20	85
		Lead, Pb	µg/L	1	17	-0.018	20	87
		Nickel, Ni	µg/L	1	20	2.511	20	87
		Zinc, Zn	µg/L	1	26	8.376	20	91

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107558.002	LB018782.010	Monocyclic	Benzene	µg/L	0.5	47	<0.5	45.45	102
		Aromatic	Toluene	µg/L	0.5	47	<0.5	45.45	103
			Ethylbenzene	µg/L	0.5	43	<0.5	45.45	95
			m/p-xylene	µg/L	1	87	<1	90.9	96
			o-xylene	µg/L	0.5	45	<0.5	45.45	98
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	108.0	101.0	-	108
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	116.0	103.0	-	116
			d8-toluene (Surrogate)	µg/L	-	103.0	102.0	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	105.0	77.0	-	105

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE107558.002	LB018782.010		TRH C6-C9	µg/L	40	710	<40	827	85
		Surrogates	Trifluorotoluene (Surrogate)	%	-	103.0	102.0	-	103

MATRIX SPIKE DUPLICATES

SE107556 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

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

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

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