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August 28, 2010
Project No. 17772/8146B
Report No. 10/0861
LWI/ms

DeiCorp Constructions Pty Limited
Shop 5, 140-152 New Canterbury Road
PETERSHAM NSW 2049

Attention: Greg Colbran

SUBJECT: MATERIAL CHARACTERISATION
EVELEIGH STREET, REDFERN

Dear Sir,

1. Introduction

SMEC Testing Services Pty Limited was engaged by DeiCorp Constructions Pty Limited to characterise some insitu material from the above site as shown on Drawing No. 10/0861. It is understood that site development requires natural soil to be excavated for off site disposal. It is further understood the area to be redeveloped was historically used for mainly residential purposes.

The objective of this assessment is to confirm the insitu soils present are consistent with Virgin Excavated Natural Material (VENM) as defined by DECC (2009), "Waste Classification Guidelines, Part 1: Classifying Waste. Another object of this assessment was to determine the contaminant concentrations are less than the NEPC (1999) publication and DECC (2006) endorsed soil investigation levels for standard residential sites.

2. Scope of Works

The scope of work was as follows:

- Site inspection to identify potentially contaminating activities;
- Inspection of site condition to identify visible evidence of any contamination such as odours and staining.
- Collection of representative soil samples from boreholes under strict quality control procedures. The samples were transported under chain of custody conditions to a NATA certified laboratory (Australian Laboratory Services) where detailed chemical analysis was performed. A comprehensive suite of analytes were tested including: heavy metals, TPH/BTEX, PAHs, including BaP, OCP, OPP, phenols and PCBs.

- Preparation of a letter-style report detailing the findings of the investigation

3. *Sampling and Quality Assurance/Quality Control*

Ten samples (S1 to S10), were collected from the boreholes at the locations shown on Drawing No. 10/0861. The samples were collected from the depths shown. The material descriptions are shown on the borehole logs. S1 and S6 are from fill and the remainder natural material.

The contamination samples were placed directly into sample jars prepared by Australian Laboratory Services (ALS) and transferred to a chilled esky. The sample was transported under chain of custody conditions to ALS who are NATA accredited.

The samples were collected using hand tools which were cleaned between sample locations using a phosphorous free detergent.

The ALS results indicate the laboratory was achieving levels of performance within its control limits while analysing the samples from this site. The results are therefore considered to be of an acceptable quality upon which to draws conclusions regarding the environment condition of the site soils.

4. *Results*

Based on site observations, the following were noted:

- The site is in an existing residential area.
- There were no odours or staining apparent on the groundsurface.
- At the time of the site inspection the materials to be removed were insitu.
- The subsurface conditions comprise fill, sands, clayey sands, silty clays and weathered shale. The fill is 0.3 to 0.9 metres thick. Natural sands and clayey sands are present to depths of 1.2 to 3.0 metres. These are underlain by natural silty clays to depths of 2.5 to 4.9 metres. Weathered shale underlies the site.
- A review of the Botany Bay Acid Sulfate (ASS) Risk Map (DLWC 1997) shows the site is in an area where there are *"no known occurrences of Ass materials"* and *"land management activities not likely to be affected."*

5. *Material Characterisation*

For reuse of the natural material on another site, the test results are compared to the soil investigation levels given in Appendix II of the NSW DEC publication Guidelines for the NSW Site Auditor Scheme.

For assessment purposes, the concentrations in the samples tested are compared to the allowable levels in a residential setting. This comparison is given in Table A for the natural soils.

TABLE A - COMPARISON TO RESIDENTIAL SETTING – NATURAL MATERIALS

Analyte		Classification By Setting[1]	Maximum Concentration (mg/kg)	Overall Classification
Metals	Arsenic	Residential	9	Residential
	Cadmium	Residential	<1	
	Chromium	Residential	24	
	Copper	Residential	8	
	Lead	Residential	54	
	Mercury	Residential	0.2	
	Nickel	Residential	2	
	Zinc	Residential	51	
BTEX	Benzene	Residential	<0.2	
	Toluene	Residential	<0.5	
	Ethyl-benzene	Residential	<0.5	
	Xylenes	Residential	<0.5	
TPH	C_6 - C_9	Residential	<10	
	C_{10} - C_{36}	Residential	<250	
OCP	Aldrin + Dieldrin	Residential	<0.1	
	Chlordane	Residential	<0.1	
	DDT + DDD + DDE	Residential	<0.1	
PCBs	Total PCBs	Residential	<0.1	
PAHs	Total PAHs	Residential	<0.5	
	B(a)P	Residential	<0.5	
Phenols	Phenols	Residential	<0.5	

1 NEPC (1999) Standard Residential, Soil Investigation Levels, *Guidelines for the NSW Site Auditor Scheme 2nd edition*

Based on the results of this investigation and subject to the limitations given below, the samples of the natural soils tested are found to have levels of environmental constituents that fall below NEPC (1999) publication and DEC (2006) endorsed soil investigation levels for standard residential sites.

The Protection of the Environment Operations Act 1997 (NSW 1997) defines Virgin Excavation Natural Material (VENM) as:

"natural material (such as clay, gravel, sand, soil or rock fines):"

- That has been excavation or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities, and

- That does not contain any sulfidic ores or soils or any other waste.

Inspection of the insitu natural soils as described above indicates that it consists of material that meets the criteria to be characterised as VENM.

For the fill material it was necessary to classify the materials according to the Waste Classification Guidelines, Part 1: Classifying Waste (DECC) April 2008 and the Protection of the Environment Operations Act, 1997.

For waste classification purposes, the test results are compared to Table 1 and 2 of the DECC's Waste Classification Guidelines Part 1: Classifying Waste. Where the total concentration of a contamination exceeds the CT1 values of Table 1, the sample ha been subjected to a leaching extract (TCLP) and the TCLP extract analysed for those contaminants exceeding the CT1 value. The total concentration and leachate results together are compared to values in Table 2 (TCLP and SCC).

In regards to off site disposal, the soil laboratory test results are summarised in relation to the maximum concentrations permissible for the general solid waste in Table B.

TABLE B - SUMMARY OF RESULTS - FILL MATERIALS

Analyte	S1	S6	DECC 2008[1] CTI (mg/kg) General Solid Waste	DECC 2008[2] TCLP1 (mg/L)/ SCC1 (mg/kg) General Solid Waste
Heavy Metals				
Arsenic	<5	<5	100	5.0/500
Cadmium	<1	<1	20	1.0/100
Chromium	5	10	100	5/1900
Copper	<5	39	NA	NA/NA
Lead	23	0.6/588	100	5/1500
Mercury	<0.1	0.4	4	0.2/50
Nickel	2	4	40	2/1050
Zinc	49	381	NA	NA/NA
TPH				
C_6-C_9	<20	<10	NA	NA/650
C_{10}-C_{14}	<50	<50	NA	NA/10000
C_{15}-C_{28}	<100	180		
C_{29}-C_{36}	<100	110		
BTEX				
Benzene	<0.2	<0.2	10	0.5/18
Toluene	<0.5	3.5	288	14.4/518
Ethyl benzene	<0.5	<0.5	600	30/1080
Total xylenes	<0.5	<0.5	1000	50/1800
PAHs				
Total PAHs	<0.5	57.6	NA	NA/200
Benzo(a)pyrene	<0.5	<0.5/3.2	0.8	0.04/10
Other Organics				
PCBs	ND	ND	NA	NA/<50
OPPs	ND	ND	NA	NA
OCPs	ND	ND	NA	NA
Phenols	ND	ND	288	14.4/518

All units are in mg/kg, unless otherwise indicated
ND = Concentrations of all compounds tested were below instrument detection limits
NA = No published thresholds currently available
1 = DECC (2008) CTI General Solid Waste Thresholds (without leachate test), in Waste Classification Guidelines
2 = DECC (2008) TCLP1/SCC1 General Solid Waste Thresholds (leachable concentration and total concentration when used together), in Waste Classification Guidelines
Bold values and Highlighted cells indicate analyte concentrations in excess of the Waste Classification threshold

Based on the test results, it can be concluded that the fill material tested may be classified as general solid waste (non-putrescibles).

6. *Other Considerations*

In regards to soil salinity following table includes the appropriate multiplier factors used to convert the results to EC_e (µS/cm) and the salinity class within which the soil sample falls according to Table 6.2: EC_e Values of Soil Salinity Classes, in the publication entitled "Site Investigation for Urban Salinity (DLWC, 2002)".

Sample ID	$EC_{1.5}$ (µS/cm)	Soil Type	Multiplier Factor	EC_e (µS/cm)	Salinity Class
S3	44	Sand	17	784	Non saline
S5	37	Shale	9	333	Non saline
S7	60	Sand	17	1020	Non saline
S9	43	Silty clay	7	301	Non saline

EC_e is representative of the actual salinity level that the plant roots are exposed to and as such provides an indication of the toxicity of the soils to various plant species. Reported EC_2 for the samples ranged from 301 µS/cm to 1020 µS/cm and may be classified as non saline.

Sample ID	S3	S5	S7	S9
Sulfate (mg/kg)	145	70.1	8.7	118
Chloride (mg/kg)	9.2	9.4	1.6	5.1
pH	6.8	5.9	7.2	5.9

The aggressiveness or erosion potential of an environment in building materials, particularly concrete and steel is dependent on the levels of soil pH and the types of salts present, generally sulphates and chlorides. The values obtained are compared to those in Tables 6.4.2(C) and 6.5.2(C) in AS2159 – 2009 Piling-Design and Installation.

The report results range between:

- pH - 5.9 to 7.2
- soluble sulfate - 8.7 to 145 mg/kg (ppm)
- soluble chloride - 1.6 to 9.4 mg/kg (ppm)

A review of the durability aspects indicates that the AS2159-2009 criteria for piles in soils are express as parts per million (ppm). The soil conditions B are considered appropriate. With respect to the durability the following can be used for comparison purposes.

- pH : minimum value 5.9
- SO_4 : 145 ppm (criteria 5000 ppm)
- Cl : 9.4 ppm (criteria 5000 ppm)

The exposure classification for the onsite soils is non-aggressive to both concrete and steel.

7. Limitations

SMEC Testing Services Pty Limited has performed its services for this project in accordance with its current professional standards.

Laboratory analyses were undertaken as part of this investigation by Australian Laboratory Services (ALS) which is NATA accredited for the analyses performed.

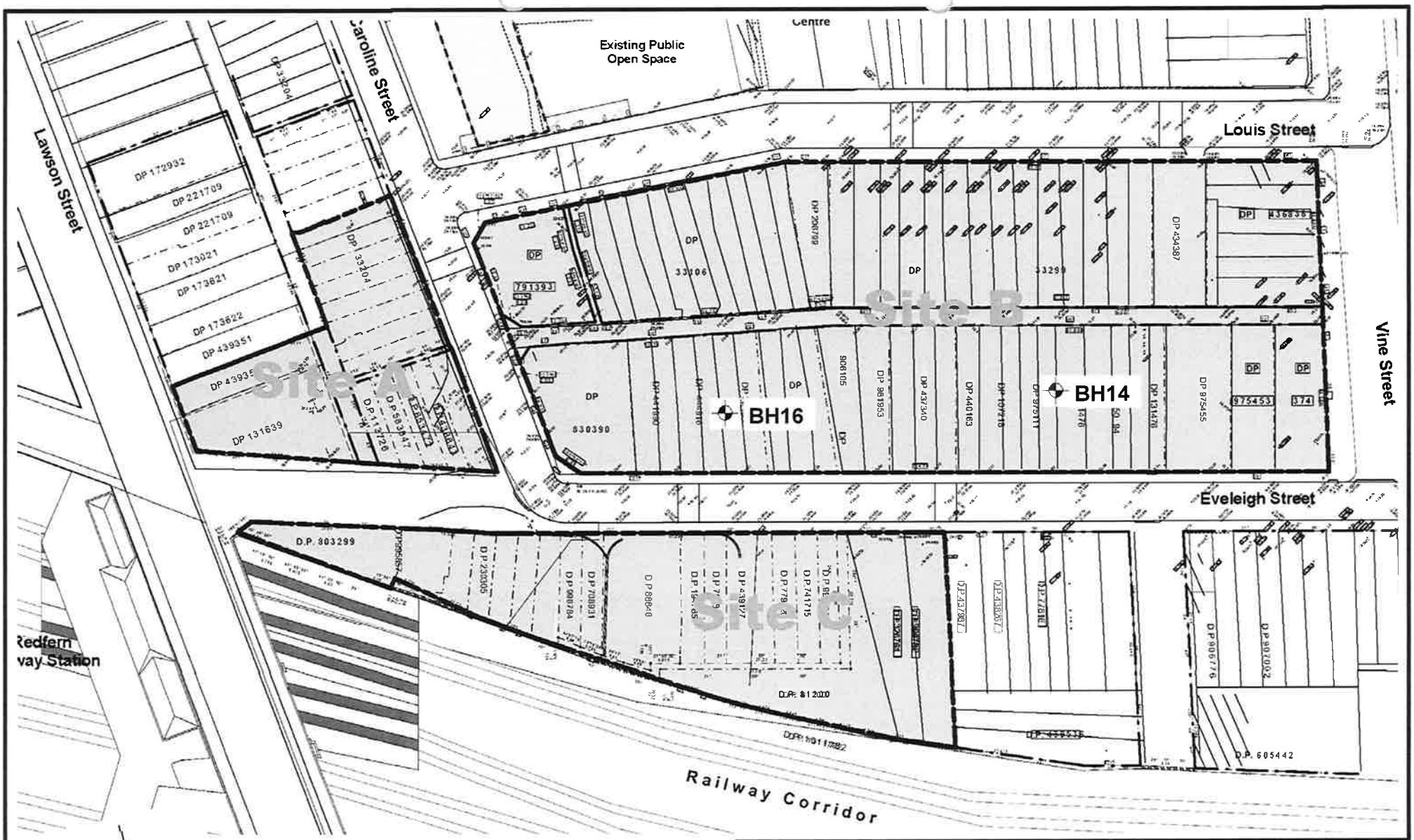
When making an assessment of contamination across a site from a sampling program there is the possibility that variations may occur between sample locations. The data collected is used to form an opinion about contamination with regard to the proposed development. If the nature of the proposed development changes, the conclusions given may need to be revised. The actual presence of contaminated material at the site may differ from this inferred herein, since no sampling program, no matter how comprehensive, can reveal all anomalies and hot spots that may be present.

Regulatory evaluation criteria are constantly changing and as a consequence, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standard that require remediation.

Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

This document and the information herein have been prepared solely for the use of DeiCorp Constructions Pty Limited for the purposes nominated in this report. No person or organisation other than DeiCorp Constructions Pty Limited is entitled to rely on any part of the report without the prior written consent of STS. Any third party relying on this report shall have no legal recourse against STS or its parent organisations or subsidiaries and shall indemnify and defend them from all an against all claims arising out of, or in conjunctions with such use or reliance.

Laurie Ihnativ, BE, MEngSc, MBA, FIE Aust.
Manager, SMEC Testing Services Pty Limited



SMEC TESTING SERVICES Pty. Ltd.	Scale: Unknown	Date: August 2010
Client: DEICORP PTY LIMITED		
MATERIAL CHARACTERISATION **EVELEIGH STREET, REDFERN, PEMULWUY PROJECT** **BOREHOLE AND SAMPLE LOCATIONS**	Project No. 17772/8146B	
	Drawing No: 10/0861	

SMEC Testing Services Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: DeiCorp NSW	Project No.: 17772/8146B	**BOREHOLE NO.: BH 14**
Project: Eveleigh Street, Redfern	Date : July 15, 2010JH	Sheet 1 of 1
Location: Refer to Drawing No. 10/0861	Logged:	

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S6 @ 0.3 m		GRAVELLY SAND: black, fine to coarse grained sand, fine gravel, rubbish and ash	SM	MEDIUM DENSE	M
	S7 @ 0.7 m		FILL SAND: black/grey, fine grained, some fines	SP	MEDIUM DENSE	M
		1.0				
	S8 @ 1.7 m		CLAYEY SAND: brown with orange brown, fine grained sand, low plasticity	SM-SC	MEDIUM DENSE	M
		2.0				
	S9 @ 2.6 m		SILTY CLAY: mottled light grey and yellow brown, medium to high plasticity	CL-CH	VERY STIFF	M
		3.0				
			SHALE: grey (completely to highly weathered)		EXTREMELY LOW STRENGTH	
		4.0				
	S10 @ 4.6 m					
			AUGER REFUSAL AT 4.7 M			
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Christie
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: DeiCorp NSW	Project No.: 17772/8146B	**BOREHOLE NO.:**	**BH 16**
Project: Eveleigh Street, Redfern	Date : July 14, 2010	Sheet 1 of 1	
Location: Refer to Drawing No. 10/0861	Logged: JH		

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S1 @ 0.2 m		SILTY SAND: dark brown, fine grained, scattered pebbles FILL	SM	STIFF	M
	S2 @ 0.6 m	1.0	SAND: light brown, fine grained, trace of fines	SP	MEDIUM DENSE	M
	S3 @ 1.9 m	2.0	SILTY CLAY: yellow brown with red and grey, medium to high plasticity	CL-CH	VERY STIFF	M
	S4 @ 2.6 m	3.0	SILTY CLAY: mottled light grey and red brown, high plasticity	CH	HARD	M
	S5 @ 3.9 m	4.0	SHALE: red brown with grey, completely weathered		EXTREMELY LOW STRENGTH	
		5.0	AUGER REFUSAL AT 3.9 M			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Christie
Hole Diameter (mm): 100
Angle from Vertical (°) 0

E1. CLASSIFICATION OF SOILS

E1.1 Soil Classification and the Unified System

An assessment of the site conditions usually includes an appraisal of the data available by combining values of engineering properties obtained by the site investigation with descriptions, from visual observation of the materials present on site.

The system used by SMEC in the identification of soil is the Unified Soil Classification system (USC) which was developed by the US Army Corps of Engineers during World War II and has since gained international acceptance and has been adopted in its metricated form by the Standards Association of Australia.

The Australian Site Investigation Code (AS1726-1981, Appendix D) recommends that the description of a soil includes the USC group symbols which are an integral component of the system.

The soil description should contain the following information in order:

Soil composition

- SOIL NAME and USC classification symbol (IN BLOCK LETTERS)
- plasticity or particle characteristics
- colour
- secondary and minor constituents (name estimated proportion, plasticity or particle characteristics, colour

Soil condition

- moisture condition
- consistency or density index

Soil structure

- structure (zoning, defects, cementing)

Soil origin

interpretation based on observation eg FILL, TOPSOIL, RESIDUAL, ALLUVIUM.

E1.2 Soil Composition

(a) Soil Name and Classification Symbol

The USC system is summarized in Figure E1.2.1. The primary division separates soil types on the basis of particle size into:

- Coarse grained soils - more than 50% of the material less than 60 mm is larger than 0.06 mm (60 μm).
- Fine grained soils - more than 50% of the material less than 60 mm is smaller than 0.06 mm (60 μm).

Initial classification is by particle size as shown in Table E1.2.1. Further classification of fine grained soils is based on plasticity.

TABLE E1.2.1 - CLASSIFICATION BY PARTICLE SIZE

NAME	SUB-DIVISION	SIZE
Clay (1)		< 2 μm
Silt (2)		2 μm to 60 μm
Sand	Fine Medium Coarse	60 μm to 200 μm 200 μm to 600 μm 600 μm to 2 mm
Gravel (3)	Fine Medium Coarse	2 mm to 6 mm 6 mm to 20 mm 20 mm to 60 mm
Cobbles (3)		60 mm to 200 mm
Boulders (3)		> 200 mm

Where a soil contains an appropriate amount of secondary material, the name includes each of the secondary components (greater than 12%) in increasing order of significance, eg sandy silty clay.

Minor components of a soil are included in the description by means of the terms "some" and "trace" as defined in Table E1.2.2.

TABLE E1.2.2 - MINOR SOIL COMPONENTS

TERM	DESCRIPTION	APPROXIMATE PROPORTION (%)
Trace	presence just detectable, little or no influence on soil properties	0-5
Some	presence easily detectable, little influence on soil properties	5-12

The USC group symbols should be included with each soil description as shown in Table E1.2.3

TABLE E1.2.3 - SOIL GROUP SYMBOLS

SOIL TYPE	PREFIX
Gravel	G
Sand	S
Silt	M
Clay	C
Organic	O
Peat	Pt

The group symbols are combined with qualifiers which indicate grading, plasticity or secondary components as shown on Table E1.2.4

TABLE E1.2.4 - SOIL GROUP QUALIFIERS

SUBGROUP	SUFFIX
Well graded	W
Poorly Graded	P
Silty	M
Clayey	C
Liquid Limit <50% - low to medium plasticity	L
Liquid Limit >50% - low to medium plasticity	H

(b) Grading

"Well graded" Good representation of all particle sizes from the largest to the smallest.

"Poorly graded" One or more intermediate sizes poorly represented

"Gap graded" One or more intermediate sizes absent

"Uniformly graded" Essentially single size material.

(c) Particle shape and texture

The shape and surface texture of the coarse grained particles should be described.

Angularity may be expressed as "rounded", "sub-rounded", "sub-angular" or "angular".

Particle **form** can be "equidimensional", "flat" or elongate".

Surface texture can be "glassy", "smooth", "rough", pitted" or striated".

(d) Colour

The colour of the soil should be described in the moist condition using simple terms such as:

Black White Grey Red
Brown Orange Yellow Green
Blue

These may be modified as necessary by "light" or "dark". Borderline colours may be described as a combination of two colours, eg. red-brown.

For soils that contain more than one colour terms such as:

- Speckled Very small (<10 mm dia) patches
- Mottled Irregular
- Blotched Large irregular (>75 mm dia)
- Streaked Randomly oriented streaks

(e) Minor Components

Secondary and minor components should be individually described in a similar manner to the dominant component.

E1.3 Soil Condition

(a) Moisture

Soil moisture condition is described as "dry", "moist" or "wet".

The moisture categories are defined as:
Dry (D) - Little or no moisture evident. Soils are running.
Moist (M) - Darkened in colour with cool feel. Granular soil particles tend to adhere. No free water evident upon remoulding of cohesive soils.

In addition the moisture content of cohesive soils can be estimated in relation to their liquid or plastic limit.

(b) Consistency

Estimates of the consistency of a clay or silt soil may be made from manual examination, hand penetrometer test, SPT results or from laboratory tests to determine undrained shear or unconfined compressive strengths. The classification of consistency is defined in Table E1.3.1.

TABLE E1.3.1 - CONSISTENCY OF FINE-GRAINED SOILS

TERM	UNCONFINED STRENGTH (kPa)	FIELD IDENTIFICATION
Very Soft	<25	Easily penetrated by fist. Sample exudes between fingers when squeezed in the fist.
Soft	25 – 50	Easily moulded in fingers. Easily penetrated 50 mm by thumb.
Firm	50 – 100	Can be moulded by strong pressure in the fingers. Penetrated only with great effort.
Stiff	100 – 200	Cannot be moulded in fingers. Indented by thumb but penetrated only with great effort.
Very Stiff	200 – 400	Very tough. Difficult to cut with knife. Readily indented with thumb nail.
Hard	>400	Brittle, can just be scratched with thumb nail. Tends to break into fragments.

Unconfined compressive strength as derived by a hand penetrometer can be taken as approximately double the undrained shear strength ($q_u = 2\ c_u$).

(c) Density Index

The insitu density index of granular soils can be assessed from the results of SPT or cone penetrometer tests. Density index should not be estimated visually.

TABLE E1.3.2 - DENSITY OF GRANULAR SOILS

TERM	SPT N VALUE	STATIC CONE VALUE q_c (MPa)	DENSITY INDEX (%)
Very Loose	0 – 3	0 - 2	0 - 15
Loose	3 – 8	2 - 5	15 - 35
Medium Dense	8 – 25	5 - 15	35 - 65
Dense	25 – 42	15 - 20	65 - 85
Very Dense	>42	>20	>85

E1.4 Soil Structure

(a) Zoning

A sample may consist of several zones differing in colour, grain size or other properties. Terms to classify these zones are:

Layer - continuous across exposure or sample
Lens - discontinuous with lenticular shape
Pocket - irregular inclusion
Each zone should be described, their distinguishing features, and the nature of the interzone boundaries.

(b) Defects

Defects which are present in the sample can include:

- fissures
- roots (containing organic matter)
- tubes (hollow)
- casts (infilled)

Defects should be described giving details of dimensions and frequency. Fissure orientation, planarity, surface condition and infilling should be noted. If there is a tendency to break into blocks, block dimensions should be recorded

E1.5 Soil Origin

Information which may be interpretative but which may contribute to the usefulness of the material description should be included. The most common interpreted feature is the origin of the soil. The assessment of the probable origin is based on the soil material description, soil structure and its relationship to other soil and rock materials.

Common terms used are:

"Residual Soil" - Material which appears to have been derived by weathering from the underlying rock. There is no evidence of transport.

"Colluvium" - Material which appears to have been transported from its original location. The method of movement is usually the combination of gravity and erosion.

"Landslide Debris" - An extreme form of colluvium where the soil has been transported by mass movement. The material is obviously distributed and contains distinct defects related to the slope failure.

"Alluvium" - Material which has been transported essentially by water. Usually associated with former stream activity.

"Fill" - Material which has been transported and placed by man. This can range from natural soils which have been placed in a controlled manner in engineering construction to dumped waste material. A description of the constituents should include an assessment of the method of placement.

E1.6 Fine Grained Soils

The physical properties of fine grained soils are dominated by silts and clays.

The definition of clay and silt soils is governed by their Atterberg Limits. Clay soils are characterised by the properties of cohesion and plasticity with cohesion defines as the ability to deform without rupture. Silts exhibit cohesion but have low plasticity or are non-plastic.

The field characteristics of clay soils include:

- dry lumps have appreciable dry strength and cannot be powdered
- volume changes occur with moisture content variation
- feels smooth when moist with a greasy appearance when cut.

The field characteristics of silt soils include:

- dry lumps have negligible dry strength and can be powdered easily
- dilatancy - an increase in volume due to shearing - is indicted by the presence of a shiny film of water after a hand sample is shaken. The water disappears upon remoulding. Very fine grained sands may also exhibit dilatancy.
- low plasticity index
- feels gritty to the teeth

E1.7 Organic Soils

Organic soils are distinguished from other soils by their appreciable content of vegetable matter, usually derived from plant remains.

The soil usually has a distinctive smell and low bulk density.

The USC system uses the symbol Pt for partly decomposed organic material. The O symbol is combined with suffixes "O" or "H" depending on plasticity.

Where roots or root fibres are present their frequency and the depth to which they are encountered should be recorded. The presence of roots or root fibres does not necessarily mean the material is an "organic material" by classification.

Coal and lignite should be described as such and not simply as organic matter.

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1014709**	Page	: 1 of 5
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
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Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ON HAND REBATCH OF ES1013740		
C-O-C number	: ----	Date Samples Received	: 26-JUL-2010
Sampler	: ----	Issue Date	: 27-JUL-2010
Site	: ----		
		No. of samples received	: 1
Quote number	: EN/025/10	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

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

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Organics
Wisam.Marassa	Metals Coordinator	Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs**

Analytical Results

Sub-Matrix: **SOIL**				Client sample ID	**S6**	---	---	---	---
				Client sampling date / time	12-JUL-2010 15:00	---	---	---	---
Compound	*CAS Number*	*LOR*	*Unit*		**ES1014709-001**	---	---	---	---
EN33: TCLP Leach									
Initial pH	---	0.1	pH Unit		**8.8**	---	---	---	---
After HCl pH	---	0.1	pH Unit		**1.8**	---	---	---	---
Extraction Fluid Number	---	1	-		**1**	---	---	---	---
Final pH	---	0.1	pH Unit		**5.4**	---	---	---	---

Analytical Results

Sub-Matrix: **TCLP LEACHATE**				Client sample ID	**S6**	---	---	---	---
				Client sampling date / time	27-JUL-2010 12:00	---	---	---	---
Compound	*CAS Number*	*LOR*	*Unit*		**ES1014709-001**	---	---	---	---
EG005C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		**0.6**	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	---	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		**30.2**	---	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%		**72.2**	---	---	---	---
2.4.6-Tribromophenol	118-79-6	0.1	%		**104**	---	---	---	---
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**75.1**	---	---	---	---
Anthracene-d10	1719-06-8	0.1	%		**106**	---	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%		**111**	---	---	---	---

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2.4.6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1014709**	Page	: 1 of 5
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
Telephone	: +61 97562166	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 26-JUL-2010
Sampler	: ----	Issue Date	: 27-JUL-2010
Order number	: ON HAND REBATCH OF ES1013740		
		No. of samples received	: 1
Quote number	: EN/025/10	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

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

NATA

WORLD RECOGNISED **ACCREDITATION**

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Organics
Wisam.Marassa	Metals Coordinator	Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 1428840)									
ES1014642-004	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	1.3	1.3	0.0	0% - 50%

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 1428840)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	101	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1428841)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	—	2 µg/L	88.7	63.3	117
		0.5	µg/L	<0.5	—	—	—	—

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 1428840)							
ES1014709-001	S6	EG005C: Lead	7439-92-1	1 mg/L	101	70	130

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1014709**	Page	: 1 of 5
Client	: SMEC TESTING SERVICES PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
Telephone	: +61 97562166	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---		
C-O-C number	: ---	Date Samples Received	: 26-JUL-2010
Sampler	: ---	Issue Date	: 27-JUL-2010
Order number	: ON HAND REBATCH OF ES1013740		
		No. of samples received	: 1
Quote number	: EN/025/10	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered							
S6	**27-JUL-2010**	**27-JUL-2010**	23-JAN-2011	✓	**27-JUL-2010**	23-JAN-2011	✓
EN33: TCLP Leach							
LabSplit: Leach for organics and other tests							
S6	**12-JUL-2010**	---	26-JUL-2010	---	**27-JUL-2010**	26-JUL-2010	×
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved							
S6	**27-JUL-2010**	**27-JUL-2010**	03-AUG-2010	✓	**27-JUL-2010**	05-SEP-2010	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	2	50.0	5.0	✓	ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	(USEPA SW846-1311, ALS QWI-EN/33) The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach						
LabSplit: Leach for organics and other tests						
S6	---	---	---	27-JUL-2010	26-JUL-2010	1

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1013740**	Page	: 1 of 12
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
Telephone	: +61 97562166	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: 8190		
C-O-C number	: ---	Date Samples Received	: 13-JUL-2010
Sampler	: JH	Issue Date	: 20-JUL-2010
Site	: ---		
		No. of samples received	: 10
Quote number	: EN/025/10	No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Pabi Subba	Senior Organic Chemist	Organics
Sarah Millington	Senior Inorganic Chemist	Inorganics
Wisam.Marassa	Metals Coordinator	Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP071, EP080: Results for sample S6 confirmed by re-extraction and re-analysis.**

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-001	ES1013740-002	ES1013740-003	ES1013740-004	ES1013740-005
EA002 : pH (Soils)									
pH Value	---	0.1	pH Unit		7.8	---	6.8	---	5.9
EA010: Conductivity									
Electrical Conductivity @ 25°C	---	1	µS/cm		298	---	44	---	37
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	---	1.0	%		7.9	5.5	25.3	16.3	11.8
ED009: Anions									
Chloride	16887-00-6	1.0	mg/kg		215	---	9.2	---	9.4
Sulfate	14808-79-8	1.0	mg/kg		238	---	145	---	70.1
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	8	6	9
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		5	2	24	4	7
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	8
Lead	7439-92-1	5	mg/kg		23	<5	18	21	16
Nickel	7440-02-0	2	mg/kg		2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		49	<5	7	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	---	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-001	ES1013740-002	ES1013740-003	ES1013740-004	ES1013740-005
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-001	ES1013740-002	ES1013740-003	ES1013740-004	ES1013740-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	---	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	---	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	---	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		70.0	70.0	71.0	67.0	65.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		118	107	92.3	87.5	99.3
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		77.7	66.6	70.4	77.9	103
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		83.0	94.7	92.4	89.2	103
2-Chlorophenol-D4	93951-73-6	0.1	%		91.7	95.9	95.1	92.4	105

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	S1	S2	S3	S4	S5
			Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES1013740-001**	**ES1013740-002**	**ES1013740-003**	**ES1013740-004**	**ES1013740-005**
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2.4.6-Tribromophenol	118-79-6	0.1	%	**88.5**	**84.6**	**102**	**97.6**	**88.0**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**96.8**	**102**	**102**	**94.2**	**106**
Anthracene-d10	1719-06-8	0.1	%	**98.5**	**103**	**103**	**97.7**	**113**
4-Terphenyl-d14	1718-51-0	0.1	%	**89.9**	**92.6**	**91.5**	**87.4**	**101**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**110**	**109**	**110**	**100**	**75.2**
Toluene-D8	2037-26-5	0.1	%	**106**	**106**	**99.3**	**92.7**	**83.0**
4-Bromofluorobenzene	460-00-4	0.1	%	**101**	**102**	**107**	**95.5**	**88.1**

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-006	ES1013740-007	ES1013740-008	ES1013740-009	ES1013740-010
EA002 : pH (Soils)									
pH Value	---	0.1	pH Unit		---	7.2	---	5.9	---
EA010: Conductivity									
Electrical Conductivity @ 25°C	---	1	µS/cm		---	60	---	43	---
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	---	1.0	%		11.8	7.0	16.2	18.4	14.5
ED009: Anions									
Chloride	16887-00-6	1.0	mg/kg		---	1.6	---	5.1	---
Sulfate	14808-79-8	1.0	mg/kg		---	8.7	---	118	---
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	9	5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		10	<2	8	13	10
Copper	7440-50-8	5	mg/kg		39	6	<5	<5	<5
Lead	7439-92-1	5	mg/kg		588	54	7	14	25
Nickel	7440-02-0	2	mg/kg		4	<2	2	<2	<2
Zinc	7440-66-6	5	mg/kg		381	51	<5	<5	11
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		0.4	0.2	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	---	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		0.07	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		0.08	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-006	ES1013740-007	ES1013740-008	ES1013740-009	ES1013740-010
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0

Analytical Results

Sub-Matrix: SOIL				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
Compound	CAS Number	LOR	Unit		ES1013740-006	ES1013740-007	ES1013740-008	ES1013740-009	ES1013740-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		1.4	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		0.6	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		6.8	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		2.6	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		11.7	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		10.2	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		5.1	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		4.3	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		5.6	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		2.0	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		3.2	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		1.9	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		2.2	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	---	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	---	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	---	100	mg/kg		180	<100	<100	<100	<100
C29 - C36 Fraction	---	100	mg/kg		110	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	---	50	mg/kg		290	<50	<50	<50	<50
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		3.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		63.0	69.0	64.0	72.0	64.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		74.0	105	76.5	116	86.5
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		96.5	88.4	102	127	86.1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		87.8	92.9	92.9	90.0	92.7
2-Chlorophenol-D4	93951-73-6	0.1	%		90.7	92.9	96.3	92.9	97.0

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: S6	S7	S8	S9	S10
				Client sampling date / time: 12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00	12-JUL-2010 15:00
				ES1013740-006	ES1013740-007	ES1013740-008	ES1013740-009	ES1013740-010
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2.4.6-Tribromophenol	118-79-6	0.1	%	85.0	89.0	82.6	102	71.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	94.5	100	101	99.7	101
Anthracene-d10	1719-06-8	0.1	%	98.9	101	102	101	105
4-Terphenyl-d14	1718-51-0	0.1	%	89.8	90.9	89.7	90.2	94.1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	102	95.1	80.6	106	113
Toluene-D8	2037-26-5	0.1	%	110	84.9	72.1	105	81.3
4-Bromofluorobenzene	460-00-4	0.1	%	116	90.0	78.8	102	92.2

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	30.8	155.7
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	19.5	167.0
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	22.7	163.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2.4.6-Tribromophenol	118-79-6	23.1	134.9
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1013740**	Page	: 1 of 12
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
Telephone	: +61 97562166	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---		
C-O-C number	: ---	Date Samples Received	: 13-JUL-2010
Sampler	: JH	Issue Date	: 20-JUL-2010
Order number	: 8190		
		No. of samples received	: 10
Quote number	: EN/025/10	No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Pabi Subba	Senior Organic Chemist	Organics
Sarah Millington	Senior Inorganic Chemist	Inorganics
Wisam.Marassa	Metals Coordinator	Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 1415171)									
ES1013740-001	S1	EA002: pH Value	---	0.1	pH Unit	7.8	7.8	0.0	0% - 20%
ES1013805-002	Anonymous	EA002: pH Value	---	0.1	pH Unit	7.0	7.0	0.0	0% - 20%
EA010: Conductivity (QC Lot: 1415172)									
ES1013740-001	S1	EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	298	299	0.3	0% - 20%
ES1013805-002	Anonymous	EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	62	62	0.0	0% - 20%
EA055: Moisture Content (QC Lot: 1414815)									
ES1013628-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	13.7	14.0	1.9	0% - 50%
ES1013740-003	S3	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	25.3	25.0	1.3	0% - 20%
ED009: Anions (QC Lot: 1415173)									
ES1013740-001	S1	ED009: Chloride	16887-00-6	1.0	mg/kg	215	218	1.6	0% - 20%
		ED009: Sulfate	14808-79-8	1.0	mg/kg	238	240	1.0	0% - 20%
ES1013805-014	Anonymous	ED009: Chloride	16887-00-6	1.0	mg/kg	41.1	39.7	3.5	0% - 20%
		ED009: Sulfate	14808-79-8	1.0	mg/kg	39.8	38.7	3.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1415097)									
ES1013740-001	S1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	23	22	5.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	49	44	10.4	No Limit
ES1013740-004	S4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	5	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	8	26.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	21	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1415098)									
ES1013740-001	S1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1414578)									
ES1013740-001	S1	EP066: Total Polychlorinated biphenyls	---	0.10	mg/kg	<0.10	<0.10	0.0	No Limit
ES1013740-010	S10	EP066: Total Polychlorinated biphenyls	---	0.10	mg/kg	<0.10	<0.10	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1414577)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1414577) - continued									
ES1013740-001	S1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1013740-010	S10	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1414577) - continued									
ES1013740-010	S10	EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1414577)									
ES1013740-001	S1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1013740-010	S10	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1414577) - continued									
ES1013740-010	S10	EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1414572)									
ES1013740-001	S1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1414572)									
ES1013740-001	S1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1414424)									
ES1013740-001	S1	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1414571)									
ES1013740-001	S1	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEX (QC Lot: 1414424)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEX (QC Lot: 1414424) - continued									
ES1013740-001	S1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA010: Conductivity (QCLot: 1415172)								
EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	<1	1412 µS/cm	99.8	70	130
ED009: Anions (QCLot: 1415173)								
ED009: Chloride	16887-00-6	1	mg/kg	<1.2	4 mg/kg	98.8	70	130
ED009: Sulfate	14808-79-8	1	mg/kg	<1.2	4 mg/kg	94.2	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1415097)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	120	70	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	95.7	83.3	111
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	99.9	89.2	117
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	98.6	90.1	114
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	94.6	85.2	111
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	102	88.3	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	95.4	88.9	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1415098)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	81.4	67	118
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1414578)								
EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.10	1 mg/kg	70.0	57.4	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 1414577)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	115	60.8	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	113	59.4	115
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	106	59.8	117
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	111	59.8	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	65.8	114
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	# 116	65.6	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	67	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.6	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	60.7	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	65.8	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	68.0	57.3	120
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	67.4	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	67.5	114
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	63	121
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	72.6	66.1	117
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	67.2	65.3	116
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	107	57.3	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 1414577) - continued								
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	63.6	119
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	106	58.4	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	63.6	117
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	106	50.4	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1414577)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	72.5	25.5	124
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	24.2	10.1	159
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	63.3	2.88	149
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	48.6	126
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	# 115	64.9	111
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	# 113	65.1	111
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	94.0	61.4	113
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	60.4	127
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	# 117	64.7	110
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	# 117	64.2	111
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	94.4	60	116
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	# 118	64.8	111
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	61.4	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	64.3	114
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.8	45.5	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	65.4	111
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	62	116
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	59.5	119
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	29.8	137
EP075(SIM)A: Phenolic Compounds (QCLot: 1414572)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	85.1	73.9	115
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	87.8	80.2	115
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	102	76.8	114
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	8 mg/kg	107	72	119
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	82.7	60.3	117
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	86.2	74.5	119
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	80.6	71.6	113
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	81.3	74.8	115
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	82.4	76.4	114
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	84.0	62.2	115
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	80.4	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1.0	8 mg/kg	24.9	1.23	91.6
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1414572)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	108	81.9	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1414572) - continued								
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	103	79.6	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	101	79.9	112
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	104	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	105	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	104	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	104	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	90.7	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	110	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	92.0	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	108	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	82.0	76.4	113
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	90.1	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	82.3	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	88.7	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1414424)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	110	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1414571)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	110	75.2	116
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	200 mg/kg	101	75.3	113
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	105	72.6	117
EP080: BTEX (QCLot: 1414424)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.4	63	121
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.6	69	122
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	105	61	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.6	62	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	100	63	117

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED009: Anions (QCLot: 1415173)							
ES1013740-001	S1	ED009: Chloride	16887-00-6	4 mg/kg	# Not Determined	70	130
		ED009: Sulfate	14808-79-8	4 mg/kg	# Not Determined	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1415097)							
ES1013740-001	S1	EG005T: Arsenic	7440-38-2	50 mg/kg	95.6	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.9	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	90.3	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.9	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	87.7	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	92.0	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1415098)							
ES1013740-001	S1	EG035T: Mercury	7439-97-6	5 mg/kg	70.6	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1414578)							
ES1013740-001	S1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	103	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1414577)							
ES1013740-001	S1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	83.2	75.65	110.44
		EP068: Heptachlor	76-44-8	0.5 mg/kg	91.2	72.2	106.71
		EP068: Aldrin	309-00-2	0.5 mg/kg	99.8	77.54	107.0
		EP068: Dieldrin	60-57-1	0.5 mg/kg	94.6	76.37	109.7
		EP068: Endrin	72-20-8	2 mg/kg	98.2	68.51	119.47
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	72.6	67.12	118.10
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1414577)							
ES1013740-001	S1	EP068: Diazinon	333-41-5	0.5 mg/kg	93.0	75.85	107.06
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	# 119	74.84	107.91
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	# 117	67.98	109.42
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	96.9	74.94	107.37
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	83.7	75.45	106.05
EP075(SIM)A: Phenolic Compounds (QCLot: 1414572)							
ES1013740-001	S1	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.6	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.1	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	96.8	60	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	89.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	36.7	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1414572)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1414572) - continued							
ES1013740-001	S1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	102	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	101	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1414424)							
ES1013740-001	S1	EP080: C6 - C9 Fraction	----	26 mg/kg	97.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1414571)							
ES1013740-001	S1	EP071: C10 - C14 Fraction	----	640 mg/kg	91.9	70	130
		EP071: C15 - C28 Fraction	----	3140 mg/kg	90.7	70	130
		EP071: C29 - C36 Fraction	----	2860 mg/kg	115	70	130
EP080: BTEX (QCLot: 1414424)							
ES1013740-001	S1	EP080: Benzene	71-43-2	2.5 mg/kg	93.1	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	103	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.0	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.6	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.2	70	130

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1013740**	Page	: 1 of 10
Client	: SMEC TESTING SERVICES PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR LAURIE IHNATIV	Contact	: Charlie Pierce
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: smectesting@pacific.net.au	E-mail	: sydney.enviro.services@alsglobal.com
Telephone	: +61 97562166	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 97561137	Facsimile	: +61-2-8784 8500
Project	: 17772 8146B-REDFERN	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---		
C-O-C number	: ---	Date Samples Received	: 13-JUL-2010
Sampler	: JH	Issue Date	: 20-JUL-2010
Order number	: 8190		
		No. of samples received	: 10
Quote number	: EN/025/10	No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved							
S1, S3, S5, S7, S9	**12-JUL-2010**	**14-JUL-2010**	19-JUL-2010	✓	**14-JUL-2010**	15-JUL-2010	✓
EA010: Conductivity							
Soil Glass Jar - Unpreserved							
S1, S3, S5, S7, S9	**12-JUL-2010**	**14-JUL-2010**	19-JUL-2010	✓	**14-JUL-2010**	11-AUG-2010	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved							
S1, S2, S3, S4, S5, S6, S7, S8, S9, S10	**12-JUL-2010**	---	---	---	**14-JUL-2010**	19-JUL-2010	✓
ED009: Anions							
Soil Glass Jar - Unpreserved							
S1, S3, S5, S7, S9	**12-JUL-2010**	**14-JUL-2010**	08-JAN-2011	✓	**15-JUL-2010**	08-JAN-2011	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved							
S1, S2, S3, S4, S5, S6, S7, S8, S9, S10	**12-JUL-2010**	**14-JUL-2010**	08-JAN-2011	✓	**15-JUL-2010**	08-JAN-2011	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	09-AUG-2010	✓	**16-JUL-2010**	09-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**15-JUL-2010**	26-JUL-2010	✓	**15-JUL-2010**	24-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**15-JUL-2010**	26-JUL-2010	✓	**15-JUL-2010**	24-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**15-JUL-2010**	26-JUL-2010	✓	**15-JUL-2010**	24-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	26-JUL-2010	✓	**14-JUL-2010**	23-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	26-JUL-2010	✓	**14-JUL-2010**	23-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	26-JUL-2010	✓	**14-JUL-2010**	23-AUG-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	26-JUL-2010	✓	**16-JUL-2010**	26-JUL-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							
EP080: BTEX								
Soil Glass Jar - Unpreserved								
S1,	S2,	**12-JUL-2010**	**14-JUL-2010**	26-JUL-2010	✓	**16-JUL-2010**	26-JUL-2010	✓
S3,	S4,							
S5,	S6,							
S7,	S8,							
S9,	S10							

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	11	18.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Standard Anions	ED009	2	12	16.7	10.5	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Standard Anions	ED009	1	12	8.3	5.3	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Standard Anions	ED009	1	12	8.3	5.3	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	1	11	9.1	5.0	✓	ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	ALS QCS3 requirement

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Standard Anions	ED009	1	12	**8.3**	**5.3**	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	10	**10.0**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	**10.0**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	**10.0**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 104)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (1999) Schedule B(3) (Method 102)
Standard Anions	ED009	SOIL	APHA 21st ed., 4110. A soil sample is leached with 1 part to five parts of deionised water and the leachate subject to analysis by ion chromatography with conductivity detection. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection ($SnCl_2$)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by $SnCl_2$ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	1648356-002	---	**Heptachlor**	76-44-8	116 %	65.6-115%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	1648356-002	---	**Diazinon**	333-41-5	115 %	64.9-111%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	1648356-002	---	**Chlorpyrifos-methyl**	5598-13-0	113 %	65.1-111%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	1648356-002	---	**Fenthion**	55-38-9	117 %	64.7-110%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	1648356-002	---	**Chlorpyrifos**	2921-88-2	117 %	64.2-111%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	1648356-002	---	**Pirimphos-ethyl**	23505-41-1	118 %	64.8-111%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
ED009: Anions	ES1013740-001	S1	**Chloride**	16887-00-6	Not Determined	---	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED009: Anions	ES1013740-001	S1	**Sulfate**	14808-79-8	Not Determined	---	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP068B: Organophosphorus Pesticides (OP)	ES1013740-001	S1	**Chlorpyrifos-methyl**	5598-13-0	119 %	74.84-107.91 %	**Recovery greater than upper data quality objective**
EP068B: Organophosphorus Pesticides (OP)	ES1013740-001	S1	**Pirimphos-ethyl**	23505-41-1	117 %	67.98-109.42 %	**Recovery greater than upper data quality objective**

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP080S: TPH(V)/BTEX Surrogates	ES1013740-008	S8	**Toluene-D8**	2037-26-5	72.1 %	73.9-132.1 %	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

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

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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