Site Name: Caltex Calwell (report status - Final)

Site Identification / Description

Site ID No.:	22176
Address:	Corner Were Street and Webber Crescent, Calwell ACT 2905
Suburb:	Calwell

Project information

Client:	Caltex Australia Petroleum Pty Ltd
Project:	2013 Round 1 - ACT Groundwater Monitoring Event

Groundwater Sampling Summary

Sampling date(s):	21-May-13
Number of groundwater wells gauged/sampled:	3
Number of groundwater wells not gauged/sampled:	0
Summary of wells not gauged/sampled:	N/A

Summary of Groundwater Contamination

Description:	Concentrations of TRH were reported in all monitoring wells on-site. BTEX compounds were identified in groundwater at MW02 and MW03. Concentrations of benzene, xylene (m&p) and lead exceeded the site assessment criteria in monitoring well MW02, located north of the tank farm.
PSH present	No
Apparent PSH thickness:	N/A
Max concentration-F1:	6,300 µg/L (MW02)
Max concentration-F2:	230 µg/L (MW02)
Max concentration-benzene:	6,400 µg/L (MW02)
Max concentration-toluene:	140 µg/L (MW02)
Max concentration-ethylbenzene:	180 µg/L (MW02)
Max concentration-total xylene:	437 µg/L (MW02)
Max concentration-lead:	110 µg/L (MW02)
Groundwater direction flow:	North-east (Based on AECOM's Groundwater Monitoring Well Report, November 2011. Ref: 2011 #BLR)
Beneficial use(s):	Fresh water Drinking water* * Drinking water criteria has been considered based on natural quality parameters, with average TDS of 1,403 ppm detected prior to sampling. There are currently no registered bores within a 1km radius of the site. The area is serviced with a reticulated town water supply and it is considered unlikely that bores would be installed for drinking water use in the immediate vicinity of the site.
Closest inferred sensitive land use:	Residential properties are located to the north, south and west of the site. Calwell High School is located approximately 500 m south-east of the site.
Nearest surface water receptor(s):	Tuggeranong Creek - 150 m north-east of the site

Comments and Recommendations

Groundwater

Current and historical data indicate the greatest impact to groundwater at MW02 with high concentrations of benzene and lead reported.

Since the last sampling event in November 2011, concentrations of BTEX and TRH have decreased in monitoring well MW01, however BTEX and lead concentrations have increased in MW02.

Parsons Brinckerhoff recommends surveying all groundwater monitoring wells to determine the inferred groundwater flow direction, continued groundwater monitoring to establish trends in contaminant concentrations, and consideration of on-site delineating wells.

Attachments

Attachment A - Laboratory reports
Attachment B - QA/QC results

Report Summary

Report date:	20-Jun-13	**Date Sampled:**	23-May-13
Data entered:	RA	**Data Entered:**	20-Jun-13
Data QA:	DL	**Data QA:**	26-Jun-13

Site Plan

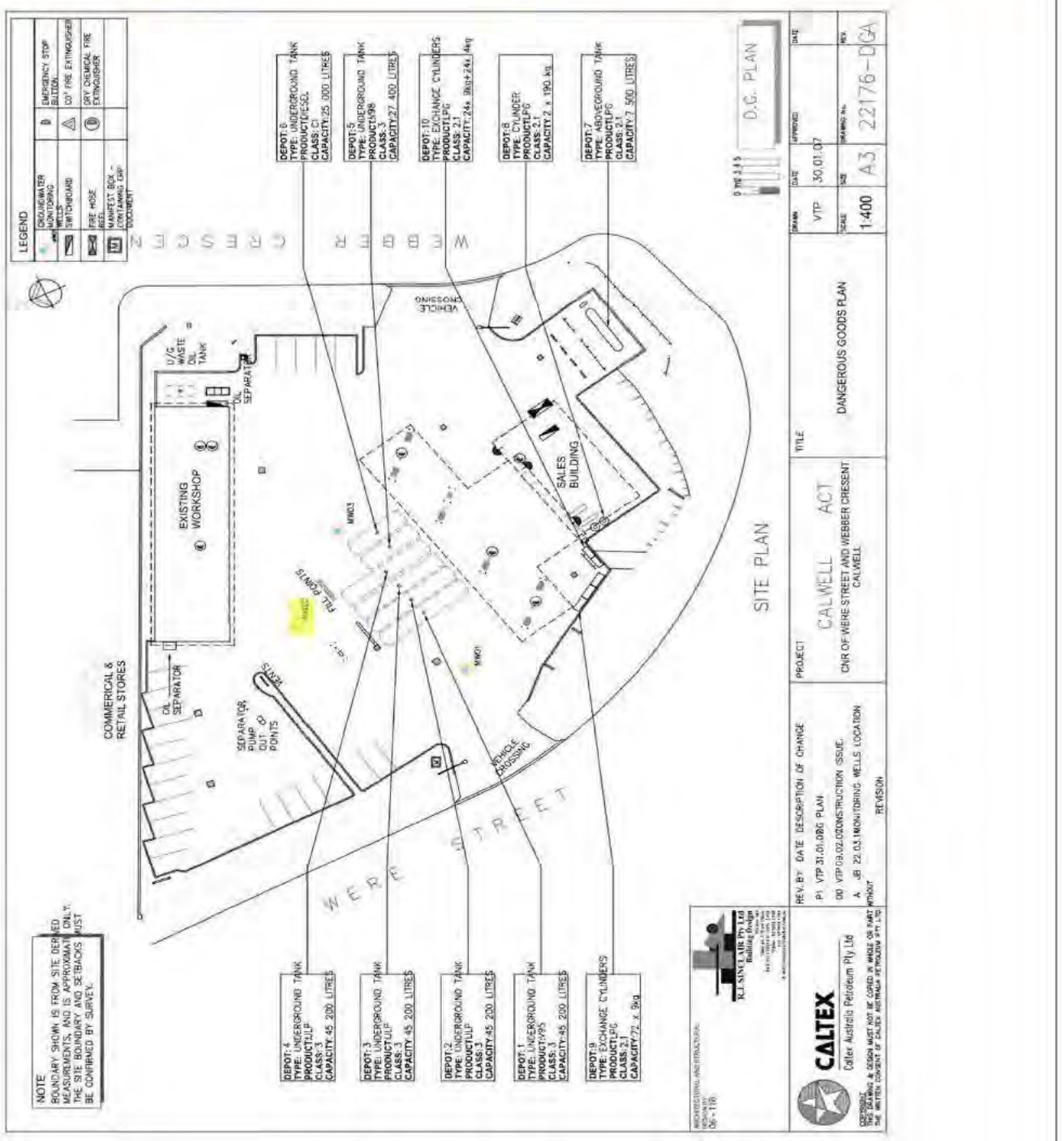


Figure reproduced from Caltex data package supplied as part of contract (Report - AECOM Environmental Management Plan, May 2012. Ref:2012-05-30 22176 Calwell AECOM [2nd DRAFT] EMP (22176).

Analytical table 1 - Groundwater analytical summary for TRH, BTEX and lead (current data)

				TRH						BTEX						
				C_6-C_{10}	F1	>C_{10}-C_{16}	F2	C_{16}-C_{28}	C_{28}-C_{36}	Benzene	Toluene	Ethylbenzene	Xylene (m&p)	Xylene (o)	Total xylene	Lead (dissolved)
Investigation Levels																
Fresh water[1]				-	-	-	-	-	-	950	-	-	200	350	-	3.4
Drinking water[2]				-	-	-	-	-	-	1	800	300	-	-	600	10
Groundwater HSLs (2 m to <4 m)[3]				-	6,000	-	-	-	-	5,000	NL	NL	-	-	NL	-
Groundwater HSLs (4 m to <8 m)[4]				-	6,000	-	NL	-	-	5,000	NL	NL	-	-	NL	-
Limit of reporting				10	10	50	50	100	100	1	1	1	2	1	-	1
Sample location	Date sampled	Depth to water	Well depth													
MW01	21-May-13	3.926	10.350	130	130	68	68	<100	<100	<1	<1	<1	<2	<1	-	<1
MW02	21-May-13	5.488	13.994	6,300	<10	280	230	<100	<100	6,400	140	180	370	67	437	110
MW03	21-May-13	5.065	17.920	38	33	110	110	290	<100	5	<1	<1	<2	<1	-	<1

All results expressed as µg/L, unless stated otherwise
F1 = TRH C_6-C_{10} minus BTEX compounds
F2 = TRH >C_{10}-C_{16} less naphthalene

Groundwater monitoring well trend graphs for benzene, TRH C_6-C_{10} & TRH >C_{10}-C_{36}

No trend graphs have been prepared as only one round of data is currently available for TRH C_6-C_{10} and TRH>C_{10}-C_{36}. Trend graphs will be included in future reports.

Analytical table 2 - Groundwater analytical trends for TRH, BTEX, and lead (current and previous rounds if available).

		TPH				TRH						BTEX						
Sample Location		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	C_6-C_{10}	F1	>C_{10}-C_{16}	F2	C_{15}-C_{28}	C_{29}-C_{36}	Benzene	Toluene	Ethylbenzene	Xylene (m&p)	Xylene (o)	Total xylene	Lead (dissolved)
Investigation Levels																		
Fresh water[1]		-	-	-	-	-	-	-	-	-	-	950	-	-	200	350	-	3.4
Drinking water[2]		-	-	-	-	-	-	-	-	-	-	1	800	300	-	-	600	10
Groundwater HSLs (2 m to <4 m)[3]		-	-	-	-	-	6,000	-	-	-	-	5,000	NL	NL	-	-	NL	-
Groundwater HSLs (4 m to <8 m)[4]		-	-	-	-	-	6,000	-	NL	-	-	5,000	NL	NL	-	-	NL	-
Limit of reporting		20	50	100	100	10	10	50	50	100	100	1	1	1	2	1	-	1
Sample location	Date sampled																	
MW01	16-Nov-13	2,690	170	<100	<50							85	312	192	940	337	1,277	<1
	21-May-13					130	130	68	68	<100	<100	<1	<1	<1	<2	<1	-	<1
MW02	16-Nov-11	14,700	460	<100	<50							4,530	2,000	172	933	480	1,410	65
	21-May-13					6,300	<10	280	230	<100	<100	6,400	140	180	370	67	437	110
MW03	16-Nov-11	50	<50	<100	<50							7	8	<2	8	4	12	2
	21-May-13					38	33	110	110	290	<100	5	<1	<1	<2	<1	-	<1

For ease of interpretation, yellow shading indicates the exceedance of one or more beneficial uses.
[1] NEPM National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPC, 2013) - groundwater investigation levels for fresh water
[2] NEPM National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPC, 2013) - groundwater investigation levels for drinking water
[3] NEPM National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPC, 2013) - groundwater HSL D Commercial/Industrial, 2 m to <4 m, sand
[3] NEPM National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPC, 2013) - groundwater HSL D Commercial/Industrial, 4 m to <8 m, sand

1.1 Field QA/QC data validation

1.1.1 Sampling procedures

Parsons Brinckerhoff standard procedures, which are based on industry accepted standard practice, were followed throughout the investigation to prevent cross contamination, preserve sample integrity and allow for collection of a suitable data set from which to make technically sound and justifiable decisions with data of satisfactory useability.

The work was undertaken by appropriately qualified and experienced personnel. The field methods employed for collection of groundwater samples are outlined in Section 6.

1.1.2 Field duplicate samples

The purpose of duplicate samples are to estimate the variability of a given characteristic or contaminant associated with a population. For the validation assessment blind (intra-laboratory) and split (inter-laboratory) duplicate samples were collected for analysis.

Field duplicate groundwater samples were collected by placing approximately equal portions of the primary sample into separate containers. Duplicate samples were labelled so as to conceal their relationship to the primary sample from the laboratory.

A total of four blind duplicate groundwater samples were submitted for analysis (at an approximate rate of 1:10 and at 1:20 primary samples analysed respectively) and one blind triplicate sample during the investigation.

Variation in duplicate results can be observed due to sample heterogeneity or low reported concentrations near the laboratory PQL. The overall precision of field duplicates is generally assessed by their relative percentage difference (RPD), given by:

$$\mathrm{RPD} = \left[\frac{X1 - X2}{\left(\frac{X1 + X2}{2} \right)} \right] \cdot 100$$

where: *X1 is the first duplicate value*
X2 is the second duplicate value

RPDs for duplicate samples have been calculated and the results are presented in Table 3 and Table 4. The RPDs have been compared to the acceptance limits (<5xPQL - any RPD and >5x PQL – 0-50% RPD). RPDs were found to be within the acceptable limits with the following exception; RPD between primary sample MW01_22721 and duplicate sample DUP03 for toluene (153 %), primary sample MW02_22723 and inter-lab triplicate sample DUP03 for F2 (144 %) and C29-C36 (169%).

The exceedances are not considered to be detrimental to the quality of the data set for interpretation of the results and are not considered to have impacted the results of the investigation.

1.1.3 Rinsate Blanks

Rinsate blanks consist of pre-preserved bottles filled with laboratory-prepared water that is passed over decontaminated field equipment and then collected in containers used for the sampling process. Rinsate blanks are preserved in a similar manner to the original samples. Rinsate blanks are a check on decontamination procedures.

A total of five rinsate samples were analysed; one for each day of sampling and the results are provided in Table 3.

A review of the analytical results indicated all samples recorded concentrations below the acceptable limit (non-detect for contaminants analysed).

It is concluded that the decontamination procedures were adequate and contaminants were unlikely to have been introduced by contact of the sampling equipment with the groundwater sampled.

1.1.4 Trip Blanks

A trip blank assesses the potential for cross contamination between transit from the site to the laboratory. Samples are typically analysed for the same contaminants targeted as part of the assessment. Trip blank samples were prepared by the primary laboratory, carried to the field unopened, subjected to the same preservation methods as the primary field samples.

Two trip blank samples were analysed for each sample batch send to the laboratory, and the results are provided in Table 3.

A review of the analytical results indicated concentrations of analytes were recorded below the acceptable limit (non-detect for contaminants analysed).

It is concluded that cross contamination did not occur during the course of the fieldwork.

1.1.5 Trip Spikes

Trip spikes are assessed for the potential loss of volatile constituents from groundwater samples whilst in transit from the site to the laboratory. A trip spike sample was prepared by the laboratory, carried to the field unopened, subjected to the same preservation methods as the field samples and analysed for BTEX compounds to determine the loss of volatile compounds incurred prior to laboratory analysis.

Two trip spike samples were analysed, and the analytical results are provided in Table 3. Concentrations of BTEX compounds ranged from 89% - 100%. A review of the analytical results indicates concentrations were within the acceptable limits (70-30% inorganics/metals, 60-140% organics and 10-40% semivolatile organic compounds) indicating a minimal loss of volatile compounds during the fieldwork.

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www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 91278-2

Client:
Parsons Brinckerhoff Aust. Pty Ltd
GPO Box 5394
Sydney
NSW 2001

Attention: DanLaver

Sample log in details:

Your Reference:	**201305097, Canberra**
No. of samples:	3 Waters
Date samples received / completed instructions received	27/05/2013 / 27/05/2013

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	18/06/13 / 14/06/13
Date of Preliminary Report:	Not issued

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Results Approved By:

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vTRH(C6-C10)/BTEXN in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	91278-2-4 MW01_22176 21/05/2013 water	91278-2-5 MW02_22176 21/05/2013 water	91278-2-6 MW03_22176 21/05/2013 water
Date extracted	-	28/05/2013	28/05/2013	28/05/2013
Date analysed	-	28/05/2013	28/05/2013	28/05/2013
$TRHC_6 - C_9$	µg/L	120	5,900	34
$TRHC_6 - C_{10}$	µg/L	130	6,300	38
$TRHC_6 - C_{10}$ less BTEX (F1)	µg/L	130	<10	33
Benzene	µg/L	<1	6,400	5
Toluene	µg/L	<1	140	<1
Ethylbenzene	µg/L	<1	180	<1
m+p-xylene	µg/L	<2	370	<2
o-xylene	µg/L	<1	67	<1
Naphthalene	µg/L	<1	48	<1
Surrogate Dibromofluoromethane	%	83	83	90
Surrogate toluene-d8	%	96	103	96
Surrogate 4-BFB	%	101	100	92

svTRH (C10-C40) in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	91278-2-4 MW01_22176 21/05/2013 water	91278-2-5 MW02_22176 21/05/2013 water	91278-2-6 MW03_22176 21/05/2013 water
Date extracted	-	27/05/2013	27/05/2013	27/05/2013
Date analysed	-	28/05/2013	28/05/2013	28/05/2013
$TRHC_{10}$ - C_{14}	µg/L	110	570	70
$TRHC_{15}$ - C_{28}	µg/L	<100	<100	290
$TRHC_{29}$ - C_{36}	µg/L	<100	<100	<100
$TRH>C_{10}$ - C_{16}	µg/L	68	280	110
$TRH>C_{10}$ - C_{16} less Naphthalene (F2)	µg/L	68	230	110
$TRH>C_{16}$ - C_{34}	µg/L	<100	<100	250
$TRH>C_{34}$ - C_{40}	µg/L	<100	<100	<100
Surrogate o-Terphenyl	%	105	97	96

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	91278-2-4 MW01_22176 21/05/2013 water	91278-2-5 MW02_22176 21/05/2013 water	91278-2-6 MW03_22176 21/05/2013 water
Date prepared	-	28/05/2013	28/05/2013	28/05/2013
Date analysed	-	28/05/2013	28/05/2013	28/05/2013
Lead-Dissolved	µg/L	<1	110	<1

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/05/2013	[NT]	[NT]	LCS-W1	28/05/2013
Date analysed	-			28/05/2013	[NT]	[NT]	LCS-W1	28/05/2013
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	111%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	111%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	111%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	112%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	113%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	83	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	104	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/05/2013	[NT]	[NT]	LCS-W1	27/05/2013
Date analysed	-			27/05/2013	[NT]	[NT]	LCS-W1	28/05/2013
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	71%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	90%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	90%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	71%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	90%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	90%
Surrogate o-Terphenyl	%		Org-003	77	[NT]	[NT]	LCS-W1	90%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			28/05/2013	[NT]	[NT]	LCS-W1	28/05/2013
Date analysed	-			28/05/2013	[NT]	[NT]	LCS-W1	28/05/2013
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	LCS-W2	28/05/2013
Date analysed	-	[NT]	[NT]	LCS-W2	28/05/2013
Lead-Dissolved	µg/L	[NT]	[NT]	LCS-W2	96%

Report Comments:

For the determination of dissolved metals the unpreserved sample was filtered through 0.45um filter at the lab due to the presence of colloids and/or sediment in the supplied HNO3 bottle.

Total Recoverable Hydrocarbons in water (NEPM):# Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference. PQL has been raised due to the high concentration of analytes in the sample/s, resulting in the sample/s requiring dilution.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

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CERTIFICATE OF ANALYSIS 91259-4

Client:
Parsons Brinckerhoff Aust. Pty Ltd
GPO Box 5394
Sydney
NSW 2001

Attention: Dan Laver

Sample log in details:

Your Reference:	**201305097, Canberra**
No. of samples:	11 waters
Date samples received / completed instructions received	24/05/13 & 27/5/13 24/05/13 & 27/5/13

This report replaces the one dated 14/06/2013 due to the addition of C6-C9/C10 and Naphthalene for sample "DUP03".

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	21/06/13 / 26/06/13
Date of Preliminary Report:	Not issued

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Results Approved By:



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vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	91259-4-9	91259-4-13	91259-4-14	91259-4-15	91259-4-19
Your Reference	----------	RB_230513	RB_240513	TS1	TS2	TB1
Date Sampled	----------	23/05/2013	24/05/2013	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water	water	water
Date extracted	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Date analysed	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
$TRHC_6$ - C_9	µg/L	<10	<10	[NA]	[NA]	<10
$TRHC_6$ - C_{10}	µg/L	<10	<10	[NA]	[NA]	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10	<10	[NA]	[NA]	<10
Benzene	µg/L	<1	<1	89%	96%	<1
Toluene	µg/L	<1	<1	99%	97%	<1
Ethylbenzene	µg/L	<1	<1	98%	99%	<1
m+p-xylene	µg/L	<2	<2	97%	100%	<2
o-xylene	µg/L	<1	<1	98%	99%	<1
Naphthalene	µg/L	<1	<1	[NA]	[NA]	<1
Surrogate Dibromofluoromethane	%	110	109	104	108	114
Surrogate toluene-d8	%	99	111	102	105	109
Surrogate 4-BFB	%	98	89	95	89	103

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	91259-4-20	91259-4-24	91259-4-34	91259-4-35	91259-4-36
Your Reference	----------	TB2	Dup04	Dup01	Dup02	Dup03
Date Sampled	----------	23/05/2013	23/05/2013	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water	water	water
Date extracted	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Date analysed	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
$TRHC_6$ - C_9	µg/L	<10	14,000	21	<10	17,000
$TRHC_6$ - C_{10}	µg/L	<10	16,000	21	<10	27,000
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10	4,700	21	<10	18,000
Benzene	µg/L	<1	1,600	<1	<1	210
Toluene	µg/L	<1	7,700	<1	<1	110
Ethylbenzene	µg/L	<1	330	<1	<1	1,000
m+p-xylene	µg/L	<2	1,100	<2	<2	6,000
o-xylene	µg/L	<1	530	<1	<1	1,800
Naphthalene	µg/L	<1	17	<1	<1	340
Surrogate Dibromofluoromethane	%	115	106	91	89	93
Surrogate toluene-d8	%	110	102	97	97	99
Surrogate 4-BFB	%	105	94	101	101	100

vTRH(C6-C10)/BTEXN in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	91259-4-37 RB_200513 23/05/2013 water	91259-4-38 RB_210513 23/05/2013 water	91259-4-39 RB_220513 23/05/2013 water
Date extracted	-	29/05/2013	29/05/2013	29/05/2013
Date analysed	-	29/05/2013	29/05/2013	29/05/2013
$TRHC_6$ - C_9	µg/L	<10	<10	<10
$TRHC_6$ - C_{10}	µg/L	<10	<10	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10	<10	<10
Benzene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	82	84	87
Surrogate toluene-d8	%	97	97	97
Surrogate 4-BFB	%	102	102	101

svTRH (C10-C40) in Water						
Our Reference:	UNITS	91259-4-9	91259-4-13	91259-4-24	91259-4-34	91259-4-35
Your Reference	----------	RB_230513	RB_240513	Dup04	Dup01	Dup02
Date Sampled	----------	23/05/2013	24/05/2013	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water	water	water
Date extracted	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Date analysed	-	29/05/2013	29/05/2013	29/05/2013	29/05/2013	29/05/2013
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	1,300	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	760	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	740	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	83	99	93	88	80

svTRH (C10-C40) in Water				
Our Reference:	UNITS	91259-4-37	91259-4-38	91259-4-39
Your Reference	----------	RB_200513	RB_210513	RB_220513
Date Sampled	----------	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water
Date extracted	-	29/05/2013	29/05/2013	29/05/2013
Date analysed	-	29/05/2013	29/05/2013	29/05/2013
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100
Surrogate o-Terphenyl	%	82	106	106

HM in water - dissolved						
Our Reference:	UNITS	91259-4-9	91259-4-13	91259-4-24	91259-4-34	91259-4-35
Your Reference	----------	RB_230513	RB_240513	Dup04	Dup01	Dup02
Date Sampled	----------	23/05/2013	24/05/2013	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water	water	water
Date prepared	-	27/05/2013	27/05/2013	27/05/2013	27/05/2013	27/05/2013
Date analysed	-	27/05/2013	27/05/2013	27/05/2013	27/05/2013	27/05/2013
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1

HM in water - dissolved					
Our Reference:	UNITS	91259-4-36	91259-4-37	91259-4-38	91259-4-39
Your Reference	----------	Dup03	RB_200513	RB_210513	RB_220513
Date Sampled	----------	23/05/2013	23/05/2013	23/05/2013	23/05/2013
Type of sample		water	water	water	water
Date prepared	-	27/05/2013	27/05/2013	27/05/2013	27/05/2013
Date analysed	-	27/05/2013	27/05/2013	27/05/2013	27/05/2013
Lead-Dissolved	µg/L	<1	<1	<1	<1

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			29/05/2013	[NT]	[NT]	LCS-W1	29/05/2013
Date analysed	-			29/05/2013	[NT]	[NT]	LCS-W1	29/05/2013
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	89%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	89%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	85%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	89%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	89%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	91%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	103	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	91%
Surrogate 4-BFB	%		Org-016	103	[NT]	[NT]	LCS-W1	101%
QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			29/05/2013	[NT]	[NT]	LCS-W2	29/05/2013
Date analysed	-			29/05/2013	[NT]	[NT]	LCS-W2	29/05/2013
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W2	94%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	93%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	97%
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W2	94%
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	93%
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	97%
Surrogate o-Terphenyl	%		Org-003	88	[NT]	[NT]	LCS-W2	95%
QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			27/05/2013	[NT]	[NT]	LCS-W1	27/05/2013
Date analysed	-			27/05/2013	[NT]	[NT]	LCS-W1	27/05/2013
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%

Report Comments:

For the determination of dissolved metals the unpreserved sample was filtered through 0.45um filter at the lab due to the presence of colloids and/or sediment in the supplied HNO3 bottle.

Total Recoverable Hydrocarbons/BTEX in water:PQL has been raised due to the high concentration of analytes in the sample/s, resulting in the sample/s requiring dilution.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

ALS Group

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1312019**	Page	: 1 of 4
Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL LAVER	Contact	: Loren Schiavon
Address	: GPO BOX 5394 SYDNEY NSW, AUSTRALIA 2001	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: dlaver@pb.com.au	E-mail	: loren.schiavon@alsglobal.com
Telephone	: +61 02 9272 5100	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9272 5101	Facsimile	: +61 2 8784 8500
Project	: 20305097-CALTEX II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 73627	Date Samples Received	: 27-MAY-2013
Sampler	: ----	Issue Date	: 03-JUN-2013
Site	: CANBERRA		
		No. of samples received	: 1
Quote number	: EN/008/12	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

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	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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 insufficient sample for analysis.

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	DUP05	----	----	----	----
				Client sampling date / time	24-MAY-2013 13:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1312019-001	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		13800	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		1460	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		160	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		1620	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	20	µg/L		14000	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L		6720	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		1080	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		1180	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		1040	----	----	----	----
Toluene	108-88-3	2	µg/L		4870	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		227	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		777	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		366	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		1140	----	----	----	----
^ Sum of BTEX	----	1	µg/L		7280	----	----	----	----
Naphthalene	91-20-3	5	µg/L		23	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		81.9	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		90.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		86.5	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES1312019	Page	: 1 of 5
Client	: PARSONS BRINCKERHOFF AUST P/L	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL LAVER	Contact	: Loren Schiavon
Address	: GPO BOX 5394 SYDNEY NSW, AUSTRALIA 2001	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Sch 2.2(a)(i)@pb.com.au	E-mail	: Sch 2.2(a)(ii)@alsglobal.com
Telephone	: +61 02 9272 5100	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9272 5101	Facsimile	: +61 2 8784 8500
Project	: 20305097-CALTEX II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CANBERRA		
C-O-C number	: 73627	Date Samples Received	: 27-MAY-2013
Sampler	: ----	Issue Date	: 03-JUN-2013
Order number	: ----		
		No. of samples received	: 1
Quote number	: EN/008/12	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 Accredited Laboratory 825

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	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney 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 insufficient sample for analysis.

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

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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2889790)									
ES1311799-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
ES1311969-007	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	1.92	1.91	0.5	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2893621)									
ES1312101-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1312101-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2893621)									
ES1312101-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1312101-007	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2893621)									
ES1312101-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1312101-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<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: **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
EG020F: Dissolved Metals by ICP-MS (QCLot: 2889790)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.7	81	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2889368)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	112	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	106	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2893621)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.5	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2889368)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	113	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	108	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	110	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2893621)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	89.2	75	127
EP080: BTEXN (QCLot: 2893621)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	90.6	66	132
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	83.5	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	82.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	85.9	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	87.7	70	124

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	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2889790)							
ES1311799-001	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	95.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2893621)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2893621) - continued							
ES1312101-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	100	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2893621)							
ES1312101-001	Anonymous	EP080: C6 - C10 Fraction	----	375 µg/L	106	70	130
EP080: BTEXN (QCLot: 2893621)							
ES1312101-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70	130
		EP080: Toluene	108-88-3	25 µg/L	86.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	74.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	71.7	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	75.4	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	73.1	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EG020F: Dissolved Metals by ICP-MS (QCLot: 2889790)										
ES1311799-001	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	95.3	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2893621)										
ES1312101-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	100	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2893621)										
ES1312101-001	Anonymous	EP080: C6 - C10 Fraction	----	375 µg/L	106	----	70	130	----	----
EP080: BTEXN (QCLot: 2893621)										
ES1312101-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	86.6	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	74.3	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	71.7	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	75.4	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	73.1	----	70	130	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1312019**	Page	: 1 of 5
Client	: PARSONS BRINCKERHOFF AUST P/L	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL LAVER	Contact	: Loren Schiavon
Address	: GPO BOX 5394 SYDNEY NSW, AUSTRALIA 2001	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Sch 2.2(a)(ii) @pb.com.au	E-mail	: Sch 2.2(a)(ii) @alsglobal.com
Telephone	: +61 02 9272 5100	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9272 5101	Facsimile	: +61 2 8784 8500
Project	: 20305097-CALTEX II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CANBERRA		
C-O-C number	: 73627	Date Samples Received	: 27-MAY-2013
Sampler	: ----	Issue Date	: 03-JUN-2013
Order number	: ----		
		No. of samples received	: 1
Quote number	: EN/008/12	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: **WATER**

Evaluation: x = 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
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-F)							
DUP05	**24-MAY-2013**	---	20-NOV-2013	----	**28-MAY-2013**	20-NOV-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
DUP05	**24-MAY-2013**	**28-MAY-2013**	31-MAY-2013	✓	**28-MAY-2013**	07-JUL-2013	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
DUP05	**24-MAY-2013**	**30-MAY-2013**	07-JUN-2013	✓	**30-MAY-2013**	07-JUN-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber VOC Vial - Sulfuric Acid (EP080)							
DUP05	**24-MAY-2013**	**30-MAY-2013**	07-JUN-2013	✓	**30-MAY-2013**	07-JUN-2013	✓

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)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	3	**33.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	3	**33.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 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.

- **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.**

MANUAL INVOICE / AGREEMENT SPECIFICS

TAX INVOICE NUMBER: N 37966

☐ GLENDENNING 6-8 Rayben St Glendenning NSW 2761
☐ NEWCASTLE 19 Egret Street Kooragang Island NSW 2304
☐ ORANGE 28 Leewood Dve Orange NSW 2800
☐ QUEANBEYAN 42B Aurora Ave Queanbeyan NSW 2620
☐ TAMWORTH 31-35 Gunnedah Rd Tamworth NSW 2340
☐ WOLLONGONG 5 Charcoal Close Unanderra NSW 2526

TRANSPACIFIC
ABN 88 001 576 889
www.transpacific.com.au
ERS Australia 1800 118 800

CUSTOMER NUMBER

Waste Consignor (Activity)

Licenced Activity: ☐ Non Licenced Activity: ☐

NAME: CALTEX - CAKWELL

ADDRESS: CNR WIEKE HUEBER Cres

SUBURB: CAKWELL STATE: ACT POSTCODE:

WASTE DATA FORM ☐ WASTE RECEIPT ✓

Customer Phone	Contact Name
Sch 2.2(a)(ii)	DANIEL ROBINSON.
Fax Number	**Credit Code** / **ANZSIC Code**

Service Date	Time	Representative	Truck Registration	Agreement	Licence No.	Transport No.
3/6/13		DAMIEN	AR77KS		6090	6239.

Load Identification

Dangerous Goods	Comments	Qty.	kg
Proper Shipping Name: DRUM SUPPLY		1	
Waste Description: AAA BBB UNCCCC D EEE F GGGG H Y			
Proper Shipping Name: COLLECTION		1	
Waste Description: AAA BBB UNCCCC D EEE F GGGG H Y			
Proper Shipping Name: DISPOSAL - WASTE WATER		1	20
Waste Description: AAA BBB UN5720 D EEE F GGGG H Y			
Proper Shipping Name: COMPLIANCE		1	
Waste Description: - - --- UN---- L --- A G110 D R			
Proper Shipping Name: DEEP TRUCK			
Waste Description: 3 - - --- UN1263 L II - H E100 D R			
Proper Shipping Name:			
Waste Description: 9 - - --- UN3082 L III H J120 D R			

ERS is acting as a:

Transporter ✓
Destination: ✓
Consignor ☐
(Please tick the appropriate box)

Interstate Transport

Direction of Movement:
Into NSW: ✓
Out of NSW: ☐
Destination State: ☐
(1. Queensland 2. Victoria 3. South Australia)

Date of despatch is the date of removal and is also the expected date of delivery to destination and the date of receipt.

The representative is the driver and the receiving facility (destination) representative.

Waste Consignee (Destination) & Transporter ERS Australia Pty. Ltd.

Branch Address:

FOR NSW CUSTOMERS ONLY
By law this document must be kept for 4 years after the collection of the waste for inspection by authorised officers.

In case of emergency
Please call: **ERS AUSTRALIA (02) 6025 6577** (24 Hours)

Date of Waste Movement

Representative Name: (Please Print) DAMIEN Back,

Signature: Sch 2.2(a)(ii)

Customer Name: (Please Print) DANIEL ROBINSON

Order No: EMail

Signature:

Date: 3/6/13.

WASTE CODE LEGENDS

Physical Nature Codes = D		NSW Waste Types = F		NSW Waste Types = F		NSW Waste Types = F	
Physical Nature Codes	Description	Waste Type Code	Description	Code	Description	Code	Description
L	Liquid	H	Hazardous	D	Drum	R	Storage
S	Solid	I	Industrial	B	Bulk	T	Treatment
F	Sludge	A	Group A Liquid	O	Other		

WASTE DESCRIPTION: AAABBBUNCCCCEEEFGGGGHY

AAA	=	Dangerous Goods	EEE	=	Packing Group Number
BBB	=	Subsidiary Risk	F	=	NSW Waste Type
UNCCCC	=	UN Number	GGGG	=	Waste Code
D	=	Physical Nature Code	H	=	Packaging Type
			Y	=	Fate of Waste

VARIOUS CALTEX SITES ACT

NSW Environment Protection Authority - Online Waste Tracking System

TRANSPORT CERTIFICATE - No. 2T00435164

Created by: Cecily Shirley 02-May-2013 9:21 am **Status:** Created

CA no: 2C00060721 **CA start date:** 11-Jul-2012 **CA end date:** 30-Jun-2013

PART 1 (this part to be completed by consignor at pickup)

CONSIGNOR

ERS - AGENT FOR VARIOUS ACT PRODUCERS
VARIOUS SITES
ACT, ACT 2600

Role: Producer
Contact: Damien Beck **Email:** Sch 2.2(a)(ii)@transpac.com.au
Phone: (02) 6297 8185 **Fax:** (02) 6297 0257 **Emergency:** (02) 6297 8185
ABN: 88 001 576 889 **ANZSIC code:** 0 **Licence no.:** n/a

Pickup details: As above

WASTE

Waste code: J120 - Waste oil/hydrocarbons mixtures/emulsions in water
Description: Oil/hydrocarbon mixed with water nos
Form: Liquid **Liquid waste levy applies:** Yes
Proposed treatment: Storage **Classification:** Liquid
Contaminants: N/A
Dangerous goods class: N/A **Subsidiary risk class:** N/A **UN no.:** N/A
Packaging type: N/A **Packing group no:** N/A **No. package:** N/A

PICKUP

Waste amount at pickup: 205 (required - Yes)
I declare that to the best of my knowledge and belief the above information is true and correct.
Name and Positio Damien Beck
Signature ..... Sch 2.2(a)(ii) Date 3/6/13

PART 2 - TRANSPORTER (this part to be completed by the transporter at pickup)

ERS - DOONSIDE
PO BOX 46
DOONSIDE, NSW 2767

Contact: CECILY SHIRLEY **Email:** CECILY.SHIRLEY@transpac.com.au
Phone: (02) 9832 8766 **Fax :** (02) 9832 8806 **Transit state:** N/A
Licence no.: 6239 **Vehicle reg:** TBA ~~TBA~~ **Transport type:** Road

I declare that to the best of my knowledge and belief the above information is true and correct. AR77K5
Name and Posi A Beck
Signature ..... Sch 2.2(a)(ii) Date 3/6/13

PART 3 - RECEIVING FACILITY (this part to be completed by the receiving facility)

ERS - QUEANBEYAN
42 AURORA AVE
QUEANBEYAN, NSW 2620

Contact: Damien Beck **Email:** damien.beck@transpac.com.au
Phone: (02) 6297 8185 **Fax:** (02) 6297 0257
Licence no.: 6090 **Receiving facility ref no.:** N/A

Waste amount at arrival: 205 Date waste arrived at the facility : .....

ACCEPT / REJECT THE WASTE

☐ The receiving facility accepted the waste - Date accepted: ..... Date Processed: ..... Treatment: .....
☐ The receiving facility rejected the waste (complete section below)
Reason for rejection: .....
Rejected waste sent to - Name: .....
Address: .....

I declare that to the best of my knowledge and belief the above information is true and correct - complete if accepted or rejected:
Name and Position Damien Beck
Signature ..... Sch 2.2(a)(ii) Date 3/6/13

NOTE

From: "Oliver King"Sch 2.2(a)(ii)@caltex.com.au>
Sent: 10/12/2015 5:56 AM
To: "Heckenberg, Mark" <Mark.Heckenberg@act.gov.au>
Cc: "Dinesh Poudyal" Sch 2.2(a)(ii)@caltex.com.au>;"Oliver King"Sch 2.2(a)(ii)@caltex.com.au>
Subject: ACT Caltex Sites
Attachments: 08 ACT Sites Update to EPA _06_11_2015.xlsx

Mark

See attached for tomorrow's meeting. (minor updates since the quarterly update I sent you in November)

Thanks, Oli

Oliver King
Commercial & Operations Manager - CALSOIL

CALTEX AUSTRALIA PETROLEUM PTY LTD
2 Market St, Sydney NSW 2000 | Postal: GPO Box 3916, Sydney NSW 2001
T: (02) 9250 5339 | M: Sch 2.2(a)(ii) | F: (02) 9250 5742
E: oking@caltex.com.au | www.caltex.com.au

CALTEX | With you all the way

See the NEW Incident & Injury Prevention Program (IIPP) **Topic 4: LPS Loss/Near Loss Reporting and Incident Investigation**

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CALTEX Sites in the ACT

SITE NAME	CALTEX SITE ID	Block	Section	Division	District	Most Recent Gauging	Status Update November 2015
Out of scope							
Calwell	22176	8	787	Calwell	Tuggeranong	Mar-15	Ongoing six-monthly gauging (March and September) and annual groundwater sampling (August 2015) where no LNAPL was identified. Caltex understands the Landlord is replacing the UPSS in 2015.
Out of scope							

Site Name	Site ID	Well ID	Inspection Date	Depth To Water (mBTOC)	Depth To LNAPL (mBTOC)	LNAPL Thickness (metres)	Other Comments
Out of scope							
CALWELL SSTN	22176	MW01	15/09/2015	3.142	-	-	-
		MW02	15/09/2015	4.885	-	-	-
		MW03	15/09/2015	4.543	-	-	-

Out of scope

Out of scope

LNAPL - Light Non-Aqueous Phase Liquid
SSTN - Service Station
mBTOC - metres below top of casing

From: Sch 2.2(a)(ii) @douglaspartners.com.au>
Sent: 30/08/2019 1:47 AM
To: "Heckenberg, Mark" <Mark.Heckenberg@act.gov.au>
Cc: Sch 2.2(a)(ii) @douglaspartners.com.au>
Subject: Auditing in ACT
Attachments: AuditorsAnnualReturn 2019 ACT.pdf

Mark

Sch 2.2(a)(ii)

The intention is to internally transfer any extant audits to Sch 2.2(a)(ii) of DP and that he will also advise you formally of this in the appropriate manner.

My annual audit return (forwarded last month and attached fyc) lists the audits current in 2018-19, one of which is now complete Out of scope one of which remains active i.e. 1 Webber Crescent, Calwell and another at Out of scope which is dormant (and has been for some time).

The audit at Calwell was originally expected to be completed by the end of the year, however based on the results of the latest monitoring I now have my doubts that this can be reasonably achieved. This is due to consistently elevated results for hydrocarbons in groundwater at or near the site boundary. Accordingly, the consultant has recommended continuance of the GME programme and as such it now seems reasonable to transfer this work to [redacted] rather than waiting until later in the year. The client has agreed to this approach.

You are also aware that [redacted] has taken on a previously completed audit at a former service statior Out of scope [redacted]) which is now to be scheduled for residential redevelopment rather than commercial land use as per my previous audit.

If you have any questions please contact either myself or Sch 2.2(a)(ii)

Kind regards.

Sch 2.2(a)(ii) Principal
Douglas Partners Pty Ltd | ABN 75 053 980 117 |
www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 9809 0666 | F: 02 9809 4095 | M: Sch 2.2(a)(ii) E: Sch 2.2(a)(ii) @douglaspartners.com.au





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ENVIRONMENT PROTECTION AUTHORITY

AUDITOR'S ANNUAL RETURN

Environment Protection Authority
GPO Box 158
CANBERRA ACT 2601

ANNUAL RETURN COVERSHEET

SITE AUDITORS DETAILS:

Name: Sch 2.2(a)(ii)
Company: Douglas Partners Pty Ltd
Address: 96 Hermitage Road
West Ryde NSW 2114

Ph: (02) 9809 0666
Fax: (02) 9809 4095
Accreditation No.: 9822
File Reference No: DP/ACT/001

ANNUAL RETURN PERIOD: 2018 - 2019

NUMBER OF STATUTORY SITE AUDITS: 2

NUMBER OF NON-STATUTORY SITE AUDITS: 1

I certify that the information supplied in this form and any attached pages is correct.

(Auditor's Signature) Sch 2.2(a)(ii)

Auditor's Name: Sch 2.2(a)(ii) Date: 31 July 2019

Out of scope

Out of scope

Out of scope

Out of scope

Out of scope

Out of scope

Out of scope

Out of scope

1. Auditors details:

Name: Out of scope

Address: 96 Hermitage Road West Ryde NSW 2114

Phone: (02) 9809 0666 Facsimile: None

Accredited By (State Authority): NSW EPA

Accreditation No: 9822

Audit Reference Number: 84947 / DP/ACT/005

2. Site Location:

Block: 8 Section: 787 Suburb: **Calwell** (DP 7990)

Street Address: 1 Webber Crescent, Calwell

Size of the site: 4252 m^2

3. Land use details:

Land uses permitted under the Territory Plan:

- C23 - Services

Uses permitted by the lease purpose clause:

- Service Station

Proposed lease purpose changes or changes to the Territory Plan:

- None

4. Lessee(s)/occupier(s) details

Current lessee(s): Caltex Australia Petroleum Pty Ltd
Site owned by Tsoulias Group

Current occupier(s): Service Station

Previous lessee(s):

Previous occupier(s):

5. Audit details:

The name of the person who requested the audit: Con Tsoulias
Tsoulias Group
PO Box 99
Calwell ACT 2905

The date when the auditor received the request: 30 June 2015

The date of commencement of the audit: 30 June 2015

The date or expected date of completion of the audit: late 2019 (but no contact with client or consultant for some time, despite enquiries).

The use or uses of the site that have caused the contamination for which assessment or remediation was undertaken:

Service Station with USTs

The current and proposed uses for the site:

- Current – Service Station
- Proposed – Service Station

The auditor's opinion as to the suitability of the site for the current, proposed and permitted uses:

- Current – some issues relating to hydrocarbons in groundwater;
- Proposed – probably can be made suitable.

The name of the person(s) who carried out the assessment or remediation works that were reviewed or is being reviewed by the auditor and the titles of the reports that were or are being reviewed:

- EIS (Feb 2016) Stage 2 Environmental Site Assessment, proposed removal of existing underground fuel tanks and replacement with new underground tanks for the service station, 1 Webber Crescent, Calwell, ACT 2905;
- EIS (May 2016) Remediation Action Plan, proposed replacement of underground storage tanks for the service station at 1 Webber Crescent, Calwell;
- EIS (May 2016) Additional Groundwater Assessment, for proposed removal of existing underground fuel tanks and replacement with new underground tanks for the services station at 1 Webber Crescent, Calwell;
- EIS (July 2016) Summary Validation Assessment, Underground storage tanks (UST) replacement for the service station, 1 Webber Crescent, Calwell;
- EIS (July 2016) Beneficial Re-use of Stockpiled Soil, Underground storage tanks (UST) replacement for the service station, 1 Webber Crescent, Calwell;
- EIS (September 2016) Validation Assessment for Underground Storage Tank (UST) Replacement for the Service Station at 1 Webber Crescent, Calwell, ACT 2905.
- EIS (September 2016) Groundwater Monitoring Event – September 2016 for Removal of Existing Underground Fuel Tanks and Replacement with new Underground Tanks for the Service Station at 1 Webber Crescent, Calwell, ACT 2905.
- EIS (December 2016) Groundwater Monitoring Event – December 2016 for Removal of Existing Underground Fuel Tanks and Replacement with new Underground Tanks for the Service Station at 1 Webber Crescent, Calwell, ACT 2905
- EIS (June 2017) Groundwater Monitoring Event – June 2017 for Replacement of Underground Fuel Tanks, Caltex Service Station at 1 Webber Crescent, Calwell, ACT 2905
- EIS (December 2017) Groundwater Monitoring Event – December 2017 for Replacement of Underground Fuel Tanks, Caltex Service Station at 1 Webber Crescent, Calwell, ACT 2905
- EIS (March 2018) Groundwater Monitoring Event – March 2018 for Replacement of Underground Fuel Tanks, Caltex Service Station at 1 Webber Crescent, Calwell, ACT 2905
- EIS (December 2018) Groundwater Monitoring Event – November 2018 for Caltex Service Station at 1 Webber Crescent, Calwell, ACT 2905 dated 20 December 2018 (draft). GME8

Details of any impacts on land adjacent to the site (including groundwater):

Possible impact from the extent of contamination associated with the former site use.

(Auditor's Signat Sch 2.2(a)(ii)

Auditors Name: Date: 31 July 2019

From: "Xu, Terry" Sch 2.2(a)(ii)@coffey.com>
Sent: 26/09/2018 1:30 AM
To: "Contaminated Sites" <ContaminatedSites@act.gov.au>
Cc: "Heckenberg, Mark" <Mark.Heckenberg@act.gov.au>;"Ructtinger, Alex" Sch 2.2(a)(ii)@coffey.com>; Sch 2.2(a)(ii)@dfpg.com.au" Sch 2.2(a)(ii)@dfpg.com.au>
Subject: Beneficial Re-Use Assessment - Stockpiled Soil at Calwell Service Station, ACT (Block 8, Section 787, Calwell)
Attachments: 754-CBREN218543_L03_Cover Letter.pdf, 754-CBREN218543-L03.pdf

Hi Mark/Narelle,

Please find attached the beneficial reuse assessment (BRA) report for the stockpiled soil excavated from Calwell Service Station as part of the stormwater system installation.

Please review as part of providing endorsement of the assessment for beneficial reuse of the soils for this project.

Should you have any questions please let me know.

Kind Regards,

Terry Xu
Environmental Scientist, ACT

Unit 2, 16 Mildura Street
Fyshwick, ACT 2609

T: +61 02 6124 5632
M: Sch 2.2(a)(ii)
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Ms Narelle Sargent
Delegate, Environment Protection Authority
Construction, Environment and Workplace Protection
Access Canberra
GPO Box 158 Canberra ACT 2601

25 September 2018

Attention: Ms Narelle Sargent

Dear Narelle

RE: EPA review of Beneficial Reuse Assessment Report – Stockpiled soil at Calwell Service Station (Block 8, Section 787 Calwell), ACT

Coffey Services Australia Pty Ltd (Coffey) was engaged by David Fraser Plumbing Group (DFPG) on behalf of the site owner Constantine Tsoulias and Canma Properties Pty Ltd (Tsoulias Group) to undertake a beneficial reuse assessment (BRA) of the stockpiled soil material that was excavated from the Calwell Service Station at the corner of Were and Webber St Calwell (Block 8, Section 787, Calwell), as part of the installation of a new stormwater management system by DFPG.

Please find the final report enclosed for your consideration and endorsement.

Should you have any comments or queries, please do not hesitate to contact me on 02 6124 5600.

Yours sincerely

Sch 2.2(a)(ii)

Terry Xu
Environmental Consultant

Attachment

1. Coffey (2018); Beneficial Reuse assessment – Stockpiled soil at Calwell Service Station, ACT (Block 8, Section 787, Calwell), dated 25 September 2018, Ref: CBREN218543_L03.

U2/ 16 Mildura Street
Fyshwick
ACT 2609 Australia

t: 02 6124 5600
f: 02 6260 7211

coffey.com

25 September 2018

Our ref: 754-CBREN218543_L03

DFPG Pty Ltd
17 Lyell Street
Fyshwick ACT 2609

Attention: David Fraser

Dear David

Beneficial re-use classification – Stockpiled soil at Calwell Service Station, ACT (Block 8, Section 787, Calwell)

1. Introduction

David Fraser Plumbing Group (DFPG) commissioned Coffey Services Australia Pty Ltd (Coffey) to assist with validation and testing of approximately 250m^3 of stockpiled soil excavated from the operational Calwell Service Station (located at the corner of Were Street and Webber Street, Calwell, ACT, (Block 8, Section 787, Calwell)) see Figure 1 below. Excavations were carried out at the site in early May 2018 as part of the installation of a new stormwater management system by DFPG.

DFPG required a beneficial reuse classification of the stockpiled material from the Calwell Service Station. Coffey were then required to assess the material to identify the suitability for potential beneficial re-use (based on an industrial/commercial land use), in accordance with ACT EPA Guideline, *'Information Sheet 4 – Requirements for the reuse and disposal of contaminated soil in the ACT (October 2016)'.*

This letter presents the findings of the beneficial re-use assessment, which was carried out as per email request from DFPG (Attachment D). Works have been undertaken in accordance with and requirements outlined in ACT EPA Contaminated *Information Sheet 4 – Requirements for the reuse and disposal of contaminated in the ACT (Oct 2016).*



Figure1: Site location plan

1.1. Background

The soil was excavated from the northern portion of the site, from the south-eastern corner of the service centre building, along with a trench connecting two sump points in the central and western portion of the site. The soil was excavated for the purpose of installing a new stormwater interception management system for the Caltex branded service station site. Coffey was informed anecdotally by DFPG that the excavation works (and subsequent stockpiles soils) were in parts of the site that had not previously contained any other infrastructure or had past excavations. No information was provided regarding prior environmental investigations at the site.

1.2. Objective

The objective of the assessment was to provide a stockpile beneficial re-use (BRU) assessment of the stockpiled soil excavated from the new stormwater system installation area of the Calwell Service Station. The BRU soils are proposed to be sent to the West Belconnen Resource Management Centre (WBRMC). It is understood that email correspondence between DSPG and WBRMC (Attachment C) indicated that WBRMC will accept the volume of 250m^3 of stockpiled materials classified as BRU soil to be sent from Calwell Service Station for off-site disposal.

2. Site information

2.1. Site identification

The site identification information and surrounding land uses are summarised in Table 1. The site locality and site layout are shown in Figure 1. The site is an irregular shaped parcel of land currently operating as the Caltex branded service station. The site comprises the service zone at corner of Were Street and Webber Street, Calwell, ACT.

Table 1. Summary of site identification, ownership and use information

Street Address	corner of Were Street and Webber Street, Calwell, ACT 2905	
Title Identifiers	The site investigation area lies across the following title identifier: • Block 8, Section 787	
District/Division Name	Calwell	
Area	Approximately 4,252m^2	
Current Zoning	CZ3 – Services Zone	
Current Site Use	Caltex branded Service Station	
Proposed Site Use	Continue use as Caltex Service Station.	
Current Owners	Constantine Tsoulias and Canma Properties Pty Ltd (Tsoulias Group)	
Surrounding Land Use	North	Calwell Club adjacent to the service station
	South	Webber Street with commercial and medium density residential buildings beyond
	East	Car park, access road with Calwell shopping centre beyond
	West	Were Street with medium density residential buildings beyond

2.2. Topography and hydrology

The site surface is generally flat with the surrounding land sloping gently towards the north. The surface of the site is covered by concrete hard-standing.

The topographic information provided by ACTMAPi 2018 indicates that surface runoff is expected to flow towards the north east. The nearest surface water feature is the Isabella Pond located approximately 2.8km to the north west of the site.

2.3. Local geology

The 1:10,000 Geological Map of Central Canberra indicates that the site may be defined by two zones. The approximate boundary between the two zones runs in a north-west to south-east direction.

To the west of this boundary line, the map infers the site is underlain by shallow alluvium characterised by gravel, sand, silty clay and black organic clay.

To the east of this boundary line, the map suggests shallow rhyodacitic ignimbrite, minor volcaniclastic and argillaceous sediments.

2.4. Regional hydrogeology

The 1:100,000 scale hydrogeological map Hydrogeology of the Australian Capital Territory (Evans, 1984) indicates that the site is located on late Silurian comprised of dacitic, rhyodacitic, ignimbrite, bedded tuffs, minor shale, sandstone, limestone, ashstone. Water quality tends to be fair to moderate with dissolved solids concentrations <500mg/L with a water yield of <0.5l/s.

2.5. Site history and previous assessments

The site is currently used as the Caltex branded service station. Coffey was not provided with any documented previous investigations into the environmental condition of the site.

3. Scope of works

The scope of work for this assessment included:

- Preparation of a site safety plan, including Environmental Safe Work Method Statements (ESWMS) for all work tasks and a Site Safety Management Plan in accordance with our Health, Safety, Security and Environment (HSSE) Management System;
- Mobilisation to the site and collection of representative samples (plus additional duplicate samples) from the stockpiled material;
- Laboratory analysis of 12 soil samples (including duplicate pair) for key contaminants of potential concern (COPC) to assist with BRU classification, including total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), 8 heavy metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn) and BTEX compounds (benzene, toluene, ethylbenzene and xylenes). Primary samples were laboratory analysed at a frequency of at least 1:25m^3 based on a stockpile volume of approximately 250m^3.
- Comparison of laboratory data with the adopted criteria in accordance to *Information Sheet 4 – Requirement for the reuse and disposal of contaminated soil in the ACT (October 2016)* to determine an appropriate BRU classification;
- Preparation of this letter report summarising results of fieldwork, presenting and interpreting analytical results and findings, and making conclusions with respect to the BRU classification of the stockpiled material.

4. Fieldwork and laboratory investigations

4.1. Fieldwork – 17 May 2018

A field engineer from our Fyshwick Office carried out fieldwork on 17 May 2018. The soil was already stockpiled on hardstand areas at the northern corner of the site. The total volume of the stockpiled soil material was estimated to be approximately 250m^3, and comprised the following soil type:

- Gravelly SAND, with some silts and clays, grey brown, medium to coarse grained sand.

Field head space screening using a photoionisation detector (PID) indicated readings between 0.2 and 0.5 ppm$_v$. Field observations indicated that no discoloration, staining or odours were observed during soil sample collection activities. Although a very slight odour was noted in one soil sample (VS12). The soil from VS12 was apparently from the northern sump and associated trench area, corresponding PID readings for soil at VS12 was 0.2ppm$_v$.

Twelve (12) soil samples were collected from the stockpile material at evenly distributed discrete locations, using a hand tools (shovel and hand auger). Sample depths ranged from 0.5m to 1.0m within the soil stockpile material.

The sample frequency adopted meets the recommended amount in ACT EPA Contamination Sheet 4 (i.e. 1:25m^3).

Clean 250mL glass jars were filled with soil to the brim and immediately sealed with Teflon lined caps to lower the potential for loss of volatile contaminants. Where reusable sampling equipment is utilised a rinsate blank will be collected from deionised water poured over or through decontaminated reusable field sampling equipment. Rinsate analytical results were compared against the LOR. A laboratory prepared trip blank sample was carried into the field and dispatched to the laboratory for analysis of volatile compounds, to assess the potential for loss of, or cross-contamination by, volatile contaminants during transport and sample preparation at the laboratory. All Samples were labelled and placed directly into ice filled cooler boxes.

No suspected asbestos containing materials (ACM) were visually identified within the stockpile during sampling. A selection of photographs taken during the site visit are presented below.



Photo 1: View of site looking east towards the excavation where stormwater management system was being installed, photo taken on the 17th May 2018.



Photo 2: Looking north of stockpiled soils within fenced area at northern end of site, photo taken on the 17th May 2018.

4.2. Laboratory analysis

All primary and intra-laboratory (duplicate) soil samples were transported in ice-cooled chests to Eurofins|MGT Environmental Testing Australia Pty Ltd (Eurofins–mgt) in Sydney. The inter-laboratory secondary (triplicate) soil sample collected was submitted to the analytical laboratory ALS Global (ALS). Eurofins-mgt and ALS are National Association of Testing Authorities (NATA) accredited for all analyses requested.

From the 12 collected samples, 10 were selected for laboratory analysis based on site observations and the estimated soil volume of 250m^3. The analytical schedule was selected based on the site being used for a service station (i.e. TRH, BTEX, PAHs and metals). The following analysis was therefore undertaken:

- Eight (8) samples for TRH/BTEX and PAH;
- Four (4) samples for metals;
- Two (2) samples for TRH/BTEX; and
- One (1) blind coded duplicate/triplicate for TRH/BTEX and PAH
- One (1) sampling equipment rinsate for TRH/BTEX and PAH
- One (1) trip blank for volatile compound.

Laboratory certificates (including chain of custody documents) are provided as Attachment B.

5. Adopted BRU assessment criteria

5.1. Overview

In accordance with ACT EPA guidance, the criteria used to assess chemical concentration were sourced from the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM), 1999 as amended in 2013.

The sections below provide a summary of the health and environmental risk screening criteria proposed to be used for the BRU classification.

It is understood that soil will be reused as follows:

- Removed from the site. Subject to appropriate endorsements from the ACT EPA the stockpiled material excavated from the site is proposed to be removed as beneficial reuse material to WBRMC.

Accordingly, we have therefore assessed the material against health and ecological criteria as follows:

- Offsite re-use (WBRMC) – Commercial/Industrial criteria (HIL/HSL D, EIL/ESLs and management limits) as set out in Sections 5.2 to 5.5 below.

5.2. Health based investigation levels (HILs)

For the stockpiled material that is proposed to be transported to WBRMC for commercial/industrial use, HILs applying to commercial/industrial land use (also knowns as HIL-D) have been adopted. These HILs are presented in Table 1A of Schedule B1, ASC NEPM.

5.3. Screening levels for petroleum hydrocarbons

The ASC NEPM provides a framework for Tier 1 human and ecological risk assessment for petroleum hydrocarbons. The assessment process initially includes assessment against health screening levels (HSLs) followed by ecological screening values (ESLs) and then consideration of management limits.

5.3.1. Health screening levels (HSLs)

The stockpiled material is proposed to be transported and off-site reuse at WBRMC. Therefore HSLs applying to commercial/industrial land use (also known as HSL-D) have been adopted for this material.

HSLs have been adopted for TRH, naphthalene and BTEX for this assessment. HSLs available include:

- HSLs for vapour intrusion
- HSLs for vapour intrusion – intrusive maintenance worker
- HSLs for direct contact – intrusive maintenance worker

HSLs will be initially compared to the lower of the above criteria (vapour intrusion)

The following assumptions have been adopted in selection of the relevant HSL, based on site specific conditions:

- The stockpiled material for this beneficial reuse assessment comprised mainly gravelly sand with some silts and clays, grey brown, medium to coarse grained sand.

- The material may be placed at a depth anywhere between 0m and <2m below ground level (bgl), therefore the criteria for 0-<1m have been conservatively adopted.

No adjustment factors have been applied to the HSLs for other factors such as biodegradation, soil organic carbon content, air exchange rate, and soil moisture content.

5.3.2. Management limits

The purpose of the management limits is to "avoid or minimise" potential effects of petroleum hydrocarbons. ASC NEPM Schedule B (1) provides these as an interim Tier 1 guidance to manage the effect of:

- Formation of observable light non-aqueous phase liquid (LNAPL);
- Fire and explosive hazards; and
- Effects on buried infrastructure.

The application of the management limits requires the consideration of site-specific factors such as the depth of building services and depth to groundwater, to assess the maximum depth to which the limits should apply. For this assessment, the commercial and industrial management limits for coarse textured soils have been adopted.

5.4. Ecological investigation and screening levels (EILs / ESLs)

To assess the stockpiled soil for the proposed beneficial re-use, both EILs and ESLs were adopted in the assessment criteria to the following:

- 'Commercial / Industrial' (fine textured, aged soil)' from the ASC NEPM

The EILs are associated with selected metals and organic compounds. These EILs depend on site specific soil physiochemical properties. Site specific data is available and presented in Table 1 along with the calculated investigation levels. Investigation levels were calculated using the ASC NEPM EILs calculation Toolbox. The following soil parameters were used from results of site testing and estimation:

- Estimated cation exchange capacity 20 cmolc/kg;
- Average pH 9.35 calculated from pH detected from VS5 (pH 9.2) and VS6 (pH 9.5);
- Estimated 0.3% of organic content based on the site is fully paved with concrete hard-standing and site observation;
- Estimated 10% of clay content in stockpiled materials;
- Estimated iron content of 7% of the site;
- "Aged" (>2 years) source of contamination high for traffic volumes (service station) in near NSW.

5.5. Asbestos

For this assessment we have adopted a criteria of no asbestos, noting that other criteria are available if more detailed assessment is required.

6. Soil analytical results

Soil analytical results, including field Quality Control (QC) data and comparison to the nominated assessment criteria are provided in Table 1, and 2, Attachment A. Laboratory certificate of analysis and associated chain of custody documentation are presented in Attachment B.

6.1. Quality assurance / quality control

In order to validate the accuracy and validity of primary soil sampling results, a range of field and laboratory quality control (QC) samples were collected and assessed during the investigation, which summarised in Table 2, and 3 in Attachment A.

A review of trip blank indicated samples were below the laboratory LOR. A review of the rinsate results indicated that the analytes were within the control limits, except TRH C_{16}-c_{34}, and C_{34}-C_{40} were slightly above the laboratory LOR of 0.1mg/L as C_{16}-c_{34} of 0.7mg/L, and C_{34}-C_{40} of 0.3mg/L. TPH C_{15}-C_{28}, and C_{29}-C_{36} were also detected above the control limit (max 143%). A review of the soil dataset indicated that all soil samples returned TRH, and TPH concentrations below the adopted assessment criteria during the period of soil sampling on the 17th May 2018, as such the elevated TRH, and TPH concentration recorded in the rinsate from the laboratory analysis does not appear to have significant affected the soil dataset.

Relative percentage differences (RPDs) exceeding the upper control limits were not recorded in the soil duplicate/triplicate pairs. Although there were a number of different values between primary duplicate and triplicate pair results. These generally were for metals which being of a particulate nature may not always have an even distribution with soil matrix, in addition large RPDs are common when assessing difference between small analyte concentrations which is present with the results considered in this assessment. Therefore Coffey did not consider that as RPD exceedance affected the usability of the data

6.2. Comparison to screening criteria

6.2.1. Beneficial re-use classification

Table 1 (in Attachment A) presents a summary of the analytical results compared to the adopted beneficial re-use assessment criteria discussed above in Section 5.

The assessment indicated all samples collected from the stockpiled soil have analytical results below the adopted criteria for commercial / industrial beneficial re-use.

Therefore, on review of the stockpiled soil assessment result, Coffey consider that the stockpiled soil material would be suitable to disposal and beneficial re-use at WBRMC based on a commercial land use. The re-use will be subject to ACT EPA endorsement. WBRMC has provided an acceptance email dated 24 September 2018 for the stockpiled material (250m^3) to be taken if classified for beneficial re-use. A copy of this email is provided in Attachment C

7. Closing

This letter report has been reviewed by Dr David Tully CEnvP, and approved by Coffey senior environmental consultant Alex Ructtinger.

We draw your attention to the attached sheets titled "Important Information about your Coffey Environmental Report" which should be read in conjunction with this letter.

If you have any further questions please do not hesitate to contact the undersigned.

For and on behalf of Coffey

Terry Xu
Environmental Consultant

Attachments

Important information about your Coffey environmental report.

Attachment A Tables

Attachment B Laboratory certificates of analysis and chain of custody documentation

Attachment C BRU soils acceptance email from WBRMC

Attachment D BRU soils assessment request email

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Attachment A -Tables

Table 1
Soil analytical results
754-CBREN218543_L03

coffey

				NEPM 2013 HILs Commercial/ industrial D Soil	HSL-D Commercial / Industrial Direct Contact	HSL-D Commercial / Industrial Intrusive Maintenance Worker	NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion, 0 to <1m, Sand	NEPM 2013 EILs Commercial and industrial (Aged)	NEPM 2013 ESLs Commercial and industrial, Coarse Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Coarse Soil									
	Field_ID										VS11	VS1	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS12
	LocCode										VS11	VS1	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS12
	Sample_Depth_Range																			
	Sampled_Date-Time										17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018
	Matrix_Description																			
Method_Type	**ChemName**	**Units**	**EQL**								Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile
Inorganic	Moisture Content (dried @ 103°C)	%	1								13	9.2	12	14	9	16	11	10	18	5.9
	pH (aqueous extract)	pH_Units	0.1								-	-	-	-	9.2	9.5	-	-	-	-
Heavy Metal	Arsenic	mg/kg	2	3000				160			4.2	-	3.1	-	-	-	-	3	-	6.7
	Cadmium	mg/kg	0.4	900							<0.4	-	<0.4	-	-	-	-	<0.4	-	<0.4
	Chromium	mg/kg	5					680*			17	-	10	-	-	-	-	12	-	24
	Copper	mg/kg	5	240000				330*			6.3	-	5.3	-	-	-	-	<5	-	6.1
	Lead	mg/kg	5	1500				1800			25	-	18	-	-	-	-	14	-	25
	Mercury	mg/kg	0.1	730							<0.1	-	<0.1	-	-	-	-	<0.1	-	<0.1
	Nickel	mg/kg	5	6000				460*			6.3	-	5.2	-	-	-	-	5.1	-	5.8
	Zinc	mg/kg	5	400000				1200*			22	-	21	-	-	-	-	19	-	27
TPH	C6 - C9	mg/kg	20								<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C14	mg/kg	20								<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C15 - C28	mg/kg	50								<50	110	<50	<50	<50	<50	<50	<50	<50	<50
	C29 - C36	mg/kg	50								<50	100	<50	<50	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of total)	mg/kg	50								<50	210	<50	<50	<50	<50	<50	<50	<50	<50
TRH	C6 - C10	mg/kg	20						215	700	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C6-C10 less BTEX (F1)	mg/kg	20		26000	82000	260				<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	>C10-C16	mg/kg	50						170	1000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	>C10-C16 less Naphthalene (F2)	mg/kg	50		20000	62000	NL				<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	>C16-C34	mg/kg	100		27000	85000			1700	3500	<100	190	<100	<100	<100	<100	<100	<100	<100	<100
	>C34-C40	mg/kg	100		38000	120000			3300	10000	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
BTEXN	Benzene	mg/kg	0.1		430	1100	3		75		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1		27000	85000	NL		165		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	mg/kg	0.5		11000	29000	NL	370			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Toluene	mg/kg	0.1		99000	120000	NL		135		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg	0.2								<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1								<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3		81000	130000	230		180		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PAH	Acenaphthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5						1.4		<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5								0.6	0.6	0.6	0.6	-	-	0.6	0.6	0.6	0.7
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5								1.2	1.2	1.2	1.2	-	-	1.2	1.2	1.2	1.3
	Benzo(g,h,i)perylene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5		11000	29000		370			<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Pyrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5
	Total PAHs	mg/kg	0.5	4000							<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5

* Adopted parameter for EILs based on:
Average pH of 9.35 calculated from VS5, VS6;
Estimated CEC of 20 cmolc/kg;
Estimated 0.3% of organic content
Estimated iron content of 7%
"Aged" soil (>2 years) source of contamination
high for traffic volumes in near NSW

Note: NL = Non Limiting

Table 1
Soil analytical results
754-CBREN218543_L03

												Field_ID	QC1	QC1a
												LocCode	QC1	QC1a
												Sample_Depth_Range		
												Sampled_Date-Time	17/05/2018	17/05/2018
												Matrix_Description		
Method_Type	ChemName	Units	EQL	NEPM 2013 HILs Commercial/ industrial D Soil	HSL-D Commercial / Industrial Direct Contact	HSL-D Commercial / Industrial Intrusive Maintenance Worker	NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion, 0 to <1m, Sand	NEPM 2013 EILs Commercial and industrial (Aged)	NEPM 2013 ESLs Commercial and industrial, Coarse Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Coarse Soil	Duplicate of VS12	Triplicate of VS12
Inorganic	Moisture Content (dried @ 103°C)	%	1								11	9.9
	pH (aqueous extract)	pH_Units	0.1								-	-
Heavy Metal	Arsenic	mg/kg	2	3000				160			3.4	<5
	Cadmium	mg/kg	0.4	900							<0.4	<1
	Chromium	mg/kg	5					680*			23	13
	Copper	mg/kg	5	240000				330*			5.2	<5
	Lead	mg/kg	5	1500				1800			12	8
	Mercury	mg/kg	0.1	730							<0.1	<0.1
	Nickel	mg/kg	5	6000				460*			<5	4
	Zinc	mg/kg	5	400000				1200*			39	49
TPH	C6 - C9	mg/kg	20								<20	<10
	C10 - C14	mg/kg	20								<20	<50
	C15 - C28	mg/kg	50								55	<100
	C29 - C36	mg/kg	50								<50	<100
	C10 - C36 (Sum of total)	mg/kg	50								55	<50
TRH	C6 - C10	mg/kg	20						215	700	<20	<10
	C6-C10 less BTEX (F1)	mg/kg	20		26000	82000	260				<20	<10
	>C10-C16	mg/kg	50						170	1000	<50	<50
	>C10-C16 less Naphthalene (F2)	mg/kg	50		20000	62000	NL				<50	<50
	>C16-C34	mg/kg	100		27000	85000			1700	3500	<100	<100
	>C34-C40	mg/kg	100		38000	120000			3300	10000	<100	<100
BTEXN	Benzene	mg/kg	0.1		430	1100	3		75		<0.1	<0.2
	Ethylbenzene	mg/kg	0.1		27000	85000	NL		165		<0.1	<0.5
	Naphthalene	mg/kg	0.5		11000	29000	NL	370			<0.5	<1
	Toluene	mg/kg	0.1		99000	120000	NL		135		<0.1	<0.5
	Xylene (m & p)	mg/kg	0.2								<0.2	<0.5
	Xylene (o)	mg/kg	0.1								<0.1	<0.5
	Xylene Total	mg/kg	0.3		81000	130000	230		180		<0.3	<0.5
PAH	Acenaphthene	mg/kg	0.5								<0.5	<0.5
	Acenaphthylene	mg/kg	0.5								<0.5	<0.5
	Anthracene	mg/kg	0.5								<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5								<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5						1.4		<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5								<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5								0.6	0.6
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5								1.2	1.2
	Benzo(g,h,i)perylene	mg/kg	0.5								<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5								<0.5	<0.5
	Chrysene	mg/kg	0.5								<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5								<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5								<0.5	<0.5
	Fluoranthene	mg/kg	0.5								<0.5	<0.5
	Fluorene	mg/kg	0.5								<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5								<0.5	<0.5
	Naphthalene	mg/kg	0.5		11000	29000		370			<0.5	<0.5
	Phenanthrene	mg/kg	0.5								<0.5	<0.5
	Pyrene	mg/kg	0.5								<0.5	<0.5
	Total PAHs	mg/kg	0.5	4000							<0.5	<0.5

* Adopted parameter for EILs based on:
Average pH of 9.35 calculated from VS5, VS6;
Estimated CEC of 20 cmolc/kg;
Estimated 0.3% of organic content
Estimated iron content of 7%
"Aged" soil (>2 years) source of contamination
high for traffic volumes in near NSW

Note: NL = Non Limiting

				VS12	QC1	RPDs	VS12	QC1a	RPDs
				VS12	QC1		VS12	QC1a	
				17/05/2018	17/05/2018		17/05/2018	17/05/2018	
				Stockpile	Duplicate of VS12		Stockpile	Triplicate of VS12	
Method_Type	**ChemName**	**Units**	**EQL**						
Inorganic	Moisture Content (dried @ 103°C)	%	1	5.9	11	60	5.9	9.9	51
	pH (aqueous extract)	pH_Units	0.1	-	-	-	-	-	-
Heavy Metal	Arsenic	mg/kg	2	6.7	3.4	65	6.7	<5	-
	Cadmium	mg/kg	0.4	<0.4	<0.4	-	<0.4	<1	-
	Chromium	mg/kg	5	24	23	4	24	13	59
	Copper	mg/kg	5	6.1	5.2	16	6.1	<5	-
	Lead	mg/kg	5	25	12	70	25	8	103
	Mercury	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.1	-
	Nickel	mg/kg	5	5.8	<5	-	5.8	4	37
	Zinc	mg/kg	5	27	39	36	27	49	58
TPH	C6 - C9	mg/kg	20	<20	<20	-	<20	<10	-
	C10 - C14	mg/kg	20	<20	<20	-	<20	<50	-
	C15 - C28	mg/kg	50	<50	55	-	<50	<100	-
	C29 - C36	mg/kg	50	<50	<50	-	<50	<100	-
	C10 - C36 (Sum of total)	mg/kg	50	<50	55	-	<50	<50	-
TRH	C6 - C10	mg/kg	20	<20	<20	-	<20	<10	-
	C6-C10 less BTEX (F1)	mg/kg	20	<20	<20	-	<20	<10	-
	>C10-C16	mg/kg	50	<50	<50	-	<50	<50	-
	>C10-C16 less Naphthalene	mg/kg	50	<50	<50	-	<50	<50	-
	>C16-C34	mg/kg	100	<100	<100	-	<100	<100	-
	>C34-C40	mg/kg	100	<100	<100	-	<100	<100	-
BTEXN	Benzene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.2	-
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.5	-
	Naphthalene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<1	-
	Toluene	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.5	-
	Xylene (m & p)	mg/kg	0.2	<0.2	<0.2	-	<0.2	<0.5	-
	Xylene (o)	mg/kg	0.1	<0.1	<0.1	-	<0.1	<0.5	-
	Xylene Total	mg/kg	0.3	<0.3	<0.3	-	<0.3	<0.5	-
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Anthracene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5	0.6	0.6	-	0.6	0.6	-
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5	1.2	1.2	-	1.2	1.2	-
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Chrysene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Fluorene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Naphthalene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Pyrene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-
	Total PAHs	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-

*RPDs have only been considered where concentrations for both primary and triplicate/duplicate samples were greater than the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary

Notes:
vs = stockpiled Soil sample
- = analysis not requested
LOR = limit of reporting
NL = non limiting
Indicates concentration reported above the laboratory LOR

Table 3
Rinsate Trip Blank
754-CBREN218543_L03

	Field_ID	QC2	QC3
	LocCode	QC2	QC3
	WellCode		
	Sampled_Date-Time	17/05/2018	17/05/2018
Method_Type	ChemName	Units	EQL	Rinsate	Trip Blank
F1-BTEX	C6-C10 less BTEX (F1)	mg/L	0.02	-	<0.02
TRH	Naphthalene	µg/L	10	<10	<10
	>C10-C16 less Naphthalene	mg/L	0.05	<0.05	-
	C6 - C9	µg/L	20	<20	<20
	C6-C10 less BTEX (F1)	mg/L	0.02	<0.02	-
	>C10-C16	mg/L	0.05	<0.05	-
	>C16-C34	mg/L	0.1	0.7	-
	>C34-C40	mg/L	0.1	0.3	-
	C6 - C10	mg/L	0.02	<0.02	<0.02
PAH	Acenaphthene	µg/L	1	<1	-
	Acenaphthylene	µg/L	1	<1	-
	Anthracene	µg/L	1	<1	-
	Benzo(a)anthracene	µg/L	1	<1	-
	Benzo(a)pyrene	µg/L	1	<1	-
	Benzo(g,h,i)perylene	µg/L	1	<1	-
	Benzo(k)fluoranthene	µg/L	1	<1	-
	Chrysene	µg/L	1	<1	-
	Benzo[b+j]fluoranthene	mg/L	0.001	<0.001	-
	Dibenz(a,h)anthracene	µg/L	1	<1	-
	Fluoranthene	µg/L	1	<2	-
	Fluorene	µg/L	1	<1	-
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	-
	Naphthalene	µg/L	1	<1	-
	Phenanthrene	µg/L	1	<1	-
	Pyrene	µg/L	1	<2	-
	Total PAHs	µg/L	1	<2	-
TPH	C10 - C14	µg/L	50	<50	-
	C15 - C28	µg/L	100	200	-
	C29 - C36	µg/L	100	600	-
	C10 - C36 (Sum of total)	µg/L	100	800	-
Volatile	Benzene	µg/L	1	<1	<1
	Ethylbenzene	µg/L	1	<1	<1
	Toluene	µg/L	1	<1	<1
	Xylene (m & p)	µg/L	2	<2	<2
	Xylene (o)	µg/L	1	<1	<1
	Xylene Total	µg/L	3	<3	<3

Notes:
ss = Stockpiled Soil sample
- = analysis not requested
LOR = limit of reporting
NL = non limiting
Indicates concentration reported above the laboratory LOR

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Enter soil pH (calcium chloride method) (values from 1 to 14)
9.35
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	100	270
Urban residential and open public spaces	300	820
Commercial and industrial	460	1200

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
10
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	130	140
Urban residential and open public spaces	230	410
Commercial and industrial	340	680

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Enter soil pH (calcium chloride method) (values from 1 to 14)
9.35
Enter organic carbon content (%OC) (values from 0 to 50%)
1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	75	95
Urban residential and open public spaces	130	240
Commercial and industrial	180	330

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	50
Urban residential and open public spaces	110	270
Commercial and industrial	190	460

Attachment B - Laboratory certificates of analysis and chain of custody documentation

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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coffey

Consigning Office: Fyshwick

Report Results to: michael Carbone Mobile: Sch 2.2(a)(ii) Email: Sch 2.2(a)(ii) @coffey.com

Invoices to: Phone: Email: @coffey.com

Project No: CBREN218543 Task No: Stockpile Validation (LABORATORY)

Project Name: Cotswell Caltex Laboratory: Eurofins -MGT

Sampler's Name: TX Project Manager: MC

Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	BT - TRH/BTEX/PAH/SM	BA - TRH/BTEX/PAH	BT - TRH/BTEX	TRH C6 - C10/BTEX PAH	NOTES
	VS 1	1/.05	AM	Soil	Jar	STD		/			QC 1A forwarded to ALS
	VS 2							/			
	VS 3						/				
	VS 4							/			
	VS 5								/	/	
	VS 6								/	/	
	VS 7							/			
	VS 8						/				
	VS 9							/			
	VS 10										
	VS 11						/				
	VS 12						X				
	QC 1						/				
	QC 1A			↓	↓						
	QC 2			Water	HP, 2V, 2G			/			
	QC 3	↓	↓	Water	2V	↓				/	

RELINQUISHED BY			RECEIVED BY		
Name: [illegible] C / TX	Date:	→	Name: UON Eurofins Mgt	Date: 18/5	
Coffey Environments	Time:		Company:	Time: 4.48pm	
Name:	Date:	→	Name:	Date:	
Company:	Time:		Company:	Time:	

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No. #599557.

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1 4349

coffey

Consigning Office: Fyshwick

Report Results to: Michael Carbone Mobile: Sch 2.2(a)(ii) Email: Sch 2.2(a)(ii) @coffey.com

Invoices to: Phone: Email: @coffey.com

Project No: CPRENZ18543 Task No: Stockpile Land (LABORATORY).

Project Name: Calwell Caltex Laboratory: ALS

Sampler's Name: TX Project Manager: MC

Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	TRH, BTEX, PAHs, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	NOTES
	QC1a	17/05	AM	Soil	Jar	STD		

RELINQUISHED BY

Name: M C/TX Date:

Coffey Environments Time:

Name: Date:

Company: Time:

RECEIVED BY

Name: CLAIRE Date: 18/5

Company: EnRAD Time: 948am

Name: Date:

Company: Time:

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No.

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

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Site # 1254 & 14271

Sydney
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments Pty Ltd ACT**
Contact name:	Michael Carbone
Project name:	CALWELL CALTEX
Project ID:	CBREN218546
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	May 18, 2018 4:48 PM
Eurofins | mgt reference:	**599557**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 4.3 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☑ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

QC1A Forwarded to ALS for analysis.

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: Sch 2.2(a)(ii)@eurofins.com

Results will be delivered electronically via e.mail to Michael Carbone - Sch 2.2(a)(ii)@coffey.com.

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Coffey Environments Pty Ltd ACT	**Order No.:**	
Address:	16 Mildura Street Fyshwick ACT 2609	**Report #:** **Phone:** **Fax:**	599557 +61 2 6124 5600 +61 2 6260 7211
Project Name:	CALWELL CALTEX		
Project ID:	CBREN218546		

Received:	May 18, 2018 4:48 PM
Due:	May 25, 2018
Priority:	5 Day
Contact Name:	Michael Carbone

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B1	Eurofins | mgt Suite B4	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	VS1	May 17, 2018		Soil	S18-My28553			X			X	
2	VS3	May 17, 2018		Soil	S18-My28554			X	X			
3	VS4	May 17, 2018		Soil	S18-My28555			X			X	
4	VS5	May 17, 2018		Soil	S18-My28556		X	X		X		
5	VS6	May 17, 2018		Soil	S18-My28557		X	X		X		
6	VS7	May 17, 2018		Soil	S18-My28558			X			X	
7	VS8	May 17, 2018		Soil	S18-My28559			X	X			
8	VS9	May 17, 2018		Soil	S18-My28560			X			X	
9	VS11	May 17, 2018		Soil	S18-My28561			X	X			

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ABN– 50 005 085 521
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web : www.eurofins.com.au

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments Pty Ltd ACT
Address: 16 Mildura Street
Fyshwick
ACT 2609

Project Name: CALWELL CALTEX
Project ID: CBREN218546

Order No.:
Report #: 599557
Phone: +61 2 6124 5600
Fax: +61 2 6260 7211

Received: May 18, 2018 4:48 PM
Due: May 25, 2018
Priority: 5 Day
Contact Name: Michael Carbone

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B1	Eurofins | mgt Suite B4	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
10	QC1	May 17, 2018		Soil	S18-My28562			X	X			
11	QC2	May 17, 2018		Water	S18-My28563						X	
12	QC3	May 17, 2018		Water	S18-My28564							X
13	VS2	May 17, 2018		Soil	S18-My28565	X						
14	VS10	May 17, 2018		Soil	S18-My28566	X						
15	VS12	May 17, 2018		Soil	S18-My28567	X						
Test Counts						3	2	10	4	2	5	1

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30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Coffey Environments Pty Ltd ACT
16 Mildura Street
Fyshwick
ACT 2609

Attention: **Michael Carbone**

Report **599557-S**
Project name CALWELL CALTEX
Project ID CBREN218546
Received Date May 18, 2018

Client Sample ID			VS1	VS3	VS4	VS5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-My28553	S18-My28554	S18-My28555	S18-My28556
Date Sampled			May 17, 2018	May 17, 2018	May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	110	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	100	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	210	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	62	98	101	126
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	190	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			VS1	VS3	VS4	VS5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-My28553	S18-My28554	S18-My28555	S18-My28556
Date Sampled			May 17, 2018	May 17, 2018	May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	109	116	126	-
p-Terphenyl-d14 (surr.)	1	%	107	99	116	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	-	9.2
% Moisture	1	%	9.2	12	14	9.0
Heavy Metals						
Arsenic	2	mg/kg	-	3.1	-	-
Cadmium	0.4	mg/kg	-	< 0.4	-	-
Chromium	5	mg/kg	-	10	-	-
Copper	5	mg/kg	-	5.3	-	-
Lead	5	mg/kg	-	18	-	-
Mercury	0.1	mg/kg	-	< 0.1	-	-
Nickel	5	mg/kg	-	5.2	-	-
Zinc	5	mg/kg	-	21	-	-

Client Sample ID			VS6	VS7	VS8	VS9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-My28557	S18-My28558	S18-My28559	S18-My28560
Date Sampled			May 17, 2018	May 17, 2018	May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	93	103	121	88
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			VS6	VS7	VS8	VS9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-My28557	S18-My28558	S18-My28559	S18-My28560
Date Sampled			May 17, 2018	May 17, 2018	May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	134	126	118
p-Terphenyl-d14 (surr.)	1	%	-	103	103	98
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	9.5	-	-	-
% Moisture	1	%	16	11	10	18
Heavy Metals						
Arsenic	2	mg/kg	-	-	3.0	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	12	-
Copper	5	mg/kg	-	-	< 5	-
Lead	5	mg/kg	-	-	14	-
Mercury	0.1	mg/kg	-	-	< 0.1	-
Nickel	5	mg/kg	-	-	5.1	-
Zinc	5	mg/kg	-	-	19	-

Client Sample ID			VS11	QC1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S18-My28561	S18-My28562
Date Sampled			May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	55
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	55

Client Sample ID			VS11	QC1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S18-My28561	S18-My28562
Date Sampled			May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	73	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	113	116
p-Terphenyl-d14 (surr.)	1	%	95	113
% Moisture	1	%	13	11
Heavy Metals				
Arsenic	2	mg/kg	4.2	3.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	17	23
Copper	5	mg/kg	6.3	5.2
Lead	5	mg/kg	25	12
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	6.3	< 5
Zinc	5	mg/kg	22	39

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 24, 2018	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins | mgt Suite B4			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 24, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
pH (1:5 Aqueous extract at 25°C as rec.)	Sydney	May 23, 2018	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
% Moisture	Sydney	May 22, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			
Metals M8	Sydney	May 23, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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NATA # 1261 Site # 20794

Perth
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NATA # 1261
Site # 23736

Company Name:	Coffey Environments Pty Ltd ACT	**Order No.:**	
Address:	16 Mildura Street Fyshwick ACT 2609	**Report #:** **Phone:** **Fax:**	599557 +61 2 6124 5600 +61 2 6260 7211
Project Name:	CALWELL CALTEX		
Project ID:	CBREN218546		

Received:	May 18, 2018 4:48 PM
Due:	May 25, 2018
Priority:	5 Day
Contact Name:	Michael Carbone

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B1	Eurofins | mgt Suite B4	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	VS1	May 17, 2018		Soil	S18-My28553			X			X	
2	VS3	May 17, 2018		Soil	S18-My28554			X	X			
3	VS4	May 17, 2018		Soil	S18-My28555			X			X	
4	VS5	May 17, 2018		Soil	S18-My28556		X	X		X		
5	VS6	May 17, 2018		Soil	S18-My28557		X	X		X		
6	VS7	May 17, 2018		Soil	S18-My28558			X			X	
7	VS8	May 17, 2018		Soil	S18-My28559			X	X			
8	VS9	May 17, 2018		Soil	S18-My28560			X			X	
9	VS11	May 17, 2018		Soil	S18-My28561			X	X			

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Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
10	QC1	May 17, 2018		Soil	S18-My28562			X	X			
11	QC2	May 17, 2018		Water	S18-My28563						X	
12	QC3	May 17, 2018		Water	S18-My28564							X
13	VS2	May 17, 2018		Soil	S18-My28565	X						
14	VS10	May 17, 2018		Soil	S18-My28566	X						
15	VS12	May 17, 2018		Soil	S18-My28567	X						
Test Counts						3	2	10	4	2	5	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	90			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
m&p-Xylenes	%	95			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	104			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	96			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	88			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	88			70-130	Pass	
Benzo(g.h.i)perylene	%	92			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	96			70-130	Pass	
Dibenz(a.h)anthracene	%	87			70-130	Pass	
Fluoranthene	%	96			70-130	Pass	
Fluorene	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	90			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
Phenanthrene	%	90			70-130	Pass	
Pyrene	%	97			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	111			70-130	Pass	
Cadmium	%	103			70-130	Pass	
Chromium	%	108			70-130	Pass	
Copper	%	105			70-130	Pass	
Lead	%	108			70-130	Pass	
Mercury	%	109			70-130	Pass	
Nickel	%	107			70-130	Pass	
Zinc	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
o-Xylene	S18-My30379	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-My30379	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Benzo(g.h.i)perylene	S18-My26800	NCP	%	105			70-130	Pass	
Benzo(k)fluoranthene	S18-My26800	NCP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-My26800	NCP	%	107			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-My28554	CP	%	91			70-130	Pass	
TRH C10-C14	S18-My28554	CP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-My28554	CP	%	98			70-130	Pass	
Toluene	S18-My28554	CP	%	94			70-130	Pass	
Ethylbenzene	S18-My28554	CP	%	90			70-130	Pass	
m&p-Xylenes	S18-My28554	CP	%	88			70-130	Pass	
Xylenes - Total	S18-My28554	CP	%	82			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	S18-My28554	CP	%	85			70-130	Pass	
TRH >C10-C16	S18-My28554	CP	%	86			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-My28554	CP	%	114			70-130	Pass	
Acenaphthylene	S18-My28554	CP	%	122			70-130	Pass	
Anthracene	S18-My28554	CP	%	120			70-130	Pass	
Benz(a)anthracene	S18-My28554	CP	%	119			70-130	Pass	
Benzo(a)pyrene	S18-My28554	CP	%	123			70-130	Pass	
Benzo(b&j)fluoranthene	S18-My28554	CP	%	118			70-130	Pass	
Chrysene	S18-My28554	CP	%	125			70-130	Pass	
Dibenz(a.h)anthracene	S18-My28554	CP	%	130			70-130	Pass	
Fluoranthene	S18-My28554	CP	%	127			70-130	Pass	
Fluorene	S18-My28554	CP	%	118			70-130	Pass	
Naphthalene	S18-My28554	CP	%	124			70-130	Pass	
Phenanthrene	S18-My28554	CP	%	119			70-130	Pass	
Pyrene	S18-My28554	CP	%	127			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-My26285	NCP	%	108			70-130	Pass	
Cadmium	S18-My26285	NCP	%	108			70-130	Pass	
Chromium	S18-My26285	NCP	%	102			70-130	Pass	
Copper	S18-My26285	NCP	%	101			70-130	Pass	
Lead	S18-My26285	NCP	%	106			70-130	Pass	
Mercury	S18-My26285	NCP	%	116			70-130	Pass	
Nickel	S18-My26285	NCP	%	103			70-130	Pass	
Zinc	S18-My26285	NCP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-My28553	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-My28553	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-My28553	CP	mg/kg	110	67	51	30%	Fail	Q15
TRH C29-C36	S18-My28553	CP	mg/kg	100	59	51	30%	Fail	Q15
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-My28553	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-My28553	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-My28553	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-My28553	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-My28553	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-My28553	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-My28553	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-My28553	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-My28553	CP	mg/kg	190	110	53	30%	Fail	Q15
TRH >C34-C40	S18-My28553	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S18-My28553	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-My26284	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Chromium	S18-My26284	NCP	mg/kg	6.1	5.4	11	30%	Pass	
Copper	S18-My26284	NCP	mg/kg	5.6	5.2	8.0	30%	Pass	
Lead	S18-My26284	NCP	mg/kg	29	26	11	30%	Pass	
Mercury	S18-My27493	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-My26284	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-My26284	NCP	mg/kg	6.8	6.8	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract at 25°C as rec.)	S18-My28556	CP	pH Units	9.2	9.2	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-My28562	CP	%	11	11	2.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QA/QC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios Analytical Services Manager

Sch 2.2(a)(ii)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

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Accreditation Number 1261
Site Number 18217

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

Coffey Environments Pty Ltd ACT
16 Mildura Street
Fyshwick
ACT 2609

Attention: **Michael Carbone**

Report **599557-W**
Project name CALWELL CALTEX
Project ID CBREN218546
Received Date May 18, 2018

Client Sample ID			QC2	QC3
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			S18-My28563	S18-My28564
Date Sampled			May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	-
TRH >C16-C34	0.1	mg/L	0.7	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C15-C28	0.1	mg/L	0.2	-
TRH C10-36 (Total)	0.1	mg/L	0.8	-
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	85	81
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.002	-
Fluorene	0.001	mg/L	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	-
Pyrene	0.001	mg/L	< 0.002	-
Total PAH*	0.001	mg/L	< 0.002	-

Client Sample ID			QC2	QC3
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			S18-My28563	S18-My28564
Date Sampled			May 17, 2018	May 17, 2018
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
2-Fluorobiphenyl (surr.)	1	%	INT	-
p-Terphenyl-d14 (surr.)	1	%	INT	-

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 22, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons	Sydney	May 22, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 24, 2018	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 22, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins | mgt Suite B4			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 25, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 24, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			

Repeat Samples

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 25, 2018	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Eurofins | mgt Suite B4			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 25, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	94			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	79			70-130	Pass	
TRH C6-C10	%	79			70-130	Pass	
TRH >C10-C16	%	73			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	84			70-130	Pass	
TRH C10-C14	%	72			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
BTEX							
Benzene	%	92			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	84			70-130	Pass	
m&p-Xylenes	%	77			70-130	Pass	
o-Xylene	%	83			70-130	Pass	
Xylenes - Total	%	79			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	71			70-130	Pass	
Acenaphthylene	%	78			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	86			70-130	Pass	
Benzo(a)pyrene	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	%	84			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	82			70-130	Pass	
Chrysene	%	81			70-130	Pass	
Dibenz(a.h)anthracene	%	87			70-130	Pass	
Fluoranthene	%	84			70-130	Pass	
Fluorene	%	79			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	88			70-130	Pass	
Naphthalene	%	72			70-130	Pass	
Phenanthrene	%	84			70-130	Pass	
Pyrene	%	84			70-130	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

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

Authorised By

Mary Makarios Analytical Services Manager

Sch 2.2(a)(ii)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

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Enviro Sample NSW

To: Enviro Sample Vic; Mary Makarios
Subject: RE: **Urgent 1 day TAT** RE: Report 599557 : Site CALWELL CALTEX (CBREN218546)

From: Mary Makarios
Sent: Thursday, 31 May 2018 5:44 PM
To: Pfitzner, Peter
Cc: Enviro Sample Vic
Subject: **Urgent 1 day TAT** RE: Report 599557 : Site CALWELL CALTEX (CBREN218546)
Importance: High

Thanks for the chat Peter.

SR- please book in as Sameday so the results are available tomorrow.

Thanks.

Mary Makarios
Phone : +61 3 8564 5088
Email : Sch 2.2(a)(ii)@eurofins.com

From: Pfitzner, Peter Sch 2.2(a)(ii) @coffey.com]
Sent: Thursday, 31 May 2018 5:35 PM
To: Mary Makarios
Subject: Report 599557 : Site CALWELL CALTEX (CBREN218546)

EXTERNAL EMAIL*

Hi Mary,

Thanks for sending through the lab report (ref. 599557) yesterday – unfortunately there has been a miscommunication over the Chain of Custody form sent to you with the samples. We requested a B7 - TRH/BTEX/PAH/8M analysis for sample VS12, but no lab results were returned for this sample. According to the report summary this sample appears to be on hold. I've attached a copy of our Chain of Custody form and the summary to this email for reference.

Could you please submit sample VS12 for B7 analysis as soon as possible, and advise me of the outcome? Ideally we would like to have the results in tomorrow, if possible.

Thanks for the help!

Kind regards,

Peter Pfitzner
Graduate Environmental Scientist

2/16 Mildura Street
Fyshwick, ACT
2609 Australia

t: +61 2 6124 5637
m: Sch 2.2(a)(ii)



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Site # 1254 & 14271

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NATA # 1261 Site # 20794

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Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments Pty Ltd ACT**
Contact name:	Michael Carbone
Project name:	ADDITIONAL - CALWELL CALTEX
Project ID:	CBREN218546
COC number:	Not provided
Turn around time:	Same day
Date/Time received:	May 31, 2018 5:44 PM
Eurofins | mgt reference:	**600997**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 4.3 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: [redacted]@eurofins.com

Results will be delivered electronically via e.mail to Michael Carbone - [redacted]@coffey.com.

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ABN– 50 005 085 521
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NATA # 1261 Site # 20794

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

Company Name:	Coffey Environments Pty Ltd ACT	**Order No.:**	
Address:	16 Mildura Street Fyshwick ACT 2609	**Report #:**	600997
		Phone:	+61 2 6124 5600
		Fax:	+61 2 6260 7211
Project Name:	ADDITIONAL - CALWELL CALTEX		
Project ID:	CBREN218546		

Received:	May 31, 2018 5:44 PM	
Due:	Jun 1, 2018	
Priority:	Same day	
Contact Name:	Michael Carbone	

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	VS12	May 17, 2018		Soil	S18-My40112	X	X
Test Counts						1	1

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Certificate of Analysis

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Accreditation Number 1261
Site Number 18217

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

Coffey Environments Pty Ltd ACT
16 Mildura Street
Fyshwick
ACT 2609

Attention: **Michael Carbone**

Report **600997-S**
Project name ADDITIONAL - CALWELL CALTEX
Project ID CBREN218546
Received Date May 31, 2018

Client Sample ID			**VS12**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S18-My40112**
Date Sampled			**May 17, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	77
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			VS12
Sample Matrix			Soil
Eurofins | mgt Sample No.			S18-My40112
Date Sampled			May 17, 2018
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	108
p-Terphenyl-d14 (surr.)	1	%	104
Heavy Metals			
Arsenic	2	mg/kg	6.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	24
Copper	5	mg/kg	6.1
Lead	5	mg/kg	25
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	5.8
Zinc	5	mg/kg	27
% Moisture	1	%	5.9

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 31, 2018	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 31, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 31, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 31, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	May 31, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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

Company Name:	Coffey Environments Pty Ltd ACT	**Order No.:**		**Received:**	May 31, 2018 5:44 PM
Address:	16 Mildura Street Fyshwick ACT 2609	**Report #:**	600997	**Due:**	Jun 1, 2018
		Phone:	+61 2 6124 5600	**Priority:**	Same day
		Fax:	+61 2 6260 7211	**Contact Name:**	Michael Carbone
Project Name:	ADDITIONAL - CALWELL CALTEX				
Project ID:	CBREN218546				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	VS12	May 17, 2018		Soil	S18-My40112	X	X
Test Counts						1	1

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	97			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	119			70-130	Pass	
Toluene	%	118			70-130	Pass	
Ethylbenzene	%	122			70-130	Pass	
m&p-Xylenes	%	123			70-130	Pass	
o-Xylene	%	123			70-130	Pass	
Xylenes - Total	%	123			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	120			70-130	Pass	
TRH C6-C10	%	116			70-130	Pass	
TRH >C10-C16	%	102			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	121			70-130	Pass	
Acenaphthylene	%	123			70-130	Pass	
Anthracene	%	118			70-130	Pass	
Benz(a)anthracene	%	121			70-130	Pass	
Benzo(a)pyrene	%	121			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g.h.i)perylene	%	83			70-130	Pass	
Benzo(k)fluoranthene	%	117			70-130	Pass	
Chrysene	%	116			70-130	Pass	
Dibenz(a.h)anthracene	%	89			70-130	Pass	
Fluoranthene	%	114			70-130	Pass	
Fluorene	%	128			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	98			70-130	Pass	
Naphthalene	%	119			70-130	Pass	
Phenanthrene	%	116			70-130	Pass	
Pyrene	%	115			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	113			70-130	Pass	
Cadmium	%	112			70-130	Pass	
Chromium	%	115			70-130	Pass	
Copper	%	115			70-130	Pass	
Lead	%	113			70-130	Pass	
Mercury	%	120			70-130	Pass	
Nickel	%	114			70-130	Pass	
Zinc	%	114			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-My40077	NCP	%	106			70-130	Pass	
TRH C10-C14	S18-My40089	NCP	%	82			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-My40077	NCP	%	115			70-130	Pass	
Toluene	S18-My40077	NCP	%	101			70-130	Pass	
Ethylbenzene	S18-My40077	NCP	%	93			70-130	Pass	
m&p-Xylenes	S18-My40077	NCP	%	102			70-130	Pass	
o-Xylene	S18-My40077	NCP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	S18-My40077	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-My40077	NCP	%	91			70-130	Pass	
TRH C6-C10	S18-My40077	NCP	%	101			70-130	Pass	
TRH >C10-C16	S18-My40089	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-My38541	NCP	%	93			70-130	Pass	
Acenaphthylene	S18-My38541	NCP	%	91			70-130	Pass	
Anthracene	S18-My38541	NCP	%	92			70-130	Pass	
Benz(a)anthracene	S18-My38541	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	S18-My38541	NCP	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	S18-My38541	NCP	%	90			70-130	Pass	
Benzo(g.h.i)perylene	S18-My38541	NCP	%	70			70-130	Pass	
Benzo(k)fluoranthene	S18-My38541	NCP	%	90			70-130	Pass	
Chrysene	S18-My38541	NCP	%	91			70-130	Pass	
Dibenz(a.h)anthracene	S18-My38541	NCP	%	71			70-130	Pass	
Fluoranthene	S18-My38541	NCP	%	87			70-130	Pass	
Fluorene	S18-My38541	NCP	%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-My38541	NCP	%	79			70-130	Pass	
Naphthalene	S18-My38541	NCP	%	93			70-130	Pass	
Phenanthrene	S18-My38541	NCP	%	91			70-130	Pass	
Pyrene	S18-My38541	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-My38799	NCP	%	104			70-130	Pass	
Cadmium	S18-My38799	NCP	%	101			70-130	Pass	
Chromium	S18-My38799	NCP	%	104			70-130	Pass	
Copper	S18-My38799	NCP	%	112			70-130	Pass	
Lead	S18-My38799	NCP	%	106			70-130	Pass	
Mercury	S18-My38799	NCP	%	107			70-130	Pass	
Nickel	S18-My38799	NCP	%	104			70-130	Pass	
Zinc	S18-My38799	NCP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-My40112	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-My40112	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-My40112	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-My40112	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-My40112	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-My40112	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-My40112	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-My40112	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-My40112	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-My40112	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-My40112	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-My38144	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-My40112	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-My40112	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S18-My40112	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-My38798	NCP	mg/kg	4.0	3.6	12	30%	Pass	
Cadmium	S18-My39922	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-My38798	NCP	mg/kg	8.3	8.4	2.0	30%	Pass	
Copper	S18-My39922	NCP	mg/kg	27	28	5.0	30%	Pass	
Lead	S18-My38798	NCP	mg/kg	7.7	8.3	8.0	30%	Pass	
Mercury	S18-My38798	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-My38798	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-My38798	NCP	mg/kg	7.5	7.9	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-My40112	CP	%	5.9	7.4	23	30%	Pass	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1814970**	Page	: 1 of 6
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL CARBONE	Contact	: Customer Services ES
Address	: UNIT 2 16 MILDURA STREET FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 08 8375 4400	Telephone	: +61-2-8784 8555
Project	: CBRENZ18543 Calwell Caltex	Date Samples Received	: 23-May-2018 16:00
Order number	:	Date Analysis Commenced	: 24-May-2018
C-O-C number	: ----	Issue Date	: 30-May-2018 13:46
Sampler	: ----		
Site	:		
Quote number	: EN/077/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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 insufficient sample for analysis.

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC1a	----	----	----	----
			Client sampling date / time	17-May-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1814970-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**9.9**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**13**	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	**8**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**4**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**49**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC1a	----	----	----	----
				Client sampling date / time	17-May-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1814970-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		69.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		68.4	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		61.1	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		70.9	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		75.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		83.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		95.9	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		89.5	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)				Client sample ID	QC1a	----	----	----	----
				Client sampling date / time	17-May-2016 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**ES1814970-001**	--------	--------	--------	--------
					Result	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**84.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1814970**	Page	: 1 of 7
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL CARBONE	Contact	: Customer Services ES
Address	: UNIT 2 16 MILDURA STREET FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 08 8375 4400	Telephone	: +61-2-8784 8555
Project	: CBRENZ18543 Calwell Caltex	Date Samples Received	: 23-May-2018
Order number	:	Date Analysis Commenced	: 24-May-2018
C-O-C number	: ----	Issue Date	: 30-May-2018
Sampler	: ----		
Site	:		
Quote number	: EN/077/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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 insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1678982)									
ES1814957-002	Anonymous	EA055: Moisture Content	----	0.1	%	9.4	9.1	3.22	0% - 20%
ES1815008-008	Anonymous	EA055: Moisture Content	----	0.1	%	4.6	3.9	15.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1681831)									
ES1814694-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	40	40	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	46	45	2.81	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	17	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	27	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	9	0.00	No Limit
ES1814970-001	QC1a	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	12	11.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	49	46	7.54	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1681832)									
ES1814694-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1814970-001	QC1a	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1672698)									
ES1814653-006	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1672698) - continued									
ES1814653-006	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.1	0.5	69.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.1	0.8	32.2	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.0	0.7	30.1	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	3.2	2.0	46.2	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1672699)									
ES1814653-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	110	110	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1675606)									
ES1814938-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1814954-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1672699)									
ES1814653-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	160	180	12.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1675606)									
ES1814938-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1814954-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 1675606)									
ES1814938-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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 (%)
EP080: BTEXN (QC Lot: 1675606) - continued									
ES1814954-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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

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

Sub-Matrix: **SOIL**

				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
EG005T: Total Metals by ICP-AES (QCLot: 1681831)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.6	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.6	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.3	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.9	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1681832)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.3	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1672698)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.7	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.8	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	87.9	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.2	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	93.4	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.6	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	91.1	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	91.0	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.4	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.8	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	72.3	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	77.2	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	88.4	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	70.8	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	70.0	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	68.1	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1672699)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	102	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1675606)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	79.5	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1672699)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1672699) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	104	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	99.1	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1675606)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.1	68	128
EP080: BTEXN (QCLot: 1675606)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.3	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.2	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.4	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.9	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.6	63	119

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1681831)							
ES1814694-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	113	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	123	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	125	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	121	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	120	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	118	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	128	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1681832)							
ES1814694-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.8	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1672698)							
ES1814653-006	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.0	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	122	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1672699)							
ES1814653-006	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	84.5	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	103	53	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1672699) - continued							
ES1814653-006	Anonymous	EP071: C29 - C36 Fraction	----	1714 mg/kg	118	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1675606)							
ES1814938-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	71.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1672699)							
ES1814653-006	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	87.2	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	113	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	123	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1675606)							
ES1814938-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.9	70	130
EP080: BTEXN (QCLot: 1675606)							
ES1814938-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	78.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	76.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	78.8	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	75.7	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.7	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1814970**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL CARBONE	Telephone	: +61-2-8784 8555
Project	: CBRENZ18543 Calwell Caltex	Date Samples Received	: 23-May-2018
Site	:	Issue Date	: 30-May-2018
Sampler	: ----	No. of samples received	: 1
Order number	:	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QC1a	17-May-2018	----	----	----	26-May-2018	31-May-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC1a	17-May-2018	28-May-2018	13-Nov-2018	✓	28-May-2018	13-Nov-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC1a	17-May-2018	28-May-2018	14-Jun-2018	✓	29-May-2018	14-Jun-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QC1a	17-May-2018	24-May-2018	31-May-2018	✓	25-May-2018	03-Jul-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
QC1a	17-May-2018	24-May-2018	31-May-2018	✓	25-May-2018	03-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
QC1a	17-May-2018	25-May-2018	31-May-2018	✓	29-May-2018	31-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
QC1a	17-May-2018	24-May-2018	31-May-2018	✓	25-May-2018	03-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
QC1a	17-May-2018	25-May-2018	31-May-2018	✓	29-May-2018	31-May-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QC1a	17-May-2018	25-May-2018	31-May-2018	✓	29-May-2018	31-May-2018	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (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 SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to 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. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES1814970**		
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR MICHAEL CARBONE	Contact	: Customer Services ES
Address	: UNIT 2 16 MILDURA STREET FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Sch 2.2(a)(ii) @coffey.com	E-mail	: ALSEnviro.Sydney@alsglobal.com
Telephone	: +61 08 8375 4400	Telephone	: +61-2-8784 8555
Facsimile	: +61 08 8375 4499	Facsimile	: +61-2-8784 8500
Project	: CBRENZ18543 Calwell Caltex	Page	: 1 of 2
Order number	:	Quote number	: EM2017COFENV0002 (EN/007/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 2017 Blanket Quote - Primary Samples		
Sampler	:		

Dates

Date Samples Received	: 23-May-2018 16:00	Issue Date	: 24-May-2018
Client Requested Due Date	: 30-May-2018	Scheduled Reporting Date	: **30-May-2018**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 12.0' C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.

Sample Container(s)/Preservation Non-Compliances

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

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEX/N/PAH
ES1814970-001	17-May-2018 00:00	QC1a	✓	✓

Proactive Holding Time Report

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

Requested Deliverables

MICHAEL CARBONE

- *AU Certificate of Analysis - NATA (COA)	Email	Sch 2.2(a)(ii)@coffey.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	@coffey.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	@coffey.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	@coffey.com
- A4 - AU Tax Invoice (INV)	Email	@coffey.com
- Chain of Custody (CoC) (COC)	Email	@coffey.com
- EDI Format - ENMRG (ENMRG)	Email	@coffey.com
- EDI Format - ESDAT (ESDAT)	Email	@coffey.com

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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coffey

Consigning Office: Fyshwick

Report Results to: michael Carbone Mobile: Sch 2.2(a)(ii) Email: Sch 2.2(a)(ii) @coffey.com

Invoices to: Phone: Email: @coffey.com

Project No: CBRENZ18543 Task No: Stockpile valid (LABORATORY).

Project Name: Calwell Caltex Laboratory: ALS

Sampler's Name: TX Project Manager: MC

Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	TRH, BTEXN, PAHs, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	NOTES
1	QC1a	17/05	AM	Soil	Jar	STD		

Environmental Division Sydney
Work Order Reference
ES1814970

Telephone : + 61-2-8784 8555

RELINQUISHED BY			RECEIVED BY		
Name: M cl TX	Date:	→	Name: VLANG	Date: 18/5	
Coffey Environments	Time:		Company: EnRoma	Time: 9.48 am	
Name:	Date:	→	Name: Scott Stephens	Date: 23/5/18	
Company:	Time:		Company: ALS	Time: 1600 12	

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No.

***Container Type & Preservation Codes:** P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

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Attachment C - BRU soils acceptance email from WBRMC

From: Ructtinger, Alex
To: Xu, Terry
Subject: FW: BRU soil
Date: Monday, 24 September 2018 10:07:28 AM
Attachments: image001.jpg
image002.jpg
image003.jpg
image004.jpg

Kind Regards,

Alex Ructtinger
Senior Environmental Scientist

Level 19, Tower B - Citadel Tower,
799 Pacific Highway, Chatswood, NSW 2067

t: +61 2 9406 1052
f: +61 2 9406 1002
m: Sch 2.2(a)(ii)





>>> **Ingenuity@coffey** – it's the ideas that count

From: David Fraser Sch 2.2(a)(ii)@dfpg.com.au]
Sent: Monday, 24 September 2018 9:35 AM
To: Ructtinger, Alex Sch 2.2(a)(ii) @coffey.com>
Subject: Fwd: BRU soil

Alex
See below the email from West Belconnen regarding the bru soil from calwell.

David Fraser
Director
DFPG P/L

Begin forwarded message:

> **From:** John Sweeney Sch 2.2(a)(ii)@goldsmith.com.au>
> **Date:** 24 September 2018 at 8:47:27 am AEST
> **To:** David Fraser Sch 2.2(a)(ii) @dfpg.com.au>
> **Cc:** "Abbott, Dinesh" Sch 2.2(a)(ii)@act.gov.au>
> **Subject: RE: BRU soil**

David,
The West Belconnen site can take that quantity and type of material. The following steps need to be taken in order to be able to deliver the material to site:
(1) The EPA needs to classify and issue certification for the material
(2)apply to Nowaste for a permit
(3)Nowaste issues the permit which will grant weighbridge and site access.

GCE conducts site inductions on Thursdays at 8am and any drivers delivering to site require the following:
(1) construction induction white card
(2) asbestos awareness card
(3) drivers licence

Goldsmith(GCE) manage the site for ACT Nowaste and cannot assist in any deliveries until the above steps have been completed. All site deliveries are approved and permitted by Nowaste, not GCE.

Thanks,

-----Original Message-----
From: David Fraser Sch 2.2(a)(ii) @dfpg.com.au]
Sent: Monday, 24 September 2018 7:33 AM
To: Sch 2.2(a)(ii)@goldsmith.com.au
Subject: BRU soil

John as per our phone conversation last week can you please confirm that you will take approximately 250m3 of BRU soil. This soil will be classified and the NoWaste certificate issued before we will bring the soil over.

David Fraser
Director
DFPG P/L

Attachment D - BRU soils assessment request email

From: admin
To: Carbone, Michael
Cc: Xu, Terry; Ructtinger, Alex
Subject: Re: Calwell service station - Off site destination approval
Date: Thursday, 13 September 2018 5:11:19 PM

Michael
I have been informed that the soil will be going to west Belconnen.

David Fraser
Director
DFPG P/L

> On 12 Sep 2018, at 3:57 pm, Carbone, Michael <Michael.Carbone@coffey.com> wrote:
>
> Sounds good.
> Please cc in terry & Alex when you send the info.
>
> Regards,
> Michael Carbone
> Senior Associate Environmental Scientist
>
> t: +61 2 6124 5600
> m: Sch 2.2(a)(ii)
>
> -----Original Message-----
> From: admin <admin@dfpg.com.au>
> Sent: Wednesday, 12 September 2018 3:33 PM
> To: Carbone, Michael Sch 2.2(a)(ii) @coffey.com>
> Cc: Xu, Terry Sch 2.2(a)(ii) @coffey.com>
> Subject: Re: Calwell service station - Off site destination approval
>
> Sorry Michael the first
> Part of my reply was deleted.
> I will get the information and get back to you
>
> Thanks Michael
>
> David Fraser
> Director
> DFPG P/L
>
>> On 12 Sep 2018, at 3:14 pm, Carbone, Michael Sch 2.2(a)(ii) @coffey.com> wrote:
>>
>> Hi David / Judy
>>
>> To complete the report for the Calwell soil stockpile to be classified as beneficial reuse, the report will need to nominate the disposal site and agreement with them.
>>
>> We suggest you try
>> Pialligo stone quarry; or
>> Wesi Belconnen resource management entre
>>
>> They will be able to provide approval for the volume of material on site (located at address + block & section details) subject to EPA approval being provided.
>>
>> The above two locations will also be able to provide you rates/costs for beneficial reuse
>>
>> I will need a copy of the email/written correspondence between DFPG and the disposal site accepting the

material.
>>
>>
>> Regards,
>> Michael Carbone
>> Senior Associate Environmental Scientist
>>
>> t: +61 2 6124 5600
>> m: Sch 2.2(a)(ii)
>>
>> -----Original Message-----
>> From: admin <Sch 2.2(a)(ii)@dfpg.com.au>
>> Sent: Thursday, 6 September 2018 6:49 PM
>> To: Carbone, Michael Sch 2.2(a)(ii) @coffey.com>
>> Subject: Re: Calwell service station
>>
>> Michael
>> The price is fine for the new report, as long as we can dispose of the materials to any site after the reclassification.
>>
>> David Fraser
>> Director
>> DFPG P/L
>>
>>> On 6 Sep 2018, at 6:19 pm, Carbone, Michael Sch 2.2(a)(ii)@coffey.com> wrote:
>>>
>>> Hi David
>>>
>>> We can commence this on Monday and issue the report to the EPA for review endorsement later that week.
>>>
>>> Please confirm the cost estimate (between $1800 & 2300 + gst) is acceptable for us to proceed.
>>>
>>> Regards,
>>> Michael Carbone
>>> Senior Associate Environmental Scientist
>>>
>>> t: +61 2 6124 5600
>>> m:Sch 2.2(a)(ii)
>>>
>>> -----Original Message-----
>>> From: admin <Sch 2.2(a)(ii)@dfpg.com.au>
>>> Sent: Thursday, 6 September 2018 5:27 PM
>>> To: Carbone, Michael Sch 2.2(a)(ii) @coffey.com>
>>> Subject: Re: Calwell service station
>>>
>>> Michael,
>>> It has been a while since we spoke but we need to get back onto this issue of the soil at Calwell.
>>> Can you please rewrite the report as we have previously discussed to allow us to reclassify it as beneficial reuse.
>>> I have just been in contact with the owner of the site who has been away and he want to get onto this as a matter of urgency.
>>>
>>> Thank you in advance and could you please let me know when we could expect the report.
>>>
>>> David Fraser
>>> Director
>>> DFPG P/L
>>>
>>>
>>>> On 16 Jul 2018, at 3:24 pm, Carbone, Michael Sch 2.2(a)(ii) @coffey.com> wrote:
>>>>

>>>> Hi David
>>>>
>>>> An alternate is for us to review of results and re-write the report for beneficial reuse purposes. Given there is very little in way of contamination this soil may be fine for beneficial reuse purposes.
>>>> We would get the ACTEPA to review and endorse the revised assessment report.
>>>>
>>>> I think that may assist with disposal options/costs.
>>>>
>>>> For us to re-write the report for beneficial re-use and lodge for EPA endorsement would be between $1800 & 2300 + gst
>>>>
>>>> Give me a call to discuss.
>>>>
>>>> Regards,
>>>> Michael Carbone
>>>> Senior Associate Environmental Scientist
>>>>
>>>> t: +61 2 6124 5600
>>>> m: Sch 2.2(a)(ii)
>>>>
>>>> -----Original Message-----
>>>> From: admin [mailto:admin@dfpg.com.au]
>>>> Sent: Monday, 16 July 2018 3:08 PM
>>>> To: Carbone, Michael <Sch 2.2(a)(ii) @coffey.com>
>>>> Subject: Calwell service station
>>>>
>>>> Michael
>>>> I know this has been dragging in but is there anything that can be done for the reclassification if the soil from the Calwell site. The initial test was done and then after our request and additional test, which reclassified the soil to inert waste.
>>>> Having this second test has changed nothing in relation to cost to dispose of the soil.
>>>> My client has requested to see if there is anything can be done to help reduce the cost of the soil disposal as the fees for disposal of this soil is $155 per tonne and there are plenty of tonnes at the site.
>>>>
>>>>
>>>>
>>>> David Fraser
>>>> Director
>>>> DFPG P/L