Environmental Assessment Works - Stage 2

South Australian Environment Protection Authority

37 - 41 Cliff Street, Glenelg East

Appendix I:Geotechnical Laboratory Certificates

Greencap Ltd
Sample Chain of Custody and Testing Request
Samples Submitted to Coffey

client	: SA EPA	Job no	: J125792
project	: Groundwater Sampling	Purchase Order	: 118742
location	: 37-41 Cliff Street, Glenelg East	Sheet no	: 1 of 1
		sampled by	: GN/SW
		date	: 8th - 10th April 2015

sample number	date	depth below surface	sample containers										material	testing required										
							u50 Sampling Tube							Moisture Content	Soil Particle Density	Bulk Density - undisturbed sample including porosity								
GW20_0.7-0.8	8-Apr						X							X	X	X								
SGP15_0.7-0.8	8-Apr						X							X	X	X								
SGP16_0.7-0.85	8-Apr						X							X	X	X								
SGP17_1.0-1.15	9-Apr						X							X	X	X								
SGP19_1.0-1.15	10-Apr						X							X	X	X								
SGP20_1.1-1.27	10-Apr						X							X	X	X								

Notes :
PLEASE QUOTE PURCHASE ORDER NUMBER ON INVOICE
AEC Contact - Simon Welsh 0420 306 218
Company Fax:- 08 8299 9954
Please email results to the following :- simon.welsh@aecaust.com.au andrew.durand@aecaust.com.au greg.nield@aecaust.com.au

Chain of Custody:

Relinquished by -	Company	Date	Time	Received by - Name & Company	Date	Time
SW	Greencap	13/04/2015	PM	ROSS DINGLE Coffey	13/4/15	PM

Results required by:

Results checked:
by date :

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Aggregate/Soil Test Report

Report No.: MAT KESW15S-00907 -1
Issue No.: 1
This report replaces all previous issues of report no. 'MAT': KESW15S-00907

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00907
Field Sample ID:	**GW20_0.7-0.8**
Date Sampled:	8/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	Sandy CLAY, medium plasticity, brown
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	93.69
Specimen diameter	**mm**	50.85
Specimen Bulk Density	**t/m^3**	2.01
Specimen Moisture Content	**%**	13.3
Specimen Dry Density	**t/m^3**	1.77
Void Ratio	**e**	0.505
Degree of Saturation	**S (%)**	70.30
Porosity	**n**	33.536
Water Porosity		23.575
Air Porosity		9.961
Specific Gravity	**t/m^3**	2.67

Comments: SAMPLE TESTED AS RECEIVED.

Form Number: KESW_009R Issue Date: 21/10/2011

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Report No.: MAT KESW15S-00908 -1
Issue No.: 1
This report replaces all previous issues of report no. MAT KESW15S-00908

Aggregate/Soil Test Report

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00908
Field Sample ID:	**SGP15_0.7-0.8**
Date Sampled:	8/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	CLAY, medium plasticity, brown, with some coarse grained sand
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	68.67
Specimen diameter	**mm**	50.88
Specimen Bulk Density	**t/m^3**	1.86
Specimen Moisture Content	**%**	23.6
Specimen Dry Density	**t/m^3**	1.50
Void Ratio	**e**	0.758
Degree of Saturation	**S (%)**	82.22
Porosity	**n**	43.107
Water Porosity		35.441
Air Porosity		7.666
Specific Gravity	**t/m^3**	2.64

Comments: SAMPLE TESTED AS RECEIVED.

Form Number: KESW_009R Issue Date: 21/10/2011

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Report No.: MAT KESW15S-00909 -1
Issue No.: 1
This report replaces all previous issues of report no. 'MAT KESW15S-00909

Aggregate/Soil Test Report

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00909
Field Sample ID:	**SGP16_0.7 - 0.85**
Date Sampled:	8/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	Sandy CLAY, medium plasticity, brown
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	65.72
Specimen diameter	**mm**	50.3
Specimen Bulk Density	**t/m^3**	2.01
Specimen Moisture Content	**%**	12.0
Specimen Dry Density	**t/m^3**	1.79
Void Ratio	**e**	0.488
Degree of Saturation	**S (%)**	65.490
Porosity	**n**	32.784
Water Porosity		21.470
Air Porosity		11.314
Specific Gravity	**t/m^3**	2.67

Comments: SAMPLE TESTED AS RECEIVED.

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Report No.: MAT KESW15S-00910 -1
Issue No.: 1
This report replaces all previous issues of report no. 'MAT': KESW15S-00910

Aggregate/Soil Test Report

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00910
Field Sample ID:	**SGP17_1.0-1.15**
Date Sampled:	9/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	Sandy CLAY, medium plasticity, brown
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	93.69
Specimen diameter	**mm**	50.85
Specimen Bulk Density	**t/m^3**	2.01
Specimen Moisture Content	**%**	13.3
Specimen Dry Density	**t/m^3**	1.77
Void Ratio	**e**	0.505
Degree of Saturation	**S (%)**	70.30
Porosity	**n**	33.536
Water Porosity		23.575
Air Porosity		9.961
Specific Gravity	**t/m^3**	2.67

Comments: SAMPLE TESTED AS RECEIVED.

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Aggregate/Soil Test Report

Report No.: MAT KESW15S-00911 -1
Issue No.: 1
This report replaces all previous issues of report no. 'MAT' KESW15S-00911

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00911
Field Sample ID:	**SGP19_1.0-1.15**
Date Sampled:	10/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	Sandy CLAY, medium plasticity, brown
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	68.67
Specimen diameter	**mm**	50.88
Specimen Bulk Density	**t/m^3**	1.86
Specimen Moisture Content	**%**	23.6
Specimen Dry Density	**t/m^3**	1.50
Void Ratio	**e**	0.758
Degree of Saturation	**S (%)**	82.22
Porosity	**n**	43.107
Water Porosity		35.441
Air Porosity		7.666
Specific Gravity	**t/m^3**	2.64

Comments: SAMPLE TESTED AS RECEIVED.

Form Number: KESW_009R Issue Date: 21/10/2011

Keswick Laboratory
Coffey Testing Pty Ltd
ABN 92 114 364 046
33 Richmond Road
Keswick SA 5035
Telephone: 08 8375 4400
Facsimile: 08 8375 4499

Report No.: MAT KESW15S-00912 -1
Issue No.: 1
This report replaces all previous issues of report no. 'MAT' KESW15S-00912

Aggregate/Soil Test Report

Client:	Greencap Ltd 12 Greenhill Road Wayville SA 5034
Principal:	EPA SA
Job No.:	INFOKESW01816AA
Project:	Groundwater Sampling: Job Number J125792
Location:	37 - 41 Cliff Street, Glenelg East

Approved Signatory: Ross Dingle
Technical Manager

Date of Issue: 21/04/2015

Sample Details

Test Procedure:	AS1289.2.1.1, 3.5.1
Sample ID:	KESW15S-00912
Field Sample ID:	**SGP20_1.1-1.27**
Date Sampled:	10/04/2015
Source:	BOREHOLE
Sample Type:	U50
Material:	Sandy CLAY, medium plasticity, brown
Specification:	N/A

Other Sample Details:

Test Results

Specimen Height	**mm**	65.72
Specimen diameter	**mm**	50.3
Specimen Bulk Density	**t/m^3**	2.01
Specimen Moisture Content	**%**	12.0
Specimen Dry Density	**t/m^3**	1.79
Void Ratio	**e**	0.488
Degree of Saturation	**S (%)**	65.490
Porosity	**n**	32.784
Water Porosity		21.470
Air Porosity		11.314
Specific Gravity	**t/m^3**	2.67

Comments: SAMPLE TESTED AS RECEIVED.

Environmental Assessment Works - Stage 2

South Australian Environment Protection Authority

37 - 41 Cliff Street, Glenelg East

Appendix J: NATA Laboratory Certificates – Radiello

SGS LEEDER CONSULTING

A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

7-May-2015

REPORT NUMBER: M150925
Site/Client Ref: J125792
Order No: 225427-GN

Greencap
12 Greenhill Road
Wayville

South Australia 5034
Attention: Simon Welsh

CERTIFICATE OF ANALYSIS

SAMPLES:	Seven samples were received for analysis
DATE RECEIVED:	**28-Apr-2015**
DATE COMMENCED:	**28-Apr-2015**
METHODS:	See Attached Results
RESULTS:	Please refer to a. ached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories
Results in airbourne concentrations are calculated using data provided by the client

REPORTED BY:

Evan Jones
Laboratory Manager

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory Number: 14429

Accredited for compliance with ISO/IEC 17025.

(I) RESULTS

Report N°: M150925

Matrix: Radiello Tube

Method: MA-5.RAD.02 Volatile Organics in Air (w/v)

Sample units are expressed in µg/m³

Analyte Name	PQL	Leeder ID: 2015009832 Client ID: West boundary 709NL Sampled Date	Leeder ID: 2015009833 Client ID: Canopy 706NL Sampled Date	Leeder ID: 2015009834 Client ID: NE Entrance 708NL Sampled Date	Leeder ID: 2015009835 Client ID: QA1 707NL Sampled Date
Benzene		0.40	0.42	0.40	0.37
Bromochloromethane		<0.14	<0.14	<0.14	<0.14
Butanol		<0.13	<0.13	<0.13	<0.13
2-butoxyethanol		<0.18	<0.18	<0.18	<0.18
Butyl acetate		<0.17	<0.17	<0.17	<0.17
Carbon tetrachloride		0.53	0.50	0.53	0.50
Chlorobenzene		<0.15	<0.15	<0.15	<0.15
Cyclohexane		0.37	0.26	0.37	0.29
Cyclohexanone		<0.15	<0.15	<0.15	<0.15
n-decane		0.55	0.55	0.51	0.60
14-Dichlorobenzene		<0.19	<0.19	<0.19	<0.19
12-Dichloroethane		<0.13	<0.13	<0.13	<0.13
1,2-Dichloropropane		<0.15	<0.15	<0.15	<0.15
N-Dodecane		31	34	33	45
Ethyl acetate		<0.13	<0.13	<0.13	<0.13
Ethylbenzene		0.29	0.29	0.29	0.29
2-ethylhexanol		<0.23	<0.23	<0.23	<0.23
Ethyl-tert-butyl ether		<0.16	<0.16	<0.16	<0.16
n-Heptane		<0.17	<0.17	<0.17	<0.17
n-Hexane		0.39	0.36	0.51	0.42
Isobutanol		<0.13	<0.13	<0.13	<0.13
Isooctane		0.22	0.22	0.25	0.22
Isopropylbenzene		<0.17	<0.17	<0.17	<0.17

(I) RESULTS

Report N°: M150925

Matrix: Radiello Tube

Method: MA-5.RAD.02 Volatile Organics in Air (w/v)

Sample units are expressed in µg/m³

	Leeder ID	2015009832	2015009833	2015009834	2015009835
	Client ID	West boundary 709NL	Canopy 706NL	NE Entrance 708NL	QA1 707NL
	Sampled Date				
Analyte Name	PQL				
1-Methoxy-2-propanol		<0.18	<0.18	<0.18	<0.18
1-Methoxy-2-propyl acetate		<0.17	<0.17	<0.17	<0.17
Methyl methacrylate		<0.15	<0.15	<0.15	<0.15
Methylcyclohexane		<0.15	<0.15	<0.15	<0.15
Methylcyclopentane		0.23	0.25	0.28	0.23
Methylethylketone		0.25	0.23	0.23	0.25
Methylisobutylketone		<0.15	<0.15	<0.15	<0.15
2-Methylpentane		0.79	0.71	0.85	0.65
3-Methylpentane		0.25	0.20	0.28	0.23
Methyl-ter-butyl ether		<0.15	<0.15	<0.15	<0.15
Naphthalene		<0.40	<0.40	<0.40	<0.40
N-Nonane		<0.21	<0.21	<0.21	<0.21
N-Octane		<0.19	<0.19	<0.19	<0.19
n-Propylbenzene		<0.17	<0.17	<0.17	<0.17
Styrene		<0.16	<0.16	<0.16	<0.16
Tetrachloroethylene		0.44	0.37	0.60	0.34
Toluene		1.5	1.3	1.6	1.4
1,1,1-Trichloroethane		<0.16	<0.16	<0.16	<0.16
Trichloroethylene		<0.14	<0.14	<0.14	<0.14
Trichloromethane		<0.13	<0.13	<0.13	<0.13
124-Trimethylbenzene		0.40	0.36	0.40	0.32
N-Undecane		4.4	4.7	4.0	6.2
o-Xylene		0.30	0.24	0.27	0.27
m&p-Xylenes		0.76	0.71	0.79	0.71

(I) RESULTS

Report N°: M150925

Matrix: Radiello Tube

Method: MA-5.RAD.03 Volatile Organics in Air (w/tube)

Sample units are expressed in µg/tube

	Leeder ID	2015009836
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
Benzene	0.1	nd
Bromochloromethane	0.1	nd
Butanol	0.1	nd
2-butoxyethanol	0.1	nd
Butyl acetate	0.1	nd
Carbon tetrachloride	0.1	nd
Chlorobenzene	0.1	nd
Cyclohexane	0.1	nd
Cyclohexanone	0.1	nd
n-decane	0.1	nd
14-Dichlorobenzene	0.1	nd
12-Dichloroethane	0.1	nd
1,2-Dichloropropane	0.1	nd
N-Dodecane	0.1	nd
Ethyl acetate	0.1	nd
Ethylbenzene	0.1	nd
2-ethylhexanol	0.1	nd
Ethyl-tert-butyl ether	0.1	nd
n-Heptane	0.1	nd
n-Hexane	0.1	nd
Isobutanol	0.1	nd
Isooctane	0.1	nd
Isopropylbenzene	0.1	nd

(I) RESULTS

Report N°: M150925

Matrix: Radiello Tube

Method: MA-5.RAD.03 Volatile Organics in Air (w/tube)

Sample units are expressed in µg/tube

	Leeder ID	2015009836
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
1-Methoxy-2-propanol	0.1	nd
1-Methoxy-2-propyl acetate	0.1	nd
Methyl methacrylate	0.1	nd
Methylcyclohexane	0.1	nd
Methylcyclopentane	0.1	nd
Methylethylketone	0.1	nd
Methylisobutylketone	0.1	nd
2-Methylpentane	0.1	nd
3-Methylpentane	0.1	nd
Methyl-ter-butyl ether	0.1	nd
Naphthalene	0.1	nd
N-Nonane	0.1	nd
N-Octane	0.1	nd
n-Propylbenzene	0.1	nd
Styrene	0.1	nd
Tetrachloroethylene	0.1	nd
Toluene	0.1	nd
1,1,1-Trichloroethane	0.1	nd
Trichloroethylene	0.1	nd
Trichloromethane	0.1	nd
124-Trimethylbenzene	0.1	nd
N-Undecane	0.1	nd
o-Xylene	0.1	nd
m&p-Xylenes	0.1	nd

(I) RESULTS

Report N°: M150925

Matrix: Radiello Tube

Method: MA-30.AIR.04 Total Recoverable Hydrocarbons

Sample units are expressed in µg/m³

	Leeder ID	2015009832	2015009833	2015009834	2015009835
	Client ID	West boundary 709NL	Canopy 706NL	NE Entrance 708NL	QA1 707NL
	Sampled Date				
Analyte Name	PQL				
C6-C10		12	10	9.9	9.6
C6-C10 (ex BTEX)		<9.4	<9.4	<9.4	<9.4
>C10-C16		37	48	48	51
>C10-C16 (less Naphthalene)		37	48	48	51

Matrix: Radiello Tube

Method: MA-30.AIR.03 Total Recoverable Hydrocarbons

Sample units are expressed in µg total

	Leeder ID	2015009836
	Client ID	Method
	Sampled Date	
Analyte Name	PQL	Blank
C6-C10	5	nd
C6-C10 (ex BTEX)	5	nd
>C10-C16	5	nd
>C10-C16 (less Naphthalene)	5	nd

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.01 Volatile Organics (w/v)

Sample units are expressed in µg/m³

	Leeder ID	2015009838
	Client ID	SQV06 Mi155300
	Sampled Date	
Analyte Name	**PQL**	
Benzene		<9.9
Bromobenzene		<9.9
Bromochloromethane		<9.9
Bromodichloromethane		<9.9
n-Butylbenzene		<9.9
sec-Butylbenzene		<9.9
tert-Butylbenzene		<9.9
Carbon tetrachloride		<9.9
Chlorobenzene		<9.9
Chloroethane		<9.9
Chloromethane		<9.9
2-Chlorotoluene		<9.9
4-Chlorotoluene		<9.9
1,2-Dibromo-3-chloropropane		<9.9
Dibromochloromethane		<9.9
1,2-Dibromoethane		<9.9
Dibromomethane		<9.9
1,2-Dichlorobenzene		<9.9
1,3-Dichlorobenzene		<9.9
1,4-Dichlorobenzene		<9.9
Dichlorodif uoromethane		<9.9
1,2-Dichloroethane		<9.9
1,1-Dichloroethane		<9.9

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.01 Volatile Organics (w/v)

Sample units are expressed in µg/m³

	Leeder ID	2015009838
	Client ID	SQV06 Mi155300
	Sampled Date	
Analyte Name	**PQL**	
1,1-Dichloroethene		<9.9
cis-1,2-Dichloroethene		120
trans-1,2-Dichloroethene		<9.9
1,2-Dichloropropane		<9.9
1,3-Dichloropropane		<9.9
2,2-Dichloropropane		<9.9
1,1-Dichloropropene		<9.9
cis-1,3-Dichloropropene		<9.9
trans-1,3-Dichloropropene		<9.9
Ethylbenzene		<9.9
Hexachlorobutadiene		<9.9
Isopropylbenzene		<9.9
4-Isopropyltoluene		<9.9
Naphthalene		<9.9
Propylbenzene		<9.9
Styrene		<9.9
1,1,1,2-Tetrachloroethane		<9.9
1,1,2,2-Tetrachloroethane		<9.9
Tetrachloroethene		1600
Toluene		<9.9
Tribromomethane		<9.9
1,2,3-Trichlorobenzene		<9.9
1,2,4-Trichlorobenzene		<9.9
1,1,1-Trichloroethane		<9.9

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.01 Volatile Organics (w/v)

Sample units are expressed in µg/m³

	Leeder ID	2015009838
	Client ID	SQV06 Mi155300
	Sampled Date	
Analyte Name	**PQL**	
1,1,2-Trichloroethane		<9.9
Trichloroethene		550
Trichlorof uoromethane		<9.9
Trichloromethane		11
1,2,3-Trichloropropane		<9.9
1,2,4-Trimethylbenzene		<9.9
1,3,5-Trimethylbenzene		<9.9
Vinyl chloride		<9.9
Xylenes		<9.9

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Sample units are expressed in ng/tube

	Leeder ID	2015009839
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
Benzene	5	nd
Bromobenzene	5	nd
Bromochloromethane	5	nd
Bromodichloromethane	5	nd
n-Butylbenzene	5	nd
sec-Butylbenzene	5	nd
tert-Butylbenzene	5	nd
Carbon tetrachloride	5	nd
Chlorobenzene	5	nd
Chloroethane	5	nd
Chloromethane	5	nd
2-Chlorotoluene	5	nd
4-Chlorotoluene	5	nd
1,2-Dibromo-3-chloropropane	5	nd
Dibromochloromethane	5	nd
1,2-Dibromoethane	5	nd
Dibromomethane	5	nd
1,2-Dichlorobenzene	5	nd
1,3-Dichlorobenzene	5	nd
1,4-Dichlorobenzene	5	nd
Dichlorodif uoromethane	5	nd
1,2-Dichloroethane	5	nd
1,1-Dichloroethane	5	nd

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Sample units are expressed in ng/tube

	Leeder ID	2015009839
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
1,1-Dichloroethene	5	nd
cis-1,2-Dichloroethene	5	nd
trans-1,2-Dichloroethene	5	nd
1,2-Dichloropropane	5	nd
1,3-Dichloropropane	5	nd
2,2-Dichloropropane	5	nd
1,1-Dichloropropene	5	nd
cis-1,3-Dichloropropene	5	nd
trans-1,3-Dichloropropene	5	nd
Ethylbenzene	5	nd
Hexachlorobutadiene	5	nd
Isopropylbenzene	5	nd
4-Isopropyltoluene	5	nd
Naphthalene	5	nd
Propylbenzene	5	nd
Styrene	5	nd
1,1,1,2-Tetrachloroethane	5	nd
1,1,2,2-Tetrachloroethane	5	nd
Tetrachloroethene	5	nd
Toluene	5	nd
Tribromomethane	5	nd
1,2,3-Trichlorobenzene	5	nd
1,2,4-Trichlorobenzene	5	nd
1,1,1-Trichloroethane	5	nd

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Sample units are expressed in ng/tube

	Leeder ID	2015009839
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
1,1,2-Trichloroethane	5	nd
Trichloroethene	5	nd
Trichlorof uoromethane	5	nd
Trichloromethane	5	nd
1,2,3-Trichloropropane	5	nd
1,2,4-Trimethylbenzene	5	nd
1,3,5-Trimethylbenzene	5	nd
Vinyl chloride	5	nd
Xylenes	5	nd

Matrix: Thermal Desorption Tube

Method: TO-17 TPH.03 mg/m3 (w/v)

Sample units are expressed in mg/m³

	Leeder ID	2015009838
	Client ID	SQV06 Mi155300
	Sampled Date	
Analyte Name	**PQL**	
C6-C10		2.3
C6-C10 (less BTEX)		2.3
>C10-C16		<0.2
>C10-C16 (less Naphthalene)		<0.2

(I) RESULTS

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17 TPH.04

Sample units are expressed in µg total

	Leeder ID	2015009839
	Client ID	Method
	Sampled Date	
Analyte Name	**PQL**	Blank
>C10-C16	0.1	nd
>C10-C16 (less Naphthalene)	0.1	nd
C6-C10	0.1	nd
C6-C10 (less BTEX)	0.1	nd

(II) QUALITY CONTROL

Report N°: M150925

Matrix: Radiello Tube

Method: MA-5.RAD.03 Volatile Organics in Air (w/tube)

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009840	2015009841
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
Benzene		100	112
Chlorobenzene		101	114
14-Dichlorobenzene		99	110
Ethylbenzene		97	108

Matrix: Radiello Tube

Method: MA-5.RAD.03 Volatile Organics in Air (w/tube)

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009840	2015009841
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
Toluene		98	110
o-Xylene		97	110
m&p-Xylenes		99	112

(II) QUALITY CONTROL

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009842	2015009843
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
Benzene		98	100
Bromodichloromethane		101	102
Carbon tetrachloride		96	95
Chlorobenzene		96	97
Dibromochloromethane		104	105
1,2-Dichlorobenzene		107	107
1,3-Dichlorobenzene		103	104
1,4-Dichlorobenzene		100	101
1,2-Dichloroethane		97	96

(II) QUALITY CONTROL

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009842	2015009843
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
1,1-Dichloroethene		101	101
cis-1,2-Dichloroethene		96	97
trans-1,2-Dichloroethene		108	111
1,2-Dichloropropane		96	98
Ethylbenzene		95	97
Styrene		100	99
Tetrachloroethene		98	100
Toluene		97	98
Tribromomethane		106	106
1,2,4-Trichlorobenzene		110	111
1,1,1-Trichloroethane		99	101

Matrix: Thermal Desorption Tube

Method: TO-17.02 Volatile Organics

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009842	2015009843
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
1,1,2-Trichloroethane		101	103
Trichloroethene		96	99
Trichloromethane		100	102
Vinyl chloride		87	89
Xylenes		96	97

(II) QUALITY CONTROL

Report N°: M150925

Matrix: Thermal Desorption Tube

Method: TO-17 TPH.04

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2015009842	2015009843
	Client ID	Method	Method
	Sampled Date		
Analyte Name	**PQL**	Spike	Spike Dup
>C10-C16		109	110
C6-C10		94	93

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
nd	Not Detected – The analyte was not detected above the reported PQL.
is	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
NC	Not calculated and/or Results below PQL
NV	No Vacuum, Canister received above standard atmospheric pressure
nr	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile

APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT

Greencap
Sample Chain of Custody and Testing Request
Samples Submitted to SGS

Job no	:	J125792	
Purchase Order	:	225427-GN	
Sheet no	:	1 of 1	
client	: Greencap	sampled by	: GN
project	: Vapour Testing	date	: 20/4/15-27/4/15
location	: Cliff St, Glenelg		

sample number	location	depth below surface	sample containers								material	testing required								
			Radiellio	TDT	carbon tube							TO17 Suite	IPA	TRH	VOC & TRH					
709NL	West boundary		X												X					
706NL	Canopy		X												X					
708NL	NE Entrance		X												X					
707NL	QA1		X												X					
SQV06				X2	X							X		X						

Notes :
Please email results to greg.nield@greencap.com.au & simon.welsh@greencap.com.au
Company Fax:- 08 8299 9954
Company Phone:- 08 8299 9955

Chain of Custody:

Relinquished by	Company	Date	Time	Received by - Name & Compa	date	time
Greg Nield	Greencap	27-Apr		K. Vance	27/4/15	1:20 pm
K. Vance	SGS	27/4/15	4pm	Brad Hutchinson	28/4/15	11:30 am

Results required by:

Results checked:
by date :

Greencap Ltd 12 Greenhill Road Wayville SA 5034 Phone 8299 9955 Fax 8299 9954

GREENCAP

Site Log Sheet

Monitoring type:	Greencap Job Ref:	Project / Site	Sheet
Vapour Sampling	5125792	Cliff St, Glenelg East	1

Location description	Sample ID	Batch number No.	Date On	Time On	Date off	Time off			
West boundary.	709NL	14337	20/4/15	9:31	27/4/15	9:40			
Canopy	706NL	"	20/4/15	9:37	27/4/15	9:44			
Canopy QA1	707 NL	"	"	9:39	"	9:46			
Canopy QA2	705NL	"	"	9:41	"	9:47			
North east "entrance" (alleyway)	708 NL	"	"	9:43	"	9:49			

Sampled By:

Notes:

RECEIVED
28 APR 2015
BY:

Greencap Ltd 12 Greenhill Road Wayville SA 5034 Phone 8299 9955 Fax 8299 9954

GREENCAP

Site Log Sheet

Monitoring type:	AEC Job Ref:	Project / Site	Sheet
Vapour Sampling	5125792	Glenelg Cliff St	2 of 4

Location ID	Tube No.	Pump No.	Date On	Date off	Time On	Time Off	Flow rate mL/min	Run Time minutes	Analysis Required
SGP04	Mi174069	308	22/4/15	"			100.47	1min	
~~SGP04~~ SQV05	235999	308	"	"			100.5	1min	
~~SGP~~ SQV06	Mi155370	308	"	"			101.3	1min	
SGP04	Mi174068	308	"	"			100.5	5min	
SQV05	236000	308	"	"			100.5	5min	
SQV06	Mi155300	308	"	"			101.3	5min	
SGP04	5171705516	315	"	"			101.2	1min	
SQV05	5171705523	315	"	"			101.2	1min	
SQV06	5171755518	315	"	"			101.2	1min.	
SGP06	235992	308	"	"			103.6	1min	
SGP06	235995	308	"	"			103.6	5min	
SGP06	5171704868	315	"	"			101.7	1min	
~~SGP~~ LT4	5171705429	315	22/4/15				101.2	30sec	
LT5	5171705430	315	23/4/15				103.7	~~5sec~~	

Sampled By:

Notes:

RECEIVED
28 APR 2015
BY:

Greencap

Sample Chain of Custody and Testing Request

Samples Submitted to ALS

Job no	:	J125792	
Purchase Order	:	225433-GN	
Sheet no	:	1 of 1	
client	:	Greencap	
project	:	Vapour Testing	
location	:	Cliff St, Glenelg	
sampled by	:	GN	
date	:	20/4/15-27/4/15	

sample number	location	depth below surface	sample containers							material	testing required							
			Radiello	TDT	carbon tube						TO17 Suite	IPA	TRH	VOC & TRH				
705NL	QA2		X											X				

Environmental Division Newcastle

Work Order Reference

EN1511422

Telephone : +61 2 4014 2500

Notes :

Please email results to greg.nield@greencap.com.au & simon.welsh@greencap.com.au

Company Fax:- 08 8299 9954

Company Phone:- 08 8299 9955

Chain of Custody:

Relinquished by	Company	Date	Time	Received by - Name & Compa	date	time
Greg Nield	Greencap	30-Apr		Mark Spencer	1/05/15	1:44 pm
				ALS		
				Toll: 0025A02Y00		

Results required by:

Results checked:

by date :

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EN1511422**

Client	: **GREENCAP**	Laboratory	: Environmental Division Newcastle
Contact	: GREG NIELD	Contact	: Peter Keyte
Address	: Leve 1, 503 Murray St Perth Western Australia 6000	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: GREG.NIELD@greencap.com.au	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: J125792 - Vapour Testing	Page	: 1 of 2
Order number	: 225433-GN	Quote number	: ----
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Cliff St, Glenelg		
Sampler	: GREG NIELD		

Dates

Date Samples Received	: 01-May-2015	Issue Date	: 07-May-2015
Client Requested Due Date	: 14-May-2015	Scheduled Reporting Date	: **14-May-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
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

Sample Container(s)/Preservation Non-Compliances

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

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

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.

Matrix: **AIR**

Laboratory sample ID	Client sampling date / time	Client sample ID	AIR - EP091H TRH on Charcoal Sorbents	AIR - EP091X Volatile Organics in Air - Extended List
EN1511422-001	[05-May-2015]	QA2 705NL	✓	✓

Proactive Holding Time Report

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

Requested Deliverables

GREG NIELD

- *AU Certificate of Analysis - NATA (COA)	Email	GREG.NIELD@greencap.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	GREG.NIELD@greencap.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	GREG.NIELD@greencap.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	GREG.NIELD@greencap.com.au
- A4 - AU Tax Invoice (INV)	Email	GREG.NIELD@greencap.com.au
- Chain of Custody (CoC) (COC)	Email	GREG.NIELD@greencap.com.au
- EDI Format - ENMRG (ENMRG)	Email	GREG.NIELD@greencap.com.au
- EDI Format - ESDAT (ESDAT)	Email	GREG.NIELD@greencap.com.au
- EDI Format - XTab (XTAB)	Email	GREG.NIELD@greencap.com.au

SIMON WELSH

- *AU Certificate of Analysis - NATA (COA)	Email	SIMON.WELSH@greencap.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	SIMON.WELSH@greencap.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	SIMON.WELSH@greencap.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	SIMON.WELSH@greencap.com.au
- A4 - AU Tax Invoice (INV)	Email	SIMON.WELSH@greencap.com.au
- Chain of Custody (CoC) (COC)	Email	SIMON.WELSH@greencap.com.au
- EDI Format - ENMRG (ENMRG)	Email	SIMON.WELSH@greencap.com.au
- EDI Format - ESDAT (ESDAT)	Email	SIMON.WELSH@greencap.com.au
- EDI Format - XTab (XTAB)	Email	SIMON.WELSH@greencap.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EN1511422**	Page	: 1 of 5
Client	: **GREENCAP**	Laboratory	: Environmental Division Newcastle
Contact	: GREG NIELD	Contact	: Peter Keyte
Address	: Leve 1, 503 Murray St Perth Western Australia 6000	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: GREG.NIELD@greencap.com.au	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: J125792 - Vapour Testing	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 225433-GN	Date Samples Received	: 01-May-2015 13:44
C-O-C number	: ----	Date Analysis Commenced	: 05-May-2015
Sampler	: GREG NIELD	Issue Date	: 14-May-2015 16:01
Site	: Cliff St, Glenelg		
		No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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*
Daniel Junek	Senior Air Analyst	Newcastle - Organics
Justin Houghton	Senior Analyst - Organic	Newcastle - Organics

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
ø = ALS is not NATA accredited for these tests.

- EP091H: ALS is not NATA accredited for the analysis of TPH/TRH from charcoal tubes.

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Client sample ID	QA2 705NL	----	----	----	----
				Client sampling date / time	[05-May-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		EN1511422-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP091A: Aliphatic Hydrocarbons									
1-heptene	592-76-7	0.5	µg		<1.0	----	----	----	----
Heptane	142-82-5	0.5	µg		<1.0	----	----	----	----
Decane	124-18-5	0.5	µg		<1.0	----	----	----	----
n-Hexane	110-54-3	0.5	µg		<1.0	----	----	----	----
Cyclohexane	110-82-7	0.5	µg		<1.0	----	----	----	----
Isooctane	540-84-1	0.5	µg		<1.0	----	----	----	----
n-Octane	111-65-9	0.5	µg		<1.0	----	----	----	----
n-Nonane	111-84-2	0.5	µg		<1.0	----	----	----	----
EP091B: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.5	µg		<1.0	----	----	----	----
Toluene	108-88-3	0.5	µg		<1.0	----	----	----	----
Ethylbenzene	100-41-4	0.5	µg		<1.0	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg		<2	----	----	----	----
Styrene	100-42-5	0.5	µg		<1.0	----	----	----	----
ortho-Xylene	95-47-6	0.5	µg		<1.0	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	µg		<1.0	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	µg		<1.0	----	----	----	----
n-Butylbenzene	104-51-8	0.5	µg		<1.0	----	----	----	----
Isopropylbenzene	98-82-8	0.5	µg		<1.0	----	----	----	----
n-Propylbenzene	103-65-1	0.5	µg		<1.0	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	µg		<1.0	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	µg		<1.0	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	µg		<1.0	----	----	----	----
EP091C: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	0.5	µg		<1.0	----	----	----	----
2-Butanone (MEK)	78-93-3	0.5	µg		<1.0	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	0.5	µg		<1.0	----	----	----	----
2-Hexanone (MBK)	591-78-6	0.5	µg		<1.0	----	----	----	----
EP091D: Halogenated Compounds									
1.1-Dichloroethane	75-34-3	0.5	µg		<1.0	----	----	----	----
Chloroform	67-66-3	0.5	µg		<1.0	----	----	----	----
Trichloroethene	79-01-6	0.5	µg		<1.0	----	----	----	----
Chlorobenzene	108-90-7	0.5	µg		<1.0	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	µg		<1.0	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	µg		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Client sample ID	QA2 705NL	----	----	----	----
				Client sampling date / time	[05-May-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		EN1511422-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP091D: Halogenated Compounds - Continued									
1.3-Dichlorobenzene	541-73-1	0.5	µg		<1.0	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	µg		<1.0	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	µg		<1.0	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	µg		<1.0	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	µg		<1.0	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	µg		<1.0	----	----	----	----
Bromochloromethane	74-97-5	0.5	µg		<1.0	----	----	----	----
2.2-Dichloropropane	594-20-7	0.5	µg		<1.0	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	µg		<1.0	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	µg		<1.0	----	----	----	----
1.1-Dichloropropene	----	0.5	µg		<1.0	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	µg		<1.0	----	----	----	----
Dibromomethane	74-95-3	0.5	µg		<1.0	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	µg		<1.0	----	----	----	----
Bromodichloromethane	75-27-4	0.5	µg		<1.0	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	µg		<1.0	----	----	----	----
trans-1.3-Dichloropropene	10061-02-6	0.5	µg		<1.0	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	µg		<1.0	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	µg		<1.0	----	----	----	----
Dibromochloromethane	124-48-1	0.5	µg		<1.0	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	µg		<1.0	----	----	----	----
Tetrachloroethene	127-18-4	0.5	µg		<1.0	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	µg		<1.0	----	----	----	----
Bromoform	75-25-2	0.5	µg		<1.0	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	µg		<1.0	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	µg		<1.0	----	----	----	----
Bromobenzene	108-86-1	0.5	µg		<1.0	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	µg		<1.0	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	µg		<1.0	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	µg		<1.0	----	----	----	----
EP091E: Polycyclic Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	µg		<1.0	----	----	----	----
EP091H: TPH/TRH									
ø C6 - C9 Fraction	----	50	µg/sample		<100	----	----	----	----
ø C10 - C14 Fraction	----	50	µg/sample		<100	----	----	----	----

Analytical Results

Sub-Matrix: **SORBENT TUBE** (Matrix: **AIR**)				Client sample ID	**QA2 705NL**	----	----	----	----
				Client sampling date / time	[05-May-2015]	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EN1511422-001**	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP091H: TPH/TRH - Continued									
ø **C6 - C10 Fraction**	C6_C10	50	µg/sample		<100	----	----	----	----
ø **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	50	µg/sample		<100	----	----	----	----
ø **>C10 - C16 Fraction**	>C10_C16	50	µg/sample		<100	----	----	----	----
ø **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	µg/sample		<100	----	----	----	----
EP091: Chlorinated Organic Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**92.1**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**71.8**	----	----	----	----
EP091: MAH Surrogates									
Toluene-D8	2037-26-5	0.5	%		**87.7**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EN1511422**	Page	: 1 of 6
Client	: **GREENCAP**	Laboratory	: Environmental Division Newcastle
Contact	: GREG NIELD	Contact	: Peter Keyte
Address	: Leve 1, 503 Murray St Perth Western Australia 6000	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: GREG.NIELD@greencap.com.au	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: J125792 - Vapour Testing	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 225433-GN	Date Samples Received	: 01-May-2015
C-O-C number	: ----	Date Analysis Commenced	: 05-May-2015
Sampler	: GREG NIELD	Issue Date	: 14-May-2015
Site	: Cliff St, Glenelg	No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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 ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Daniel Junek	Senior Air Analyst	Newcastle - Organics
Justin Houghton	Senior Analyst - Organic	Newcastle - Organics

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%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

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: **AIR**

				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
EP091A: Aliphatic Hydrocarbons (QCLot: 99500)								
EP091: 1-heptene	592-76-7	0.5	µg	<0.5	5 µg	91.9	76	115
EP091: Cyclohexane	110-82-7	----	µg	----	5 µg	98.0	77	112
EP091: Decane	124-18-5	0.5	µg	<0.5	5 µg	96.2	80	115
EP091: Heptane	142-82-5	0.5	µg	<0.5	5 µg	93.9	76	115
EP091: Isooctane	540-84-1	----	µg	----	5 µg	96.9	76	115
EP091: n-Hexane	110-54-3	----	µg	----	5 µg	87.8	75	115
EP091: n-Nonane	111-84-2	----	µg	----	5 µg	101	80	115
EP091: n-Octane	111-65-9	----	µg	----	5 µg	93.2	80	115
EP091B: Monocyclic Aromatic Hydrocarbons (QCLot: 99500)								
EP091: 1.2.4-Trimethylbenzene	95-63-6	0.5	µg	<0.5	5 µg	92.8	56	126
EP091: 1.3.5-Trimethylbenzene	108-67-8	0.5	µg	<0.5	5 µg	95.7	65	127
EP091: Benzene	71-43-2	0.5	µg	<0.5	5 µg	91.7	70	122
EP091: Ethylbenzene	100-41-4	0.5	µg	<0.5	5 µg	95.5	78	120
EP091: Isopropylbenzene	98-82-8	0.5	µg	<0.5	5 µg	102	74	120
EP091: meta- & para-Xylene	108-38-3 106-42-3	1	µg	<1	10 µg	94.1	71	124
EP091: n-Butylbenzene	104-51-8	0.5	µg	<0.5	5 µg	93.7	80	120
EP091: n-Propylbenzene	103-65-1	----	µg	----	5 µg	99.8	66	128
EP091: ortho-Xylene	95-47-6	0.5	µg	<0.5	5 µg	91.2	70	124
EP091: p-Isopropyltoluene	99-87-6	----	µg	----	5 µg	96.1	81	115
EP091: sec-Butylbenzene	135-98-8	----	µg	----	5 µg	96.7	80	115
EP091: Styrene	100-42-5	0.5	µg	<0.5	5 µg	59.1	30	116
EP091: tert-Butylbenzene	98-06-6	----	µg	----	5 µg	100	75	121
EP091: Toluene	108-88-3	0.5	µg	<0.5	5 µg	91.5	70	130
EP091C: Oxygenated Compounds (QCLot: 99500)								
EP091: 2-Butanone (MEK)	78-93-3	0.5	µg	<0.5	5 µg	89.5	69	110
EP091: 2-Hexanone (MBK)	591-78-6	0.5	µg	<0.5	5 µg	88.5	79	110
EP091: 2-Propanone (Acetone)	67-64-1	0.5	µg	<0.5	5 µg	76.8	60	110
EP091: 4-Methyl-2-pentanone (MIBK)	108-10-1	0.5	µg	<0.5	5 µg	91.7	80	110
EP091D: Halogenated Compounds (QCLot: 99500)								
EP091: 1.1.1.2-Tetrachloroethane	630-20-6	----	µg	----	5 µg	97.0	83	115
EP091: 1.1.1-Trichloroethane	71-55-6	----	µg	----	5 µg	94.1	80	115
EP091: 1.1.2.2-Tetrachloroethane	79-34-5	----	µg	----	5 µg	96.4	74	113
EP091: 1.1.2-Trichloroethane	79-00-5	----	µg	----	5 µg	95.4	74	120

Sub-Matrix: **AIR**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP091D: Halogenated Compounds (QCLot: 99500) - continued								
EP091: 1.1-Dichloroethane	75-34-3	0.5	µg	<0.5	5 µg	89.2	82	105
EP091: 1.1-Dichloropropene	----	----	µg	----	5 µg	96.7	73	120
EP091: 1.2.3-Trichlorobenzene	87-61-6	----	µg	----	5 µg	65.5	42	98
EP091: 1.2.3-Trichloropropane	96-18-4	----	µg	----	5 µg	99.7	63	117
EP091: 1.2.4-Trichlorobenzene	120-82-1	----	µg	----	5 µg	73.3	60	90
EP091: 1.2-Dibromo-3-chloropropane	96-12-8	----	µg	----	5 µg	104	75	110
EP091: 1.2-Dibromoethane (EDB)	106-93-4	----	µg	----	5 µg	93.6	66	120
EP091: 1.2-Dichlorobenzene	95-50-1	0.5	µg	<0.5	5 µg	81.2	61	105
EP091: 1.2-Dichloroethane	107-06-2	----	µg	----	5 µg	96.0	80	110
EP091: 1.2-Dichloropropane	78-87-5	----	µg	----	5 µg	97.2	80	116
EP091: 1.3-Dichlorobenzene	541-73-1	0.5	µg	<0.5	5 µg	85.8	64	115
EP091: 1.3-Dichloropropane	142-28-9	----	µg	----	5 µg	90.9	77	120
EP091: 1.4-Dichlorobenzene	106-46-7	0.5	µg	<0.5	5 µg	83.6	60	110
EP091: 2.2-Dichloropropane	594-20-7	----	µg	----	5 µg	92.8	80	115
EP091: 2-Chlorotoluene	95-49-8	0.5	µg	<0.5	5 µg	90.4	57	119
EP091: 4-Chlorotoluene	106-43-4	0.5	µg	<0.5	5 µg	91.5	52	120
EP091: Bromobenzene	108-86-1	----	µg	----	5 µg	90.9	58	122
EP091: Bromochloromethane	74-97-5	----	µg	----	5 µg	91.6	84	110
EP091: Bromodichloromethane	75-27-4	----	µg	----	5 µg	93.8	83	118
EP091: Bromoform	75-25-2	----	µg	----	5 µg	93.5	66	124
EP091: Carbon Tetrachloride	56-23-5	----	µg	----	5 µg	94.7	71	125
EP091: Chlorobenzene	108-90-7	0.5	µg	<0.5	5 µg	91.9	76	115
EP091: Chloroform	67-66-3	0.5	µg	<0.5	5 µg	91.7	77	110
EP091: cis-1.2-Dichloroethene	156-59-2	----	µg	----	5 µg	91.0	82	110
EP091: cis-1.3-Dichloropropylene	10061-01-5	----	µg	----	5 µg	95.7	81	118
EP091: Dibromochloromethane	124-48-1	----	µg	----	5 µg	92.2	59	127
EP091: Dibromomethane	74-95-3	----	µg	----	5 µg	93.1	70	124
EP091: Hexachlorobutadiene	87-68-3	0.5	µg	<0.5	5 µg	95.7	65	115
EP091: Tetrachloroethene	127-18-4	----	µg	----	5 µg	90.5	61	130
EP091: trans-1.2-Dichloroethene	156-60-5	----	µg	----	5 µg	100	56	120
EP091: trans-1.3-Dichloropropene	10061-02-6	----	µg	----	5 µg	94.0	80	117
EP091: Trichloroethene	79-01-6	0.5	µg	<0.5	5 µg	97.3	75	120
EP091E: Polycyclic Aromatic Hydrocarbons (QCLot: 99500)								
EP091: Naphthalene	91-20-3	----	µg	----	5 µg	24.9	15	70

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **EN1511422**	Page	: 1 of 4
Client	: **GREENCAP**	Laboratory	: Environmental Division Newcastle
Contact	: GREG NIELD	Telephone	: +61 2 4014 2500
Project	: J125792 - Vapour Testing	Date Samples Received	: 01-May-2015
Site	: Cliff St, Glenelg	Issue Date	: 14-May-2015
Sampler	: GREG NIELD	No. of samples received	: 1
Order number	: 225433-GN	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

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **AIR**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP091H: TPH/TRH						
Charcoal Tube						
QA2 - 705NL	----	----	----	13-May-2015	10-May-2015	**3**

Analysis Holding Time Compliance

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: **AIR**

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
EP091A: Aliphatic Hydrocarbons							
Charcoal Tube (EP091)							
QA2 - 705NL	**05-May-2015**	**05-May-2015**	19-May-2015	✓	**06-May-2015**	10-May-2015	✓
EP091H: TPH/TRH							
Charcoal Tube (EP091-H)							
QA2 - 705NL	**05-May-2015**	**05-May-2015**	19-May-2015	✓	**13-May-2015**	10-May-2015	×

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: **AIR**

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 Control Samples (LCS)							
Volatile Organic Compounds in Air (Charcoal Sorbents)	EP091	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Volatile Organic Compounds in Air (Charcoal Sorbents)	EP091	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and 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
Volatile Organic Compounds in Air (Charcoal Sorbents)	EP091	AIR	In house: Referenced to NIOSH 1500/1501,1003,1300/1301. Static CS2 extraction of Sorbent Charcoal Tubes and Passive Badges
TRH on Charcoal Sorbents	* EP091-H	AIR	Hydrocarbon Fractions on Charcoal Sorbents by GC-MS-FID NEPM and TPH Fractions

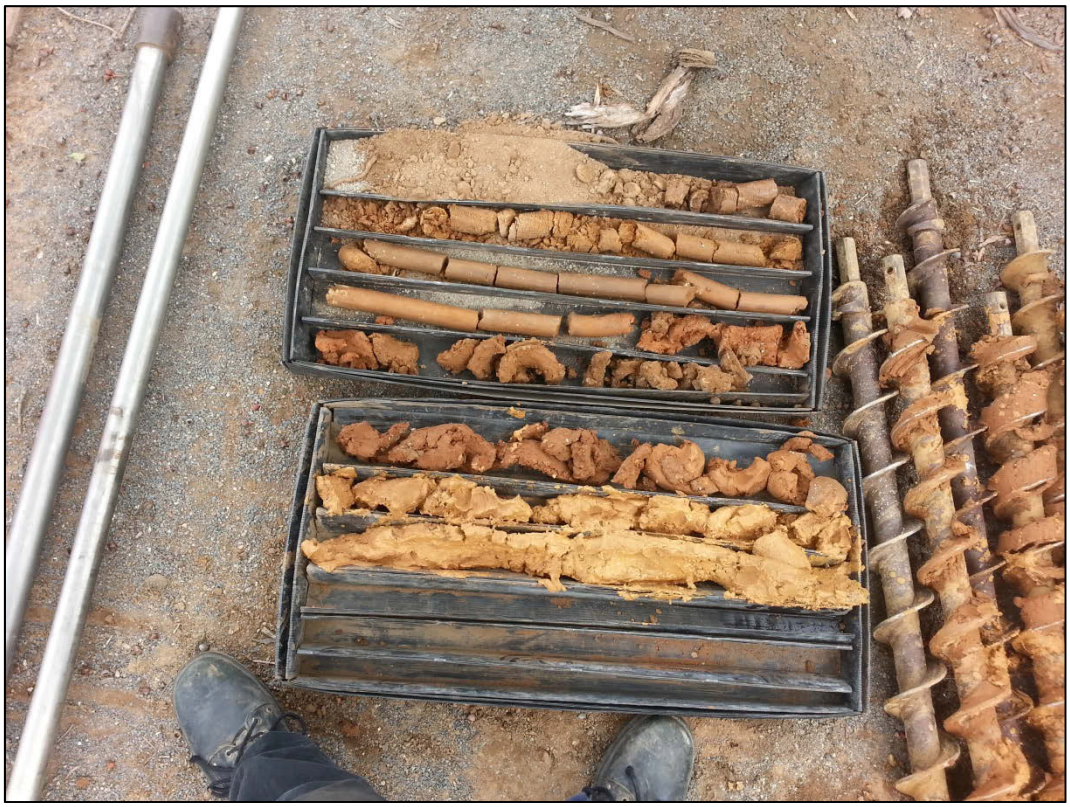
Preparation Methods	Method	Matrix	Method Descriptions
Solvent Extraction of Charcoal Sorbents	EP091-PR	AIR	#

Environmental Assessment Works - Stage 2

South Australian Environment Protection Authority

37 - 41 Cliff Street, Glenelg East

Appendix K: Soil Core Photographs



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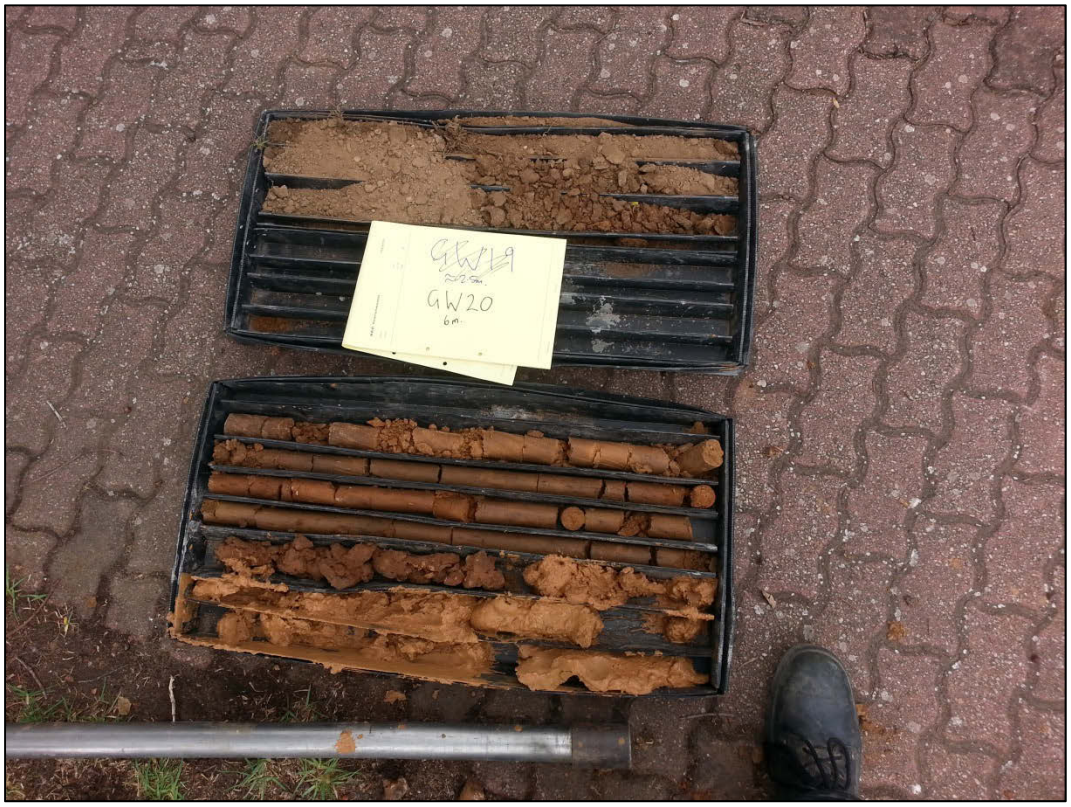

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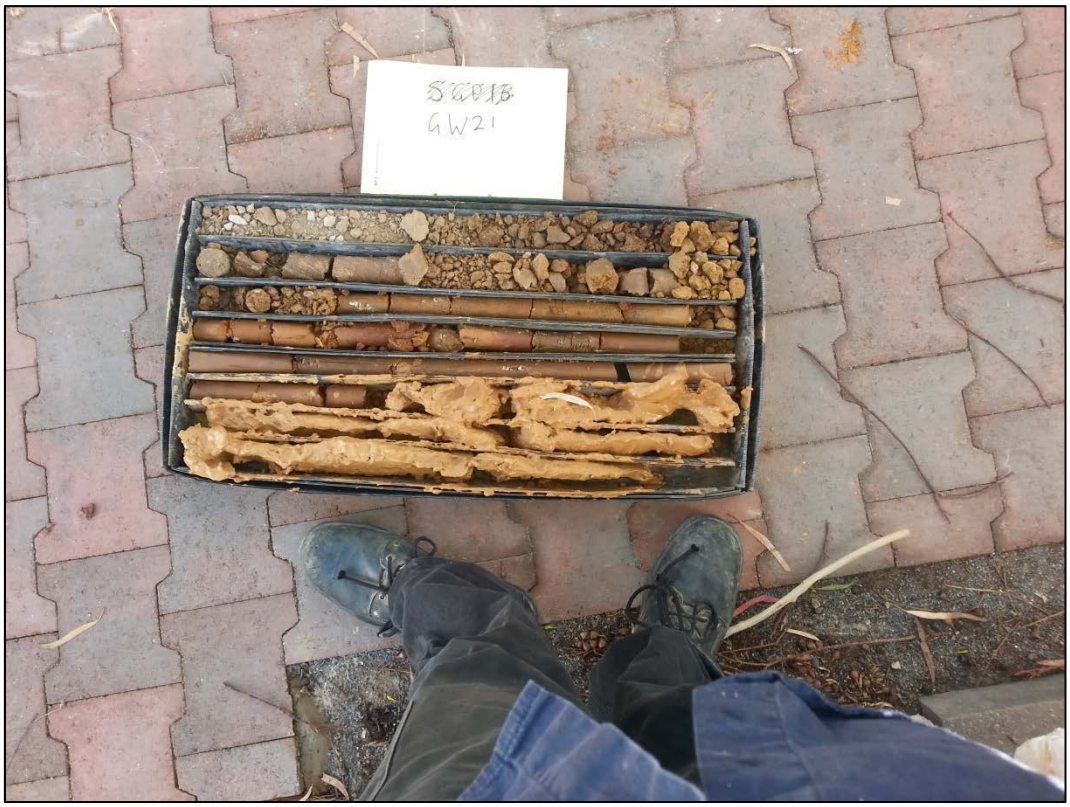

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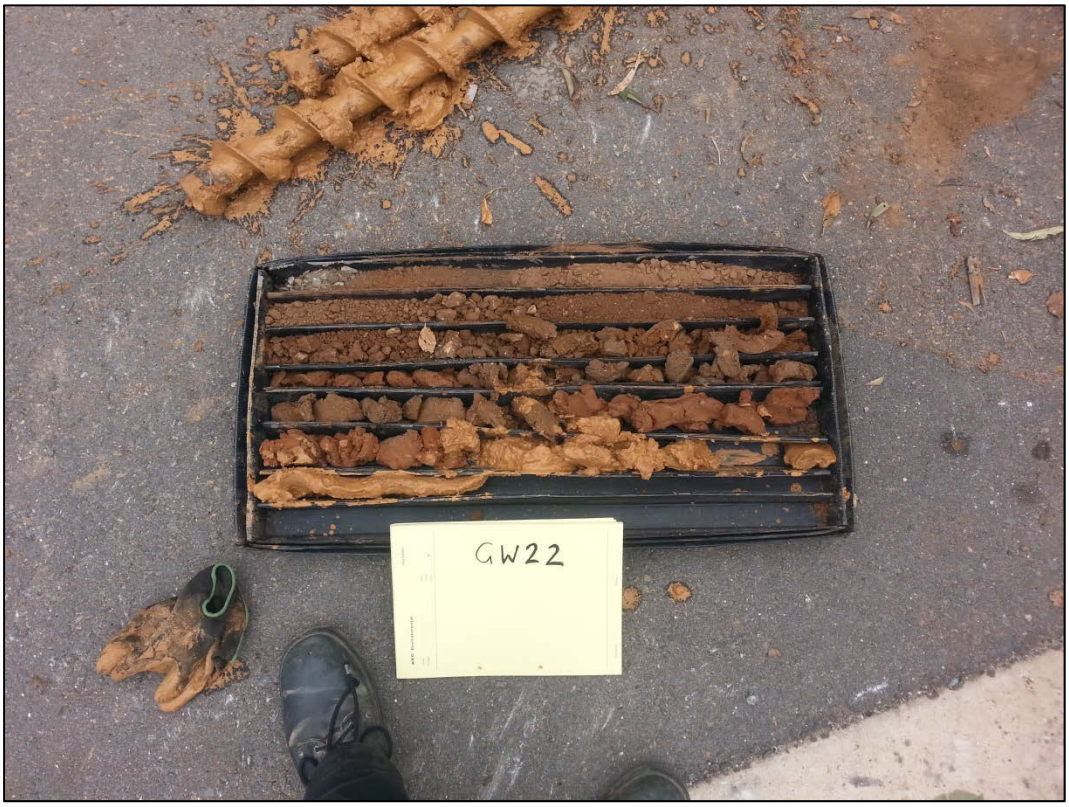

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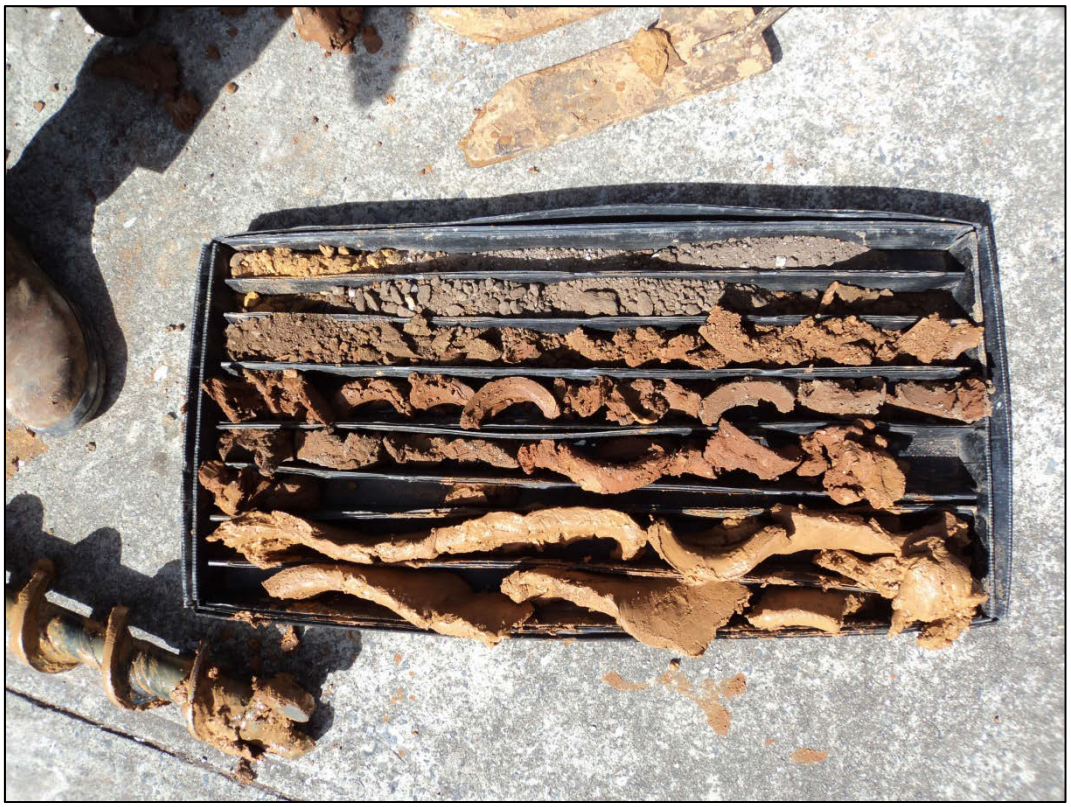

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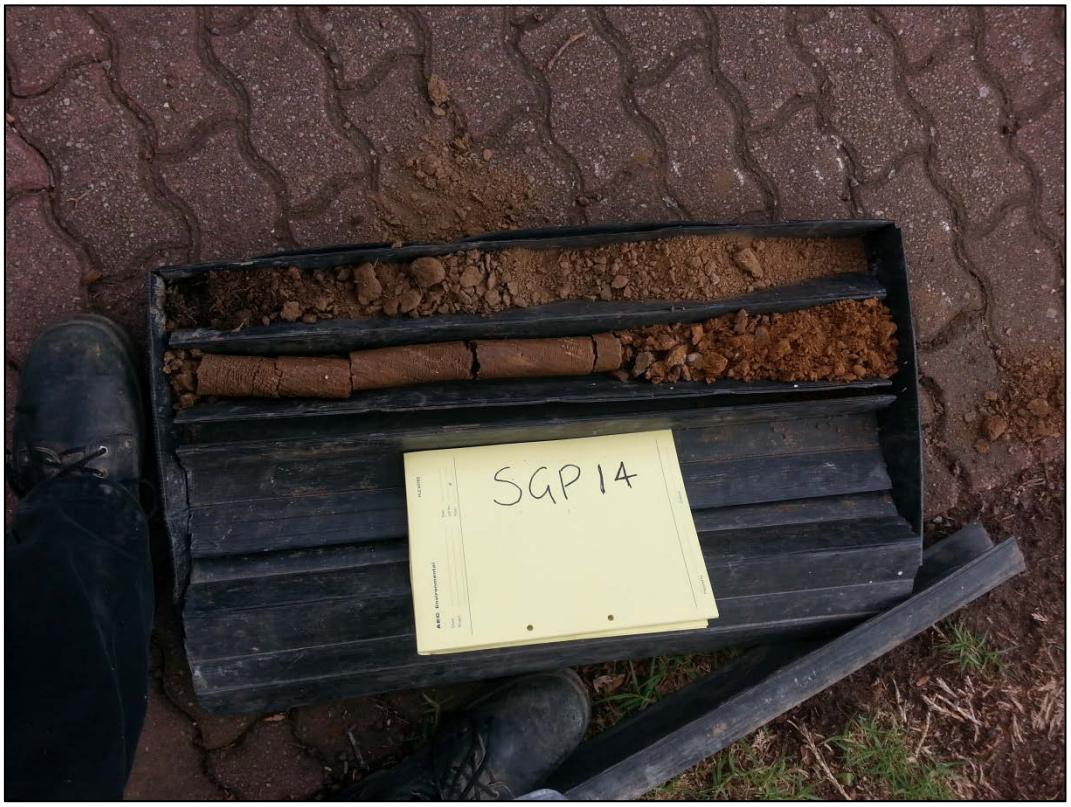

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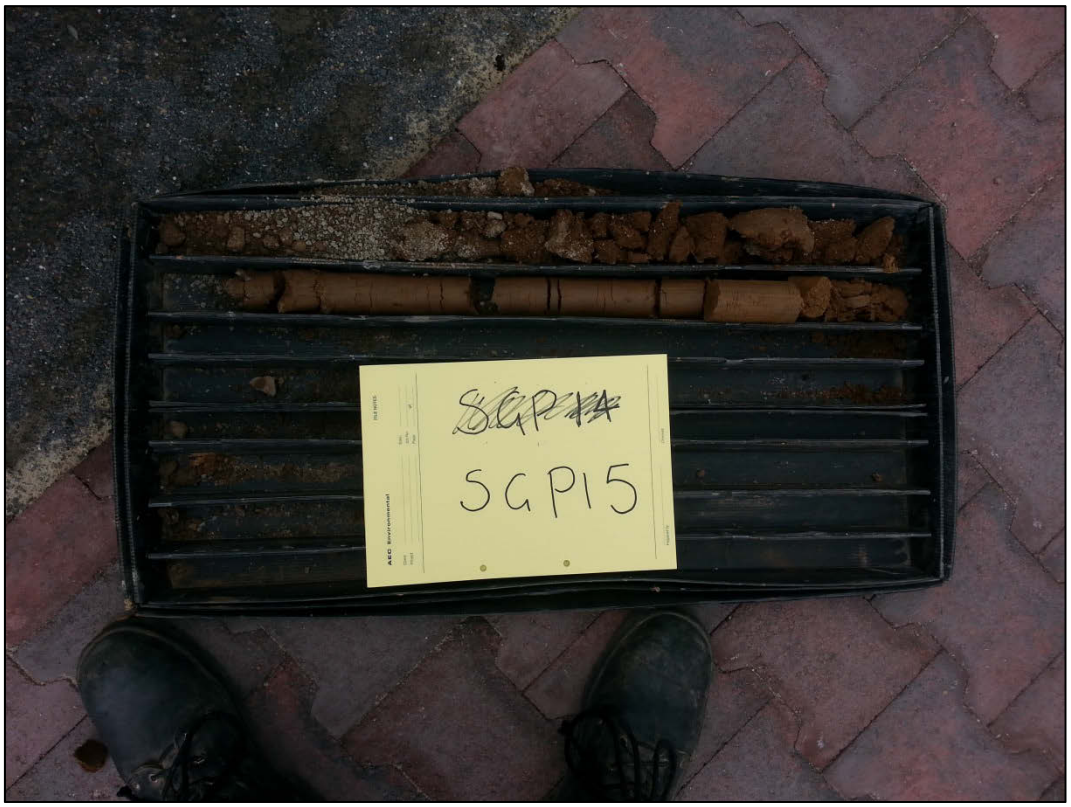
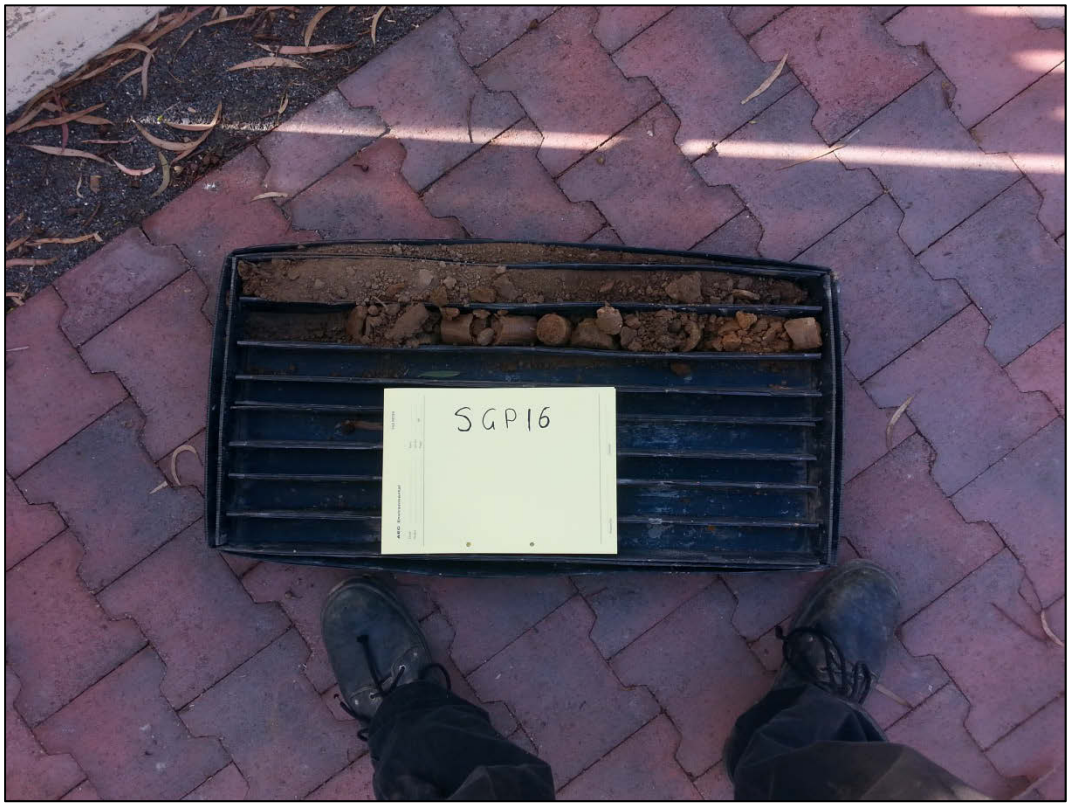


SGP15 Core



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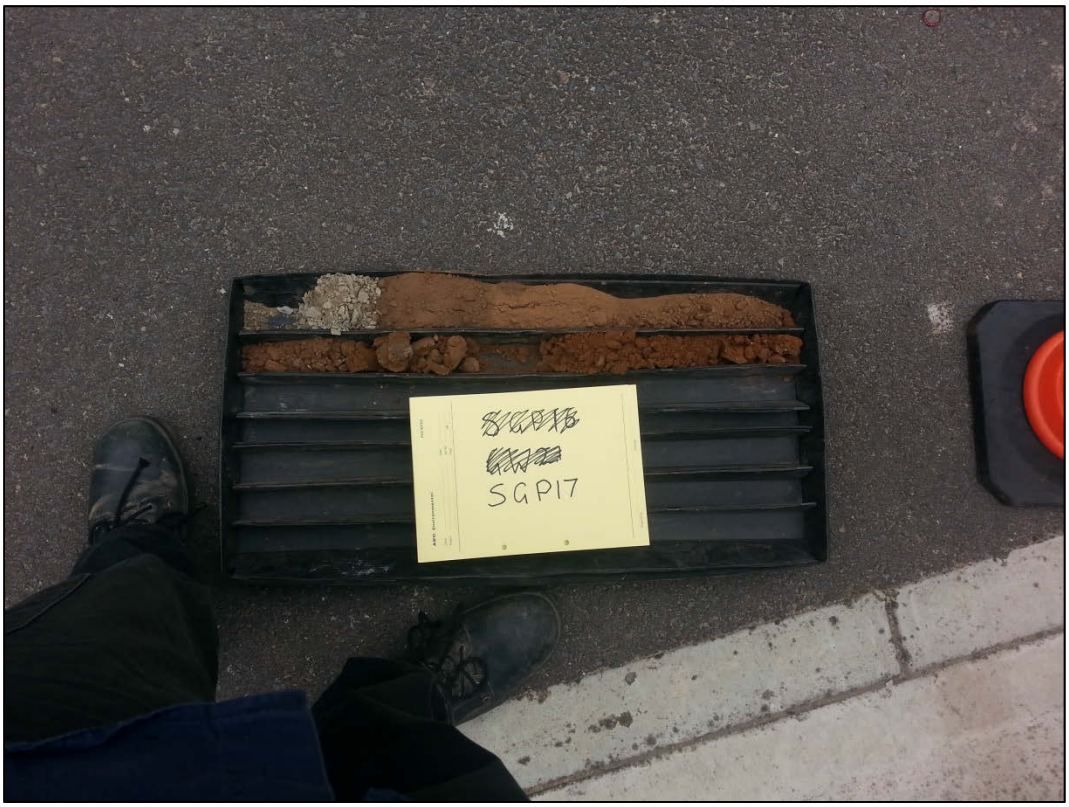
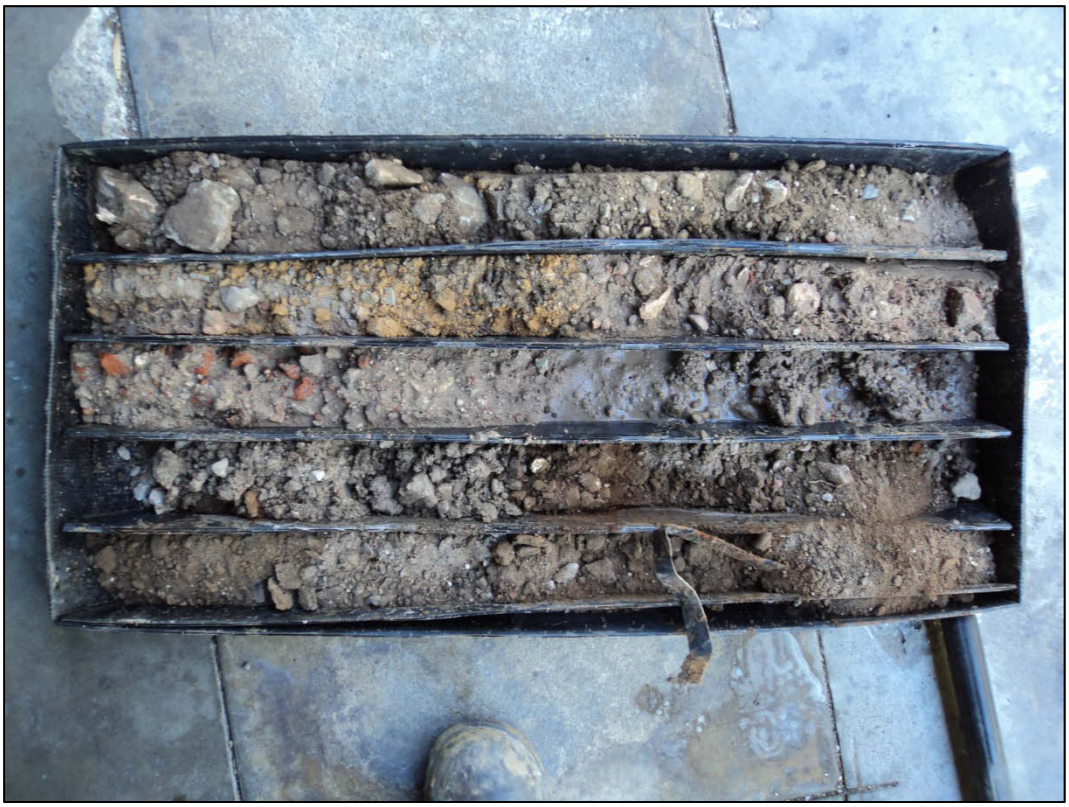


SGP17 Core

SGP18 Core



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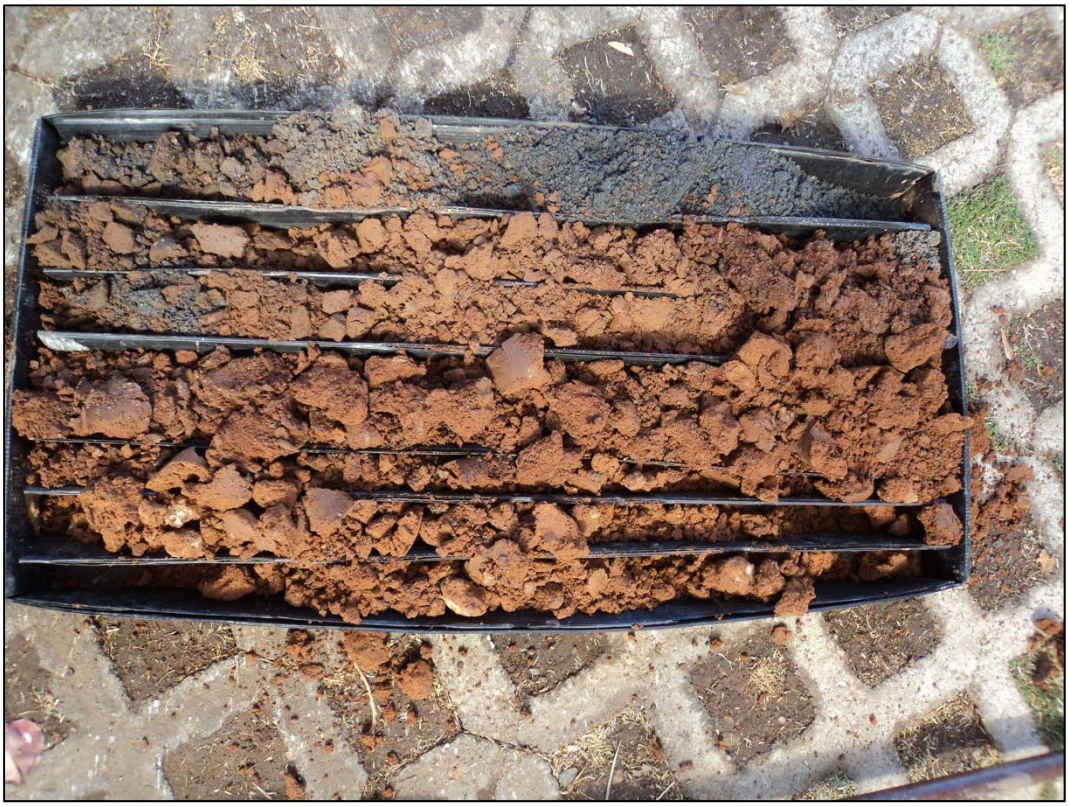

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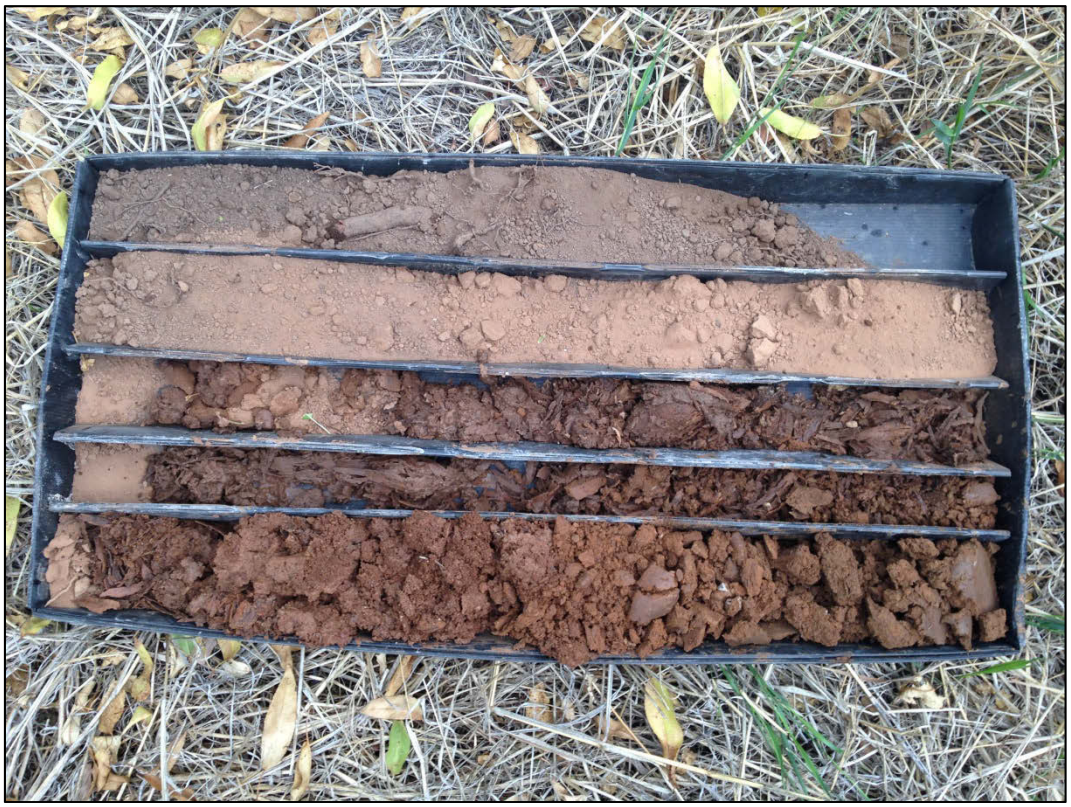

SGP21 Core