

## Appendix A

### Laboratory Certificates



# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	BH103 0.00-0.10m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28843-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28843

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses  
4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present  
5 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses 5  
☐ does not disperse 6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 23.2

**RESULT:**

**Emerson Class No.** 5



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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

*Chris Lloyd*

Chris Lloyd

6/11/2017

Date:



Macquarie Geotechnical  
U8 10 Bradford Street  
Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	BH104 0.10-0.30m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28847-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28847

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses  
4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☒ present  
5 ☐ absent

**"VIGOROUS SHAKING"**

☐ disperses  
☐ does not disperse

5  
6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 23.2

**RESULT:**

**Emerson Class No.** 4



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Chris Lloyd

6/11/2017

Date:



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Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP101 0.00-0.10m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28850-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28850

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil
<b>Sampling:</b>	Sampled by Client
<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses  
4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present  
5 ☒ absent

**"VIGOROUS SHAKING"**

☐ disperses  
6 ☒ does not disperse

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 22.9

**RESULT:**

**Emerson Class No.** 6



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Chris Lloyd

6/11/2017

Date:



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# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP102 0.00-0.10m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28852-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28852

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil
<b>Sampling:</b>	Sampled by Client
<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses  
4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present  
5 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses  
☐ does not disperse

5  
6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 22.9

**RESULT:**

**Emerson Class No.** 5



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Chris Lloyd

6/11/2017

Date:



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Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP103 0.00-0.10m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28853-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28853

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

<input type="checkbox"/> does not slake
<input checked="" type="checkbox"/> slakes

7 ☐ swells

8 ☐ does not swell

1 ☐ complete dispersion

2 ☐ partial dispersion

2 ☒ no dispersion

2.1 ☐ moderate

2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses

3 ☒ does not disperse

3.1 ☐ complete

3.2 ☐ moderate

3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present

4 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses 5

☐ does not disperse 6

**Water Type** ☐ Distilled

**Water Source** ☐ -

**Water Temperature (°C)**

**RESULT:**

**Emerson Class No.**



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Chris Lloyd

6/11/2017

Date:



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Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP105 0.00-0.10m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28856-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28856

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil
<b>Sampling:</b>	Sampled by Client
<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses  
4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present  
5 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses  
☐ does not disperse

5  
6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 23

**RESULT:**

**Emerson Class No.** 5



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Date:



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# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP106 0-0.1m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28858-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28858

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

<input type="checkbox"/> does not slake
<input checked="" type="checkbox"/> slakes

7 ☐ swells

8 ☐ does not swell

1 ☐ complete dispersion

2 ☐ partial dispersion

2 ☒ no dispersion

2.1 ☐ moderate

2.2 ☐ slight

**"REMOULD ETC."**

3 ☐ disperses

3 ☒ does not disperse

3.1 ☐ complete

3.2 ☐ moderate

3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present

4 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses 5

☐ does not disperse 6

**Water Type** Distilled

**Water Source** -

**Water Temperature (°C)** 22.9

**RESULT:**

**Emerson Class No.** 5



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Authorised Signatory:

*Chris Lloyd*

Chris Lloyd

6/11/2017

Date:



Macquarie Geotechnical  
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Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP108 0-0.1m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28860-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28860

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

1 ☐ complete dispersion  
2 ☐ partial dispersion  
3 ☒ no dispersion

2.1 ☐ moderate  
2.2 ☐ slight

**"REMOULD ETC."**

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4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☐ present  
5 ☒ absent

**"VIGOROUS SHAKING"**

☒ disperses 5  
☐ does not disperse 6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 22.9

**RESULT:**

**Emerson Class No.** 5



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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

*Chris Lloyd*

Chris Lloyd

6/11/2017

Date:



Macquarie Geotechnical  
U8 10 Bradford Street  
Alexandria NSW 2015

# EMERSON CLASS REPORT

<b>Client:</b>	Arup	<b>Source:</b>	TP109 0-0.1m
<b>Address:</b>	Level 10, 201 Kent Street, Sydney 2000 Australia	<b>Sample Description:</b>	Silty CLAY
<b>Project:</b>	Jemalong Solar Power Plant (602094-72)	<b>Report No:</b>	S28862-ECT
<b>Job No:</b>	S17437	<b>Lab No:</b>	S28862

<b>Test Procedure:</b>	<input checked="" type="checkbox"/> AS1289 3.8.1 Soil classification tests - Dispersion - Determination of Emerson class number of a soil		
<b>Sampling:</b>	Sampled by Client	<b>Date Sampled:</b>	Unknown
<b>Preparation:</b>	Prepared in accordance with the test method		

**"IMMERSION"**

☐ does not slake  
☒ slakes

7 ☐ swells  
8 ☐ does not swell

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2.2 ☐ slight

**"REMOULD ETC."**

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4 ☒ does not disperse

3.1 ☐ complete  
3.2 ☐ moderate  
3.3 ☐ slight

**"CARBONATE & GYPSUM"**

4 ☒ present  
5 ☐ absent

**"VIGOROUS SHAKING"**

☐ disperses  
☐ does not disperse

5  
6

**Water Type** Distilled  
**Water Source** -  
**Water Temperature (°C)** 21.9

**RESULT:**

**Emerson Class No.** 4



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA Accredited Laboratory Number: 14874

Authorised Signatory:

*Chris Lloyd*

Chris Lloyd

6/11/2017

Date:



Macquarie Geotechnical  
U8 10 Bradford Street  
Alexandria NSW 2015

## **A2      Groundwater Aggressivity and Contamination**

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## CERTIFICATE OF ANALYSIS 178650

### Client Details

<b>Client</b>	ARUP Pty Ltd
<b>Attention</b>	Dan De Cataldo
<b>Address</b>	Level 10 201 Kent Street, Sydney, NSW, 2000

### Sample Details

<b>Your Reference</b>	<u>Vast Solar Jemalong / 602094</u>
<b>Number of Samples</b>	2 Soil, 1 Water
<b>Date samples received</b>	27/10/2017
<b>Date completed instructions received</b>	27/10/2017

### 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

<b>Date results requested by</b>	08/11/2017
<b>Date of Issue</b>	07/11/2017
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. <b>Tests not covered by NATA are denoted with *</b>	

#### Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu  
 Authorised by Asbestos Approved Signatory: Paul Ching

#### Results Approved By

Alexander Mitchell Maclean, Senior Chemist  
 Dragana Tomas, Senior Chemist  
 Jeremy Faircloth, Organics Supervisor  
 Long Pham, Team Leader, Metals  
 Nancy Zhang, Assistant Lab Manager  
 Nick Sarlamis, Inorganics Supervisor  
 Paul Ching, Senior Analyst  
 Priya Samarawickrama, Senior Chemist  
 Steven Luong, Senior Chemist

#### Authorised By



David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	01/11/2017	01/11/2017
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	120

svTRH (C10-C40) in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	31/10/2017	31/10/2017
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	83	83

PAHs in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	31/10/2017	31/10/2017
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05
Surrogate <i>p</i> -Terphenyl-d14	%	97	86



SVCC's in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	31/10/2017	31/10/2017
Date analysed	-	01/11/2017	01/11/2017
1,2,3,4-Tetrachlorobenzene	mg/kg	<0.5	<0.5
1,2,3,5-Tetrachlorobenzene	mg/kg	<0.5	<0.5
1,2,3-Trichlorobenzene	mg/kg	<0.5	<0.5
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.5	<0.5
1,2,4-Trichlorobenzene	mg/kg	<0.5	<0.5
1,2-Dichlorobenzene	mg/kg	<0.5	<0.5
1,3,5-Trichlorobenzene	mg/kg	<0.5	<0.5
1,3-Dichlorobenzene	mg/kg	<0.5	<0.5
1,4-Dichlorobenzene	mg/kg	<0.5	<0.5
hexachlorobenzene	mg/kg	<0.5	<0.5
Hexachlorobutadiene	mg/kg	<0.5	<0.5
Hexachlorocyclopentadiene	mg/kg	<1	<1
Hexachloroethane	mg/kg	<0.5	<0.5
Hexachloropropene-1	mg/kg	<0.5	<0.5
Pentachlorobenzene	mg/kg	<0.5	<0.5
pentachloroethane	mg/kg	<0.5	<0.5
Surrogate TCMX	%	104	96

Organochlorine Pesticides in soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	30/10/2017	30/10/2017
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	89	94

Organophosphorus Pesticides			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	30/10/2017	30/10/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	89	94

PCBs in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	30/10/2017	30/10/2017
Date analysed	-	30/10/2017	30/10/2017
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	89	94

Acid Extractable metals in soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date prepared	-	30/10/2017	30/10/2017
Date analysed	-	31/10/2017	31/10/2017
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	27	19
Copper	mg/kg	18	9
Lead	mg/kg	12	8
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	15	15
Zinc	mg/kg	25	22

Triazine Herbicides in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	31/10/2017	31/10/2017
Date analysed	-	01/11/2017	01/11/2017
Simazine	mg/kg	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5
Terbuthylazine	mg/kg	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	116	107

Misc Soil - Inorg			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date prepared	-	30/10/2017	30/10/2017
Date analysed	-	30/10/2017	30/10/2017
Total Cyanide	mg/kg	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date prepared	-	30/10/2017	30/10/2017
Date analysed	-	31/10/2017	31/10/2017
Moisture	%	14	18



Asbestos ID - soils			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date analysed	-	1/11/2017	1/11/2017
Sample mass tested	g	Approx. 40g	Approx. 45g
Sample Description	-	Brown clayey soil	Brown clayey soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg  Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg  Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

Miscellaneous Inorganics		
Our Reference		178650-3
Your Reference	UNITS	BH101
Depth		-
Date Sampled		26/10/2017
Type of sample		Water
Date prepared	-	30/10/2017
Date analysed	-	30/10/2017
pH	pH Units	7.7
Chloride, Cl	mg/L	410
Sulphate, SO <sub>4</sub>	mg/L	150
Resistivity	ohm cm	510

Carbamates in Soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	01/11/2017	01/11/2017
Date analysed	-	03/11/2017	03/11/2017
Carbaryl	mg/kg	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d <sub>14</sub>	%	120	114

Synthetic Pyrethroids in soil			
Our Reference		178650-1	178650-2
Your Reference	UNITS	TP104	BH103
Depth		0.4-0.6	2.5-2.6
Date Sampled		24/10/2017	25/10/2017
Type of sample		Soil	Soil
Date extracted	-	01/11/2017	01/11/2017
Date analysed	-	03/11/2017	03/11/2017
Bifenthrin	mg/kg	<0.5	<0.5
Cyfluthrin	mg/kg	<2	<2
Cypermethrin	mg/kg	<2	<2
Deltamethrin	mg/kg	<0.5	<0.5
Esfenvalerate	mg/kg	<0.5	<0.5
Lamda Cyhalothrin	mg/kg	<0.5	<0.5
Cis Permethrin	mg/kg	<0.5	<0.5
Trans Permethrin	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d <sub>14</sub>	%	120	114

Method ID	Methodology Summary
<b>ASB-001</b>	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
<b>Inorg-001</b>	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
<b>Inorg-002</b>	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity.
<b>Inorg-008</b>	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
<b>Inorg-014</b>	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
<b>Inorg-031</b>	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
<b>Inorg-081</b>	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
<b>Metals-020</b>	Determination of various metals by ICP-AES.
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Org-003</b>	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 (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
<b>Org-003</b>	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 (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.  Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
<b>Org-005</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
<b>Org-005</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
<b>Org-006</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
<b>Org-006</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
<b>Org-008</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
<b>Org-012</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
<b>Org-012</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- <ol style="list-style-type: none"> <li>1. 'EQ PQL' values are assuming all contributing PAHs reported as &lt;PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present.</li> <li>2. 'EQ zero' values are assuming all contributing PAHs reported as &lt;PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL.</li> <li>3. 'EQ half PQL' values are assuming all contributing PAHs reported as &lt;PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above.</li> </ol> Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
<b>Org-012VIC</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Samples analysed at Envirolab Melbourne, NATA site accreditation no. 21192.
<b>Org-014</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
<b>Org-016</b>	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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
<b>Org-016</b>	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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			01/11/2017	1	01/11/2017	01/11/2017		01/11/2017	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	1	<25	<25	0	99	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	1	<25	<25	0	99	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	101	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	102	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	96	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	98	[NT]
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	96	[NT]
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	100	1	106	110	4	105	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			31/10/2017	1	31/10/2017	31/10/2017		31/10/2017	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	1	<50	<50	0	121	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	1	<100	<100	0	116	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	1	<100	<100	0	109	[NT]
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	1	<50	<50	0	121	[NT]
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	1	<100	<100	0	116	[NT]
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	1	<100	<100	0	109	[NT]
Surrogate o-Terphenyl	%		Org-003	90	1	83	81	2	101	[NT]



QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			31/10/2017	1	31/10/2017	31/10/2017		31/10/2017	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	84	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	108	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	91	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	93	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	76	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	100	1	97	96	1	107	[NT]

QUALITY CONTROL: SVCC's in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	178650-2
Date extracted	-			31/10/2017	1	31/10/2017	31/10/2017		31/10/2017	31/10/2017
Date analysed	-			01/11/2017	1	01/11/2017	01/11/2017		01/11/2017	01/11/2017
1,2,3,4-Tetrachlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,3,5-Tetrachlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,3-Trichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	92	116
1,2,4,5-Tetrachlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,4-Trichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	90	84
1,2-Dichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	90	84
1,3,5-Trichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,3-Dichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	86	80
1,4-Dichlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	90	90
hexachlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Hexachlorobutadiene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	92	110
Hexachlorocyclopentadiene	mg/kg	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Hexachloroethane	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Hexachloropropene-1	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Pentachlorobenzene	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
pentachloroethane	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate TCMX	%		Org-012	82	1	104	100	4	84	100

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	70	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	70	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	73	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	74	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	71	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	82	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	75	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	72	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	66	1	89	95	7	78	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	75	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	81	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	89	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	72	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	94	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	91	[NT]
Surrogate TCMX	%		Org-008	66	1	89	95	7	102	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	103	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	66	1	89	95	7	102	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			30/10/2017	1	30/10/2017	30/10/2017		30/10/2017	[NT]
Date analysed	-			31/10/2017	1	31/10/2017	31/10/2017		31/10/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	108	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	102	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	27	28	4	106	[NT]
Copper	mg/kg	1	Metals-020	<1	1	18	18	0	112	[NT]
Lead	mg/kg	1	Metals-020	<1	1	12	13	8	108	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	107	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	15	16	6	110	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	25	26	4	109	[NT]

QUALITY CONTROL: Triazine Herbicides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	178650-2
Date extracted	-			31/10/2017	1	31/10/2017	31/10/2017		31/10/2017	31/10/2017
Date analysed	-			01/11/2017	1	01/11/2017	01/11/2017		01/11/2017	01/11/2017
Simazine	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Atrazine	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	82	66
Propazine	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	90	70
Terbutylazine	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Metribuzin	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ametryn	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Prometryn	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	96	90
Terbutryn	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Cyanazine	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Irgarol	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Hexazinone	mg/kg	0.5	Org-012	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	107	1	116	111	4	103	113

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			30/10/2017	[NT]	[NT]	[NT]	[NT]	30/10/2017	[NT]
Date analysed	-			30/10/2017	[NT]	[NT]	[NT]	[NT]	30/10/2017	[NT]
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]



QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			30/10/2017	[NT]	[NT]	[NT]	[NT]	30/10/2017	[NT]
Date analysed	-			30/10/2017	[NT]	[NT]	[NT]	[NT]	30/10/2017	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Resistivity	ohm cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: Carbamates in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			01/11/2017	[NT]	[NT]	[NT]	[NT]	01/11/2017	[NT]
Date analysed	-			03/11/2017	[NT]	[NT]	[NT]	[NT]	03/11/2017	[NT]
Carbaryl	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbofuran	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	107	[NT]
Molinate	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d <sub>14</sub>	%		Org-012	102	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Synthetic Pyrethroids in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-		Org-012VIC	01/11/2017	[NT]	[NT]	[NT]	[NT]	01/11/2017	[NT]
Date analysed	-		Org-012VIC	03/11/2017	[NT]	[NT]	[NT]	[NT]	03/11/2017	[NT]
Bifenthrin	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cyfluthrin	mg/kg	2	Org-012VIC	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cypermethrin	mg/kg	2	Org-012VIC	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Deltamethrin	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Esfenvalerate	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Lamda Cyhalothrin	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	82	[NT]
Cis Permethrin	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans Permethrin	mg/kg	0.5	Org-012VIC	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d <sub>14</sub>	%		Org-012	102	[NT]	[NT]	[NT]	[NT]	100	[NT]

## Result Definitions

<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	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.
<b>Duplicate</b>	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.
<b>Matrix Spike</b>	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.
<b>LCS (Laboratory Control Sample)</b>	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.
<b>Surrogate Spike</b>	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.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

## 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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

## Report Comments

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Samples 178650-1 & 2 were sub-sampled from bags provided by the client.

Carbamates & Synthetic Pyrethroids analysed by MPL Laboratories. Report No.202629.