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## CERTIFICATE OF ANALYSIS

143211

### Client:

**Larry Cook & Associates**  
PO Box 8146  
TUMBIUMBI  
NSW 2261

**Attention:** Larry Cook

### Sample log in details:

Your Reference:	<u>Larry Cook - Admore Park</u>
No. of samples:	12 Waters
Date samples received / completed instructions received	11/03/16 / 11/03/16

### Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

***Please refer to the last page of this report for any comments relating to the results.***

### Report Details:

Date results requested by: / Issue Date: 18/03/16 / 23/03/16  
Date of Preliminary Report: Not issued

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### Results Approved By:

  
Jacinta Hurst  
Laboratory Manager

Envirolab Reference: 143211  
Revision No: R 00



vTRH(C6-C10)/BTEXN in Water Our Reference: Your Reference Type of sample	UNITS ----- - -----	143211-5 BH1 Water	143211-6 BH2 Water	143211-7 BH3 Water	143211-8 BH4 Water	143211-9 BH5 Water
Date extracted	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	<10	<10	<10	<10	<10
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	<10	<10	<10	<10	<10
TRHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	103	102	102	103	103
Surrogate toluene-d8	%	100	99	100	100	100
Surrogate 4-BFB	%	100	100	99	100	100

vTRH(C6-C10)/BTEXN in Water Our Reference: Your Reference Type of sample	UNITS ----- - -----	143211-10 BH6 Water	143211-11 Phils Spring Water	143211-12 Southern Spring Water
Date extracted	-	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	15/03/2016
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	<10	<10	<10
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	<10	<10	<10
TRHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10	<10	<10
Benzene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	103	103	103
Surrogate toluene-d8	%	99	99	100
Surrogate 4-BFB	%	101	99	100

svTRH (C10-C40) in Water Our Reference: Your Reference Type of sample	UNITS ----- - -----	143211-5 BH1 Water	143211-6 BH2 Water	143211-7 BH3 Water	143211-8 BH4 Water	143211-9 BH5 Water
Date extracted	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	<50	<50	<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	<100	<100	<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	<100	<100	<100	<100	<100
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	<50	<50	<50	<50	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	<100	<100	<100	<100	<100
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	92	83	95	94

svTRH (C10-C40) in Water Our Reference: Your Reference Type of sample	UNITS ----- - -----	143211-10 BH6 Water	143211-11 Phils Spring Water	143211-12 Southern Spring Water
Date extracted	-	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	<100	<100	<100
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	<50	<50	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50	<50	<50
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	<100	<100	<100
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	<100	<100	<100
Surrogate o-Terphenyl	%	87	88	87

Ion Balance Our Reference: Your Reference	UNITS ----- -	143211-1 BHAP1	143211-2 BHAP5	143211-3 BHAP6	143211-4 BHAP10	143211-5 BH1
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Calcium - Dissolved	mg/L	16	28	79	74	50
Potassium - Dissolved	mg/L	1.5	0.9	1.8	8.4	1.2
Sodium - Dissolved	mg/L	100	17	86	430	240
Magnesium - Dissolved	mg/L	11	76	31	99	52
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	130	200	350	340	190
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<5	19	<5	<5	<5
Total Alkalinity as CaCO <sub>3</sub>	mg/L	130	220	350	340	190
Sulphate, SO <sub>4</sub>	mg/L	4	24	11	56	5
Chloride, Cl	mg/L	150	51	95	610	370
Ionic Balance	%	-6.5	14	2.3	9.8	8.9

Ion Balance Our Reference: Your Reference	UNITS ----- -	143211-6 BH2	143211-7 BH3	143211-8 BH4	143211-9 BH5	143211-10 BH6
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Calcium - Dissolved	mg/L	9.1	46	39	49	51
Potassium - Dissolved	mg/L	0.6	0.9	0.8	1.1	1
Sodium - Dissolved	mg/L	85	36	36	34	68
Magnesium - Dissolved	mg/L	29	54	58	54	50
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	200	300	320	340	320
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as CaCO <sub>3</sub>	mg/L	200	300	320	340	320
Sulphate, SO <sub>4</sub>	mg/L	8	2	4	2	5
Chloride, Cl	mg/L	60	55	38	50	89
Ionic Balance	%	6.4	4.3	5.5	2.0	3.4

Ion Balance Our Reference: Your Reference	UNITS ----- -	143211-11 Phils Spring	143211-12 Southern Spring
Type of sample	-----	Water	Water
Date prepared	-	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016
Calcium - Dissolved	mg/L	50	26
Potassium - Dissolved	mg/L	0.7	0.6
Sodium - Dissolved	mg/L	97	54
Magnesium - Dissolved	mg/L	84	31
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	<5	<5
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	420	200
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<5	<5
Total Alkalinity as CaCO <sub>3</sub>	mg/L	420	200
Sulphate, SO <sub>4</sub>	mg/L	11	<1
Chloride, Cl	mg/L	130	23
Ionic Balance	%	5.5	15

HM in water - total	UNITS	143211-1	143211-2	143211-3	143211-4	143211-5
Our Reference:	-----	BHAP1	BHAP5	BHAP6	BHAP10	BH1
Your Reference	-					
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Iron-Total	µg/L	59	820	240	880	76
Manganese-Total	µg/L	41	36	110	38	<5

HM in water - total	UNITS	143211-6	143211-7	143211-8	143211-9	143211-10
Our Reference:	-----	BH2	BH3	BH4	BH5	BH6
Your Reference	-					
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Iron-Total	µg/L	54	44	12	24	18
Manganese-Total	µg/L	<5	7	<5	12	<5

HM in water - total	UNITS	143211-11	143211-12
Our Reference:	-----	Phils Spring	Southern Spring
Your Reference	-		
Type of sample	-----	Water	Water
Date prepared	-	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016
Iron-Total	µg/L	26	3,900
Manganese-Total	µg/L	8	3,200

Miscellaneous Inorganics	UNITS	143211-1	143211-2	143211-3	143211-4	143211-5
Our Reference:	-----	BHAP1	BHAP5	BHAP6	BHAP10	BH1
Your Reference	-					
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
pH	pH Units	6.5	8.4	7.5	7.1	7.2
Electrical Conductivity	µS/cm	570	700	840	2,400	1,500
Total Dissolved Solids (grav)	mg/L	420	560	540	1,600	1,000

Miscellaneous Inorganics	UNITS	143211-6	143211-7	143211-8	143211-9	143211-10
Our Reference:	-----	BH2	BH3	BH4	BH5	BH6
Your Reference	-					
Type of sample	-----	Water	Water	Water	Water	Water
Date prepared	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016	14/03/2016	14/03/2016	14/03/2016
pH	pH Units	7.0	7.5	7.6	7.7	7.7
Electrical Conductivity	µS/cm	510	670	650	670	770
Total Dissolved Solids (grav)	mg/L	360	450	410	420	500

Miscellaneous Inorganics	UNITS	143211-11	143211-12
Our Reference:	-----	Phils Spring	Southern Spring
Your Reference	-		
Type of sample	-----	Water	Water
Date prepared	-	14/03/2016	14/03/2016
Date analysed	-	14/03/2016	14/03/2016
pH	pH Units	7.6	7.3
Electrical Conductivity	µS/cm	1,100	530
Total Dissolved Solids (grav)	mg/L	670	360

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-081	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.
Inorg-041	Gravimetric determination of the total solids content of water based on APHA latest edition 2540B.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Inorg-001	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.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-5oC.



**Client Reference: Larry Cook - Admore Park**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXNin Water						Base II Duplicate II %RPD		
Date extracted	-			14/03/2016	[NT]	[NT]	LCS-W1	14/03/2016
Date analysed	-			14/03/2016	[NT]	[NT]	LCS-W1	14/03/2016
TRHC <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	115%
TRHC <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	115%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	113%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	115%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	115%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	116%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	114%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	101	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	LCS-W1	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			14/03/2016	[NT]	[NT]	LCS-W1	14/03/2016
Date analysed	-			14/03/2016	[NT]	[NT]	LCS-W1	14/03/2016
TRHC <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	113%
TRHC <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	122%
TRHC <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	106%
TRH>C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	113%
TRH>C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	122%
TRH>C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	106%
Surrogate o-Terphenyl	%		Org-003	94	[NT]	[NT]	LCS-W1	118%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Date prepared	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W2	14/03/2016
Date analysed	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W2	14/03/2016
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	143211-1	16    [N/T]	LCS-W2	106%
Potassium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	143211-1	1.5    [N/T]	LCS-W2	107%
Sodium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	143211-1	100    [N/T]	LCS-W2	107%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	143211-1	11    [N/T]	LCS-W2	105%
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	5	Inorg-006	<5	143211-1	<5    [N/T]	[NR]	[NR]

**Client Reference: Larry Cook - Admore Park**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base    Duplicate    %RPD		
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	5	Inorg-006	<5	143211-1	130    [N/T]	[NR]	[NR]
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	5	Inorg-006	<5	143211-1	<5    [N/T]	[NR]	[NR]
Total Alkalinity as CaCO <sub>3</sub>	mg/L	5	Inorg-006	<5	143211-1	130    [N/T]	LCS-W2	105%
Sulphate, SO <sub>4</sub>	mg/L	1	Inorg-081	<1	143211-1	4    4    RPD: 0	LCS-W2	110%
Chloride, Cl	mg/L	1	Inorg-081	<1	143211-1	150    150    RPD: 0	LCS-W2	99%
Ionic Balance	%		Inorg-041	[NT]	143211-1	-6.5    [N/T]	[NR]	[NR]
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - total						Base    Duplicate    %RPD		
Date prepared	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W2	14/03/2016
Date analysed	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W2	14/03/2016
Iron-Total	µg/L	10	Metals-022 ICP-MS	<10	143211-1	59    56    RPD: 5	LCS-W2	96%
Manganese-Total	µg/L	5	Metals-022 ICP-MS	<5	143211-1	41    41    RPD: 0	LCS-W2	97%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorganics						Base    Duplicate    %RPD		
Date prepared	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W1	14/03/2016
Date analysed	-			14/03/2016	143211-1	14/03/2016    14/03/2016	LCS-W1	14/03/2016
pH	pH Units		Inorg-001	[NT]	143211-1	6.5    6.5    RPD: 0	LCS-W1	101%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	143211-1	570    540    RPD: 5	LCS-W1	100%
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	143211-1	420    [N/T]	LCS-W1	100%
QUALITY CONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
Ion Balance				Base + Duplicate + %RPD				
Date prepared	-	143211-11		14/03/2016    14/03/2016		LCS-W3	14/03/2016	
Date analysed	-	143211-11		14/03/2016    14/03/2016		LCS-W3	14/03/2016	
Calcium - Dissolved	mg/L	143211-11		50    [N/T]		LCS-W3	107%	
Potassium - Dissolved	mg/L	143211-11		0.7    [N/T]		LCS-W3	104%	
Sodium - Dissolved	mg/L	143211-11		97    [N/T]		LCS-W3	103%	
Magnesium - Dissolved	mg/L	143211-11		84    [N/T]		LCS-W3	105%	
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	143211-11		<5    <5		[NR]	[NR]	
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	143211-11		420    450    RPD: 7		[NR]	[NR]	
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	143211-11		<5    <5		[NR]	[NR]	
Total Alkalinity as CaCO <sub>3</sub>	mg/L	143211-11		420    450    RPD: 7		[NR]	[NR]	
Sulphate, SO <sub>4</sub>	mg/L	143211-11		11    17    RPD: 43		LCS-W3	116%	

**Client Reference: Larry Cook - Admore Park**

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Chloride, Cl	mg/L	143211-11	130    180    RPD: 32	LCS-W3	80%
QUALITY CONTROL HM in water - total	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	143211-11	14/03/2016    14/03/2016	143211-2	14/03/2016
Date analysed	-	143211-11	14/03/2016    14/03/2016	143211-2	14/03/2016
Iron-Total	µg/L	143211-11	26    25    RPD: 4	143211-2	91%
Manganese-Total	µg/L	143211-11	8    8    RPD: 0	143211-2	97%
QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	143211-11	14/03/2016    14/03/2016		
Date analysed	-	143211-11	14/03/2016    14/03/2016		
pH	pH Units	143211-11	7.6    7.6    RPD: 0		
Electrical Conductivity	µS/cm	143211-11	1100    1000    RPD: 10		
QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	143211-7	14/03/2016    14/03/2016	143211-8	14/03/2016
Date analysed	-	143211-7	14/03/2016    14/03/2016	143211-8	14/03/2016
Calcium - Dissolved	mg/L	143211-7	46    47    RPD: 2	143211-8	#
Potassium - Dissolved	mg/L	143211-7	0.9    0.9    RPD: 0	143211-8	107%
Sodium - Dissolved	mg/L	143211-7	36    36    RPD: 0	143211-8	#
Magnesium - Dissolved	mg/L	143211-7	54    54    RPD: 0	143211-8	#
QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	143211-4	14/03/2016    14/03/2016		
Date analysed	-	143211-4	14/03/2016    14/03/2016		
Total Dissolved Solids (grav)	mg/L	143211-4	1600    1600    RPD: 0		
QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	143211-12	14/03/2016    14/03/2016		
Date analysed	-	143211-12	14/03/2016    14/03/2016		
pH	pH Units	143211-12	7.3    [N/T]		
Electrical Conductivity	µS/cm	143211-12	530    [N/T]		
Total Dissolved Solids (grav)	mg/L	143211-12	360    330    RPD: 9		

**Report Comments:**

ION\_BALANCE: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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

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

### **Quality Control Definitions**

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

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

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

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

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

### **Laboratory Acceptance Criteria**

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.