



## ANALYSIS REPORT

<b>Client:</b>	Hawkes Bay Regional Council	<b>Lab No:</b>	1838099	SPV1
<b>Contact:</b>	V Lyon C/- Hawkes Bay Regional Council Private Bag 6006 Napier 4142	<b>Date Received:</b>	06-Sep-2017	
		<b>Date Reported:</b>	20-Sep-2017	
		<b>Quote No:</b>	78490	
		<b>Order No:</b>	N46928	
		<b>Client Reference:</b>	Whangawehi	
		<b>Add. Client Ref:</b>	312-302	
		<b>Submitted By:</b>	V Lyon	

### Sample Type: Aqueous

Sample Name:	63499 - Coops - Trib of Whangawehi - 3306 05-Sep-2017 12:30 pm	63500 - Reserve Stream - Trib of Whangawehi - 3307 05-Sep-2017 12:45 pm	63501 - Whangawehi US Reserve Confl - 3308 05-Sep-2017 1:00 pm		
<b>Lab Number:</b>	1838099.1	1838099.2	1838099.3		

### Faecal Coliforms and E. coli profile

	cfu / 100mL	650	450	390	-	-
Faecal Coliforms						
Escherichia coli	cfu / 100mL	630	330	370	-	-

### HBRC Standard River

	g/m <sup>3</sup>	2.7	2.2	1.2	-	-
Volatile Suspended Solids						
Total Suspended Solids	g/m <sup>3</sup>	32	32	9.6	-	-
Total Nitrogen	g/m <sup>3</sup>	1.03	0.57	1.28	-	-
Total Ammoniacal-N	g/m <sup>3</sup>	0.029	0.019	< 0.005	-	-
Nitrite-N	g/m <sup>3</sup>	0.0051	0.0011	0.0034	-	-
Nitrate-N	g/m <sup>3</sup>	0.69	0.24	0.85	-	-
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.69	0.24	0.85	-	-
Total Kjeldahl Nitrogen (TKN)	g/m <sup>3</sup>	0.34	0.33	0.43	-	-
Dissolved Reactive Phosphorus	g/m <sup>3</sup>	0.072	0.041	0.048	-	-
Total Phosphorus	g/m <sup>3</sup>	0.083	0.054	0.070	-	-

## SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

### Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter. Analysis performed at 1 Clyde Street, Hamilton.	-	1-3
Total Kjeldahl Digestion	Sulphuric acid digestion with copper sulphate catalyst.	-	1-3
Total Phosphorus Digestion	Acid persulphate digestion.	-	1-3
Volatile Suspended Solids	Filtration (GF/C, 1.2 µm). Ashing 550°C, 30 min. Gravimetric. APHA 2540 E 22 <sup>nd</sup> ed. 2012.	0.5 g/m <sup>3</sup>	1-3
Total Suspended Solids	Filtration of a 2L sample using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. APHA 2540 D 22 <sup>nd</sup> ed. 2012.	0.5 g/m <sup>3</sup>	1-3
Total Nitrogen	Calculation: TKN + Nitrate-N + Nitrite-N. Please note: The Default Detection Limit of 0.05 g/m <sup>3</sup> is only attainable when the TKN has been determined using a trace method utilising duplicate analyses. In cases where the Detection Limit for TKN is 0.10 g/m <sup>3</sup> , the Default Detection Limit for Total Nitrogen will be 0.11 g/m <sup>3</sup> .	0.05 g/m <sup>3</sup>	1-3



Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Total Ammoniacal-N Trace	Phenol/hypochlorite colorimetry. Flow injection analyser. (NH <sub>4</sub> -N = NH <sub>4</sub> <sup>+</sup> -N + NH <sub>3</sub> -N). Analysis performed at 1 Clyde Street, Hamilton. APHA 4500-NH <sub>3</sub> H 22 <sup>nd</sup> ed. 2012.	0.005 g/m <sup>3</sup>	3
Total Ammoniacal-N Trace	Phenol/hypochlorite colorimetry. Flow injection analyser. (NH <sub>4</sub> -N = NH <sub>4</sub> <sup>+</sup> -N + NH <sub>3</sub> -N). APHA 4500-NH <sub>3</sub> H 22 <sup>nd</sup> ed. 2012.	0.005 g/m <sup>3</sup>	1-2
Nitrite-N Trace	Automated Azo dye colorimetry, Flow injection analyser. Analysis performed at 1 Clyde Street, Hamilton. APHA 4500-NO <sub>3</sub> <sup>-</sup> I 22 <sup>nd</sup> ed. 2012 (modified).	0.0010 g/m <sup>3</sup>	1-3
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO <sub>2</sub> N. In-House.	0.0010 g/m <sup>3</sup>	1-3
Nitrate-N + Nitrite-N Trace	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. Analysis performed at 1 Clyde Street, Hamilton. APHA 4500-NO <sub>3</sub> <sup>-</sup> I 22 <sup>nd</sup> ed. 2012 (modified).	0.0010 g/m <sup>3</sup>	1-3
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. Analysis performed at 1 Clyde Street, Hamilton. APHA 4500-N <sub>org</sub> D. (modified) 4500 NH <sub>3</sub> F (modified) 22 <sup>nd</sup> ed. 2012.	0.10 g/m <sup>3</sup>	1-3
Dissolved Reactive Phosphorus (trace)	Filtered sample. Molybdenum blue colorimetry. Flow injection analyser. Analysis performed at 1 Clyde Street, Hamilton. APHA 4500-P G 22 <sup>nd</sup> ed. 2012.	0.0010 g/m <sup>3</sup>	1-3
Total Phosphorus	Total phosphorus digestion, ascorbic acid colorimetry. Discrete Analyser. APHA 4500-P B & E (modified from manual analysis) 22 <sup>nd</sup> ed. 2012. Also modified to include the use of a reductant to eliminate interference from arsenic present in the sample. NWASCA, Water & soil Miscellaneous Publication No. 38, 1982.	0.004 g/m <sup>3</sup>	1-3
HBRC Standard River		0.0010 - 0.5 g/m <sup>3</sup>	1-3
Faecal Coliforms and E. coli profile			
Faecal Coliforms	Membrane Filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation. Analysed at Hill Laboratories - Microbiology; 1 Clow Place, Hamilton. APHA 9222 D, 22 <sup>nd</sup> ed. 2012.	1 cfu / 100mL	1-3
Escherichia coli	Membrane filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, MUG Confirmation. Analysed at Hill Laboratories - Microbiology; 1 Clow Place, Hamilton. APHA 9222 G, 22 <sup>nd</sup> ed. 2012.	1 cfu / 100mL	1-3

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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