



## ANALYSIS REPORT

<b>Client:</b>	Hawkes Bay Regional Council	<b>Lab No:</b>	1890459	SPV1
<b>Contact:</b>	V Lyon C/- Hawkes Bay Regional Council Private Bag 6006 Napier 4142	<b>Date Received:</b>	06-Dec-2017	
		<b>Date Reported:</b>	15-Dec-2017	
		<b>Quote No:</b>	78490	
		<b>Order No:</b>	RM98	
		<b>Client Reference:</b>	Whangawehi	
		<b>Add. Client Ref:</b>	312-302	
		<b>Submitted By:</b>	Nicolas Caviale-Delzescaux	

### Sample Type: Aqueous

<b>Sample Name:</b>	66144 - Whangawehi Strm at Pat O'Brians-3304	66145 - Mangatupae Strm at Pat O'Brians-3303	66146 - Whangawehi at George Ormonds -3301	66147 - Coops - Trib of Whangawehi - 3306	66148 - Reserve Stream - Trib of Whangawehi - 3307
<b>Lab Number:</b>	1890459.1	1890459.2	1890459.3	1890459.4	1890459.5

Faecal Coliforms and E. coli profile						
Faecal Coliforms	cfu / 100mL	590 #1	1,400 #3	400 #1	600 #3	250 #1
Escherichia coli	cfu / 100mL	70 #1	1,400 #3	70 #1	200 #3	180 #1
HBRC Standard River						
Volatile Suspended Solids	g/m <sup>3</sup>	0.6	< 0.5	< 0.5	< 0.5	0.6
Total Suspended Solids	g/m <sup>3</sup>	1.9	< 0.5	1.0	1.3	1.9
Total Nitrogen	g/m <sup>3</sup>	0.25	0.28	0.30	0.21	0.39
Total Ammoniacal-N	g/m <sup>3</sup>	0.008	0.006	< 0.005	< 0.005	0.054
Nitrite-N	g/m <sup>3</sup>	< 0.0010	0.0012 #2	< 0.0010	< 0.0010	0.0091
Nitrate-N	g/m <sup>3</sup>	0.0019	< 0.0010	< 0.0010	0.0024	0.097
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.0028	< 0.0010 #2	< 0.0010	0.0032	0.106
Total Kjeldahl Nitrogen (TKN)	g/m <sup>3</sup>	0.25	0.28	0.30	0.21	0.29
Dissolved Reactive Phosphorus	g/m <sup>3</sup>	0.061	0.0118	0.033	0.038	0.093
Total Phosphorus	g/m <sup>3</sup>	0.068	0.020	0.044	0.040	0.116

<b>Sample Name:</b>	66149 - Whangawehi US Reserve Confl - 3308	66150 - Whangawehi DS Cattleyards - 3309			
<b>Lab Number:</b>	1890459.6	1890459.7			

Faecal Coliforms and E. coli profile						
Faecal Coliforms	cfu / 100mL	500 #3	1,400 #4	-	-	-
Escherichia coli	cfu / 100mL	500 #3	1,400 #4	-	-	-
HBRC Standard River						
Volatile Suspended Solids	g/m <sup>3</sup>	0.5	< 0.5	-	-	-
Total Suspended Solids	g/m <sup>3</sup>	3.0	0.5	-	-	-
Total Nitrogen	g/m <sup>3</sup>	0.62	0.47	-	-	-
Total Ammoniacal-N	g/m <sup>3</sup>	0.015	0.023	-	-	-
Nitrite-N	g/m <sup>3</sup>	0.0037	0.0015	-	-	-
Nitrate-N	g/m <sup>3</sup>	0.42	0.0079	-	-	-
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.42	0.0094	-	-	-
Total Kjeldahl Nitrogen (TKN)	g/m <sup>3</sup>	0.20	0.46	-	-	-
Dissolved Reactive Phosphorus	g/m <sup>3</sup>	0.077	0.061	-	-	-
Total Phosphorus	g/m <sup>3</sup>	0.080	0.068	-	-	-



## Analyst's Comments

Please interpret this result with caution as the sample was > 8 °C on receipt at the lab. The sample temperature is recommended by APHA to be less than 8 °C on receipt at the laboratory (but not frozen). However, it is acknowledged that samples that are transported quickly to the laboratory after sampling, may not have been cooled to this temperature.

#1 Please interpret this result with caution as it is not known what the sample age was on receipt at the lab. Please ensure that both sampling date and time are recorded on the submission form and sample bottle. The sample is required to be less than 24 hours at the time of testing in the lab.

#2 It has been noted that the result for Nitrite-N was greater than that for Nitrate-N + Nitrite-N, but within the analytical variation of these methods.

#3 Please interpret this result with caution as it is not known what the sample age was on receipt at the lab. Please ensure that both sampling date and time are recorded on the submission form and sample bottle. The sample is required to be less than 24 hours at the time of testing in the lab.

Statistically estimated count based on the theoretical countable range for the stated method.

#4 Statistically estimated count based on the theoretical countable range for the stated method.

## 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.	-	1-7
Total Kjeldahl Digestion	Sulphuric acid digestion with copper sulphate catalyst.	-	1-7
Total Phosphorus Digestion	Acid persulphate digestion.	-	1-7
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>	1-7
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>	1-7
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>	1-7
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>	1-7
Nitrite-N Trace	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO <sub>2</sub> -I 22 <sup>nd</sup> ed. 2012 (modified).	0.0010 g/m <sup>3</sup>	1-7
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO <sub>2</sub> N. In-House.	0.0010 g/m <sup>3</sup>	1-7
Nitrate-N + Nitrite-N Trace	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> -I 22 <sup>nd</sup> ed. 2012 (modified).	0.0010 g/m <sup>3</sup>	1-7
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. 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>	1-7
Dissolved Reactive Phosphorus (trace)	Filtered sample. Molybdenum blue colorimetry. Flow injection analyser. APHA 4500-P G 22 <sup>nd</sup> ed. 2012.	0.0010 g/m <sup>3</sup>	1-7
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. NAWASCO, Water & soil Miscellaneous Publication No. 38, 1982.	0.004 g/m <sup>3</sup>	1-7
HBRC Standard River		0.0010 - 0.5 g/m <sup>3</sup>	1-7
Faecal Coliforms and E. coli profile			
Faecal Coliforms	Membrane Filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation. APHA 9222 D, 22 <sup>nd</sup> ed. 2012.	1 cfu / 100mL	1-7
Escherichia coli	Membrane filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, MUG Confirmation. APHA 9222 G, 22 <sup>nd</sup> ed. 2012.	1 cfu / 100mL	1-7

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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A handwritten signature in blue ink, consisting of several overlapping, stylized lines that form a unique, illegible mark.

Ara Heron BSc (Tech)  
Client Services Manager - Environmental