



Certificate of Analysis

Client:	Hawkes Bay Regional Council	Lab No:	2037618	SPV1
Contact:	Ariana Mackay C/- Hawkes Bay Regional Council Private Bag 6006 Napier 4142	Date Received:	25-Aug-2018	
		Date Reported:	03-Sep-2018	
		Quote No:	81040	
		Order No:	RM33	
		Client Reference:	Whangawehi (one only)	
		Add. Client Ref:	312-302	
		Submitted By:	Ariana Mackay	

Sample Type: Aqueous

Sample Name:	68886 - Whangawehi Stream @ Pat O'Brians - 3304 24-Aug-2018 3:00 pm				
Lab Number:	2037618.1				

Faecal Coliforms and E. coli profile

Faecal Coliforms	cfu / 100mL	60 #1	-	-	-	-
Escherichia coli	cfu / 100mL	60 #1	-	-	-	-

HBRC Standard River

pH	pH Units	8.0	-	-	-	-
Volatile Suspended Solids	g/m ³	< 0.5	-	-	-	-
Total Suspended Solids	g/m ³	4.5	-	-	-	-
Total Nitrogen	g/m ³	0.75	-	-	-	-
Total Ammoniacal-N	g/m ³	0.013	-	-	-	-
Nitrite-N	g/m ³	0.0041	-	-	-	-
Nitrate-N	g/m ³	0.25	-	-	-	-
Nitrate-N + Nitrite-N	g/m ³	0.25	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	g/m ³	0.49	-	-	-	-
Dissolved Reactive Phosphorus	g/m ³	0.047	-	-	-	-
Total Phosphorus	g/m ³	0.070	-	-	-	-

Analyst's Comments

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

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
pH	pH meter. APHA 4500-H+ B 22 nd ed. 2012. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1



Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Volatile Suspended Solids	Filtration (GF/C, 1.2 µm). Ashing 550°C, 30 min. Gravimetric. APHA 2540 E (modified) 22 nd ed. 2012.	0.5 g/m ³	1
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 (modified) 22 nd ed. 2012.	0.5 g/m ³	1
Total Nitrogen	Calculation: TKN + Nitrate-N + Nitrite-N. Please note: The Default Detection Limit of 0.05 g/m ³ 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 ³ , the Default Detection Limit for Total Nitrogen will be 0.11 g/m ³ .	0.05 g/m ³	1
Total Ammoniacal-N Trace	Phenol/hypochlorite colorimetry. Flow injection analyser. (NH ₄ -N = NH ₄ ⁺ -N + NH ₃ -N). APHA 4500-NH ₃ H 22 nd ed. 2012.	0.005 g/m ³	1
Nitrite-N Trace	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO ₂ -I 22 nd ed. 2012 (modified).	0.0010 g/m ³	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO ₂ N. In-House.	0.0010 g/m ³	1
Nitrate-N + Nitrite-N Trace	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO ₃ -I 22 nd ed. 2012 (modified).	0.0010 g/m ³	1
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. APHA 4500-Norg D. (modified) 4500 NH ₃ F (modified) 22 nd ed. 2012.	0.10 g/m ³	1
Dissolved Reactive Phosphorus (trace)	Filtered sample. Molybdenum blue colorimetry. Flow injection analyser. APHA 4500-P G 22 nd ed. 2012.	0.0010 g/m ³	1
Total Phosphorus	Total phosphorus digestion, ascorbic acid colorimetry. Discrete Analyser. APHA 4500-P B & E (modified from manual analysis) 22 nd 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 ³	1
HBRC Standard River		-	1
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 nd ed. 2012.	1 cfu / 100mL	1
Escherichia coli	Membrane filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, MUG Confirmation. APHA 9222 G, 22 nd ed. 2012.	1 cfu / 100mL	1

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.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental