Compiled Date	04/10/2021
File Number	21.22.19



### LGOIMA

When releasing responses to previous LGOIMA requests, names and contact details of individual requestors will be withheld to protect their privacy.

Information requested by the media, lobby groups, public sector organisations and MPs will always be published, while information specific to an individual or their property will not generally be published.

Request from:	Tim Chambers
Information requested:	Drinking water quality data
Response by:	Te Aroha Cook, Acting Chief Executive

04 October 2021

Tim Chambers Senior Research Fellow University of Otago

Via Email:

Dear Tim

### Official information request for drinking water quality data

I refer to your official information request dated 13 September 2021 for drinking water quality data.

You has asked for the following information:

1) Comprehensive Chemical Analysis Report (lab reports) for each Water Supply Zone with appropriate supply zoned code as far back as your records are held.

The information you have request is enclosed.

2) Longitudinal Chemical Analysis Data as far back as records provide.

The information you have request is enclosed.

3) Spatial Data on Water Supply Zones – any geographic data on the Water Supply Zones.

The information you have request is enclosed.

4) Any additional information on private supplies – Any information you may hold on water quality of private supplies in your area.

We do not keep record of any private supplies therefore we refuse this part of your request under section 17(e) of the LGOIMA – that the document alleged to contain the information requested does not exist or, despite reasonable efforts to locate it, cannot be found.

There is no charge in supplying this information to you.

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at <u>www.ombudsman.parliament.nz</u> or freephone 0800 802 602.

Council has adopted a Proactive Release Policy and accordingly may publish LGOIMA responses on the Council Website at <a href="https://www.westlanddc.govt.nz/lgoima-responses">https://www.westlanddc.govt.nz/lgoima-responses</a>. The collection and use of personal information by the Westland District Council is regulated by the Privacy Act 2020. Westland District Council's Privacy Statement is available on our website <a href="https://www.website">https://www.westlanddc.govt.nz/lgoima-responses</a>. The collection and use of personal information by the Westland District Council is regulated by the Privacy Act 2020. Westland District Council's Privacy Statement is available on our website <a href="https://www.website">here</a> If you wish to discuss this decision with us, please feel free to contact Mary-anne Bell, Senior Administration Officer at LGOIMA@westlanddc.govt.nz, 03 756 9091.

Sincerely,

HLCoar.

Te Aroha Cook | Acting Chief Executive

TC/MB





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## ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1305950	DWAPv1
Contact:	P Cannell	Date Registered:	01-Aug-2014	
	C/- Westland District Council	Date Reported:	12-Aug-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	57331	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous				
	Sample Name:	Ara 31-Jul-2014 11:00 am	Guideline	Maximum Acceptable
	Lab Number:	1305950.1	Value	Values (MAV)
Routine Water + E.coli profile	Kit			
Escherichia coli	MPN / 100mL	< 1	· · · ·	< 1
Routine Water Profile				
pH	pH Units	6.6	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	21	-	-
Free Carbon Dioxide	g/m³ at 25°C	10.5	-	-
Total Hardness	g/m³ as CaCO₃	19.9	< 200	-
Electrical Conductivity (EC)	mS/m	8.4	-	-
Electrical Conductivity (EC)	μS/cm	84	-	-
Approx Total Dissolved Salts	g/m³	56	< 1000	-
Total Boron	g/m³	0.0150	-	1.4
Total Calcium	g/m³	3.2	-	-
Total Copper	g/m³	0.0024	< 1	2
Total Iron	g/m³	0.33	< 0.2	-
Total Magnesium	g/m³	2.9	-	-
Total Manganese	g/m³	0.0093	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.78	-	-
Total Sodium	g/m³	8.3	< 200	-
Total Zinc	g/m³	0.0122	< 1.5	-
Chloride	g/m³	10.6	< 250	-
Nitrate-N	g/m³	0.13	-	11.3
Sulphate	g/m <sup>3</sup>	2.6	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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## ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1240529	DWAPv1
Contact:	P Cannell	Date Registered:	26-Feb-2014	
	C/- Westland District Council	Date Reported:	05-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56713	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	ARA250214 25-Feb-2014 11:30 am 1240529.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.6	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	25	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	11.8	-	-	-
Total Hardness	g/m³ as CaCO₃	21	-	< 200	-
Electrical Conductivity (EC)	mS/m	8.6	-	-	-
Electrical Conductivity (EC)	μS/cm	86	-	-	-
Approx Total Dissolved Salts	g/m³	58	-	< 1000	-
Total Boron	g/m³	0.0162	-	-	1.4
Total Calcium	g/m³	3.6	-	-	-
Total Copper	g/m³	0.0051	-	<1	2
Total Iron	g/m³	1.54	-	< 0.2	-
Total Magnesium	g/m³	3.0	-	-	-
Total Manganese	g/m³	0.0069	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.75	-	-	-
Total Sodium	g/m³	9.3	-	< 200	-
Total Zinc	g/m³	0.0133	-	< 1.5	-
Chloride	g/m³	9.8	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	2.6	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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### ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1110348	DWAPv1
Date Registered:	13-Mar-2013	
Date Reported:	20-Mar-2013	
Quote No:		
Order No:	55072	
<b>Client Reference:</b>	Raw Water	
Submitted By:	P Cannell	

	Sample Name: Lab Number:	ARA120313 12-Mar-2013 10:30 am 1110348.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	26	-	-	-
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.8	-	7.0 - 8.5	-
Free Carbon Dioxide	g/m³ at 25°C	8.9	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	23	-	< 200	-
Electrical Conductivity (EC)	mS/m	9.0	-	÷.	-
Electrical Conductivity (EC)	µS/cm	90	-		-
Approx Total Dissolved Salts	g/m³	60	-	< 1000	-
Total Boron	g/m³	0.0148	-	-	1.4
Total Calcium	g/m³	3.7	-	-	-
Total Copper	g/m³	0.0121	-	< 1	2
Total Iron	g/m³	0.033	-	< 0.2	-
Total Magnesium	g/m³	3.2	-	-	-
Total Manganese	g/m³	0.0034	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.74	-	-	-
Total Sodium	g/m³	8.8	-	< 200	-
Total Zinc	g/m³	0.0050	-	< 1.5	-
Chloride	g/m³	9.9	-	< 250	-
Nitrate-N	g/m³	0.15	Ē	-	11.3
Sulphate	g/m <sup>3</sup>	2.5	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1005159	DWAPv1
Date Registered:	08-May-2012	
Date Reported:	15-May-2012	
Quote No:		
Order No:	53796	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	1				
	Sample Name: Lab Number:	ARA070512 07-May-2012 2:20 pm 1005159.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile	Kit				
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.2	•	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	26			-
Free Carbon Dioxide	g/m³ at 25°C	34	-	-	-
Total Hardness	g/m³ as CaCO₃	22	-	< 200	-
Electrical Conductivity (EC)	mS/m	8.7	-	-	-
Electrical Conductivity (EC)	μS/cm	87	-	-	-
Approx Total Dissolved Salts	g/m³	58	-	< 1000	-
Total Boron	g/m³	0.0163	-	-	1.4
Total Calcium	g/m³	3.7	-	-	-
Total Copper	g/m³	0.0033	-	<1	2
Total Iron	g/m³	0.068	-	< 0.2	-
Total Magnesium	g/m³	3.1	-	-	-
Total Manganese	g/m³	0.0132	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.71	-	-	-
Total Sodium	g/m³	9.1	-	< 200	-
Total Zinc	g/m³	0.0118	-	< 1.5	-
Chloride	g/m³	10.6	-	< 250	-
Nitrate-N	g/m³	0.11	-	-	11.3
Sulphate	g/m³	2.5	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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### ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	898555	DWAPv1
Date Registered:	20-May-2011	
Date Reported:	03-Jun-2011	
Quote No:		
Order No:	52538	
<b>Client Reference:</b>		
Submitted By:	P Cannell	

### Sample Type: Aqueous

	Sample Name:	ARA190511 19-May-2011 2:30 pm		Guideline Value	Maximum Acceptable
	Lab Number:	898555.1			Value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.9	-	7.0 - 8.5	-
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	27	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	7.5	-	-	-
Total Hardness	g/m³ as CaCO3	23	-	< 200	-
Electrical Conductivity (EC)	mS/m	9.3	-	-	-
Electrical Conductivity (EC)	µS/cm	93	-	-	-
Approx Total Dissolved Salts	g/m³	62	-	< 1000	-
Total Boron	g/m³	0.0148	-	-	1.4
Total Calcium	g/m³	3.7	-	-	-
Total Copper	g/m³	0.0041	-	< 1	2
Total Iron	g/m³	0.048	-	< 0.2	-
Total Magnesium	g/m³	3.4	-	-	-
Total Manganese	g/m³	0.0113	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.77	-	-	-
Total Sodium	g/m³	9.7	-	< 200	-
Total Zinc	g/m³	0.0143	-	< 1.5	-
Chloride	g/m³	9.9	-	< 250	-
Nitrate-N	g/m³	0.13	-	-	11.3
Sulphate	g/m³	3.2	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	785919	DWAPv1
Date Registered:	22-Apr-2010	
Date Reported:	30-Apr-2010	
Quote No:		
Order No:	51098	
<b>Client Reference:</b>	RAW WATER	
Submitted By:	P Cannell	

### Sample Type: Aqueous

	Sample Name: Lab Number:	KUM210410 21-Apr-2010 1:10 pm 785919.1	ARA210410 21-Apr-2010 1:40 pm 785919.2	Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	< 1	-	< 1
Routine Water Profile					
pН	pH Units	6.8	6.4	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	18.5	29	-	-
Free Carbon Dioxide	g/m³ at 25°C	6.3	25	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	17.0	24	200	-
Electrical Conductivity (EC)	mS/m	5.6	9.4	-	÷
Electrical Conductivity (EC)	µS/cm	56	94	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	37	63	1000	-
Total Boron	g/m³	< 0.0053	0.0137	-	1.4
Total Calcium	g/m <sup>3</sup>	4.2	4.0		-
Total Copper	g/m³	0.00060	0.0033	1	2
Total Iron	g/m <sup>3</sup>	< 0.021	0.129	0.2	-
Total Magnesium	g/m³	1.57	3.5	-	-
Total Manganese	g/m³	< 0.00053	0.0162	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m³	0.67	0.84	-	H
Total Sodium	g/m <sup>3</sup>	4.0	12.3	200	=
Total Zinc	g/m³	< 0.0011	0.0040	1.5	-
Chloride	g/m³	4.5	9.5	250	-
Nitrate-N	g/m³	0.28	0.070	-	11.3
Sulphate	g/m <sup>3</sup>	2.9	1.90	250	-

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

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#### 19 • ] ໌໑ັ

Client:	Westland District Council	Lab No:	851684	DWAPv1
Contact:	P Cannell	Date Registered:	07-Dec-2010	
	C/- Westland District Council	Date Reported:	14-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51949	
		Client Reference:	Raw water	
		Submitted By:	P Cannell	

Sample Type: Aqueou	5				
	Sample Name:	ARA061210 06-Dec-2010		Guideline	Maximum
		3:30 pm		Value	Acceptable Value (MAV)
	Lab Number:	851684.1			Value (MIAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
рН	pH Units	6.2	•	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	27	•	-	-
Free Carbon Dioxide	g/m³ at 25°C	37	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	23	•	< 200	· · · · · · · · · · · · · · ·
Electrical Conductivity (EC)	mS/m	9.0	-	-	-
Electrical Conductivity (EC)	µS/cm	90	•	•	•
Approx Total Dissolved Salts	g/m³	60	-	< 1000	-
Total Boron	g/m³	0.0134	-		1.4
Total Calcium	g/m³	3.8		• • •	•
Total Copper	g/m³	0.0020	-	< 1	2
Total Iron	g/m³	0.149	-	< 0.2	-
Total Magnesium	g/m³	3.2	• · · · · · · · · · · · · · · · · · · ·	-	· · · · · · · · · · · · · · · · · · ·
Total Manganese	g/m³	0.0111	•	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.77	-	-	-
Total Sodium	g/m³	8.3	-	< 200	-
Total Zinc	g/m <sup>3</sup>	0.0081	- -	< 1.5	-
Chloride	g/m³	8.6	-	< 250	. <del>.</del>
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	2.2	_	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1350708	DWAPv1
Contact:	P Cannell	Date Registered:	13-Nov-2014	
	C/- Westland District Council	Date Reported:	18-Nov-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	57623	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	8			
<u>.</u>	Sample Name:	FOX121114 12-Nov-2014 12:30 pm	Guideline	Maximum
	Lab Number:	1350708.1	Value	Acceptable Values (MAV)
Routine Water + E.coli profile	e Kit			
Escherichia coli	MPN / 100mL	< 1	-	< 1
Routine Water Profile				
рН	pH Units	7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	17.0	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.9	-	-
Total Hardness	g/m³ as CaCO₃	19.4	< 200	-
Electrical Conductivity (EC)	mS/m	5.4	-	-
Electrical Conductivity (EC)	μS/cm	54	-	-
Approx Total Dissolved Salts	g/m³	36	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	6.7	-	-
Total Copper	g/m³	0.00075	< 1	2
Total Iron	g/m³	0.039	< 0.2	-
Total Magnesium	g/m³	0.65	-	-
Total Manganese	g/m³	0.00062	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.72	-	-
Total Sodium	g/m³	1.98	< 200	-
Total Zinc	g/m³	0.0024	< 1.5	-
Chloride	g/m³	2.8	< 250	-
Nitrate-N	g/m³	0.08	-	11.3
Sulphate	g/m³	5.5	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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### ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1116006	DWAPv1
Date Registered:	27-Mar-2013	
Date Reported:	09-Apr-2013	
Quote No:		
Order No:	55079	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	CAR260313 26-Mar-2013 11:30 am 1116006.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	_	-	< 1
Routine Water Profile					
pН	pH Units	6.9	_	7.0 - 8.5	•
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	19.0	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	4.6	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	24	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.5	-	-	-
Electrical Conductivity (EC)	µS/cm	65	-	-	-
Approx Total Dissolved Salts	g/m³	44	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	8.2	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	0.034	-	< 0.2	-
Total Magnesium	g/m³	0.78	-	-	-
Total Manganese	g/m³	0.00070	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.91	-	-	-
Total Sodium	g/m³	2.2	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	2.5	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	8.0	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842 Lab No:1017451DWAPv1Date Registered:16-Jun-2012Date Reported:27-Jun-2012Quote No:54210Order No:54210Client Reference:P Cannell

	Sample Name:	CAR150612 15-Jun-2012 10:16 am		Guideline Value	Maximum Acceptable
	Lab Number:	1017451.1			Values (MAV)
Individual Tests					
Absorbance at 254 nm	AU cm <sup>-1</sup>	0.009		-	-
Transmittance at 254 nm*	%T, 1 cm cell	98	-	-	-
Escherichia coli	MPN / 100mL	< 1	iii	-	< 1
Routine Water Profile					
pН	pH Units	7.4		7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	22	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.8	-	-	-
Total Hardness	g/m³ as CaCO₃	24	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.0	-	-	-
Electrical Conductivity (EC)	μS/cm	70		-	-
Approx Total Dissolved Salts	g/m³	47	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	8.5	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.74	-	-	-
Total Manganese	g/m³	0.00066	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.0	-	-	-
Total Sodium	g/m³	2.2		< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	2.1	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m <sup>3</sup>	8.8	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	999913	DWAPv1
Contact:	P Cannell	Date Registered:	20-Apr-2012	
	C/- Westland District Council	Date Reported:	27-Apr-2012	
	Private Bag 704	Quote No:	-	
	HOKITIKA 7842	Order No:	53778	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	CAR190412 19-Apr-2012 10:30 am 999913.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile					
Escherichia coli	MPN / 100mL	< 1			< 1
Routine Water Profile	Routine Water Profile				
рН	pH Units	7.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	28	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	4.7	-	-	-
Total Hardness	g/m³ as CaCO₃	24	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.6	-	-	-
Electrical Conductivity (EC)	µS/cm	66	•	-	-
Approx Total Dissolved Salts	g/m³	45	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	8.5	-	-	
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.76	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.0		-	-
Total Sodium	g/m³	2.0	-	< 200	-
Total Zinc	g/m³	0.0030	-	< 1.5	-
Chloride	g/m³	1.9	-	< 250	-
Nitrate-N	g/m³	0.08	-	-	11.3
Sulphate	g/m³	8.2	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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ANALYSIS REPORT

Client:	Westland District Council	Lab No:	904316	DWAPv1
Contact:	P Cannell	Date Registered:	10-Jun-2011	
	C/- Westland District Council	Date Reported:	24-Jun-2011	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	52547	
		Client Reference:		
		Submitted By:	P Cannell	

Sample Type: Aqueou:	3				
	Sample Name: Lab Number:	CAR090611 09-Jun-2011 11:30 am 904316.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	1	-	-	< 1
Routine Water Profile					
pН	pH Units	7.2	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	20	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.6	-	-	-
Total Hardness	g/m³ as CaCO₃	23	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.1	-	-	-
Electrical Conductivity (EC)	μS/cm	61	-	-	-
Approx Total Dissolved Salts	g/m³	41	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	7.8	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.73	-	-	-
Total Manganese	g/m³	0.00069	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.1	-	-	-
Total Sodium	g/m³	2.1	-	< 200	-
Total Zinc	g/m³	0.0016	-	< 1.5	-
Chloride	g/m³	1.8	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	6.3	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	852902	DWAPv1
Contact:	P Cannell	Date Registered:	10-Dec-2010	
	C/- Westland District Council	Date Reported:	16-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51954	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	CAR091210 09-Dec-2010 12:10 pm 852902.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests	Lab Number.	002002.1			
Escherichia coli	MPN / 100mL	< 1	•		< 1
Routine Water Profile					
рН	pH Units	7.2	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	17.7	-		•
Free Carbon Dioxide	g/m³ at 25°C	2.4	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	24	tt för t verdand tan	< 200	-
Electrical Conductivity (EC)	mS/m	6.7	-	-	-
Electrical Conductivity (EC)	μ\$/cm	67		-	-
Approx Total Dissolved Salts	g/m³	45	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	8.4	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.73		-	-
Total Manganese	g/m³	< 0.00053	· · · · · · · ·	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.96	· ···· · ·	-	•
Total Sodium	g/m³	2.1	-	< 200	-
Total Zinc	g/m³	< 0.0011	•	< 1.5	
Chloride	g/m³	2.1	-	< 250	. •
Nitrate-N	g/m³	0.06	• •	•	11.3
Sulphate	g/m³	8.4	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	787443	DWAPv
Contact:	P Cannell	Date Registered:	28-Apr-2010	
	C/- Westland District Council	Date Reported:	04-May-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51098	
		Client Reference:	Raw water	
		Submitted By:	P Cannell	

	Sample Name:	CAR270410 27-Apr-2010	FRA210410 27-Apr-2010	Guideline	
		11:00 am	11:30 am	Value	MAV
	Lab Number:	787443.1	787443.2		
Individual Tests					
Escherichia coli	MPN / 100mL	9	5	-	< 1
Routine Water Profile					
pH	pH Units	7.4	7.6	7.0 - 8.5	-
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	11.0	53	-	-
Free Carbon Dioxide	g/m³ at 25°C	< 1.0	3.0	-	-
Total Hardness	g/m <sup>3</sup> as CaCO <sub>3</sub>	12.2	52	200	-
Electrical Conductivity (EC)	mS/m	3.5	13.1	-	-
Electrical Conductivity (EC)	µS/cm	35	131	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	23	88	1000	÷
Total Boron	g/m³	< 0.0053	< 0.0053	-	1.4
Total Calcium	g/m³	4.1	18.4	-	-
Total Copper	g/m³	0.00168	0.0022	1	2
Total Iron	g/m <sup>3</sup>	0.118	< 0.021	0.2	-
Total Magnesium	g/m³	0.46	1.48	-	-
Total Manganese	g/m³	0.0024	< 0.00053	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m³	1.24	2.8	-	-
Total Sodium	g/m³	1.48	3.7	200	-
Total Zinc	g/m³	0.0048	0.0051	1.5	-
Chloride	g/m³	1.66	4.4	250	
Nitrate-N	g/m <sup>3</sup>	0.050	0.070	-	11.3
Sulphate	g/m <sup>3</sup>	2.8	5.7	250	

**Note:** The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1350694	DWAPv1
Contact:	P Cannell	Date Registered:	13-Nov-2014	
	C/- Westland District Council	Date Reported:	18-Nov-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	57623	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5			
	Sample Name:	FRA121114 12-Nov-2014 1:30 pm	Guideline	Maximum Acceptable
	Lab Number:	1350694.1	Value	Values (MAV)
Routine Water + E.coli profile	e Kit			
Escherichia coli	MPN / 100mL	<1	-	< 1
Routine Water Profile				
рН	pH Units	7.9	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	58	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.3	-	-
Total Hardness	g/m³ as CaCO₃	57	< 200	-
Electrical Conductivity (EC)	mS/m	13.1	-	-
Electrical Conductivity (EC)	μS/cm	131	-	-
Approx Total Dissolved Salts	g/m³	88	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	20	-	-
Total Copper	g/m³	< 0.00053	< 1	2
Total Iron	g/m³	< 0.021	< 0.2	-
Total Magnesium	g/m³	1.60	-	-
Total Manganese	g/m³	< 0.00053	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.1	-	-
Total Sodium	g/m³	2.4	< 200	-
Total Zinc	g/m³	< 0.0011	< 1.5	-
Chloride	g/m³	2.4	< 250	-
Nitrate-N	g/m³	0.10	-	11.3
Sulphate	g/m³	5.8	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1245086	DWAPv1
<b>Contact:</b>	P Cannell	Date Registered:	07-Mar-2014	
	C/- Westland District Council	Date Reported:	12-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56720	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	7				
	Sample Name: Lab Number:	FRA060314 06-Mar-2014 1:30 pm 1245086.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	2		-	< 1
Routine Water Profile					
рН	pH Units	7.8		7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	67	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.3	-	-	-
Total Hardness	g/m³ as CaCO₃	68	-	< 200	-
Electrical Conductivity (EC)	mS/m	15.2	-	-	-
Electrical Conductivity (EC)	µS/cm	152	-	-	-
Approx Total Dissolved Salts	g/m³	102	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	24	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.92	-	-	-
Total Manganese	g/m³	0.00057		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.3	-	-	-
Total Sodium	g/m³	2.6	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	2.0	-	< 250	-
Nitrate-N	g/m³	0.10	-	-	11.3
Sulphate	g/m³	6.9	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ALYSIS REPOR

Client:	Westland District Council	Lab No:	1116031	DWAPv1
Contact:	P Cannell	Date Registered:	27-Mar-2013	
	C/- Westland District Council	Date Reported:	09-Apr-2013	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	55079	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	FRA260313 26-Mar-2013 12:15 pm 1116031.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	3	<u>~</u>	-	< 1
Routine Water Profile			***************************************		
рН	pH Units	7.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	69	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.4	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	72	-	< 200	-
Electrical Conductivity (EC)	mS/m	15.6	-	-	-
Electrical Conductivity (EC)	µS/cm	156	-	-	-
Approx Total Dissolved Salts	g/m³	105	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	25	-	-	-
Total Copper	g/m³	0.00073	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	2.0	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.5	-	-	-
Total Sodium	g/m³	2.7	-	< 200	-
Total Zinc	g/m³	0.0033	-	< 1.5	-
Chloride	g/m³	2.4	-	< 250	-
Nitrate-N	g/m³	0.11	-	-	11.3
Sulphate	g/m³	7.2	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### Α D $\mathbf{O}$ R

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1017454	DWAPv1
Date Registered:	16-Jun-2012	
Date Reported:	27-Jun-2012	
Quote No:		
Order No:	54210	
<b>Client Reference:</b>		
Submitted By:	P Cannell	

	Sample Name:	FRA150612 15-Jun-2012 10:50 am		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests	Lab Number:	1017454.1			·
		0.000			
Absorbance at 254 nm	AU cm <sup>-1</sup>	0.003	-		-
Transmittance at 254 nm*	%T, 1 cm cell	99	-	-	-
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
рН	pH Units	8.0	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	69	Here and the second sec	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.3	-	-	
Total Hardness	g/m³ as CaCO <sub>3</sub>	70	-	< 200	-
Electrical Conductivity (EC)	mS/m	15.8	-	-	-
Electrical Conductivity (EC)	µS/cm	158	<u>~</u>	-	-
Approx Total Dissolved Salts	g/m³	106	<del>.</del>	< 1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m³	25	-		-
Total Copper	g/m³	0.00166	-	< 1	2
Total Iron	g/m <sup>3</sup>	< 0.021	-	< 0.2	-
Total Magnesium	g/m <sup>3</sup>	1.94			-
Total Manganese	g/m³	0.00075	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.3	-	-	-
Total Sodium	g/m³	2.7	-	< 200	-
Total Zinc	g/m³	0.0101		< 1.5	-
Chloride	g/m³	2.3	-	< 250	-
Nitrate-N	g/m <sup>3</sup>	0.08	-	-	11.3
Sulphate	g/m <sup>3</sup>	8.4		< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYSIS P 5 POR

TESTIN

**Client:** Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	999921 DWAPv1
Date Registered:	20-Apr-2012
Date Reported:	01-May-2012
Quote No:	
Order No:	53778
<b>Client Reference:</b>	Raw Water
Submitted By:	P Cannell

Sample Type: Aqueous	3				
	Sample Name:	FRA190412 19-Apr-2012 11:00 am		Guideline Value	Maximum Acceptable Values (MAV)
	Lab Number:	999921.1		-	
Routine Water + E.coll profile					
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
рН	pH Units	8.0	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	76	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.4	-	-	-
Total Hardness	g/m³ as CaCO₃	71	-	< 200	-
Electrical Conductivity (EC)	mS/m	15.1	-	-	-
Electrical Conductivity (EC)	µ\$/cm	151	-	-	-
Approx Total Dissolved Salts	g/m³	101	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	25	-	-	-
Total Copper	g/m³	0.0034	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.98	-	-	-
Total Manganese	g/m³	0.00057	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.5	-	-	-
Total Sodium	g/m³	2.8	-	< 200	-
Total Zinc	g/m³	0.0130	-	< 1.5	-
Chloride	g/m³	2.0	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	7.8	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008), Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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ANALYSIS REPORT

Client:	Westland District Council	Lab No:	904320	DWARV1
Contact:	P Cannell	Date Registered:	10-Jun-2011	
	C/- Westland District Council	Date Reported:	24-Jun-2011	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	52547	
	3	Client Reference:		
		Submitted By:	P Cannell	

Sample Type: Aqueous	8				
	Sample Name: Lab Number:	FRA090611 09-Jun-2011 12:10 pm 904320.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests		***************************************			
Escherichia coli	MPN / 100mL	4	-	-	< 1
Routine Water Profile			······		
pН	pH Units	7.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	64	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.8	-	-	-
Total Hardness	g/m³ as CaCO₃	67	-	< 200	-
Electrical Conductivity (EC)	mS/m	14.4	-	-	-
Electrical Conductivity (EC)	µS/cm	144	-	-	-
Approx Total Dissolved Salts	g/m³	97	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	24	-	-	-
Total Copper	g/m³	0.0023	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.84	-	-	-
Total Manganese	g/m³	< 0.00053		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.3	-	-	-
Total Sodium	g/m³	2.6	-	< 200	-
Total Zinc	g/m³	0.0123	-	< 1.5	-
Chloride	g/m³	2.0	-	< 250	-
Nitrate-N	g/m³	0.10	-	-	11.3
Sulphate	g/m³	6.7	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# NALYSIS REPORT

Client:	Westland District Council	Lab No:	852908	DWAPv1
Contact:	P Cannell	Date Registered:	10-Dec-2010	
	C/- Westland District Council	Date Reported:	16-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51954	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous					Maximum
	Sample Name:	FRA091210 09-Dec-2010		Guideline	Acceptable
	Lab Number:	12:40 pm 852908.1		Value	Value (MAV)
Individual Tests	Lab Number.			·	
Escherichia coli	MPN / 100mL	1	-		< 1
Routine Water Profile		1	_		
pH	pH Units	7.9	-	7.0 - 8.5	
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	67	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.6	-	L	
Total Hardness	g/m³ as CaCO <sub>3</sub>	72	-	< 200	-
Electrical Conductivity (EC)	mS/m	16.2	-	-	-
Electrical Conductivity (EC)	μS/cm	162	-	•	-
Approx Total Dissolved Salts	g/m³	109	-	< 1000	-
Total Boron	g/m³	< 0.0053		-	1.4
Total Calcium	g/m³	26	-	-	- *
Total Copper	g/m³	0.00198	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.97	-	•	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	3.6	•	-	-
Total Sodium	g/m³	2.7	•	< 200	-
Total Zinc	g/m³	0.0050		< 1.5	-
Chloride	g/m³	2,1	-	< 250	-
Nitrate-N	g/m³	0.08			11.3
Sulphate	g/m <sup>3</sup>	7.8	-	< 250	_

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	787443	DW APv1
Date Registered:	28-Apr-2010	
Date Reported:	04-May-2010	
Quote No:		
Order No:	51098	
<b>Client Reference:</b>	Raw water	
Submitted By:	P Cannell	

Sample Type: Aqueou	S				
	Sample Name: Lab Number:	CAR270410 27-Apr-2010 11:00 am 787443.1	FRA210410 27-Apr-2010 11:30 am 787443.2	Guideline Value	MAV
Individual Tests		en e			
Escherichia coli	MPN / 100mL	9	5	-	< 1
Routine Water Profile					
pН	pH Units	7.4	7.6	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	11.0	53	-	-
Free Carbon Dioxide	g/m³ at 25°C	< 1.0	3.0	-	
Total Hardness	g/m³ as CaCO <sub>3</sub>	12.2	52	200	-
Electrical Conductivity (EC)	mS/m	3.5	13.1	-	-
Electrical Conductivity (EC)	µS/cm	35	131	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	23	88	1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	< 0.0053	-	1.4
Total Calcium	g/m <sup>3</sup>	4.1	18.4	-	-
Total Copper	g/m <sup>3</sup>	0.00168	0.0022	1	2
Total Iron	g/m <sup>3</sup>	0.118	< 0.021	0.2	-
Total Magnesium	g/m <sup>3</sup>	0.46	1.48	-	-
Total Manganese	g/m³	0.0024	< 0.00053	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m <sup>3</sup>	1.24	2.8	-	2
Total Sodium	g/m³	1.48	3.7	200	-
Total Zinc	g/m³	0.0048	0.0051	1.5	-
Chloride	g/m³	1.66	4.4	250	-
Nitrate-N	g/m³	0.050	0.070	-	11.3
Sulphate	g/m <sup>3</sup>	2.8	5.7	250	-

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

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### **Certificate of Analysis**

Client: Contact:	Westland District Cou P Cannell C/- Westland District Private Bag 704 Hokitika 7842		il	Di Di Q O Ci	ab No: ate Received: ate Reported: uote No: rder No: ient Reference: ubmitted By:	2121193 08-Feb-2019 18-Feb-2019 95129 107605 P Cannell	SPv1
Sample T	ype: Drinking Water for		NZ Compliance				
	Sample N		FRA070219 07-Feb-2019 12:00 pm				
	Lab Nu	mber:	2121193.1				
Individual Te	ests						
Total Antimo	ny	g/m³	< 0.00021	-	-	-	-
Total Arsenie	C	g/m³	< 0.0011	-	-	-	-
Total Barium	1	g/m³	0.0099	-	-	-	-
Total Cadmi	um	g/m³	< 0.000053	-	-	-	-
Total Chrom	ium	g/m³	0.00079	-	-	-	-
Total Coppe	r	g/m³	< 0.00053	-	-	-	-
Total Lead		g/m³	< 0.00011	-	-	-	-
Total Manga	nese	g/m³	0.0027	-	-	-	-
Total Mercur	ŷ	g/m³	< 0.00008	-	-	-	-
Total Nickel		g/m³	< 0.00053	-	-	-	-
Total Seleniu	Jm	g/m³	< 0.0011	-	-	-	-
Chlorate		g/m³	0.035	-	-	-	-
Nitrite-N		g/m³	< 0.002	-	-	-	-
Nitrate-N		g/m <sup>3</sup>	0.111	-	-	-	-
Nitrate-N + N	Nitrite-N	g/m <sup>3</sup>	0.111	-	-	-	-
Nitrate		g/m <sup>3</sup>	0.49	-	-	-	-
Halogenated	Volatile Disinfection By-Proc	-	Water by GCMS				
Bromochloro		g/m <sup>3</sup>	< 0.0002	-	-	-	-
Bromodichlo		g/m <sup>3</sup>	0.00139	_	-	_	-
	(tribromomethane)	g/m <sup>3</sup>	< 0.00007	_	-	_	_
Carbon tetra		g/m <sup>3</sup>	< 0.0007	_	-	_	_
	Trichloromethane)	g/m <sup>3</sup>	< 0.007	-		_	-
Chloropicrin		g/m <sup>3</sup>	< 0.0003	-	-	_	_
-	-3-chloropropane	g/m <sup>3</sup>	< 0.0003	-	-	_	_
Dibromoacet		g/m <sup>3</sup>	< 0.0003	-	-	-	-
Dibromochlo		g/m <sup>3</sup>	0.00061	-	-	-	
	ethane (ethylene dibromide,	g/m <sup>3</sup>	< 0.0003	-	-	-	-
-	-2-propanone	g/m³	< 0.0003	-	-	-	-
Dichloroacet		g/m <sup>3</sup>	< 0.0003	-	-	-	-
	thene (tetrachloroethylene)	g/m <sup>3</sup>	< 0.0002	-	-	-	-
	pro-2-propanone	g/m <sup>3</sup>	< 0.0003	-	-	-	-
Trichloroace		g/m <sup>3</sup>	< 0.0003	-	-	-	-
1,1,1-Trichlo		g/m <sup>3</sup>	< 0.0002	-	-	-	-
	ene (trichloroethylene)	g/m <sup>3</sup>	< 0.00007	-	-	-	-
	methanes (THM)	g/m <sup>3</sup>	< 0.007	-	-	-	_
Chloroform I		5	< 0.018			_	_
	romethane MAV ratio		0.023	-	-	_	_
			0.020				





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			J			
Sample Type: Drinking Water for	or DWS	NZ Compliance				
Sample	Name:	FRA070219 07-Feb-2019 12:00 pm				
Lab Nu	umber:	2121193.1				
Halogenated Volatile Disinfection By-Pro	oducts in	Water by GCMS				
Dibromochloromethane MAV ratio		0.004	-	-	-	-
Bromoform MAV ratio		< 0.001	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)		0.028	-	-	-	-
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)		< 0.016	-	-	-	-
Trihalomethanes Trace in Water by Hea	dspace C	GC-MS				
Bromodichloromethane	g/m³	0.0013	-	-	-	-
Bromoform (tribromomethane)	g/m³	< 0.0003	-	-	-	-
Chloroform (Trichloromethane)	g/m³	0.0019	-	-	-	-
Dibromochloromethane	g/m³	0.0006	-	-	-	-
Total Trihalomethanes (THM)	g/m³	< 0.007	-	-	-	-
Bromodichloromethane MAV ratio		0.021	-	-	-	-
Bromoform MAV ratio		< 0.003	-	-	-	-
Chloroform MAV ratio		0.0048	-	-	-	-
Dibromochloromethane MAV ratio		0.0039	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)		0.028	-	-	-	-

## 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water f			
Test	Method Description	Default Detection Limit	Sample No
Halogenated Volatile Disinfection By- Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis	-	1
Trihalomethanes Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00021 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0053 g/m <sup>3</sup>	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.000053 g/m <sup>3</sup>	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00011 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m <sup>3</sup>	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Chlorate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m <sup>3</sup>	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA $4500-NO_3$ I (modified) $23^{rd}$ ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m <sup>3</sup>	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> - I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate	Calculation from Nitrate-N.	0.010 g/m <sup>3</sup>	1

Sample Type: Drinking Water for DWSNZ Compliance					
Test	Method Description	Default Detection Limit	Sample No		
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs).	0	1		

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

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

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### Certificate of Analysis

Certi	incale of A	nary	515				Page 1 of 3
Client: Contact:	Westland District C P Cannell C/- Westland Distric Private Bag 704 Hokitika 7842		il	1 [ ( ( (	Lab No: Date Received: Date Reported: Quote No: Drder No: Client Reference: Submitted By:	2173363 09-May-2019 17-May-2019 95129 108062 Franz P2 P Cannell	SPv1
Sample T	/pe: Drinking Water	for DWSI	NZ Compliance				
	Sample	e Name:	FRA001FR 08-May-2019 10:40 am				
		lumber:	2173363.1				
Individual Te				,	1	1	
Total Antimo	•	g/m³	< 0.00021	-	-	-	-
Total Arsenie		g/m³	< 0.0011	-	-	-	-
Total Barium		g/m³	0.0075	-	-	-	-
Total Cadmi		g/m³	< 0.000053	-	-	-	-
Total Chrom		g/m³	< 0.00053	-	-	-	-
Total Coppe	ſ	g/m³	0.00158	-	-	-	-
Total Lead		g/m³	0.00032	-	-	-	-
Total Manga		g/m <sup>3</sup>	< 0.00053	-	-	-	-
Total Mercur	У	g/m <sup>3</sup>	< 0.0008	-	-	-	-
Total Nickel		g/m³	< 0.00053	-	-	-	-
Total Seleniu	IM	g/m³	< 0.0011	-	-	-	-
Chlorate		g/m³	0.085	-	-	-	-
Nitrite-N		g/m <sup>3</sup>	< 0.002	-	-	-	-
Nitrate-N	14 44 B.I.	g/m³	0.115	-	-	-	-
Nitrate-N + N	Nitrite-N	g/m <sup>3</sup>	0.115	-	-	-	-
Nitrate		g/m <sup>3</sup>	0.51	-	-	-	-
_	Volatile Disinfection By-P		-				
Bromochloro		g/m <sup>3</sup>	< 0.0004	-	-	-	-
Bromodichlo		g/m <sup>3</sup>	0.0024	-	-	-	-
	tribromomethane)	g/m³	< 0.0004	-	-	-	-
Carbon tetra		g/m <sup>3</sup>	< 0.0007	-	-	-	-
	Trichloromethane)	g/m <sup>3</sup>	< 0.007	-	-	-	-
		- 13	0 000 4				

Chloroform (Trichloromethane)	g/m³	< 0.007	-	-	-	-
Chloropicrin	g/m³	< 0.0004	-	-	-	-
1,2-Dibromo-3-chloropropane	g/m³	< 0.0004	-	-	-	-
Dibromoacetonitrile	g/m³	< 0.0004	-	-	-	-
Dibromochloromethane	g/m³	0.0012	-	-	-	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m <sup>3</sup>	< 0.0003	-	-	-	-
1,1-Dichloro-2-propanone	g/m³	< 0.0004	-	-	-	-
Dichloroacetonitrile	g/m³	< 0.0004	-	-	-	-
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.0004	-	-	-	-
1,1,1-Trichloro-2-propanone	g/m³	< 0.0004	-	-	-	-
Trichloroacetonitrile	g/m³	< 0.0004	-	-	-	-
1,1,1-Trichloroethane	g/m³	< 0.0004	-	-	-	-
Trichloroethene (trichloroethylene)	g/m³	< 0.0004	-	-	-	-
Total Trihalomethanes (THM)	g/m³	0.008	-	-	-	-
Chloroform MAV ratio		< 0.018	-	-	-	-
Bromodichloromethane MAV ratio		0.041	-	-	-	-





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Sample Type: Drinking Water for DWSNZ Compliance							
Sample Na	me:	FRA001FR					
		08-May-2019					
		10:40 am					
Lab Num	ber:	2173363.1					
Halogenated Volatile Disinfection By-Produc	cts in	Water by GCMS					
Dibromochloromethane MAV ratio		0.008	-	-	-	-	
Bromoform MAV ratio		< 0.004	-	-	-	-	
Sum of THM MAV ratios (NZ DW Stds)		0.06	-	-	-	-	
Sum of Haloacetonitriles MAV ratios (NZ D) Stds)	N	< 0.03	-	-	-	-	
Trihalomethanes Trace in Water by Headsp	ace G	GC-MS					
Bromodichloromethane	g/m³	0.0024	-	-	-	-	
Bromoform (tribromomethane)	g/m³	< 0.0003	-	-	-	-	
Chloroform (Trichloromethane)	g/m³	0.0043	-	-	-	-	
Dibromochloromethane	g/m³	0.0013	-	-	-	-	
Total Trihalomethanes (THM)	g/m³	0.008	-	-	-	-	
Bromodichloromethane MAV ratio		0.040	-	-	-	-	
Bromoform MAV ratio		< 0.003	-	-	-	-	
Chloroform MAV ratio		0.0107	-	-	-	-	
Dibromochloromethane MAV ratio		0.0087	-	-	-	-	
Sum of THM MAV ratios (NZ DW Stds)		0.06	-	-	-	-	

## **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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water	or DwSNZ Compliance		
Test	Method Description	Default Detection Limit	Sample No
Halogenated Volatile Disinfection By- Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis	-	1
Trihalomethanes Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00021 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0053 g/m <sup>3</sup>	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.000053 g/m <sup>3</sup>	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00011 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m <sup>3</sup>	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Chlorate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m <sup>3</sup>	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA $4500-NO_3$ I (modified) $23^{rd}$ ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m <sup>3</sup>	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> - I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate	Calculation from Nitrate-N.	0.005 g/m <sup>3</sup>	1

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Sample Type: Drinking Water for DWSNZ Compliance					
Test	Method Description	Default Detection Limit	Sample No		
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs).	0	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.

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Ara Heron BSc (Tech) Client Services Manager - Environmental





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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1350692	DWAPv1
Contact:	P Cannell	Date Registered:	13-Nov-2014	
	C/- Westland District Council	Date Reported:	18-Nov-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	57623	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous				
	Sample Name:	HAA121114 12-Nov-2014 10:00 am	Guideline	Maximum
	Lab Number:	1350692.1	Value	Acceptable Values (MAV)
Routine Water + E.coli profile	Kit			
Escherichia coli	MPN / 100mL	< 1	-	< 1
Routine Water Profile				
pН	pH Units	7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	28	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.7	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	28	< 200	-
Electrical Conductivity (EC)	mS/m	6.6	-	-
Electrical Conductivity (EC)	μS/cm	66	-	-
Approx Total Dissolved Salts	g/m³	44	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	10.1	-	-
Total Copper	g/m³	< 0.00053	< 1	2
Total Iron	g/m³	0.044	< 0.2	-
Total Magnesium	g/m³	0.63	-	-
Total Manganese	g/m³	0.00070	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.05	-	-
Total Sodium	g/m³	1.50	< 200	-
Total Zinc	g/m³	0.0027	< 1.5	-
Chloride	g/m³	1.4	< 250	-
Nitrate-N	g/m³	0.06	-	11.3
Sulphate	g/m³	4.0	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1245060	DWAPv1
Contact:	P Cannell	Date Registered:	07-Mar-2014	
	C/- Westland District Council	Date Reported:	12-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56720	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous					
	Sample Name:	HAA060314 06-Mar-2014		Guideline	Maximum
		11:00 am		Value	Acceptable Values (MAV)
	Lab Number:	1245060.1			
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
рН	pH Units	7.6	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	30	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.5	-	-	-
Total Hardness	g/m³ as CaCO₃	31	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.3	-	-	-
Electrical Conductivity (EC)	μS/cm	73	-	-	-
Approx Total Dissolved Salts	g/m³	49	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	11.1	-	-	-
Total Copper	g/m³	0.00056	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.67	-	-	-
Total Manganese	g/m³	< 0.00053		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.14	-	-	-
Total Sodium	g/m³	1.58	-	< 200	-
Total Zinc	g/m³	0.0033	-	< 1.5	-
Chloride	g/m³	1.2	-	< 250	-
Nitrate-N	g/m³	0.06	-	-	11.3
Sulphate	g/m³	4.3	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### NALYSIS RE PORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1115969	DWAPv1
Date Registered:	27-Mar-2013	
Date Reported:	09-Apr-2013	
Quote No:		
Order No:	55079	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueou	5				
	Sample Name: Lab Number:	HAA260313 26-Mar-2013 10:00 am 1115969.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1		-	< 1
Routine Water Profile					
рН	pH Units	6.9	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	36	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	9.2	-	-	
Total Hardness	g/m³ as CaCO <sub>3</sub>	40	-	< 200	-
Electrical Conductivity (EC)	mS/m	8.7	-	-	
Electrical Conductivity (EC)	µS/cm	87	-	-	-
Approx Total Dissolved Salts	g/m³	59	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	14.7	-	-	-
Total Copper	g/m³	0.00109	-	< 1	2
Total Iron	g/m³	0.056	-	< 0.2	-
Total Magnesium	g/m³	0.86	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.40		-	-
Total Sodium	g/m³	2.1	-	< 200	-
Total Zinc	g/m³	0.0067	-	< 1.5	-
Chloride	g/m³	1.6	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m³	5.8	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### A LYS PORT R 5

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	10
Date Registered:	16
Date Reported:	27
Quote No:	
Order No:	54
<b>Client Reference:</b>	R
Submitted By:	Ρ

017437 DWAPv1 6-Jun-2012 7-Jun-2012 4210 an toi 202

Tel

			Submitted By:	P Cannell	
Sample Type: Aqueous					
	Sample Name: Lab Number:	HAA150612 15-Jun-2012 8:30 am 1017437.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests	Lab Number.	1017437.1			
Absorbance at 254 nm	AU cm <sup>-1</sup>	0.037			-
Transmittance at 254 nm*	%T, 1 cm cell	92		-	-
Escherichia coli	MPN / 100mL	< 1 #1		-	< 1
Routine Water Profile					
pН	pH Units	7.5	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	29		-	-
Free Carbon Dioxide	g/m³ at 25°C	1.8	-	-	-
Total Hardness	g/m³ as CaCO₃	31	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.2	_	-	-
Electrical Conductivity (EC)	µS/cm	72	-	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	48	-	< 1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	11.1	-	-	-
Total Copper	g/m <sup>3</sup>	0.0032	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m <sup>3</sup>	0.70	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.91	-	-	-
Total Sodium	g/m³	1.69	-	< 200	-
Total Zinc	g/m³	0.0041	-	< 1.5	-
Chloride	g/m <sup>3</sup>	1.6	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

0.06

5.1

g/m<sup>3</sup>

g/m<sup>3</sup>

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parametters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.

#### **Analyst's Comments**

Nitrate-N

Sulphate

<sup>#1</sup> Please interpret this result with caution as the sample was >24 hours old on receipt at the lab. The sample is required to be less than 24 hours old on receipt.



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#### ANALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	999909	DWAPv1
Date Registered:	20-Apr-2012	
Date Reported:	02-May-2012	
Quote No:		
Order No:	53778	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueou					
	Sample Name: Lab Number:	HAA190412 19-Apr-2012 9:00 am 999909.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile					
Escherichia coli	MPN / 100mL	< 1	•	-	< 1
Routine Water Profile					
рН	pH Units	7.2	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	41	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	4.9	-	-	-
Total Hardness	g/m³ as CaCO₃	32	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.4	-	-	-
Electrical Conductivity (EC)	µS/cm	74	-	-	-
Approx Total Dissolved Salts	g/m³	50	•	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	11.7	-	-	-
Total Copper	g/m³	0.032	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.68	-	-	-
Total Manganese	g/m³	< 0.00053		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.95	-	-	-
Total Sodium	g/m³	1.40	-	< 200	-
Total Zinc	g/m³	0.0169	-	< 1.5	-
Chloride	g/m³	1.5	-	< 250	-
Nitrate-N	g/m³	0.06	-	-	11.3
Sulphate	g/m³	5.3	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008), Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parametters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.

The samples do not meet the requirements of the NZDWS samples were older than 24 hours on receipt in the lab. As such,	ł
Analyst's Comments	

please interpret these microbiological results with caution. Please ensure that the samples reach the lab within 24 hours.



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TESTING

Client:	Westland District Council	Lab No:	904313 DWAPv1
Contact:	P Cannell	Date Registered:	10-Jun-2011
	C/- Westland District Council	Date Reported:	24-Jun-2011
	Private Bag 704	Quote No:	
	HOKITIKA 7842	Order No:	52547
		Client Reference:	Raw water
		Submitted By:	P Cannell

	Sample Name:	HAA090611 09-Jun-2011 10:30 am		Guideline	Maximum Acceptable
	Lab Number:	904313.1		Value	Value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	7.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	28	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	4.8	-	-	-
Total Hardness	g/m³ as CaCO₃	29	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.7	-	-	-
Electrical Conductivity (EC)	µS/cm	67	-	-	-
Approx Total Dissolved Salts	g/m³	45	-	< 1000	-
Total Boron	g/m³	< 0.0053		-	1.4
Total Calcium	g/m³	10.5	-	-	-
Total Copper	g/m <sup>3</sup>	0.0024	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	·
Total Magnesium	g/m³	0.63	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m <sup>3</sup>	1.05	-	-	-
Total Sodium	g/m³	1.51	-	< 200	-
Total Zinc	g/m³	0.0130	-	< 1.5	-
Chloride	g/m³	1.3	-	< 250	-
Nitrate-N	g/m³	0.09	-	-	11.3
Sulphate	g/m <sup>3</sup>	4.4	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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## ANALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

852899	DW APv1
10-Dec-2010	
17-Dec-2010	
51954	
Raw Water	
P Cannell	
	10-Dec-2010 17-Dec-2010 51954 Raw Water

Sample Type: Aqueous					Maria
	Sample Name:	HAA091210 09-Dec-2010 10:30 am		Guideline	Maximum Acceptable
	Lab Number:	852899.1		Value	Value (MAV)
Individual Tests	Lab Number.	002000.1			
Escherichia coli	MPN / 100mL	< 1		-	< 1
Routine Water Profile					
pН	pH Units	6.9	-	7.0 - 8.5	5 <b>2</b>
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	25	-	-	-
Free Carbon Dioxide	g/m <sup>3</sup> at 25°C	6.4	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	27	-	< 200	
Electrical Conductivity (EC)	mS/m	6.6	-	-	-
Electrical Conductivity (EC)	µS/cm	66	-	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	44	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	9.6	-	-	-
Total Copper	g/m <sup>3</sup>	0.0027	-	< 1	2
Total Iron	g/m <sup>3</sup>	< 0.021	~	< 0.2	-
Total Magnesium	g/m³	0.59	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.11	-	-	-
Total Sodium	g/m <sup>3</sup>	1.70	-	< 200	-
Total Zinc	g/m <sup>3</sup>	0.0119	-	< 1.5	-
Chloride	g/m³	1.2	-	< 250	-
Nitrate-N	g/m <sup>3</sup>	0.05	-	-	11.3
Sulphate	g/m <sup>3</sup>	3.9	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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TESTING

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Client:	Westland District Council	Lab No:	787373	DWAPv
Contact:	P Cannell	Date Registered:	28-Apr-2010	
	C/- Westland District Council	Date Reported:	04-May-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51098	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

	Sample Name:	LGR270410 27-Apr-2010	HAA270410 27-Apr-2010	Quidalina	
	Lab Number:	9:00 am 787373.1	9:30 am 787373.2	Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	10	< 1	-	< 1
Routine Water Profile					
pН	pH Units	5.5	7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	1.90	31	-	-
Free Carbon Dioxide	g/m³ at 25°C	11.5	3.0	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	1.30	32	200	-
Electrical Conductivity (EC)	mS/m	1.7	7.6	-	-
Electrical Conductivity (EC)	µS/cm	17	76	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	11.6	51	1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	< 0.0053	-	1.4
Total Calcium	g/m <sup>3</sup>	0.159	11.4	-	-
Total Copper	g/m <sup>3</sup>	0.30	0.0182	1	2
Total Iron	g/m <sup>3</sup>	0.37	< 0.021	0.2	-
Total Magnesium	g/m³	0.22	0.74	-	-
Total Manganese	g/m³	0.0047	< 0.00053	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m <sup>3</sup>	0.097	1.23	-	-
Total Sodium	g/m <sup>3</sup>	1.83	1.73	200	-
Total Zinc	g/m³	0.068	0.0060	1.5	-
Chloride	g/m³	3.0	1.37	250	-
Nitrate-N	g/m <sup>3</sup>	< 0.05	0.080	-	11.3
Sulphate	g/m <sup>3</sup>	< 0.5	4.4	250	-

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### Certificate of Analysis

Client:	Westland District Council	Lab No:	2121143	DWAPv
Contact:	P Cannell	Date Received:	08-Feb-2019	
	C/- Westland District Council	Date Reported:	14-Feb-2019	
	Private Bag 704	Quote No:		
	Hokitika 7842	Order No:	107605	
		Client Reference:	Raw-RWA	
		Submitted By:	P Cannell	

	Sample Name:	HAR070219 07-Feb-2019 2:15 pm	Guideline	Maximum
	Lab Number:	2121143.1	Value	Acceptable Values (MAV)
Routine Water + E.coli profile	e Kit			
Escherichia coli	MPN / 100mL	< 1	-	< 1
Routine Water Profile				
pН	pH Units	7.1	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	47	-	-
Free Carbon Dioxide	g/m³ at 25°C	6.7	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	53	< 200	-
Electrical Conductivity (EC)	mS/m	12.2	-	-
Electrical Conductivity (EC)	μS/cm	122	-	-
Approx Total Dissolved Salts	g/m³	82	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	19.1	-	-
Total Copper	g/m³	0.0111	< 1	2
Total Iron	g/m³	< 0.021	< 0.2	-
Total Magnesium	g/m³	1.27	-	-
Total Manganese	g/m³	< 0.00053	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.4	-	2
Total Sodium	g/m³	3.1	< 200	-
Total Zinc	g/m³	0.057	< 1.5	-
Chloride	g/m³	2.1	< 250	-
Nitrate-N	g/m³	0.60	-	11.3
Sulphate	g/m <sup>3</sup>	6.6	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1308589	DWAPv1
Contact:	P Cannell	Date Registered:	07-Aug-2014	
	C/- Westland District Council	Date Reported:	15-Aug-2014	
	Private Bag 704	Quote No:	-	
	HOKITIKA 7842	Order No:	57336	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	\$			
	Sample Name:	HAR060814 06-Aug-2014 10:30 am	Guideline	Maximum
	Lab Number:	1308589.1	Value	Acceptable Values (MAV)
Routine Water + E.coli profile	e Kit	***************************************		
Escherichia coli	MPN / 100mL	< 1	-	< 1
Routine Water Profile	·			
рН	pH Units	7.1	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	46	-	-
Free Carbon Dioxide	g/m³ at 25°C	6.5	-	-
Total Hardness	g/m³ as CaCO₃	52	< 200	-
Electrical Conductivity (EC)	mS/m	12.5	-	-
Electrical Conductivity (EC)	µS/cm	125	-	-
Approx Total Dissolved Salts	g/m³	84	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	18.7	-	-
Total Copper	g/m³	0.00145	<1	2
Total Iron	g/m³	< 0.021	< 0.2	-
Total Magnesium	g/m³	1.22	-	-
Total Manganese	g/m³	< 0.00053	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.5	-	-
Total Sodium	g/m³	3.0	< 200	-
Total Zinc	g/m³	0.085	< 1.5	-
Chloride	g/m³	3.2	< 250	-
Nitrate-N	g/m³	0.92	-	11.3
Sulphate	g/m³	8.3	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1240665	DWAPv1
Contact:	P Cannell	Date Registered:	26-Feb-2014	
	C/- Westland District Council	Date Reported:	05-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56713	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	HAR250214 25-Feb-2014 2:00 pm 1240665.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
рН	pH Units	6.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	47	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	13.5	-	-	-
Total Hardness	g/m³ as CaCO3	53	-	< 200	-
Electrical Conductivity (EC)	mS/m	12.9	-	-	-
Electrical Conductivity (EC)	µS/cm	129	-	-	-
Approx Total Dissolved Salts	g/m³	86	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	19.3	-	-	-
Total Copper	g/m³	0.0031	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.26	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.5	-	-	-
Total Sodium	g/m³	3.0	-	< 200	-
Total Zinc	g/m³	0.054	-	< 1.5	-
Chloride	g/m³	3.0	-	< 250	-
Nitrate-N	g/m³	0.88	-	-	11.3
Sulphate	g/m³	8.3	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### ANALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1116151	DWAPv1
Date Registered:	27-Mar-2013	
Date Reported:	09-Apr-2013	
Quote No:		
Order No:	55079	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	HAR260313 26-Mar-2013 2:10 pm 1116151.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
рН	pH Units	6.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	45	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	15.9	-	-	-
Total Hardness	g/m³ as CaCO₃	50	-	< 200	-
Electrical Conductivity (EC)	mS/m	12.3	-	-	-
Electrical Conductivity (EC)	µS/cm	123	-	-	-
Approx Total Dissolved Salts	g/m³	83	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	18.1	-	-	-
Total Copper	g/m³	0.00093	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.18	-	-	-
Total Manganese	g/m³	< 0.00053		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.5	-	-	-
Total Sodium	g/m³	3.0	-	< 200	-
Total Zinc	g/m³	0.0042	-	< 1.5	-
Chloride	g/m³	2.9	-	< 250	-
Nitrate-N	g/m³	0.96	-	-	11.3
Sulphate	g/m³	8.2	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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## ANALYSIS REPORT

Client:	Westland District Council	Lab No:	999911	DWAPv1
Contact:	P Cannell	Date Registered:	20-Apr-2012	
	C/- Westland District Council	Date Reported:	02-May-2012	
	Private Bag 704	Quote No:	-	
	HOKITIKA 7842	Order No:	53778	
		Client Reference:	Raw Water	aturnova i
		Submitted By:	P Cannell	- - 

Sample Type: Aqueous					
	Sample Name: Lab Number:	HAR190412 19-Apr-2012 2:00 pm 999911.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile	Kit				
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	45	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	13.3	-	-	-
Total Hardness	g/m³ as CaCO₃	45	-	< 200	-
Electrical Conductivity (EC)	mS/m	11.1	-	-	-
Electrical Conductivity (EC)	µS/cm	111	-	-	-
Approx Total Dissolved Salts	g/m³	75	-	< 1000	
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	16.5	•	-	-
Total Copper	g/m³	0.0056	•	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	0.98	-	-	-
Total Manganese	g/m³	0.00085	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.0	-	-	-
Total Sodium	g/m³	2.4	-	< 200	-
Total Zinc	g/m³	0.040	-	< 1.5	-
Chloride	g/m³	2.6	-	< 250	-
Nitrate-N	g/m³	0.77	-	-	11.3
Sulphate	g/m³	8.0	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYS R F D $(\mathcal{O})$

TESTING

BETTER

Client:	Westland District Council	Lab No:	904323	DVS AF V1
Contact:	P Cannell	Date Registered:	10-Jun-2011	
	C/- Westland District Council	Date Reported:	24-Jun-2011	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	52547	
		Client Reference:	**	
		Submitted By:	P Cannell	

Sample Type: Aqueous	<b>5</b>				
	Sample Name: Lab Number:	HAR090611 09-Jun-2011 1:30 pm 904323.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	•	< 1
Routine Water Profile				-	
рН	pH Units	6.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	43	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	14.7	-	-	-
Total Hardness	g/m³ as CaCO₃	50	•	< 200	-
Electrical Conductivity (EC)	mS/m	11.8	-	-	-
Electrical Conductivity (EC)	µS/cm	118	•	-	-
Approx Total Dissolved Salts	g/m³	79	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	18.0	-	-	-
Total Copper	g/m³	0.0020	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.16	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.4	-	-	-
Total Sodium	g/m³	2.9	-	< 200	-
Total Zinc	g/m³	0.0068	-	< 1.5	-
Chloride	g/m³	2.7	-	< 250	-
Nitrate-N	g/m³	0.82	-	-	11.3
Sulphate	g/m³	7.7	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008), Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

BETTER

Lab No:	787454	DW APv1
Date Registered:	28-Apr-2010	
Date Reported:	06-May-2010	
Quote No:		
Order No:	51098	
<b>Client Reference:</b>	Raw water	
Submitted By:	P Cannell	

	Sample Name: Lab Number:	WHA270410 27-Apr-2010 12:40 pm 787454.1	HAR270410 27-Apr-2010 1:10 pm 787454.2	Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	< 1	-	< 1
Routine Water Profile					
рН	pH Units	6.1	6.6	7.0 - 8.5	5 <b>2</b>
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	18.5	41		-
Free Carbon Dioxide	g/m³ at 25°C	31	20	-	
Total Hardness	g/m³ as CaCO <sub>3</sub>	20	42	200	-
Electrical Conductivity (EC)	mS/m	6.7	10.9	-	-
Electrical Conductivity (EC)	μS/cm	67	109	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	45	73	1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	< 0.0053	-	1.4
Total Calcium	g/m³	6.5	15.1	-	-
Total Copper	g/m³	0.00181	0.00083	1	2
Total Iron	g/m <sup>3</sup>	0.38	< 0.021	0.2	8
Total Magnesium	g/m <sup>3</sup>	1.00	0.99	-	-
Total Manganese	g/m³	0.0028	< 0.00053	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m³	2.2	2.2	-	-
Total Sodium	g/m³	3.3	2.8	200	-
Total Zinc	g/m <sup>3</sup>	0.0046	< 0.0011	1.5	-
Chloride	g/m³	2.8	2.6	250	-
Nitrate-N	g/m³	1.27	0.46	-	11.3
Sulphate	g/m <sup>3</sup>	3.5	7.8	250	-

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

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## ANALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	770850 DWAPv1
Date Registered:	02-Mar-2010
Date Reported:	11-Mar-2010
Quote No:	
Order No:	51066
<b>Client Reference:</b>	Harihari Bore
Submitted By:	P Cannell
Client Reference:	Harihari Bore

	Sample Name: Lab Number:	HAR-B010310 01-Mar-2010 12:40 pm 770850.1		Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
рН	pH Units	7.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	41	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	7.0	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	46	2	200	
Electrical Conductivity (EC)	mS/m	11.0	-	-	-
Electrical Conductivity (EC)	µS/cm	110	-	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	73	-	1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	17		-	
Total Copper	g/m <sup>3</sup>	0.00094	-	1	2
Total Iron	g/m <sup>3</sup>	< 0.021	-	0.2	-
Total Magnesium	g/m <sup>3</sup>	0.97	-	-	-
Total Manganese	g/m <sup>3</sup>	< 0.00053	Ħ	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m <sup>3</sup>	2.4	-	-	-
Total Sodium	g/m <sup>3</sup>	2.9	-	200	-
Total Zinc	g/m <sup>3</sup>	0.0017	-	1.5	-
Chloride	g/m <sup>3</sup>	2.3	÷	250	-
Nitrate-N	g/m <sup>3</sup>	0.47	=	-	11.3
Sulphate	g/m <sup>3</sup>	7.4	-	250	-

**Note:** The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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## ANALYSIS REPORT

BETTER

Page 1 of 3

Client:	Westland District Council	Lab No:	852944	DWAPv1
Contact:	P Cannell	Date Registered:	10-Dec-2010	
	C/- Westland District Council	Date Reported:	16-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51954	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous					
	Sample Name:	HAR091210 09-Dec-2010		Guideline	Maximum Acceptable
	I t. M	1:50 pm 852944.1		Value	Value (MAV)
Individual Tests	Lab Number:	002944.1			
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
pH	pH Units	6.6	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	38	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	18.6	-	-	-
Total Hardness	g/m <sup>3</sup> as CaCO <sub>3</sub>	43	•	< 200	-
Electrical Conductivity (EC)	mS/m	11.0	-	-	-
Electrical Conductivity (EC)	µS/cm	110	•	-	•••••••••••••••••••••••••••••••••••••••
Approx Total Dissolved Salts	g/m³	74	-	< 1000	-
Total Boron	g/m³	< 0.0053	-		1.4
Total Calcium	g/m³	15.5	ha haa aan	-	-
Total Copper	g/m³	0.00118	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	
Total Magnesium	g/m³	0.97		-	-
Total Manganese	g/m³	< 0.00053	•	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.3	-	-	-
Total Sodium	g/m³	2.7	-	< 200	-
Total Zinc	g/m³	0.0036		< 1.5	•
Chloride	g/m³	2.2	-	< 250	-
Nitrate-N	g/m³	0.45	•		11.3
Sulphate	g/m <sup>3</sup>	7.8	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ALYSIS REPORT

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	770844	DWAPv1
Date Registered:	02-Mar-2010	
Date Reported:	11-Mar-2010	
Quote No:		
Order No:	51066	
Client Reference:	Harihari A.P	
Submitted By:	P Cannell	

	Sample Name: Lab Number:	HAR 010310 01-Mar-2010 12:40 pm 770844.1		Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	7.2	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	50	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	6.8	-	-	-
Total Hardness	g/m³ as CaCO₃	44	-	200	-
Electrical Conductivity (EC)	mS/m	12.6	÷	-	-
Electrical Conductivity (EC)	µS/cm	126	-	-	-
Approx Total Dissolved Salts	g/m³	84	-	1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	16	-	-	-
Total Copper	g/m³	0.00073	-	1	2
Total Iron	g/m <sup>3</sup>	0.17		0.2	-
Total Magnesium	g/m³	0.99	-	-	-
Total Manganese	g/m³	0.00083	-	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m³	2.2	-	-	-
Total Sodium	g/m³	6.3	-	200	-
Total Zinc	g/m³	0.0023	-	1.5	-
Chloride	g/m <sup>3</sup>	2.4	-	250	-
Nitrate-N	g/m <sup>3</sup>	0.49	-	-	11.3
Sulphate	g/m <sup>3</sup>	10	-	250	1.00

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

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#### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1309107	DWAPv1
Contact:	P Cannell	Date Registered:	08-Aug-2014	
	C/- Westland District Council	Date Reported:	15-Aug-2014	
	Private Bag 704	Quote No:	_	
	HOKITIKA 7842	Order No:	57338	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	•			
	Sample Name:	LKE070814 07-Aug-2014 1:30 pm	Guideline	Maximum
	Lab Number:	1309107.1	Value	Acceptable Values (MAV)
Routine Water + E.coli profile	Kit			
Escherichia coli	MPN / 100mL	8	-	< 1
Routine Water Profile				
рН	pH Units	7.1	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	11.1	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.6	-	-
Total Hardness	g/m³ as CaCO3	11.6	< 200	-
Electrical Conductivity (EC)	mS/m	3.3	-	-
Electrical Conductivity (EC)	μS/cm	33	-	-
Approx Total Dissolved Salts	g/m³	22	< 1000	-
Total Boron	g/m³	< 0.0053	-	1.4
Total Calcium	g/m³	3.3	-	-
Total Copper	g/m³	< 0.00053	< 1	2
Total Iron	g/m³	0.033	< 0.2	-
Total Magnesium	g/m³	0.82	-	-
Total Manganese	g/m³	0.00093	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.51	-	-
Total Sodium	g/m³	2.2	< 200	-
Total Zinc	g/m³	0.0013	< 1.5	-
Chloride	g/m³	3.2	< 250	-
Nitrate-N	g/m³	0.06	-	11.3
Sulphate	g/m³	0.9	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ANALYSIS REPORT

1238689 DWAPv1 **Client:** Westland District Council Lab No: 21-Feb-2014 Contact: P Cannell **Date Registered:** C/- Westland District Council **Date Reported:** 28-Feb-2014 Quote No: Private Bag 704 HOKITIKA 7842 Order No: 56707 **Client Reference:** Raw Water Submitted By: P Cannell

Sample Type: Aqueous	6				
	Sample Name: Lab Number:	LKE200214 20-Feb-2014 11:00 am 1238689.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests	······				
Escherichia coli	MPN / 100mL	2	~	-	< 1
Routine Water Profile					
pН	pH Units	7.6		7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	12.4	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	< 1.0	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	11.8	-	< 200	-
Electrical Conductivity (EC)	mS/m	3.8	-	-	-
Electrical Conductivity (EC)	µS/cm	38	-	-	-
Approx Total Dissolved Salts	g/m³	25	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	3.3	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	0.098	-	< 0.2	-
Total Magnesium	g/m³	0.84	-	-	-
Total Manganese	g/m³	0.0026	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.51	-	-	-
Total Sodium	g/m³	2.1	-	< 200	-
Total Zinc	g/m³	0.061	-	< 1.5	-
Chloride	g/m³	2.6	-	< 250	-
Nitrate-N	g/m³	< 0.05	-	-	11.3
Sulphate	g/m³	0.6	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### NALYSIS R E P O R

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1108732 DWAPv	1
Date Registered:	08-Mar-2013	
Date Reported:	15-Mar-2013	
Quote No:		
Order No:	55068	
<b>Client Reference:</b>	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous		LKE070313 07-Mar-2013	and an and the state of the sta		Maximum
	Sample Name:	10:30 am		Guideline Value	Acceptable
	Lab Number:	1108732.1			Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	3	-	-	< 1
Routine Water Profile					
pН	pH Units	7.6	-	7.0 - 8.5	-
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	14.2	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	< 1.0	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	11.8	-	< 200	-
Electrical Conductivity (EC)	mS/m	3.6	-	-	-
Electrical Conductivity (EC)	μS/cm	36	-	-	-
Approx Total Dissolved Salts	g/m³	24	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	3.4	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	0.035	-	< 0.2	-
Total Magnesium	g/m³	0.83	-	-	-
Total Manganese	g/m³	0.00164	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.56	-	-	-
Total Sodium	g/m³	2.3	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	2.8	-	< 250	-
Nitrate-N	g/m³	< 0.05	-	-	11.3
Sulphate	g/m <sup>3</sup>	1.0	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parametters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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### ANALYSIS REPORT

TESTING

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1003309	DWAPv1
Date Registered:	02-May-2012	
Date Reported:	09-May-2012	
Quote No:		
Order No:	53788	
<b>Client Reference:</b>	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	HOK010512 01-May-2012 2:00 pm 1003309.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile	e Kit				
Escherichia coli	MPN / 100mL	2	-	-	< 1
Routine Water Profile					
рН	pH Units	7.3	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	12.8	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.2	-	-	-
Total Hardness	g/m³ as CaCO₃	11.8	-	< 200	-
Electrical Conductivity (EC)	mS/m	3.5	-	-	-
Electrical Conductivity (EC)	µS/cm	35	-	-	-
Approx Total Dissolved Salts	g/m³	23	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	3.4	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	0.083	-	< 0.2	-
Total Magnesium	g/m³	0.81	-	-	-
Total Manganese	g/m³	0.00150	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.49	-	-	-
Total Sodium	g/m³	2.1	-	< 200	-
Total Zinc	g/m³	0.23	-	< 1.5	-
Chloride	g/m³	3.3	-	< 250	-
Nitrate-N	g/m³	< 0.05	-	-	11.3
Sulphate	g/m³	0.7	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### ALVAS : 2 \_ (0)

Client:	Westland District Council	Lab No:	852215	DWAPv1
Contact:	P Cannell	Date Registered:	08-Dec-2010	
	C/- Westland District Council	Date Reported:	14-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51953	
		Client Reference:	Raw water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	j .				
	Sample Name:	LKE071210 07-Dec-2010		Guideline	Maximum
		2:30 pm		Value	Acceptable Value (MAV)
	Lab Number:	852215.1			
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.9	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	13.2	1 · · · · · ·	-	-
Free Carbon Dioxide	g/m³ at 25°C	3.2	-	-	-
Total Hardness	g/m³ as CaCO₃	11.8	-	< 200	······································
Electrical Conductivity (EC)	mS/m	3.6	-	-	-
Electrical Conductivity (EC)	µS/cm	36	-	-	
Approx Total Dissolved Salts	g/m³	24	-	< 1000	-
Total Boron	g/m³	< 0.0053	-		1.4
Total Calcium	g/m³	3.4	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	0.23	-	< 0.2	-
Total Magnesium	g/m³	0.84	• · · · · · · · · · · · · · · · · · · ·	-	•
Total Manganese	g/m³	0.00147		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.51	-	-	-
Total Sodium	g/m³	2.2	-	< 200	
Total Zinc	g/m³	0.096	and a second of a	< 1.5	-
Chloride	g/m³	2.7	-	< 250	-
Nitrate-N	g/m³	0.06	e un est t as most ast st as a addit. A tradition	-	11.3
Sulphate	g/m³	0.9	-	< 250	•

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ALYSIS REPORT Ν

BETTER

Client:	Westland District Council	Lab No:	817223	DWAPv1
Contact:	P Cannell	Date Registered:	13-Aug-2010	
	C/- Westland District Council	Date Reported:	20-Aug-2010	
	Private Bag 704	Quote No:	, i i i i i i i i i i i i i i i i i i i	
	HOKITIKA 7842	Order No:	51578	
		Client Reference:	Routine Water	
		Submitted By:	P Cannell	

	Sample Name:	HOK120810-1 12-Aug-2010		Guideline	Maximum
	Lab Number:	10:00 am 817223.1	3:30 pm 817223.2	Value	Acceptable Value (MAV)
Routine Water Profile	Lab Number.	017223.1	017225.2		. ,
pH	pH Units	6.3		7.0 - 8.5	
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	17.1		7.0 - 0.5	-
Free Carbon Dioxide	g/m° as CaCO <sub>3</sub> g/m³ at 25°C	16.7		-	-
Total Hardness	g/m <sup>s</sup> at 25 C	12.6		< 200	
Electrical Conductivity (EC)	g/mº as CaCO <sub>3</sub> mS/m	4.3		< 200	
the second se					-
Electrical Conductivity (EC)	µS/cm	43		-	-
Approx Total Dissolved Salts	9	29		< 1000	
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	3.7	· · · · · · · · · · · · · · · · · · ·	-	-
Total Copper	g/m <sup>3</sup>	0.33	÷.	< 1	2
Total Iron	g/m <sup>3</sup>	0.24	-	< 0.2	-
Total Magnesium	g/m³	0.80		-	-
Total Manganese	g/m³	0.0023	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m <sup>3</sup>	0.53	-	-	170
Total Sodium	g/m <sup>3</sup>	3.0	-	< 200	-
Total Zinc	g/m <sup>3</sup>	0.037	-	< 1.5	-
Chloride	g/m <sup>3</sup>	5.8	-	< 250	-
Nitrate-N	g/m³	0.07	-	-	11.3
Sulphate	g/m <sup>3</sup>	1.2	-	< 250	
Halogenated Acetic Acids in	Water by GC-MS				
Bromochloroacetic acid	g/m <sup>3</sup>	-	0.0025	-	-
Dibromoacetic acid	g/m <sup>3</sup>	-	0.0011	-	-
Dichloroacetic acid	g/m <sup>3</sup>	-	0.052	-	0.05
Monobromoacetic acid	g/m <sup>3</sup>	-	0.0039	_	-
Monochloroacetic acid	g/m <sup>3</sup>	-	< 0.005	-	0.02
Trichloroacetic acid	g/m <sup>3</sup>	-	0.047	-	0.2
Total HAA	g/m <sup>3</sup>	-	0.107	-	-
Sum of HAA DWSNZ MAV r	atios	_	1.3		1

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### **Certificate of Analysis**

Client: Westland District Cou Contact: P Cannell C/- Westland District Private Bag 704 Hokitika 7842		il		Date Quo Ord Clie	No: e Received: e Reported: ote No: er No: ont Reference: omitted By:	2155621 05-Apr-2019 12-Apr-2019 95129 107912 P Cannell	SPv1
Sample Type: Drinking Water for	r DWSI	NZ Compliance					
Sample N	lame:	HOK - S01069 04-Apr-2019 10:30 am					
Lab Nu	mber:	2155621.1					
Individual Tests							
Total Antimony	g/m³	< 0.00021	-		-	-	-
Total Arsenic	g/m³	< 0.0011	-		-	-	-
Total Barium	g/m³	0.0074	-		-	-	-
Total Cadmium	g/m³	< 0.000053	-		-	-	-
Total Chromium	g/m³	0.00071	-		-	-	-
Total Copper	g/m³	0.0058	-		-	-	-
Total Lead	g/m³	0.00040	-		-	-	-
Total Manganese	g/m³	< 0.00053	-		-	-	-
Total Mercury	g/m³	< 0.00008	-		-	-	-
Total Nickel	g/m³	< 0.00053	-		-	-	-
Total Selenium	g/m³	< 0.0011	-		-	-	-
Chlorate	g/m <sup>3</sup>	< 0.005	-		-	-	-
Nitrite-N	g/m <sup>3</sup>	< 0.002	-		-	-	-
Nitrate-N	g/m <sup>3</sup>	0.20	-		-	-	_
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.20	-		-	-	-
Nitrate	g/m <sup>3</sup>	0.90	-		-	-	_
Halogenated Volatile Disinfection By-Proc	-	Water by GCMS					
Bromochloroacetonitrile	g/m <sup>3</sup>	< 0.0004	-		-	_	_
Bromodichloromethane	g/m <sup>3</sup>	< 0.0004			-	_	
Bromoform (tribromomethane)	g/m <sup>3</sup>	< 0.0004	-		-		-
Carbon tetrachloride	g/m <sup>3</sup>	< 0.0007			-		-
Chloroform (Trichloromethane)	•	< 0.007			-	-	-
	g/m <sup>3</sup>		-		-	-	-
Chloropicrin	g/m <sup>3</sup> g/m <sup>3</sup>	< 0.0004 < 0.0004	-		-	-	-
1,2-Dibromo-3-chloropropane	-		-		-	-	-
Dibromoacetonitrile Dibromochloromethane	g/m <sup>3</sup> g/m <sup>3</sup>	< 0.0004	-		-	-	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m <sup>3</sup>	< 0.0004	-		-	-	-
1,1-Dichloro-2-propanone	g/m³	< 0.0004	-		-	_	
Dichloroacetonitrile	g/m <sup>3</sup>	< 0.0004	-			-	-
Tetrachloroethene (tetrachloroethylene)	g/m <sup>3</sup>	< 0.0004	-		-	-	-
, ,	-		-		-		-
1,1,1-Trichloro-2-propanone Trichloroacetonitrile	g/m <sup>3</sup>	< 0.0004	-		-	-	-
	g/m <sup>3</sup>	< 0.0004					-
1,1,1-Trichloroethane	g/m <sup>3</sup>	< 0.0004	-		-	-	-
Trichloroethene (trichloroethylene)	g/m <sup>3</sup>	< 0.0004	-		-	-	-
Total Trihalomethanes (THM)	g/m³	< 0.007	-		-	-	-
Chloroform MAV ratio		< 0.018	-		-	-	-
Bromodichloromethane MAV ratio		< 0.007	-		-	-	-





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Sample Type: Drinking Water for DWSNZ Compliance						
Sample		HOK - S01069 04-Apr-2019 10:30 am				
Lab N	umber:	2155621.1				
Halogenated Volatile Disinfection By-Products in Water by GCMS						
Dibromochloromethane MAV ratio		< 0.003	-	-	-	-
Bromoform MAV ratio		< 0.004	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds	)	< 0.02	-	-	-	-
Sum of Haloacetonitriles MAV ratios (N Stds)	Z DW	< 0.03	-	-	-	-
Trihalomethanes Trace in Water by He	adspace C	GC-MS				
Bromodichloromethane	g/m³	< 0.0003	-	-	-	-
Bromoform (tribromomethane)	g/m³	< 0.0003	-	-	-	-
Chloroform (Trichloromethane)	g/m³	< 0.0003	-	-	-	-
Dibromochloromethane	g/m³	< 0.0003	-	-	-	-
Total Trihalomethanes (THM)	g/m³	< 0.007	-	-	-	-
Bromodichloromethane MAV ratio		< 0.005	-	-	-	-
Bromoform MAV ratio		< 0.003	-	-	-	-
Chloroform MAV ratio		< 0.0010	-	-	-	-
Dibromochloromethane MAV ratio		< 0.0017	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds	)	< 0.02	-	-	-	-

## 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water f			
Test	Method Description	Default Detection Limit	Sample No
Halogenated Volatile Disinfection By- Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis	-	1
Trihalomethanes Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00021 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0053 g/m <sup>3</sup>	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.000053 g/m <sup>3</sup>	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00011 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m <sup>3</sup>	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Chlorate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m <sup>3</sup>	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO <sub>3</sub> <sup>-</sup> I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m <sup>3</sup>	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> - I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate	Calculation from Nitrate-N.	0.010 g/m <sup>3</sup>	1

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Sample Type: Drinking Water for	r DWSNZ Compliance		
Test	Method Description	Default Detection Limit	Sample No
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs).	0	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.

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

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Page 1 of 3

### **Certificate of Analysis**

Client: Westland District Council P Cannell C/- Westland District Council Private Bag 704 Hokitika 7842 Sample Type: Drinking Water for DWSNZ Compliance			Dat Dat Qu Orc Clie	o No: te Received: te Reported: ote No: der No: ent Reference: bmitted By:	2142735 15-Mar-2019 26-Mar-2019 95129 107788 Hoki P2 P Cannell	SPv1
Sample Type: Drinking Water fo	r DWS	NZ Compliance				
Sample I Lab Nu		HOK001HO - 140319 14-Mar-2019 12:00 pm 2142735.1				
Lab Nu Individual Tests	mber:	2142733.1				
Total Antimony	a/m3	< 0.00021			_	_
Total Arsenic	g/m <sup>3</sup> g/m <sup>3</sup>	< 0.00021	-	-	-	-
Total Barium	g/m <sup>3</sup>	< 0.0053	-	-		
Total Cadmium	g/m <sup>3</sup>	< 0.00053	-	-	_	
Total Chromium	g/m <sup>3</sup>	0.00071				
Total Copper	g/m <sup>3</sup>	0.21	-		_	_
Total Lead	g/m <sup>3</sup>	0.00022	-	-	_	-
Total Manganese	g/m <sup>3</sup>	0.00082	-	-		_
Total Mercury	g/m <sup>3</sup>	< 0.00008	-	-	-	-
Total Nickel	g/m <sup>3</sup>	< 0.00053	-	-	-	-
Total Selenium	g/m <sup>3</sup>	< 0.0011	-	-	-	-
Chlorate	g/m <sup>3</sup>	< 0.005	-	-	-	-
Nitrite-N	g/m³	< 0.002	-	-	-	-
Nitrate-N	g/m³	0.051	-	-	-	-
Nitrate-N + Nitrite-N	g/m³	0.052	-	-	-	-
Nitrate	g/m³	0.23	-	-	-	-
Halogenated Volatile Disinfection By-Pro	ducts in	Water by GCMS	•	,		·
Bromochloroacetonitrile	g/m³	< 0.0002	-	-	-	-
Bromodichloromethane	g/m³	0.0032	-	-	-	-
Bromoform (tribromomethane)	g/m³	< 0.00007	-	-	-	-
Carbon tetrachloride	g/m³	< 0.0007	-	-	-	-
Chloroform (Trichloromethane)	g/m³	0.032	-	-	-	-
Chloropicrin	g/m³	< 0.0003	-	-	-	-
1,2-Dibromo-3-chloropropane	g/m³	< 0.0003	-	-	-	-
Dibromoacetonitrile	g/m³	< 0.0003	-	-	-	-
Dibromochloromethane	g/m³	0.00014	-	-	-	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.0003	-	-	-	-
1,1-Dichloro-2-propanone	g/m³	0.0007	-	-	-	-
Dichloroacetonitrile	g/m³	0.0011	-	-	-	-
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.0007	-	-	-	-
1,1,1-Trichloro-2-propanone	g/m <sup>3</sup>	0.0028	-	-	-	-
Trichloroacetonitrile	g/m <sup>3</sup>	< 0.0003	-	-	-	-
1,1,1-Trichloroethane	g/m <sup>3</sup>	< 0.0002	-	-	-	-
Trichloroethene (trichloroethylene)	g/m³	< 0.0004	-	-	-	-

0.035

0.081

g/m<sup>3</sup>



Total Trihalomethanes (THM)

Chloroform MAV ratio



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The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which are not accredited.

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Sample Type: Drinking Water for D	VSNZ Compliance				
Sample Nam	e: HOK001HO - 140319 14-Mar-2019 12:00 pm				
Lab Numbe	er: 2142735.1				
Halogenated Volatile Disinfection By-Products	in Water by GCMS				
Bromodichloromethane MAV ratio	0.053	-	-	-	-
Dibromochloromethane MAV ratio	< 0.001	-	-	-	-
Bromoform MAV ratio	< 0.001	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)	0.134	-	-	-	-
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	0.054	-	-	-	-
Trihalomethanes Trace in Water by Headspar	e GC-MS				
Bromodichloromethane g/	m <sup>3</sup> 0.0009	-	-	-	-
Bromoform (tribromomethane) g/	m <sup>3</sup> < 0.0003	-	-	-	-
Chloroform (Trichloromethane) g/	m <sup>3</sup> 0.031	-	-	-	-
Dibromochloromethane g/	m <sup>3</sup> < 0.0003	-	-	-	-
Total Trihalomethanes (THM) g/	m <sup>3</sup> 0.032	-	-	-	-
Bromodichloromethane MAV ratio	0.016	-	-	-	-
Bromoform MAV ratio	< 0.003	-	-	-	-
Chloroform MAV ratio	0.077	-	-	-	-
Dibromochloromethane MAV ratio	< 0.0017	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)	0.134	-	-	-	-

## **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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Test	Method Description	Default Detection Limit	Sample No
Halogenated Volatile Disinfection By- Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis	-	1
Trihalomethanes Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23 <sup>rd</sup> ed. 2017.	-	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00021 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0053 g/m <sup>3</sup>	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.000053 g/m <sup>3</sup>	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00011 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m <sup>3</sup>	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Chlorate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m <sup>3</sup>	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO <sub>3</sub> - I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m <sup>3</sup>	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> <sup>-</sup> I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1

Sample Type: Drinking Water for DWSNZ Compliance							
Test	Method Description	Default Detection Limit	Sample No				
Nitrate	Calculation from Nitrate-N.	0.010 g/m <sup>3</sup>	1				
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs).	0	1				

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

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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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Ara Heron BSc (Tech) Client Services Manager - Environmental

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#### **Certificate of Analysis**

Client:	Westland District Council	Lab No:	2155622	SPv1
Contact:	P Cannell	Date Received:	05-Apr-2019	
	C/- Westland District Council	Date Reported:	12-Apr-2019	
	Private Bag 704	Quote No:	95129	
	Hokitika 7842	Order No:	107912	
		Client Reference:	P2 Chemical Testing	
		Submitted By:	P Cannell	

#### Sample Type: Drinking Water for DWSNZ Compliance

Sample Type: Drinking water for						
Sample N	lame:	LKE-S00014 04-Apr-2019 2:15				
		pm				
Lab Nu	mber:	2155622.1				
Individual Tests						
Total Antimony	g/m <sup>3</sup>	< 0.00021	-	-	-	-
Total Arsenic	g/m <sup>3</sup>	< 0.0011	-	-	-	-
Total Barium	g/m <sup>3</sup>	0.0065	-	-	-	-
Total Cadmium	g/m <sup>3</sup>	< 0.000053	-	-	-	-
Total Chromium	g/m <sup>3</sup>	< 0.00053	-	-	-	-
Total Copper	g/m <sup>3</sup>	< 0.00053	-	-	-	-
Total Lead	g/m <sup>3</sup>	0.00041	-	-	-	-
Total Manganese	g/m³	0.0072	-	-	-	-
Total Mercury	g/m <sup>3</sup>	< 0.00008	-	-	-	-
Total Nickel	g/m <sup>3</sup>	< 0.00053	-	-	-	-
Total Selenium	g/m³	< 0.0011	-	-	-	-
Chlorate	g/m <sup>3</sup>	< 0.005	-	-	-	-
Nitrite-N	g/m <sup>3</sup>	< 0.002	-	-	-	-
Nitrate-N	g/m <sup>3</sup>	0.006	-	-	-	-
Nitrate-N + Nitrite-N	g/m <sup>3</sup>	0.007	-	-	_	_
Nitrate	g/m <sup>3</sup>	0.028	-	-	-	-
Halogenated Volatile Disinfection By-Proc	ducts in	Water by GCMS				
Bromochloroacetonitrile	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Bromodichloromethane	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Bromoform (tribromomethane)	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Carbon tetrachloride	g/m <sup>3</sup>	< 0.0007	-	-	-	-
Chloroform (Trichloromethane)	g/m <sup>3</sup>	< 0.007	-	-	-	-
Chloropicrin	g/m <sup>3</sup>	< 0.0004	-	-	-	-
1,2-Dibromo-3-chloropropane	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Dibromoacetonitrile	g/m³	< 0.0004	-	-	-	-
Dibromochloromethane	g/m³	< 0.0004	-	-	-	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.0003	-	-	-	-
1,1-Dichloro-2-propanone	g/m <sup>3</sup>	< 0.0004	_	-	-	-
Dichloroacetonitrile	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Tetrachloroethene (tetrachloroethylene)	g/m <sup>3</sup>	< 0.0004	_	-	-	-
1,1,1-Trichloro-2-propanone	g/m <sup>3</sup>	< 0.0004	_	-	-	-
Trichloroacetonitrile	g/m³	< 0.0004	-	-	-	-
1,1,1-Trichloroethane	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Trichloroethene (trichloroethylene)	g/m <sup>3</sup>	< 0.0004	-	-	-	-
Total Trihalomethanes (THM)	g/m <sup>3</sup>	< 0.007	-	-	-	-
Chloroform MAV ratio		< 0.018	-	-	-	-
Bromodichloromethane MAV ratio		< 0.007	-	-	-	-





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Sample Type: Drinking Water for D	WSN	Z Compliance				
Sample Na		LKE-S00014 04-Apr-2019 2:15				
		pm				
Lab Num	ber:	2155622.1				
Halogenated Volatile Disinfection By-Products in Water by GCMS						
Dibromochloromethane MAV ratio		< 0.003	-	-	-	-
Bromoform MAV ratio		< 0.004	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)		< 0.02	-	-	-	-
Sum of Haloacetonitriles MAV ratios (NZ DV Stds)	V	< 0.03	-	-	-	-
Trihalomethanes Trace in Water by Headsp	ace G	C-MS				
Bromodichloromethane	g/m³	< 0.0003	-	-	-	-
Bromoform (tribromomethane)	g/m³	< 0.0003	-	-	-	-
Chloroform (Trichloromethane)	g/m³	< 0.0003	-	-	-	-
Dibromochloromethane	g/m³	< 0.0003	-	-	-	-
Total Trihalomethanes (THM)	g/m³	< 0.007	-	-	-	-
Bromodichloromethane MAV ratio		< 0.005	-	-	-	-
Bromoform MAV ratio		< 0.003	-	-	-	-
Chloroform MAV ratio		< 0.0010	-	-	-	-
Dibromochloromethane MAV ratio		< 0.0017	-	-	-	-
Sum of THM MAV ratios (NZ DW Stds)		< 0.02	-	-	-	-

## 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water f			
Test	Method Description	Default Detection Limit	Sample No
Halogenated Volatile Disinfection By- Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis	-	1
Trihalomethanes Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00021 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0053 g/m <sup>3</sup>	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.000053 g/m <sup>3</sup>	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00011 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m <sup>3</sup>	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.00053 g/m <sup>3</sup>	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23 <sup>rd</sup> ed. 2017 / US EPA 200.8.	0.0011 g/m <sup>3</sup>	1
Chlorate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m <sup>3</sup>	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA $4500-NO_3$ I (modified) $23^{rd}$ ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m <sup>3</sup>	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO <sub>3</sub> - I (modified) 23 <sup>rd</sup> ed. 2017.	0.002 g/m <sup>3</sup>	1
Nitrate	Calculation from Nitrate-N.	0.010 g/m <sup>3</sup>	1

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Sample Type: Drinking Water for DWSNZ Compliance					
Test	Method Description	Default Detection Limit	Sample No		
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs).	0	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.

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

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# ANALYSIS REPORT

				,
Client:	Westland District Council	Lab No:	1305951	DWAPv1
Contact:	P Cannell	Date Registered:	01-Aug-2014	
	C/- Westland District Council	Date Reported:	12-Aug-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	57331	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous			- 11	
	Sample Name:	KUM310714 31-Jul-2014 11:30 am	Guideline	Maximum Acceptable
	Lab Number:	1305951.1	Value	Values (MAV)
Routine Water + E.coli profile	Kit			
Escherichia coli	MPN / 100mL	4	-	< 1
Routine Water Profile				
рН	pH Units	7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	17.8	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.0	-	-
Total Hardness	g/m³ as CaCO₃	17.1	< 200	-
Electrical Conductivity (EC)	mS/m	5.6	-	-
Electrical Conductivity (EC)	µS/cm	56	-	-
Approx Total Dissolved Salts	g/m³	38	< 1000	-
Total Boron	g/m³	0.0059	-	1.4
Total Calcium	g/m³	4.2	-	-
Total Copper	g/m³	< 0.00053	<1	2
Total Iron	g/m³	0.024	< 0.2	-
Total Magnesium	g/m³	1.59	-	-
Total Manganese	g/m³	0.00054	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.77	-	-
Total Sodium	g/m³	4.2	< 200	-
Total Zinc	g/m³	< 0.0011	< 1.5	-
Chloride	g/m³	5.3	< 250	-
Nitrate-N	g/m³	0.34	-	11.3
Sulphate	g/m³	1.0	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### NALYSIS REPOR

Client:	Westland District Council	Lab No:	1240520	DWAPv2
Contact:	P Cannell	Date Registered:	26-Feb-2014	
	C/- Westland District Council	Date Reported:	05-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56713	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	KUM250214 25-Feb-2014 11:00 am 1240520.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests		I		·	
Escherichia coli	MPN / 100mL	5	-	-	< 1
Routine Water Profile					
pН	pH Units	7.5		7.0 - 8.5	_
Total Alkalinity	g/m³ as CaCO₃	18.9	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.2	-	-	-
Total Hardness	g/m³ as CaCO₃	17.4	-	< 200	-
Electrical Conductivity (EC)	mS/m	5.6	-	-	-
Electrical Conductivity (EC)	μS/cm	56	-	-	-
Approx Total Dissolved Salts	g/m³	38	-	< 1000	-
Total Boron	g/m³	0.0056	-	-	1.4
Total Calcium	g/m³	4.3	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.61	-	-	-
Total Manganese	g/m³	< 0.00053	-	<ul> <li>&lt; 0.04 (Staining)</li> <li>&lt; 0.10 (Taste)</li> </ul>	0.4
Total Potassium	g/m³	0.63	-	-	-
Total Sodium	g/m³	4.0	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	4.9	-	< 250	-
Nitrate-N	g/m³	0.22	-	-	11.3
Sulphate	g/m³	1.2	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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## ANALYSIS REPORT

BETTER

Client:	Westland District Council	Lab No:	1110363	DWAPv2
Contact:	P Cannell	Date Registered:	13-Mar-2013	
	C/- Westland District Council	Date Reported:	19-Mar-2013	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	55072	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	S Var Andrew Martin				
	Sample Name: Lab Number:	KUM120313 12-Mar-2013 11:00 am 1110363.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	19.1	-	-	-
Escherichia coli	MPN / 100mL	1	-	-	< 1
Routine Water Profile					
pН	pH Units	7.6	<u>.</u>	7.0 - 8.5	-
Free Carbon Dioxide	g/m³ at 25°C	1.1	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	17.3	-	< 200	-
Electrical Conductivity (EC)	mS/m	5.8	- 2	-	
Electrical Conductivity (EC)	µS/cm	58	-	-	-
Approx Total Dissolved Salts	g/m³	39	-	< 1000	-
Total Boron	g/m³	0.0068	-	-	1.4
Total Calcium	g/m³	4.3	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m <sup>3</sup>	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.62	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.63	-	-	-
Total Sodium	g/m³	4.4	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	5.2	-	< 250	-
Nitrate-N	g/m³	0.22	-	-	11.3
Sulphate	g/m³	1.1	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1005158	DWAPv1
Contact:	P Cannell	Date Registered:	08-May-2012	
	C/- Westland District Council	Date Reported:	15-May-2012	
	Private Bag 704	Quote No:	-	
	HOKITIKA 7842	Order No:	53796	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous					
	Sample Name: Lab Number:	KUM070512 07-May-2012 2:00 pm 1005158.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile	outine Water + E.coli profile Kit				
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
рН	pH Units	6.3	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	18.8	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	19.3	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	17.3	-	< 200	-
Electrical Conductivity (EC)	mS/m	5.6	-	-	-
Electrical Conductivity (EC)	µS/cm	56	-	-	-
Approx Total Dissolved Salts	g/m³	38	-	< 1000	-
Total Boron	g/m³	0.0056	-	-	1.4
Total Calcium	g/m³	4.3	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.62	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.65	-	-	-
Total Sodium	g/m³	4.5	-	< 200	-
Total Zinc	g/m³	0.0022	-	< 1.5	-
Chloride	g/m³	5.2	-	< 250	-
Nitrate-N	g/m³	0.30	-	-	11.3
Sulphate	g/m³	1.2	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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NALYSIS REPORT

TESTING

Client: Westland District Council P Cannell Contact: C/- Westland District Council Private Bag 704 HOKITIKA 7842

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Page 1 of 3

Lab No:	898552	DWAPv1
Date Registered:	20-May-2011	
Date Reported:	02-Jun-2011	
Quote No:		
Order No:	52538	
<b>Client Reference:</b>		
Submitted By:	P Cannell	

	Sample Name: Lab Number:	KUM190511 19-May-2011 2:00 pm 898552.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests	Lab Number.	000002.1			
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
рН	pH Units	6.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	18.0	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	29	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	16.6	-	< 200	-
Electrical Conductivity (EC)	mS/m	5.7	-	-	-
Electrical Conductivity (EC)	µS/cm	57	-	-	-
Approx Total Dissolved Salts	g/m³	38	-	< 1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m <sup>3</sup>	4.1	-	-	
Total Copper	g/m <sup>3</sup>	0.00086	-	< 1	2
Total Iron	g/m <sup>3</sup>	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.52	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.68	-	-	-
Total Sodium	g/m³	4.1	-	< 200	-
Total Zinc	g/m <sup>3</sup>	0.0175	-	< 1.5	-
Chloride	g/m³	5.0	÷	< 250	-
Nitrate-N	g/m³	0.31	-	-	11.3
Sulphate	g/m <sup>3</sup>	0.9	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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BETTER

Client:	Westland District Council	Lab No:	851705	DWAPv1
Contact:	P Cannell	Date Registered:	07-Dec-2010	
	C/- Westland District Council	Date Reported:	15-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51949	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	6				
	Sample Name:	KUM061210 06-Dec-2010		Guideline	Maximum
		3:00 pm		Value	Acceptable Value (MAV)
****	Lab Number:	851705.1			value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	<1	•		< 1
Routine Water Profile					
pН	pH Units	6.4	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	18.4	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	15.0	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	16.8		< 200	-
Electrical Conductivity (EC)	mS/m	5.6	-	- :	-
Electrical Conductivity (EC)	μS/cm	56	-		/
Approx Total Dissolved Salts	g/m³	38	-	< 1000	-
Total Boron	g/m³	0.0053	-	-	1.4
Total Calcium	g/m³	4.2	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.56	•	-	-
Total Manganese	g/m³	< 0.00053	• • • • •	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium		0.67	· · · · · · · ·		-
Total Sodium	g/m³	4.0	-	< 200	-
Total Zinc	g/m³	0.0013	•	< 1.5	· · · · · · · · · · · · · · · · · · ·
Chloride	g/m³	4.1	-	< 250	<b>_</b>
Nitrate-N	g/m <sup>3</sup>	0.24	· · · · · · · · · · · · · · · · · · ·		11.3
Sulphate	g/m³	1.0	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008), Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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### ANALYSIS REPORT

TESTING

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Client:	Westland District Council	Lab No:	785919	DW APv'
Contact:	P Cannell	Date Registered:	22-Apr-2010	
	C/- Westland District Council	Date Reported:	30-Apr-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51098	
		Client Reference:	RAW WATER	
		Submitted By:	P Cannell	

	Sample Name: Lab Number:	KUM210410 21-Apr-2010 1:10 pm 785919.1	ARA210410 21-Apr-2010 1:40 pm 785919.2	Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	< 1	-	< 1
Routine Water Profile					
pН	pH Units	6.8	6.4	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	18.5	29	-	-
Free Carbon Dioxide	g/m³ at 25°C	6.3	25	-	-
Total Hardness	g/m³ as CaCO3	17.0	24	200	
Electrical Conductivity (EC)	mS/m	5.6	9.4	-	-
Electrical Conductivity (EC)	µS/cm	56	94	-	-
Approx Total Dissolved Salts	g/m³	37	63	1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	0.0137	-	1.4
Total Calcium	g/m³	4.2	4.0		-
Total Copper	g/m³	0.00060	0.0033	1	2
Total Iron	g/m³	< 0.021	0.129	0.2	-
Total Magnesium	g/m <sup>3</sup>	1.57	3.5	-	-
Total Manganese	g/m³	< 0.00053	0.0162	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m³	0.67	0.84	-	-
Total Sodium	g/m³	4.0	12.3	200	-
Total Zinc	g/m³	< 0.0011	0.0040	1.5	-
Chloride	g/m³	4.5	9.5	250	-
Nitrate-N	g/m³	0.28	0.070		11.3
Sulphate	g/m <sup>3</sup>	2.9	1.90	250	-

**Note:** The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

Note that the units g/m³ are the same as mg/L and ppm.



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## ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1308595	DWAPv1
Contact:	P Cannell	Date Registered:	07-Aug-2014	
	C/- Westland District Council	Date Reported:	18-Aug-2014	
	Private Bag 704	Quote No:	-	
	HOKITIKA 7842	Order No:	57336	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	Sample Name:	ROS060814 06-Aug-2014 11:30 am		Maximum
	· .	•	Guideline Value	Acceptable
	Lab Number:	1308595.1	Value	Values (MAV)
Routine Water + E.coli profile	Kit			
Escherichia coli	MPN / 100mL	< 1	-	< 1
Routine Water Profile				
pH	pH Units	7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	18.0	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.7	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	17.8	< 200	-
Electrical Conductivity (EC)	mS/m	5.9	-	-
Electrical Conductivity (EC)	μS/cm	59	-	-
Approx Total Dissolved Salts	g/m³	39	< 1000	-
Total Boron	g/m³	< 0.0053	-	1,4
Total Calcium	g/m³	5.6	-	-
Total Copper	g/m³	0.00073	< 1	2
Total Iron	g/m³	0.028	< 0.2	-
Total Magnesium	g/m³	0.92	-	-
Total Manganese	g/m³	0.00098	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.61	-	-
Total Sodium	g/m³	4.9	< 200	-
Total Zinc	g/m³	< 0.0011	< 1.5	-
Chloride	g/m³	6.9	< 250	-
Nitrate-N	g/m³	0.07	-	11.3
Sulphate	g/m³	1.0	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1240681	DWAPv1
Contact:	P Cannell	Date Registered:	26-Feb-2014	
	C/- Westland District Council	Date Reported:	05-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56713	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	ROS250214 25-Feb-2014 2:30 pm 1240681.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests		· · · · · · · · · · · · · · · · · · ·			
Escherichia coli	MPN / 100mL	2	-	-	< 1
Routine Water Profile					
pН	pH Units	7.6	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	21	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.1	-	-	-
Total Hardness	g/m³ as CaCO₃	19.6	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.4	-	-	-
Electrical Conductivity (EC)	µS/cm	64	-	-	-
Approx Total Dissolved Salts	g/m³	43	-	< 1000	-
Total Boron	g/m³	0.0063	-	-	1.4
Total Calcium	g/m³	6.1	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.07	-	-	-
Total Manganese	g/m³	0.00066	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.42	-	-	-
Total Sodium	g/m³	5.0	-	< 200	-
Total Zinc	g/m³	0.0050	-	< 1.5	-
Chloride	g/m³	7.3	-	< 250	-
Nitrate-N	g/m³	< 0.05	-	-	11.3
Sulphate	g/m³	1.2	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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## ANALYSIS REPORT

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BETTER RESULTS

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1115167	DWAPv1
Date Registered:	26-Mar-2013	
Date Reported:	05-Apr-2013	
Quote No:		
Order No:	55078	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	ROS250313 25-Mar-2013 10:45 am 1115167.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests		1			
Escherichia coli	MPN / 100mL	48	-	-	< 1
Routine Water Profile					
pН	pH Units	7.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	18.0	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	2.8	-	-	-
Total Hardness	g/m³ as CaCO₃	18.7	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.4	-	-	-
Electrical Conductivity (EC)	µS/cm	64	-	-	-
Approx Total Dissolved Salts	g/m³	43	-	< 1000	-
Total Boron	g/m³	0.0072	-	-	1.4
Total Calcium	g/m³	5.1	-	-	-
Total Copper	g/m³	0.00059	-	< 1	2
Total Iron	g/m³	0.042	-	< 0.2	-
Total Magnesium	g/m³	1.47	-	-	-
Total Manganese	g/m³	0.00147	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.40	•	-	-
Total Sodium	g/m³	5.4	-	< 200	-
Total Zinc	g/m³	0.0015	-	< 1.5	-
Chloride	g/m³	7.4	-	< 250	-
Nitrate-N	g/m³	0.05	-	-	11.3
Sulphate	g/m³	1.3	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m3 are the same as mg/L and ppm.



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#### NALYSIS RE 1270)

Client:	Westland District Council	Lab No:	999915	DWAPv1
Contact:	P Cannell	Date Registered:	20-Apr-2012	
	C/- Westland District Council	Date Reported:	27-Apr-2012	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	53778	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	\$				
	Sample Name: Lab Number:	ROS190412 19-Apr-2012 3:00 pm 999915.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile		······			
Escherichia coli	MPN / 100mL	1	_	-	< 1
Routine Water Profile	ł	· · · · · · · · · · · · · · · · · · ·	····		
рН	pH Units	7.1	-	7.0 - 8.5	•
Total Alkalinity	g/m³ as CaCO₃	28	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	4.2	-	-	-
Total Hardness	g/m³ as CaCO₃	17.2	-	< 200	-
Electrical Conductivity (EC)	mS/m	5.8	-	-	-
Electrical Conductivity (EC)	µS/cm	58	-	-	-
Approx Total Dissolved Salts	g/m³	39	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	4.7	-	-	-
Total Copper	g/m³	< 0.00053	-	<1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.34	-	-	-
Total Manganese	g/m³ .	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	0.32	-	-	-
Total Sodium	g/m³	4.6	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	7.0	-	< 250	-
Nitrate-N	g/m³	0.07	-	-	11.3
Sulphate	g/m³	1.4	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008), Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m3 are the same as mg/L and ppm.

#### Analyst's Comments

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The samples do not meet the requirements of the NZDWS samples were greater than 10°C on receipt in the lab. As such, please interpret these microbiological results with caution. Samples must be kept at less than 10 °C (but not frozen).



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NALYSIS REPORT

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TESTING BETTER RESULTS

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

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Lab No:	903540	DWAPv1
Date Registered:	08-Jun-2011	
Date Reported:	20-Jun-2011	
Quote No:		
Order No:	52546	
<b>Client Reference:</b>	Ross RW	
Submitted By:	P Cannell	

	and the second second		
Sample	Type	Aquer	SILE
Sample	I YDC.	Aquet	us.

	Sample Name:	ROS070611 07-Jun-2011 2:00 pm		Guideline Value	Maximum Acceptable Value (MAV)
	Lab Number:	903540.1			value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	1	-	-	< 1
Routine Water Profile					
pН	pH Units	7.2	-	7.0 - 8.5	-
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	12.5	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	1.7	-	-	-
Total Hardness	g/m³ as CaCO3	12.0	-	< 200	-
Electrical Conductivity (EC)	mS/m	4.6	-	-	-
Electrical Conductivity (EC)	µS/cm	46	-	-	-
Approx Total Dissolved Salts	g/m³	31	-	< 1000	-
Total Boron	g/m <sup>3</sup>	< 0.0053	-	-	1.4
Total Calcium	g/m³	3.2	-	-	-
Total Copper	g/m³	0.022	-	< 1	2
Total Iron	g/m <sup>3</sup>	0.048	-	< 0.2	-
Total Magnesium	g/m <sup>3</sup>	0.93	-	-	-
Total Manganese	g/m³	0.0037	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m <sup>3</sup>	0.29	-	-	-
Total Sodium	g/m³	4.0	-	< 200	-
Total Zinc	g/m³	0.0037	-	< 1.5	-
Chloride	g/m³	6.1		< 250	-
Nitrate-N	g/m³	< 0.05	-	-	11.3
Sulphate	g/m <sup>3</sup>	0.7	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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# ANALYSIS REPORT

TESTING BE

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Client:	Westland District Council	Lab No:	852212	DWAPv1
Contact:	P Cannell	Date Registered:	08-Dec-2010	
	C/- Westland District Council	Date Reported:	16-Dec-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51953	
		Client Reference:	Raw water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	6				
	Sample Name: Lab Number:	MIN071210 07-Dec-2010 2:00 pm 852212.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests			·····		
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	6.9	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	14.6	-	-	· · · · · · · · · ·
Free Carbon Dioxide	g/m³ at 25°C	3.9	•	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	16.1	-	< 200	•
Electrical Conductivity (EC)	mS/m	6.0	-		-
Electrical Conductivity (EC)	µS/cm	60	-	-	
Approx Total Dissolved Salts	g/m³	40	-	< 1000	-
Total Boron	g/m³	< 0.0053	-		1.4
Total Calcium	g/m³	4,4	-	-	-
Total Copper	g/m³	< 0.00053	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.27	-	-	-
Total Manganese	g/m³	< 0.00053	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m <sup>3</sup>	0.31	•	•	-
Total Sodium	g/m³	4.6	-	< 200	-
Total Zinc	g/m³	< 0.0011	-	< 1.5	-
Chloride	g/m³	6.9	-	< 250	<b>w</b>
Nitrate-N	g/m³	0.07	•	•	11.3
Sulphate	g/m³	1.2	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ANALYSIS P R = ORT

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Client:	Westland District Council	Lab No:	786241	DWAPv1
Contact:	P Cannell	Date Registered:	23-Apr-2010	
	C/- Westland District Council	Date Reported:	03-May-2010	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	51098	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

	Sample Name: Lab Number:	ROS220410 22-Apr-2010 11:00 am 786241.1	LKE220410 22-Apr-2010 11:30 am 786241.2	Guideline Value	MAV
Individual Tests					
Escherichia coli	MPN / 100mL	2	1	-	< 1
Routine Water Profile					
pН	pH Units	6.5	6.7	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	22	11.9	-	-
Free Carbon Dioxide	g/m³ at 25°C	12.9	5.1	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	22	11.2	200	-
Electrical Conductivity (EC)	mS/m	6.8	3.4	-	.=
Electrical Conductivity (EC)	μS/cm	68	34	-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	45	23	1000	-
Total Boron	g/m³	< 0.0053	< 0.0053	-	1.4
Total Calcium	g/m³	6.8	3.2	-	-
Total Copper	g/m³	0.00176	< 0.00053	1	2
Total Iron	g/m³	< 0.021	0.28	0.2	-
Total Magnesium	g/m³	1.14	0.78	-	-
Total Manganese	g/m³	< 0.00053	0.0034	0.04 Staining 0.10 Taste	0.4
Total Potassium	g/m <sup>3</sup>	0.38	0.46	-	-
Total Sodium	g/m³	4.7	1.86	200	-
Total Zinc	g/m <sup>3</sup>	0.00132	0.071	1.5	-
Chloride	g/m <sup>3</sup>	5.5	2.2	250	-
Nitrate-N	g/m <sup>3</sup>	0.050	< 0.05	-	11.3
Sulphate	g/m <sup>3</sup>	0.93	0.86	250	-

Note: The Guideline Values and Maximum Allowable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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### ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1378955	DWAPv1
Contact:	P Cannell	Date Registered:	30-Jan-2015	
	C/- Westland District Council	Date Reported:	10-Feb-2015	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	58101	
		Client Reference:	Whataroa	
		Submitted By:	P Cannell	

Sample Type: Aqueous					
	Sample Name:	WHA290115 29-Jan-2015 1:40 pm	Guideline	Maximum Acceptable	
	Lab Number:	1378955.1	Value	Values (MAV)	
Routine Water + E.coli profile	Kit				
Escherichia coli	MPN / 100mL	< 1		< 1	
Routine Water Profile					
pH	pH Units	6.2	7.0 - 8.5		
Total Alkalinity	g/m³ as CaCO₃	18.0	-	-	
Free Carbon Dioxide	g/m³ at 25°C	21	-	-	
Total Hardness	g/m³ as CaCO3	25	< 200	-	
Electrical Conductivity (EC)	mS/m	8.2	<b></b>	-	
Electrical Conductivity (EC)	µS/cm	82	-	-	
Approx Total Dissolved Salts	g/m³	55	< 1000	-	
Total Boron	g/m³	0.0060	-	1.4	
Total Calcium	g/m³	8.1	-	-	
Total Copper	g/m³	0.0030	< 1	2	
Total Iron	g/m³	0.071	< 0.2	-	
Total Magnesium	g/m³	1.25	-	-	
Total Manganese	g/m³	0.0035	< 0.04 (Staining) < 0.10 (Taste)	0.4	
Total Potassium	g/m³	2.4	-	-	
Total Sodium	g/m³	3.4	< 200	-	
Total Zinc	g/m³	0.0048	< 1.5	-	
Chloride	g/m³	4.4	< 250	-	
Nitrate-N	g/m³	2.7	-	11.3	
Sulphate	g/m³	4.4	< 250	-	

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

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# ANALYSIS REPORT

Client:	Westland District Council	Lab No:	1245089	DWAPv1
Contact:	P Cannell	Date Registered:	07-Mar-2014	
	C/- Westland District Council	Date Reported:	12-Mar-2014	
	Private Bag 704	Quote No:		
	HOKITIKA 7842	Order No:	56720	
		Client Reference:	Raw Water	
		Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	WHA060314 06-Mar-2014 2:00 pm 1245089.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests		· · · · · · · · · · · · · · · · · · ·			
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile	r.				
pН	pH Units	6.0	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO <sub>3</sub>	19.4	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	42	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	25	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.8	-	-	-
Electrical Conductivity (EC)	µS/cm	78	-	-	-
Approx Total Dissolved Salts	g/m³	52	-	< 1000	-
Total Boron	g/m³	0.0060	•	-	1.4
Total Calcium	g/m³	8.0	-	-	-
Total Copper	g/m³	0.0029	-	< 1	2
Total Iron	g/m³	0.092	-	< 0.2	-
Total Magnesium	g/m³	1.22	-	-	-
Total Manganese	g/m³	0.0032	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.3	-	-	-
Total Sodium	g/m³	3.3	-	< 200	-
Total Zinc	g/m³	0.0038	-	< 1.5	-
Chloride	g/m³	4.1	-	< 250	-
Nitrate-N	g/m³	2.0	-	-	11.3
Sulphate	g/m³	3.3	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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ANALYSIS REPORT

Laboratories

RESULTS

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	1116092	DWAPv1
Date Registered:	27-Mar-2013	
Date Reported:	09-Apr-2013	
Quote No:		
Order No:	55079	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	<b>S</b> alah na katalah katal				
	Sample Name: Lab Number:	WHA260313 26-Mar-2013 1:10 pm 1116092.1		Guideline Value	Maximum Acceptable Values (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	<1	-	-	< 1
Routine Water Profile					
рН	pH Units	5.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	19.4	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	56	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	25	-	< 200	-
Electrical Conductivity (EC)	mS/m	7.5	-	-	-
Electrical Conductivity (EC)	µS/cm	75	-	-	-
Approx Total Dissolved Salts	g/m³	50		< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	8.1	-	-	-
Total Copper	g/m³	0.0032	-	< 1	2
Total Iron	g/m³	< 0.021	-	< 0.2	-
Total Magnesium	g/m³	1.20	-	-	-
Total Manganese	g/m³	0.0031	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.4	-	-	-
Total Sodium	g/m³	3.4	-	< 200	-
Total Zinc	g/m³	0.0067	-	< 1.5	-
Chloride	g/m³	4.3	-	< 250	-
Nitrate-N	g/m³	1.76	-		11.3
Sulphate	g/m³	3.1	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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#### ANALYSIS REPORT

TESTING

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BETTER RESULTS

Client: Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	999916	DWAPv1
Date Registered:	20-Apr-2012	
Date Reported:	01-May-2012	
Quote No:		
Order No:	53778	
<b>Client Reference:</b>	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueous	5				
	Sample Name: Lab Number:	WHA190412 19-Apr-2012 1:10 pm 999916.1		Guideline Value	Maximum Acceptable Values (MAV)
Routine Water + E.coli profile	e Kit				
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile			***************************************		
рН	pH Units	6.2	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	19.6	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	25	-	-	-
Total Hardness	g/m³ as CaCO₃	22	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.5	-	-	-
Electrical Conductivity (EC)	µS/cm	65	-	-	-
Approx Total Dissolved Salts	g/m³	44	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	6.9	-	-	-
Total Copper	g/m³	0.0030	-	< 1	2
Total Iron	g/m³	0.130	-	< 0.2	-
Total Magnesium	g/m³	1.04	-	-	-
Total Manganese	g/m³	0.0028	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.2	-	-	-
Total Sodium	g/m³	3.3	-	< 200	-
Total Zinc	g/m³	0.0058	-	< 1.5	-
Chloride	g/m³	2.7	-	< 250	-
Nitrate-N	g/m³	1.13	-	-	11.3
Sulphate	g/m³	3.8	-	< 250	-

**Note:** The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.

Analyst's Comments

The samples do not meet the requirements of the NZDWS - samples were greater than 10°C on receipt in the lab. As such, please interpret these microbiological results with caution. Samples must be kept at less than 10 °C (but not frozen).



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#### NALYS REPO

Client:

Westland District Council Contact: P Cannell C/- Westland District Council Private Bag 704 HOKITIKA 7842

Lab No:	904327 DW	APv1
Date Registered:	10-Jun-2011	
Date Reported:	24-Jun-2011	
Quote No:		
Order No:	52547	
Client Reference:		
Submitted By:	P Cannell	

Sample Type: Aqueous	)				
	Sample Name: Lab Number:	WHA090611 09-Jun-2011 1:00 pm 904327.1		Guideline Value	Maximum Acceptable Value (MAV)
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	•	-	< 1
Routine Water Profile					
рН	pH Units	5.8	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO3	17.2	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	51	-	-	-
Total Hardness	g/m³ as CaCO₃	19.4	-	< 200	-
Electrical Conductivity (EC)	mS/m	6.2	-	-	-
Electrical Conductivity (EC)	µS/cm	62	-	-	-
Approx Total Dissolved Salts	g/m³	42	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	6.2	-	-	-
Total Copper	g/m³	0.00167	-	<1	2
Total Iron	g/m³	0.28	-	< 0.2	-
Total Magnesium	g/m³	0.95	-	-	-
Total Manganese	g/m³	0.0028	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.1	-	-	-
Total Sodium	g/m³	3.0	-	< 200	-
Total Zinc	g/m³	0.0044	-	< 1.5	-
Chloride	g/m³	2.8	-	< 250	-
Nitrate-N	g/m³	1,11	-	-	11.3
Sulphate	g/m³	5.5	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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Note that the units g/m<sup>3</sup> are the same as mg/L and ppm.



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#### 1 0

Client:	Westland District Council
Contact:	P Cannell
	C/- Westland District Council
	Private Bag 704 HOKITIKA 7842
	HOKITIKA 7842

Lab No:	852943	DWAPv1
Date Registered:	10-Dec-2010	
Date Reported:	16-Dec-2010	
Quote No:		
Order No:	51954	
Client Reference:	Raw Water	
Submitted By:	P Cannell	

Sample Type: Aqueou		WHA091210 09-Dec-2010		1	Maximum
	Sample Name:	1:10 pm		Guideline	Acceptable
	Lab Number:	852943.1		Value	Value (MAV)
Individual Tests	Lab Number.				
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pН	pH Units	5.8	<b>_</b>	7.0 - 8.5	-
Total Alkalinity	g/m³ as CaCO₃	16.3	•	•	-
Free Carbon Dioxide	g/m³ at 25°C	53	-	-	-
Total Hardness	g/m³ as CaCO <sub>3</sub>	22	• • • • • • • • • • • • • • • • • • •	< 200	· /
Electrical Conductivity (EC)	mS/m	7.0	-	•	-
Electrical Conductivity (EC)	µS/cm	70	• • • • • • • •	· ····································	•
Approx Total Dissolved Salts	g/m³	47	-	< 1000	-
Total Boron	g/m³	< 0.0053	-	-	1.4
Total Calcium	g/m³	7.1	•		-
Total Copper	g/m³	0.0031	-	<1	2
Total Iron	g/m³	0.22	-	< 0.2	-
Total Magnesium	g/m³	1.05		•	• • • •
Total Manganese	g/m³	0.0031		< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	2.3	•	-	
Total Sodium	g/m³	3.1	-	< 200	-
Total Zinc	g/m <sup>3</sup>	0.0053	• • • • • • • • • • • • • • • • • • •	< 1.5	• · · ·
Chloride	g/m³	2.6	-	< 250	-
Nitrate-N	g/m³	1.24	-	-	11,3
Sulphate	g/m³	4.1		< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

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