| 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





Hill Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## 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<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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









 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## 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:<br>Lab Number: | ARA250214 25-Feb-2014<br>11:30 am<br>1240529.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



C

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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



| R J Hill Laboratories Limited | Tel |
|-------------------------------|-----|
| 1 Clyde Street                | Fax |
| Private Bag 3205              | Ema |
| Hamilton 3240. New Zealand    | Web |

Fel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Neb www.hill-labs.co.nz

Page 1 of 3

### 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:<br>Lab Number: | ARA120313 12-Mar-2013<br>10:30 am<br>1110348.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Hill Laboratories BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

Tel

Fax

#### 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:<br>Lab Number: | ARA070512 07-May-2012<br>2:20 pm<br>1005159.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz www.hill-labs.co.nz

Page 1 of 3

### 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<br>2:30 pm |   | Guideline<br>Value                  | Maximum<br>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)<br>< 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

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

laboratory are not accredited.



RESULTS



R J Hill Laboratories Limited Tel 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Fax Email mail@hill-labs.co.nz

Page 1 of 4

#### 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:<br>Lab Number: | KUM210410 21-Apr-2010<br>1:10 pm<br>785919.1 | ARA210410 21-Apr-2010<br>1:40 pm<br>785919.2 | Guideline<br>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<br>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.

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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is

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



**ll** Laboratories TESTING BETTER RESULTS

ed under LGOIMA 21.22.19

R J Hill Laboratories Limited | Tel 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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<br>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)<br>< 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                | -<br>-                                  | < 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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







R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Hill Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

Tel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

### 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:<br>Lab Number: | CAR260313 26-Mar-2013<br>11:30 am<br>1116006.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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



Hill Laboratories

d under LGOIMA 21.22.

R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand +64 7 858 2000 +64 7 858 2001

Tel

Fax

Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

# 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<br>10:16 am |     | Guideline<br>Value                  | Maximum<br>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)<br>< 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

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.



823 365

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Hill Laboratories BETTER TESTING BETTER RESULTS RJHIII 1 Clyde Private B Hamiltor

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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:<br>Lab Number: | CAR190412 19-Apr-2012<br>10:30 am<br>999913.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Hill Laboratories BETTER TESTING BETTER RESULTS

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

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:<br>Lab Number: | CAR090611 09-Jun-2011<br>11:30 am<br>904316.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.

16715



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

leased under LGOIMA 21.22.19



Hill Laboratories BETTER TESTING BETTER RESULTS R J Hill Laboratories LimitedTel1 Ciyde StreetFaxPrivate Bag 3205EmHamilton 3240, New ZealandWei

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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:<br>Lab Number: | CAR091210 09-Dec-2010<br>12:10 pm<br>852902.1 |                      | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



0

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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



Hill Laboratories BETTER TESTING BETTER RESULTS



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 4

### 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<br>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.

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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Semale Turner Association



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmHamilton 3240, New ZealandWe

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

### 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<br>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)<br>< 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

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/m3 are the same as mg/L and ppm.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.1



I**ill** Laboratories TER TESTING BETTER RESULTS

R J Hill Laboratories Limited Tel 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

### 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:<br>Lab Number: | FRA060314 06-Mar-2014<br>1:30 pm<br>1245086.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



aboratory

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





Hill Laboratories BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | FRA260313 26-Mar-2013<br>12:15 pm<br>1116031.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

Released under LGOIMA 21.22.19



Laboratories TESTING BETTER RESULTS

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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<br>10:50 am |  | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19



**Hill** Laboratories

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

#### 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<br>11:00 am |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is

The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which





Hill Laboratories BETTER TESTING BETTER RESULTS

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

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:<br>Lab Number: | FRA090611 09-Jun-2011<br>12:10 pm<br>904320.1 |        | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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/m3 are the same as mg/L and ppm.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





III Laboratories R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 BETTER TESTING BETTER RESULTS

+64 7 858 2000 +64 7 858 2001 Fax Email mail@hill-labs.co.nz Hamilton 3240, New Zealand Web www.hill-labs.co.nz

Page 1 of 3

| Tel

# 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<br>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)<br>< 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

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

. 5

ed under LGOIMA 21.22.19



R J Hill Laboratories Limited **Hill** Laboratories Tel 1 Clyde Street Private Bag 3205

+64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Hamilton 3240, New Zealand Web www.hill-labs.co.nz

Page 1 of 4

#### 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:<br>Lab Number: | CAR270410 27-Apr-2010<br>11:00 am<br>787443.1 | FRA210410 27-Apr-2010<br>11:30 am<br>787443.2 | Guideline<br>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<br>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.

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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

are not accredited.

leased under LGOIMA 21.22.19



R J Hill Laboratories Limited 28 Duke Street Frankton 3204 Private Bag 3205 Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)

- T +64 7 858 2000
- E mail@hill-labs.co.nz

W www.hill-laboratories.com

Page 1 of 3

### **Certificate of Analysis**

| Client:<br>Contact: | Westland District Cou<br>P Cannell<br>C/- Westland District<br>Private Bag 704<br>Hokitika 7842 |                  | il                                   | Di<br>Di<br>Q<br>O<br>Ci | ab No:<br>ate Received:<br>ate Reported:<br>uote No:<br>rder No:<br>ient Reference:<br>ubmitted By: | 2121193<br>08-Feb-2019<br>18-Feb-2019<br>95129<br>107605<br>P Cannell | SPv1 |
|---------------------|---|------------------|--------------------------------------|--------------------------|---|---|------|
| Sample T            | ype: Drinking Water for   |                  | NZ Compliance                        |                          |   |   |      |
|                     | Sample N  |                  | FRA070219<br>07-Feb-2019<br>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                                |                          |   |   |      |





This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

| 1 |                                |
|---|--------------------------------|
|   | Released under LGOIMA 21.22.19 |

|  |           |                                      | J |   |   |   |
|--|-----------|--------------------------------------|---|---|---|---|
| Sample Type: Drinking Water for                  | or DWS    | NZ Compliance                        |   |   |   |   |
| Sample   | Name:     | FRA070219<br>07-Feb-2019<br>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-<br>Products in Water by GCMS | Solvent extraction, GC-MS SIM analysis   | -                         | 1         |
| Trihalomethanes Trace in Water by<br>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<br>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<br>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<br>(NZ DW Stds) | Calculated as the sum of the individual haloacetonitriles<br>specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile)<br>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.

Lunder LCOIMA 21

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

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

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

sed under LGOIMA 21.22.19



T 0508 HILL LAB (44 555 22)

- Т +64 7 858 2000
- E mail@hill-labs.co.nz

W www.hill-laboratories.com

Page 1 of 3

### Certificate of Analysis

| Certi               | incale of A  | nary             | 515                                 |                       |   |   | Page 1 of 3 |
|---------------------|--|------------------|-------------------------------------|-----------------------|---|---|-------------|
| Client:<br>Contact: | Westland District C<br>P Cannell<br>C/- Westland Distric<br>Private Bag 704<br>Hokitika 7842 |                  | il                                  | 1<br>[<br>(<br>(<br>( | Lab No:<br>Date Received:<br>Date Reported:<br>Quote No:<br>Drder No:<br>Client Reference:<br>Submitted By: | 2173363<br>09-May-2019<br>17-May-2019<br>95129<br>108062<br>Franz P2<br>P Cannell | SPv1        |
| Sample T            | /pe: Drinking Water  | for DWSI         | NZ Compliance                       |                       |   |   |             |
|                     | Sample   | e Name:          | FRA001FR<br>08-May-2019<br>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    | - | - | - | - |





This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

| Released under LGOIMA 21.22.19 |
|--------------------------------|

| 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-<br>Products in Water by GCMS | Solvent extraction, GC-MS SIM analysis   | -                         | 1         |
| Trihalomethanes Trace in Water by<br>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<br>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<br>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         |

|   | Released under LGOIMA 21.22.19   |                         |           |  |  |
|---|--|-------------------------|-----------|--|--|
| Sample Type: Drinking Water for DWSNZ Compliance    |  |                         |           |  |  |
| Test  | Method Description   | Default Detection Limit | Sample No |  |  |
| Sum of Haloacetonitriles MAV ratios<br>(NZ DW Stds) | Calculated as the sum of the individual haloacetonitriles<br>specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile)<br>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.

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

Ara Heron BSc (Tech) Client Services Manager - Environmental





Laboratories ER TESTING BETTER RESULTS R J Hill Laboratories LimitedTel1 Ciyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

### 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<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





**Hill Laboratories** BETTER TESTING **BETTER RESULTS**  R J Hill Laboratories Limited<br/>1 Clyde StreetTel<br/>Fax<br/>Ema<br/>Ema<br/>Hamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

### 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<br>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)<br>< 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.



C

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22



I**ill** Laboratories TESTING TER

R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

Tel

Fax

#### 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:<br>Lab Number: | HAA260313 26-Mar-2013<br>10:00 am<br>1115969.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.

i**ll** Laboratories



 $\mathbf{v}$ 

R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Fax Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

11.3

12

< 250

#### 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:<br>Lab Number: | HAA150612 15-Jun-2012<br>8:30 am<br>1017437.1 |               | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

BETTER



R J Hill Laboratories Limited I**ill** Laboratories 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 Tel Fax +64 7 858 2001 Email mail@hill-labs.co.nz www.hill-labs.co.nz Web

Page 1 of 3

#### 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:<br>Lab Number: | HAA190412 19-Apr-2012<br>9:00 am<br>999909.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.





**ill** Laboratories 1 Clyde Street Private Bag 3205 BETTER RESULTS

R J Hill Laboratories Limited Tel Fax Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

### R Δ

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<br>10:30 am |   | Guideline                           | Maximum<br>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)<br>< 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

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.



 $\odot$ 

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19

l**l** Laboratories

TER



R J Hill Laboratories Limited | Tel 1 Clyde Street | Fax Private Bag 3205 | Ema Lamitter 2240 New Zaeland | Wab +64 7 858 2000 +64 7 858 2001 I mail@bill-labs.co.r

Private Bag 3205 Email mail@hill-labs.co.nz Hamilton 3240, New Zealand Web www.hill-labs.co.nz

Page 1 of 3

## 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<br>17-Dec-2010<br>51954<br>Raw Water |

| Sample Type: Aqueous         |                           |                                   |   |                                     | Maria                 |
|------------------------------|---------------------------|-----------------------------------|---|-------------------------------------|-----------------------|
|                              | Sample Name:              | HAA091210 09-Dec-2010<br>10:30 am |   | Guideline                           | Maximum<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19

III Laboratories



R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

#### LYSIS • Δ

TESTING

Page 1 of 4

| 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<br>787373.1   | 9:30 am<br>787373.2   | Guideline<br>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<br>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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ed under LGOIMA 21.22.19



Hill Laboratories TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited 28 Duke Street Frankton 3204 Private Bag 3205 Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)

Page 1 of 4

- +64 7 858 2000 Т
- E mail@hill-labs.co.nz
- W www.hill-laboratories.com

#### 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<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of

tests marked \*, which are not accredited.

eleased under LGOIMA 21.22.19



**Hill Laboratories** BETTER TESTING BETTER RESULTS R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

#### 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<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





**Hill Laboratories** 

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | HAR250214 25-Feb-2014<br>2:00 pm<br>1240665.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



 $oldsymbol{\varepsilon}$ 

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ed under LGOIMA 21.22.1



Hill Laboratories R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 RESULTS

Tel Fax Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | HAR260313 26-Mar-2013<br>2:10 pm<br>1116151.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eased under LGOIMA 21.22.19



Hill Laboratories BETTER TESTING BETTER RESULTS RJ Hill Laboratories Hamilton 324

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## 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   | -<br>-<br> |

| Sample Type: Aqueous           |                             |  |   |                                     |                                       |
|--------------------------------|-----------------------------|--|---|-------------------------------------|---------------------------------------|
|                                | Sample Name:<br>Lab Number: | HAR190412 19-Apr-2012<br>2:00 pm<br>999911.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



 $\odot$ 

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.19



**ill** Laboratories 1 Clyde Street Private Bag 3205 BETTER RESULTS

R J Hill Laboratories Limited l Tel Fax Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | HAR090611 09-Jun-2011<br>1:30 pm<br>904323.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



C

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eased under LGOIMA 21.22.19

Hill Laboratories

TER

RESULTS



R J Hill Laboratories Limited | Tel 1 Clyde Street Fax Private Bag 3205

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Hamilton 3240, New Zealand Web www.hill-labs.co.nz

Page 1 of 4

#### 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:<br>Lab Number: | WHA270410 27-Apr-2010<br>12:40 pm<br>787454.1 | HAR270410 27-Apr-2010<br>1:10 pm<br>787454.2 | Guideline<br>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<br>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.

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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.19

Iill Laboratories



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

Tel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

## 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:<br>Lab Number: | HAR-B010310 01-Mar-2010<br>12:40 pm<br>770850.1 |   | Guideline<br>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<br>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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

eleased under LGOIMA 21.22.19

**ll** Laboratories

TESTING BETTER RESULTS



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

Tel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

## 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<br>Acceptable                   |
|                              | I t. M                                | 1:50 pm<br>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)<br>< 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

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.



Θ

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

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

ed under LGOIMA 21.22.19



R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | HAR 010310 01-Mar-2010<br>12:40 pm<br>770844.1 |   | Guideline<br>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<br>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.

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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

laboratory are not accredited.

leased under LGOIMA 21.22.19



ill Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

#### 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<br>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)<br>< 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

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.



C

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22.19



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | LKE200214 20-Feb-2014<br>11:00 am<br>1238689.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.





This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.1

Hill Laboratories

BETTER RESULTS



R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.19

**ll** Laboratories

BETTER RESULTS



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

### 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:<br>Lab Number: | HOK010512 01-May-2012<br>2:00 pm<br>1003309.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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.



 $\mathbf{O}$ 

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





R J Hill Laboratories Limited | Tel Laboratories 1 Clyde Street Private Bag 3205 TESTING BETTER RESULTS

+64 7 858 2000 +64 7 858 2001 Fax Email mail@hill-labs.co.nz Hamilton 3240, New Zealand | Web www.hill-labs.co.nz

Page 1 of 3

#### 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<br>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)<br>< 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

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22.1

Laboratories

TESTING BETTER RESULTS



R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand | Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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<br>817223.1    | 3:30 pm<br>817223.2                   | Value                               | Acceptable<br>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><br>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><br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.19



T 0508 HILL LAB (44 555 22) Т

- +64 7 858 2000
- E mail@hill-labs.co.nz

W www.hill-laboratories.com

Page 1 of 3

#### **Certificate of Analysis**

| Client: Westland District Cou<br>Contact: P Cannell<br>C/- Westland District<br>Private Bag 704<br>Hokitika 7842 |                                      | il                                      |   | Date<br>Quo<br>Ord<br>Clie | No:<br>e Received:<br>e Reported:<br>ote No:<br>er No:<br>ont Reference:<br>omitted By: | 2155621<br>05-Apr-2019<br>12-Apr-2019<br>95129<br>107912<br>P Cannell | SPv1 |
|--|--------------------------------------|---|---|----------------------------|---|---|------|
| Sample Type: Drinking Water for  | r DWSI                               | NZ Compliance                           |   |                            |   |   |      |
| Sample N   | lame:                                | HOK - S01069<br>04-Apr-2019<br>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><br>g/m <sup>3</sup> | < 0.0004<br>< 0.0004                    | - |                            | -   | -   | -    |
| 1,2-Dibromo-3-chloropropane  | -                                    |   | - |                            | -   | -   | -    |
| Dibromoacetonitrile<br>Dibromochloromethane  | g/m <sup>3</sup><br>g/m <sup>3</sup> | < 0.0004                                | - |                            | -   | -   | -    |
| 1,2-Dibromoethane (ethylene dibromide,<br>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<br>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                                 | - |                            | -   | -   | -    |





This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

Released under LGOIMA 21.22.19

| Sample Type: Drinking Water for DWSNZ Compliance               |           |   |   |   |   |   |
|--|-----------|---|---|---|---|---|
| Sample   |           | HOK - S01069<br>04-Apr-2019<br>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-<br>Products in Water by GCMS | Solvent extraction, GC-MS SIM analysis   | -                         | 1         |
| Trihalomethanes Trace in Water by<br>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<br>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         |

|   | Released under LGOIMA 21.22.19   |                         |           |
|---|--|-------------------------|-----------|
| Sample Type: Drinking Water for                     | r DWSNZ Compliance   |                         |           |
| Test  | Method Description   | Default Detection Limit | Sample No |
| Sum of Haloacetonitriles MAV ratios<br>(NZ DW Stds) | Calculated as the sum of the individual haloacetonitriles<br>specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile)<br>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.

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

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

ased under LGOIMA 21.22.19



0508 HILL LAB (44 555 22) Т Т

- +64 7 858 2000
- Ε mail@hill-labs.co.nz

W www.hill-laboratories.com

Page 1 of 3

### **Certificate of Analysis**

| Client: Westland District Council<br>P Cannell<br>C/- Westland District Council<br>Private Bag 704<br>Hokitika 7842<br>Sample Type: Drinking Water for DWSNZ Compliance |                                      |  | Dat<br>Dat<br>Qu<br>Orc<br>Clie | o No:<br>te Received:<br>te Reported:<br>ote No:<br>der No:<br>ent Reference:<br>bmitted By: | 2142735<br>15-Mar-2019<br>26-Mar-2019<br>95129<br>107788<br>Hoki P2<br>P Cannell | SPv1 |
|---|--------------------------------------|--|---------------------------------|--|--|------|
| Sample Type: Drinking Water fo  | r DWS                                | NZ Compliance  |                                 |  |  |      |
| Sample I<br>Lab Nu  |                                      | HOK001HO -<br>140319<br>14-Mar-2019<br>12:00 pm<br>2142735.1 |                                 |  |  |      |
| Lab Nu<br>Individual Tests  | mber:                                | 2142733.1  |                                 |  |  |      |
| Total Antimony  | a/m3                                 | < 0.00021  |                                 |  | _  | _    |
| Total Arsenic   | g/m <sup>3</sup><br>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



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

-

\_

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

| Released under LGOIMA 21.22.1 |
|-------------------------------|
|-------------------------------|

| Sample Type: Drinking Water for D                | VSNZ Compliance                                    |   |   |   |   |
|--|--|---|---|---|---|
| Sample Nam                                       | e: HOK001HO -<br>140319<br>14-Mar-2019<br>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-<br>Products in Water by GCMS | Solvent extraction, GC-MS SIM analysis  | -                         | 1         |
| Trihalomethanes Trace in Water by<br>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<br>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<br>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<br>specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile)<br>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.

ased under LGOIMA 21.22.1

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

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

Ara Heron BSc (Tech) Client Services Manager - Environmental

under LGOIMA 21.22.19



T 0508 HILL LAB (44 555 22)

- +64 7 858 2000 Т
- E mail@hill-labs.co.nz

W www.hill-laboratories.com

Page 1 of 3

#### **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<br>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                        | - | - | - | - |





This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

Released under LGOIMA 21.22.19

| Sample Type: Drinking Water for D                              | WSN   | Z Compliance                   |   |   |   |   |
|--|-------|--------------------------------|---|---|---|---|
| Sample Na  |       | LKE-S00014<br>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-<br>Products in Water by GCMS | Solvent extraction, GC-MS SIM analysis   | -                         | 1         |
| Trihalomethanes Trace in Water by<br>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<br>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<br>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         |

| Released under LGOIMA 21.22.19                      |  |                         |           |  |  |
|---|--|-------------------------|-----------|--|--|
| Sample Type: Drinking Water for DWSNZ Compliance    |  |                         |           |  |  |
| Test  | Method Description   | Default Detection Limit | Sample No |  |  |
| Sum of Haloacetonitriles MAV ratios<br>(NZ DW Stds) | Calculated as the sum of the individual haloacetonitriles<br>specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile)<br>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.

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

Horta

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

I

eleased under LGOIMA 21.22.19



**Hill Laboratories** BETTER TESTING BETTER RESULTS R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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<br>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)<br>< 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22.



R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205

+64 7 858 2000 Tel +64 7 858 2001 Fax Email mail@hill-labs.co.nz Hamilton 3240, New Zealand Web www.hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | KUM250214 25-Feb-2014<br>11:00 am<br>1240520.1 |   | Guideline<br>Value  | Maximum<br>Acceptable<br>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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19



Laboratories Limited TESTING BETTER RESULTS
R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand Web

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## 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:<br>Lab Number:           | KUM120313 12-Mar-2013<br>11:00 am<br>1110363.1 |          | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



823 365 000 This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19



Hill Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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:<br>Lab Number:       | KUM070512 07-May-2012<br>2:00 pm<br>1005158.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



 $\odot$ 

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

under I GOIMA 21 22 19



NALYSIS REPORT

TESTING

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

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

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:<br>Lab Number: | KUM190511 19-May-2011<br>2:00 pm<br>898552.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22.19



R J Hill Laboratories Limited l Laboratories 1 Clyde Street Private Bag 3205 TESTING BETTER RESULTS Hamilton 3240, New Zealand | Web www.hill-labs.co.nz

+64 7 858 2000 Tel +64 7 858 2001 Fax Email mail@hill-labs.co.nz

Page 1 of 3

#### ່ຄີ

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<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

eleased under LGOIMA 21.22.19

Hill Laboratories



ΒE

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

### ANALYSIS REPORT

TESTING

Page 1 of 4

| 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:<br>Lab Number: | KUM210410 21-Apr-2010<br>1:10 pm<br>785919.1 | ARA210410 21-Apr-2010<br>1:40 pm<br>785919.2 | Guideline<br>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<br>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.



(

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

leased under LGOIMA 21.22.19



Il Laboratories ER TESTING BETTER RESULTS R J Hill Laboratories Limited 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## 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<br>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)<br>< 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

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.



The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which y are not accredited. eased under LGOIMA 21.22.1



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWel

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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:<br>Lab Number: | ROS250214 25-Feb-2014<br>2:30 pm<br>1240681.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which are not accredited. eased under LGOIMA 21.22.19



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

## ANALYSIS REPORT

TESTING

Hill Laboratories

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:<br>Lab Number: | ROS250313 25-Mar-2013<br>10:45 am<br>1115167.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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/m3 are the same as mg/L and ppm.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which

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

ed under LGOIMA 21.22.19



**ll** Laboratories TESTING BETTER RESULTS

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand | Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | ROS190412 19-Apr-2012<br>3:00 pm<br>999915.1 |      | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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/m3 are the same as mg/L and ppm.

#### Analyst's Comments

 $\odot$ 

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).



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ed under LGOIMA 21 22 1



NALYSIS REPORT

**ll** Laboratories

TESTING BETTER RESULTS

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

1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Page 1 of 3

Tel

R J Hill Laboratories Limited

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

| 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<br>2:00 pm |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



Θ

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

ased under LGOIMA 21.22.19



R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmailHamilton 3240, New ZealandWeb

Tel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

# ANALYSIS REPORT

TESTING BE

**ll** Laboratories

| 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:<br>Lab Number: | MIN071210 07-Dec-2010<br>2:00 pm<br>852212.1 |       | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

sed under LGOIMA 21.22.1



R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz

#### ANALYSIS P R = ORT

Hill Laboratories BETTER TESTING BETTER RESULTS

Page 1 of 4

| 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:<br>Lab Number: | ROS220410 22-Apr-2010<br>11:00 am<br>786241.1 | LKE220410 22-Apr-2010<br>11:30 am<br>786241.2 | Guideline<br>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<br>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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

leased under LGOIMA 21.22.19



IL Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205Emailton 3240, New ZealandWetWet

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

### 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<br>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)<br>< 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

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.



Θ

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

leased under LGOIMA 21.22.19



Hill Laboratories

R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

# 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:<br>Lab Number: | WHA060314 06-Mar-2014<br>2:00 pm<br>1245089.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





R J Hill Laboratories LimitedTel1 Clyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

 Tel
 +64 7 858 2000

 Fax
 +64 7 858 2001

 Email
 mail@hill-labs.co.nz

 Web
 www.hill-labs.co.nz

Page 1 of 3

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:<br>Lab Number:  | WHA260313 26-Mar-2013<br>1:10 pm<br>1116092.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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





R J Hill Laboratories LimitedTel1 Ciyde StreetFaxPrivate Bag 3205EmaHamilton 3240, New ZealandWeb

Tel +64 7 858 2000 Fax +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

#### ANALYSIS REPORT

TESTING

**l** Laboratories

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:<br>Lab Number: | WHA190412 19-Apr-2012<br>1:10 pm<br>999916.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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).



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

d under LGOIMA 21.22.19



Laboratories TESTING BETTER RESULTS

R J Hill Laboratories Limited Tel 1 Clyde Street Fax Private Bag 3205 Hamilton 3240, New Zealand

+64 7 858 2000 +64 7 858 2001 Email mail@hill-labs.co.nz Web www.hill-labs.co.nz

Page 1 of 3

#### 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:<br>Lab Number: | WHA090611 09-Jun-2011<br>1:00 pm<br>904327.1 |   | Guideline<br>Value                  | Maximum<br>Acceptable<br>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)<br>< 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

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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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

Inder LGOIMA 21.22



Laboratories TESTING BETTER RESULTS P

R J Hill Laboratories Limited Tel 1 Clyde Street Private Bag 3205 Hamilton 3240, New Zealand | Web www.hill-labs.co.nz

+64 7 858 2000 +64 7 858 2001 Fах Email mail@hill-labs.co.nz

Page 1 of 3

#### 1 0

| Client:  | Westland District Council        |
|----------|----------------------------------|
| Contact: | P Cannell                        |
|          | C/- Westland District Council    |
|          | Private Bag 704<br>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)<br>< 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

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters 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.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

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