

### ANALYTICAL REPORT

**Client:** Town of Stettler  
 Box 280  
 Stettler, AB T0C 2L0

**Attention:** Rene Lamoureux

|                         |               |
|-------------------------|---------------|
| <b>KaizenLAB JOB #:</b> | <b>163787</b> |
| <b>DATE RECEIVED:</b>   | 17-Jul-2014   |
| <b>DATE REPORTED:</b>   | 01-Aug-2014   |
| <b>PROJECT ID:</b>      |               |
| <b>LOCATION:</b>        |               |

**KaizenLAB Sample #** 163787\_001    **Sample ID:** GT Hydraulic  
**Date Sampled** 16-Jul-2014

| Parameter Description                                        | Units | Result  | Guideline Limits*                | Comment    |
|--------------------------------------------------------------|-------|---------|----------------------------------|------------|
| <b>Routine Water Potability Analysis (Potability pkg #2)</b> |       |         |                                  |            |
| Electrical Conductivity (EC)                                 | uS/cm | 455     |                                  |            |
| pH                                                           |       | 8.1     | 6.5-8.5 (AO)                     | Acceptable |
| Total Dissolved Solids (calculated)                          | mg/L  | 271     | 500 (AO)                         | Acceptable |
| True Colour                                                  | TCU   | <3      | 15 (AO)                          | Acceptable |
| Turbidity                                                    | NTU   | 0.5     | 0.1/0.3/1.0 <sup>see notes</sup> | See notes  |
| <b>Dissolved Metals in Water by ICP-MS</b>                   |       |         |                                  |            |
| Dissolved Iron                                               | mg/L  | <0.0040 | 0.3000 (AO)                      | Acceptable |
| Dissolved Manganese                                          | mg/L  | 0.00136 | 0.0500 (AO)                      | Acceptable |
| <b>Alkalinity parameters of water</b>                        |       |         |                                  |            |
| Alkalinity (phenolphthalein, as CaCO <sub>3</sub> )          | mg/L  | <2.0    |                                  |            |
| Alkalinity (total, as CaCO <sub>3</sub> )                    | mg/L  | 138.6   |                                  |            |
| Bicarbonate (as HCO <sub>3</sub> )                           | mg/L  | 169.0   |                                  |            |
| Carbonate (as CO <sub>3</sub> )                              | mg/L  | <1.5    |                                  |            |
| Hydroxide (as OH)                                            | mg/L  | <0.5    |                                  |            |
| <b>Cations in Water</b>                                      |       |         |                                  |            |
| Dissolved Calcium                                            | mg/L  | 48.0    |                                  |            |
| Dissolved Magnesium                                          | mg/L  | 14.5    |                                  |            |
| Dissolved Potassium                                          | mg/L  | 2.6     |                                  |            |
| Dissolved Sodium                                             | mg/L  | 25.2    | 200.00 (AO)                      | Acceptable |
| Hardness (calculated, as CaCO <sub>3</sub> )                 | mg/L  | 179.6   |                                  |            |
| <b>Anions in Water</b>                                       |       |         |                                  |            |
| Chloride                                                     | mg/L  | 7.78    | 250.00 (AO)                      | Acceptable |
| Fluoride                                                     | mg/L  | 0.67    | 1.50 (MAC)                       | Pass       |
| Nitrate-N                                                    | mg/L  | <0.15   | 10.00 (MAC)                      | Pass       |
| Nitrite-N                                                    | mg/L  | <0.05   | 1.00 (AO)                        | Acceptable |
| Nitrite-N + Nitrate-N                                        | mg/L  | <0.20   |                                  |            |

\*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2008; MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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|----------------------------------------|-------|-----------|--------------------------------|------------|
| Phosphate                              | mg/L  | <0.10     |                                |            |
| Sulphate                               | mg/L  | 87.68     | 500.00 (AO)                    | Acceptable |
| <b>Total Metals including Mercury</b>  |       |           |                                |            |
| Total Mercury                          | mg/L  | <0.00010  |                                |            |
| <b>Total Metals in Water by ICP-MS</b> |       |           |                                |            |
| Total Aluminum                         | mg/L  | 0.0307    | 0.10 (OG) <sup>see notes</sup> | Acceptable |
| Total Antimony                         | mg/L  | 0.00067   | 0.0060 (MAC)                   | Pass       |
| Total Arsenic                          | mg/L  | 0.000507  | 0.0100 (MAC)                   | Pass       |
| Total Barium                           | mg/L  | 0.112     | 1.0000 (MAC)                   | Pass       |
| Total Beryllium                        | mg/L  | <0.0010   |                                |            |
| Total Boron                            | mg/L  | <0.020    | 5.00 (MAC)                     | Pass       |
| Total Cadmium                          | mg/L  | 0.000008  | 0.0050 (MAC)                   | Pass       |
| Total Chromium                         | mg/L  | <0.0010   | 0.050 (MAC)                    | Pass       |
| Total Cobalt                           | mg/L  | <0.00020  |                                |            |
| Total Copper                           | mg/L  | 0.0155    | 1.0000 (AO)                    | Acceptable |
| Total Iron                             | mg/L  | 0.0116    | 0.30 (AO)                      | Acceptable |
| Total Lead                             | mg/L  | 0.00035   | 0.0100 (MAC)                   | Pass       |
| Total Manganese                        | mg/L  | 0.0071    | 0.0500 (AO)                    | Acceptable |
| Total Molybdenum                       | mg/L  | 0.001072  |                                |            |
| Total Nickel                           | mg/L  | 0.00093   |                                |            |
| Total Selenium                         | mg/L  | <0.00060  | 0.0100 (MAC)                   | Pass       |
| Total Silver                           | mg/L  | <0.000070 |                                |            |
| Total Strontium                        | mg/L  | 0.287     |                                |            |
| Total Thallium                         | mg/L  | <0.000060 |                                |            |
| Total Tin                              | mg/L  | <0.0050   |                                |            |
| Total Titanium                         | mg/L  | 0.0771    |                                |            |
| Total Uranium                          | mg/L  | 0.000150  | 0.020000 (MAC)                 | Pass       |
| Total Vanadium                         | mg/L  | 0.00063   |                                |            |
| Total Zinc                             | mg/L  | <0.020    | 5.000 (AO)                     | Acceptable |

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| Parameter Description                                               | Units | Result   | Guideline Limits*               | Comment    |
|---------------------------------------------------------------------|-------|----------|---------------------------------|------------|
| <b>Ammonia</b>                                                      |       |          |                                 |            |
| Ammonia-N                                                           | mg/L  | 0.49     |                                 |            |
| Cyanide                                                             | mg/L  | <0.100   | 0.200 (MAC)                     | Pass       |
| Glyphosate                                                          | mg/L  | <0.02    | 0.280 (MAC)                     | Pass       |
| Microcystins (as LR)                                                | mg/L  | <0.15000 | 1.50 (MAC)                      | Pass       |
| Nitritotriacetic Acid (NTA)                                         | mg/L  | <0.4     | 0.400 (MAC)                     | Pass       |
| Bromate                                                             | mg/L  | <0.005   |                                 |            |
| Sulphide                                                            | mg/L  | <0.010   | 0.050 (AO)                      | Acceptable |
| Total Organic Carbon                                                | mg/L  | 4.05     |                                 |            |
| Total Residual Chlorine                                             | mg/L  | 1.42     | 3.00 (MAC) <sup>see notes</sup> | Pass       |
| <b>Herbicides in Water</b>                                          |       |          |                                 |            |
| 2,4-D                                                               | mg/L  | <0.004   | 0.100 (MAC)                     | Pass       |
| Bromoxynil                                                          | mg/L  | <0.004   | 0.005 (MAC)                     | Pass       |
| Dicamba                                                             | mg/L  | <0.004   | 0.120 (MAC)                     | Pass       |
| Picloram                                                            | mg/L  | <0.004   | 0.190 (MAC)                     | Pass       |
| <b>Trihalomethanes in Water</b>                                     |       |          |                                 |            |
| Bromodichloromethane                                                | mg/L  | 0.003    | 0.016 (MAC)                     | Pass       |
| Bromoform                                                           | mg/L  | <0.002   |                                 |            |
| Chloroform                                                          | mg/L  | 0.063    |                                 |            |
| Dibromochloromethane                                                | mg/L  | <0.002   |                                 |            |
| Total Trihalomethanes                                               | mg/L  | 0.066    | 0.100 (MAC)                     | Pass       |
| <b>Volatile Organic Compounds in Water</b>                          |       |          |                                 |            |
| 1,2-Dichlorobenzene                                                 | mg/L  | <0.0005  |                                 |            |
| 1,2-Dichloroethane                                                  | mg/L  | <0.002   | 0.005 (MAC)                     | Pass       |
| 1,4-Dichlorobenzene                                                 | mg/L  | <0.0005  | 0.005 (MAC)                     | Pass       |
| Benzene                                                             | mg/L  | <0.001   | 0.005 (MAC)                     | Pass       |
| Carbon Tetrachloride                                                | mg/L  | <0.0005  | 0.005 (MAC)                     | Pass       |
| Chlorobenzene                                                       | mg/L  | <0.001   | 0.080 (MAC)                     | Pass       |
| Dichloromethane                                                     | mg/L  | <0.002   | 0.050 (MAC)                     | Pass       |
| Ethylbenzene                                                        | mg/L  | <0.001   | 0.002 (AO)                      | Acceptable |
| m,p-Xylenes                                                         | mg/L  | <0.002   |                                 |            |
| o-Xylenes                                                           | mg/L  | <0.001   |                                 |            |
| Tetrachloroethene                                                   | mg/L  | <0.001   | 0.0300 (MAC)                    | Pass       |
| Toluene                                                             | mg/L  | <0.002   | 0.024 (AO)                      | Acceptable |
| Trichloroethene                                                     | mg/L  | <0.002   | 0.005 (MAC)                     | Pass       |
| Vinyl Chloride                                                      | mg/L  | <0.001   | 0.002 (MAC)                     | Pass       |
| <b>Base/Neutral and Acid Extractable Organic Compounds in Water</b> |       |          |                                 |            |
| 2,3,4,6-Tetrachlorophenol                                           | mg/L  | <0.004   | 0.100 (MAC)                     | Pass       |

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|------------------------|-------|-----------|-------------------|---------|
| 2,4,6-Trichlorophenol  | mg/L  | <0.004    | 0.005 (MAC)       | Pass    |
| 2,4-Dichlorophenol     | mg/L  | <0.004    | 0.900 (MAC)       | Pass    |
| Atrazine + Metabolites | mg/L  | <0.004    | 0.002 (MAC)       | Pass    |
| Benzo(a)Pyrene         | mg/L  | <0.000010 | 0.000010 (MAC)    | Pass    |
| Chlorpyrifos           | mg/L  | <0.004    | 0.090 (MAC)       | Pass    |
| Cyanazine              | mg/L  | <0.004    | 0.010 (MAC)       | Pass    |
| Diazinon               | mg/L  | <0.004    | 0.020 (MAC)       | Pass    |
| Diclofop-methyl        | mg/L  | <0.004    | 0.009 (MAC)       | Pass    |
| Dimethoate             | mg/L  | <0.004    | 0.020 (MAC)       | Pass    |
| Diuron                 | mg/L  | <0.006    | 0.150 (MAC)       | Pass    |
| Malathion              | mg/L  | <0.004    | 0.190 (MAC)       | Pass    |
| Methoxychlor           | mg/L  | <0.004    | 0.900 (MAC)       | Pass    |
| Metolachlor            | mg/L  | <0.004    | 0.050 (MAC)       | Pass    |
| Metribuzin             | mg/L  | <0.004    | 0.080 (MAC)       | Pass    |
| Pentachlorophenol      | mg/L  | <0.004    | 0.060 (MAC)       | Pass    |
| Simazine               | mg/L  | <0.004    | 0.010 (MAC)       | Pass    |
| Terbufos               | mg/L  | <0.0010   | 0.0010 (MAC)      | Pass    |
| Triallate              | mg/L  | <0.004    |                   |         |
| Trifluralin            | mg/L  | <0.004    | 0.045 (MAC)       | Pass    |

**Notes:**

- Aluminum: This Operational Guideline applies only to drinking water treatment plants using aluminum-based coagulants: conventional systems - 0.1 mg/L, other systems - 0.2 mg/L
- Total residual chlorine analysis is performed in lieu of chloramines analysis .
- Turbidity: Based on slow sand or diatomaceous earth filtration (0.1 NTU) / membrane filtration (0.3 NTU) / conventional treatment (1.0 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2008).

**KaizenLAB Sample #** 163787\_002    **Sample ID:** WTS  
**Date Sampled** 16-Jul-2014

| Parameter Description           | Units | Result | Guideline Limits* | Comment    |
|---------------------------------|-------|--------|-------------------|------------|
| <b>Nitrite-Nitrogen</b>         |       |        |                   |            |
| Nitrite-N                       | mg/L  | <0.05  | 1.00 (AO)         | Acceptable |
| <b>Trihalomethanes in Water</b> |       |        |                   |            |
| Bromodichloromethane            | mg/L  | 0.003  | 0.016 (MAC)       | Pass       |
| Bromoform                       | mg/L  | <0.002 |                   |            |
| Chloroform                      | mg/L  | 0.054  |                   |            |
| Dibromochloromethane            | mg/L  | <0.002 |                   |            |
| Total Trihalomethanes           | mg/L  | 0.057  | 0.100 (MAC)       | Pass       |

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**KaizenLAB Sample #** 163787\_003    **Sample ID:** Town Office  
**Date Sampled** 16-Jul-2014

| Parameter Description           | Units | Result | Guideline Limits* | Comment |
|---------------------------------|-------|--------|-------------------|---------|
| <b>Trihalomethanes</b>          |       |        |                   |         |
| <b>Trihalomethanes in Water</b> |       |        |                   |         |
| Bromodichloromethane            | mg/L  | 0.003  | 0.016 (MAC)       | Pass    |
| Bromoform                       | mg/L  | <0.002 |                   |         |
| Chloroform                      | mg/L  | 0.065  |                   |         |
| Dibromochloromethane            | mg/L  | <0.002 |                   |         |
| Total Trihalomethanes           | mg/L  | 0.068  | 0.100 (MAC)       | Pass    |

**KaizenLAB Sample #** 163787\_004    **Sample ID:** Grand View Grocery  
**Date Sampled** 16-Jul-2014

| Parameter Description   | Units | Result | Guideline Limits* | Comment    |
|-------------------------|-------|--------|-------------------|------------|
| <b>Nitrite-Nitrogen</b> |       |        |                   |            |
| Nitrite-N               | mg/L  | <0.05  | 1.00 (AO)         | Acceptable |

**KaizenLAB Sample #** 163787\_005    **Sample ID:** Crop Production  
**Date Sampled** 16-Jul-2014

| Parameter Description   | Units | Result | Guideline Limits* | Comment    |
|-------------------------|-------|--------|-------------------|------------|
| <b>Nitrite-Nitrogen</b> |       |        |                   |            |
| Nitrite-N               | mg/L  | <0.05  | 1.00 (AO)         | Acceptable |

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**Test Methodologies**

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Alkalinity in Water: Modified from APHA 2320B  
Ammonia in Water: Modified from APHA 4500-NH3 F  
Anions in Water: Modified from APHA 4110B  
Base/Neutral and Acid Extractable Organic Compounds in Water: Modified from EPA 8270D and EPA 3510C  
Cations in Water: Modified from APHA 3030B and APHA 3120B  
Cyanide in Water: Modified from APHA 4500-CN C and E  
Dissolved Metals in Water: Modified from APHA 3030B and APHA 3125B  
Electrical Conductivity in Water: Modified from APHA 2510B  
Herbicides in Water: Modified from EPA 8151A and EPA 3510C  
Microcystin in Water: Modified from Microcystin Tube Kit Instructional Booklet, Abraxis LLC  
Nitrilotriacetic Acid in Water: Modified from Journal of Chromatography A., 690 (1995) 109-118  
Oxyhalides in Water: Modified from APHA 4110B  
pH in Water: Modified from APHA 4500-H+ B  
Sulphide in Water: Modified from APHA 4500- S E  
Total / Dissolved Organic Carbon in Water: Modified from APHA 5310B  
Total Dissolved Solids (calculated): Modified from APHA 1030E  
Total Mercury in Water: Modified from EPA 200.2 and EPA 1631  
Total Metals in Water: Modified from EPA 200.2 and APHA 3125B  
Total Residual Chlorine in Water: Modified from APHA 4500-Cl  
Trihalomethanes in Water: Modified from EPA 8260B  
True Colour in Water: Modified from APHA 2120C  
Turbidity in Water: Modified from APHA 2130B  
Volatile Organic Compounds in Water: Modified from EPA 8260B

Final Review by:



Priscilla Tang  
Edmonton Office Manager

Note: The results in this report relate only to the items tested. Information is available for any items in 5.10.2 of ISO/IEC 17025 that cannot be put on a test report.