333 50th Ave. S.E.
Calgary, AB, T2G 2B3
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB

ANALYTICAL REPORT

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

Attention: Grant McQuay

KaizenLAB JOB #:	**176529**
DATE RECEIVED:	08-Jan-2016
DATE REPORTED:	21-Jan-2016
PROJECT ID:	
LOCATION:	Stettler Waterworks System-Random Locations

KaizenLAB Sample # 176529_001 **Sample ID:** G.T Hydraulic
Date Sampled 11:45 7-Jan-2016

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	529		
pH		8.1	6.5-8.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	310	500 (AO)	Acceptable
True Colour	TCU	<3	15 (AO)	Acceptable
Turbidity	NTU	<0.10	0.1/0.3/1.0 see notes	See notes
Dissolved Metals in Water by ICP-MS				
Dissolved Iron	mg/L	<0.0040	0.3000 (AO)	Acceptable
Dissolved Manganese	mg/L	0.00129	0.0500 (AO)	Acceptable
Alkalinity parameters of water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	184.4		
Bicarbonate (as HCO3)	mg/L	224.9		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Cations in Water				
Dissolved Calcium	mg/L	62.0		
Dissolved Magnesium	mg/L	20.8		
Dissolved Potassium	mg/L	2.2		
Dissolved Sodium	mg/L	19.3	200.00 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	240.2		
Anions in Water				
Chloride	mg/L	9.38	250.00 (AO)	Acceptable
Fluoride	mg/L	0.80	1.50 (MAC)	Pass
Nitrate-N	mg/L	0.310	10.00 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1.00 (MAC)	Pass

*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

333 50th Ave. S.E.
Calgary, AB, T2G 2B3
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB Sample # 176529_001 **Sample ID:** G.T Hydraulic

Date Sampled 11:45 7-Jan-2016

Parameter Description	Units	Result	Guideline Limits*	Comment
Nitrite-N + Nitrate-N	mg/L	0.310		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	82.20	500.00 (AO)	Acceptable
Total Metals for Drinking Water				
Total Mercury	mg/L	<0.00020		
Total Metals in Water by ICP-MS				
Total Aluminum	mg/L	0.0313	0.10 (OG) see notes	Acceptable
Total Antimony	mg/L	<0.00050	0.0060 (MAC)	Pass
Total Arsenic	mg/L	0.000429	0.0100 (MAC)	Pass
Total Barium	mg/L	0.0993	1.0000 (MAC)	Pass
Total Boron	mg/L	0.023	5.00 (MAC)	Pass
Total Cadmium	mg/L	0.000011	0.0050 (MAC)	Pass
Total Chromium	mg/L	<0.0010	0.050 (MAC)	Pass
Total Copper	mg/L	0.0173	1.0000 (AO)	Acceptable
Total Iron	mg/L	<0.010	0.30 (AO)	Acceptable
Total Lead	mg/L	<0.00030	0.0100 (MAC)	Pass
Total Manganese	mg/L	0.0018	0.0500 (AO)	Acceptable
Total Selenium	mg/L	<0.00060	0.0100 (MAC)	Pass
Total Silver	mg/L	<0.000070		
Total Uranium	mg/L	0.000707	0.020000 (MAC)	Pass
Total Zinc	mg/L	<0.020	5.000 (AO)	Acceptable

*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

333 50th Ave. S.E.
Calgary, AB, T2G 2B3
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB Sample # 176529_001 **Sample ID:** G.T Hydraulic

Date Sampled 11:45 7-Jan-2016

Parameter Description	Units	Result	Guideline Limits*	Comment
Ammonia				
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	<0.00015	1.50 (MAC)	Pass
Nitrilotriacetic 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	2.47		
Total Residual Chlorine	mg/L	1.56	3.00 (MAC) see notes	Pass
Herbicides in Water				
2,4-D	mg/L	<0.002	0.100 (MAC)	Pass
Bromoxynil	mg/L	<0.002	0.005 (MAC)	Pass
Dicamba	mg/L	<0.002	0.120 (MAC)	Pass
Picloram	mg/L	<0.002	0.190 (MAC)	Pass
Trihalomethanes in Water				
Bromodichloromethane	mg/L	0.004	0.016 (MAC)	Pass
Bromoform	mg/L	<0.002		
Chloroform	mg/L	0.031		
Dibromochloromethane	mg/L	<0.002		
Total Trihalomethanes	mg/L	0.035	0.100 (MAC)	Pass
Volatile Organic Compounds in Water				
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
Total Xylenes	mg/L	<0.003		
Trichloroethene	mg/L	<0.002	0.005 (MAC)	Pass
Vinyl Chloride	mg/L	<0.001	0.002 (MAC)	Pass
Base/Neutral and Acid Extractable Organic Compounds in Water				

*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

333 50th Ave. S.E.
Calgary, AB, T2G 2B3
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB Sample # 176529_001 **Sample ID:** G.T Hydraulic

Date Sampled 11:45 7-Jan-2016

Parameter Description	Units	Result	Guideline Limits*	Comment
2,3,4,6-Tetrachlorophenol	mg/L	<0.003	0.100 (MAC)	Pass
2,4,6-Trichlorophenol	mg/L	<0.003	0.005 (MAC)	Pass
2,4-Dichlorophenol	mg/L	<0.003	0.900 (MAC)	Pass
Atrazine + Metabolites	mg/L	<0.001	0.002 (MAC)	Pass
Benzo(a)Pyrene	mg/L	<0.000008	0.000010 (MAC)	Pass
Chlorpyrifos	mg/L	<0.003	0.090 (MAC)	Pass
Cyanazine	mg/L	<0.003	0.010 (MAC)	Pass
Diazinon	mg/L	<0.003	0.020 (MAC)	Pass
Diclofop-methyl	mg/L	<0.003	0.009 (MAC)	Pass
Dimethoate	mg/L	<0.003	0.020 (MAC)	Pass
Diuron	mg/L	<0.005	0.150 (MAC)	Pass
Malathion	mg/L	<0.003	0.190 (MAC)	Pass
Methoxychlor	mg/L	<0.003	0.900 (MAC)	Pass
Metolachlor	mg/L	<0.003	0.050 (MAC)	Pass
Metribuzin	mg/L	<0.003	0.080 (MAC)	Pass
Pentachlorophenol	mg/L	<0.003	0.060 (MAC)	Pass
Simazine	mg/L	<0.003	0.010 (MAC)	Pass
Terbufos	mg/L	<0.0008	0.0010 (MAC)	Pass
Triallate	mg/L	<0.003		
Trifluralin	mg/L	<0.003	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 (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 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).

*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

333 50th Ave. S.E.
Calgary, AB, T2G 2B3
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB

Test Methodologies

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
Glyphosate in Water: Modified from New methods for determination of glyphosate and (aminomethyl)phosphonic acid in water and soil. Journal of Chror
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 of 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:

Enyo Sewordor
Client Service Representative / Project Coordinator

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.