CERTIFICATE OF ANALYSIS

REPORTED TO	Alto Utilities Ltd. 10989 Maddock Avenue LAKE COUNTRY, BC V4V 2J5	**TEL** **FAX**	1-250-864-7426 (866) 643-7116
ATTENTION	Larry Fallis	**WORK ORDER**	6050641
PO NUMBER		**RECEIVED / TEMP**	2016-05-09 09:39 / 9°C
PROJECT	Comprehensive	**REPORTED**	2016-05-16
PROJECT INFO	No Project	**COC NUMBER**	B 38077

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

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ANALYSIS INFORMATION

REPORTED TO	Alto Utilities Ltd.	**WORK ORDER**	6050641
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Analysis Description	Method Reference	Technique	Location
Alkalinity, Total in Water	APHA 2320 B*	Titration with H2SO4	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Colour, True in Water	APHA 2120 C	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	APHA 2510 B	Conductivity Meter	Kelowna
Cyanide, SAD in Water	APHA 4500-CN- C / APHA 4500-CN- E	Distillation / Colorimetry	Kelowna
Hardness (as CaCO3) in Water	APHA 2340 B*	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Estimated)	N/A
Mercury, total by CVAFS in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna
Solids, Total Dissolved in Water	APHA 1030 E	Calculation: 100 x ([Cations]-[Anions])/ ([Cations]+[Anions])	N/A
Total Recoverable Metals in Water	APHA 3030E* / APHA 3125 B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	Richmond
Transmissivity at 254 nm in Water	APHA 5910 B	Ultraviolet Absorption	Kelowna
Turbidity in Water	APHA 2130 B	Nephelometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
AO	Aesthetic objective
MAC	Maximum acceptable concentration (health based)
OG	Operational guideline (treated water)
% T	Percent Transmittance
CU	Colour Units (referenced against a platinum cobalt standard)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre

Standards / Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Oct 2014)

Website: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user

SAMPLE ANALYTICAL DATA

REPORTED TO Alto Utilities Ltd.
PROJECT Comprehensive

WORK ORDER 6050641
REPORTED 2016-05-16

Analyte	Result / *Recovery*	Standard / Guideline	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: South Well (6050641-01) [Water] Sampled: 2016-05-09 09:05							
Anions							
Chloride	**109**	AO ≤ 250	0.10	mg/L	N/A	2016-05-10	
Fluoride	**0.34**	MAC = 1.5	0.10	mg/L	N/A	2016-05-10	
Nitrate (as N)	**2.63**	MAC = 10	0.010	mg/L	N/A	2016-05-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	N/A	2016-05-10	
Sulfate	**111**	AO ≤ 500	1.0	mg/L	N/A	2016-05-10	
General Parameters							
Alkalinity, Total (as CaCO3)	**314**	N/A	1	mg/L	N/A	2016-05-13	
Colour, True	< 5	AO ≤ 15	5	CU	N/A	2016-05-09	
Conductivity (EC)	**1100**	N/A	2	µS/cm	N/A	2016-05-13	
Cyanide, Total	< 0.010	MAC = 0.2	0.010	mg/L	2016-05-11	2016-05-11	
pH	**7.51**	6.5-8.5	0.01	pH units	N/A	2016-05-13	HT2
Turbidity	**1.4**	OG < 0.1	0.1	NTU	N/A	2016-05-09	
UV Transmittance @ 254nm	**94.5**	N/A	0.1	% T	N/A	2016-05-11	
Calculated Parameters							
Hardness, Total (as CaCO3)	**406**	N/A	5.0	mg/L	N/A	N/A	
Solids, Total Dissolved	**634**	AO ≤ 500	10.0	mg/L	N/A	N/A	
Total Recoverable Metals							
Aluminum, total	< 0.05	OG < 0.1	0.05	mg/L	2016-05-12	2016-05-12	
Antimony, total	< 0.001	MAC = 0.006	0.001	mg/L	2016-05-12	2016-05-12	
Arsenic, total	< 0.005	MAC = 0.01	0.005	mg/L	2016-05-12	2016-05-12	
Barium, total	**0.06**	MAC = 1	0.05	mg/L	2016-05-12	2016-05-12	
Beryllium, total	< 0.001	N/A	0.001	mg/L	2016-05-12	2016-05-12	
Boron, total	< 0.04	MAC = 5	0.04	mg/L	2016-05-12	2016-05-12	
Cadmium, total	< 0.0001	MAC = 0.005	0.0001	mg/L	2016-05-12	2016-05-12	
Calcium, total	**98.5**	N/A	2.0	mg/L	2016-05-12	2016-05-12	
Chromium, total	< 0.005	MAC = 0.05	0.005	mg/L	2016-05-12	2016-05-12	
Cobalt, total	< 0.0005	N/A	0.0005	mg/L	2016-05-12	2016-05-12	
Copper, total	< 0.002	AO ≤ 1	0.002	mg/L	2016-05-12	2016-05-12	
Iron, total	**0.19**	AO ≤ 0.3	0.10	mg/L	2016-05-12	2016-05-12	
Lead, total	< 0.001	MAC = 0.01	0.001	mg/L	2016-05-12	2016-05-12	
Magnesium, total	**38.9**	N/A	0.1	mg/L	2016-05-12	2016-05-12	
Manganese, total	**0.035**	AO ≤ 0.05	0.002	mg/L	2016-05-12	2016-05-12	
Mercury, total	< 0.00002	MAC = 0.001	0.00002	mg/L	2016-05-11	2016-05-12	
Molybdenum, total	**0.006**	N/A	0.001	mg/L	2016-05-12	2016-05-12	
Nickel, total	**0.003**	N/A	0.002	mg/L	2016-05-12	2016-05-12	
Phosphorus, total	< 0.2	N/A	0.2	mg/L	2016-05-12	2016-05-12	
Potassium, total	**5.8**	N/A	0.2	mg/L	2016-05-12	2016-05-12	
Selenium, total	**0.005**	MAC = 0.05	0.005	mg/L	2016-05-12	2016-05-12	
Silicon, total	**10**	N/A	5	mg/L	2016-05-12	2016-05-12	
Silver, total	< 0.0005	N/A	0.0005	mg/L	2016-05-12	2016-05-12	
Sodium, total	**66.7**	AO ≤ 200	0.2	mg/L	2016-05-12	2016-05-12	
Uranium, total	**0.0177**	MAC = 0.02	0.0002	mg/L	2016-05-12	2016-05-12	
Vanadium, total	< 0.01	N/A	0.01	mg/L	2016-05-12	2016-05-12	
Zinc, total	< 0.04	AO ≤ 5	0.04	mg/L	2016-05-12	2016-05-12	

SAMPLE ANALYTICAL DATA

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Analyte	Result / *Recovery*	Standard / Guideline	MRL / *Limits*	Units	Prepared	Analyzed	Notes

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.