



CERTIFICATE OF ANALYSIS

REPORTED TO Black Mountain Irrigation District
285 Gray Avenue
KELOWNA, BC V1X 1W8

ATTENTION Robert Hrasko

PO NUMBER
PROJECT Screen Works/ Chemistry
PROJECT INFO

WORK ORDER 25A0273

RECEIVED / TEMP 2025-01-06 14:36 / 13.8°C
REPORTED 2025-01-13 16:18
COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



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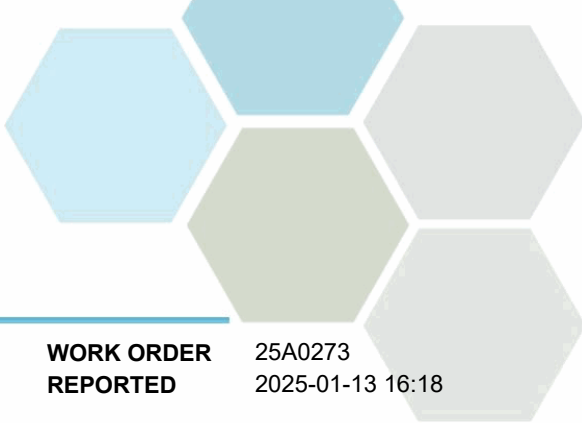
If you have any questions or concerns, please contact me at hhannaoui@caro.ca

Authorized By:

Hanane El Hannaoui
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TEST RESULTS

REPORTED TO PROJECT Black Mountain Irrigation District
Screen Works/ Chemistry

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2025-01-13 16:18

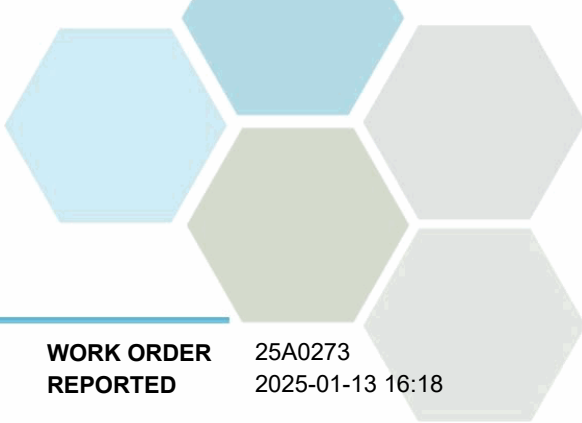
Analyte	Result	RL	Units	Analyzed	Qualifier
Screenworks (25A0273-01) Matrix: Water Sampled: 2025-01-06 09:05					
<i>Field Parameters</i>					
Chlorine, Free	2.87	0.02	mg/L	2025-01-06	
Temperature, field	3.2		°C	2025-01-06	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO3)	52.3	1.0	mg/L	2025-01-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Bicarbonate (as CaCO3)	52.3	1.0	mg/L	2025-01-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Carbon, Total Organic	3.14	0.50	mg/L	2025-01-09	
Colour, True	< 5.0	5.0	CU	2025-01-10	HT1
Conductivity (EC)	148	2.0	µS/cm	2025-01-07	
pH	7.39	0.10	pH units	2025-01-07	HT2
Turbidity	0.39	0.10	NTU	2025-01-07	
UV Transmittance @ 254nm	84.8	0.10	% T	2025-01-07	

WTP Intake Raw (25A0273-02) | Matrix: Water | Sampled: 2025-01-06 09:19

<i>Field Parameters</i>					
Temperature, field	5.6		°C	2025-01-06	
<i>General Parameters</i>					
Carbon, Total Organic	3.04	0.50	mg/L	2025-01-09	

Pearson School (25A0273-03) | Matrix: Water | Sampled: 2025-01-06 11:47

<i>Anions</i>					
Chloride	7.60	0.10	mg/L	2025-01-07	
Fluoride	< 0.10	0.10	mg/L	2025-01-07	
Nitrate (as N)	0.015	0.010	mg/L	2025-01-07	
Nitrite (as N)	< 0.010	0.010	mg/L	2025-01-07	
Sulfate	7.8	1.0	mg/L	2025-01-07	
<i>Calculated Parameters</i>					
Hardness, Total (as CaCO3)	64.1	0.500	mg/L	N/A	
Langelier Index	-1.5	-5.0		2025-01-13	CT6
Solids, Total Dissolved	76.7	1.00	mg/L	N/A	
<i>Field Parameters</i>					
Chlorine, Free	0.87	0.02	mg/L	2025-01-06	
Temperature, field	9.8		°C	2025-01-06	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO3)	53.5	1.0	mg/L	2025-01-07	



TEST RESULTS

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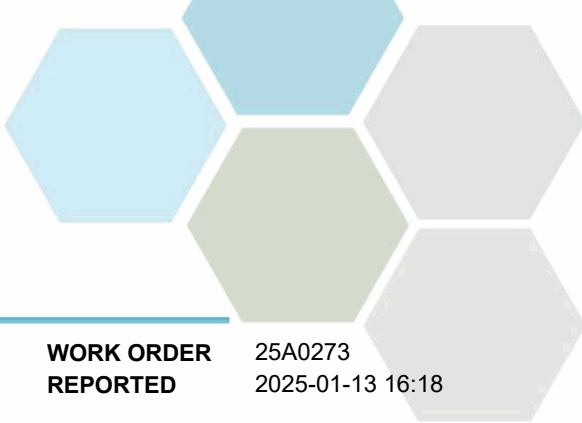
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Analyte	Result	RL	Units	Analyzed	Qualifier
Pearson School (25A0273-03) Matrix: Water Sampled: 2025-01-06 11:47, Continued					
<i>General Parameters, Continued</i>					
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Bicarbonate (as CaCO3)	53.5	1.0	mg/L	2025-01-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Colour, True	< 5.0	5.0	CU	2025-01-07	
Conductivity (EC)	152	2.0	µS/cm	2025-01-07	
Cyanide, Total	< 0.0020	0.0020	mg/L	2025-01-08	
pH	7.31	0.10	pH units	2025-01-07	HT2
Temperature, at pH	21.6		°C	2025-01-07	HT2
Turbidity	0.36	0.10	NTU	2025-01-07	

<i>Total Metals</i>					
Aluminum, total	0.0344	0.0050	mg/L	2025-01-08	
Antimony, total	< 0.00020	0.00020	mg/L	2025-01-08	
Arsenic, total	< 0.00050	0.00050	mg/L	2025-01-08	
Barium, total	0.0104	0.0050	mg/L	2025-01-08	
Boron, total	< 0.0500	0.0500	mg/L	2025-01-08	
Cadmium, total	< 0.000010	0.000010	mg/L	2025-01-08	
Calcium, total	17.9	0.20	mg/L	2025-01-08	
Chromium, total	< 0.00050	0.00050	mg/L	2025-01-08	
Cobalt, total	< 0.00010	0.00010	mg/L	2025-01-08	
Copper, total	0.00201	0.00040	mg/L	2025-01-08	
Iron, total	0.058	0.010	mg/L	2025-01-08	
Lead, total	< 0.00020	0.00020	mg/L	2025-01-08	
Magnesium, total	4.68	0.010	mg/L	2025-01-08	
Manganese, total	0.00457	0.00020	mg/L	2025-01-08	
Mercury, total	< 0.000010	0.000010	mg/L	2025-01-09	
Molybdenum, total	0.00078	0.00010	mg/L	2025-01-08	
Nickel, total	< 0.00040	0.00040	mg/L	2025-01-08	
Potassium, total	0.83	0.10	mg/L	2025-01-08	
Selenium, total	< 0.00050	0.00050	mg/L	2025-01-08	
Sodium, total	5.11	0.10	mg/L	2025-01-08	
Strontium, total	0.0939	0.0010	mg/L	2025-01-08	
Uranium, total	0.000333	0.000020	mg/L	2025-01-08	
Zinc, total	< 0.0040	0.0040	mg/L	2025-01-08	

Well #4 (25A0273-04) | Matrix: Water | Sampled: 2025-01-06 11:49

<i>Anions</i>					
Chloride	14.3	0.10	mg/L	2025-01-07	
Fluoride	0.16	0.10	mg/L	2025-01-07	
Nitrate (as N)	3.43	0.010	mg/L	2025-01-07	
Nitrite (as N)	< 0.010	0.010	mg/L	2025-01-07	



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Analyte	Result	RL	Units	Analyzed	Qualifier
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Well #4 (25A0273-04) | Matrix: Water | Sampled: 2025-01-06 11:49, Continued

Anions, Continued

Sulfate	25.9	1.0	mg/L	2025-01-07	
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Calculated Parameters

Hardness, Total (as CaCO3)	230	0.500	mg/L	N/A	
Langelier Index	0.1	-5.0		2025-01-13	CT6
Solids, Total Dissolved	267	1.00	mg/L	N/A	

Field Parameters

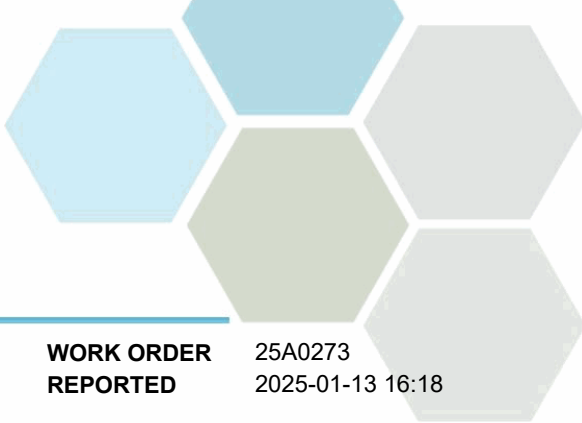
Chlorine, Free	0.59	0.02	mg/L	2025-01-06	
Temperature, field	10.2		°C	2025-01-06	

General Parameters

Alkalinity, Total (as CaCO3)	187	1.0	mg/L	2025-01-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Bicarbonate (as CaCO3)	187	1.0	mg/L	2025-01-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Colour, True	< 5.0	5.0	CU	2025-01-07	
Conductivity (EC)	495	2.0	µS/cm	2025-01-07	
Cyanide, Total	< 0.0020	0.0020	mg/L	2025-01-08	
pH	7.81	0.10	pH units	2025-01-07	HT2
Temperature, at pH	21.8		°C	2025-01-07	HT2
Turbidity	< 0.10	0.10	NTU	2025-01-07	

Total Metals

Aluminum, total	< 0.0050	0.0050	mg/L	2025-01-08	
Antimony, total	< 0.00020	0.00020	mg/L	2025-01-08	
Arsenic, total	< 0.00050	0.00050	mg/L	2025-01-08	
Barium, total	0.0139	0.0050	mg/L	2025-01-08	
Boron, total	< 0.0500	0.0500	mg/L	2025-01-08	
Cadmium, total	< 0.000010	0.000010	mg/L	2025-01-08	
Calcium, total	69.2	0.20	mg/L	2025-01-08	
Chromium, total	< 0.00050	0.00050	mg/L	2025-01-08	
Cobalt, total	< 0.00010	0.00010	mg/L	2025-01-08	
Copper, total	0.00278	0.00040	mg/L	2025-01-08	
Iron, total	< 0.010	0.010	mg/L	2025-01-08	
Lead, total	< 0.00020	0.00020	mg/L	2025-01-08	
Magnesium, total	13.8	0.010	mg/L	2025-01-08	
Manganese, total	< 0.00020	0.00020	mg/L	2025-01-08	
Mercury, total	< 0.000010	0.000010	mg/L	2025-01-09	
Molybdenum, total	0.00153	0.00010	mg/L	2025-01-08	
Nickel, total	< 0.00040	0.00040	mg/L	2025-01-08	
Potassium, total	1.94	0.10	mg/L	2025-01-08	
Selenium, total	0.00079	0.00050	mg/L	2025-01-08	



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Analyte	Result	RL	Units	Analyzed	Qualifier
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Well #4 (25A0273-04) | Matrix: Water | Sampled: 2025-01-06 11:49, Continued

Total Metals, Continued

Sodium, total	12.3	0.10	mg/L	2025-01-08	
Strontium, total	0.299	0.0010	mg/L	2025-01-08	
Uranium, total	0.00106	0.000020	mg/L	2025-01-08	
Zinc, total	< 0.0040	0.0040	mg/L	2025-01-08	

Well #6 (25A0273-05) | Matrix: Water | Sampled: 2025-01-06 13:49

Anions

Chloride	15.8	0.10	mg/L	2025-01-07	
Fluoride	0.12	0.10	mg/L	2025-01-07	
Nitrate (as N)	1.86	0.010	mg/L	2025-01-07	
Nitrite (as N)	< 0.010	0.010	mg/L	2025-01-07	
Sulfate	34.4	1.0	mg/L	2025-01-07	

Calculated Parameters

Hardness, Total (as CaCO3)	197	0.500	mg/L	N/A	
Langelier Index	0.2	-5.0		2025-01-13	CT6
Solids, Total Dissolved	249	1.00	mg/L	N/A	

Field Parameters

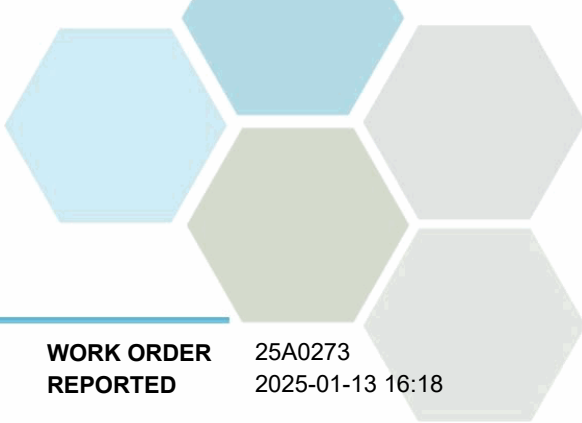
Chlorine, Free	< 0.02	0.02	mg/L	2025-01-06	
Temperature, field	10.8		°C	2025-01-06	

General Parameters

Alkalinity, Total (as CaCO3)	163	1.0	mg/L	2025-01-07	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Bicarbonate (as CaCO3)	163	1.0	mg/L	2025-01-07	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2025-01-07	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2025-01-09	
Carbon, Dissolved Organic	1.97	0.50	mg/L	2025-01-09	
Colour, True	< 5.0	5.0	CU	2025-01-07	
Conductivity (EC)	460	2.0	µS/cm	2025-01-07	
Cyanide, Total	< 0.0020	0.0020	mg/L	2025-01-08	
pH	7.99	0.10	pH units	2025-01-07	HT2
Phosphorus, Total (as P)	0.0170	0.0050	mg/L	2025-01-09	
Temperature, at pH	22.1		°C	2025-01-07	HT2
Turbidity	0.72	0.10	NTU	2025-01-07	

Total Metals

Aluminum, total	0.0068	0.0050	mg/L	2025-01-08	
Antimony, total	< 0.00020	0.00020	mg/L	2025-01-08	
Arsenic, total	< 0.00050	0.00050	mg/L	2025-01-08	
Barium, total	0.0160	0.0050	mg/L	2025-01-08	



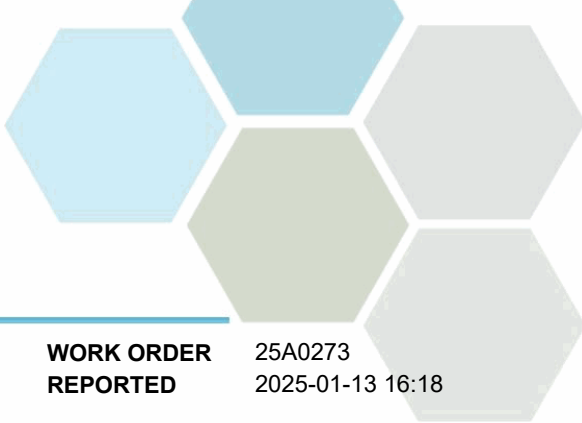
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Analyte	Result	RL	Units	Analyzed	Qualifier
Well #6 (25A0273-05) Matrix: Water Sampled: 2025-01-06 13:49, Continued					
<i>Total Metals, Continued</i>					
Boron, total	< 0.0500	0.0500	mg/L	2025-01-08	
Cadmium, total	< 0.000010	0.000010	mg/L	2025-01-08	
Calcium, total	61.8	0.20	mg/L	2025-01-08	
Chromium, total	< 0.00050	0.00050	mg/L	2025-01-08	
Cobalt, total	< 0.00010	0.00010	mg/L	2025-01-08	
Copper, total	< 0.00040	0.00040	mg/L	2025-01-08	
Iron, total	0.078	0.010	mg/L	2025-01-08	
Lead, total	< 0.00020	0.00020	mg/L	2025-01-08	
Magnesium, total	10.4	0.010	mg/L	2025-01-08	
Manganese, total	0.00268	0.00020	mg/L	2025-01-08	
Mercury, total	< 0.000010	0.000010	mg/L	2025-01-09	
Molybdenum, total	0.00269	0.00010	mg/L	2025-01-08	
Nickel, total	< 0.00040	0.00040	mg/L	2025-01-08	
Potassium, total	1.83	0.10	mg/L	2025-01-08	
Selenium, total	0.00066	0.00050	mg/L	2025-01-08	
Sodium, total	17.3	0.10	mg/L	2025-01-08	
Strontium, total	0.274	0.0010	mg/L	2025-01-08	
Uranium, total	0.00204	0.000020	mg/L	2025-01-08	
Zinc, total	< 0.0040	0.0040	mg/L	2025-01-08	

Sample Qualifiers:	
CT6	Results were based on lab temperature & lab pH.
HG1	Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

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Screen Works/ Chemistry

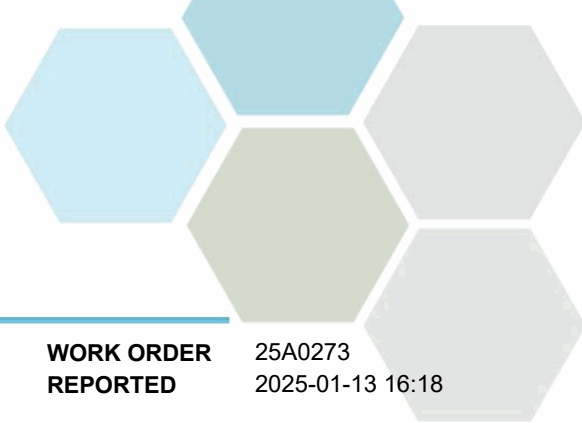
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Carbon, Dissolved Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Transmittance at 254 nm in Water	SM 5910 B* (2021)	Ultraviolet Absorption	✓	Kelowna
Turbidity in Water	SM 2130 B (2020)	Nephelometry	✓	Kelowna

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

Glossary of Terms:

RL	Reporting Limit (default)
% T	Percent Transmittance
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
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
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

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General Comments:

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