

CERTIFICATE OF ANALYSIS

REPORTED TO Prince George, City of - Pump Station
1100 Patricia Boulevard
Prince George, BC V2L 3v9

ATTENTION Dave Bobbie

PO NUMBER

PROJECT Raw Water - PW 652

PROJECT INFO [info]

WORK ORDER 23D1918

RECEIVED / TEMP 2023-04-19 09:45 / 11.3°C

REPORTED 2023-05-08 13:32

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



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: <https://www.caro.ca/terms-conditions>

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

Authorized By:

Preena Mand
Client Service Team Lead

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TEST RESULTS

REPORTED TO PROJECT Prince George, City of - Pump Station
Raw Water - PW 652

WORK ORDER REPORTED 23D1918
2023-05-08 13:32

Analyte	Result	RL	Units	Analyzed	Qualifier
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PW 652 (23D1918-01) | Matrix: Water | Sampled: 2023-04-18 09:00

Anions

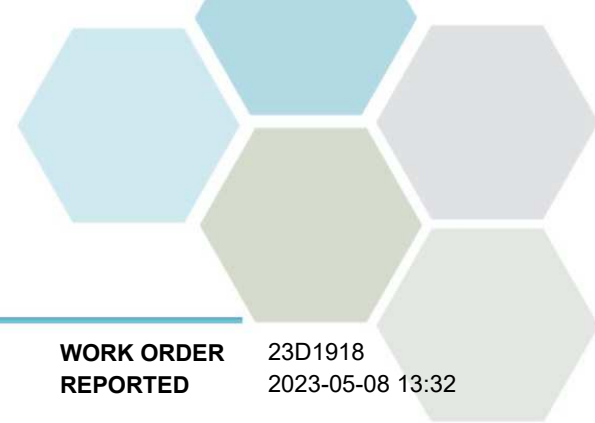
Bromide	< 0.10	0.10	mg/L	2023-04-20	
Chloride	0.23	0.10	mg/L	2023-04-20	
Fluoride	0.13	0.10	mg/L	2023-04-20	
Nitrate (as N)	0.052	0.010	mg/L	2023-04-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-04-20	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-04-20	
Sulfate	20.3	1.0	mg/L	2023-04-20	

Calculated Parameters

Total Trihalomethanes	< 0.00400	0.00400	mg/L	N/A	
Hardness, Dissolved (as CaCO3)	277	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0518	0.0100	mg/L	N/A	
Nitrogen, Total	0.0518	0.0500	mg/L	N/A	

Dissolved Metals

Aluminum, dissolved	< 0.0050	0.0050	mg/L	2023-04-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-04-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-04-23	
Barium, dissolved	0.0609	0.0050	mg/L	2023-04-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-04-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-04-23	
Boron, dissolved	< 0.0500	0.0500	mg/L	2023-04-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-04-23	
Calcium, dissolved	55.7	0.20	mg/L	2023-04-23	
Chromium, dissolved	0.0117	0.00050	mg/L	2023-04-23	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-04-23	
Copper, dissolved	< 0.00040	0.00040	mg/L	2023-04-23	
Iron, dissolved	< 0.010	0.010	mg/L	2023-04-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-04-23	
Lithium, dissolved	0.00088	0.00010	mg/L	2023-04-23	
Magnesium, dissolved	33.5	0.010	mg/L	2023-04-23	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2023-04-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-04-24	
Molybdenum, dissolved	0.00509	0.00010	mg/L	2023-04-23	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-04-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2023-04-23	
Potassium, dissolved	1.69	0.10	mg/L	2023-04-23	
Selenium, dissolved	0.00115	0.00050	mg/L	2023-04-23	
Silicon, dissolved	11.1	1.0	mg/L	2023-04-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-04-23	
Sodium, dissolved	16.2	0.10	mg/L	2023-04-23	
Strontium, dissolved	0.340	0.0010	mg/L	2023-04-23	
Sulfur, dissolved	6.9	3.0	mg/L	2023-04-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-04-23	



TEST RESULTS

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Raw Water - PW 652

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2023-05-08 13:32

Analyte	Result	RL	Units	Analyzed	Qualifier
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PW 652 (23D1918-01) | Matrix: Water | Sampled: 2023-04-18 09:00, Continued

Dissolved Metals, Continued

Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-04-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2023-04-23	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-04-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-04-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-04-23	
Uranium, dissolved	0.00658	0.000020	mg/L	2023-04-23	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-04-23	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-04-23	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2023-04-23	

General Parameters

Adsorbable Organic Halides	< 50	50	µg/L	2023-04-27	
Alkalinity, Total (as CaCO3)	269	1.0	mg/L	2023-04-20	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-04-20	
Alkalinity, Bicarbonate (as CaCO3)	269	1.0	mg/L	2023-04-20	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-04-20	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-04-20	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-04-20	
Carbon, Total Organic	< 0.50	0.50	mg/L	2023-04-19	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2023-04-21	
Solids, Total Suspended	< 2.0	2.0	mg/L	2023-04-21	

Microbiological Parameters

Coliforms, Total	< 1	1	CFU/100 mL	2023-04-19	HT3
Coliforms, Fecal	< 1	1	CFU/100 mL	2023-04-19	HT1
E. coli	< 1	1	CFU/100 mL	2023-04-19	HT3

Total Metals

Aluminum, total	< 0.0050	0.0050	mg/L	2023-04-24	
Antimony, total	< 0.00020	0.00020	mg/L	2023-04-24	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-04-24	
Barium, total	0.0603	0.0050	mg/L	2023-04-24	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-04-24	
Bismuth, total	< 0.00010	0.00010	mg/L	2023-04-24	
Boron, total	< 0.0500	0.0500	mg/L	2023-04-24	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-04-24	
Calcium, total	55.1	0.20	mg/L	2023-04-24	
Chromium, total	0.0118	0.00050	mg/L	2023-04-24	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-04-24	
Copper, total	< 0.00040	0.00040	mg/L	2023-04-24	
Iron, total	< 0.010	0.010	mg/L	2023-04-24	
Lead, total	< 0.00020	0.00020	mg/L	2023-04-24	
Lithium, total	0.00089	0.00010	mg/L	2023-04-24	
Magnesium, total	31.7	0.010	mg/L	2023-04-24	



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Analyte	Result	RL	Units	Analyzed	Qualifier
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PW 652 (23D1918-01) | Matrix: Water | Sampled: 2023-04-18 09:00, Continued

Total Metals, Continued

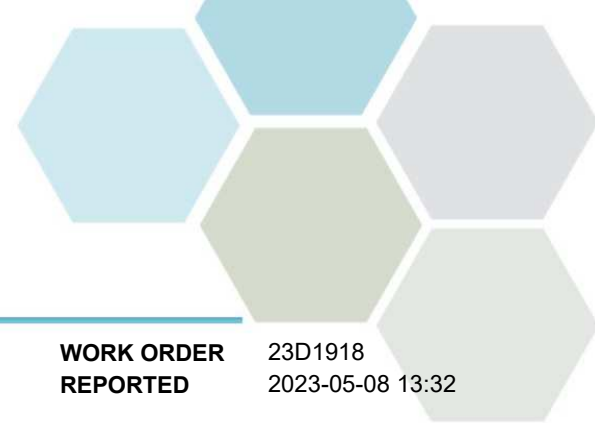
Manganese, total	< 0.00020	0.00020	mg/L	2023-04-24	
Mercury, total	< 0.000010	0.000010	mg/L	2023-04-24	
Molybdenum, total	0.00558	0.00010	mg/L	2023-04-24	
Nickel, total	< 0.00040	0.00040	mg/L	2023-04-24	
Phosphorus, total	< 0.050	0.050	mg/L	2023-04-24	
Potassium, total	1.59	0.10	mg/L	2023-04-24	
Selenium, total	0.00109	0.00050	mg/L	2023-04-24	
Silicon, total	10.9	1.0	mg/L	2023-04-24	
Silver, total	< 0.000050	0.000050	mg/L	2023-04-24	
Sodium, total	15.6	0.10	mg/L	2023-04-24	
Strontium, total	0.329	0.0010	mg/L	2023-04-24	
Sulfur, total	7.1	3.0	mg/L	2023-04-24	
Tellurium, total	< 0.00050	0.00050	mg/L	2023-04-24	
Thallium, total	< 0.000020	0.000020	mg/L	2023-04-24	
Thorium, total	< 0.00010	0.00010	mg/L	2023-04-24	
Tin, total	< 0.00020	0.00020	mg/L	2023-04-24	
Titanium, total	< 0.0050	0.0050	mg/L	2023-04-24	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-04-24	
Uranium, total	0.00732	0.000020	mg/L	2023-04-24	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-04-24	
Zinc, total	< 0.0040	0.0040	mg/L	2023-04-24	
Zirconium, total	< 0.00010	0.00010	mg/L	2023-04-24	

Volatile Organic Compounds (VOC)

Bromodichloromethane	< 0.0010	0.0010	mg/L	2023-04-24	
Bromoform	< 0.0010	0.0010	mg/L	2023-04-24	
Chloroform	< 0.0010	0.0010	mg/L	2023-04-24	
Dibromochloromethane	< 0.0010	0.0010	mg/L	2023-04-24	
Surrogate: Toluene-d8	85	70-130	%	2023-04-24	
Surrogate: 4-Bromofluorobenzene	71	70-130	%	2023-04-24	

Sample Qualifiers:

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Prince George, City of - Pump Station
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Analysis Description	Method Ref.	Technique	Accredited	Location
Adsorbable Organic Halogen in Water	PAPTAC/ISO - low level	Adsorption, Coulometric Titration		Sublet
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, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Coliforms, Fecal in Water	SM 9222 D (2015)	Membrane Filtration / m-FC Agar	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond

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)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
CFU/100 mL	Colony Forming Units per 100 millilitres
mg/L	Milligrams per litre
µg/L	Micrograms per litre
EPA	United States Environmental Protection Agency Test Methods
PAPTAC	Pulp and Paper Technical Association of Canada Standard Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

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PROJECT Raw Water - PW 652

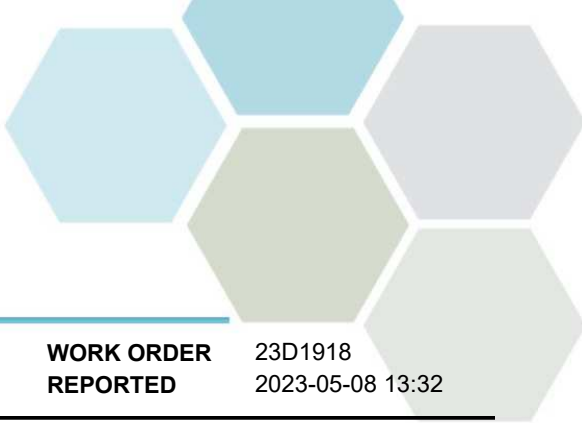
WORK ORDER 23D1918
REPORTED 2023-05-08 13:32

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody 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. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: pmand@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Prince George, City of - Pump Station
Raw Water - PW 652

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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3D1781									
Blank (B3D1781-BLK1)			Prepared: 2023-04-20, Analyzed: 2023-04-20						
Bromide	< 0.10	0.10 mg/L							
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Phosphate (as P)	< 0.0050	0.0050 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B3D1781-BLK2)			Prepared: 2023-04-20, Analyzed: 2023-04-20						
Bromide	< 0.10	0.10 mg/L							
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Phosphate (as P)	< 0.0050	0.0050 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B3D1781-BS1)			Prepared: 2023-04-20, Analyzed: 2023-04-20						
Bromide	4.04	0.10 mg/L	4.00		101	85-115			
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Fluoride	4.09	0.10 mg/L	4.00		102	88-108			
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.06	0.010 mg/L	2.00		103	85-115			
Phosphate (as P)	0.960	0.0050 mg/L	1.00		96	80-120			
Sulfate	16.1	1.0 mg/L	16.0		101	90-110			
LCS (B3D1781-BS2)			Prepared: 2023-04-20, Analyzed: 2023-04-20						
Bromide	4.09	0.10 mg/L	4.00		102	85-115			
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Fluoride	4.15	0.10 mg/L	4.00		104	88-108			
Nitrate (as N)	3.95	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.09	0.010 mg/L	2.00		104	85-115			
Phosphate (as P)	1.07	0.0050 mg/L	1.00		107	80-120			
Sulfate	16.2	1.0 mg/L	16.0		101	90-110			

Dissolved Metals, Batch B3D2049



APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Dissolved Metals, Batch B3D2049, Continued

Blank (B3D2049-BLK1)

Prepared: 2023-04-23, Analyzed: 2023-04-23

Aluminum, dissolved	< 0.0050	0.0050 mg/L							
Antimony, dissolved	< 0.00020	0.00020 mg/L							
Arsenic, dissolved	< 0.00050	0.00050 mg/L							
Barium, dissolved	< 0.0050	0.0050 mg/L							
Beryllium, dissolved	< 0.00010	0.00010 mg/L							
Bismuth, dissolved	< 0.00010	0.00010 mg/L							
Boron, dissolved	< 0.0500	0.0500 mg/L							
Cadmium, dissolved	< 0.000010	0.000010 mg/L							
Calcium, dissolved	< 0.20	0.20 mg/L							
Chromium, dissolved	< 0.00050	0.00050 mg/L							
Cobalt, dissolved	< 0.00010	0.00010 mg/L							
Copper, dissolved	< 0.00040	0.00040 mg/L							
Iron, dissolved	< 0.010	0.010 mg/L							
Lead, dissolved	< 0.00020	0.00020 mg/L							
Lithium, dissolved	< 0.00010	0.00010 mg/L							
Magnesium, dissolved	< 0.010	0.010 mg/L							
Manganese, dissolved	< 0.00020	0.00020 mg/L							
Molybdenum, dissolved	< 0.00010	0.00010 mg/L							
Nickel, dissolved	< 0.00040	0.00040 mg/L							
Phosphorus, dissolved	< 0.050	0.050 mg/L							
Potassium, dissolved	< 0.10	0.10 mg/L							
Selenium, dissolved	< 0.00050	0.00050 mg/L							
Silicon, dissolved	< 1.0	1.0 mg/L							
Silver, dissolved	< 0.000050	0.000050 mg/L							
Sodium, dissolved	< 0.10	0.10 mg/L							
Strontium, dissolved	< 0.0010	0.0010 mg/L							
Sulfur, dissolved	< 3.0	3.0 mg/L							
Tellurium, dissolved	< 0.00050	0.00050 mg/L							
Thallium, dissolved	< 0.000020	0.000020 mg/L							
Thorium, dissolved	< 0.00010	0.00010 mg/L							
Tin, dissolved	< 0.00020	0.00020 mg/L							
Titanium, dissolved	< 0.0050	0.0050 mg/L							
Tungsten, dissolved	< 0.0010	0.0010 mg/L							
Uranium, dissolved	< 0.000020	0.000020 mg/L							
Vanadium, dissolved	< 0.0050	0.0050 mg/L							
Zinc, dissolved	< 0.0040	0.0040 mg/L							
Zirconium, dissolved	< 0.00010	0.00010 mg/L							

LCS (B3D2049-BS1)

Prepared: 2023-04-23, Analyzed: 2023-04-23

Aluminum, dissolved	4.06	0.0050 mg/L	4.00	102	80-120
Antimony, dissolved	0.0411	0.00020 mg/L	0.0400	103	80-120
Arsenic, dissolved	0.415	0.00050 mg/L	0.400	104	80-120
Barium, dissolved	0.0393	0.0050 mg/L	0.0400	98	80-120
Beryllium, dissolved	0.0410	0.00010 mg/L	0.0400	103	80-120
Bismuth, dissolved	0.0406	0.00010 mg/L	0.0400	102	80-120
Boron, dissolved	0.413	0.0500 mg/L	0.400	103	80-120
Cadmium, dissolved	0.0395	0.000010 mg/L	0.0400	99	80-120
Calcium, dissolved	4.07	0.20 mg/L	4.00	102	80-120
Chromium, dissolved	0.0410	0.00050 mg/L	0.0400	103	80-120
Cobalt, dissolved	0.0411	0.00010 mg/L	0.0400	103	80-120
Copper, dissolved	0.0417	0.00040 mg/L	0.0400	104	80-120
Iron, dissolved	4.25	0.010 mg/L	4.00	106	80-120
Lead, dissolved	0.0401	0.00020 mg/L	0.0400	100	80-120
Lithium, dissolved	0.0408	0.00010 mg/L	0.0400	102	80-120
Magnesium, dissolved	4.21	0.010 mg/L	4.00	105	80-120
Manganese, dissolved	0.0407	0.00020 mg/L	0.0400	102	80-120



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Prince George, City of - Pump Station
Raw Water - PW 652

WORK ORDER REPORTED 23D1918
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B3D2049, Continued									
LCS (B3D2049-BS1), Continued					Prepared: 2023-04-23, Analyzed: 2023-04-23				
Molybdenum, dissolved	0.0385	0.00010 mg/L	0.0400		96	80-120			
Nickel, dissolved	0.0404	0.00040 mg/L	0.0400		101	80-120			
Phosphorus, dissolved	4.16	0.050 mg/L	4.00		104	80-120			
Potassium, dissolved	4.14	0.10 mg/L	4.00		103	80-120			
Selenium, dissolved	0.407	0.00050 mg/L	0.400		102	80-120			
Silicon, dissolved	4.2	1.0 mg/L	4.00		106	80-120			
Silver, dissolved	0.0404	0.000050 mg/L	0.0400		101	80-120			
Sodium, dissolved	4.08	0.10 mg/L	4.00		102	80-120			
Strontium, dissolved	0.0408	0.0010 mg/L	0.0400		102	80-120			
Sulfur, dissolved	40.5	3.0 mg/L	40.0		101	80-120			
Tellurium, dissolved	0.0406	0.00050 mg/L	0.0400		102	80-120			
Thallium, dissolved	0.0405	0.000020 mg/L	0.0400		101	80-120			
Thorium, dissolved	0.0413	0.00010 mg/L	0.0400		103	80-120			
Tin, dissolved	0.0394	0.00020 mg/L	0.0400		99	80-120			
Titanium, dissolved	0.0408	0.0050 mg/L	0.0400		102	80-120			
Tungsten, dissolved	0.0405	0.0010 mg/L	0.0400		101	80-120			
Uranium, dissolved	0.0410	0.000020 mg/L	0.0400		102	80-120			
Vanadium, dissolved	0.0407	0.0050 mg/L	0.0400		102	80-120			
Zinc, dissolved	0.415	0.0040 mg/L	0.400		104	80-120			
Zirconium, dissolved	0.0401	0.00010 mg/L	0.0400		100	80-120			

Dissolved Metals, Batch B3D2141

Blank (B3D2141-BLK1)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, dissolved	< 0.000010	0.000010 mg/L							
LCS (B3D2141-BS1)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, dissolved	0.000234	0.000010 mg/L	0.000250		94	80-120			

General Parameters, Batch B3D1469

Blank (B3D1469-BLK1)					Prepared: 2023-04-18, Analyzed: 2023-04-18				
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B3D1469-BLK2)					Prepared: 2023-04-18, Analyzed: 2023-04-18				
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B3D1469-BLK3)					Prepared: 2023-04-19, Analyzed: 2023-04-19				
Carbon, Total Organic	< 0.50	0.50 mg/L							
LCS (B3D1469-BS1)					Prepared: 2023-04-18, Analyzed: 2023-04-18				
Carbon, Total Organic	9.69	0.50 mg/L	10.0		97	78-116			
LCS (B3D1469-BS2)					Prepared: 2023-04-18, Analyzed: 2023-04-18				
Carbon, Total Organic	9.86	0.50 mg/L	10.0		99	78-116			
LCS (B3D1469-BS3)					Prepared: 2023-04-19, Analyzed: 2023-04-19				
Carbon, Total Organic	10.4	0.50 mg/L	10.0		104	78-116			

General Parameters, Batch B3D1766

Blank (B3D1766-BLK1)					Prepared: 2023-04-20, Analyzed: 2023-04-21				
Solids, Total Suspended	< 2.0	2.0 mg/L							
Blank (B3D1766-BLK2)					Prepared: 2023-04-20, Analyzed: 2023-04-21				
Solids, Total Suspended	< 2.0	2.0 mg/L							



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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General Parameters, Batch B3D1766, Continued

LCS (B3D1766-BS1)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Solids, Total Suspended	98.0	10.0 mg/L	100		98	85-115			
LCS (B3D1766-BS2)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Solids, Total Suspended	104	10.1 mg/L	100		104	85-115			

General Parameters, Batch B3D1778

Blank (B3D1778-BLK1)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3D1778-BLK2)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3D1778-BLK3)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B3D1778-BS1)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	0.994	0.050 mg/L	1.00		99	85-115			
LCS (B3D1778-BS2)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	0.988	0.050 mg/L	1.00		99	85-115			
LCS (B3D1778-BS3)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Ammonia, Total (as N)	0.995	0.050 mg/L	1.00		100	85-115			

General Parameters, Batch B3D1816

Blank (B3D1816-BLK1)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3D1816-BLK2)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3D1816-BS1)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Nitrogen, Total Kjeldahl	1.08	0.050 mg/L	1.00		108	85-115			
LCS (B3D1816-BS2)				Prepared: 2023-04-20, Analyzed: 2023-04-21					
Nitrogen, Total Kjeldahl	1.07	0.050 mg/L	1.00		107	85-115			

General Parameters, Batch B3D1834

Blank (B3D1834-BLK1)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3D1834-BS1)				Prepared: 2023-04-20, Analyzed: 2023-04-20					
Alkalinity, Total (as CaCO3)	94.2	1.0 mg/L	100		94	80-120			

Microbiological Parameters, Batch B3D1600

Blank (B3D1600-BLK1)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Microbiological Parameters, Batch B3D1600, Continued

Blank (B3D1600-BLK2)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK3)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK4)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK5)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK6)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK7)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK8)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLK9)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLKA)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLKB)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B3D1600-BLKC)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							

Microbiological Parameters, Batch B3D1689

Blank (B3D1689-BLK1)				Prepared: 2023-04-19, Analyzed: 2023-04-19					
Coliforms, Fecal	< 1	1 CFU/100 mL							

Total Metals, Batch B3D2122

Blank (B3D2122-BLK1)				Prepared: 2023-04-24, Analyzed: 2023-04-24					
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Beryllium, total	< 0.00010	0.00010 mg/L							
Bismuth, total	< 0.00010	0.00010 mg/L							



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B3D2122, Continued

Blank (B3D2122-BLK1), Continued

Prepared: 2023-04-24, Analyzed: 2023-04-24

Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Lithium, total	< 0.00010	0.00010 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Phosphorus, total	< 0.050	0.050 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Silicon, total	< 1.0	1.0 mg/L							
Silver, total	< 0.000050	0.000050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Sulfur, total	< 3.0	3.0 mg/L							
Tellurium, total	< 0.00050	0.00050 mg/L							
Thallium, total	< 0.000020	0.000020 mg/L							
Thorium, total	< 0.00010	0.00010 mg/L							
Tin, total	< 0.00020	0.00020 mg/L							
Titanium, total	< 0.0050	0.0050 mg/L							
Tungsten, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Vanadium, total	< 0.0050	0.0050 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							

LCS (B3D2122-BS1)

Prepared: 2023-04-24, Analyzed: 2023-04-24

Aluminum, total	4.09	0.0050 mg/L	4.00		102	80-120			
Antimony, total	0.0409	0.00020 mg/L	0.0400		102	80-120			
Arsenic, total	0.411	0.00050 mg/L	0.400		103	80-120			
Barium, total	0.0411	0.0050 mg/L	0.0400		103	80-120			
Beryllium, total	0.0412	0.00010 mg/L	0.0400		103	80-120			
Bismuth, total	0.0389	0.00010 mg/L	0.0400		97	80-120			
Boron, total	0.428	0.0500 mg/L	0.400		107	80-120			
Cadmium, total	0.0404	0.000010 mg/L	0.0400		101	80-120			
Calcium, total	4.15	0.20 mg/L	4.00		104	80-120			
Chromium, total	0.0413	0.00050 mg/L	0.0400		103	80-120			
Cobalt, total	0.0416	0.00010 mg/L	0.0400		104	80-120			
Copper, total	0.0416	0.00040 mg/L	0.0400		104	80-120			
Iron, total	4.18	0.010 mg/L	4.00		104	80-120			
Lead, total	0.0399	0.00020 mg/L	0.0400		100	80-120			
Lithium, total	0.0409	0.00010 mg/L	0.0400		102	80-120			
Magnesium, total	4.11	0.010 mg/L	4.00		103	80-120			
Manganese, total	0.0414	0.00020 mg/L	0.0400		103	80-120			
Molybdenum, total	0.0397	0.00010 mg/L	0.0400		99	80-120			
Nickel, total	0.0411	0.00040 mg/L	0.0400		103	80-120			
Phosphorus, total	4.10	0.050 mg/L	4.00		102	80-120			
Potassium, total	4.13	0.10 mg/L	4.00		103	80-120			
Selenium, total	0.419	0.00050 mg/L	0.400		105	80-120			
Silicon, total	4.4	1.0 mg/L	4.00		109	80-120			



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3D2122, Continued									
LCS (B3D2122-BS1), Continued					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Silver, total	0.0423	0.000050 mg/L	0.0400		106	80-120			
Sodium, total	4.06	0.10 mg/L	4.00		101	80-120			
Strontium, total	0.0413	0.0010 mg/L	0.0400		103	80-120			
Sulfur, total	41.9	3.0 mg/L	40.0		105	80-120			
Tellurium, total	0.0393	0.00050 mg/L	0.0400		98	80-120			
Thallium, total	0.0396	0.000020 mg/L	0.0400		99	80-120			
Thorium, total	0.0405	0.00010 mg/L	0.0400		101	80-120			
Tin, total	0.0422	0.00020 mg/L	0.0400		105	80-120			
Titanium, total	0.0419	0.0050 mg/L	0.0400		105	80-120			
Tungsten, total	0.0399	0.0010 mg/L	0.0400		100	80-120			
Uranium, total	0.0408	0.000020 mg/L	0.0400		102	80-120			
Vanadium, total	0.0407	0.0050 mg/L	0.0400		102	80-120			
Zinc, total	0.411	0.0040 mg/L	0.400		103	80-120			
Zirconium, total	0.0418	0.00010 mg/L	0.0400		104	80-120			

Total Metals, Batch B3D2142

Blank (B3D2142-BLK1)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B3D2142-BLK2)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B3D2142-BS1)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, total	0.000229	0.000010 mg/L	0.000250		92	80-120			
LCS (B3D2142-BS2)					Prepared: 2023-04-24, Analyzed: 2023-04-24				
Mercury, total	0.000263	0.000010 mg/L	0.000250		105	80-120			

Volatile Organic Compounds (VOC), Batch B3D2098

Blank (B3D2098-BLK1)					Prepared: 2023-04-23, Analyzed: 2023-04-23				
Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 0.0010	0.0010 mg/L							
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0259	mg/L	0.0250		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.0241	mg/L	0.0249		97	70-130			