

March 8, 2021

20-135-01PG
Ministry File: GS21HQ144

Ministry of Environment and Climate Change Strategy
PO Box 9362 Stn. Prov. Govt.
Victoria, B.C.
V8W 9M2

Attn: Carys Pinches, Water Policy Advisor

Re: Hullcar Monitoring and Well Sampling: December 2020, February 2021.

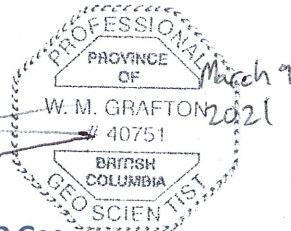
Western Water Associates Ltd. (WWAL) is pleased to provide this report documenting the results of a groundwater monitoring and sampling program conducted on behalf of the Ministry of Environment and Climate Change Strategy.

Six wells were monitored and sampled December 22, 2020 and February 3, 2021. All sampling was conducted following methodology recommended in the BC Environmental Laboratory Manual. All samples were submitted to CARO Labs in Kelowna B.C. following standard chain of custody procedures. Sampling was conducted by hydrogeologist Warren Grafton P.Ge. (December, 2020) and Lisa Gardiner P.Eng. (February, 2021). Field measurements and analytical results compared to applicable standards are included for reference along with datalogger and files provided separately as an attachment.

We trust that the professional opinions and advice presented in this document are sufficient for your current requirements. Should you have any questions, or if we can be of further assistance in this matter, please contact the undersigned.

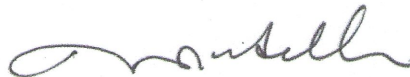
WESTERN WATER ASSOCIATES LTD.

Report by:



Warren Grafton BSc. P.Ge.
Hydrogeologist

Senior Review by:



Douglas Geller, M.Sc., P.Ge.
Principal Hydrogeologist

Scope of Services

As part of the monitoring well sampling program, WWAL completed the following work program, which includes works requested in GS21HQ144:

1. Reviewed monitoring well construction and developed a sampling plan including purge volumes and static water depths.
2. Complete a site-specific health and safety plan including safe work procedures surrounding COVID.
3. Collected depth to water measurements utilizing an electric well sounder and removed/download dataloggers from each well prior to purging.
4. Installed a temporary submersible pump and purge at least three well volumes from 5 wells. One well was monitored until parameters stabilized within 10% prior to sampling. Standard field water quality parameters including pH, temperature, and electrical conductivity was monitored throughout the purging process.
5. Samples were collected in laboratory supplied bottles and submitted to CARO Labs in Kelowna B.C. following standard chain of custody procedures. Analysis was requested for the analytes described in the ITQ plus HCO₃. One blind field duplicated (BFD) from each sampling event was submitted for QA/QC purposes.
6. Preparation of this brief memorandum summarizing the sampling program.

Field Methods

Monitoring Well Sampling Program

All monitoring wells were sampled and purged utilizing a submersible Waterra pump with the exception of MW20-4A which due to the depth of water required use of a disposable bailer. Table 1 below summarizes purge methodology and field observations collected from each well prior to sampling.

Table 1: Summary of Field Observations.

Well ID	Date	Purge Methodology	Volume Purged (L)	Depth to Water (mbtoc)	Temperature (°C)	pH	Conductivity (µs)
MW-19-1A-R	22/12/2020	3 Well Volumes	155	8.72	8.3	7.48	1184
MW-19-1A-R	03/02/2021	3 Well Volumes	45	8.60	10.6	7.65	740
MW-19-2A	22/12/2020	3 Well Volumes	80	8.35	9.6	7.28	1064

Well ID	Date	Purge Methodology	Volume Purged (L)	Depth to Water (mbtoc)	Temperature (°C)	pH	Conductivity (µs)
MW-19-2A	03/02/2021	3 Well Volumes	60	8.18	9.0	7.51	976
MW-19-3A	22/12/2020	3 Well Volumes	50	2.06	7.5	7.49	950
MW-19-3A	03/02/2021	3 Well Volumes	60	1.93	8.0	7.47	843
MW-20-1B	22/12/2020	Parameter Stabilization	175	8.55	8.1	7.69	618
MW-20-1B	03/02/2021	3 Well Volumes	510	8.48	9.1	6.8	1085
MW-20-2B	22/12/2020	Parameter Stabilization	230	7.22	9.5	7.52	813
MW-20-2B	03/02/2021	3 Well Volumes	600	7.11	10.6	7.65	740
MW-20-4A	22/12/2020	3 Well Volumes	93	16.11	8.6	8.03	1128
MW-20-4A	03/02/2021	3 Well Volumes	120	16.11	9.6	7.58	951

Analytical Results

Analytical summary tables were produced utilizing Wireless Water and compared to B.C. Contaminated Sites Regulation Numerical Standards in Water (Schedule 3.2) (ENV, 2021). Without making any determination on applicable standards, the summary tables compare results to aquatic life (AW), irrigation (IW), livestock watering (LW) and drinking water (DL) standards. Summary tables and laboratory certificates of analysis are included as an attachment for reference.

Quality Assurance / Quality Control (QA/QC)

Laboratory Qualifications

CARO is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. CARO is fully accredited to analyze and report on the analyses completed for this project.

To validate the reproducibility of the laboratory analyses and confirm that standard field sampling techniques utilized by WWAL personnel are capable of yielding reproducible results, blind field duplicates (BFD's) were submitted to the laboratory and analyzed for select parameters. Two water sample duplicates, one from each sampling event were submitted for analysis of total metals. Field duplicates

were compared to their corresponding samples and the Relative Percent Difference (RPD) were calculated. RPD is defined as the difference of the absolute value of the duplicate results divided by the average of the duplicate results, expressed as a percentage. Analytical error increases near the method detection limit (MDL) and as such, the RPD calculation should not be performed unless the concentrations of both samples are greater than 5 times the MDL. Duplicate acceptance criteria for is +/- 20% (Province of British Columbia, 2013). Calculated RPDs for the duplicated samples were typically low (~<5%) with occasionally higher differences noted in analytes detected in relatively low concentrations (near or below 5 times the MDL). As such, the sample duplicate variation is considered acceptable. Duplicate RPD calculations are included for reference as an attachment.

As an internal quality control, samples submitted to CARO were subjected to one or more of six laboratory QA/QC procedures (method blanks, lab duplicates, matrix spike recoveries, surrogate recovery, reference material comparison and/or laboratory control samples), which were documented on the laboratory certificates provided. A summary of the lab QA/QC attached to each laboratory report is included as an attachment. The Laboratory QA/QC results were reviewed by WWAL staff and determined to be acceptable to industry standards. From the QA/QC assessment.

List of Attachments

- Groundwater Analytical Summary Tables
- Duplicate Sample RPD Calculations
- Laboratory Certificates of Analysis
- Data logger files provided separately from report

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REFERENCES

- British Columbia Ministry of Environment. (2013). B.C. Field Sampling Manual. B.C. Retrieved from https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_complete.pdf
- ENV. (2021, January 26). *Contaminated Sites Regulation*. Retrieved from Environmental Managment Act: https://www.bclaws.gov.bc.ca/civix/document/id/lc/statreg/375_96_08

Hullcar Groundwater Monitoring

Duplicate Water Samples Report

		Sampling Location	MW19-3A	MW19-3A		MW19-3A	MW19-3A	
		Date Sampled	22-Dec-20	22-Dec-20		03-Feb-21	03-Feb-21	
		Lab Sample ID	20L2625-03	20L2625-07		21B0566-04	21B0566-07	
		Sample Type	Normal	Duplicate		Normal	Duplicate	
Analyte	Unit			RPD				RPD
Calcium (total, meq/L) (calculated)	meq/L	9.33	9.28	0.5%	8.83	9.03	2.2%	
Magnesium (total, meq/L) (calculated)	meq/L	1.45	1.51	4.1%	1.61	1.56	3.2%	
Potassium (total, meq/L) (calculated)	meq/L	0.168	0.173	2.9%	0.192	0.189	1.6%	
Sodium (total, meq/L) (calculated)	meq/L	0.635	0.661	4.0%	0.670	0.653	2.6%	
Potassium (total)	mg/L	6.57	6.75	2.7%	7.50	7.37	1.7%	
Arsenic (total)	mg/L	0.00060	0.00063	4.9%	0.00051	0.00051	0.0%	
Barium (total)	mg/L	0.0699	0.0719	2.8%	0.0565	0.0554	2.0%	
Calcium (total)	mg/L	187	186	0.5%	177	181	2.2%	
Lithium (total)	mg/L	0.00585	0.00591	1.0%	0.00531	0.00542	2.1%	
Magnesium (total)	mg/L	17.6	18.4	4.4%	19.6	19.0	3.1%	
Manganese (total)	mg/L	0.00211	0.00206	2.4%	0.00162	0.00153	5.7%	
Molybdenum (total)	mg/L	0.00151	0.00171	12.4%	0.00144	0.00139	3.5%	
Nickel (total)	mg/L	0.00148	0.00153	3.3%	0.00196	0.00164	17.8%	
Selenium (total)	mg/L	0.00369	0.00364	1.4%	0.00346	0.00343	0.9%	
Silicon (total, as Si)	mg/L	9.8	10.4	5.9%	10.8	10.3	4.7%	
Sodium (total)	mg/L	14.6	15.2	4.0%	15.4	15.0	2.6%	
Strontium (total)	mg/L	1.63	1.61	1.2%	1.37	1.35	1.5%	
Sulphur (total)	mg/L	64.6	65.9	2.0%	60.4	58.9	2.5%	
Uranium (total)	mg/L	0.0298	0.0298	0.0%	0.0275	0.0276	0.4%	



Hullcar Groundwater Monitoring

Duplicate Water Samples Report

Analyte	Unit	MW19-3A 22-Dec-20 20L2625-03 Normal	MW19-3A 22-Dec-20 20L2625-07 Duplicate	RPD	MW19-3A 03-Feb-21 21B0566-04 Normal	MW19-3A 03-Feb-21 21B0566-07 Duplicate	RPD
Calcium (total, meq/L) (calculated)	meq/L	9.33	9.28	0.5%	8.83	9.03	2.2%
Magnesium (total, meq/L) (calculated)	meq/L	1.45	1.51	4.1%	1.61	1.56	3.2%
Potassium (total, meq/L) (calculated)	meq/L	0.168	0.173	2.9%	0.192	0.189	1.6%
Sodium (total, meq/L) (calculated)	meq/L	0.635	0.661	4.0%	0.670	0.653	2.6%
Potassium (total)	mg/L	6.57	6.75	2.7%	7.50	7.37	1.7%
Aluminum (total)	mg/L	0.0132	0.0074	56.3%	0.0057	0.0054	5.4%
Arsenic (total)	mg/L	0.00060	0.00063	4.9%	0.00051	0.00051	0.0%
Barium (total)	mg/L	0.0699	0.0719	2.8%	0.0565	0.0554	2.0%
Cadmium (total)	mg/L	0.000038	0.000054	34.8%	0.000041	0.000045	9.3%
Calcium (total)	mg/L	187	186	0.5%	177	181	2.2%
Copper (total)	mg/L	0.00240	0.00343	35.3%	0.00557	0.00542	2.7%
Iron (total)	mg/L	0.024	0.013	59.5%	0.015	0.016	6.5%
Lithium (total)	mg/L	0.00585	0.00591	1.0%	0.00531	0.00542	2.1%
Magnesium (total)	mg/L	17.6	18.4	4.4%	19.6	19.0	3.1%
Manganese (total)	mg/L	0.00211	0.00206	2.4%	0.00162	0.00153	5.7%
Molybdenum (total)	mg/L	0.00151	0.00171	12.4%	0.00144	0.00139	3.5%
Nickel (total)	mg/L	0.00148	0.00153	3.3%	0.00196	0.00164	17.8%
Selenium (total)	mg/L	0.00369	0.00364	1.4%	0.00346	0.00343	0.9%
Silicon (total, as Si)	mg/L	9.8	10.4	5.9%	10.8	10.3	4.7%
Sodium (total)	mg/L	14.6	15.2	4.0%	15.4	15.0	2.6%
Strontium (total)	mg/L	1.63	1.61	1.2%	1.37	1.35	1.5%
Sulphur (total)	mg/L	64.6	65.9	2.0%	60.4	58.9	2.5%
Uranium (total)	mg/L	0.0298	0.0298	0.0%	0.0275	0.0276	0.4%



Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	Guideline				Sampling Location	MW19-1A-R	MW19-1A-R	MW19-2A	MW19-2A	MW19-3A	MW19-3A
		BC CSR AW(F)	BC CSR IW	BC CSR LW	BC CSR DW	Date Sampled	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	(Duplicate) 22-Dec-20
Lab Results												
No Analyte Category Assigned												
Ammonia (free, as N)	mg/L	NG	NG	NG	NG		<0.001		<0.001			
Dissolved kjeldahl nitrogen	mg/L	NG	NG	NG	NG	0.511	0.539	0.323	0.263	0.273		
Anions and Cations in meq/L unit												
Aluminum (meq/L) (calculated)	meq/L	NG	NG	NG	NG	<0.00056	<0.00056	<0.00056	<0.00056	<0.00056		
Barium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.00173	0.00149	0.00175	0.00146	0.000977		
Boron (meq/L) (calculated)	meq/L	NG	NG	NG	NG	<0.0139	<0.0139	<0.0139	<0.0139	<0.0139		
Calcium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	11.1	11.8	7.78	8.33	8.28		
Calcium (total, meq/L) (calculated)	meq/L	NG	NG	NG	NG	12.5	11.7	8.63	8.33	9.33	9.28	
Chloride (meq/L) (calculated)	meq/L	NG	NG	NG	NG	1.02	1.01	0.990	1.04	0.615		
Chromium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.000056	0.0000612	0.000056	0.0000623	<0.000029		
Copper (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.0000406	0.000847	0.0000359	0.0000384	0.0000765		
Lead (meq/L) (calculated)	meq/L	NG	NG	NG	NG	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019		
Lithium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.00110	0.00110	0.00157	0.00154	0.000811		
Magnesium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	2.66	2.76	3.51	3.69	1.5		
Magnesium (total, meq/L) (calculated)	meq/L	NG	NG	NG	NG	2.65	2.67	3.39	3.69	1.45	1.51	
Potassium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.169	0.191	0.333	0.373	0.168		
Potassium (total, meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.174	0.186	0.333	0.376	0.168	0.173	
Sodium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.631	0.679	1.21	1.29	0.631		
Sodium (total, meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.657	0.661	1.22	1.3	0.635	0.661	
Strontium (meq/L) (calculated)	meq/L	NG	NG	NG	NG	0.0361	0.0310	0.0406	0.0352	0.0363		
Sulfate (meq/L) (calculated)	meq/L	NG	NG	NG	NG	8.24	7.99	5.00	5.00	3.73		
Zinc (meq/L) (calculated)	meq/L	NG	NG	NG	NG	<0.00012	0.000529	<0.00012	<0.00012	<0.00012		
Dissolved Metals												
Aluminum (dissolved)	mg/L	NG	5.000	5.000	9.500 ^{4.1}	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Antimony (dissolved)	mg/L	0.090	NG	NG	0.006	<0.00020	0.00029	<0.00020	<0.00020	<0.00020		
Arsenic (dissolved)	mg/L	0.050	0.100	0.025	0.010	0.00061	0.00071	0.00097	0.00074	0.00057		
Barium (dissolved)	mg/L	10.000	NG	NG	1.000	0.119	0.102	0.120	0.100	0.0671		
Beryllium (dissolved)	mg/L	0.0015	0.100	0.100	0.008	<0.00010	0.00014	<0.00010	<0.00010	<0.00010		
Bismuth (dissolved)	mg/L	NG	NG	NG	NG	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	Guideline				Sampling Location					
		BC CSR AW(F)	BC CSR IW	BC CSR LW	BC CSR DW	MW19-1A-R		MW19-2A		MW19-3A	
						Date Sampled	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20
Boron (dissolved)	mg/L	12.000	0.500 ^{2.1}	5.000	5.000	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Cadmium (dissolved)	mg/L	Calc ^{1.1}	0.005	0.080	0.005	0.000028	0.000035	0.000029	0.000014	0.000056	
Calcium (dissolved)	mg/L	NG	NG	1000	NG	222	236	156	167	166	
Chromium (dissolved)	mg/L	0.010 ^{1.2}	0.005 ^{2.2}	0.050 ^{3.1}	0.050 ^{4.2}	0.00097	0.00106	0.00097	0.00108	<0.00050	
Cobalt (dissolved)	mg/L	0.040	0.050	1.000	0.001	0.00015	0.00013	0.00010	<0.00010	0.00010	
Copper (dissolved)	mg/L	Calc ^{1.3}	0.200	0.300	1.500 ^{4.3}	0.00129	0.0269	0.00114	0.00122	0.00243	
Iron (dissolved)	mg/L	NG	5.000 ^{2.3}	NG	6.500 ^{4.4}	<0.010	0.036	<0.010	<0.010	<0.010	
Lead (dissolved)	mg/L	Calc ^{1.4}	0.200	0.100	0.010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Lithium (dissolved)	mg/L	NG	2.500 ^{2.4}	5.000	0.008	0.00763	0.00762	0.0109	0.0107	0.00563	
Magnesium (dissolved)	mg/L	NG	NG	NG	NG	32.3	33.5	42.7	44.9	18.2	
Manganese (dissolved)	mg/L	NG	0.200 ^{2.5}	NG	1.500 ^{4.5}	0.00036	0.00112	0.00384	0.00433	0.00130	
Mercury (dissolved)	mg/L	0.00025	0.001	0.002	0.001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Molybdenum (dissolved)	mg/L	10.000	0.010 ^{2.6}	0.050	0.250	0.00078	0.00098	0.00114	0.00114	0.00149	
Nickel (dissolved)	mg/L	Calc ^{1.5}	0.200	1.000	0.080	0.00144	0.00156	0.00129	0.00137	0.00176	
Selenium (dissolved)	mg/L	0.020	0.020 ^{2.7}	0.030	0.010	0.00964	0.00870	0.00659	0.00475	0.00334	
Silicon (dissolved, as Si)	mg/L	NG	NG	NG	NG	12.7	14.1	12.6	13.4	9.7	
Silver (dissolved)	mg/L	Calc ^{1.6}	NG	NG	0.020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium (dissolved)	mg/L	NG	NG	NG	200 ^{4.6}	14.5	15.6	27.8	29.7	14.5	
Strontium (dissolved)	mg/L	NG	NG	NG	2.500	1.58	1.36	1.78	1.54	1.59	
Sulphur (dissolved)	mg/L	NG	NG	NG	NG	138	130	91.0	82.6	66.1	
Tellurium (dissolved)	mg/L	NG	NG	NG	NG	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Thallium (dissolved)	mg/L	0.003	NG	NG	NG	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Thorium (dissolved)	mg/L	NG	NG	NG	NG	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin (dissolved)	mg/L	NG	NG	NG	2.500	0.00020	0.00552	<0.00020	<0.00020	<0.00020	
Titanium (dissolved)	mg/L	1.000	NG	NG	NG	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Tungsten (dissolved)	mg/L	NG	NG	NG	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Uranium (dissolved)	mg/L	0.085	0.010	0.200	0.020	0.00559	0.00538	<u>0.0113</u>	<u>0.0106</u>	0.0290	
Vanadium (dissolved)	mg/L	NG	0.100	0.100	0.020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc (dissolved)	mg/L	Calc ^{1.7}	1.000 ^{2.8}	2.000	3.000 ^{4.7}	<0.0040	0.0173	<0.0040	<0.0040	<0.0040	
Zirconium (dissolved)	mg/L	NG	NG	NG	NG	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	
General											
Alkalinity (bicarbonate, as CaCO3)	mg/L	NG	NG	NG	NG	310	317	376	359	366	

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	Guideline				Sampling Location	MW19-1A-R	MW19-1A-R	MW19-2A	MW19-2A	MW19-3A	MW19-3A
		BC CSR AW(F)	BC CSR IW	BC CSR LW	BC CSR DW	Date Sampled	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	(Duplicate) 22-Dec-20
Alkalinity (carbonate, as CaCO3)	mg/L	NG	NG	NG	NG	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity (hydroxide, as CaCO3)	mg/L	NG	NG	NG	NG	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity (phenolphthalein, as CaCO3)	mg/L	NG	NG	NG	NG	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity (total, as CaCO3)	mg/L	NG	NG	NG	NG	310	317	376	359	366		
Chloride	mg/L	1500	100 ^{2.9}	600	250 ^{4.8}	36.2	35.9	35.1	36.9	21.8		
Hardness, Total (dissolved as CaCO3)	mg/L	NG	NG	NG	NG	687	728	567	603	491		
Hardness, Total (total as CaCO3)	mg/L	NG	NG	NG	NG						540	
Sulphate	mg/L	Calc ^{1.8}	NG	1000	500 ^{4.9}	396	384	240	240	179		
Total organic carbon	mg/L	NG	NG	NG	NG	3.73	4.83	2.34	2.56	2.38		
Total suspended solids	mg/L	NG	NG	NG	NG	5.6	<2.0	<2.0	4.4	<2.0		
Nutrients												
Ammonia (total, as N)	mg/L	Calc ^{1.9}	NG	NG	NG	<0.050	<0.050	<0.050	<0.050	<0.050		
Nitrate (as N)	mg/L	400 ^{1.10}	NG	100 ^{3.2}	10 ^{4.10}	13.7	12.3	11.7	12.7	9.93		
Nitrate + Nitrite (as N) (calculated)	mg/L	400 ^{1.11}	NG	100 ^{3.3}	10 ^{4.11}	13.7	12.3	11.7	12.7	9.93		
Nitrite (as N)	mg/L	Calc ^{1.12}	NG	10.000	1	<0.010	<0.010	<0.010	<0.010	<0.010		
Phosphorus (dissolved, by ICPMS/ICPOES)	mg/L	NG	NG	NG	NG	<0.050	<0.050	<0.050	<0.050	<0.050		
Phosphorus (total, by ICPMS/ICPOES)	mg/L	NG	NG	NG	NG	<0.050	<0.050	<0.050	<0.050	<0.050	0.324	
Phosphorus (dissolved, APHA 4500-P)	mg/L	NG	NG	NG	NG	0.0187	0.0097	0.0201	0.0186	0.0121		
Potassium (dissolved)	mg/L	NG	NG	NG	NG	6.60	7.48	13.0	14.6	6.57		
Potassium (total)	mg/L	NG	NG	NG	NG	6.79	7.28	13.0	14.7	6.57	6.75	
Total Metals												
Aluminum (total)	mg/L	NG	5.000	5.000	9.500 ^{4.12}	0.0192	0.0069	0.0083	0.0437	0.0132	0.0074	
Antimony (total)	mg/L	0.090	NG	NG	0.006	<0.00020	0.00036	<0.00020	<0.00020	<0.00020	0.00026	
Arsenic (total)	mg/L	0.050	0.100	0.025	0.010	0.00065	0.00085	0.00092	0.00087	0.00060	0.00063	
Barium (total)	mg/L	10.000	NG	NG	1.000	0.127	0.102	0.124	0.102	0.0699	0.0719	
Beryllium (total)	mg/L	0.0015	0.100	0.100	0.008	<0.00010	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	
Bismuth (total)	mg/L	NG	NG	NG	NG	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Boron (total)	mg/L	12.000	0.500 ^{2.10}	5.000	5.000	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Cadmium (total)	mg/L	Calc ^{1.13}	0.005	0.080	0.005	0.000032	0.000030	0.000025	0.000019	0.000038	0.000054	
Calcium (total)	mg/L	NG	NG	1000	NG	251	235	173	167	187	186	
Chromium (total)	mg/L	0.010 ^{1.14}	0.005 ^{2.11}	0.050 ^{3.4}	0.050 ^{4.13}	0.00101	0.00107	0.00098	0.00155	0.00050	<0.00050	

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	Guideline				Sampling Location					
		BC CSR AW(F)	BC CSR IW	BC CSR LW	BC CSR DW	Date Sampled		MW19-2A	MW19-2A	MW19-3A	MW19-3A
						MW19-1A-R	MW19-1A-R	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21
Cobalt (total)	mg/L	0.040	0.050	1.000	0.001	0.00018	0.00014	0.00012	0.00022	0.00014	0.00012
Copper (total)	mg/L	Calc ^{1.15}	0.200	0.300	1.500 ^{4.14}	0.00278	0.0382	0.00119	0.00181	0.00240	0.00343
Iron (total)	mg/L	NG	5.000 ^{2.12}	NG	6.500 ^{4.15}	0.067	0.035	0.020	0.166	0.024	0.013
Lead (total)	mg/L	Calc ^{1.16}	0.200	0.100	0.010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (total)	mg/L	NG	2.500 ^{2.13}	5.000	0.008	0.00825	0.00748	0.0114	0.0106	0.00585	0.00591
Magnesium (total)	mg/L	NG	NG	NG	NG	32.2	32.4	41.2	44.8	17.6	18.4
Manganese (total)	mg/L	NG	0.200 ^{2.14}	NG	1.500 ^{4.16}	0.00172	0.00115	0.00472	0.0167	0.00211	0.00206
Mercury (total)	mg/L	0.00025	0.001	0.002	0.001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (total)	mg/L	10.000	0.010 ^{2.15}	0.050	0.250	0.00081	0.00094	0.00116	0.00108	0.00151	0.00171
Nickel (total)	mg/L	Calc ^{1.17}	0.200	1.000	0.080	0.00156	0.00151	0.00123	0.00172	0.00148	0.00153
Selenium (total)	mg/L	0.020	0.020 ^{2.16}	0.030	0.010	0.00947	0.00859	0.00591	0.00418	0.00369	0.00364
Silicon (total, as Si)	mg/L	NG	NG	NG	NG	13.3	13.8	12.4	13.5	9.8	10.4
Silver (total)	mg/L	Calc ^{1.18}	NG	NG	0.020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium (total)	mg/L	NG	NG	NG	200 ^{4.17}	15.1	15.2	28.0	30.0	14.6	15.2
Strontium (total)	mg/L	NG	NG	NG	2.500	1.67	1.34	1.83	1.56	1.63	1.61
Sulphur (total)	mg/L	NG	NG	NG	NG	141	127	89.3	84.9	64.6	65.9
Tellurium (total)	mg/L	NG	NG	NG	NG	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (total)	mg/L	0.003	NG	NG	NG	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (total)	mg/L	NG	NG	NG	NG	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (total)	mg/L	NG	NG	NG	2.500	0.00021	0.00595	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (total)	mg/L	1.000	NG	NG	NG	0.0177	<0.0050	0.0152	<0.0050	0.0132	0.0053
Tungsten (total)	mg/L	NG	NG	NG	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (total)	mg/L	0.085	0.010	0.200	0.020	0.00568	0.00542	0.0112	0.0108	0.0298	0.0298
Vanadium (total)	mg/L	NG	0.100	0.100	0.020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (total)	mg/L	Calc ^{1.19}	1.000 ^{2.17}	2.000	3.000 ^{4.18}	<0.0040	0.0206	<0.0040	<0.0040	<0.0040	<0.0040
Zirconium (total)	mg/L	NG	NG	NG	NG	<0.00010	<0.00010	0.00011	0.00019	<0.00010	<0.00010



Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	MW19-3A	MW19-3A	MW20-1B	MW20-1B	MW20-2B	MW20-2B	MW20-4A	MW20-4A
		03-Feb-21	(Duplicate) 03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	23-Dec-20	03-Feb-21
Lab Results									
No Analyte Category Assigned									
Ammonia (free, as N)	mg/L	<0.001			0.003		<0.001		<0.001
Dissolved kjeldahl nitrogen	mg/L	0.300		0.162	0.148	0.128	0.110	0.211	0.571
Anions and Cations in meq/L unit									
Aluminum (meq/L) (calculated)	meq/L	<0.00056		<0.00056	<0.00056	<0.00056	<0.00056	<0.00056	<0.00056
Barium (meq/L) (calculated)	meq/L	0.000814		0.000782	0.000661	0.000961	0.000828	0.00167	0.00151
Boron (meq/L) (calculated)	meq/L	<0.0139		<0.0139	<0.0139	<0.0139	<0.0139	<0.0139	<0.0139
Calcium (meq/L) (calculated)	meq/L	8.88		3.9	4.06	6.29	6.94	6.24	7.04
Calcium (total, meq/L) (calculated)	meq/L	8.83	9.03	4.29	4.12	6.94	6.84	6.69	7.14
Chloride (meq/L) (calculated)	meq/L	0.621		0.111	0.0474	0.691	0.739	1.89	2.18
Chromium (meq/L) (calculated)	meq/L	<0.000029		<0.000029	<0.000029	<0.000029	<0.000029	0.0000894	0.0000669
Copper (meq/L) (calculated)	meq/L	0.0000957		0.000024	<0.000013	<0.000013	<0.000013	0.000031	0.000030
Lead (meq/L) (calculated)	meq/L	<0.0000019		<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Lithium (meq/L) (calculated)	meq/L	0.000761		0.000885	0.000916	0.00174	0.00170	0.00329	0.00323
Magnesium (meq/L) (calculated)	meq/L	1.59		1.77	1.97	1.84	1.95	4.22	4.64
Magnesium (total, meq/L) (calculated)	meq/L	1.61	1.56	1.78	1.97	1.84	1.98	4.25	4.81
Potassium (meq/L) (calculated)	meq/L	0.188		0.119	0.137	0.185	0.214	0.169	0.196
Potassium (total, meq/L) (calculated)	meq/L	0.192	0.189	0.122	0.138	0.187	0.217	0.173	0.201
Sodium (meq/L) (calculated)	meq/L	0.648		0.831	0.848	0.957	1.03	1.36	1.47
Sodium (total, meq/L) (calculated)	meq/L	0.670	0.653	0.874	0.857	0.996	1.04	1.44	1.54
Strontium (meq/L) (calculated)	meq/L	0.0310		0.0210	0.0192	0.0331	0.0299	0.0546	0.0509
Sulfate (meq/L) (calculated)	meq/L	3.6		2.6	2.44	4.64	4.58	2.87	2.71
Zinc (meq/L) (calculated)	meq/L	<0.00012		<0.00012	<0.00012	0.00014	<0.00012	0.000636	<0.00012
Dissolved Metals									
Aluminum (dissolved)	mg/L	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony (dissolved)	mg/L	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (dissolved)	mg/L	<0.00050		0.00150	0.00167	0.00212	0.00188	<0.00050	<0.00050
Barium (dissolved)	mg/L	0.0559		0.0537	0.0454	0.0660	0.0569	0.115	0.104
Beryllium (dissolved)	mg/L	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (dissolved)	mg/L	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	MW19-3A	MW19-3A	MW20-1B	MW20-1B	MW20-2B	MW20-2B	MW20-4A	MW20-4A
		03-Feb-21	(Duplicate) 03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	23-Dec-20	03-Feb-21
Boron (dissolved)	mg/L	<0.0500		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium (dissolved)	mg/L	0.000044		0.000014	0.000011	<0.000010	<0.000010	0.000112	0.000012
Calcium (dissolved)	mg/L	178		78.2	81.4	126	139	125	141
Chromium (dissolved)	mg/L	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	0.00155	0.00116
Cobalt (dissolved)	mg/L	<0.00010		0.00016	0.00023	0.00069	0.00062	<0.00010	<0.00010
Copper (dissolved)	mg/L	0.00304		0.00076	<0.00040	<0.00040	<0.00040	0.00099	0.00095
Iron (dissolved)	mg/L	<0.010		<0.010	0.023	0.668	0.881	<0.010	<0.010
Lead (dissolved)	mg/L	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (dissolved)	mg/L	0.00528		0.00614	0.00636	0.0121	0.0118	0.0228	0.0224
Magnesium (dissolved)	mg/L	19.3		21.5	23.9	22.3	23.7	51.3	56.4
Manganese (dissolved)	mg/L	0.00096		0.0718	0.115	0.0860	0.0838	0.00502	<0.00020
Mercury (dissolved)	mg/L	<0.000010		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (dissolved)	mg/L	0.00138		0.00651	0.00592	0.00455	0.00412	0.00106	0.00094
Nickel (dissolved)	mg/L	0.00166		0.00111	0.00114	0.00158	0.00148	0.00112	0.00100
Selenium (dissolved)	mg/L	0.00349		0.00072	<0.00050	<0.00050	<0.00050	0.00530	0.00527
Silicon (dissolved, as Si)	mg/L	10.5		9.6	11.2	10.9	12.1	11.1	11.9
Silver (dissolved)	mg/L	<0.000050		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium (dissolved)	mg/L	14.9		19.1	19.5	22.0	23.7	31.3	33.9
Strontium (dissolved)	mg/L	1.36		0.920	0.840	1.45	1.31	2.39	2.23
Sulphur (dissolved)	mg/L	61.5		47.5	40.7	79.2	74.7	52.0	45.7
Tellurium (dissolved)	mg/L	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (dissolved)	mg/L	<0.000020		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (dissolved)	mg/L	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (dissolved)	mg/L	0.00022		0.00024	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (dissolved)	mg/L	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten (dissolved)	mg/L	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (dissolved)	mg/L	0.0282		0.00304	0.00281	0.00317	0.00307	<u>0.0136</u>	<u>0.0134</u>
Vanadium (dissolved)	mg/L	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (dissolved)	mg/L	<0.0040		<0.0040	<0.0040	0.0046	<0.0040	0.0208	<0.0040
Zirconium (dissolved)	mg/L	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
General									
Alkalinity (bicarbonate, as CaCO3)	mg/L	351		243	241	262	246	431	415

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	MW19-3A	MW19-3A	MW20-1B	MW20-1B	MW20-2B	MW20-2B	MW20-4A	MW20-4A
		03-Feb-21	(Duplicate) 03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	23-Dec-20	03-Feb-21
Alkalinity (carbonate, as CaCO3)	mg/L	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (hydroxide, as CaCO3)	mg/L	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (total, as CaCO3)	mg/L	351		243	241	262	246	431	415
Chloride	mg/L	22.0		3.94	1.68	24.5	26.2	67.1	77.4
Hardness, Total (dissolved as CaCO3)	mg/L	523		284	302	408	446	523	585
Hardness, Total (total as CaCO3)	mg/L		530						
Sulphate	mg/L	173		125	117	223	220	138	130
Total organic carbon	mg/L	2.54		1.00	0.72	0.93	1.10	2.28	1.85
Total suspended solids	mg/L	<2.0		3.2	21.4	<2.0	2.8	15.4	<2.0
Nutrients									
Ammonia (total, as N)	mg/L	<0.050		0.097	0.112	0.063	<0.050	<0.050	<0.050
Nitrate (as N)	mg/L	9.60		0.473	0.050	0.025	<0.010	6.57	5.21
Nitrate + Nitrite (as N) (calculated)	mg/L	9.60		0.473	0.050	0.025	<0.014	6.57	5.21
Nitrite (as N)	mg/L	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus (dissolved, by ICPMS/ICPOES)	mg/L	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus (total, by ICPMS/ICPOES)	mg/L	<0.050	<0.050	<0.050	0.057	<0.050	<0.050	0.056	<0.050
Phosphorus (dissolved, APHA 4500-P)	mg/L	0.0089		0.0271	0.0238	0.0103	0.0102	0.0067	<0.0050
Potassium (dissolved)	mg/L	7.34		4.65	5.36	7.23	8.35	6.59	7.66
Potassium (total)	mg/L	7.50	7.37	4.78	5.41	7.31	8.47	6.78	7.84
Total Metals									
Aluminum (total)	mg/L	0.0057	0.0054	0.0560	0.172	0.0059	<0.0050	0.217	<0.0050
Antimony (total)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (total)	mg/L	0.00051	0.00051	0.00164	0.00170	0.00227	0.00205	<0.00050	<0.00050
Barium (total)	mg/L	0.0565	0.0554	0.0567	0.0480	0.0707	0.0571	0.123	0.105
Beryllium (total)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (total)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (total)	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium (total)	mg/L	0.000041	0.000045	0.000020	0.000014	0.000011	<0.000010	0.000105	0.000013
Calcium (total)	mg/L	177	181	85.9	82.6	139	137	134	143
Chromium (total)	mg/L	<0.00050	<0.00050	<0.00050	0.00054	0.00111	<0.00050	0.00204	0.00119

Hullcar Groundwater Monitoring

Water Quality Results

Analyte	Unit	MW19-3A	MW19-3A	MW20-1B	MW20-1B	MW20-2B	MW20-2B	MW20-4A	MW20-4A
		03-Feb-21	(Duplicate) 03-Feb-21	22-Dec-20	03-Feb-21	22-Dec-20	03-Feb-21	23-Dec-20	03-Feb-21
Cobalt (total)	mg/L	<0.00010	<0.00010	0.00022	0.00036	0.00073	0.00062	0.00050	<0.00010
Copper (total)	mg/L	0.00557	0.00542	0.00054	<0.00080	<0.00040	<0.00040	0.00245	<0.00100
Iron (total)	mg/L	0.015	0.016	0.098	0.349	0.699	0.890	0.362	<0.010
Lead (total)	mg/L	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	0.00073	<0.00020
Lithium (total)	mg/L	0.00531	0.00542	0.00639	0.00649	0.0124	0.0118	0.0231	0.0227
Magnesium (total)	mg/L	19.6	19.0	21.6	23.9	22.3	24.1	51.7	58.4
Manganese (total)	mg/L	0.00162	0.00153	0.0815	0.126	0.0879	0.0830	0.0163	<0.00020
Mercury (total)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (total)	mg/L	0.00144	0.00139	0.00646	0.00542	0.00489	0.00411	0.00095	0.00092
Nickel (total)	mg/L	0.00196	0.00164	0.00137	0.00149	0.00187	0.00180	0.00167	0.00102
Selenium (total)	mg/L	0.00346	0.00343	0.00074	<0.00050	<0.00050	<0.00050	0.00500	0.00608
Silicon (total, as Si)	mg/L	10.8	10.3	10.0	11.4	11.3	12.4	11.6	12.2
Silver (total)	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium (total)	mg/L	15.4	15.0	20.1	19.7	22.9	23.9	33.1	35.5
Strontium (total)	mg/L	1.37	1.35	0.941	0.816	1.49	1.30	2.43	2.23
Sulphur (total)	mg/L	60.4	58.9	47.9	40.7	82.0	75.4	51.8	48.5
Tellurium (total)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (total)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (total)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (total)	mg/L	0.00023	<0.00020	<0.00020	<0.00020	0.00031	<0.00020	<0.00020	<0.00020
Titanium (total)	mg/L	<0.0050	<0.0050	0.0148	0.0101	0.0079	<0.0050	0.0188	<0.0050
Tungsten (total)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (total)	mg/L	0.0275	0.0276	0.00303	0.00284	0.00319	0.00303	0.0134	0.0135
Vanadium (total)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (total)	mg/L	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0361	<0.0040
Zirconium (total)	mg/L	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	0.00019	<0.00010



Hullcar Groundwater Monitoring

Water Quality Results

Guideline Notes for Reports for 20-135-01PG Hullcar Groundwater Monitoring Water Quality Results

1. Notes for BC CSR, Schedule 3.2, Generic Numerical Water Standards for Freshwater Aquatic Life (2017 and updates) (BC CSR AW(F))

General Notes:

Aquatic life standards assume minimum 1:10 dilution available, and are to protect freshwater life.

Standards for all organic substances are for total substance concentrations. Any water sample to be analyzed for organic substances should not be filtered.

Standards for surface water samples to be analyzed for heavy metals, metalloids and inorganic ions are total substance concentrations. In addition, it is recommended that surface water samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for dissolved substance concentrations.

Standards for groundwater samples for heavy metals, metalloids and inorganic ions are for dissolved substance concentrations. In addition, it is recommended that groundwater samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for total substance concentrations.

Note 1.1 for Cadmium (dissolved):

The standard for cadmium is as follows:

0.5 µg/L @ H < 30

1.5 µg/L @ H 30 - < 90

2.5 µg/L @ H 90 - < 150

3.5 µg/L @ H 150 - < 210

4 µg/L @ H ≥ 210

Where H means water hardness in mg/l as CaCO₃

Note 1.2 for Chromium (dissolved):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 10 µg/L for chromium, hexavalent. Standard is 90 µg/L for chromium, trivalent. The standard of 10 µg/L was used to identify exceedances for dissolved chromium in order to demonstrate compliance with the standards.

Note 1.3 for Copper (dissolved):

The standard for copper is as follows:

20 µg/L @ H < 50

30 µg/L @ H 50 - < 75

40 µg/L @ H 75 - < 100

50 µg/L @ H 100 - < 125

60 µg/L @ H 125 - < 150

70 µg/L @ H 150 - < 175

80 µg/L @ H 175 - < 200

90 µg/L @ H ≥ 200

Where H means water hardness in mg/l as CaCO₃

Note 1.4 for Lead (dissolved):

The standard for lead is as follows:

40 µg/L @ H < 50

50 µg/L @ H 50 - < 100

60 µg/L @ H 100 - < 200

110 µg/L @ H 200 - < 300

160 µg/L @ ≥ 300

Where H means water hardness in mg/l as CaCO₃

Hullcar Groundwater Monitoring

Water Quality Results

Note 1.5 for Nickel (dissolved):

The standard for nickel is as follows:

250 µg/L @ H < 60

650 µg/L @ H 60 - < 120

1,100 µg/L @ H 120 - < 180

1,500 µg/L @ H ≥ 180

Where H means water hardness in mg/L as CaCO₃.

Note 1.6 for Silver (dissolved):

The standard for silver is:

0.5 µg/L @ H ≤ 100

15 µg/L @ H > 100

Where H means water hardness in mg/L as CaCO₃.

Note 1.7 for Zinc (dissolved):

The standard for zinc is as follows:

75 µg/L @ H < 90

150 µg/L @ H = 90 - < 100

900 µg/L @ H = 100 - < 200

1,650 µg/L @ H = 200 - < 300

2,400 µg/L @ H = 300 - < 400

3,150 µg/L @ H = 400 - < 500

If H ≥ 500 then use following formula:

Standard (µg/L) = 10 x [7.5 + {(0.75)(H - 90)}]

Where H means water hardness in mg/L as CaCO₃.

There are special ministry approval and data reporting requirements for water hardness values ≥ 500 mg/L as CaCO₃.

Reference is Schedule 2 and Protocol 10.

Note 1.8 for Sulphate:

The standard for sulfate is:

1280 mg/L @ H ≤ 30

2180 mg/L @ H 31 - 75

3090 mg/L @ H 76 - 180

4290 mg/L @ H > 180

Where H means water hardness in mg/L as CaCO₃.

Note 1.9 for Ammonia (total, as N):

Standard varies with pH and temperature. 10 degrees C is assumed. Consult a director for further advice.

The standard for ammonia, total (as N) is:

1,310 µg/L @ pH ≥ to 8.5

3,700 µg/L @ pH 8.0 - < 8.5

11,300 µg/L @ pH 7.5 - < 8.0

18,500 µg/L @ pH 7.0 - < 7.5

18,400 µg/L @ pH < 7.0

Note 1.10 for Nitrate (as N):

Standard may not protect all amphibians. Consult director for further advice.

Note 1.11 for Nitrate + Nitrite (as N) (calculated):

Standard may not protect all amphibians. Consult director for further advice.

Note 1.12 for Nitrite (as N):

Hullcar Groundwater Monitoring

Water Quality Results

Standard varies with chloride concentration. Consult a director for further advice.

The standard for nitrite (as N) is:

200 µg/L (Cl < 2 mg/L)

400 µg/L (Cl 2 - < 4 mg/L)

600 µg/L (Cl 4 - < 6 mg/L)

800 µg/L (Cl 6 - < 8 mg/L)

1,000 µg/L (Cl 8 - < 10 mg/L)

2,000 µg/L (Cl > 10 mg/L)

Note 1.13 for Cadmium (total):

The standard for cadmium is as follows:

0.5 µg/L @ H < 30

1.5 µg/L @ H 30 - < 90

2.5 µg/L @ H 90 - < 150

3.5 µg/L @ H 150 - < 210

4 µg/L @ H ≥ 210

Where H means water hardness in mg/l as CaCO₃

Note 1.14 for Chromium (total):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 10 µg/L for chromium, hexavalent. Standard is 90 µg/L for chromium, trivalent. The standard of 10 µg/L was used to identify exceedances for total chromium in order to demonstrate compliance with the standards.

Note 1.15 for Copper (total):

The standard for copper is as follows:

20 µg/L @ H < 50

30 µg/L @ H 50 - < 75

40 µg/L @ H 75 - < 100

50 µg/L @ H 100 - < 125

60 µg/L @ H 125 - < 150

70 µg/L @ H 150 - < 175

80 µg/L @ H 175 - < 200

90 µg/L @ H ≥ 200

Where H means water hardness in mg/l as CaCO₃

Note 1.16 for Lead (total):

The standard for lead is as follows:

40 µg/L @ H < 50

50 µg/L @ H 50 - < 100

60 µg/L @ H 100 - < 200

110 µg/L @ H 200 - < 300

160 µg/L @ ≥ 300

Where H means water hardness in mg/l as CaCO₃

Note 1.17 for Nickel (total):

The standard for nickel is as follows:

250 µg/L @ H < 60

650 µg/L @ H 60 - < 120

1,100 µg/L @ H 120 - < 180

1,500 µg/L @ H ≥ 180

Where H means water hardness in mg/l as CaCO₃

Note 1.18 for Silver (total):

Hullcar Groundwater Monitoring

Water Quality Results

The standard for silver is:

0.5 µg/L @ H ≤ 100

15 µg/L @ H > 100

Where H means water hardness in mg/L as CaCO₃.

Note 1.19 for Zinc (total):

The standard for zinc is as follows:

75 µg/L @ H < 90

150 µg/L @ H = 90 - < 100

900 µg/L @ H = 100 - < 200

1,650 µg/L @ H = 200 - < 300

2,400 µg/L @ H = 300 - < 400

3,150 µg/L @ H = 400 - < 500

If H ≥ 500 then use following formula:

Standard (µg/L) = 10 x [7.5 + {(0.75)(H - 90)}]

Where H means water hardness in mg/L as CaCO₃.

There are special ministry approval and data reporting requirements for water hardness values ≥ 500 mg/L as CaCO₃.

Reference is Schedule 3.2 and Protocol 10.

2. Notes for BC CSR, Schedule 3.2, Generic Numerical Water Standards for Irrigation (2017 and updates) (BC CSR IW)

General Notes:

BC Contaminated Sites Regulation, Generic Numerical Water Standards, Schedule 3.2; includes amendments up to B.C. Reg. 13/2019, January 24, 2019.

Standards for all organic substances are for total substance concentrations. Any water sample to be analyzed for organic substances should not be filtered.

Standards for surface water samples to be analyzed for heavy metals, metalloids and inorganic ions are total substance concentrations. In addition, it is recommended that surface water samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for dissolved substance concentrations.

Standards for groundwater samples for heavy metals, metalloids and inorganic ions are for dissolved substance concentrations. In addition, it is recommended that groundwater samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for total substance concentrations.

Standards apply to irrigation of all soil types, unless otherwise indicated. / There are several different standards for site-specific factors for some analytes. The most stringent standards were used for this criteria set.

Note 2.1 for Boron (dissolved):

Standard varies depending on crop. This standard is for blackberry crop.

Note 2.2 for Chromium (dissolved):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 8 µg/L for chromium, hexavalent. Standard is 5 µg/L for chromium, trivalent. The standard of 5 µg/L was used to identify exceedances for dissolved chromium in order to demonstrate compliance with the standards.

Note 2.3 for Iron (dissolved):

Hullcar Groundwater Monitoring

Water Quality Results

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item A6, A7, A8 or A11
- (b) item C1, C2, C3, C4 or C6,
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above

Note 2.4 for Lithium (dissolved):

Standard to protect all types of crops.

Note 2.5 for Manganese (dissolved):

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item B1
- (b) item C1, C3 or C4
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H3 or H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above

Note 2.6 for Molybdenum (dissolved):

Standard varies with crop, soil drainage and Mo:Cu ratio. Standard is 10 – 30 µg/L. Consult a director for further advice.

The most stringent standard of 10 µg/L has been used.

Note 2.7 for Selenium (dissolved):

Standard varies with type of application; continuous or intermittent. This standard is for continuous applications on crops.

Note 2.8 for Zinc (dissolved):

The standard varies (from 1000 to 5000 µg/L) with soil pH. This standard (which is the most stringent) is for soil pH less than 6.0

Note 2.9 for Chloride:

Standard to protect all types of crops.

Note 2.10 for Boron (total):

Standard varies depending on crop. This standard is for blackberry crop.

Note 2.11 for Chromium (total):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 8 µg/L for chromium, hexavalent. Standard is 5 µg/L for chromium, trivalent. The standard of 5 µg/L was used to identify exceedances for total chromium in order to demonstrate compliance with the standards.

Note 2.12 for Iron (total):

Hullcar Groundwater Monitoring

Water Quality Results

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item A6, A7, A8 or A11
- (b) item C1, C2, C3, C4 or C6,
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above

Note 2.13 for Lithium (total):

Standard to protect all types of crops.

Note 2.14 for Manganese (total):

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item B1
- (b) item C1, C3 or C4
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H3 or H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above

Note 2.15 for Molybdenum (total):

Standard varies with crop, soil drainage and Mo:Cu ratio. Standard is 10 – 30 µg/L. Consult a director for further advice.

The most stringent standard of 10 µg/L has been used.

Note 2.16 for Selenium (total):

Standard varies with type of application; continuous or intermittent. This standard is for continuous applications on crops.

Note 2.17 for Zinc (total):

The standard varies (from 1000 to 5000 µg/L) with soil pH. This standard (which is the most stringent) is for soil pH less than 6.0

3. Notes for BC CSR, Schedule 3.2, Generic Numerical Water Standards for Livestock (2017 and updates) (BC CSR LW)

General Notes:

BC Contaminated Sites Regulation, Generic Numerical Water Standards, Schedule 3.2; includes amendments up to B.C. Reg. 13/2019, January 24, 2019.

Standards for all organic substances are for total substance concentrations. Any water sample to be analyzed for organic substances should not be filtered.

Standards for surface water samples to be analyzed for heavy metals, metalloids and inorganic ions are total substance concentrations. In addition, it is recommended that surface water samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for dissolved substance concentrations.

Standards for groundwater samples for heavy metals, metalloids and inorganic ions are for dissolved substance concentrations. In addition, it is recommended that groundwater samples being analyzed for heavy metals, metalloids and inorganic ions should also be analyzed for total substance concentrations

Note 3.1 for Chromium (dissolved):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 50 µg/L for chromium, hexavalent. Standard is 50 µg/L for chromium, trivalent. The standard of 50 µg/L was used to identify exceedances for dissolved chromium in order to demonstrate compliance with the standards.

Hullcar Groundwater Monitoring

Water Quality Results

Note 3.2 for Nitrate (as N):

Where nitrate and nitrite are present, total nitrate plus nitrite-nitrogen should not exceed this value.

Note 3.3 for Nitrate + Nitrite (as N) (calculated):

Where nitrate and nitrite are present, total nitrate plus nitrite-nitrogen should not exceed this value.

Note 3.4 for Chromium (total):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 50 µg/L for chromium, hexavalent. Standard is 50 µg/L for chromium, trivalent. The standard of 50 µg/L was used to identify exceedances for total chromium in order to demonstrate compliance with the standards.

4. Notes for BC CSR, Schedule 3.2, Generic Numerical Water Standards for Drinking Water (2017 and updates) (BC CSR DW)

General Notes:

BC Contaminated Sites Regulation, Generic Numerical Water Standards, Schedule 3.2; includes amendments up to B.C. Reg. 13/2019, January 24, 2019.

Drinking water standards are for unfiltered samples obtained at the point of consumption. Heavy metals, metalloids and inorganic ions are expressed as total substance concentrations unless otherwise indicated.

Note 4.1 for Aluminum (dissolved):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.2 for Chromium (dissolved):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 50 µg/L for chromium, hexavalent. Standard is 6000 µg/L for chromium, trivalent. The standard of 50 µg/L was used to identify exceedances for dissolved chromium in order to demonstrate compliance with the standards.

Note 4.3 for Copper (dissolved):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.4 for Iron (dissolved):

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item A6, A7, A8 or A11
- (b) item C1, C2, C3, C4 or C6,
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above.

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups. Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.5 for Manganese (dissolved):

Hullcar Groundwater Monitoring

Water Quality Results

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item B1
- (b) item C1, C3 or C4
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H3 or H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above.

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.6 for Sodium (dissolved):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Note 4.7 for Zinc (dissolved):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Note 4.8 for Chloride:

Standard to protect against taste and odour concerns.

Note 4.9 for Sulphate:

Standard to protect against taste and odour concerns.

Note 4.10 for Nitrate (as N):

Where nitrate and nitrite are present, total nitrate plus nitrite-nitrogen should not exceed this value.

Note 4.11 for Nitrate + Nitrite (as N) (calculated):

Where nitrate and nitrite are present, total nitrate plus nitrite-nitrogen should not exceed this value.

Note 4.12 for Aluminum (total):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.13 for Chromium (total):

Analytical results for chromium (all species) in water may be used to demonstrate compliance with the standards. Where the standards cannot be met based on analytical results for chromium (all species), chromium speciation may be necessary.

Standard is 50 µg/L for chromium, hexavalent. Standard is 6000 µg/L for chromium, trivalent. The standard of 50 µg/L was used to identify exceedances for total chromium in order to demonstrate compliance with the standards.

Note 4.14 for Copper (total):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.15 for Iron (total):

Hullcar Groundwater Monitoring

Water Quality Results

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item A6, A7, A8 or A11
- (b) item C1, C2, C3, C4 or C6,
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above.

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.16 for Manganese (total):

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as

- (a) item B1
- (b) item C1, C3 or C4
- (c) item D2, D3, D5, or D6
- (d) item E4, or
- (e) item H3 or H14.

Standard applies to a site used for an industrial or commercial purpose or activity set out in Schedule 2 as item H11 or H20, but only if the site was used for the purpose or activity in conjunction with or as a result of the site also being used for at least one of the purposes or activities set out above.

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Standard may not address aesthetic (organoleptic) concerns related to drinking water quality. Water treatment may be required.

Note 4.17 for Sodium (total):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.

Note 4.18 for Zinc (total):

Standard is specific to protection of human health. Standard is derived with TRV protective of adults. Standard may not adequately protect other age groups.



CERTIFICATE OF ANALYSIS

REPORTED TO	Western Water Associates Ltd 106 - 5145 26th Street Vernon, BC V1T 8G4	WORK ORDER	20L2625
ATTENTION	Warren Grafton	RECEIVED / TEMP REPORTED	2020-12-23 11:40 / 8°C 2021-01-12 16:59
PO NUMBER		COC NUMBER	No Number
PROJECT	20-135-01PG		
PROJECT INFO	Hullcar MW		

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.

Work Order Comments:

This is a revised report; please refer to Appendix 3 for details.

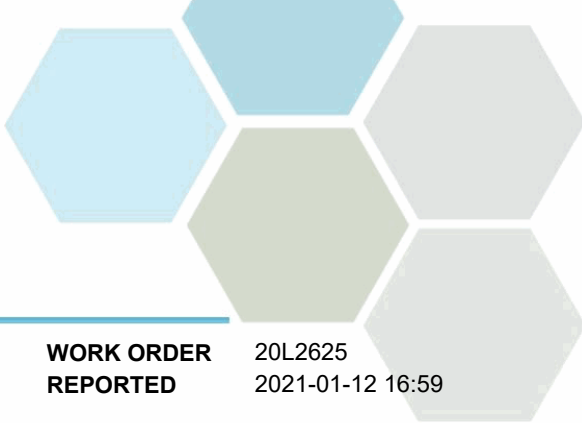
If you have any questions or concerns, please contact me at acrump@caro.ca

Authorized By:

Alana Crump
Team Lead, Client Service

1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW19-1AR PIEZOMETER (20L2625-01) | Matrix: Water | Sampled: 2020-12-22

Anions

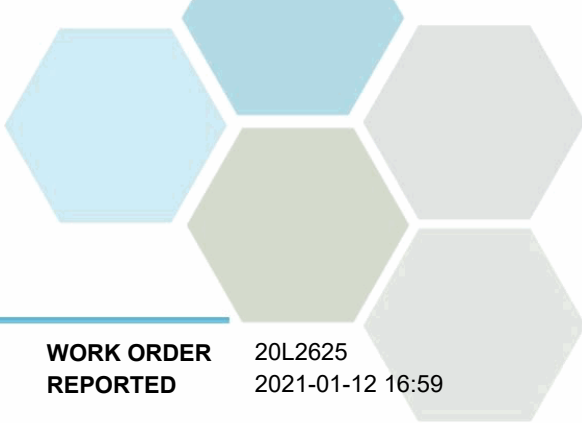
Chloride	36.2	AO ≤ 250	0.10	mg/L	2020-12-29	
Nitrate (as N)	13.7	MAC = 10	0.010	mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-12-29	HT1
Sulfate	396	AO ≤ 500	1.0	mg/L	2020-12-29	

Calculated Parameters

Hardness, Total (as CaCO3)	687	None Required	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00763	2.5	0.00010	mg/L	2021-01-05	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-01-05	
Arsenic, dissolved	0.00061	0.05	0.00050	mg/L	2021-01-05	
Barium, dissolved	0.119	5	0.0050	mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-01-05	
Cadmium, dissolved	0.000028	0.0005	0.000010	mg/L	2021-01-05	
Calcium, dissolved	222	N/A	0.20	mg/L	2021-01-05	
Chromium, dissolved	0.00097	N/A	0.00050	mg/L	2021-01-05	
Cobalt, dissolved	0.00015	0.04	0.00010	mg/L	2021-01-05	
Copper, dissolved	0.00129	0.02	0.00040	mg/L	2021-01-05	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-01-05	
Magnesium, dissolved	32.3	N/A	0.010	mg/L	2021-01-05	
Manganese, dissolved	0.00036	0.2	0.00020	mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-01-05	
Molybdenum, dissolved	0.00078	0.01	0.00010	mg/L	2021-01-05	
Nickel, dissolved	0.00144	0.2	0.00040	mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2021-01-05	
Potassium, dissolved	6.60	N/A	0.10	mg/L	2021-01-05	
Selenium, dissolved	0.00964	0.02	0.00050	mg/L	2021-01-05	
Silicon, dissolved	12.7	N/A	1.0	mg/L	2021-01-05	
Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-01-05	
Sodium, dissolved	14.5	N/A	0.10	mg/L	2021-01-05	
Strontium, dissolved	1.58	N/A	0.0010	mg/L	2021-01-05	
Sulfur, dissolved	138	N/A	3.0	mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Tin, dissolved	0.00020	N/A	0.00020	mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-01-05	
Uranium, dissolved	0.00559	0.01	0.000020	mg/L	2021-01-05	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW19-1AR PIEZOMETER (20L2625-01) | Matrix: Water | Sampled: 2020-12-22, Continued

Dissolved Metals, Continued

Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-01-05	
Zinc, dissolved	< 0.0040	0.075	0.0040	mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	

General Parameters

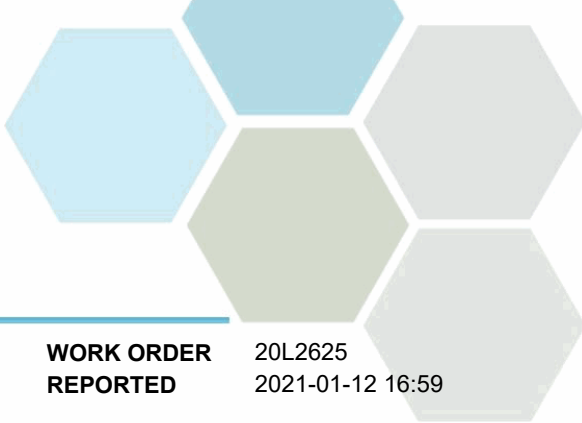
Alkalinity, Total (as CaCO3)	310	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	310	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-12-26	
Carbon, Total Organic	3.73	MAC = 4	0.50	mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.511	N/A	0.050	mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0187	N/A	0.0050	mg/L	2020-12-30	
Solids, Total Suspended	5.6	N/A	2.0	mg/L	2020-12-30	HT1

Miscellaneous Subcontracted Parameters

delta-18-O	-16.21	N/A		per mil	2021-01-08	
delta-2-H	-127.9	N/A		per mil	2021-01-08	

Total Metals

Aluminum, total	0.0192	OG < 9.5	0.0050	mg/L	2021-01-05	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2021-01-05	
Arsenic, total	0.00065	MAC = 0.01	0.00050	mg/L	2021-01-05	
Barium, total	0.127	MAC = 2	0.0050	mg/L	2021-01-05	
Beryllium, total	< 0.00010	0.0015	0.00010	mg/L	2021-01-05	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2021-01-05	
Cadmium, total	0.000032	MAC = 0.005	0.000010	mg/L	2021-01-05	
Calcium, total	251	None Required	0.20	mg/L	2021-01-05	
Chromium, total	0.00101	MAC = 0.05	0.00050	mg/L	2021-01-05	
Cobalt, total	0.00018	0.001	0.00010	mg/L	2021-01-05	
Copper, total	0.00278	AO ≤ 1	0.00040	mg/L	2021-01-05	
Iron, total	0.067	AO ≤ 0.3	0.010	mg/L	2021-01-05	
Lead, total	< 0.00020	MAC = 0.01	0.00020	mg/L	2021-01-05	
Lithium, total	0.00825	0.008	0.00010	mg/L	2021-01-05	
Magnesium, total	32.2	None Required	0.010	mg/L	2021-01-05	
Manganese, total	0.00172	AO ≤ 0.05	0.00020	mg/L	2021-01-05	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2021-01-06	
Molybdenum, total	0.00081	MAC = 0.25	0.00010	mg/L	2021-01-05	
Nickel, total	0.00156	0.08	0.00040	mg/L	2021-01-05	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2021-01-05	
Potassium, total	6.79	N/A	0.10	mg/L	2021-01-05	
Selenium, total	0.00947	MAC = 0.01	0.00050	mg/L	2021-01-05	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-1AR PIEZOMETER (20L2625-01) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Total Metals, Continued</i>					
Silicon, total	13.3	N/A	1.0 mg/L	2021-01-05	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-05	
Sodium, total	15.1	AO ≤ 200	0.10 mg/L	2021-01-05	
Strontium, total	1.67	7	0.0010 mg/L	2021-01-05	
Sulfur, total	141	N/A	3.0 mg/L	2021-01-05	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-05	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-01-05	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Tin, total	0.00021	2.5	0.00020 mg/L	2021-01-05	
Titanium, total	0.0177	1	0.0050 mg/L	2021-01-05	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-01-05	
Uranium, total	0.00568	MAC = 0.02	0.000020 mg/L	2021-01-05	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-01-05	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-01-05	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-05	

MW19-2A PIEZOMETER (20L2625-02) | Matrix: Water | Sampled: 2020-12-22

Anions

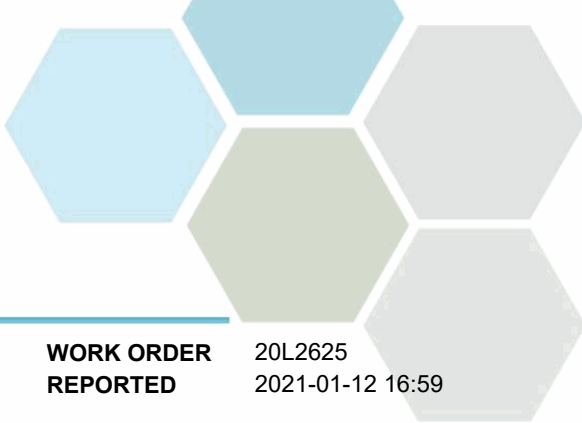
Chloride	35.1	AO ≤ 250	0.10 mg/L	2020-12-29	
Nitrate (as N)	11.7	MAC = 10	0.010 mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-29	HT1
Sulfate	240	AO ≤ 500	1.0 mg/L	2020-12-29	

Calculated Parameters

Hardness, Total (as CaCO3)	567	None Required	0.500 mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.0109	2.5	0.00010 mg/L	2021-01-05	
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020 mg/L	2021-01-05	
Arsenic, dissolved	0.00097	0.05	0.00050 mg/L	2021-01-05	
Barium, dissolved	0.120	5	0.0050 mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010 mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-01-05	
Cadmium, dissolved	0.000029	0.0005	0.000010 mg/L	2021-01-05	
Calcium, dissolved	156	N/A	0.20 mg/L	2021-01-05	
Chromium, dissolved	0.00097	N/A	0.00050 mg/L	2021-01-05	
Cobalt, dissolved	0.00010	0.04	0.00010 mg/L	2021-01-05	
Copper, dissolved	0.00114	0.02	0.00040 mg/L	2021-01-05	
Iron, dissolved	< 0.010	5	0.010 mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-01-05	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW19-2A PIEZOMETER (20L2625-02) | Matrix: Water | Sampled: 2020-12-22, Continued

Dissolved Metals, Continued

Magnesium, dissolved	42.7	N/A	0.010	mg/L	2021-01-05	
Manganese, dissolved	0.00384	0.2	0.00020	mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-01-05	
Molybdenum, dissolved	0.00114	0.01	0.00010	mg/L	2021-01-05	
Nickel, dissolved	0.00129	0.2	0.00040	mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2021-01-05	
Potassium, dissolved	13.0	N/A	0.10	mg/L	2021-01-05	
Selenium, dissolved	0.00659	0.02	0.00050	mg/L	2021-01-05	
Silicon, dissolved	12.6	N/A	1.0	mg/L	2021-01-05	
Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-01-05	
Sodium, dissolved	27.8	N/A	0.10	mg/L	2021-01-05	
Strontium, dissolved	1.78	N/A	0.0010	mg/L	2021-01-05	
Sulfur, dissolved	91.0	N/A	3.0	mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-01-05	
Uranium, dissolved	0.0113	0.01	0.000020	mg/L	2021-01-05	
Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-01-05	
Zinc, dissolved	< 0.0040	0.075	0.0040	mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	

General Parameters

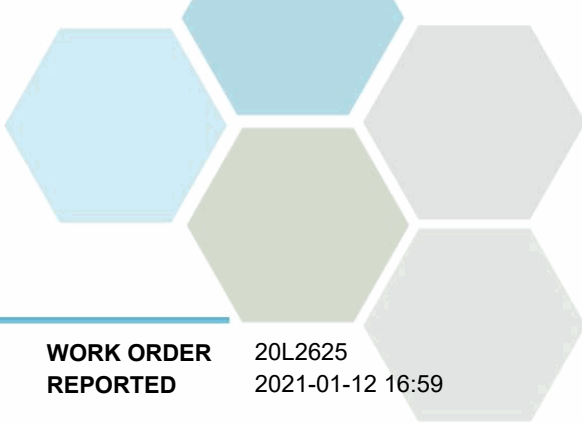
Alkalinity, Total (as CaCO3)	376	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	376	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-12-26	
Carbon, Total Organic	2.34	MAC = 4	0.50	mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.323	N/A	0.050	mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0201	N/A	0.0050	mg/L	2020-12-30	
Solids, Total Suspended	< 2.0	N/A	2.0	mg/L	2020-12-30	HT1

Miscellaneous Subcontracted Parameters

delta-18-O	-16.56	N/A		per mil	2021-01-08	
delta-2-H	-130.6	N/A		per mil	2021-01-08	

Total Metals

Aluminum, total	0.0083	OG < 9.5	0.0050	mg/L	2021-01-05	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2021-01-05	
Arsenic, total	0.00092	MAC = 0.01	0.00050	mg/L	2021-01-05	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

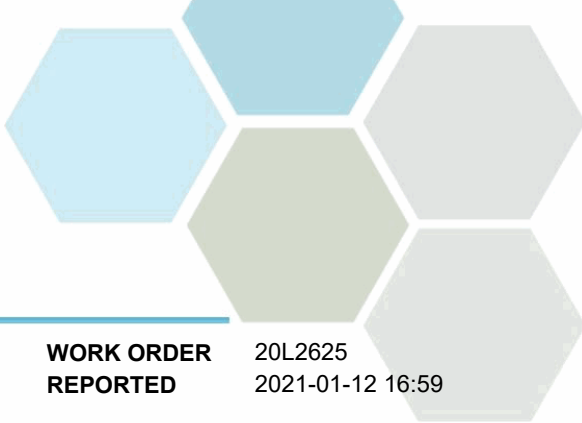
WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-2A PIEZOMETER (20L2625-02) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Total Metals, Continued</i>					
Barium, total	0.124	MAC = 2	0.0050 mg/L	2021-01-05	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-01-05	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-01-05	
Cadmium, total	0.000025	MAC = 0.005	0.000010 mg/L	2021-01-05	
Calcium, total	173	None Required	0.20 mg/L	2021-01-05	
Chromium, total	0.00098	MAC = 0.05	0.00050 mg/L	2021-01-05	
Cobalt, total	0.00012	0.001	0.00010 mg/L	2021-01-05	
Copper, total	0.00119	AO ≤ 1	0.00040 mg/L	2021-01-05	
Iron, total	0.020	AO ≤ 0.3	0.010 mg/L	2021-01-05	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-01-05	
Lithium, total	0.0114	0.008	0.00010 mg/L	2021-01-05	
Magnesium, total	41.2	None Required	0.010 mg/L	2021-01-05	
Manganese, total	0.00472	AO ≤ 0.05	0.00020 mg/L	2021-01-05	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-01-06	
Molybdenum, total	0.00116	MAC = 0.25	0.00010 mg/L	2021-01-05	
Nickel, total	0.00123	0.08	0.00040 mg/L	2021-01-05	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-01-05	
Potassium, total	13.0	N/A	0.10 mg/L	2021-01-05	
Selenium, total	0.00591	MAC = 0.01	0.00050 mg/L	2021-01-05	
Silicon, total	12.4	N/A	1.0 mg/L	2021-01-05	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-05	
Sodium, total	28.0	AO ≤ 200	0.10 mg/L	2021-01-05	
Strontium, total	1.83	7	0.0010 mg/L	2021-01-05	
Sulfur, total	89.3	N/A	3.0 mg/L	2021-01-05	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-05	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-01-05	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Tin, total	< 0.00020	2.5	0.00020 mg/L	2021-01-05	
Titanium, total	0.0152	1	0.0050 mg/L	2021-01-05	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-01-05	
Uranium, total	0.0112	MAC = 0.02	0.000020 mg/L	2021-01-05	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-01-05	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-01-05	
Zirconium, total	0.00011	N/A	0.00010 mg/L	2021-01-05	

MW19-3A PIEZOMETER (20L2625-03) | Matrix: Water | Sampled: 2020-12-22

Anions

Chloride	21.8	AO ≤ 250	0.10 mg/L	2020-12-29	
Nitrate (as N)	9.93	MAC = 10	0.010 mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-29	HT1
Sulfate	179	AO ≤ 500	1.0 mg/L	2020-12-29	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW19-3A PIEZOMETER (20L2625-03) | Matrix: Water | Sampled: 2020-12-22, Continued

Calculated Parameters

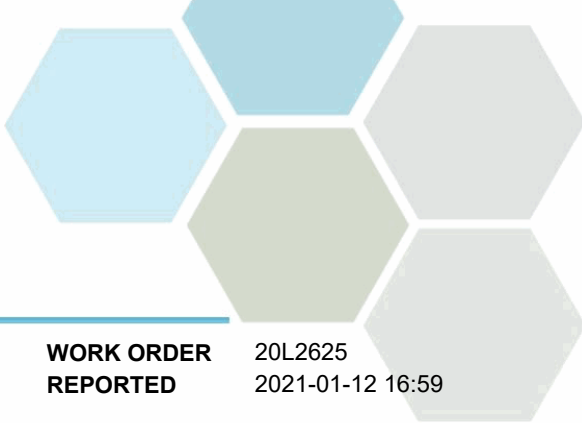
Hardness, Total (as CaCO3)	491	None Required	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00563	2.5	0.00010	mg/L	2021-01-05	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-01-05	
Arsenic, dissolved	0.00057	0.05	0.00050	mg/L	2021-01-05	
Barium, dissolved	0.0671	5	0.0050	mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-01-05	
Cadmium, dissolved	0.000056	0.0005	0.000010	mg/L	2021-01-05	
Calcium, dissolved	166	N/A	0.20	mg/L	2021-01-05	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Cobalt, dissolved	0.00010	0.04	0.00010	mg/L	2021-01-05	
Copper, dissolved	0.00243	0.02	0.00040	mg/L	2021-01-05	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-01-05	
Magnesium, dissolved	18.2	N/A	0.010	mg/L	2021-01-05	
Manganese, dissolved	0.00130	0.2	0.00020	mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-01-05	
Molybdenum, dissolved	0.00149	0.01	0.00010	mg/L	2021-01-05	
Nickel, dissolved	0.00176	0.2	0.00040	mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2021-01-05	
Potassium, dissolved	6.57	N/A	0.10	mg/L	2021-01-05	
Selenium, dissolved	0.00334	0.02	0.00050	mg/L	2021-01-05	
Silicon, dissolved	9.7	N/A	1.0	mg/L	2021-01-05	
Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-01-05	
Sodium, dissolved	14.5	N/A	0.10	mg/L	2021-01-05	
Strontium, dissolved	1.59	N/A	0.0010	mg/L	2021-01-05	
Sulfur, dissolved	66.1	N/A	3.0	mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-01-05	
Uranium, dissolved	0.0290	0.01	0.000020	mg/L	2021-01-05	
Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-01-05	
Zinc, dissolved	< 0.0040	0.075	0.0040	mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	

General Parameters

Alkalinity, Total (as CaCO3)	366	N/A	1.0	mg/L	2020-12-31	
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TEST RESULTS

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20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

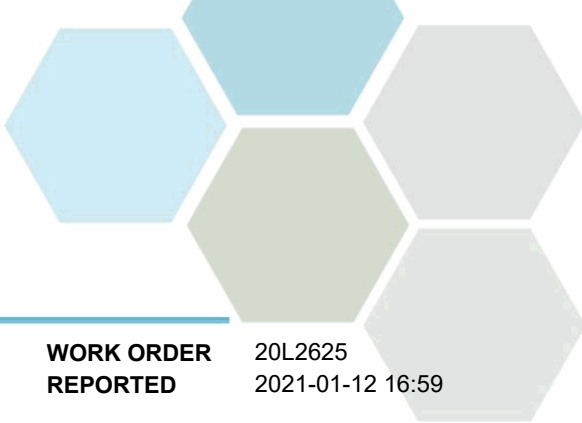
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-3A PIEZOMETER (20L2625-03) Matrix: Water Sampled: 2020-12-22, Continued					
<i>General Parameters, Continued</i>					
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	366	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2020-12-26	
Carbon, Total Organic	2.38	MAC = 4	0.50 mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.273	N/A	0.050 mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0121	N/A	0.0050 mg/L	2020-12-30	
Solids, Total Suspended	< 2.0	N/A	2.0 mg/L	2020-12-30	HT1

Miscellaneous Subcontracted Parameters

delta-18-O	-16.54	N/A	per mil	2021-01-08	
delta-2-H	-129.5	N/A	per mil	2021-01-08	

Total Metals

Aluminum, total	0.0132	OG < 9.5	0.0050 mg/L	2021-01-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-01-06	
Arsenic, total	0.00060	MAC = 0.01	0.00050 mg/L	2021-01-06	
Barium, total	0.0699	MAC = 2	0.0050 mg/L	2021-01-06	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-01-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-01-06	
Cadmium, total	0.000038	MAC = 0.005	0.000010 mg/L	2021-01-06	
Calcium, total	187	None Required	0.20 mg/L	2021-01-06	
Chromium, total	0.00050	MAC = 0.05	0.00050 mg/L	2021-01-06	
Cobalt, total	0.00014	0.001	0.00010 mg/L	2021-01-06	
Copper, total	0.00240	AO ≤ 1	0.00040 mg/L	2021-01-06	
Iron, total	0.024	AO ≤ 0.3	0.010 mg/L	2021-01-06	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-01-06	
Lithium, total	0.00585	0.008	0.00010 mg/L	2021-01-06	
Magnesium, total	17.6	None Required	0.010 mg/L	2021-01-06	
Manganese, total	0.00211	AO ≤ 0.05	0.00020 mg/L	2021-01-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-01-06	
Molybdenum, total	0.00151	MAC = 0.25	0.00010 mg/L	2021-01-06	
Nickel, total	0.00148	0.08	0.00040 mg/L	2021-01-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-01-06	
Potassium, total	6.57	N/A	0.10 mg/L	2021-01-06	
Selenium, total	0.00369	MAC = 0.01	0.00050 mg/L	2021-01-06	
Silicon, total	9.8	N/A	1.0 mg/L	2021-01-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-06	
Sodium, total	14.6	AO ≤ 200	0.10 mg/L	2021-01-06	
Strontium, total	1.63	7	0.0010 mg/L	2021-01-06	
Sulfur, total	64.6	N/A	3.0 mg/L	2021-01-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-06	



TEST RESULTS

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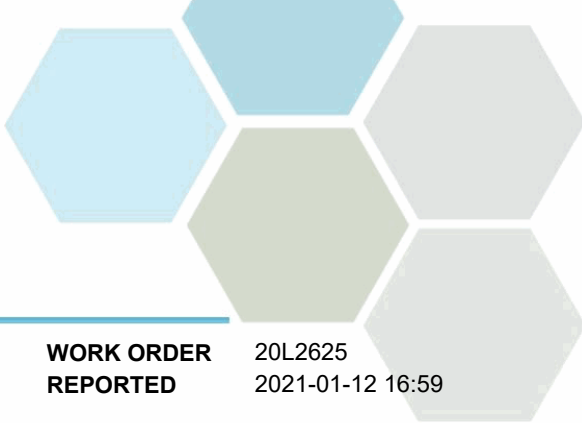
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW19-3A PIEZOMETER (20L2625-03) Matrix: Water Sampled: 2020-12-22, Continued						
<i>Total Metals, Continued</i>						
Thallium, total	< 0.000020	0.003	0.000020	mg/L	2021-01-06	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	
Tin, total	< 0.00020	2.5	0.00020	mg/L	2021-01-06	
Titanium, total	0.0132	1	0.0050	mg/L	2021-01-06	
Tungsten, total	< 0.0010	0.003	0.0010	mg/L	2021-01-06	
Uranium, total	0.0298	MAC = 0.02	0.000020	mg/L	2021-01-06	
Vanadium, total	< 0.0010	0.02	0.0010	mg/L	2021-01-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2021-01-06	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	

MW20-1B HULLCAR MW (20L2625-04) | Matrix: Water | Sampled: 2020-12-22

<i>Anions</i>						
Chloride	3.94	AO ≤ 250	0.10	mg/L	2020-12-29	
Nitrate (as N)	0.473	MAC = 10	0.010	mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-12-29	HT1
Sulfate	125	AO ≤ 500	1.0	mg/L	2020-12-29	

<i>Calculated Parameters</i>						
Hardness, Total (as CaCO3)	284	None Required	0.500	mg/L	N/A	

<i>Dissolved Metals</i>						
Lithium, dissolved	0.00614	2.5	0.00010	mg/L	2021-01-05	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-01-05	
Arsenic, dissolved	0.00150	0.05	0.00050	mg/L	2021-01-05	
Barium, dissolved	0.0537	5	0.0050	mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-01-05	
Cadmium, dissolved	0.000014	0.0005	0.000010	mg/L	2021-01-05	
Calcium, dissolved	78.2	N/A	0.20	mg/L	2021-01-05	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Cobalt, dissolved	0.00016	0.04	0.00010	mg/L	2021-01-05	
Copper, dissolved	0.00076	0.02	0.00040	mg/L	2021-01-05	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-01-05	
Magnesium, dissolved	21.5	N/A	0.010	mg/L	2021-01-05	
Manganese, dissolved	0.0718	0.2	0.00020	mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-01-05	
Molybdenum, dissolved	0.00651	0.01	0.00010	mg/L	2021-01-05	
Nickel, dissolved	0.00111	0.2	0.00040	mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2021-01-05	



TEST RESULTS

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20-135-01PG

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW20-1B HULLCAR MW (20L2625-04) | Matrix: Water | Sampled: 2020-12-22, Continued

Dissolved Metals, Continued

Potassium, dissolved	4.65	N/A	0.10	mg/L	2021-01-05	
Selenium, dissolved	0.00072	0.02	0.00050	mg/L	2021-01-05	
Silicon, dissolved	9.6	N/A	1.0	mg/L	2021-01-05	
Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-01-05	
Sodium, dissolved	19.1	N/A	0.10	mg/L	2021-01-05	
Strontium, dissolved	0.920	N/A	0.0010	mg/L	2021-01-05	
Sulfur, dissolved	47.5	N/A	3.0	mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Tin, dissolved	0.00024	N/A	0.00020	mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-01-05	
Uranium, dissolved	0.00304	0.01	0.000020	mg/L	2021-01-05	
Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-01-05	
Zinc, dissolved	< 0.0040	0.075	0.0040	mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	

General Parameters

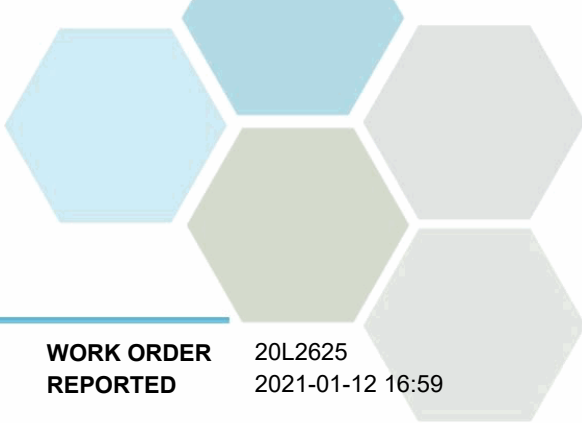
Alkalinity, Total (as CaCO3)	243	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	243	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Ammonia, Total (as N)	0.097	None Required	0.050	mg/L	2020-12-26	
Carbon, Total Organic	1.00	MAC = 4	0.50	mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.162	N/A	0.050	mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0271	N/A	0.0050	mg/L	2020-12-30	
Solids, Total Suspended	3.2	N/A	2.0	mg/L	2020-12-30	HT1

Miscellaneous Subcontracted Parameters

delta-18-O	-17.72	N/A		per mil	2021-01-08	
delta-2-H	-136.66	N/A		per mil	2021-01-08	

Total Metals

Aluminum, total	0.0560	OG < 9.5	0.0050	mg/L	2021-01-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2021-01-06	
Arsenic, total	0.00164	MAC = 0.01	0.00050	mg/L	2021-01-06	
Barium, total	0.0567	MAC = 2	0.0050	mg/L	2021-01-06	
Beryllium, total	< 0.00010	0.0015	0.00010	mg/L	2021-01-06	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2021-01-06	
Cadmium, total	0.000020	MAC = 0.005	0.000010	mg/L	2021-01-06	
Calcium, total	85.9	None Required	0.20	mg/L	2021-01-06	



TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-1B HULLCAR MW (20L2625-04) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Total Metals, Continued</i>					
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2021-01-06	
Cobalt, total	0.00022	0.001	0.00010 mg/L	2021-01-06	
Copper, total	0.00054	AO ≤ 1	0.00040 mg/L	2021-01-06	
Iron, total	0.098	AO ≤ 0.3	0.010 mg/L	2021-01-06	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-01-06	
Lithium, total	0.00639	0.008	0.00010 mg/L	2021-01-06	
Magnesium, total	21.6	None Required	0.010 mg/L	2021-01-06	
Manganese, total	0.0815	AO ≤ 0.05	0.00020 mg/L	2021-01-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-01-06	
Molybdenum, total	0.00646	MAC = 0.25	0.00010 mg/L	2021-01-06	
Nickel, total	0.00137	0.08	0.00040 mg/L	2021-01-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-01-06	
Potassium, total	4.78	N/A	0.10 mg/L	2021-01-06	
Selenium, total	0.00074	MAC = 0.01	0.00050 mg/L	2021-01-06	
Silicon, total	10.0	N/A	1.0 mg/L	2021-01-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-06	
Sodium, total	20.1	AO ≤ 200	0.10 mg/L	2021-01-06	
Strontium, total	0.941	7	0.0010 mg/L	2021-01-06	
Sulfur, total	47.9	N/A	3.0 mg/L	2021-01-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-06	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-01-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	
Tin, total	< 0.00020	2.5	0.00020 mg/L	2021-01-06	
Titanium, total	0.0148	1	0.0050 mg/L	2021-01-06	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-01-06	
Uranium, total	0.00303	MAC = 0.02	0.000020 mg/L	2021-01-06	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-01-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-01-06	
Zirconium, total	0.00011	N/A	0.00010 mg/L	2021-01-06	

MW20-2B HULLCAR MW (20L2625-05) | Matrix: Water | Sampled: 2020-12-22

Anions

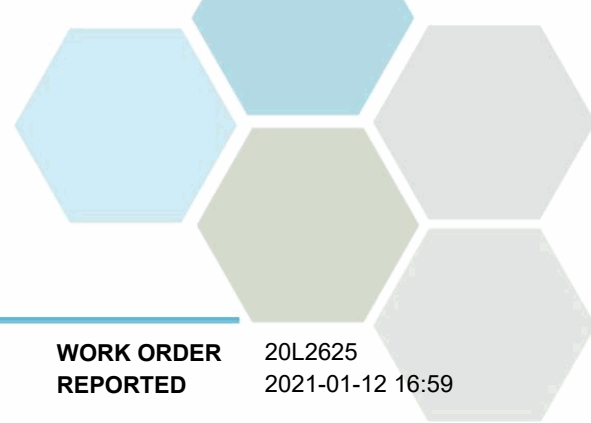
Chloride	24.5	AO ≤ 250	0.10 mg/L	2020-12-29	
Nitrate (as N)	0.025	MAC = 10	0.010 mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-29	HT1
Sulfate	223	AO ≤ 500	1.0 mg/L	2020-12-29	

Calculated Parameters

Hardness, Total (as CaCO3)	408	None Required	0.500 mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.0121	2.5	0.00010 mg/L	2021-01-05	
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TEST RESULTS

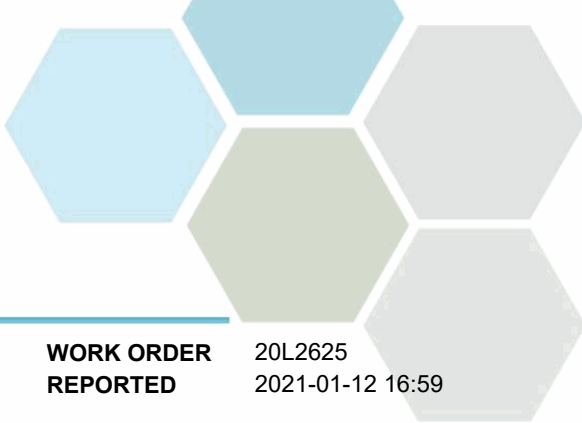
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-2B HULLCAR MW (20L2625-05) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Dissolved Metals, Continued</i>					
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020 mg/L	2021-01-05	
Arsenic, dissolved	0.00212	0.05	0.00050 mg/L	2021-01-05	
Barium, dissolved	0.0660	5	0.0050 mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010 mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-01-05	
Cadmium, dissolved	< 0.000010	0.0005	0.000010 mg/L	2021-01-05	
Calcium, dissolved	126	N/A	0.20 mg/L	2021-01-05	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-01-05	
Cobalt, dissolved	0.00069	0.04	0.00010 mg/L	2021-01-05	
Copper, dissolved	< 0.00040	0.02	0.00040 mg/L	2021-01-05	
Iron, dissolved	0.668	5	0.010 mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-01-05	
Magnesium, dissolved	22.3	N/A	0.010 mg/L	2021-01-05	
Manganese, dissolved	0.0860	0.2	0.00020 mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-01-05	
Molybdenum, dissolved	0.00455	0.01	0.00010 mg/L	2021-01-05	
Nickel, dissolved	0.00158	0.2	0.00040 mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-01-05	
Potassium, dissolved	7.23	N/A	0.10 mg/L	2021-01-05	
Selenium, dissolved	< 0.00050	0.02	0.00050 mg/L	2021-01-05	
Silicon, dissolved	10.9	N/A	1.0 mg/L	2021-01-05	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-01-05	
Sodium, dissolved	22.0	N/A	0.10 mg/L	2021-01-05	
Strontium, dissolved	1.45	N/A	0.0010 mg/L	2021-01-05	
Sulfur, dissolved	79.2	N/A	3.0 mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-01-05	
Uranium, dissolved	0.00317	0.01	0.000020 mg/L	2021-01-05	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-01-05	
Zinc, dissolved	0.0046	0.075	0.0040 mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-01-05	

General Parameters

Alkalinity, Total (as CaCO3)	262	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	262	N/A	1.0 mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	



TEST RESULTS

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20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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MW20-2B HULLCAR MW (20L2625-05) | Matrix: Water | Sampled: 2020-12-22, Continued

General Parameters, Continued

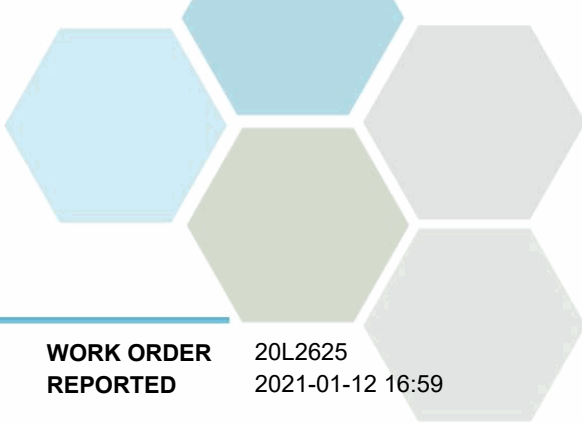
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-12-31	
Ammonia, Total (as N)	0.063	None Required	0.050 mg/L	2020-12-26	
Carbon, Total Organic	0.93	MAC = 4	0.50 mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.128	N/A	0.050 mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0103	N/A	0.0050 mg/L	2020-12-30	
Solids, Total Suspended	< 2.0	N/A	2.0 mg/L	2020-12-30	HT1

Miscellaneous Subcontracted Parameters

delta-18-O	-17.11	N/A	per mil	2021-01-08	
delta-2-H	-134.5	N/A	per mil	2021-01-08	

Total Metals

Aluminum, total	0.0059	OG < 9.5	0.0050 mg/L	2021-01-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-01-06	
Arsenic, total	0.00227	MAC = 0.01	0.00050 mg/L	2021-01-06	
Barium, total	0.0707	MAC = 2	0.0050 mg/L	2021-01-06	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-01-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-01-06	
Cadmium, total	0.000011	MAC = 0.005	0.000010 mg/L	2021-01-06	
Calcium, total	139	None Required	0.20 mg/L	2021-01-06	
Chromium, total	0.00111	MAC = 0.05	0.00050 mg/L	2021-01-06	
Cobalt, total	0.00073	0.001	0.00010 mg/L	2021-01-06	
Copper, total	< 0.00040	AO ≤ 1	0.00040 mg/L	2021-01-06	
Iron, total	0.699	AO ≤ 0.3	0.010 mg/L	2021-01-06	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-01-06	
Lithium, total	0.0124	0.008	0.00010 mg/L	2021-01-06	
Magnesium, total	22.3	None Required	0.010 mg/L	2021-01-06	
Manganese, total	0.0879	AO ≤ 0.05	0.00020 mg/L	2021-01-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-01-06	
Molybdenum, total	0.00489	MAC = 0.25	0.00010 mg/L	2021-01-06	
Nickel, total	0.00187	0.08	0.00040 mg/L	2021-01-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-01-06	
Potassium, total	7.31	N/A	0.10 mg/L	2021-01-06	
Selenium, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2021-01-06	
Silicon, total	11.3	N/A	1.0 mg/L	2021-01-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-06	
Sodium, total	22.9	AO ≤ 200	0.10 mg/L	2021-01-06	
Strontium, total	1.49	7	0.0010 mg/L	2021-01-06	
Sulfur, total	82.0	N/A	3.0 mg/L	2021-01-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-06	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-01-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	
Tin, total	0.00031	2.5	0.00020 mg/L	2021-01-06	



TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-2B HULLCAR MW (20L2625-05) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Total Metals, Continued</i>					
Titanium, total	0.0079	1	0.0050 mg/L	2021-01-06	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-01-06	
Uranium, total	0.00319	MAC = 0.02	0.000020 mg/L	2021-01-06	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-01-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-01-06	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	

MW20-4A HULLCAR MW (20L2625-06) | Matrix: Water | Sampled: 2020-12-23

PRES

Anions

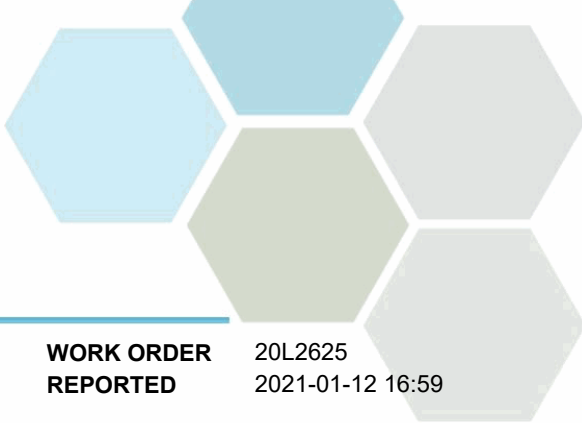
Chloride	67.1	AO ≤ 250	0.10 mg/L	2020-12-29	
Nitrate (as N)	6.57	MAC = 10	0.010 mg/L	2020-12-29	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-12-29	HT1
Sulfate	138	AO ≤ 500	1.0 mg/L	2020-12-29	

Calculated Parameters

Hardness, Total (as CaCO3)	523	None Required	0.500 mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.0228	2.5	0.00010 mg/L	2021-01-05	
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-01-05	
Antimony, dissolved	< 0.00020	0.09	0.00020 mg/L	2021-01-05	
Arsenic, dissolved	< 0.00050	0.05	0.00050 mg/L	2021-01-05	
Barium, dissolved	0.115	5	0.0050 mg/L	2021-01-05	
Beryllium, dissolved	< 0.00010	0.0015	0.00010 mg/L	2021-01-05	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-01-05	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-01-05	
Cadmium, dissolved	0.000112	0.0005	0.000010 mg/L	2021-01-05	
Calcium, dissolved	125	N/A	0.20 mg/L	2021-01-05	
Chromium, dissolved	0.00155	N/A	0.00050 mg/L	2021-01-05	
Cobalt, dissolved	< 0.00010	0.04	0.00010 mg/L	2021-01-05	
Copper, dissolved	0.00099	0.02	0.00040 mg/L	2021-01-05	
Iron, dissolved	< 0.010	5	0.010 mg/L	2021-01-05	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-01-05	
Magnesium, dissolved	51.3	N/A	0.010 mg/L	2021-01-05	
Manganese, dissolved	0.00502	0.2	0.00020 mg/L	2021-01-05	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-01-05	
Molybdenum, dissolved	0.00106	0.01	0.00010 mg/L	2021-01-05	
Nickel, dissolved	0.00112	0.2	0.00040 mg/L	2021-01-05	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-01-05	
Potassium, dissolved	6.59	N/A	0.10 mg/L	2021-01-05	
Selenium, dissolved	0.00530	0.02	0.00050 mg/L	2021-01-05	
Silicon, dissolved	11.1	N/A	1.0 mg/L	2021-01-05	



TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW20-4A HULLCAR MW (20L2625-06) Matrix: Water Sampled: 2020-12-23, Continued						PRES

Dissolved Metals, Continued

Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-01-05	
Sodium, dissolved	31.3	N/A	0.10	mg/L	2021-01-05	
Strontium, dissolved	2.39	N/A	0.0010	mg/L	2021-01-05	
Sulfur, dissolved	52.0	N/A	3.0	mg/L	2021-01-05	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-01-05	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-01-05	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2021-01-05	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-01-05	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-01-05	
Uranium, dissolved	0.0136	0.01	0.000020	mg/L	2021-01-05	
Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-01-05	
Zinc, dissolved	0.0208	0.075	0.0040	mg/L	2021-01-05	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-01-05	

General Parameters

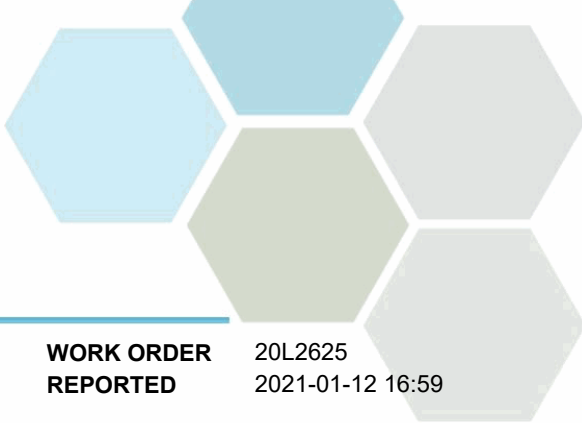
Alkalinity, Total (as CaCO3)	431	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Bicarbonate (as CaCO3)	431	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-12-31	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-12-26	
Carbon, Total Organic	2.28	MAC = 4	0.50	mg/L	2020-12-30	
Nitrogen, Dissolved Kjeldahl	0.211	N/A	0.050	mg/L	2020-12-30	
Phosphorus, Total Dissolved	0.0067	N/A	0.0050	mg/L	2020-12-30	
Solids, Total Suspended	15.4	N/A	2.0	mg/L	2020-12-30	

Miscellaneous Subcontracted Parameters

delta-18-O	-17.73	N/A		per mil	2021-01-08	
delta-2-H	-137	N/A		per mil	2021-01-08	

Total Metals

Aluminum, total	0.217	OG < 9.5	0.0050	mg/L	2021-01-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2021-01-06	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2021-01-06	
Barium, total	0.123	MAC = 2	0.0050	mg/L	2021-01-06	
Beryllium, total	< 0.00010	0.0015	0.00010	mg/L	2021-01-06	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2021-01-06	
Cadmium, total	0.000105	MAC = 0.005	0.000010	mg/L	2021-01-06	
Calcium, total	134	None Required	0.20	mg/L	2021-01-06	
Chromium, total	0.00204	MAC = 0.05	0.00050	mg/L	2021-01-06	
Cobalt, total	0.00050	0.001	0.00010	mg/L	2021-01-06	
Copper, total	0.00245	AO ≤ 1	0.00040	mg/L	2021-01-06	



TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW20-4A HULLCAR MW (20L2625-06) Matrix: Water Sampled: 2020-12-23, Continued						PRES

Total Metals, Continued

Iron, total	0.362	AO ≤ 0.3	0.010	mg/L	2021-01-06	
Lead, total	0.00073	MAC = 0.01	0.00020	mg/L	2021-01-06	
Lithium, total	0.0231	0.008	0.00010	mg/L	2021-01-06	
Magnesium, total	51.7	None Required	0.010	mg/L	2021-01-06	
Manganese, total	0.0163	AO ≤ 0.05	0.00020	mg/L	2021-01-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2021-01-06	
Molybdenum, total	0.00095	MAC = 0.25	0.00010	mg/L	2021-01-06	
Nickel, total	0.00167	0.08	0.00040	mg/L	2021-01-06	
Phosphorus, total	0.056	N/A	0.050	mg/L	2021-01-06	
Potassium, total	6.78	N/A	0.10	mg/L	2021-01-06	
Selenium, total	0.00500	MAC = 0.01	0.00050	mg/L	2021-01-06	
Silicon, total	11.6	N/A	1.0	mg/L	2021-01-06	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2021-01-06	
Sodium, total	33.1	AO ≤ 200	0.10	mg/L	2021-01-06	
Strontium, total	2.43	7	0.0010	mg/L	2021-01-06	
Sulfur, total	51.8	N/A	3.0	mg/L	2021-01-06	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2021-01-06	
Thallium, total	< 0.000020	0.003	0.000020	mg/L	2021-01-06	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	
Tin, total	< 0.00020	2.5	0.00020	mg/L	2021-01-06	
Titanium, total	0.0188	1	0.0050	mg/L	2021-01-06	
Tungsten, total	< 0.0010	0.003	0.0010	mg/L	2021-01-06	
Uranium, total	0.0134	MAC = 0.02	0.000020	mg/L	2021-01-06	
Vanadium, total	< 0.0010	0.02	0.0010	mg/L	2021-01-06	
Zinc, total	0.0361	AO ≤ 5	0.0040	mg/L	2021-01-06	
Zirconium, total	0.00019	N/A	0.00010	mg/L	2021-01-06	

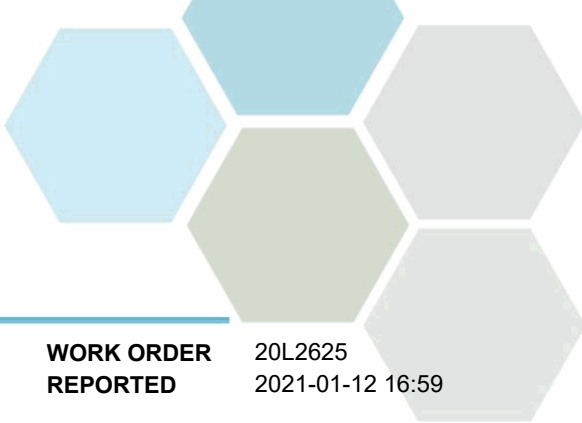
DUP20-A (20L2625-07) | Matrix: Water | Sampled: 2020-12-22

Calculated Parameters

Hardness, Total (as CaCO3)	540	None Required	0.500	mg/L	N/A
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Total Metals

Aluminum, total	0.0074	OG < 9.5	0.0050	mg/L	2021-01-06	
Antimony, total	0.00026	MAC = 0.006	0.00020	mg/L	2021-01-06	
Arsenic, total	0.00063	MAC = 0.01	0.00050	mg/L	2021-01-06	
Barium, total	0.0719	MAC = 2	0.0050	mg/L	2021-01-06	
Beryllium, total	< 0.00010	0.0015	0.00010	mg/L	2021-01-06	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2021-01-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2021-01-06	
Cadmium, total	0.000054	MAC = 0.005	0.000010	mg/L	2021-01-06	
Calcium, total	186	None Required	0.20	mg/L	2021-01-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2021-01-06	



TEST RESULTS

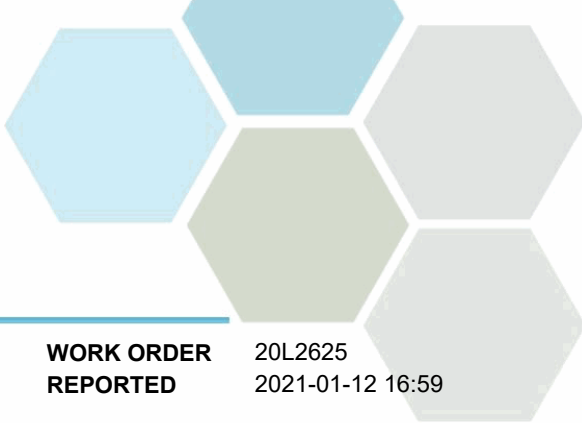
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
DUP20-A (20L2625-07) Matrix: Water Sampled: 2020-12-22, Continued					
<i>Total Metals, Continued</i>					
Cobalt, total	0.00012	0.001	0.00010 mg/L	2021-01-06	
Copper, total	0.00343	AO ≤ 1	0.00040 mg/L	2021-01-06	
Iron, total	0.013	AO ≤ 0.3	0.010 mg/L	2021-01-06	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-01-06	
Lithium, total	0.00591	0.008	0.00010 mg/L	2021-01-06	
Magnesium, total	18.4	None Required	0.010 mg/L	2021-01-06	
Manganese, total	0.00206	AO ≤ 0.05	0.00020 mg/L	2021-01-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-01-06	
Molybdenum, total	0.00171	MAC = 0.25	0.00010 mg/L	2021-01-06	
Nickel, total	0.00153	0.08	0.00040 mg/L	2021-01-06	
Phosphorus, total	0.324	N/A	0.050 mg/L	2021-01-06	
Potassium, total	6.75	N/A	0.10 mg/L	2021-01-06	
Selenium, total	0.00364	MAC = 0.01	0.00050 mg/L	2021-01-06	
Silicon, total	10.4	N/A	1.0 mg/L	2021-01-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-01-06	
Sodium, total	15.2	AO ≤ 200	0.10 mg/L	2021-01-06	
Strontium, total	1.61	7	0.0010 mg/L	2021-01-06	
Sulfur, total	65.9	N/A	3.0 mg/L	2021-01-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-01-06	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-01-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	
Tin, total	< 0.00020	2.5	0.00020 mg/L	2021-01-06	
Titanium, total	0.0053	1	0.0050 mg/L	2021-01-06	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-01-06	
Uranium, total	0.0298	MAC = 0.02	0.000020 mg/L	2021-01-06	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-01-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-01-06	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-01-06	

Sample Qualifiers:

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- PRES Sample has been preserved for TOC in the laboratory and the holding time has been extended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Western Water Associates Ltd
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WORK ORDER REPORTED 20L2625
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Analysis Description	Method Ref.	Technique	Accredited	Location
2H and 18O Isotope Ratios in Water	Stable Isotopes	CRDS		Sublet
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2017)	Combustion, Infrared CO2 Detection	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	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, Dissolved Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
Phosphorus, Total Dissolved in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	SM 2540 D* (2017)	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

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

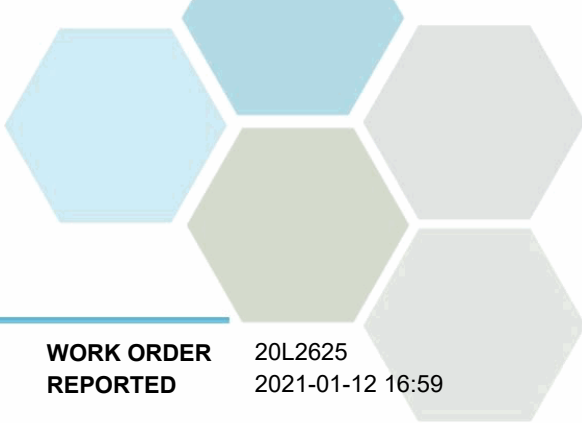
Glossary of Terms:

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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
OG	Operational Guideline (treated water)
per mil	Parts per thousand
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

- [BC CSR Schedule 3.2 Aquatic Life](#)
- [BC CSR Schedule 3.2 Drinking Water](#)
- [BC CSR Schedule 3.2 Irrigation](#)
- [BC Source Drinking Water Quality Guidelines \(2017\)](#)
- [Guidelines for Canadian Drinking Water Quality \(Health Canada, June 2019\)](#)

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



APPENDIX 1: SUPPORTING INFORMATION

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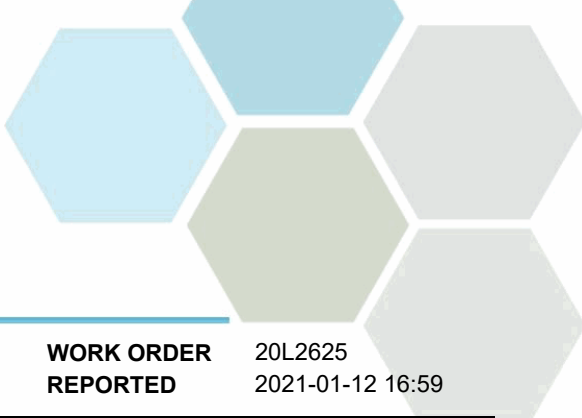
WORK ORDER 20L2625
REPORTED 2021-01-12 16:59

General Comments:

The results in this report apply to the 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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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: acrump@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

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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:

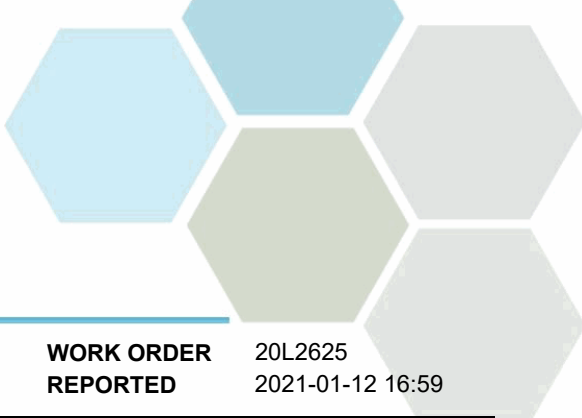
- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected 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 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 B0L2291									
Blank (B0L2291-BLK1)			Prepared: 2020-12-29, Analyzed: 2020-12-29						
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B0L2291-BS1)			Prepared: 2020-12-29, Analyzed: 2020-12-29						
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.87	0.010 mg/L	4.00		97	90-110			
Nitrite (as N)	2.08	0.010 mg/L	2.00		104	85-115			
Sulfate	15.9	1.0 mg/L	16.0		99	90-110			

Dissolved Metals, Batch B1A0096

Blank (B1A0096-BLK1)			Prepared: 2021-01-05, Analyzed: 2021-01-05						
Lithium, dissolved	< 0.00010	0.00010 mg/L							
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							
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							

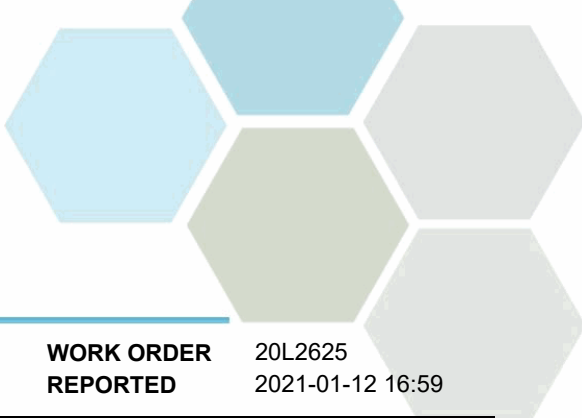


APPENDIX 2: QUALITY CONTROL RESULTS

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20-135-01PG

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B1A0096, Continued									
Blank (B1A0096-BLK1), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-05				
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	< 0.0010	0.0010 mg/L							
Zinc, dissolved	< 0.0040	0.0040 mg/L							
Zirconium, dissolved	< 0.00010	0.00010 mg/L							
Blank (B1A0096-BLK2)					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Lithium, dissolved	< 0.00010	0.00010 mg/L							
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							
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	< 0.0010	0.0010 mg/L							
Zinc, dissolved	< 0.0040	0.0040 mg/L							
Zirconium, dissolved	< 0.00010	0.00010 mg/L							
LCS (B1A0096-BS1)					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Lithium, dissolved	0.0202	0.00010 mg/L	0.0200		101	80-120			



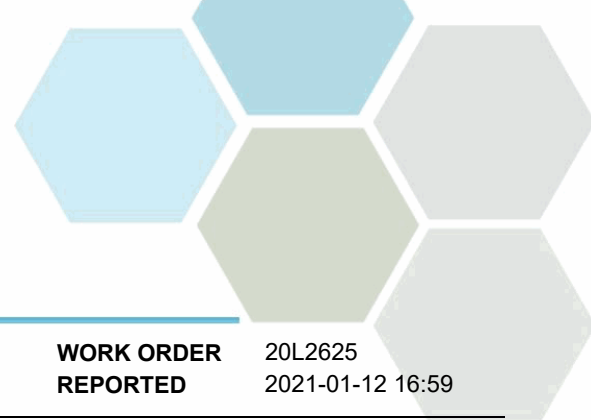
APPENDIX 2: QUALITY CONTROL RESULTS

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20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B1A0096, Continued									
LCS (B1A0096-BS1), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Aluminum, dissolved	0.0201	0.0050 mg/L	0.0199		101	80-120			
Antimony, dissolved	0.0190	0.00020 mg/L	0.0200		95	80-120			
Arsenic, dissolved	0.0178	0.00050 mg/L	0.0200		89	80-120			
Barium, dissolved	0.0199	0.0050 mg/L	0.0198		101	80-120			
Beryllium, dissolved	0.0196	0.00010 mg/L	0.0198		99	80-120			
Bismuth, dissolved	0.0201	0.00010 mg/L	0.0200		101	80-120			
Boron, dissolved	< 0.0500	0.0500 mg/L	0.0200		120	80-120			
Cadmium, dissolved	0.0194	0.000010 mg/L	0.0199		97	80-120			
Calcium, dissolved	1.72	0.20 mg/L	2.02		85	80-120			
Chromium, dissolved	0.0179	0.00050 mg/L	0.0198		90	80-120			
Cobalt, dissolved	0.0186	0.00010 mg/L	0.0199		94	80-120			
Copper, dissolved	0.0188	0.00040 mg/L	0.0200		94	80-120			
Iron, dissolved	1.71	0.010 mg/L	2.02		84	80-120			
Lead, dissolved	0.0196	0.00020 mg/L	0.0199		98	80-120			
Magnesium, dissolved	1.99	0.010 mg/L	2.02		99	80-120			
Manganese, dissolved	0.0193	0.00020 mg/L	0.0199		97	80-120			
Molybdenum, dissolved	0.0196	0.00010 mg/L	0.0200		98	80-120			
Nickel, dissolved	0.0188	0.00040 mg/L	0.0200		94	80-120			
Phosphorus, dissolved	2.08	0.050 mg/L	2.00		104	80-120			
Potassium, dissolved	1.92	0.10 mg/L	2.02		95	80-120			
Selenium, dissolved	0.0214	0.00050 mg/L	0.0200		107	80-120			
Silicon, dissolved	1.8	1.0 mg/L	2.00		92	80-120			
Silver, dissolved	0.0205	0.000050 mg/L	0.0200		103	80-120			
Sodium, dissolved	1.96	0.10 mg/L	2.02		97	80-120			
Strontium, dissolved	0.0197	0.0010 mg/L	0.0200		98	80-120			
Sulfur, dissolved	5.2	3.0 mg/L	5.00		104	80-120			
Tellurium, dissolved	0.0218	0.00050 mg/L	0.0200		109	80-120			
Thallium, dissolved	0.0197	0.000020 mg/L	0.0199		99	80-120			
Thorium, dissolved	0.0192	0.00010 mg/L	0.0200		96	80-120			
Tin, dissolved	0.0209	0.00020 mg/L	0.0200		104	80-120			
Titanium, dissolved	0.0194	0.0050 mg/L	0.0200		97	80-120			
Tungsten, dissolved	0.0217	0.0010 mg/L	0.0200		109	80-120			
Uranium, dissolved	0.0200	0.000020 mg/L	0.0200		100	80-120			
Vanadium, dissolved	0.0181	0.0010 mg/L	0.0200		91	80-120			
Zinc, dissolved	0.0189	0.0040 mg/L	0.0200		95	80-120			
Zirconium, dissolved	0.0195	0.00010 mg/L	0.0200		98	80-120			

LCS (B1A0096-BS2)					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Lithium, dissolved	0.0199	0.00010 mg/L	0.0200		100	80-120			
Aluminum, dissolved	0.0212	0.0050 mg/L	0.0199		107	80-120			
Antimony, dissolved	0.0215	0.00020 mg/L	0.0200		107	80-120			
Arsenic, dissolved	0.0189	0.00050 mg/L	0.0200		95	80-120			
Barium, dissolved	0.0215	0.0050 mg/L	0.0198		109	80-120			
Beryllium, dissolved	0.0192	0.00010 mg/L	0.0198		97	80-120			
Bismuth, dissolved	0.0211	0.00010 mg/L	0.0200		105	80-120			
Boron, dissolved	< 0.0500	0.0500 mg/L	0.0200		106	80-120			
Cadmium, dissolved	0.0201	0.000010 mg/L	0.0199		101	80-120			
Calcium, dissolved	1.72	0.20 mg/L	2.02		85	80-120			
Chromium, dissolved	0.0179	0.00050 mg/L	0.0198		90	80-120			
Cobalt, dissolved	0.0186	0.00010 mg/L	0.0199		93	80-120			
Copper, dissolved	0.0186	0.00040 mg/L	0.0200		93	80-120			
Iron, dissolved	1.74	0.010 mg/L	2.02		86	80-120			
Lead, dissolved	0.0202	0.00020 mg/L	0.0199		102	80-120			
Magnesium, dissolved	1.85	0.010 mg/L	2.02		92	80-120			
Manganese, dissolved	0.0188	0.00020 mg/L	0.0199		95	80-120			
Molybdenum, dissolved	0.0201	0.00010 mg/L	0.0200		100	80-120			



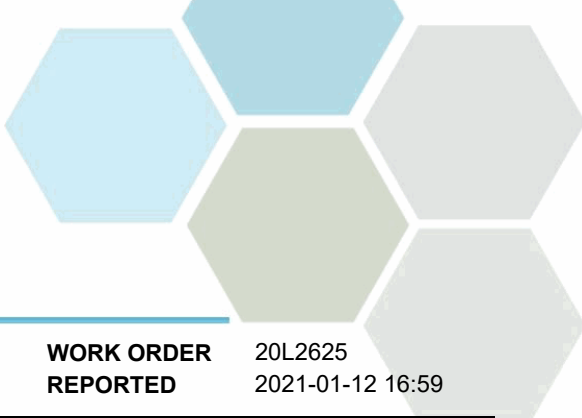
APPENDIX 2: QUALITY CONTROL RESULTS

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20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B1A0096, Continued									
LCS (B1A0096-BS2), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Nickel, dissolved	0.0190	0.00040 mg/L	0.0200		95	80-120			
Phosphorus, dissolved	1.95	0.050 mg/L	2.00		97	80-120			
Potassium, dissolved	1.87	0.10 mg/L	2.02		92	80-120			
Selenium, dissolved	0.0200	0.00050 mg/L	0.0200		100	80-120			
Silicon, dissolved	1.6	1.0 mg/L	2.00		82	80-120			
Silver, dissolved	0.0210	0.000050 mg/L	0.0200		105	80-120			
Sodium, dissolved	1.82	0.10 mg/L	2.02		90	80-120			
Strontium, dissolved	0.0207	0.0010 mg/L	0.0200		103	80-120			
Sulfur, dissolved	5.1	3.0 mg/L	5.00		101	80-120			
Tellurium, dissolved	0.0234	0.00050 mg/L	0.0200		117	80-120			
Thallium, dissolved	0.0203	0.000020 mg/L	0.0199		102	80-120			
Thorium, dissolved	0.0200	0.00010 mg/L	0.0200		100	80-120			
Tin, dissolved	0.0228	0.00020 mg/L	0.0200		114	80-120			
Titanium, dissolved	0.0183	0.0050 mg/L	0.0200		91	80-120			
Tungsten, dissolved	0.0227	0.0010 mg/L	0.0200		113	80-120			
Uranium, dissolved	0.0208	0.000020 mg/L	0.0200		104	80-120			
Vanadium, dissolved	0.0195	0.0010 mg/L	0.0200		97	80-120			
Zinc, dissolved	0.0196	0.0040 mg/L	0.0200		98	80-120			
Zirconium, dissolved	0.0202	0.00010 mg/L	0.0200		101	80-120			

Duplicate (B1A0096-DUP2)		Source: 20L2625-01		Prepared: 2021-01-05, Analyzed: 2021-01-05					
Lithium, dissolved	0.00769	0.00010 mg/L		0.00763			< 1	20	
Aluminum, dissolved	< 0.0050	0.0050 mg/L		< 0.0050				20	
Antimony, dissolved	< 0.00020	0.00020 mg/L		< 0.00020				20	
Arsenic, dissolved	0.00056	0.00050 mg/L		0.00061				20	
Barium, dissolved	0.118	0.0050 mg/L		0.119			< 1	20	
Beryllium, dissolved	< 0.00010	0.00010 mg/L		< 0.00010				20	
Bismuth, dissolved	< 0.00010	0.00010 mg/L		< 0.00010				20	
Boron, dissolved	< 0.0500	0.0500 mg/L		< 0.0500				20	
Cadmium, dissolved	0.000039	0.000010 mg/L		0.000028				20	
Calcium, dissolved	221	0.20 mg/L		222			< 1	20	
Chromium, dissolved	0.00097	0.00050 mg/L		0.00097				20	
Cobalt, dissolved	0.00013	0.00010 mg/L		0.00015				20	
Copper, dissolved	0.00128	0.00040 mg/L		0.00129				20	
Iron, dissolved	< 0.010	0.010 mg/L		< 0.010				20	
Lead, dissolved	< 0.00020	0.00020 mg/L		< 0.00020				20	
Magnesium, dissolved	32.0	0.010 mg/L		32.3			< 1	20	
Manganese, dissolved	0.00038	0.00020 mg/L		0.00036				20	
Molybdenum, dissolved	0.00080	0.00010 mg/L		0.00078			3	20	
Nickel, dissolved	0.00149	0.00040 mg/L		0.00144				20	
Phosphorus, dissolved	< 0.050	0.050 mg/L		< 0.050				20	
Potassium, dissolved	6.51	0.10 mg/L		6.60			1	20	
Selenium, dissolved	0.00949	0.00050 mg/L		0.00964			2	20	
Silicon, dissolved	12.4	1.0 mg/L		12.7			2	20	
Silver, dissolved	< 0.000050	0.000050 mg/L		< 0.000050				20	
Sodium, dissolved	14.3	0.10 mg/L		14.5			2	20	
Strontium, dissolved	1.57	0.0010 mg/L		1.58			< 1	20	
Sulfur, dissolved	143	3.0 mg/L		138			3	20	
Tellurium, dissolved	< 0.00050	0.00050 mg/L		< 0.00050				20	
Thallium, dissolved	< 0.000020	0.000020 mg/L		< 0.000020				20	
Thorium, dissolved	< 0.00010	0.00010 mg/L		< 0.00010				20	
Tin, dissolved	0.00025	0.00020 mg/L		0.00020				20	
Titanium, dissolved	< 0.0050	0.0050 mg/L		< 0.0050				20	
Tungsten, dissolved	< 0.0010	0.0010 mg/L		< 0.0010				20	
Uranium, dissolved	0.00551	0.000020 mg/L		0.00559			1	20	
Vanadium, dissolved	< 0.0010	0.0010 mg/L		< 0.0010				20	

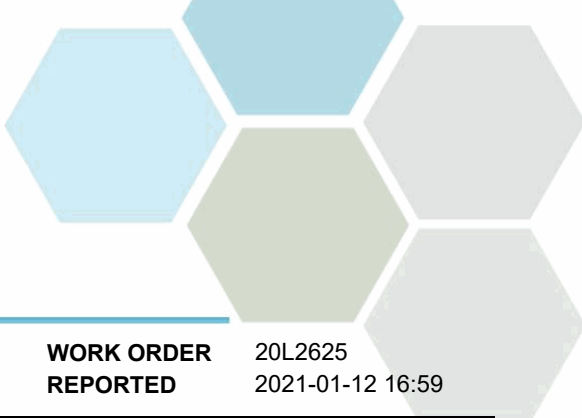


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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B1A0096, Continued									
Duplicate (B1A0096-DUP2), Continued			Source: 20L2625-01		Prepared: 2021-01-05, Analyzed: 2021-01-05				
Zinc, dissolved	< 0.0040	0.0040 mg/L		< 0.0040				20	
Zirconium, dissolved	< 0.00010	0.00010 mg/L		< 0.00010				20	
Reference (B1A0096-SRM1)			Prepared: 2021-01-05, Analyzed: 2021-01-05						
Lithium, dissolved	0.101	0.00010 mg/L	0.100		101	70-130			
Aluminum, dissolved	0.221	0.0050 mg/L	0.235		94	70-130			
Antimony, dissolved	0.0457	0.00020 mg/L	0.0431		106	70-130			
Arsenic, dissolved	0.411	0.00050 mg/L	0.423		97	70-130			
Barium, dissolved	3.14	0.0050 mg/L	3.30		95	70-130			
Beryllium, dissolved	0.210	0.00010 mg/L	0.209		101	70-130			
Boron, dissolved	1.96	0.0500 mg/L	1.65		119	70-130			
Cadmium, dissolved	0.222	0.000010 mg/L	0.221		100	70-130			
Calcium, dissolved	7.09	0.20 mg/L	7.72		92	70-130			
Chromium, dissolved	0.403	0.00050 mg/L	0.434		93	70-130			
Cobalt, dissolved	0.121	0.00010 mg/L	0.124		98	70-130			
Copper, dissolved	0.800	0.00040 mg/L	0.815		98	70-130			
Iron, dissolved	1.15	0.010 mg/L	1.27		91	70-130			
Lead, dissolved	0.111	0.00020 mg/L	0.110		101	70-130			
Magnesium, dissolved	6.66	0.010 mg/L	6.59		101	70-130			
Manganese, dissolved	0.337	0.00020 mg/L	0.342		99	70-130			
Molybdenum, dissolved	0.419	0.00010 mg/L	0.404		104	70-130			
Nickel, dissolved	0.813	0.00040 mg/L	0.835		97	70-130			
Phosphorus, dissolved	0.491	0.050 mg/L	0.499		98	70-130			
Potassium, dissolved	2.96	0.10 mg/L	2.88		103	70-130			
Selenium, dissolved	0.0361	0.00050 mg/L	0.0324		111	70-130			
Sodium, dissolved	18.2	0.10 mg/L	18.0		101	70-130			
Strontium, dissolved	0.938	0.0010 mg/L	0.935		100	70-130			
Thallium, dissolved	0.0386	0.000020 mg/L	0.0385		100	70-130			
Uranium, dissolved	0.249	0.000020 mg/L	0.258		97	70-130			
Vanadium, dissolved	0.791	0.0010 mg/L	0.873		91	70-130			
Zinc, dissolved	0.797	0.0040 mg/L	0.848		94	70-130			
Reference (B1A0096-SRM2)			Prepared: 2021-01-05, Analyzed: 2021-01-05						
Lithium, dissolved	0.0989	0.00010 mg/L	0.100		99	70-130			
Aluminum, dissolved	0.200	0.0050 mg/L	0.235		85	70-130			
Antimony, dissolved	0.0502	0.00020 mg/L	0.0431		117	70-130			
Arsenic, dissolved	0.431	0.00050 mg/L	0.423		102	70-130			
Barium, dissolved	3.35	0.0050 mg/L	3.30		101	70-130			
Beryllium, dissolved	0.207	0.00010 mg/L	0.209		99	70-130			
Boron, dissolved	1.68	0.0500 mg/L	1.65		102	70-130			
Cadmium, dissolved	0.223	0.000010 mg/L	0.221		101	70-130			
Calcium, dissolved	6.87	0.20 mg/L	7.72		89	70-130			
Chromium, dissolved	0.399	0.00050 mg/L	0.434		92	70-130			
Cobalt, dissolved	0.119	0.00010 mg/L	0.124		96	70-130			
Copper, dissolved	0.784	0.00040 mg/L	0.815		96	70-130			
Iron, dissolved	1.14	0.010 mg/L	1.27		90	70-130			
Lead, dissolved	0.112	0.00020 mg/L	0.110		102	70-130			
Magnesium, dissolved	5.95	0.010 mg/L	6.59		90	70-130			
Manganese, dissolved	0.312	0.00020 mg/L	0.342		91	70-130			
Molybdenum, dissolved	0.426	0.00010 mg/L	0.404		105	70-130			
Nickel, dissolved	0.789	0.00040 mg/L	0.835		94	70-130			
Phosphorus, dissolved	0.456	0.050 mg/L	0.499		91	70-130			
Potassium, dissolved	2.69	0.10 mg/L	2.88		93	70-130			
Selenium, dissolved	0.0330	0.00050 mg/L	0.0324		102	70-130			
Sodium, dissolved	16.3	0.10 mg/L	18.0		91	70-130			
Strontium, dissolved	0.956	0.0010 mg/L	0.935		102	70-130			
Thallium, dissolved	0.0384	0.000020 mg/L	0.0385		100	70-130			



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Dissolved Metals, Batch B1A0096, Continued

Reference (B1A0096-SRM2), Continued

Prepared: 2021-01-05, Analyzed: 2021-01-05

Uranium, dissolved	0.258	0.000020 mg/L	0.258		100	70-130			
Vanadium, dissolved	0.790	0.0010 mg/L	0.873		90	70-130			
Zinc, dissolved	0.809	0.0040 mg/L	0.848		95	70-130			

Dissolved Metals, Batch B1A0146

Blank (B1A0146-BLK1)

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	< 0.000010	0.000010 mg/L							
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Blank (B1A0146-BLK2)

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	< 0.000010	0.000010 mg/L							
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Duplicate (B1A0146-DUP2)

Source: 20L2625-05

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	< 0.000010	0.000010 mg/L		< 0.000010				20	
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Matrix Spike (B1A0146-MS2)

Source: 20L2625-06

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	0.000232	0.000010 mg/L	0.000250	< 0.000010	93	70-130			
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Reference (B1A0146-SRM1)

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	0.00623	0.000010 mg/L	0.00581		107	70-130			
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Reference (B1A0146-SRM2)

Prepared: 2021-01-05, Analyzed: 2021-01-05

Mercury, dissolved	0.00604	0.000010 mg/L	0.00581		104	70-130			
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General Parameters, Batch B0L2032

Blank (B0L2032-BLK1)

Prepared: 2020-12-24, Analyzed: 2020-12-24

Carbon, Total Organic	< 0.50	0.50 mg/L							
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Blank (B0L2032-BLK2)

Prepared: 2020-12-24, Analyzed: 2020-12-24

Carbon, Total Organic	< 0.50	0.50 mg/L							
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LCS (B0L2032-BS1)

Prepared: 2020-12-24, Analyzed: 2020-12-24

Carbon, Total Organic	9.85	0.50 mg/L	10.0		98	78-116			
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LCS (B0L2032-BS2)

Prepared: 2020-12-24, Analyzed: 2020-12-24

Carbon, Total Organic	10.5	0.50 mg/L	10.0		105	78-116			
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General Parameters, Batch B0L2307

Blank (B0L2307-BLK1)

Prepared: 2020-12-26, Analyzed: 2020-12-26

Ammonia, Total (as N)	< 0.050	0.050 mg/L							
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LCS (B0L2307-BS1)

Prepared: 2020-12-26, Analyzed: 2020-12-26

Ammonia, Total (as N)	0.932	0.050 mg/L	1.00		93	90-115			
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Duplicate (B0L2307-DUP1)

Source: 20L2625-01

Prepared: 2020-12-26, Analyzed: 2020-12-26

Ammonia, Total (as N)	< 0.050	0.050 mg/L		< 0.050				15	
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Matrix Spike (B0L2307-MS1)

Source: 20L2625-01

Prepared: 2020-12-26, Analyzed: 2020-12-26

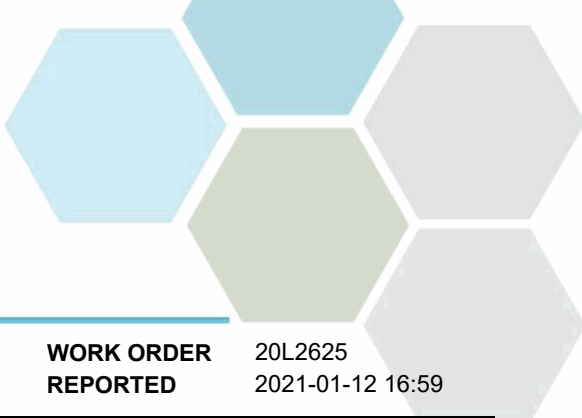
Ammonia, Total (as N)	0.262	0.050 mg/L	0.250	< 0.050	105	75-125			
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General Parameters, Batch B0L2418

Blank (B0L2418-BLK1)

Prepared: 2020-12-29, Analyzed: 2020-12-30

Phosphorus, Total Dissolved	< 0.0050	0.0050 mg/L							
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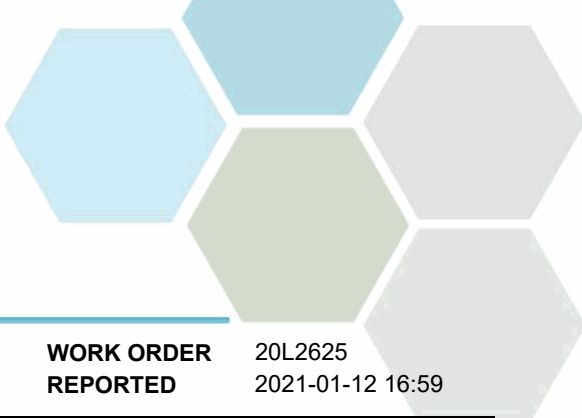


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B0L2418, Continued									
LCS (B0L2418-BS1)			Prepared: 2020-12-29, Analyzed: 2020-12-30						
Phosphorus, Total Dissolved	0.106	0.0050 mg/L	0.100		106	85-115			
General Parameters, Batch B0L2463									
Blank (B0L2463-BLK1)			Prepared: 2020-12-30, Analyzed: 2020-12-30						
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B0L2463-BS1)			Prepared: 2020-12-30, Analyzed: 2020-12-30						
Solids, Total Suspended	94.0	10.0 mg/L	100		94	85-115			
General Parameters, Batch B0L2563									
Blank (B0L2563-BLK1)			Prepared: 2020-12-31, Analyzed: 2020-12-31						
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 (B0L2563-BS1)			Prepared: 2020-12-31, Analyzed: 2020-12-31						
Alkalinity, Total (as CaCO3)	106	1.0 mg/L	100		106	80-120			
Total Metals, Batch B1A0116									
Blank (B1A0116-BLK1)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B1A0116-BLK2)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B1A0116-BLK3)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	< 0.000010	0.000010 mg/L							
Duplicate (B1A0116-DUP2)			Source: 20L2625-07		Prepared: 2021-01-05, Analyzed: 2021-01-06				
Mercury, total	< 0.000010	0.000010 mg/L			< 0.000010			20	
Reference (B1A0116-SRM1)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	0.00578	0.000010 mg/L	0.00581		100	70-130			
Reference (B1A0116-SRM2)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	0.00602	0.000010 mg/L	0.00581		104	70-130			
Reference (B1A0116-SRM3)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Mercury, total	0.00599	0.000010 mg/L	0.00581		103	70-130			
Total Metals, Batch B1A0143									
Blank (B1A0143-BLK1)			Prepared: 2021-01-05, Analyzed: 2021-01-05						
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							
Boron, total	< 0.0500	0.0500 mg/L							



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B1A0143, Continued

Blank (B1A0143-BLK1), Continued

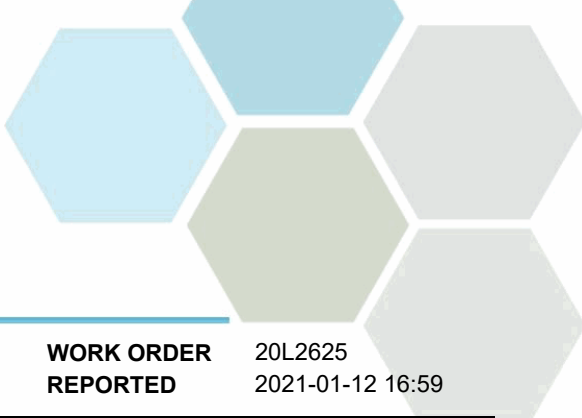
Prepared: 2021-01-05, Analyzed: 2021-01-05

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	< 0.0010	0.0010 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							

Blank (B1A0143-BLK2)

Prepared: 2021-01-05, Analyzed: 2021-01-06

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							
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							

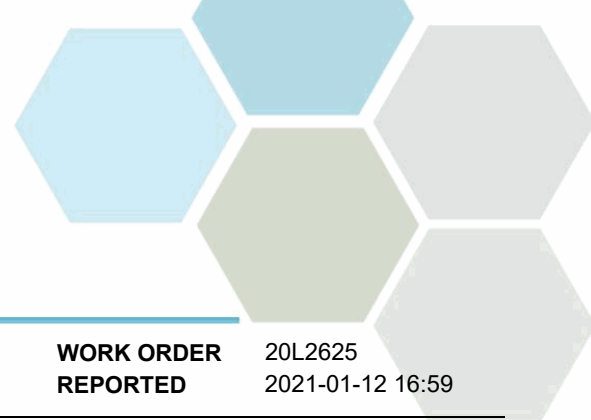


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B1A0143, Continued									
Blank (B1A0143-BLK2), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-06				
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	< 0.0010	0.0010 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							
LCS (B1A0143-BS1)					Prepared: 2021-01-05, Analyzed: 2021-01-05				
Aluminum, total	0.0198	0.0050 mg/L	0.0199		100	80-120			
Antimony, total	0.0202	0.00020 mg/L	0.0200		101	80-120			
Arsenic, total	0.0178	0.00050 mg/L	0.0200		89	80-120			
Barium, total	0.0229	0.0050 mg/L	0.0198		115	80-120			
Beryllium, total	0.0193	0.00010 mg/L	0.0198		98	80-120			
Bismuth, total	0.0211	0.00010 mg/L	0.0200		105	80-120			
Boron, total	< 0.0500	0.0500 mg/L	0.0200		115	80-120			
Cadmium, total	0.0215	0.000010 mg/L	0.0199		108	80-120			
Calcium, total	1.83	0.20 mg/L	2.02		91	80-120			
Chromium, total	0.0176	0.00050 mg/L	0.0198		89	80-120			
Cobalt, total	0.0182	0.00010 mg/L	0.0199		91	80-120			
Copper, total	0.0182	0.00040 mg/L	0.0200		91	80-120			
Iron, total	1.71	0.010 mg/L	2.02		85	80-120			
Lead, total	0.0205	0.00020 mg/L	0.0199		103	80-120			
Lithium, total	0.0206	0.00010 mg/L	0.0200		103	80-120			
Magnesium, total	1.87	0.010 mg/L	2.02		93	80-120			
Manganese, total	0.0189	0.00020 mg/L	0.0199		95	80-120			
Molybdenum, total	0.0205	0.00010 mg/L	0.0200		102	80-120			
Nickel, total	0.0178	0.00040 mg/L	0.0200		89	80-120			
Phosphorus, total	1.87	0.050 mg/L	2.00		93	80-120			
Potassium, total	1.89	0.10 mg/L	2.02		93	80-120			
Selenium, total	0.0207	0.00050 mg/L	0.0200		104	80-120			
Silicon, total	2.1	1.0 mg/L	2.00		103	80-120			
Silver, total	0.0215	0.000050 mg/L	0.0200		107	80-120			
Sodium, total	1.94	0.10 mg/L	2.02		96	80-120			
Strontium, total	0.0205	0.0010 mg/L	0.0200		102	80-120			
Sulfur, total	4.6	3.0 mg/L	5.00		93	80-120			
Tellurium, total	0.0232	0.00050 mg/L	0.0200		116	80-120			
Thallium, total	0.0207	0.000020 mg/L	0.0199		104	80-120			
Thorium, total	0.0203	0.00010 mg/L	0.0200		101	80-120			
Tin, total	0.0210	0.00020 mg/L	0.0200		105	80-120			
Titanium, total	0.0188	0.0050 mg/L	0.0200		94	80-120			
Tungsten, total	0.0220	0.0010 mg/L	0.0200		110	80-120			
Uranium, total	0.0214	0.000020 mg/L	0.0200		107	80-120			
Vanadium, total	0.0185	0.0010 mg/L	0.0200		92	80-120			
Zinc, total	0.0186	0.0040 mg/L	0.0200		93	80-120			
Zirconium, total	0.0200	0.00010 mg/L	0.0200		100	80-120			
LCS (B1A0143-BS2)					Prepared: 2021-01-05, Analyzed: 2021-01-06				
Aluminum, total	0.0211	0.0050 mg/L	0.0199		106	80-120			
Antimony, total	0.0220	0.00020 mg/L	0.0200		110	80-120			
Arsenic, total	0.0194	0.00050 mg/L	0.0200		97	80-120			



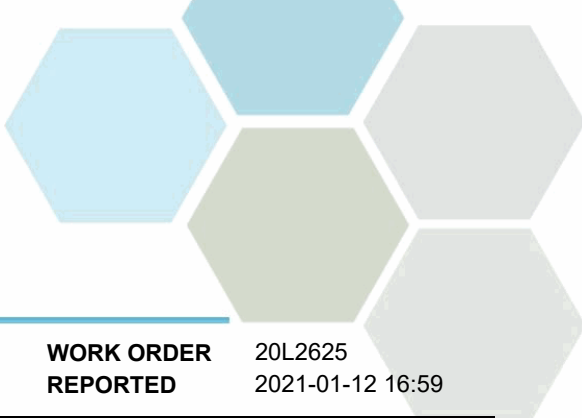
APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B1A0143, Continued									
LCS (B1A0143-BS2), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-06				
Barium, total	0.0234	0.0050 mg/L	0.0198		118	80-120			
Beryllium, total	0.0209	0.00010 mg/L	0.0198		106	80-120			
Bismuth, total	0.0218	0.00010 mg/L	0.0200		109	80-120			
Boron, total	< 0.0500	0.0500 mg/L	0.0200		112	80-120			
Cadmium, total	0.0219	0.000010 mg/L	0.0199		110	80-120			
Calcium, total	1.90	0.20 mg/L	2.02		94	80-120			
Chromium, total	0.0185	0.00050 mg/L	0.0198		94	80-120			
Cobalt, total	0.0189	0.00010 mg/L	0.0199		95	80-120			
Copper, total	0.0189	0.00040 mg/L	0.0200		95	80-120			
Iron, total	1.79	0.010 mg/L	2.02		89	80-120			
Lead, total	0.0209	0.00020 mg/L	0.0199		105	80-120			
Lithium, total	0.0216	0.00010 mg/L	0.0200		108	80-120			
Magnesium, total	1.95	0.010 mg/L	2.02		96	80-120			
Manganese, total	0.0199	0.00020 mg/L	0.0199		100	80-120			
Molybdenum, total	0.0210	0.00010 mg/L	0.0200		105	80-120			
Nickel, total	0.0185	0.00040 mg/L	0.0200		93	80-120			
Phosphorus, total	2.06	0.050 mg/L	2.00		103	80-120			
Potassium, total	1.94	0.10 mg/L	2.02		96	80-120			
Selenium, total	0.0205	0.00050 mg/L	0.0200		102	80-120			
Silicon, total	2.2	1.0 mg/L	2.00		111	80-120			
Silver, total	0.0218	0.000050 mg/L	0.0200		109	80-120			
Sodium, total	1.95	0.10 mg/L	2.02		97	80-120			
Strontium, total	0.0220	0.0010 mg/L	0.0200		110	80-120			
Sulfur, total	5.9	3.0 mg/L	5.00		118	80-120			
Tellurium, total	0.0236	0.00050 mg/L	0.0200		118	80-120			
Thallium, total	0.0209	0.000020 mg/L	0.0199		105	80-120			
Thorium, total	0.0210	0.00010 mg/L	0.0200		105	80-120			
Tin, total	0.0221	0.00020 mg/L	0.0200		111	80-120			
Titanium, total	0.0223	0.0050 mg/L	0.0200		112	80-120			
Tungsten, total	0.0218	0.0010 mg/L	0.0200		109	80-120			
Uranium, total	0.0218	0.000020 mg/L	0.0200		109	80-120			
Vanadium, total	0.0197	0.0010 mg/L	0.0200		98	80-120			
Zinc, total	0.0187	0.0040 mg/L	0.0200		94	80-120			
Zirconium, total	0.0210	0.00010 mg/L	0.0200		105	80-120			

Duplicate (B1A0143-DUP1)			Source: 20L2625-05		Prepared: 2021-01-05, Analyzed: 2021-01-06				
Aluminum, total	0.0076	0.0050 mg/L		0.0059					20
Antimony, total	< 0.00020	0.00020 mg/L		< 0.00020					20
Arsenic, total	0.00207	0.00050 mg/L		0.00227					20
Barium, total	0.0698	0.0050 mg/L		0.0707			1		20
Beryllium, total	< 0.00010	0.00010 mg/L		< 0.00010					20
Bismuth, total	< 0.00010	0.00010 mg/L		< 0.00010					20
Boron, total	< 0.0500	0.0500 mg/L		< 0.0500					20
Cadmium, total	< 0.000010	0.000010 mg/L		0.000011					20
Calcium, total	137	0.20 mg/L		139			1		20
Chromium, total	< 0.00050	0.00050 mg/L		0.00111					20
Cobalt, total	0.00069	0.00010 mg/L		0.00073			5		20
Copper, total	< 0.00040	0.00040 mg/L		< 0.00040					20
Iron, total	0.672	0.010 mg/L		0.699			4		20
Lead, total	< 0.00020	0.00020 mg/L		< 0.00020					20
Lithium, total	0.0125	0.00010 mg/L		0.0124			< 1		20
Magnesium, total	22.1	0.010 mg/L		22.3			< 1		20
Manganese, total	0.0871	0.00020 mg/L		0.0879			< 1		20
Molybdenum, total	0.00429	0.00010 mg/L		0.00489			13		20
Nickel, total	0.00168	0.00040 mg/L		0.00187					20
Phosphorus, total	< 0.050	0.050 mg/L		< 0.050					20

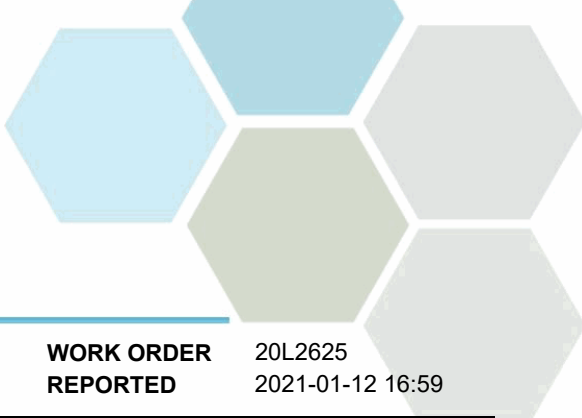


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B1A0143, Continued									
Duplicate (B1A0143-DUP1), Continued			Source: 20L2625-05		Prepared: 2021-01-05, Analyzed: 2021-01-06				
Potassium, total	7.24	0.10 mg/L		7.31			1	20	
Selenium, total	< 0.00050	0.00050 mg/L		< 0.00050				20	
Silicon, total	11.2	1.0 mg/L		11.3			1	20	
Silver, total	< 0.000050	0.000050 mg/L		< 0.000050				20	
Sodium, total	22.7	0.10 mg/L		22.9			< 1	20	
Strontium, total	1.43	0.0010 mg/L		1.49			4	20	
Sulfur, total	80.1	3.0 mg/L		82.0			2	20	
Tellurium, total	< 0.00050	0.00050 mg/L		< 0.00050				20	
Thallium, total	< 0.000020	0.000020 mg/L		< 0.000020				20	
Thorium, total	< 0.00010	0.00010 mg/L		< 0.00010				20	
Tin, total	< 0.00020	0.00020 mg/L		0.00031				20	
Titanium, total	0.0081	0.0050 mg/L		0.0079				20	
Tungsten, total	< 0.0010	0.0010 mg/L		< 0.0010				20	
Uranium, total	0.00304	0.000020 mg/L		0.00319			5	20	
Vanadium, total	< 0.0010	0.0010 mg/L		< 0.0010				20	
Zinc, total	< 0.0040	0.0040 mg/L		< 0.0040				20	
Zirconium, total	< 0.00010	0.00010 mg/L		< 0.00010				20	
Reference (B1A0143-SRM1)			Prepared: 2021-01-05, Analyzed: 2021-01-05						
Aluminum, total	0.281	0.0050 mg/L		0.299	94	70-130			
Antimony, total	0.0523	0.00020 mg/L		0.0517	101	70-130			
Arsenic, total	0.117	0.00050 mg/L		0.119	98	70-130			
Barium, total	0.932	0.0050 mg/L		0.801	116	70-130			
Beryllium, total	0.0492	0.00010 mg/L		0.0501	98	70-130			
Boron, total	4.30	0.0500 mg/L		4.11	105	70-130			
Cadmium, total	0.0561	0.000010 mg/L		0.0503	111	70-130			
Calcium, total	9.86	0.20 mg/L		10.7	92	70-130			
Chromium, total	0.227	0.00050 mg/L		0.250	91	70-130			
Cobalt, total	0.0365	0.00010 mg/L		0.0384	95	70-130			
Copper, total	0.461	0.00040 mg/L		0.487	95	70-130			
Iron, total	0.443	0.010 mg/L		0.504	88	70-130			
Lead, total	0.303	0.00020 mg/L		0.278	109	70-130			
Lithium, total	0.414	0.00010 mg/L		0.398	104	70-130			
Magnesium, total	3.54	0.010 mg/L		3.59	98	70-130			
Manganese, total	0.108	0.00020 mg/L		0.111	98	70-130			
Molybdenum, total	0.212	0.00010 mg/L		0.196	108	70-130			
Nickel, total	0.231	0.00040 mg/L		0.248	93	70-130			
Phosphorus, total	0.271	0.050 mg/L		0.213	127	70-130			
Potassium, total	5.91	0.10 mg/L		5.89	100	70-130			
Selenium, total	0.131	0.00050 mg/L		0.120	110	70-130			
Sodium, total	9.11	0.10 mg/L		8.71	105	70-130			
Strontium, total	0.432	0.0010 mg/L		0.393	110	70-130			
Thallium, total	0.0836	0.000020 mg/L		0.0787	106	70-130			
Uranium, total	0.0373	0.000020 mg/L		0.0344	108	70-130			
Vanadium, total	0.352	0.0010 mg/L		0.391	90	70-130			
Zinc, total	2.32	0.0040 mg/L		2.50	93	70-130			
Reference (B1A0143-SRM2)			Prepared: 2021-01-05, Analyzed: 2021-01-06						
Aluminum, total	0.295	0.0050 mg/L		0.299	99	70-130			
Antimony, total	0.0575	0.00020 mg/L		0.0517	111	70-130			
Arsenic, total	0.129	0.00050 mg/L		0.119	109	70-130			
Barium, total	0.993	0.0050 mg/L		0.801	124	70-130			
Beryllium, total	0.0543	0.00010 mg/L		0.0501	108	70-130			
Boron, total	4.34	0.0500 mg/L		4.11	106	70-130			
Cadmium, total	0.0609	0.000010 mg/L		0.0503	121	70-130			
Calcium, total	10.6	0.20 mg/L		10.7	99	70-130			
Chromium, total	0.246	0.00050 mg/L		0.250	99	70-130			

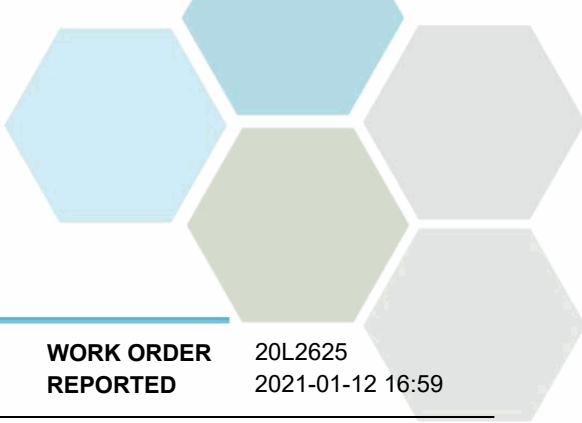


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 20L2625
2021-01-12 16:59

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B1A0143, Continued									
Reference (B1A0143-SRM2), Continued					Prepared: 2021-01-05, Analyzed: 2021-01-06				
Cobalt, total	0.0394	0.00010 mg/L	0.0384		102	70-130			
Copper, total	0.487	0.00040 mg/L	0.487		100	70-130			
Iron, total	0.484	0.010 mg/L	0.504		96	70-130			
Lead, total	0.319	0.00020 mg/L	0.278		115	70-130			
Lithium, total	0.450	0.00010 mg/L	0.398		113	70-130			
Magnesium, total	3.62	0.010 mg/L	3.59		101	70-130			
Manganese, total	0.114	0.00020 mg/L	0.111		103	70-130			
Molybdenum, total	0.225	0.00010 mg/L	0.196		115	70-130			
Nickel, total	0.248	0.00040 mg/L	0.248		100	70-130			
Phosphorus, total	0.267	0.050 mg/L	0.213		125	70-130			
Potassium, total	6.10	0.10 mg/L	5.89		104	70-130			
Selenium, total	0.128	0.00050 mg/L	0.120		106	70-130			
Sodium, total	9.15	0.10 mg/L	8.71		105	70-130			
Strontium, total	0.467	0.0010 mg/L	0.393		119	70-130			
Thallium, total	0.0890	0.000020 mg/L	0.0787		113	70-130			
Uranium, total	0.0392	0.000020 mg/L	0.0344		114	70-130			
Vanadium, total	0.385	0.0010 mg/L	0.391		99	70-130			
Zinc, total	2.51	0.0040 mg/L	2.50		100	70-130			



APPENDIX 3: REVISION HISTORY

REPORTED TO PROJECT	Western Water Associates Ltd 20-135-01PG			WORK ORDER REPORTED	20L2625 2021-01-12 16:59
Sample ID	Changed	Change	Analysis	Analyte(s)	
20L2625-01	2021-01-11	Sample ID	N/A	N/A	
20L2625-02	2021-01-11	Sample ID	N/A	N/A	
20L2625-03	2021-01-11	Sample ID	N/A	N/A	
20L2625-04	2021-01-11	Sample ID	N/A	N/A	
20L2625-05	2021-01-11	Sample ID	N/A	N/A	
20L2625-06	2021-01-11	Sample ID	N/A	N/A	

CERTIFICATE OF ANALYSIS

REPORTED TO Western Water Associates Ltd
106 - 5145 26th Street
Vernon, BC V1T 8G4

ATTENTION Warren Grafton

PO NUMBER

PROJECT 20-135-01PG

PROJECT INFO

WORK ORDER 21B0566

RECEIVED / TEMP 2021-02-04 09:11 / 4°C

REPORTED 2021-03-10 13:51

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.

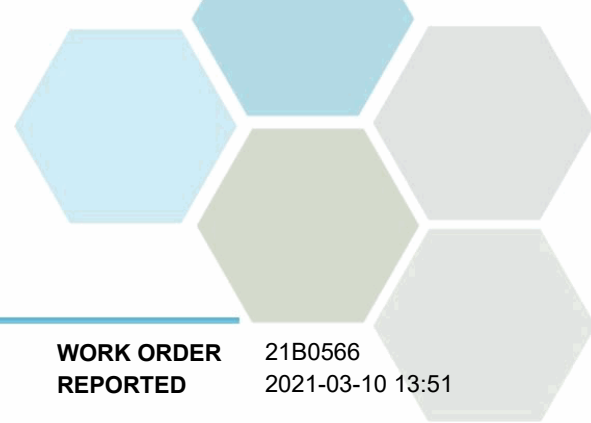
If you have any questions or concerns, please contact me at acrump@caro.ca

Authorized By:

Alana Crump
Team Lead, Client Service

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#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4

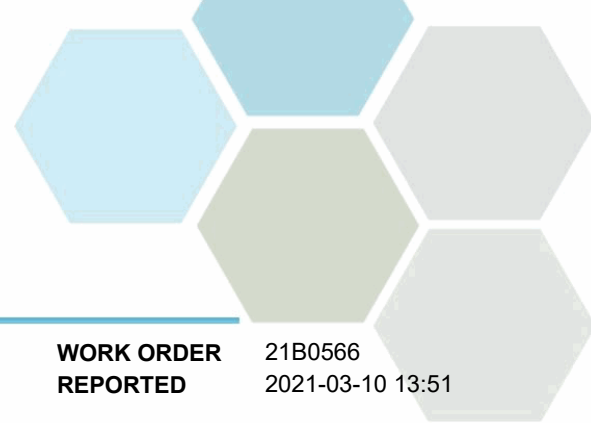


TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-1B HULLCAR MW (21B0566-01) Matrix: Water Sampled: 2021-02-03 10:50					
Anions					
Chloride	1.68	AO ≤ 250	0.10 mg/L	2021-02-05	
Nitrate (as N)	0.050	MAC = 10	0.010 mg/L	2021-02-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2021-02-05	
Sulfate	117	AO ≤ 500	1.0 mg/L	2021-02-05	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	302	N/A	0.500 mg/L	N/A	
Ammonia, Un-Ionized (as N)	0.003	N/A	0.001 mg/L	2021-02-11	
Dissolved Metals					
Lithium, dissolved	0.00636	2.5	0.00010 mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-02-10	
Antimony, dissolved	< 0.00020	0.09	0.00020 mg/L	2021-02-10	
Arsenic, dissolved	0.00167	0.05	0.00050 mg/L	2021-02-10	
Barium, dissolved	0.0454	5	0.0050 mg/L	2021-02-10	
Beryllium, dissolved	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-02-10	
Cadmium, dissolved	0.000011	0.0005	0.000010 mg/L	2021-02-10	
Calcium, dissolved	81.4	N/A	0.20 mg/L	2021-02-10	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Cobalt, dissolved	0.00023	0.04	0.00010 mg/L	2021-02-10	
Copper, dissolved	< 0.00040	0.02	0.00040 mg/L	2021-02-10	
Iron, dissolved	0.023	5	0.010 mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-02-10	
Magnesium, dissolved	23.9	N/A	0.010 mg/L	2021-02-10	
Manganese, dissolved	0.115	0.2	0.00020 mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-02-09	
Molybdenum, dissolved	0.00592	0.01	0.00010 mg/L	2021-02-10	
Nickel, dissolved	0.00114	0.2	0.00040 mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, dissolved	5.36	N/A	0.10 mg/L	2021-02-10	
Selenium, dissolved	< 0.00050	0.02	0.00050 mg/L	2021-02-10	
Silicon, dissolved	11.2	N/A	1.0 mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-02-10	
Sodium, dissolved	19.5	N/A	0.10 mg/L	2021-02-10	
Strontium, dissolved	0.840	N/A	0.0010 mg/L	2021-02-10	
Sulfur, dissolved	40.7	N/A	3.0 mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2021-02-10	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-02-10	

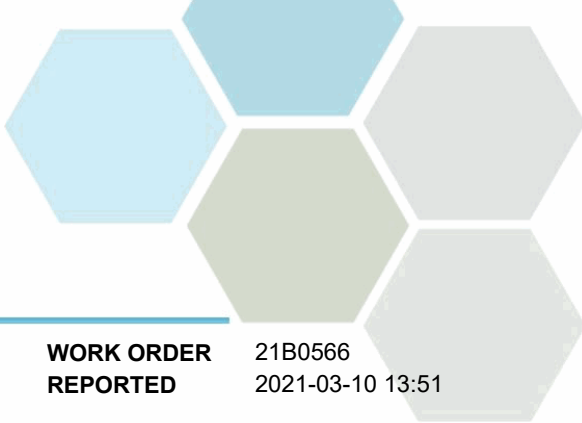


TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-1B HULLCAR MW (21B0566-01) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Dissolved Metals, Continued</i>					
Uranium, dissolved	0.00281	0.01	0.000020 mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-02-10	
Zinc, dissolved	< 0.0040	0.075	0.0040 mg/L	2021-02-10	
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO ₃)	241	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO ₃)	241	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	0.112	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	0.72	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.148	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	0.0238	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	21.4	N/A	2.0 mg/L	2021-02-09	
<i>Miscellaneous Subcontracted Parameters</i>					
delta-18-O	-17.81	N/A	per mil	2021-03-10	
delta-2-H	-136.9	N/A	per mil	2021-03-10	
<i>Total Metals</i>					
Aluminum, total	0.172	OG < 9.5	0.0050 mg/L	2021-02-10	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	0.00170	MAC = 0.01	0.00050 mg/L	2021-02-10	
Barium, total	0.0480	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	
Cadmium, total	0.000014	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	82.6	None Required	0.20 mg/L	2021-02-10	
Chromium, total	0.00054	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	0.00036	0.001	0.00010 mg/L	2021-02-10	
Copper, total	< 0.00080	AO ≤ 1	0.00040 mg/L	2021-02-10	RA3
Iron, total	0.349	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	0.00027	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.00649	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	23.9	None Required	0.010 mg/L	2021-02-10	
Manganese, total	0.126	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00542	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00149	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	0.057	N/A	0.050 mg/L	2021-02-10	
Potassium, total	5.41	N/A	0.10 mg/L	2021-02-10	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-1B HULLCAR MW (21B0566-01) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Total Metals, Continued</i>					
Selenium, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	11.4	N/A	1.0 mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-02-10	
Sodium, total	19.7	AO ≤ 200	0.10 mg/L	2021-02-10	
Strontium, total	0.816	7	0.0010 mg/L	2021-02-10	
Sulfur, total	40.7	N/A	3.0 mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, total	< 0.00020	2.5	0.00020 mg/L	2021-02-10	
Titanium, total	0.0101	1	0.0050 mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-02-10	
Uranium, total	0.00284	MAC = 0.02	0.000020 mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	

MW19-1AR PIEZOMETER (21B0566-02) | Matrix: Water | Sampled: 2021-02-03 10:50

Anions

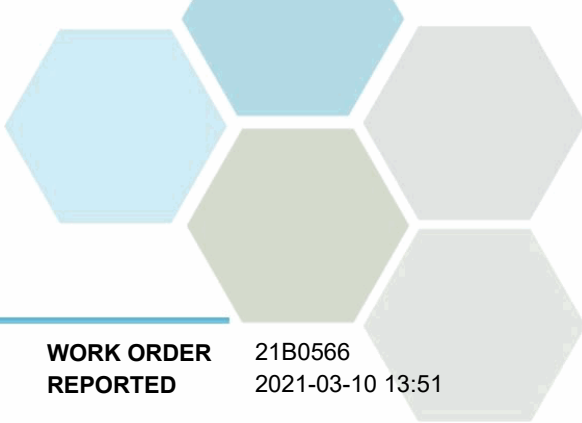
Chloride	35.9	AO ≤ 250	0.10 mg/L	2021-02-05	
Nitrate (as N)	12.3	MAC = 10	0.010 mg/L	2021-02-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2021-02-05	
Sulfate	384	AO ≤ 500	1.0 mg/L	2021-02-05	

Calculated Parameters

Hardness, Total (as CaCO3)	728	N/A	0.500 mg/L	N/A	
Ammonia, Un-Ionized (as N)	< 0.001	N/A	0.001 mg/L	2021-02-11	

Dissolved Metals

Lithium, dissolved	0.00762	2.5	0.00010 mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-02-11	
Antimony, dissolved	0.00029	0.09	0.00020 mg/L	2021-02-10	
Arsenic, dissolved	0.00071	0.05	0.00050 mg/L	2021-02-10	
Barium, dissolved	0.102	5	0.0050 mg/L	2021-02-10	
Beryllium, dissolved	0.00014	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-02-10	
Cadmium, dissolved	0.000035	0.0005	0.000010 mg/L	2021-02-10	
Calcium, dissolved	236	N/A	0.20 mg/L	2021-02-10	
Chromium, dissolved	0.00106	N/A	0.00050 mg/L	2021-02-11	
Cobalt, dissolved	0.00013	0.04	0.00010 mg/L	2021-02-11	
Copper, dissolved	0.0269	0.02	0.00040 mg/L	2021-02-11	



TEST RESULTS

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WORK ORDER REPORTED 21B0566
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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MW19-1AR PIEZOMETER (21B0566-02) | Matrix: Water | Sampled: 2021-02-03 10:50, Continued

Dissolved Metals, Continued

Iron, dissolved	0.036	5	0.010 mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-02-10	
Magnesium, dissolved	33.5	N/A	0.010 mg/L	2021-02-10	
Manganese, dissolved	0.00112	0.2	0.00020 mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-02-09	
Molybdenum, dissolved	0.00098	0.01	0.00010 mg/L	2021-02-10	
Nickel, dissolved	0.00156	0.2	0.00040 mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, dissolved	7.48	N/A	0.10 mg/L	2021-02-10	
Selenium, dissolved	0.00870	0.02	0.00050 mg/L	2021-02-10	
Silicon, dissolved	14.1	N/A	1.0 mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-02-10	
Sodium, dissolved	15.6	N/A	0.10 mg/L	2021-02-10	
Strontium, dissolved	1.36	N/A	0.0010 mg/L	2021-02-10	
Sulfur, dissolved	130	N/A	3.0 mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, dissolved	0.00552	N/A	0.00020 mg/L	2021-02-11	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-02-10	
Uranium, dissolved	0.00538	0.01	0.000020 mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-02-10	
Zinc, dissolved	0.0173	0.075	0.0040 mg/L	2021-02-10	
Zirconium, dissolved	0.00011	N/A	0.00010 mg/L	2021-02-10	

General Parameters

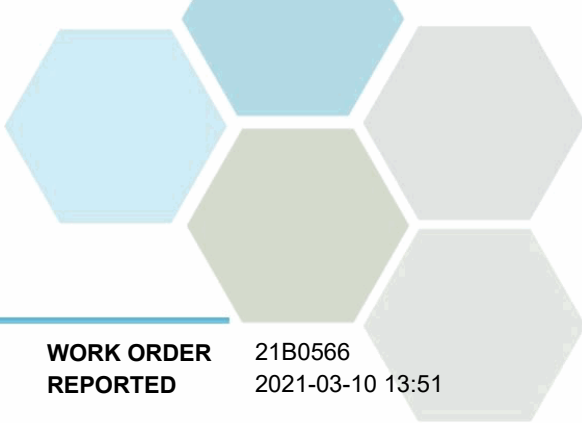
Alkalinity, Total (as CaCO3)	317	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO3)	317	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	4.83	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.539	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	0.0097	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	< 2.0	N/A	2.0 mg/L	2021-02-09	

Miscellaneous Subcontracted Parameters

delta-18-O	-16.24	N/A	per mil	2021-03-10	
delta-2-H	-128.3	N/A	per mil	2021-03-10	

Total Metals

Aluminum, total	0.0069	OG < 9.5	0.0050 mg/L	2021-02-10	
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TEST RESULTS

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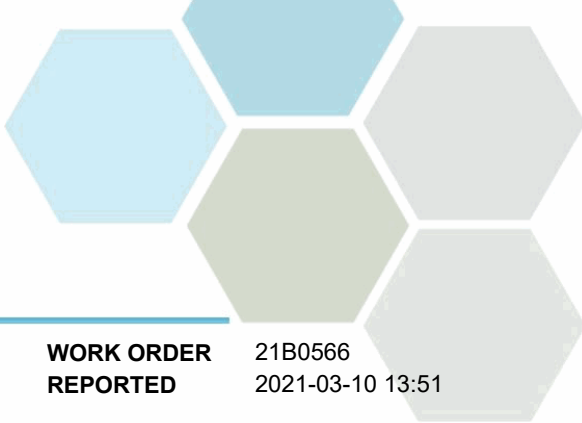
WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-1AR PIEZOMETER (21B0566-02) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Total Metals, Continued</i>					
Antimony, total	0.00036	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	0.00085	MAC = 0.01	0.00050 mg/L	2021-02-10	
Barium, total	0.102	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	0.00016	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	
Cadmium, total	0.000030	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	235	None Required	0.20 mg/L	2021-02-10	
Chromium, total	0.00107	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	0.00014	0.001	0.00010 mg/L	2021-02-10	
Copper, total	0.0382	AO ≤ 1	0.00040 mg/L	2021-02-10	
Iron, total	0.035	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.00748	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	32.4	None Required	0.010 mg/L	2021-02-10	
Manganese, total	0.00115	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00094	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00151	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, total	7.28	N/A	0.10 mg/L	2021-02-10	
Selenium, total	0.00859	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	13.8	N/A	1.0 mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-02-10	
Sodium, total	15.2	AO ≤ 200	0.10 mg/L	2021-02-10	
Strontium, total	1.34	7	0.0010 mg/L	2021-02-10	
Sulfur, total	127	N/A	3.0 mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, total	0.00595	2.5	0.00020 mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-02-10	
Uranium, total	0.00542	MAC = 0.02	0.000020 mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-02-10	
Zinc, total	0.0206	AO ≤ 5	0.0040 mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	

MW20-2B HULLCAR MW (21B0566-03) | Matrix: Water | Sampled: 2021-02-03 10:50

Anions

Chloride	26.2	AO ≤ 250	0.10 mg/L	2021-02-05	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2021-02-05	

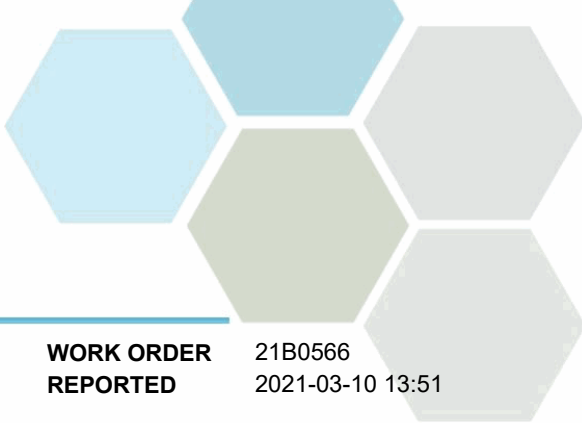


TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-2B HULLCAR MW (21B0566-03) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Anions, Continued</i>					
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2021-02-05	
Sulfate	220	AO ≤ 500	1.0 mg/L	2021-02-05	
<i>Calculated Parameters</i>					
Hardness, Total (as CaCO3)	446	N/A	0.500 mg/L	N/A	
Ammonia, Un-Ionized (as N)	< 0.001	N/A	0.001 mg/L	2021-02-11	
<i>Dissolved Metals</i>					
Lithium, dissolved	0.0118	2.5	0.00010 mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050 mg/L	2021-02-10	
Antimony, dissolved	< 0.00020	0.09	0.00020 mg/L	2021-02-10	
Arsenic, dissolved	0.00188	0.05	0.00050 mg/L	2021-02-10	
Barium, dissolved	0.0569	5	0.0050 mg/L	2021-02-10	
Beryllium, dissolved	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500 mg/L	2021-02-10	
Cadmium, dissolved	< 0.000010	0.0005	0.000010 mg/L	2021-02-10	
Calcium, dissolved	139	N/A	0.20 mg/L	2021-02-10	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Cobalt, dissolved	0.00062	0.04	0.00010 mg/L	2021-02-10	
Copper, dissolved	< 0.00040	0.02	0.00040 mg/L	2021-02-10	
Iron, dissolved	0.881	5	0.010 mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020 mg/L	2021-02-10	
Magnesium, dissolved	23.7	N/A	0.010 mg/L	2021-02-10	
Manganese, dissolved	0.0838	0.2	0.00020 mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-02-09	
Molybdenum, dissolved	0.00412	0.01	0.00010 mg/L	2021-02-10	
Nickel, dissolved	0.00148	0.2	0.00040 mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, dissolved	8.35	N/A	0.10 mg/L	2021-02-10	
Selenium, dissolved	< 0.00050	0.02	0.00050 mg/L	2021-02-10	
Silicon, dissolved	12.1	N/A	1.0 mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-02-10	
Sodium, dissolved	23.7	N/A	0.10 mg/L	2021-02-10	
Strontium, dissolved	1.31	N/A	0.0010 mg/L	2021-02-10	
Sulfur, dissolved	74.7	N/A	3.0 mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2021-02-10	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-02-10	
Uranium, dissolved	0.00307	0.01	0.000020 mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-02-10	

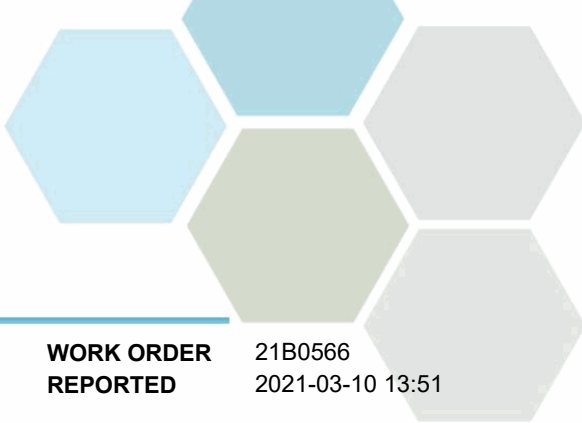


TEST RESULTS

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WORK ORDER REPORTED 21B0566
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW20-2B HULLCAR MW (21B0566-03) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Dissolved Metals, Continued</i>					
Zinc, dissolved	< 0.0040	0.075	0.0040 mg/L	2021-02-10	
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO3)	246	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO3)	246	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	1.10	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.110	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	0.0102	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	2.8	N/A	2.0 mg/L	2021-02-09	
<i>Miscellaneous Subcontracted Parameters</i>					
delta-18-O	-17.17	N/A	per mil	2021-03-10	
delta-2-H	-135	N/A	per mil	2021-03-10	
<i>Total Metals</i>					
Aluminum, total	< 0.0050	OG < 9.5	0.0050 mg/L	2021-02-10	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	0.00205	MAC = 0.01	0.00050 mg/L	2021-02-10	
Barium, total	0.0571	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	137	None Required	0.20 mg/L	2021-02-10	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	0.00062	0.001	0.00010 mg/L	2021-02-10	
Copper, total	< 0.00040	AO ≤ 1	0.00040 mg/L	2021-02-10	
Iron, total	0.890	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.0118	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	24.1	None Required	0.010 mg/L	2021-02-10	
Manganese, total	0.0830	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00411	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00180	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, total	8.47	N/A	0.10 mg/L	2021-02-10	
Selenium, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	12.4	N/A	1.0 mg/L	2021-02-10	



TEST RESULTS

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2021-03-10 13:51

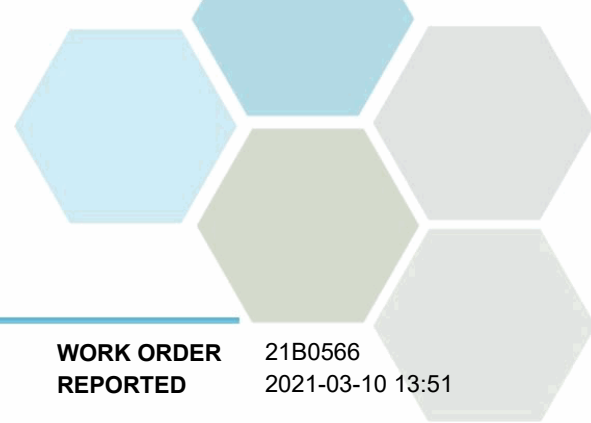
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW20-2B HULLCAR MW (21B0566-03) Matrix: Water Sampled: 2021-02-03 10:50, Continued						
<i>Total Metals, Continued</i>						
Silver, total	< 0.000050	None Required	0.000050	mg/L	2021-02-10	
Sodium, total	23.9	AO ≤ 200	0.10	mg/L	2021-02-10	
Strontium, total	1.30	7	0.0010	mg/L	2021-02-10	
Sulfur, total	75.4	N/A	3.0	mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020	mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Tin, total	< 0.00020	2.5	0.00020	mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050	mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010	mg/L	2021-02-10	
Uranium, total	0.00303	MAC = 0.02	0.000020	mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010	mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	

MW19-3A PIEZOMETER (21B0566-04) | Matrix: Water | Sampled: 2021-02-03 10:50

<i>Anions</i>						
Chloride	22.0	AO ≤ 250	0.10	mg/L	2021-02-05	
Nitrate (as N)	9.60	MAC = 10	0.010	mg/L	2021-02-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-02-05	
Sulfate	173	AO ≤ 500	1.0	mg/L	2021-02-05	

<i>Calculated Parameters</i>						
Hardness, Total (as CaCO3)	523	N/A	0.500	mg/L	N/A	
Ammonia, Un-ionized (as N)	< 0.001	N/A	0.001	mg/L	2021-02-11	

<i>Dissolved Metals</i>						
Lithium, dissolved	0.00528	2.5	0.00010	mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-02-10	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-02-10	
Arsenic, dissolved	< 0.00050	0.05	0.00050	mg/L	2021-02-10	
Barium, dissolved	0.0559	5	0.0050	mg/L	2021-02-10	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-02-10	
Cadmium, dissolved	0.000044	0.0005	0.000010	mg/L	2021-02-10	
Calcium, dissolved	178	N/A	0.20	mg/L	2021-02-10	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-02-10	
Cobalt, dissolved	< 0.00010	0.04	0.00010	mg/L	2021-02-10	
Copper, dissolved	0.00304	0.02	0.00040	mg/L	2021-02-10	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-02-10	



TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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MW19-3A PIEZOMETER (21B0566-04) | Matrix: Water | Sampled: 2021-02-03 10:50, Continued

Dissolved Metals, Continued

Magnesium, dissolved	19.3	N/A	0.010 mg/L	2021-02-10	
Manganese, dissolved	0.00096	0.2	0.00020 mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010 mg/L	2021-02-09	
Molybdenum, dissolved	0.00138	0.01	0.00010 mg/L	2021-02-10	
Nickel, dissolved	0.00166	0.2	0.00040 mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, dissolved	7.34	N/A	0.10 mg/L	2021-02-10	
Selenium, dissolved	0.00349	0.02	0.00050 mg/L	2021-02-10	
Silicon, dissolved	10.5	N/A	1.0 mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-02-10	
Sodium, dissolved	14.9	N/A	0.10 mg/L	2021-02-10	
Strontium, dissolved	1.36	N/A	0.0010 mg/L	2021-02-10	
Sulfur, dissolved	61.5	N/A	3.0 mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, dissolved	0.00022	N/A	0.00020 mg/L	2021-02-10	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-02-10	
Uranium, dissolved	0.0282	0.01	0.000020 mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-02-10	
Zinc, dissolved	< 0.0040	0.075	0.0040 mg/L	2021-02-10	
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	

General Parameters

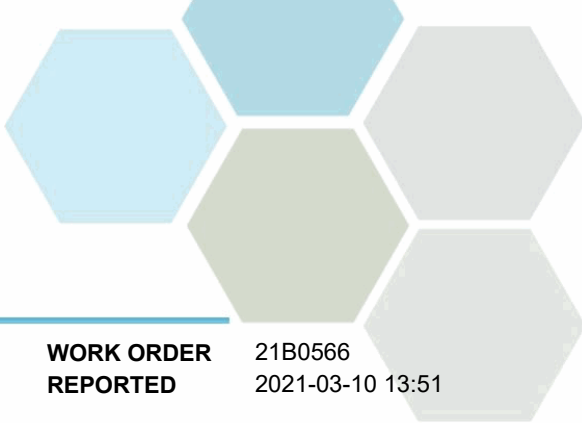
Alkalinity, Total (as CaCO3)	351	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO3)	351	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	2.54	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.300	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	0.0089	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	< 2.0	N/A	2.0 mg/L	2021-02-09	

Miscellaneous Subcontracted Parameters

delta-18-O	-16.7	N/A	per mil	2021-03-10	
delta-2-H	-130.3	N/A	per mil	2021-03-10	

Total Metals

Aluminum, total	0.0057	OG < 9.5	0.0050 mg/L	2021-02-10	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	0.00051	MAC = 0.01	0.00050 mg/L	2021-02-10	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

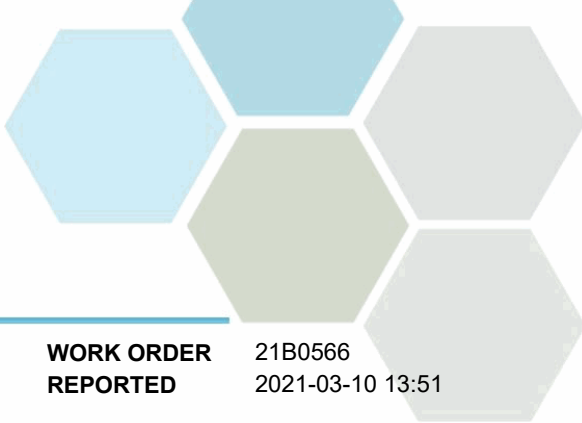
WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-3A PIEZOMETER (21B0566-04) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Total Metals, Continued</i>					
Barium, total	0.0565	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	
Cadmium, total	0.000041	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	177	None Required	0.20 mg/L	2021-02-10	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	< 0.00010	0.001	0.00010 mg/L	2021-02-10	
Copper, total	0.00557	AO ≤ 1	0.00040 mg/L	2021-02-10	
Iron, total	0.015	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.00531	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	19.6	None Required	0.010 mg/L	2021-02-10	
Manganese, total	0.00162	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00144	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00196	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, total	7.50	N/A	0.10 mg/L	2021-02-10	
Selenium, total	0.00346	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	10.8	N/A	1.0 mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-02-10	
Sodium, total	15.4	AO ≤ 200	0.10 mg/L	2021-02-10	
Strontium, total	1.37	7	0.0010 mg/L	2021-02-10	
Sulfur, total	60.4	N/A	3.0 mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, total	0.00023	2.5	0.00020 mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-02-10	
Uranium, total	0.0275	MAC = 0.02	0.000020 mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	

MW20-4A HULLCAR MW (21B0566-05) | Matrix: Water | Sampled: 2021-02-03 10:50

Anions

Chloride	77.4	AO ≤ 250	0.10 mg/L	2021-02-05	
Nitrate (as N)	5.21	MAC = 10	0.010 mg/L	2021-02-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2021-02-05	
Sulfate	130	AO ≤ 500	1.0 mg/L	2021-02-05	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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MW20-4A HULLCAR MW (21B0566-05) | Matrix: Water | Sampled: 2021-02-03 10:50, Continued

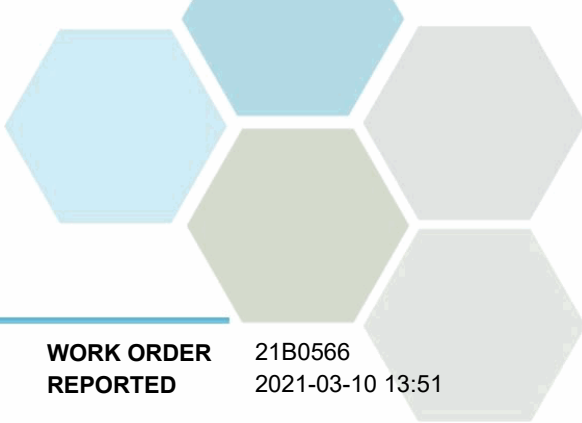
Calculated Parameters

Hardness, Total (as CaCO3)	585	N/A	0.500	mg/L	N/A	
Ammonia, Un-Ionized (as N)	< 0.001	N/A	0.001	mg/L	2021-02-11	

Dissolved Metals

Lithium, dissolved	0.0224	2.5	0.00010	mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-02-10	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-02-10	
Arsenic, dissolved	< 0.00050	0.05	0.00050	mg/L	2021-02-10	
Barium, dissolved	0.104	5	0.0050	mg/L	2021-02-10	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-02-10	
Cadmium, dissolved	0.000012	0.0005	0.000010	mg/L	2021-02-10	
Calcium, dissolved	141	N/A	0.20	mg/L	2021-02-10	
Chromium, dissolved	0.00116	N/A	0.00050	mg/L	2021-02-10	
Cobalt, dissolved	< 0.00010	0.04	0.00010	mg/L	2021-02-10	
Copper, dissolved	0.00095	0.02	0.00040	mg/L	2021-02-10	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-02-10	
Magnesium, dissolved	56.4	N/A	0.010	mg/L	2021-02-10	
Manganese, dissolved	< 0.00020	0.2	0.00020	mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-02-09	
Molybdenum, dissolved	0.00094	0.01	0.00010	mg/L	2021-02-10	
Nickel, dissolved	0.00100	0.2	0.00040	mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2021-02-10	
Potassium, dissolved	7.66	N/A	0.10	mg/L	2021-02-10	
Selenium, dissolved	0.00527	0.02	0.00050	mg/L	2021-02-10	
Silicon, dissolved	11.9	N/A	1.0	mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050	mg/L	2021-02-10	
Sodium, dissolved	33.9	N/A	0.10	mg/L	2021-02-10	
Strontium, dissolved	2.23	N/A	0.0010	mg/L	2021-02-10	
Sulfur, dissolved	45.7	N/A	3.0	mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020	mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2021-02-10	
Titanium, dissolved	< 0.0050	1	0.0050	mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2021-02-10	
Uranium, dissolved	0.0134	0.01	0.000020	mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010	mg/L	2021-02-10	
Zinc, dissolved	< 0.0040	0.075	0.0040	mg/L	2021-02-10	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-02-10	

General Parameters



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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MW20-4A HULLCAR MW (21B0566-05) | Matrix: Water | Sampled: 2021-02-03 10:50, Continued

General Parameters, Continued

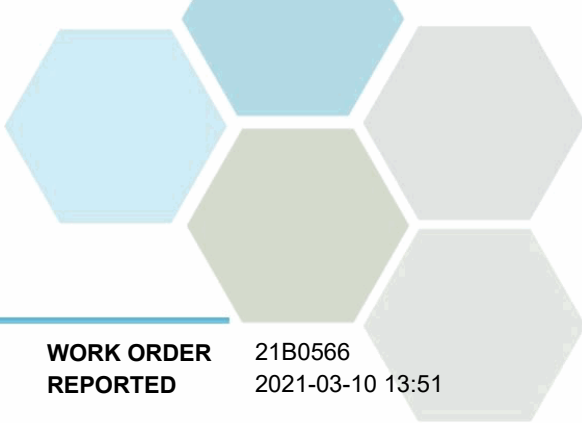
Alkalinity, Total (as CaCO3)	415	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO3)	415	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	1.85	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.571	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	< 0.0050	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	< 2.0	N/A	2.0 mg/L	2021-02-09	

Miscellaneous Subcontracted Parameters

delta-18-O	-17.73	N/A	per mil	2021-03-10	
delta-2-H	-137.5	N/A	per mil	2021-03-10	

Total Metals

Aluminum, total	< 0.0050	OG < 9.5	0.0050 mg/L	2021-02-10	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2021-02-10	
Barium, total	0.105	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	
Cadmium, total	0.000013	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	143	None Required	0.20 mg/L	2021-02-10	
Chromium, total	0.00119	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	< 0.00010	0.001	0.00010 mg/L	2021-02-10	
Copper, total	< 0.00100	AO ≤ 1	0.00040 mg/L	2021-02-10	RA3
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.0227	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	58.4	None Required	0.010 mg/L	2021-02-10	
Manganese, total	< 0.00020	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00092	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00102	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, total	7.84	N/A	0.10 mg/L	2021-02-10	
Selenium, total	0.00608	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	12.2	N/A	1.0 mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-02-10	
Sodium, total	35.5	AO ≤ 200	0.10 mg/L	2021-02-10	
Strontium, total	2.23	7	0.0010 mg/L	2021-02-10	
Sulfur, total	48.5	N/A	3.0 mg/L	2021-02-10	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW20-4A HULLCAR MW (21B0566-05) Matrix: Water Sampled: 2021-02-03 10:50, Continued						
<i>Total Metals, Continued</i>						
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020	mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Tin, total	< 0.00020	2.5	0.00020	mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050	mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010	mg/L	2021-02-10	
Uranium, total	0.0135	MAC = 0.02	0.000020	mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010	mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	

MW19-2A PIEZOMETER (21B0566-06) | Matrix: Water | Sampled: 2021-02-03 10:50

Anions

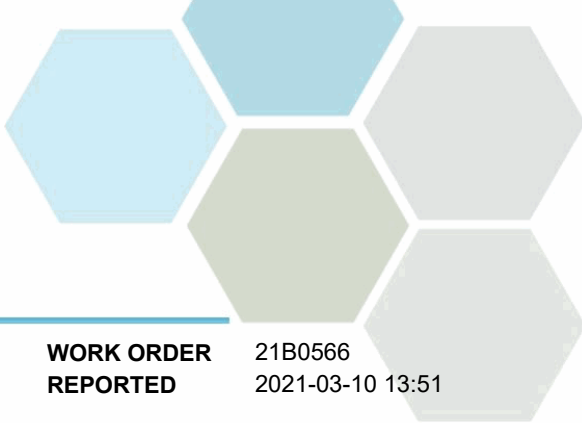
Chloride	36.9	AO ≤ 250	0.10	mg/L	2021-02-05	
Nitrate (as N)	12.7	MAC = 10	0.010	mg/L	2021-02-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-02-05	
Sulfate	240	AO ≤ 500	1.0	mg/L	2021-02-05	

Calculated Parameters

Hardness, Total (as CaCO3)	603	N/A	0.500	mg/L	N/A	
Ammonia, Un-Ionized (as N)	< 0.001	N/A	0.001	mg/L	2021-02-11	

Dissolved Metals

Lithium, dissolved	0.0107	2.5	0.00010	mg/L	2021-02-10	
Aluminum, dissolved	< 0.0050	5	0.0050	mg/L	2021-02-10	
Antimony, dissolved	< 0.00020	0.09	0.00020	mg/L	2021-02-10	
Arsenic, dissolved	0.00074	0.05	0.00050	mg/L	2021-02-10	
Barium, dissolved	0.100	5	0.0050	mg/L	2021-02-10	
Beryllium, dissolved	< 0.00010	0.0015	0.00010	mg/L	2021-02-10	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Boron, dissolved	< 0.0500	0.5	0.0500	mg/L	2021-02-10	
Cadmium, dissolved	0.000014	0.0005	0.000010	mg/L	2021-02-10	
Calcium, dissolved	167	N/A	0.20	mg/L	2021-02-10	
Chromium, dissolved	0.00108	N/A	0.00050	mg/L	2021-02-10	
Cobalt, dissolved	< 0.00010	0.04	0.00010	mg/L	2021-02-10	
Copper, dissolved	0.00122	0.02	0.00040	mg/L	2021-02-10	
Iron, dissolved	< 0.010	5	0.010	mg/L	2021-02-10	
Lead, dissolved	< 0.00020	0.02	0.00020	mg/L	2021-02-10	
Magnesium, dissolved	44.9	N/A	0.010	mg/L	2021-02-10	
Manganese, dissolved	0.00433	0.2	0.00020	mg/L	2021-02-10	
Mercury, dissolved	< 0.000010	0.00025	0.000010	mg/L	2021-02-09	
Molybdenum, dissolved	0.00114	0.01	0.00010	mg/L	2021-02-10	



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-2A PIEZOMETER (21B0566-06) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Dissolved Metals, Continued</i>					
Nickel, dissolved	0.00137	0.2	0.00040 mg/L	2021-02-10	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, dissolved	14.6	N/A	0.10 mg/L	2021-02-10	
Selenium, dissolved	0.00475	0.02	0.00050 mg/L	2021-02-10	
Silicon, dissolved	13.4	N/A	1.0 mg/L	2021-02-10	
Silver, dissolved	< 0.000050	0.0005	0.000050 mg/L	2021-02-10	
Sodium, dissolved	29.7	N/A	0.10 mg/L	2021-02-10	
Strontium, dissolved	1.54	N/A	0.0010 mg/L	2021-02-10	
Sulfur, dissolved	82.6	N/A	3.0 mg/L	2021-02-10	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, dissolved	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2021-02-10	
Titanium, dissolved	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2021-02-10	
Uranium, dissolved	0.0106	0.01	0.000020 mg/L	2021-02-10	
Vanadium, dissolved	< 0.0010	0.1	0.0010 mg/L	2021-02-10	
Zinc, dissolved	< 0.0040	0.075	0.0040 mg/L	2021-02-10	
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2021-02-10	

General Parameters

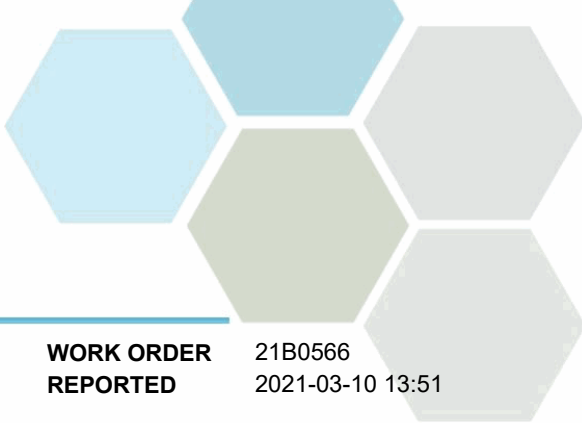
Alkalinity, Total (as CaCO3)	359	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Bicarbonate (as CaCO3)	359	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-02-11	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2021-02-08	
Carbon, Total Organic	2.56	MAC = 4	0.50 mg/L	2021-02-08	
Nitrogen, Dissolved Kjeldahl	0.263	N/A	0.050 mg/L	2021-02-09	
Phosphorus, Total Dissolved	0.0186	N/A	0.0050 mg/L	2021-02-10	
Solids, Total Suspended	4.4	N/A	2.0 mg/L	2021-02-09	

Miscellaneous Subcontracted Parameters

delta-18-O	-16.66	N/A	per mil	2021-03-10	
delta-2-H	-131.2	N/A	per mil	2021-03-10	

Total Metals

Aluminum, total	0.0437	OG < 9.5	0.0050 mg/L	2021-02-10	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10	
Arsenic, total	0.00087	MAC = 0.01	0.00050 mg/L	2021-02-10	
Barium, total	0.102	MAC = 2	0.0050 mg/L	2021-02-10	
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-02-10	



TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
MW19-2A PIEZOMETER (21B0566-06) Matrix: Water Sampled: 2021-02-03 10:50, Continued					
<i>Total Metals, Continued</i>					
Cadmium, total	0.000019	MAC = 0.005	0.000010 mg/L	2021-02-10	
Calcium, total	167	None Required	0.20 mg/L	2021-02-10	
Chromium, total	0.00155	MAC = 0.05	0.00050 mg/L	2021-02-10	
Cobalt, total	0.00022	0.001	0.00010 mg/L	2021-02-10	
Copper, total	0.00181	AO ≤ 1	0.00040 mg/L	2021-02-10	
Iron, total	0.166	AO ≤ 0.3	0.010 mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020 mg/L	2021-02-10	
Lithium, total	0.0106	0.008	0.00010 mg/L	2021-02-10	
Magnesium, total	44.8	None Required	0.010 mg/L	2021-02-10	
Manganese, total	0.0167	AO ≤ 0.05	0.00020 mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-02-09	
Molybdenum, total	0.00108	MAC = 0.25	0.00010 mg/L	2021-02-10	
Nickel, total	0.00172	0.08	0.00040 mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2021-02-10	
Potassium, total	14.7	N/A	0.10 mg/L	2021-02-10	
Selenium, total	0.00418	MAC = 0.01	0.00050 mg/L	2021-02-10	
Silicon, total	13.5	N/A	1.0 mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2021-02-10	
Sodium, total	30.0	AO ≤ 200	0.10 mg/L	2021-02-10	
Strontium, total	1.56	7	0.0010 mg/L	2021-02-10	
Sulfur, total	84.9	N/A	3.0 mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020 mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2021-02-10	
Tin, total	< 0.00020	2.5	0.00020 mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050 mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010 mg/L	2021-02-10	
Uranium, total	0.0108	MAC = 0.02	0.000020 mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010 mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2021-02-10	
Zirconium, total	0.00019	N/A	0.00010 mg/L	2021-02-10	

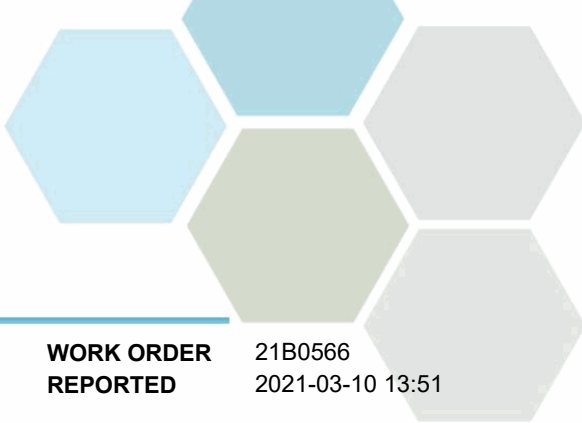
DUP21-A (21B0566-07) | Matrix: Water | Sampled: 2021-02-03 12:40

Calculated Parameters

Hardness, Total (as CaCO3)	530	None Required	0.500 mg/L	N/A
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Total Metals

Aluminum, total	0.0054	OG < 9.5	0.0050 mg/L	2021-02-10
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-02-10
Arsenic, total	0.00051	MAC = 0.01	0.00050 mg/L	2021-02-10
Barium, total	0.0554	MAC = 2	0.0050 mg/L	2021-02-10
Beryllium, total	< 0.00010	0.0015	0.00010 mg/L	2021-02-10



TEST RESULTS

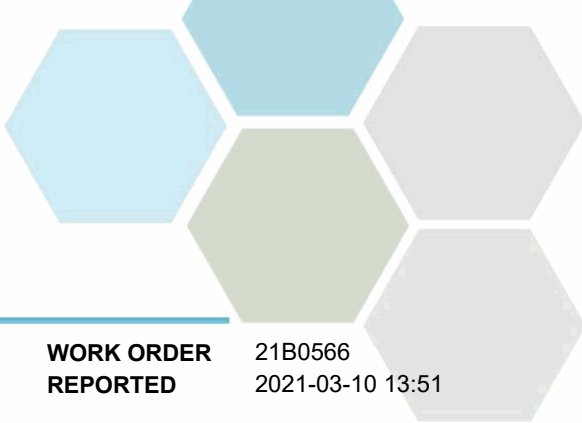
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
DUP21-A (21B0566-07) Matrix: Water Sampled: 2021-02-03 12:40, Continued						
<i>Total Metals, Continued</i>						
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2021-02-10	
Cadmium, total	0.000045	MAC = 0.005	0.000010	mg/L	2021-02-10	
Calcium, total	181	None Required	0.20	mg/L	2021-02-10	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2021-02-10	
Cobalt, total	< 0.00010	0.001	0.00010	mg/L	2021-02-10	
Copper, total	0.00542	AO ≤ 1	0.00040	mg/L	2021-02-10	
Iron, total	0.016	AO ≤ 0.3	0.010	mg/L	2021-02-10	
Lead, total	< 0.00020	MAC = 0.01	0.00020	mg/L	2021-02-10	
Lithium, total	0.00542	0.008	0.00010	mg/L	2021-02-10	
Magnesium, total	19.0	None Required	0.010	mg/L	2021-02-10	
Manganese, total	0.00153	AO ≤ 0.05	0.00020	mg/L	2021-02-10	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2021-02-09	
Molybdenum, total	0.00139	MAC = 0.25	0.00010	mg/L	2021-02-10	
Nickel, total	0.00164	0.08	0.00040	mg/L	2021-02-10	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2021-02-10	
Potassium, total	7.37	N/A	0.10	mg/L	2021-02-10	
Selenium, total	0.00343	MAC = 0.01	0.00050	mg/L	2021-02-10	
Silicon, total	10.3	N/A	1.0	mg/L	2021-02-10	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2021-02-10	
Sodium, total	15.0	AO ≤ 200	0.10	mg/L	2021-02-10	
Strontium, total	1.35	7	0.0010	mg/L	2021-02-10	
Sulfur, total	58.9	N/A	3.0	mg/L	2021-02-10	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2021-02-10	
Thallium, total	< 0.000020	0.003	0.000020	mg/L	2021-02-10	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	
Tin, total	< 0.00020	2.5	0.00020	mg/L	2021-02-10	
Titanium, total	< 0.0050	1	0.0050	mg/L	2021-02-10	
Tungsten, total	< 0.0010	0.003	0.0010	mg/L	2021-02-10	
Uranium, total	0.0276	MAC = 0.02	0.000020	mg/L	2021-02-10	
Vanadium, total	< 0.0010	0.02	0.0010	mg/L	2021-02-10	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2021-02-10	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2021-02-10	

Sample Qualifiers:

RA3 The Reporting Limit has been raised due to comparable level detected in the blank(s).



APPENDIX 1: SUPPORTING INFORMATION

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Analysis Description	Method Ref.	Technique	Accredited	Location
2H and 18O Isotope Ratios in Water	Stable Isotopes	CRDS		Sublet
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Ammonia-N, Un-Ionized in Water	CCME WSER	CALC: Total NH3-N x 1/(1+10E((0.0902+(2730/(273.2+Temp))))-pH))		N/A
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2017)	Combustion, Infrared CO2 Detection	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	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, Dissolved Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
Phosphorus, Total Dissolved in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	SM 2540 D* (2017)	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

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

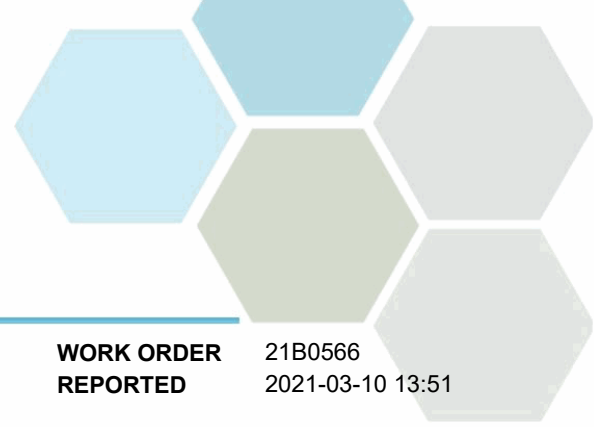
Glossary of Terms:

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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
OG	Operational Guideline (treated water)
per mil	Parts per thousand
CCME	Canadian Council of Ministers of the Environment, Canada-wide Standard Reference Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

- [BC CSR Schedule 3.2 Aquatic Life](#)
- [BC CSR Schedule 3.2 Drinking Water](#)
- [BC CSR Schedule 3.2 Irrigation](#)
- [BC Source Drinking Water Quality Guidelines \(2017\)](#)
- [Guidelines for Canadian Drinking Water Quality \(Health Canada, June 2019\)](#)

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



APPENDIX 1: SUPPORTING INFORMATION

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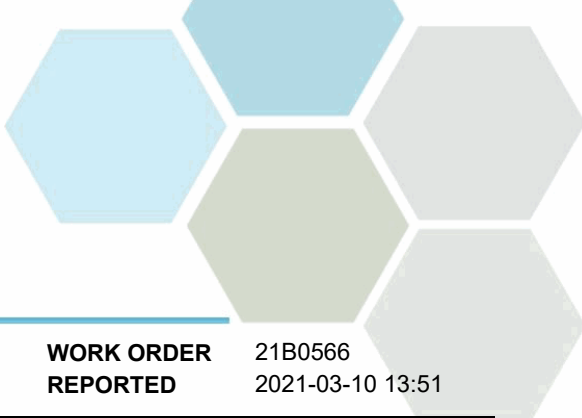
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General Comments:

The results in this report apply to the 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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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: acrump@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

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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:

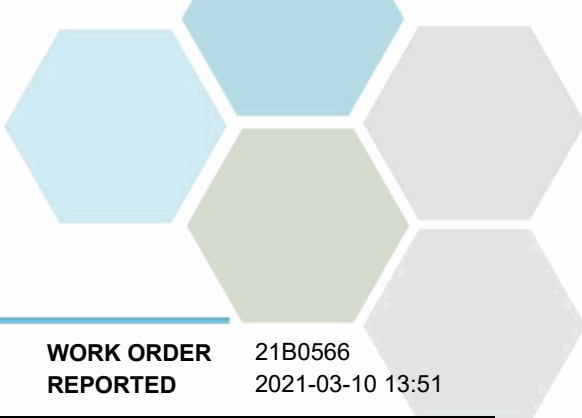
- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected 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 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 B1B0446									
Blank (B1B0446-BLK1)			Prepared: 2021-02-05, Analyzed: 2021-02-05						
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B1B0446-BLK2)			Prepared: 2021-02-05, Analyzed: 2021-02-05						
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B1B0446-BS1)			Prepared: 2021-02-05, Analyzed: 2021-02-05						
Chloride	16.1	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	4.01	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	2.03	0.010 mg/L	2.00		101	85-115			
Sulfate	16.0	1.0 mg/L	16.0		100	90-110			
LCS (B1B0446-BS2)			Prepared: 2021-02-05, Analyzed: 2021-02-05						
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.97	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.00	0.010 mg/L	2.00		100	85-115			
Sulfate	16.0	1.0 mg/L	16.0		100	90-110			

Dissolved Metals, Batch B1B0844

Blank (B1B0844-BLK1)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Mercury, dissolved	< 0.000010	0.000010 mg/L							
Blank (B1B0844-BLK2)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Mercury, dissolved	< 0.000010	0.000010 mg/L							
Reference (B1B0844-SRM1)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Mercury, dissolved	0.00572	0.000010 mg/L	0.00581		99	70-130			
Reference (B1B0844-SRM2)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Mercury, dissolved	0.00601	0.000010 mg/L	0.00581		103	70-130			



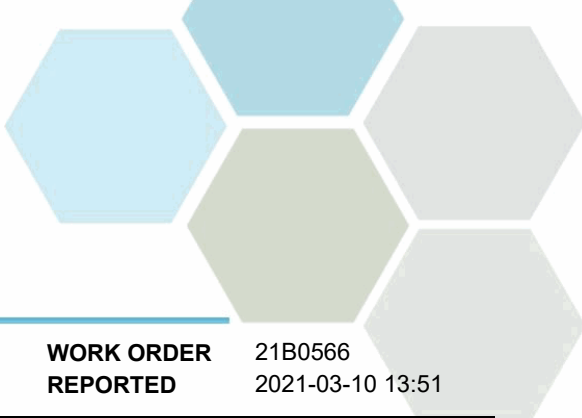
APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B1B0869									
Blank (B1B0869-BLK1)					Prepared: 2021-02-10, Analyzed: 2021-02-10				
Lithium, dissolved	< 0.00010	0.00010 mg/L							
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							
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	< 0.0010	0.0010 mg/L							
Zinc, dissolved	< 0.0040	0.0040 mg/L							
Zirconium, dissolved	< 0.00010	0.00010 mg/L							

LCS (B1B0869-BS1)					Prepared: 2021-02-10, Analyzed: 2021-02-10				
Lithium, dissolved	0.0202	0.00010 mg/L	0.0200		101	80-120			
Aluminum, dissolved	0.0219	0.0050 mg/L	0.0199		110	80-120			
Antimony, dissolved	0.0187	0.00020 mg/L	0.0200		93	80-120			
Arsenic, dissolved	0.0195	0.00050 mg/L	0.0200		97	80-120			
Barium, dissolved	0.0182	0.0050 mg/L	0.0198		92	80-120			
Beryllium, dissolved	0.0201	0.00010 mg/L	0.0198		101	80-120			
Bismuth, dissolved	0.0205	0.00010 mg/L	0.0200		103	80-120			
Boron, dissolved	< 0.0500	0.0500 mg/L	0.0200		90	80-120			
Cadmium, dissolved	0.0196	0.000010 mg/L	0.0199		98	80-120			
Calcium, dissolved	2.07	0.20 mg/L	2.02		102	80-120			
Chromium, dissolved	0.0194	0.00050 mg/L	0.0198		98	80-120			
Cobalt, dissolved	0.0193	0.00010 mg/L	0.0199		97	80-120			
Copper, dissolved	0.0200	0.00040 mg/L	0.0200		100	80-120			
Iron, dissolved	2.07	0.010 mg/L	2.02		102	80-120			
Lead, dissolved	0.0222	0.00020 mg/L	0.0199		112	80-120			
Magnesium, dissolved	2.25	0.010 mg/L	2.02		111	80-120			
Manganese, dissolved	0.0183	0.00020 mg/L	0.0199		92	80-120			



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 B1B0869, Continued

LCS (B1B0869-BS1), Continued

Prepared: 2021-02-10, Analyzed: 2021-02-10

Molybdenum, dissolved	0.0194	0.00010 mg/L	0.0200		97	80-120			
Nickel, dissolved	0.0196	0.00040 mg/L	0.0200		98	80-120			
Phosphorus, dissolved	1.94	0.050 mg/L	2.00		97	80-120			
Potassium, dissolved	2.13	0.10 mg/L	2.02		106	80-120			
Selenium, dissolved	0.0198	0.00050 mg/L	0.0200		99	80-120			
Silicon, dissolved	2.3	1.0 mg/L	2.00		116	80-120			
Silver, dissolved	0.0190	0.000050 mg/L	0.0200		95	80-120			
Sodium, dissolved	2.22	0.10 mg/L	2.02		110	80-120			
Strontium, dissolved	0.0191	0.0010 mg/L	0.0200		95	80-120			
Sulfur, dissolved	3.8	3.0 mg/L	5.00		76	80-120			SPK
Tellurium, dissolved	0.0202	0.00050 mg/L	0.0200		101	80-120			
Thallium, dissolved	0.0195	0.000020 mg/L	0.0199		98	80-120			
Thorium, dissolved	0.0200	0.00010 mg/L	0.0200		100	80-120			
Tin, dissolved	0.0203	0.00020 mg/L	0.0200		101	80-120			
Titanium, dissolved	0.0203	0.0050 mg/L	0.0200		101	80-120			
Tungsten, dissolved	0.0219	0.0010 mg/L	0.0200		109	80-120			
Uranium, dissolved	0.0207	0.000020 mg/L	0.0200		103	80-120			
Vanadium, dissolved	0.0171	0.0010 mg/L	0.0200		86	80-120			
Zinc, dissolved	0.0212	0.0040 mg/L	0.0200		106	80-120			
Zirconium, dissolved	0.0198	0.00010 mg/L	0.0200		99	80-120			

Reference (B1B0869-SRM1)

Prepared: 2021-02-10, Analyzed: 2021-02-10

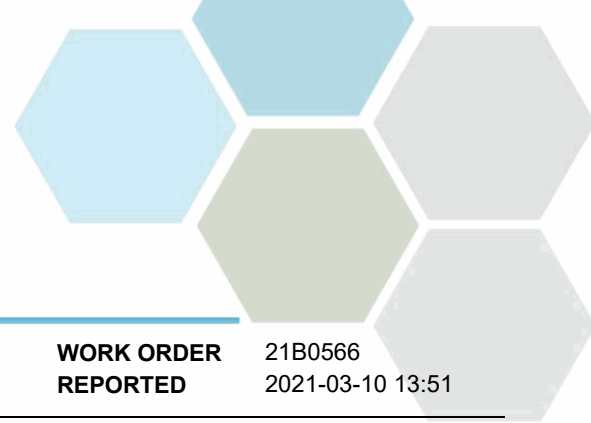
Lithium, dissolved	0.106	0.00010 mg/L	0.100		106	70-130			
Aluminum, dissolved	0.237	0.0050 mg/L	0.235		101	70-130			
Antimony, dissolved	0.0473	0.00020 mg/L	0.0431		110	70-130			
Arsenic, dissolved	0.462	0.00050 mg/L	0.423		109	70-130			
Barium, dissolved	3.02	0.0050 mg/L	3.30		91	70-130			
Beryllium, dissolved	0.220	0.00010 mg/L	0.209		105	70-130			
Boron, dissolved	1.73	0.0500 mg/L	1.65		105	70-130			
Cadmium, dissolved	0.225	0.000010 mg/L	0.221		102	70-130			
Calcium, dissolved	7.58	0.20 mg/L	7.72		98	70-130			
Chromium, dissolved	0.436	0.00050 mg/L	0.434		101	70-130			
Cobalt, dissolved	0.127	0.00010 mg/L	0.124		102	70-130			
Copper, dissolved	0.846	0.00040 mg/L	0.815		104	70-130			
Iron, dissolved	1.35	0.010 mg/L	1.27		106	70-130			
Lead, dissolved	0.127	0.00020 mg/L	0.110		115	70-130			
Magnesium, dissolved	7.62	0.010 mg/L	6.59		116	70-130			
Manganese, dissolved	0.328	0.00020 mg/L	0.342		96	70-130			
Molybdenum, dissolved	0.420	0.00010 mg/L	0.404		104	70-130			
Nickel, dissolved	0.870	0.00040 mg/L	0.835		104	70-130			
Phosphorus, dissolved	0.521	0.050 mg/L	0.499		104	70-130			
Potassium, dissolved	3.31	0.10 mg/L	2.88		115	70-130			
Selenium, dissolved	0.0336	0.00050 mg/L	0.0324		104	70-130			
Sodium, dissolved	18.9	0.10 mg/L	18.0		105	70-130			
Strontium, dissolved	0.915	0.0010 mg/L	0.935		98	70-130			
Thallium, dissolved	0.0401	0.000020 mg/L	0.0385		104	70-130			
Uranium, dissolved	0.258	0.000020 mg/L	0.258		100	70-130			
Vanadium, dissolved	0.864	0.0010 mg/L	0.873		99	70-130			
Zinc, dissolved	0.965	0.0040 mg/L	0.848		114	70-130			

General Parameters, Batch B1B0341

Blank (B1B0341-BLK1)

Prepared: 2021-02-08, Analyzed: 2021-02-08

Carbon, Total Organic	< 0.50	0.50 mg/L							
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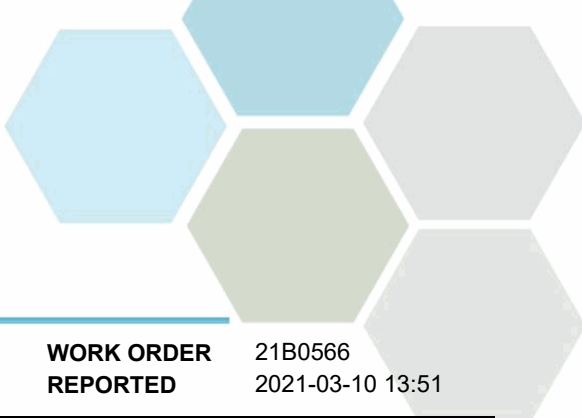


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B1B0341, Continued									
Blank (B1B0341-BLK2)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B1B0341-BLK3)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Carbon, Total Organic	< 0.50	0.50 mg/L							
LCS (B1B0341-BS1)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Carbon, Total Organic	10.4	0.50 mg/L	10.0		104	78-116			
LCS (B1B0341-BS2)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Carbon, Total Organic	10.4	0.50 mg/L	10.0		104	78-116			
LCS (B1B0341-BS3)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Carbon, Total Organic	10.9	0.50 mg/L	10.0		109	78-116			
General Parameters, Batch B1B0667									
Blank (B1B0667-BLK1)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Solids, Total Suspended	< 2.0	2.0 mg/L							
Blank (B1B0667-BLK2)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B1B0667-BS1)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Solids, Total Suspended	97.0	10.0 mg/L	100		97	85-115			
LCS (B1B0667-BS2)			Prepared: 2021-02-09, Analyzed: 2021-02-09						
Solids, Total Suspended	98.0	10.0 mg/L	100		98	85-115			
General Parameters, Batch B1B0682									
Blank (B1B0682-BLK1)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B1B0682-BLK2)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B1B0682-BLK3)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B1B0682-BS1)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	0.971	0.050 mg/L	1.00		97	90-115			
LCS (B1B0682-BS2)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	0.992	0.050 mg/L	1.00		99	90-115			
LCS (B1B0682-BS3)			Prepared: 2021-02-08, Analyzed: 2021-02-08						
Ammonia, Total (as N)	0.982	0.050 mg/L	1.00		98	90-115			
General Parameters, Batch B1B0891									
Blank (B1B0891-BLK2)			Prepared: 2021-02-09, Analyzed: 2021-02-10						
Phosphorus, Total Dissolved	< 0.0050	0.0050 mg/L							
LCS (B1B0891-BS2)			Prepared: 2021-02-09, Analyzed: 2021-02-10						
Phosphorus, Total Dissolved	0.105	0.0050 mg/L	0.100		105	85-115			

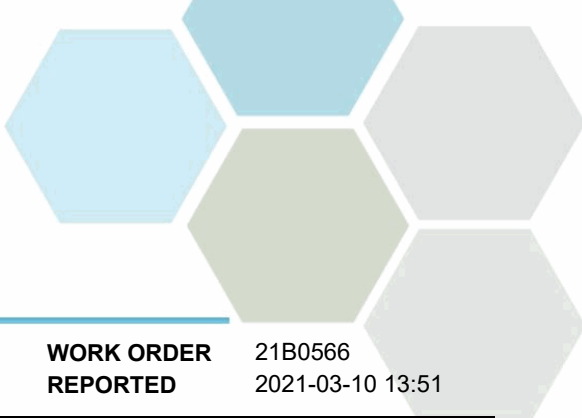


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B1B1046									
Blank (B1B1046-BLK1)					Prepared: 2021-02-11, Analyzed: 2021-02-11				
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							
Blank (B1B1046-BLK2)					Prepared: 2021-02-11, Analyzed: 2021-02-11				
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 (B1B1046-BS1)					Prepared: 2021-02-11, Analyzed: 2021-02-11				
Alkalinity, Total (as CaCO3)	107	1.0 mg/L	100		107	80-120			
LCS (B1B1046-BS2)					Prepared: 2021-02-11, Analyzed: 2021-02-11				
Alkalinity, Total (as CaCO3)	107	1.0 mg/L	100		107	80-120			
Duplicate (B1B1046-DUP1)			Source: 21B0566-01		Prepared: 2021-02-11, Analyzed: 2021-02-11				
Alkalinity, Total (as CaCO3)	244	1.0 mg/L		241			1	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	244	1.0 mg/L		241			1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Total Metals, Batch B1B0845									
Blank (B1B0845-BLK1)					Prepared: 2021-02-09, Analyzed: 2021-02-09				
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B1B0845-BLK2)					Prepared: 2021-02-09, Analyzed: 2021-02-09				
Mercury, total	< 0.000010	0.000010 mg/L							
Reference (B1B0845-SRM1)					Prepared: 2021-02-09, Analyzed: 2021-02-09				
Mercury, total	0.00559	0.000010 mg/L	0.00581		96	70-130			
Reference (B1B0845-SRM2)					Prepared: 2021-02-09, Analyzed: 2021-02-09				
Mercury, total	0.00594	0.000010 mg/L	0.00581		102	70-130			
Total Metals, Batch B1B0870									
Blank (B1B0870-BLK1)					Prepared: 2021-02-09, Analyzed: 2021-02-10				
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							
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	0.00052	0.00040 mg/L							BLK
Iron, total	< 0.010	0.010 mg/L							



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B1B0870, Continued

Blank (B1B0870-BLK1), Continued

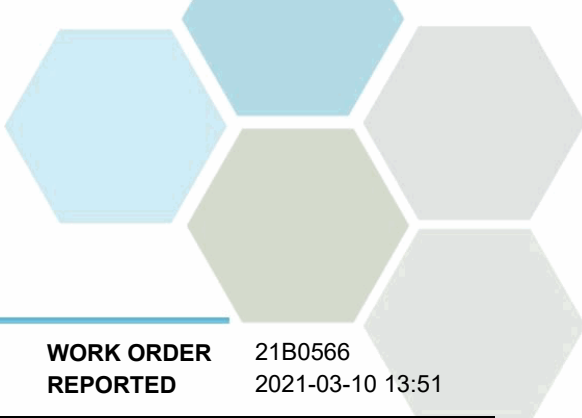
Prepared: 2021-02-09, Analyzed: 2021-02-10

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	< 0.0010	0.0010 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							

LCS (B1B0870-BS1)

Prepared: 2021-02-09, Analyzed: 2021-02-10

Aluminum, total	0.0210	0.0050 mg/L	0.0199		106	80-120			
Antimony, total	0.0200	0.00020 mg/L	0.0200		100	80-120			
Arsenic, total	0.0191	0.00050 mg/L	0.0200		96	80-120			
Barium, total	0.0179	0.0050 mg/L	0.0198		90	80-120			
Beryllium, total	0.0194	0.00010 mg/L	0.0198		98	80-120			
Bismuth, total	0.0199	0.00010 mg/L	0.0200		99	80-120			
Boron, total	< 0.0500	0.0500 mg/L	0.0200		90	80-120			
Cadmium, total	0.0189	0.000010 mg/L	0.0199		95	80-120			
Calcium, total	2.06	0.20 mg/L	2.02		102	80-120			
Chromium, total	0.0190	0.00050 mg/L	0.0198		96	80-120			
Cobalt, total	0.0188	0.00010 mg/L	0.0199		94	80-120			
Copper, total	0.0196	0.00040 mg/L	0.0200		98	80-120			
Iron, total	2.00	0.010 mg/L	2.02		99	80-120			
Lead, total	0.0213	0.00020 mg/L	0.0199		107	80-120			
Lithium, total	0.0194	0.00010 mg/L	0.0200		97	80-120			
Magnesium, total	2.22	0.010 mg/L	2.02		110	80-120			
Manganese, total	0.0180	0.00020 mg/L	0.0199		91	80-120			
Molybdenum, total	0.0191	0.00010 mg/L	0.0200		96	80-120			
Nickel, total	0.0194	0.00040 mg/L	0.0200		97	80-120			
Phosphorus, total	1.95	0.050 mg/L	2.00		98	80-120			
Potassium, total	2.11	0.10 mg/L	2.02		104	80-120			
Selenium, total	0.0186	0.00050 mg/L	0.0200		93	80-120			
Silicon, total	2.4	1.0 mg/L	2.00		118	80-120			
Silver, total	0.0185	0.000050 mg/L	0.0200		93	80-120			
Sodium, total	2.18	0.10 mg/L	2.02		108	80-120			
Strontium, total	0.0185	0.0010 mg/L	0.0200		92	80-120			
Sulfur, total	3.8	3.0 mg/L	5.00		76	80-120			SPK1
Tellurium, total	0.0208	0.00050 mg/L	0.0200		104	80-120			
Thallium, total	0.0192	0.000020 mg/L	0.0199		96	80-120			
Thorium, total	0.0191	0.00010 mg/L	0.0200		95	80-120			



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
20-135-01PG

WORK ORDER REPORTED 21B0566
2021-03-10 13:51

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B1B0870, Continued									
LCS (B1B0870-BS1), Continued					Prepared: 2021-02-09, Analyzed: 2021-02-10				
Tin, total	0.0198	0.00020 mg/L	0.0200		99	80-120			
Titanium, total	0.0218	0.0050 mg/L	0.0200		109	80-120			
Tungsten, total	0.0206	0.0010 mg/L	0.0200		103	80-120			
Uranium, total	0.0199	0.000020 mg/L	0.0200		99	80-120			
Vanadium, total	0.0154	0.0010 mg/L	0.0200		77	80-120			SPK1
Zinc, total	0.0203	0.0040 mg/L	0.0200		101	80-120			
Zirconium, total	0.0191	0.00010 mg/L	0.0200		95	80-120			
Reference (B1B0870-SRM1)					Prepared: 2021-02-09, Analyzed: 2021-02-10				
Aluminum, total	0.295	0.0050 mg/L	0.299		99	70-130			
Antimony, total	0.0519	0.00020 mg/L	0.0517		100	70-130			
Arsenic, total	0.127	0.00050 mg/L	0.119		107	70-130			
Barium, total	0.766	0.0050 mg/L	0.801		96	70-130			
Beryllium, total	0.0505	0.00010 mg/L	0.0501		101	70-130			
Boron, total	3.90	0.0500 mg/L	4.11		95	70-130			
Cadmium, total	0.0497	0.000010 mg/L	0.0503		99	70-130			
Calcium, total	9.74	0.20 mg/L	10.7		91	70-130			
Chromium, total	0.251	0.00050 mg/L	0.250		101	70-130			
Cobalt, total	0.0384	0.00010 mg/L	0.0384		100	70-130			
Copper, total	0.501	0.00040 mg/L	0.487		103	70-130			
Iron, total	0.519	0.010 mg/L	0.504		103	70-130			
Lead, total	0.299	0.00020 mg/L	0.278		107	70-130			
Lithium, total	0.402	0.00010 mg/L	0.398		101	70-130			
Magnesium, total	4.15	0.010 mg/L	3.59		116	70-130			
Manganese, total	0.104	0.00020 mg/L	0.111		94	70-130			
Molybdenum, total	0.200	0.00010 mg/L	0.196		102	70-130			
Nickel, total	0.255	0.00040 mg/L	0.248		103	70-130			
Phosphorus, total	0.247	0.050 mg/L	0.213		116	70-130			
Potassium, total	6.70	0.10 mg/L	5.89		114	70-130			
Selenium, total	0.120	0.00050 mg/L	0.120		100	70-130			
Sodium, total	9.07	0.10 mg/L	8.71		104	70-130			
Strontium, total	0.388	0.0010 mg/L	0.393		99	70-130			
Thallium, total	0.0801	0.000020 mg/L	0.0787		102	70-130			
Uranium, total	0.0349	0.000020 mg/L	0.0344		102	70-130			
Vanadium, total	0.387	0.0010 mg/L	0.391		99	70-130			
Zinc, total	2.66	0.0040 mg/L	2.50		106	70-130			

QC Qualifiers:

- BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).
- SPK The recovery of this analyte was outside of established control limits.
- SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.



Groundwater Supply Development and Management

Source Water Assessment and Protection

Well Monitoring & Maintenance

Environmental & Water Quality Monitoring

Storm & Wastewater Disposal to Ground

Groundwater Modeling

Aquifer Test Design and Analysis

Geothermal / Geoexchange Systems

Policy and Guideline Development

Applied Research

Rural Subdivision Services

Environmental Assessment & Permitting