

March 17, 2020

Project No. 19121576

Ms. Amy Eschberger

Colorado Division of Reclamation Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

SECOND SEMI-ANNUAL EVENT 2019 GROUNDWATER SAMPLING AT THE BOETTCHER QUARRY

Dear Ms. Eschberger:

On behalf of Holcim (US) Inc., Golder Associates Inc. (Golder) is pleased to submit analytical laboratory results for the second semi-annual 2019 groundwater sampling event at the Boettcher Limestone Quarry near La Porte, Colorado. Attached are Tables 1 through 7, summarizing the results, and a copy of the laboratory report (Attachment 1). Field sheets for the purging and sampling are presented in Attachment 2. In addition to sampling wells MW-1 through MW-7, a field duplicate at MW-6 (MW-20) and a field blank (MW-15) were collected. The locations of monitoring wells MW-1 through MW-7 are presented in Figure 1.

In December 2016, the Colorado Division of Reclamation Mining and Safety approved a revision to change the required groundwater monitoring frequency from quarterly to semi-annually (Revision TR07) based on evidence that the groundwater wells were not fully recharging between sampling events. Figure 2 presents a graph of the monitoring well water elevations measured during each sampling event from 2013 to present.

Upon receipt of the laboratory reports, Golder reviewed the results, and a general analytical data evaluation was performed. Results of this evaluation included the following:

- The samples were received by the laboratory at the appropriate temperature.
- The required analyses were performed.
- The analyses were conducted within their respective EPA-recommended hold times, apart from pH. Measurements for pH should be conducted within 15 minutes of sample collection; thus, the laboratory pH measurement will always be out of hold time.

Based on the above review, the laboratory results are considered valid for the sampling event. Reported concentrations are consistent with previous events, and the analytes that exceeded the Interim Narrative Standard for this sampling event are listed by sampling location below:

- MW-1: Selenium, Uranium, Sulfate, and Gross Alpha
- MW-2: Barium, Boron, Iron, Manganese, and Chloride

- MW-3: Barium, Boron, Chloride, and Fluoride
- MW-4: Barium, Chloride, and Total Dissolved Solids
- MW-5: Iron, Manganese, Sulfate, and Gross Alpha
- MW-6: Barium, Iron, Manganese, and Chloride
- MW-7: Barium, Iron, Manganese, and Chloride

If you have any questions, please call the undersigned at (303) 980-0540.

Sincerely,

Golder Associates Inc.



Sara Harkins, PG
Senior Project Geochemist



Joanna Moreno, PH-GW
Practice Leader, Groundwater

SH/JM/rjg

Attachments: Tables
Figures
1 – ACZ Laboratory Report
2 – Field Sheets

19121576-001-2-L-0 SecondSemiAnnualGW_EventBoettcherQuarry 17MAR20.docx

Tables

Table 1: Summary of Monitoring Results for MW-1

Table 2: Summary of Monitoring Results for MW-2

Table 3: Summary of Monitoring Results for MW-3

Table 4: Summary of Monitoring Results for MW-4

Table 5: Summary of Monitoring Results for MW-5

Table 6: Summary of Monitoring Results for MW-6

Table 7: Summary of Monitoring Results for MW-7

Table 1: Summary of Monitoring Results for MW-1

Date	Interim Narrative Standard	5/26/1999	7/21/1999	9/16/1999	11/10/1999	1/19/2000	3/13/2000	5/16/2000	7/10/2000	9/27/2010	3/31/2011	6/28/2011	8/31/2011	11/17/2011	3/27/2012	6/27/2012	9/13/2012	11/13/2012	3/19/2013	5/28/2013	8/26/2013	11/14/2013	2/18/2014
Metals																							
Arsenic, Dissolved (mg/L)	0.01	NA	< 0.005 U	0.002 B	0.0046	0.02 B	0.027	0.01 B	0.013 B	0.015	0.005 B	0.01 B	0.011	<0.01 U	< 0.01 U	0.003 B	0.001 B	0.002 B	0.002 B	< 0.005 U	0.002 B	< 0.005 U	0.001 B
Barium, Dissolved (mg/L)	2	< 0.05 U	0.013 B	< 0.05 U	< 0.05 U	0.02 B	< 0.05 U	< 0.05 U	0.014	< 0.08 U	0.04 B	0.005 B	< 0.08 U	<0.08 U	0.017 B	< 0.08 U	0.02 B	0.02 B	0.011 B	< 0.08 U	< 0.08 U	0.011 B	0.008 B
Boron, Dissolved (mg/L)	0.75	0.36	0.35	0.41	0.46	0.5	0.46	0.51	0.5	0.54	0.59	0.58	0.64	0.64	0.62	0.59	0.71	0.73	0.64	0.69	0.61	0.6	0.61
Chromium, Dissolved (mg/L)	0.1	< 0.3 U	< 0.1 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	
Copper, Dissolved (mg/L)	0.2	0.06 B	< 0.1 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.05 U
Iron, Dissolved (mg/L)	0.3	< 0.3 U	< 0.1 U	< 0.3 U	< 0.3 U	0.14 B	< 0.3 U	0.1 B	< 0.05	< 0.3 U	0.3	< 0.05 U	< 0.3 U	0.2 B	0.15	1.4	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.05 U
Lead, Dissolved (mg/L)	0.05	< 0.01 U	< 0.005 U	< 0.005 U	< 0.001 U	< 0.05 U	< 0.005 U	0.013	< 0.005	0.0019 B	0.0027 B	0.0052	0.0045	0.0007 B	< 0.003 U	0.0035	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U
Lithium, Dissolved (mg/L)	2.5	1.1	1.21	1	1	1.2	1.1	1.2	1.05	1.3	1.3	1.18	1.2	1.1	1.15	1.1	1.1	1.2	NA	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.08 B	0.05	0.09 B	0.1	0.06	0.04 B	0.05 B	0.053	< 0.1 U	0.05 B	0.041	< 0.1 U	< 0.1 U	0.026 B	0.04 B	0.04 B	0.04 B	0.025	< 0.1 U	0.04 B	0.044	0.054
Selenium, Dissolved (mg/L)	0.02	0.35	0.27	0.19	0.093	0.078	0.054	0.046	0.101	0.4928	0.2684	0.2656	0.2826	0.275	0.2328	0.2204	0.1995	0.1756	0.1826	0.2278	0.257	0.2616	0.2067
Thallium, Dissolved (mg/L)	0.002	< 5 U	< 0.01 U	< 5 U	0.00014 B	< 0.005 U	< 0.001 U	< 0.003 U	0.0007 B	0.0016 B	0.0025 B	0.0014 B	0.0017 B	< 0.003 U	< 0.003 U	0.0007 B	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.0192	0.019	0.0205	0.0199	0.0193	0.0364	0.0303	0.0397	0.0344	0.0403	0.0338	0.0367	0.0433	0.0371	NA	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	< 0.3 U	< 0.1 U	< 0.3 U	< 0.3 U	0.07 B	< 0.3 U	< 0.3 U	< 0.05	0.13 B	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	0.02	< 0.3 U	< 0.3 U	< 0.05 U	0.01 B
Other																							
Chloride (mg/L)	250	20	18	36	22	31	28	25	25	< 300 U	< 300 U	< 300 U	40 B	36.4 B	50 B	< 250 U	< 250 U	< 250 U	86 B	< 250 U	55.5 B	< 250 U	< 250 U
Fluoride (mg/L)	2	0.7	0.7	0.6	0.6	0.8	0.7	0.6	0.5	0.4 B	0.5	0.4 B	0.4 B	0.6	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.5
Nitrate as N (mg/L)	10	14.3	19.5	19.6	14	9.4	NA	3.77	3.28	96	88	70	81.6	81	76	89	85	78.5	NA	NA	NA	NA	NA
Nitrite as N (mg/L)	1	0.07	0.16	< 1	0.56	0.03	NA	0.04 B	0.66	0.24	0.36	0.34	0.4	0.26	0.29	0.56	0.21	0.11	NA	NA	NA	NA	NA
Nitrate+Nitrite as N (mg/L)	10	14.4	19.7	19.6	14.6	9.5	NA B	3.81	3.94	96	88	70	82	81	76	90	85	78.6	NA	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8	7.3	7.4	7.6	8.1	7.5	7.5	7.6	8.1 H	8.1 H	8.0 H	8.0 H	8.0 H	8.0 H	8.1 H	8.2 H	8.2 H	8.1 H	8.0 H	8.0 H	7.8 H	7.9 H
Total Dissolved Solids, filterable residue (mg/L)	8595*	7,690.0	7,000.0	6,820.0	7,190.0	6,650.0	6,810.0	6,750.0	6,020.0	7,770	7,560	7,610	7,540	7,110	7,150	6,770	6,770	6,660	6,610	7,420	6,650 H	7,800 H	7,330
Sulfate (mg/L)	250	5,210	4,780	4,470	5,180	4,530	4,370	4,410	4,000	4,840	4,540	4,820	4,620	4,306	4,056	4,090	4,041	3,991	3,980	4,610	4,230	5,150	4,980
Gross Alpha (pCi/L)	15.0	32	62	45	88	0	35	2.7	4.9	41 (±31)	53 (±31)	22 (±25)	5.8 (±29)	32 (±30)	48 (±30)	180 (±52)	24 (±23)	-0.51 (±22)	NA	NA	NA	NA	NA
Gross Beta (pCi/L)	**	0	69	25	100	0.7	18	0	53	39 (±28)	36 (±28)	20 (±28)	23 (±32)	27 (±31)	8.1 (±25)	190 (±36)	25 (±29)	12 (±27)	NA	NA	NA	NA	NA
Field Parameters (Not Available pre-2010))																							
Field pH (s.u)	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	7.4	7.42	7.27	7.42	7.42	7.6	7.36	7.42	7.62	7.59	7.23	7.34	7.40	7.39
Field Conductivity (µS/cm)	none	NA	NA	NA	NA	NA	NA	NA	NA	904	860	7,390	7,960	6,580	7,830	37.21	6,170	7,740	7,620	8,210	7,800	8,888	8,180
Temperature (Degrees Celsius)	none	NA	NA	NA	NA	NA	NA	NA	NA	16.83	14.6	18.7	20.9	16.1	15.6	18.4	16.1	14.6	14.3	16.3	17.1	13.62	14
Supplementary Analytes (Not Historically analyzed)																							
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	279	305	309	312	311	333	334	285	337	334	334	330	320	357
Carbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	323	225	305	270	240	198	222	218	169	178	276	258	302	254
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	336	240	313	272	246	210	213	203	175	180	265	225	308	256
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	22	18	22.7	17	15	14.8	17	17	13	14.5	19	20	20.7	16.5
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	1,660	1,800	1,680	1,670	1,610	1,680	1,630	1,650	1,770	1,670	1,660	1,580	1,820	1,790
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard", is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrem/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 1: Summary of Monitoring Results for MW-1

Date	Units	Interim Narrative Standard	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals																			
Arsenic, Dissolved	mg/L	0.01	0.001 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 B	0.0018	0.002 B
Barium, Dissolved	mg/L	2.0	0.004 B	0.006 B	0.007 B	0.009 B	< 0.08 U	< 0.08 U	< 0.08 U	0.03 B	< 0.08 U	< 0.08 U	0.007 B	< 0.08 U	< 0.08 U	< 0.08 U	<0.08 U	<0.2 U	< 0.04 U
Boron, Dissolved	mg/L	0.75	0.57	0.56	0.58	0.59	0.55	0.57	0.52	0.6	0.51	0.51	0.56	0.61	0.61	0.65	0.62	0.7	0.6
Chromium, Dissolved	mg/L	0.1	< 0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	<0.002 U	< 0.003 U
Copper, Dissolved	mg/L	0.2	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	0.0028 U	< 0.004 U
Iron, Dissolved	mg/L	0.3	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	<0.3 U	0.018 U	< 0.2 U
Lead, Dissolved	mg/L	0.05	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.0005 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.13	1.23	1.05
Manganese, Dissolved	mg/L	0.05	0.033	0.045	0.041	0.052	< 0.1 U	0.04 B	< 0.1 U	0.04 B	< 0.1 U	< 0.1 U	0.04	< 0.1 U	< 0.1 U	< 0.1 U	0.022	0.05 B	0.03
Selenium, Dissolved	mg/L	0.02	0.2775	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0904	0.0998	0.0474
Thallium, Dissolved	mg/L	0.002	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.0003 U
Uranium, Dissolved	mg/L	0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	0.0352	0.0407
Zinc, Dissolved	mg/L	2.0	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.3 U	< 0.05 U
Other																			
Chloride	mg/L	250	< 250 U	< 250 U	< 250 U	68.9 B	154 B	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	47.5 B	32.2 B	41.3 BH	27.5 B	<200 U	<200 U	36.2 B
Fluoride	mg/L	2.0	0.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.62	0.6	0.7
Nitrate as N	mg/L	10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	17	5.93
Nitrite as N	mg/L	1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06	0.17	0.04 B
Nitrate+Nitrite as N	mg/L	10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.2	16.8	5.97
Lab pH	s.u	6.5 - 8.5	7.8 H	7.8 H	8 H	7.9 H	7.9 H	8 H	7.9 H	7.84	7.9 H	8.1 H	8.1 H	8.2 H	8 H	8.3 H	8.2	7.9 H	8.2 H
Total Dissolved Solids, filterable residue	mg/L	8595*	6,910 H	6,950	7,900	7,380	8,210 ^	7,760 ^	8,020	7,660	8,450	8,040	7,460	7,010	7,070	7,240	6,910	6,670	6,280
Sulfate	mg/L	250	6,850	4,670	4,300	4,800	5,540	5,640	5,430	5,250	5,470	5,540	4,700	4,690	4,340 H	4,530	5,090	5,040	4,230
Gross Alpha	pCi/L	15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40 (±31)	20 (±18)	54(±26)
Gross Beta	pCi/L	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 (±29)	28 (±22)	7.9(±19)
Field Parameters (Not Available pre-2010))																			
Field pH	s.u	6.5 - 8.5	7.15	7.35	7.4	7.3	6.99	7.42	7.78	7.84	7.39	7.34	7.56	8.46	7.71	7.46	7.64	7.69	7.85
Field Conductivity	µS/cm	none	9,650	8,560	8,600	5,330	8,050	9,130	7,000	6,580	7,650	8,610	8,280	8,380	7,520	8,480	7,900	6,740	4,890
Temperature	Degrees Celsius	none	15.9	15.3	9.1	14.3	16	15.8	16.3	13.9	17	18	16.5	16.5	12.9	17	16.6	17.2	13.1
Supplementary Analytes (Not Historically analyzed) Historically analyzed																			
Aluminum, Dissolved	mg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.8 U	<1 U	< 0.3 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004 B	0.0021	0.004 B
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0003 U	< 0.0004 U
Bicarbonate as CaCO3	mg/L	none	333	310	325	NA	320	302	306	319	307	329	325	369	361	358	NA	376 H	402
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	3.1 B	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0003 U	< 0.0003 U
Calcium, Dissolved	mg/L	none	330	287	309	230	301	320	289	279	345	275	269	187	175	220	163	171	131
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0018	0.00349	0.0019
Cyanide, Free	mg/L	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	<0.01 U	< 0.003 U
Magnesium, Dissolved	mg/L	none	364	297	303	247	300	342	301	290	376	301	283	202	188	225	175	170	135
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.085	0.1 B	0.09
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.009 B	<0.2 U	0.007
Potassium, Dissolved	mg/L	none	18.9	19.4	21.8	15.6	19	20	18	18.6	22	16	20.5	13	12	16	12	13	10
Silver, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.0005 U
Sodium, Dissolved	mg/L	none	1,910	1,570	1,510	1,770	1,670	1,740	1,770	1,720	1,570	1,710	1,640	1,710	1,660	1,650	1,760	1,730	1,710
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	<0.1 U	< 0.003 U

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard" , is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 2: Summary of Monitoring Results for MW-2

Date	Interim Narrative Standard	4/28/1999	7/21/1999	9/16/1999	11/10/1999	1/19/2000	3/13/2000	5/16/2000	7/10/2000	9/27/2010	3/31/2011	6/28/2011	8/31/2011	11/17/2011	3/27/2012	6/27/2012	9/13/2012	11/13/2012	3/19/2013	5/28/2013	8/26/2013	11/14/2013
Metals																						
Arsenic, Dissolved (mg/L)	0.01	NA	0.003 B	0.004 B	0.0567	0.05 B	0.045	0.062	0.042	0.036	0.021	0.03	0.036	< 0.01 U	< 0.01 U	< 0.01 U	< 0.005 U	0.001 B	0.002 B	0.001 B	0.002 B	0.001 B
Barium, Dissolved (mg/L)	2	0.4	0.42	0.41	0.41	0.4	0.42	0.41	0.398	2.09	1.33	1.09	0.96	1.09	1.42	1.55	1.72	1.26	1.3	1.07	1.23	1.22
Boron, Dissolved (mg/L)	0.75	0.73	0.74	0.72	0.74	0.69	0.73	0.74	0.67	0.7	0.64	0.69	0.78	0.64	0.73	0.72	0.70	0.79	0.71	0.76	0.70	0.74
Chromium, Dissolved (mg/L)	0.1	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Copper, Dissolved (mg/L)	0.2	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U
Iron, Dissolved (mg/L)	0.3	< 0.3 U	< 0.3 U	0.27 B	0.11 B	0.16 B	0.2 B	0.5	0.07	< 0.3 U	0.1 B	0.15	< 0.3 U	0.3 B	0.91	0.8	0.7	0.16	1.1	0.2 B	0.9	1.3
Lead, Dissolved (mg/L)	0.05	< 0.005 U	< 0.005 U	0.001 B	< 0.005 U	< 0.005 U	< 0.005 U	0.005 B	0.002 B	< 0.003 U	< 0.003 U	0.0011 B	0.0006 B	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U
Lithium, Dissolved (mg/L)	2.5	1	1	1	1	1	1.1	1	0.91	1.3	1.2	1.12	1.1	1.1	1.16	1.2	1.2	1.36	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.49	0.44	0.4	0.33	0.33	0.33	0.33	0.329	0.08 B	0.12	0.139	0.1	0.12	0.102	0.06 B	0.06 B	0.114	0.121	0.09	0.11	0.127
Selenium, Dissolved (mg/L)	0.02	< 0.005 U	0.002 B	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	0.0006 B	0.0015	0.0006 B	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.0008 B	0.0007 B	0.0011	0.0032	< 0.001 U	0.0006 B
Thallium, Dissolved (mg/L)	0.002	< 0.01 U	< 0.01 U	< 5 U	< 0.0003 U	< 0.005 U	< 0.001 U	< 0.003 U	< 0.003 U	< 0.003 U	0.0007 B	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.00465	0.005	0.0041	0.0037	0.0042	0.0048	0.0033	0.0025 B	< 0.003 U	0.0011 B	0.0009 B	0.0012 B	0.0012 B	0.0012 B	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U
Other																						
Chloride (mg/L)	250	2,890	2,260	2,670	2,700	2,240	2,880	3,100	2730	3,050	3,100	3,090	3,240	3,017	3,052	3,079	3,188	2,968	3,227	3,220	2,960	3,080
Fluoride (mg/L)	2	1.7	1.8	1.7	1.5	1.8	1.7	2.1	1.8	1.7	1.5	1.5	1.4	1.6	1.5	1.6	1.5	1.7	1.7	1.6	1.6	1.5
Nitrate as N (mg/L)	10	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	0.03	NA	< 0.1 U	< 0.1 U	0.14	0.07 B	0.06 B	0.03 B	< 0.1 U	0.04 B	0.04 B	0.03 B	0.04 B	NA	NA	NA	NA
Nitrite as N (mg/L)	1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA
Nitrate+Nitrite as N (mg/L)	10	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	0.03 B	NA	< 0.1 U	< 0.1 U	0.14	0.07 B	0.06 B	0.03 B	< 0.1 U	0.04 B	0.04 B	0.03 B	0.04 B	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8.2	8.2	8.1	8	8.5	7.9	8	8.1	8.6 H	8.2 H	8.4 H	8.3 H	8.2 H	8.3 H	8.3 H	8.6 H	8.3 H	8.3 H	8.3 H	8.2 H	8.1 H
Total Dissolved Solids, filterable residue (mg/L)	7084*	5,680.0	5,640.0	5,680.0	5,700.0	5,600.0	5,740.0	5,600.0	5,700.0	6,270	6,390	6,350	6,320	6,140	6,340	6,120	6,270	6,180	6,300	6,400	6,210 H	6,150 H
Sulfate (mg/L)	250	140	160	190	210	240	220	220	220	< 300 U	60 B	90 B	< 100 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Gross Alpha (pCi/L)	15	NA	44	0	140	0.9	0	1	8.4	15 (±26)	9.8 (±25)	18 (±24)	0 (±26)	38 (±38)	-1.1 (±21)	5.1 (±12)	-6.2 (±13)	-12 (±21)	NA	NA	NA	NA
Gross Beta (pCi/L)	**	NA	81	52	80	52	19	26	0	4.5 (±30)	42 (±31)	12 (±29)	0 (±27)	73 (±44)	8.5 (±29)	82 (±30)	21 (±26)	11 (±28)	NA	NA	NA	NA
Field Parameters (Not Available pre-2010))																						
Field pH (s.u)	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	8.71	7.84	7.98	7.54	7.91	8.2	7.61	9.58	8.11	7.6	7.74	7.61	7.61
Field Conductivity (µS/cm)	none	NA	NA	NA	NA	NA	NA	NA	NA	1,169	1,088	10,160	10,350	10,500	10,630	11	10,640	10,520	6,840	1,130	10,840	11,220
Temperature (Degrees Celsius)	none	NA	NA	NA	NA	NA	NA	NA	NA	15.47	16	21.4	22.4	12.5	14.5	14.6	19.4	13.9	12.2	20.8	18.7	12.58
Supplementary Analytes (Not Historically analyzed)																						
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	993	965	978	953	914	995	968	964	978	955	963	979	1020
Carbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	108	< 20 U	37	22	57	< 20 U	21	< 20 U	23	29	22	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	14	14	14.4	16	15	15.5	14	16	16.3	15.1	18	17	16.9
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	8	8	7.8	7	7	7.4	8	8	8	7.5	8	7	7.4
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	7 B	8 B	7.4	4 B	6 B	6.6	7 B	7 B	10.8 B	7.0	7	6 B	6.1
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	2,480	2,430	2,470	2,410	2,260	2,410	2,420	2,420	2,310	2,550	2,500	2,540	2,490
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
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H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
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*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
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Table 2: Summary of Monitoring Results for MW-2

Date	Units	Interim Narrative Standard	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals																				
Arsenic, Dissolved	mg/L	0.01	0.004 B	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004 B	0.0063	0.004 B
Barium, Dissolved	mg/L	2.0	1.74	2.28	2.57	1.71	2.03	2.65	2.04	1.90	2.0	1.93	2.23	1.88	2.61	2.77	3.32	3.22	3.19	3.85
Boron, Dissolved	mg/L	0.75	0.7	0.75	0.75	0.74	0.73	0.72	0.75	0.68	0.79	0.68	0.73	0.71	0.77	0.72	0.78	0.75	0.8	0.76
Chromium, Dissolved	mg/L	0.1	< 0.01 U	< 0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	<0.002 U	< 0.003 U
Copper, Dissolved	mg/L	0.2	< 0.05 U	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005 B	<0.002 U	< 0.004 U
Iron, Dissolved	mg/L	0.3	1.51	2.5	1.16	0.82	0.38	0.6	0.7	0.4	0.4 B	0.2 B	1.2	0.28	0.5	0.3	0.3	0.4	0.4	0.38
Lead, Dissolved	mg/L	0.05	< 0.003 U	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.0005 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.16	1.31	1.83
Manganese, Dissolved	mg/L	0.05	0.099	0.097	0.105	0.103	0.075	0.05 B	0.07 B	0.08 B	0.08 B	0.05 B	0.10	0.06	0.05 B	< 0.1 U	0.06 B	0.04 B	0.07 B	0.054
Selenium, Dissolved	mg/L	0.02	< 0.001 U	0.0007 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	0.0004	< 0.0005 U
Thallium, Dissolved	mg/L	0.002	< 0.003 U	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.00005 U
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0028 B	0.0028	0.0026 B
Zinc, Dissolved	mg/L	2.0	< 0.05 U	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.3 U	< 0.05 U
Other																				
Chloride	mg/L	250	3,180	3,240	2,930	2,980	2,990	3,150	3,100	3,040	3,240	3,120	3,110	3,010	3,170	3,070	3,030	3,530	3,340	3,130
Fluoride	mg/L	2	1.5	1.48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3	1.6	1.4
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08 B	<0.1 U	0.67
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	<0.05 U	< 0.01 U
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08 B	<0.1 U	0.67
Lab pH	s.u	6.5 - 8.5	8.0 H	8.0 H	8.0 H	8.3 H	8.0 H	8.0 H	8.3 H	8.2 H	8.3	8.1 H	8.4 H	8.4 H	8.2 H	8.0 H	8.0 H	8.2 H	8 H	8.1 H
Total Dissolved Solids, filterable residue	mg/L	7084*	5,720	6,040 H	5,730	6,180	6,230	6,000 ^	5,520 ^	6,020	6,230	6,080	6,010	6,300	6,160	6,400	6,270 H	6,280	6,310	6,210
Sulfate	mg/L	250	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 125 U	< 250 U	< 125 U	< 250 U	< 200 U	22 B	<100 U	<100 U	< 40 U
Gross Alpha	pCi/L	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 (±18)	0.14 (±18)	10(±24)
Gross Beta	pCi/L	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 (±21)	-3.9 (±30)	41(±31)
Field Parameters (Not Available pre-2010)																				
Field pH	s.u	6.5 - 8.5	7.6	7.32	6.95	7.6	7.56	7.38	7.53	7.99	8.28	7.51	7.63	7.53	8.02	8.06	7.93	7.53	8.15	8.04
Field Conductivity	µS/cm	none	10,440	11,040	11,310	11,100	11,440	9,630	11,050	6,750	8,770	10,020	10,890	10,510	10,360	10,570	11,060	11,000	11,080	6,730
Temperature	Degrees Celsius	none	12.9	16.7	15.7	7.5	11.7	17.3	17.6	14.9	16.8	15.6	17.1	14.3	18.5	12.2	18.1	13.9	18.6	13.3
Supplementary Analytes (Not Historically analy Historically analyzed																				
Aluminum, Dissolved	mg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.8 U	<1 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	0.0023	0.003 B
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0003 U	< 0.0004 U
Bicarbonate as CaCO3	mg/L	none	1,060	1,100	1,080	1,100	NA	1,070	1,040	1,050	1,040	1,100	1,000	1,010	1,070	1,030	1,080	NA	1,090 H	1080
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	40.9	40.7	< 20 U	< 20 U	< 20 U	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	0.00011 B	< 0.0003 U
Calcium, Dissolved	mg/L	none	17.6	18.2	17.9	17.4	17.5	17.3	17.3	17.2	18	16.9	17.5	16.6	16.7	16.6	16.8	18.6	17.3	18.1
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	0.00009 B	< 0.0003 U
Cyanide, Free	mg/L	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	0.004 B	< 0.003 U
Magnesium, Dissolved	mg/L	none	7.3	6.9	6.6	7.4	none	7.4	7.0	8.0	7.0	8.0 B	7.0	8.0	6.6	7.0	7.0	7.0	6	6.6
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	0.0013 U	0.001 B
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 U	<0.001 U	< 0.002 U
Potassium, Dissolved	mg/L	none	6.2	6.5	6.1	6	6.4	7.0	7.0	6.0	8.0	6.0	6.0	6.7	6.0	6.0	6.0	9.0	6	6.8
Silver, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0005 U	< 0.0005 U
Sodium, Dissolved	mg/L	none	2,440	2,440	2,330	2,260	2,390	2,270	2,370	2,260	2,560	2,350	2,230	2,430	2,430	2,270	2,360	2,460	2,420	2,420
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	<0.1 U	< 0.003 U

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard", is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 3: Summary of Monitoring Results for MW-3

Date	Interim Narrative Standard	4/28/1999	7/21/1999	9/16/1999	11/10/1999	1/19/2000	3/13/2000	5/16/2000	7/10/2000	9/27/2010	3/31/2011	6/30/2011	8/31/2011	11/17/2011	3/27/2012	6/27/2012	9/13/2012	11/13/2012	3/19/2013	5/28/2013	8/26/2013	11/14/2013
Metals																						
Arsenic, Dissolved (mg/L)	0.01	NA	0.005	0.005	0.0362	0.03 B	0.025	0.036	0.025	0.019	0.01	0.011	0.02	< 0.004 U	< 0.01 U	0.0011 B	< 0.005 U	0.0005 B	0.0008 B	< 0.005 U	0.001 B	< 0.002 U
Barium, Dissolved (mg/L)	2	0.177	0.172	0.218	0.213	0.249	0.261	0.287	0.307	2.4	2.95	2.23	2.73	2.25	2.51	2.08	2.52	2.23	2.5	2.20	2.41	2.25
Boron, Dissolved (mg/L)	0.75	0.63	0.53	0.62	0.58	0.62	0.62	0.6	0.6	0.77	0.75	0.74	0.8	0.78	0.77	0.76	0.76	0.85	0.79	0.84	0.75	0.76
Chromium, Dissolved (mg/L)	0.1	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.05 U	0.003 B	0.001 B	< 0.01 U	0.004 B	< 0.004 U	< 0.01 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.004 U	< 0.01 U	< 0.01 U	< 0.004 U
Copper, Dissolved (mg/L)	0.2	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.05 U	< 0.1 U	< 0.1 U	< 0.3 U	< 0.1 U	< 0.1 U	< 0.05 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U
Iron, Dissolved (mg/L)	0.3	0.02 B	0.03 B	0.12	0.003 B	0.03 B	0.05 B	0.17	0.02 B	0.04 B	0.27	< 0.3 U	< 0.1 U	0.1	0.22	0.32	< 0.3 U	0.1	0.11	< 0.3 U	< 0.3 U	0.14
Lead, Dissolved (mg/L)	0.05	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	0.0031	< 0.003 U	< 0.001 U	0.0007 B	0.0002 *B	0.0004 B	< 0.001 U	< 0.003 U	0.0007	< 0.003 U	0.0003 B	< 0.001 U	< 0.003 U	< 0.003 U	< 0.001 U
Lithium, Dissolved (mg/L)	2.5	0.71	0.65	0.6	0.7	0.75	0.74	0.7	0.67	0.8	0.74	0.8	0.71	0.64	0.72	0.7	0.7	0.83	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.19	0.05	0.06	0.05 B	0.05	0.05	0.07	0.06	0.04 B	0.05	0.03 B	0.04 B	0.03 B	0.021 B	0.034	< 0.1 U	0.047	0.026	< 0.1	< 0.1 U	0.031
Selenium, Dissolved (mg/L)	0.02	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	0.0006	0.0012	< 0.001 U	0.0005	< 0.005 U	0.0065	0.0007	< 0.001 U	0.0005 B	0.0006	0.0043	< 0.001 U	0.0003 B
Thallium, Dissolved (mg/L)	0.002	< 0.01 U	< 0.01 U	< 2 U	< 0.0003 U	< 0.005 U	< 0.0005 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.003 U	< 0.001 U	< 0.001 U	< 0.003 U	< 0.0005 U	< 0.003 U	< 0.003 U	< 0.001 U	< 0.003 U	< 0.003 U	< 0.001 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.00871	0.007	0.0065	0.0058	0.0058	0.0015	0.0008 B	0.001 B	0.0006 B	0.0012	0.0006 B	0.0011	0.0005 B	0.0005 B	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.05 U	< 0.1 U	< 0.1 U	< 0.3 U	< 0.1 U	< 0.1 U	< 0.05 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U	< 0.3 U	< 0.3 U	< 0.05 U
Other																						
Chloride (mg/L)	250	1,480	1,350	1,310	1,450	1,360	1,480	1,400	1,460	1,550	1,530	1,550	1,620	1,530	1,565	1,505	1,681	1,721	1,665	1,620	1,570	1,610
Fluoride (mg/L)	2	2.4	2.8	3 B	2.2	3 B	2.6	2.8	2.6	2.4	2.3	2.2	2.4	2.4	2.3	2.5	2.3	2.4	2.3	2.4	2.4	2.3
Nitrate as N (mg/L)	10	< 0.1 U	< 0.1 U	0.02	< 0.1 U	< 0.1 U	NA	< 0.1 U	0.17	< 0.1 U	0.37	0.79	0.03 B	< 0.1 U	< 0.1 U	0.02 B	0.17	0.09 B	NA	NA	NA	NA
Nitrite as N (mg/L)	1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA
Nitrate+Nitrite as N (mg/L)	10	< 0.1 U	< 0.1 U	0.02 B	< 1 U	< 0.1 U	NA	< 0.1 U	0.17	< 0.1 U	0.37	0.79	0.03 B	< 0.1 U	< 0.1 U	0.02 B	0.17	0.09 B	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8.5	8.9	8.6	8.4	8.6	8.2	8.4	8.4	8.6 H	8.4 H	8.6 H	8.5 H	8.2 H	8.4 H	8.4 H	8.5 H	8.5 H	8.5 H	8.4 H	8.5 H	8.4 H
Total Dissolved Solids, filterable residue (mg/L)	4620*	3,780.0	3,740.0	3,690.0	3,720.0	3,660.0	3,680.0	3,620.0	3,680.0	3,930	3,940	4,000	3,940	3,860	4,000	3,790	4,000	3,950	3,990	4,000	4,000	3,880 H
Sulfate (mg/L)	250	140	110	100	100	90	90	90	90	< 100 U	< 100 U	< 300 U	< 50 U	< 125 U	< 125 U	30.1 B	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U
Gross Alpha (pCi/L)	15	NA	54	0	77	15	8.4	6.2	9.6	5.7 (±13)	33 (±20)	5.7 (±17)	15 (±18)	20 (±18)	8 (±13)	66 (±27)	0.85 (±14)	-8.2 (±8.6)	NA	NA	NA	NA
Gross Beta (pCi/L)	**	NA	25	0	64	19	6.7	32	4.7	3.2 (±17)	25 (±21)	7.2 (±18)	5 (±19)	5.4 (±18)	13 (±18)	110 (±24)	15 (±17)	-4.9 (±18)	NA	NA	NA	NA
Field Parameters (Not Available pre-2010))																						
Field pH (s.u)	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	8.01	8.06	NA	8.46	7.98	8.36	7.95	8.14	8.34	8.24	8.31	8.25	8.15
Field Conductivity (µS/cm)	none	NA	NA	NA	NA	NA	NA	NA	NA	6186	675	NA	6,660	5,240	6,710	7	6,270	6,980	6,840	7,010	6,920	7,093
Temperature (Degrees Celsius)	none	NA	NA	NA	NA	NA	NA	NA	NA	17.55	16	NA	30.4	13.8	17.7	22.2	20.4	13.6	14.3	19.1	23.9	14.35
Supplementary Analytes (Not Historically analyzed)																						
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	1,110	1,130	1,100	1,090	1,100	1,160	1,130	1,130	1,140	1,130	1,140	1,130	1,170
Carbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	98	31	96	75	78	50	52	51	78	71	60	75	40
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	6.6	11.9	7	7.5	6.8	6.3	9.4	7	7.5	6.1	7	8	6.8
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	3	3.4	3 B	2.7	2.8	2.9	2.9	4 B	3.6	3.0	3	3 B	2.8
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	4.4	5.5	5.0 B	3.2	3.6	4.2	4.1	4.0 B	6.9	4.4	4.0	4.0 B	3.9
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	1,600	1,450	1,560	1,490	1,370	1,550	1,530	1,580	1,550	1,620	1,590	1,600	1,600
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard" , is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 3: Summary of Monitoring Results for MW-3

Date	Units	Interim Narrative Standard	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals																				
Arsenic, Dissolved	mg/L	0.01	0.0009 B	0.0005 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002 U	0.0009 B	0.0004 B
Barium, Dissolved	mg/L	2.0	2.31	2.02	2.23	2.62	2.25	2.83	2.47	2.81	2.58	3.16	3.16	2.57	2.45	2.93	2.18	2.4	2.93	2.77
Boron, Dissolved	mg/L	0.75	0.74	0.76	0.76	0.78	0.81	0.74	0.79	0.74	0.76	0.74	0.79	0.77	0.75	0.74	0.81	0.77	0.80	0.77
Chromium, Dissolved	mg/L	0.1	< 0.004 U	< 0.004 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.004 U	<0.002 U	< 0.001 U
Copper, Dissolved	mg/L	0.2	< 0.05 U	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	<0.1 U	< 0.002 U
Iron, Dissolved	mg/L	0.3	0.19	0.30	0.29	0.29	0.79	0.19	0.26	0.21	0.2 B	0.2 B	0.17	0.29	0.11	0.14	0.41	0.18	<0.2 U	0.07 B
Lead, Dissolved	mg/L	0.05	< 0.001 U	0.0002 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0005 U	< 0.0002 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.69	0.86	0.708
Manganese, Dissolved	mg/L	0.05	0.043	0.05	0.05	0.061	0.054	0.02 B	0.03 B	0.03 B	< 0.1 U	< 0.1 U	0.02 B	0.033	0.01 B	0.01 B	0.06	<0.05 U	0.02 B	0.0195
Selenium, Dissolved	mg/L	0.02	< 0.0005 U	0.0002 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0005 U	0.0002 B	< 0.0002 U
Thallium, Dissolved	mg/L	0.002	< 0.001 U	< 0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0005 U	< 0.00005 U
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003 B	0.0008	0.0005 B
Zinc, Dissolved	mg/L	2.0	0.02 B	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	< 0.1 U	< 0.01 U
Other																				
Chloride	mg/L	250	1,570	1,580	1,520	1,540	1,530	1,620	1,570	1,560	1,640	1,690	1,550	1,550	1,550	1,580	1,560	1,750	1,660	1,620
Fluoride	mg/L	2	2.4	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.38	2.4	2.5
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	<0.1 U	1.2
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	<0.05 U	< 0.01 U
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	<0.1 U	1.2
Lab pH	s.u	6.5 - 8.5	8.4 H	8.3 H	8.3 H	8.4 H	8.2 H	8.3 H	8.4 H	8.3 H	8.4	8.3 H	8.5 H	8.4 H	8.5 H	8.3 H	8.3 H	8.4 H	8.4 H	8.4 H
Total Dissolved Solids, filterable residue	mg/L	4620*	3,890	3,910 H	3,920	3,890	3,920	3,930 ^	3,910 ^	3,970	3,970	4,040	3,790	4,000	3,820	3,940	4,020 H	3,850	3,960	3,940
Sulfate	mg/L	250	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U	< 125 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 40 U	< 40 U	<40 U	<40 U	< 8 U
Gross Alpha	pCi/L	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 (±7.4)	3.5	-1.5(±14)
Gross Beta	pCi/L	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7 (±15)	1.6	12(±18)
Field Parameters (Not Available pre-2010))																				
Field pH	s.u	6.5 - 8.5	8.12	7.78	7.94	7.9	7.78	7.78	7.83	8.02	8.4	8.05	7.52	7.77	NA	8.61	7.98	7.83	8.25	8.23
Field Conductivity	µS/cm	none	6,610	7,140	7,220	6,800	7,140	6,120	7,010	5,820	4,850	6,290	6,710	7,030	NA	6,730	7,160	6,790	7,030	4,348
Temperature	Degrees Celsius	none	14.8	17.1	17.0	9.0	14	19.7	18.5	17.3	11.4	18.6	20.7	20.7	NA	10.8	20.1	16	21.8	12.4
Supplementary Analytes (Not Historically analyzed) Historically analyzed																				
Aluminum, Dissolved	mg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.004 U	0.0007 B	< 0.0008 U
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0005 U	<0.0003 U	< 0.0002 U
Bicarbonate as CaCO3	mg/L	none	1,220	982	1,270	1,260	NA	1,200	1,170	1,230	1,210	1,300	1,170	1200	1160	1160	1250	NA	1,260 H	1190
Carbonate as CaCO3	mg/L	none	37	57	< 20 U	41.6	NA	56.5	98.5	30.6	37.4	21.4	71.5	44.9	54.5	26.7	19.6 B	NA	<20 UH	55.1
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0005 U	<0.0003 U	< 0.0001 U
Calcium, Dissolved	mg/L	none	6.7	7.2	6.7	7.7	8.7	7	7.6	6.9	6.7	7.4	7.8	7.3	6.8	6.5	6.9	7.4	6.7	6.9
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.0003 U	< 0.0001 U
Cyanide, Free	mg/L	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	<0.01 U	< 0.003 U
Magnesium, Dissolved	mg/L	none	3	3.1	3.4	3.2	3.3	2.8	3.1	2.9	2.8	3.0 B	3.2	2.6	2.5	2.6	3.1	2.5	2.5	2.6
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	<0.2 U	0.0004 B
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.08 U	<0.08 U	< 0.0008 U
Potassium, Dissolved	mg/L	none	4.0	3.8	4.0	4.1	4.0	5.3	4.0	4.0	4.1	4.0	4	4.4	3.5	4.0	3.4	3.6	3.9	3.7
Silver, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	<0.0005 U	< 0.0002 U
Sodium, Dissolved	mg/L	none	1,570	1,610	1,500	1,490	1,430	1,480	1,450	1,480	1,540	1,510	1,470	1600	1430	1410	1490	1500	1,560	1,540
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	<0.05 U	< 0.001 U

Notes:
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U = Analyte not detected, reported less than the practical quantitation limit
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*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 4: Summary of Monitoring Results for MW-4

Date	Interim Narrative Standard	5/26/1999	7/21/1999	9/23/1999	11/10/1999	1/19/2000	3/13/2000	5/16/2000	7/10/2000	9/27/2010	3/31/2011	6/28/2011	8/31/2011	11/172011	3/27/2012	6/27/2012	9/13/2012	11/13/2012	3/19/2013	5/28/2013	8/26/2013	11/15/2013
Metals																						
Arsenic, Dissolved (mg/L)	0.01	NA	< 0.005 U	NA	0.0894	0.08	0.075	0.103	0.08	0.068	0.04	0.055	0.076	<0.02 U	< 0.02 U	0.0009 B	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Barium, Dissolved (mg/L)	2	0.14	0.29	0.461	0.55	0.69	0.81	0.92	0.972	8.69	8.84	7.83 *	8.93	7.94	8.73	8.41	8.91	8.67	9.22	8.74	9.13	8.8
Boron, Dissolved (mg/L)	0.75	0.49	0.54	0.53	0.59	0.56	0.6	0.6	0.55	0.7	0.5 B	0.62 *	0.7	0.7	0.7	0.8 B	0.5	0.72	0.7	0.7	0.6	0.7
Chromium, Dissolved (mg/L)	0.1	< 0.3 U	< 0.3 U	< 0.25 U	< 0.3 U	< 0.3 U	NA	< 0.3 U	< 0.05 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	0.0014 B	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Copper, Dissolved (mg/L)	0.2	< 0.3 U	< 0.3 U	0.11 B	< 0.3 U	< 0.3 U	NA	< 0.3 U	< 0.05 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Iron, Dissolved (mg/L)	0.3	< 0.3 U	< 0.3 U	1.13	0.07 B	0.05 B	0.17 B	0.44	0.04 B	0.3 B	0.3 B	0.28 *	0.8	< 0.5 U	0.6	1.0	< 0.5 U	0.32 U	0.8	0.5 U	0.4 B	0.3 B
Lead, Dissolved (mg/L)	0.05	< 0.01 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	NA	0.009	< 0.01 U	< 0.005 U	< 0.005 U	0.002 B	0.001 B	< 0.005 U	< 0.005 U	< 0.01 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U
Lithium, Dissolved (mg/L)	2.5	0.9	1.2	1.3	1.4	1.5	1.6	1.5	1.51	2	1.9	2.25 *	1.8	1.6	1.8	1.9 B	1.9	2.38	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.21	0.89	0.977	0.94	0.87	0.81	0.75	0.703	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	0.018 B	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Selenium, Dissolved (mg/L)	0.02	< 0.5 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.003 U	0.012	< 0.003 U	< 0.003 U	< 0.003 U	< 0.003 U	0.007	0.0029	< 0.003 U	0.002 B	0.003 B	0.006	< 0.003 U
Thallium, Dissolved (mg/L)	0.002	< 5 U	< 0.01 U	< 5 U	< 0.0003 U	< 0.005 U	< 0.001 U	< 0.003 U	< 0.005 U	< 0.005 U	0.001 B	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.0235	0.019	0.0168	0.0138	0.015	< 0.005 U	0.001 B	< 0.005 U	0.002 B	< 0.005 U	< 0.005 U	< 0.01 U	< 0.005 U	< 0.005 U	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	1.07	1.03	1.71	< 0.3 U	< 3 U	< 0.3 U	< 0.3 U	0.01 B	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Other																						
Chloride (mg/L)	250	2,770	2,940	4,260	4,800	4,970	5,200	6,900	5,300	6,300	6,200	6,200	6,500	6,282	6,063	6,105	6,566	6,077	6,744	6,490	6,470	6,750
Fluoride (mg/L)	2	1	1.1	0.9	0.9	1.1	1.1	1.4	1.1	1.1	1.1	1	1.1	1.1	1.0	1.1	1.2	1.1	1.1	1.1	1.1	1.1
Nitrate as N (mg/L)	10	< 0.1 U	0.07	< 0.1 U	< 0.1 U	0.13	NA	< 0.1 U	0.73	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	1.83	0.04 B	0.04 B	0.04 B	NA	NA	NA	NA
Nitrite as N (mg/L)	1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	< 0.05 U	< 0.05 U	< 0.05 U	0.01 B	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA
Nitrate+Nitrite as N (mg/L)	10	< 0.1 U	0.07 B	< 0.1 U	< 0.1 U	0.13	NA	< 0.1 U	0.73	< 0.1 U	0.02 B	< 0.1 U	< 0.1 U	< 0.1 U	1.83	0.04 B	0.04 B	0.04 B	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8.1	7.7	7.8	7.8	8.1	7.6	8	8	8.3 H	8.2 H	8.2	8.2 H	8.3 U	8.1 H	8.1 H	8.1 H	8.1 H	8.2 H	8.1 H	8.2 H	8.1 H
Total Dissolved Solids, filterable residue (mg/L)	10,212*	5,870.0	7,610.0	8,170.0	8,660.0	8,670.0	9,110.0	8,980.0	9,350.0	11,000	11,100	11,100	10,900	11,100	11,200	10,800	11,100	10,800	11,100	11,000	10,900	10,300 H
Sulfate (mg/L)	250	970	600	460	390	3150	290	270	250	< 500 U	< 500 U	< 500 U	< 300 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U
Gross Alpha (pCi/L)	15	26	12	53	-4.3	57	4.7	0	65	-10 (±39)	73 (±47)	16 (±37)	40 (±52)	19 (±52)	-33 (±18)	260 (±76)	-0.11 (±17)	-15 (±30)	NA	NA	NA	NA
Gross Beta (pCi/L)	**	23	37	27	-24	18	20	4.7	8.6	-7.5 (±53)	80 (±49)	22 (±45)	51 (±57)	66 (±63)	38 (±51)	270 (±61)	53 (±53)	9.9 (±42)	NA	NA	NA	NA
Field Paramters (Not Availabe pre-2010))																						
Field pH (s.u)	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	7.95	7.85	7.68	7.97	7.92	8.23	7.48	7.84	8.05	7.53	7.36	7.73	6.57
Field Conductivity (µS/cm)	none	NA	NA	NA	NA	NA	NA	NA	NA	1,825	1,959	17,420	18,450	18,230	18,500	9	17,080	18,790	11,720	18,800	18,750	19,055
Temperature (Degrees Celsius)	none	NA	NA	NA	NA	NA	NA	NA	NA	17.7	15	19.9	23.4	14	14.6	18.6	22.0	12.3	12.1	16.7	18.8	11.46
Supplementary Analytes (Not Historically analyzed)																						
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	585	565	569	562	573	597	580	576	571	573	567	590	576
Carbonate as CaCO3 (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	16 B	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	37	38	79	37	35	36	42	38	39.2	37	37	37	36
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	18	18	38	16	16	17	22	19	18.9	18	18	17	16
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	10 B	12 B	20 B	7.0 B	9.0 B	7.0 B	15 B	10 B	22	10 B	10 B	9.0 B	9 B
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	NA	NA	NA	NA	NA	NA	NA	NA	4,270	4,180	4,280	4,200	3,930	4,220	4,240	4,250	4,150	4,390	4,260	4,350	4070
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard", is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 4: Summary of Monitoring Results for MW-4

Date	Units	Interim Narrative Standard	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals																				
Arsenic, Dissolved	mg/L	0.01	< 0.01 U	< 0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	0.0004 B	< 0.002 U
Barium, Dissolved	mg/L	2.0	8.58	9.64	8.01	8.56	8.77	8.76	8.81	8.80	8.66	8.79	8.91	8.61	8.95	8.60	9	8.9	8.42	8.94
Boron, Dissolved	mg/L	0.75	0.63	0.6	0.7	0.7	0.8 B	0.6	0.7	0.6	0.7	0.6	0.6	0.61	0.7	0.6	0.8	0.6	0.7 B	0.63
Chromium, Dissolved	mg/L	0.1	< 0.02 U	< 0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 U	<0.002 U	< 0.005 U
Copper, Dissolved	mg/L	0.2	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 U	<0.002 U	< 0.008 U
Iron, Dissolved	mg/L	0.3	0.8	0.2 B	0.5	0.3 B	< 1 U	0.3 B	0.1 B	0.4 B	0.2 B	0.14	< 0.5 U	0.15	< 0.5 U	< 0.5 U	< 0.5 U	0.15	0.114 U	0.12
Lead, Dissolved	mg/L	0.05	< 0.005 U	< 0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.76	1.93	1.81
Manganese, Dissolved	mg/L	0.05	< 0.1 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.1 U	< 0.3 U	< 0.3 U	< 0.03 U	< 0.3 U	< 0.03 U	< 0.3 U	< 0.3 U	< 0.3 U	0.008 B	0.0065 U	0.007 B
Selenium, Dissolved	mg/L	0.02	< 0.003 U	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017	0.0014	< 0.001 U
Thallium, Dissolved	mg/L	0.002	< 0.005 U	< 0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 U	<0.0005 U	< 0.0001 U
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 U	0.0001 B	< 0.001 U
Zinc, Dissolved	mg/L	2.0	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	< 0.01 U
Other																				
Chloride	mg/L	250	7,080	6,450	5,600	6,260	6,650	6,410	6,630	6,880	6,530	6,290	6,350	5,960	6,390	6,170 H	6,150	7,780	7,140	7,100
Fluoride	mg/L	2	1.1	1.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.03	1.1	1.1
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	0.12	< 0.02 U
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	<0.05 U	0.01 B
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	0.12	< 0.02 U
Lab pH	s.u	6.5 - 8.5	8 H	7.9 H	8.1 H	8.2 H	8 H	8.1 H	8.2 H	8.2 H	8.2	7.9 H	8.3 H	8.2 H	8.3 H	7.9 H	8.1 H	8.1	8 H	8.2 H
Total Dissolved Solids, filterable residue	mg/L	10,212*	10,800 H	10,300 H	9,530	10,900	10,600	10,600 ^	9,720 ^	10,800	10,900	10,100	10,800	11,100	10,500	11,000	10,900	11,200	11,000	10,600
Sulfate	mg/L	250	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 250 U	< 250 U	< 250 U	< 250 U	< 200 UH	< 200 U	<200 U	<200 U	< 40 U
Gross Alpha	pCi/L	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.83 (±26)	-17 (±22)	-3.9(±37)
Gross Beta	pCi/L	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38 (±39)	-11 (±57)	40(±44)
Field Parameters (Not Available pre-2010))																				
Field pH	s.u	6.5 - 8.5	7.27	7.25	7.52	7.56	7.54	9.09	7.49	8.26	8.2	7.74	7.31	7.65	8.05	7.81	7.89	7.63	7.96	7.79
Field Conductivity	µS/cm	none	18,020	19,380	19,500	18,510	19,550	16,610	19,050	14,650	13,890	16,140	18,530	19,320	17,800	18,260	19,620	18,570	18,390	11,030
Temperature	Degrees Celsius	none	12.1	14.9	14.5	11.7	12.5	17.5	16.6	13.1	11.6	16	18.3	16.1	14.7	12.4	16.8	14	15.6	7.3
Supplementary Analytes (Not Historically analypt Historically analyzed																				
Aluminum, Dissolved	mg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 U	<3 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.006 B	<0.002 U	0.005 B
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	<0.0003 U	< 0.0008 U
Bicarbonate as CaCO3	mg/L	none	606	623	616	611	NA	604	599	615	606	664	613	619	612	592	602	NA	601 H	606
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	6.2 B	< 20 U	< 20 U	< 20 U	< 20 U	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	0.00007 B	< 0.0005 U
Calcium, Dissolved	mg/L	none	36.1	38	37	37	38	38	36.9	38	38	36	37	35.8	36	36	36	36	35	37
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U	0.00015 B	0.0012 B
Cyanide, Free	mg/L	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004 B	0.009 B	< 0.003 U
Magnesium, Dissolved	mg/L	none	16	17	18	18	21	17	18	17	17	16.4	18	16.1	16	16	17	17	15	16.6
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 B	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.03 U	0.0002 U	< 0.002 U
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.03 U	<0.001 U	< 0.004 U
Potassium, Dissolved	mg/L	none	9	9 B	9 B	10	12 B	9	9	10	11	9.1	9	9	10	9	8 B	10	8 B	11.7
Silver, Dissolved	mg/L	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Sodium, Dissolved	mg/L	none	4120	4360	4050	3950	4070	4040	4030	4050	4290	4020	4000	4160	4080	3950	4030	4130	4,030	4,180
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 U	<0.002 U	< 0.005 U

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard" , is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrem/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 5: Summary of Monitoring Results for MW-5

Date	Interim Narrative Standard	3/19/2013	5/28/2013	8/26/2013	11/14/2013	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016
Metals																	
Arsenic, Dissolved (mg/L)	0.01	0.002 B	0.0004 B	0.005	< 0.002 U	0.0004 B	< 0.002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Dissolved (mg/L)	2	0.015 B	0.014 B	0.015 B	0.014 B	0.015 B	0.006 B	0.008 B	0.011 B	0.012 B	0.009 B	< 0.03 U	0.015 B	0.017 B	0.013 B	0.006 B	0.013 B
Boron, Dissolved (mg/L)	0.75	0.37	0.33	0.25	0.32	0.33	0.36	0.33	0.36	0.36	0.26	0.3	0.29	0.33	0.26	0.26	0.29
Chromium, Dissolved (mg/L)	0.1	< 0.01 U	< 0.004 U	< 0.004 U	< 0.004 U	< 0.004 U	< 0.004 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved (mg/L)	0.2	< 0.05 U	< 0.1 U	< 0.1 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved (mg/L)	0.3	17.5	15.6	85.4	1.39	9.56	0.15	0.7	8.11	19.6	0.05	0.6	20.3	7.11	0.58	11.6	33.5
Lead, Dissolved (mg/L)	0.05	< 0.003 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.168	0.13	0.16	0.074	0.091	0.069	0.12	0.093	0.109	0.072	< 0.3 B	0.11	0.1	0.07	0.09	0.11
Selenium, Dissolved (mg/L)	0.02	0.0008 B	0.0593	0.0013	0.0027	0.0005	0.023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved (mg/L)	0.002	< 0.003 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	0.01 B	< 0.1 U	< 0.1 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
Chloride (mg/L)	250	79.4 B	27.6 B	36.3 B	18.6	26.4 B	27.9 B	< 125 U	< 125 U	50.8 B	27 B	44.5 B	< 250 U	< 250 U	18.5 B	18.6 B	42.4 B
Fluoride (mg/L)	2	0.8	0.7	1.3	0.6	0.7	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	7.5 H	7.7 H	7.3 H	7.4 H	7.4 H	7.6 H	7.5 H	7.7 H	7.4 H	7.6 H	7.5 H	7.5 H	7.2	7.3 H	7.9 H	7.7 H
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	4,950	3,360	3,710	3,110	3,100	3,010 H	2,970	3,140	3,240	3,160 ^	3070 ^	3220	3540	3140	2850	3310
Sulfate (mg/L)	250	3,273	2,050	2,200	1,690	1,770	1,870	1,630	1,690	1,900	1,860	1,720	1,940	2,250	1,920	1,770	1,940
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Parameters (Not Available pre-2010))																	
Field pH (s.u)	6.5 - 8.5	6.65	6.67	7	6.74	6.83	6.56	6.76	6.77	6.67	6.47	6.76	7.06	7.2	6.77	6.74	6.59
Field Conductivity (µS/cm)	none	2,631	3,735	3,774	3324	3,262	3,370	3,345	33,200	3,787	3,016	3,340	2,900	2,800	2,649	3,192	3,546
Temperature (Degrees Celsius)	none	12	14.3	15.8	11.34	12.3	13.9	13.8	10.5	11.1	15.1	14.4	13.9	10.7	14.1	16.1	12.8
Supplementary Analytes																	
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	225	320	205	343	380	410	378	377	NA	347	376	377	361	409	357	311
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	426	464	523	446	433	441	442	461	453	505	520	478	464	486	495	494
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	147	126	131	101	109	106	101	111	118	112	115	115	124	112	113	122
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	10.1	8.1	10.2	6.2	7.1	6.5	6.3	6.9	7.7	6	6	7.1	7.6	6	6.6	8.7
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	865	373	312	269	332	308	257	285	344	232	209	260	450	229	221	281
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results

Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard" , is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 5: Summary of Monitoring Results for MW-5

Date	Units	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals								
Arsenic, Dissolved	mg/L	0.01	NA	NA	NA	0.0019 B	0.0018	0.0011 B
Barium, Dissolved	mg/L	2	0.01 B	< 0.03 U	< 0.03 U	<0.03 U	0.02 B	0.01 B
Boron, Dissolved	mg/L	0.75	0.36	0.36	0.35	0.33	0.35	0.35
Chromium, Dissolved	mg/L	0.1	NA	NA	NA	<0.004 U	<0.002 U	< 0.001 U
Copper, Dissolved	mg/L	0.2	NA	NA	NA	<0.1 U	<0.1 U	< 0.002 U
Iron, Dissolved	mg/L	0.3	2.15	10.3	0.97	32.8	7.67	9.22
Lead, Dissolved	mg/L	0.05	NA	NA	NA	<0.001 U	<0.0005 U	< 0.0002 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	0.3	0.39	0.417
Manganese, Dissolved	mg/L	0.05	0.09	0.09	0.08	0.09	0.09 B	0.0772
Selenium, Dissolved	mg/L	0.02	NA	NA	NA	0.0017	0.0005	0.0002 B
Thallium, Dissolved	mg/L	0.002	NA	NA	NA	<0.001 U	0.0001 B	0.00007 B
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	0.0379	0.0261	0.0241
Zinc, Dissolved	mg/L	2	NA	NA	NA	<0.1 U	<0.1 U	< 0.01 U
Other								
Chloride	mg/L	250	45.4 B	25.8 BH	19.7 B	36.2 B	29.8 B	36 B
Fluoride	mg/L	2	NA	NA	NA	0.72	0.6	0.7
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	0.57
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	< 0.01 U
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	0.57
Lab pH	s.u	6.5 - 8.5	7.8 H	7.3 H	7.7 H	7.5	7.7 H	7.7 H
Total Dissolved Solids, filterable residue	mg/L	1.25 x Background*	3,970	3,160	3,020 H	3,340	3,630	3,800
Sulfate	mg/L	250	2,540	1,820 H	1,780	2,190	2,180	2,480
Gross Alpha	pCi/L	15	NA	NA	NA	8.6 (±11)	8.5 (±9.2)	24(±14)
Gross Beta	pCi/L	**	NA	NA	NA	18 (±13)	8.2 (±13)	25(±12)
Field Parameters (Not Available pre-2010))								
Field pH	s.u	6.5 - 8.5	7.23	7.04	6.81	6.85	7.06	7.08
Field Conductivity	µS/cm	none	4,530,000	3,280	3,397	3,622	3,983	2,416
Temperature	Degrees Celsius	none	15.4	12.8	16	13.6	15.2	12.2
Supplementary Analytes (Not Historically analyzed) Historically analyzed								
Aluminum, Dissolved	mg/L	5	NA	NA	NA	<0.3 U	<0.5 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	<0.004 U	<0.002 U	< 0.0008 U
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	<0.0005 U	<0.0003 U	< 0.0002 U
Bicarbonate as CaCO3	mg/L	none	348	375	401	NA	392 H	354
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	<0.0005 U	<0.0003 U	< 0.0001 U
Calcium, Dissolved	mg/L	none	429	461	425	490	402	405
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	0.0047	0.00595	0.0046
Cyanide, Free	mg/L	0.2	NA	NA	NA	<0.01 U	<0.01 U	< 0.003 U
Magnesium, Dissolved	mg/L	none	128	119	109	121	113	116
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	<0.2 U	<0.2 U	0.0045
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	0.05 B	0.04 B	0.021
Potassium, Dissolved	mg/L	none	8.2	7.2	6.6	8.1	8.1	9.4
Silver, Dissolved	mg/L	0.05	NA	NA	NA	<0.05 U	<0.0005 U	< 0.0002 U
Sodium, Dissolved	mg/L	none	614	322	329	317	501	617
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	<0.05 U	<0.05 U	< 0.001 U

H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
"Interim Narrative Standard" , is the minimum of
Table 1- Table 4 of The Basic Standards for
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
provided in units of exposure, millirems per year

Table 6: Summary of Monitoring Results for MW-6

Date	Interim Narrative Standard	3/19/2013	5/28/2013	8/27/2013	11/14/2013	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016
Metals																	
Arsenic, Dissolved (mg/L)	0.01	0.002 B	< 0.01 U	< 0.01 U	< 0.01 U	0.004 B	0.007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Dissolved (mg/L)	2	0.97	3.22	3.56	4.12	5.95	3.32	3.46	4.37	7.37	7.47	8.74	8.12	8.34	8.26	8.42	8.25
Boron, Dissolved (mg/L)	0.75	0.6	0.7	0.6	0.6	0.58	0.7	0.6	0.7	0.6 B	0.6	0.65	0.6	0.57	0.5	0.5	0.55
Chromium, Dissolved (mg/L)	0.1	< 0.01 U	< 0.02 U	0.018 B	< 0.02 U	< 0.02 U	< 0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved (mg/L)	0.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved (mg/L)	0.3	1.0	1.3	0.6	0.6	0.6	2.1	1.9	1.3	2.5	4.1	3.9	5.2	5.3	5.5	5.4	5
Lead, Dissolved (mg/L)	0.05	< 0.003 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.33	0.29 B	0.2 B	0.19	0.19	0.21 B	0.2 B	0.25 B	0.3 B	0.31	0.39	0.42	0.45	0.37	0.35	0.31
Selenium, Dissolved (mg/L)	0.02	0.0048	0.007	0.0016	0.002 B	0.001 B	0.0033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved (mg/L)	0.002	< 0.003 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
Chloride (mg/L)	250	5,090	5,680	6,080 U	5,860	6,020	6,520	5,610	6,110	5,960	5,680	5,880	5,800	5,590	5,520	6,050	5620
Fluoride (mg/L)	2	1.3	1.4	1.4	1.3	1.3	1.25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8.1 H	8.2 H	8.2 H	8.2 H	8.2 H	7.9 H	8.0 H	8.1 H	7.7 H	7.8 H	7.8 H	7.7 H	7.78	7.4 H	7.6 H	7.7 H
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	9,110	10,200	9,340 H	10,100 H	10,900	8,800 H	9,350	10,400	10,600	10,300 ^	8,840 ^	10,200	9,780	10,800	10,400	10500
Sulfate (mg/L)	250	249.7	< 250 U	< 250 U	98.6 B	< 250 U	52.5 B	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Parameters (Not Available pre-2010))																	
Field pH (s.u)	6.5 - 8.5	7.91	7.67	7.58	7.46	7.85	7.47	7.46	7.75	7.43	7.55	7.2	7.51	7.78	7.32	6.6	7.24
Field Conductivity (µS/cm)	none	9,340	16,470	17,850	18,064	17,460	18,250	18,670	17,940	18,880	16,370	18,670	13,820	14,380	16,600	17,790	17,570
Temperature (Degrees Celsius)	none	12.8	17	18.4	13.72	11.3	16.1	17.1	7.9	14.5	17.1	19.8	12.7	15.3	17.8	18.3	18.9
Supplementary Analytes																	
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	463	507	513	529	558	580	608	632	NA	656	673	702	691	736	716	715
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	58	44	33	34	32.2	40	41	45	51	49	57.9	63	68	67	69	66.1
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	21	20	18	17	16	16	17	18	22	17	18	17	18	16	19	17.3
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	14 B	12 B	12 B	11	10	11	10	10	13 B	10	10	10	11	9 B	10	10.7
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	3,600	3,920	3,860	4,000	3,960	4,060	3,770	3,710	3,840	3,930	3,850	3,840	4,100	3,770	3,780	3,960
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results
Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard", is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling
Values in **bold** indicate a value greater than the BSGW
**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 6: Summary of Monitoring Results for MW-6

Date	Units	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals								
Arsenic, Dissolved	mg/L	0.01	NA	NA	NA	0.007 B	0.0074	0.007 B
Barium, Dissolved	mg/L	2	7.85	7.77	7.65	7.25	6.66	6.84
Boron, Dissolved	mg/L	0.75	0.7	0.8	0.6	0.6	0.6 B	0.67
Chromium, Dissolved	mg/L	0.1	NA	NA	NA	<0.02 U	<0.002 U	< 0.005 U
Copper, Dissolved	mg/L	0.2	NA	NA	NA	<0.02 U	<0.002 U	< 0.008 U
Iron, Dissolved	mg/L	0.3	1.7	3.4	3.0	2.9	2.2	2.87
Lead, Dissolved	mg/L	0.05	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	1.74	1.87	2.21
Manganese, Dissolved	mg/L	0.05	0.14 B	0.07 B	0.06 B	0.09	0.0733 U	0.079
Selenium, Dissolved	mg/L	0.02	NA	NA	NA	<0.003 U	0.0009	< 0.001 U
Thallium, Dissolved	mg/L	0.002	NA	NA	NA	<0.005 U	<0.0005 U	< 0.0001 U
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	0.004	0.0023	0.004 B
Zinc, Dissolved	mg/L	2	NA	NA	NA	<0.5 U	<0.5 U	< 0.05 U
Other								
Chloride	mg/L	250	6,130	5,900	5,880	6,490	6,610 H	6,390
Fluoride	mg/L	2	NA	NA	NA	1.09	1.2	1.2
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	< 0.02 U
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	< 0.01 U
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	< 0.02 U
Lab pH	s.u	6.5 - 8.5	8.1 H	7.7 H	7.8 H	8 H	7.9 H	8.1 H
Total Dissolved Solids, filterable residue	mg/L	1.25 x Background*	10,500	10,400	10,500	10,700	10,600	10,300
Sulfate	mg/L	250	< 250 U	< 200 U	51 B	<200 U	<200 U	< 40 U
Gross Alpha	pCi/L	15	NA	NA	NA	47 (±36)	-33 (±24)	0.0(±52)
Gross Beta	pCi/L	**	NA	NA	NA	43 (±35)	56 (±47)	0.78(±63)
Field Parameters (Not Available pre-2010))								
Field pH	s.u	6.5 - 8.5	7.79	7.86	7.76	7.34	7.76	7.72
Field Conductivity	µS/cm	none	17,850	17,470	18,950	17,560	18,000	11,290
Temperature	Degrees Celsius	none	16.6	11.3	17.7	11.1	17.9	10
Supplementary Analytes (Not Historically analyzed) Not Historically analyzed								
Aluminum, Dissolved	mg/L	5	NA	NA	NA	<2 U	<3 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	<0.02 U	0.0014 B	< 0.004 U
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	<0.003 U	<0.0003 U	< 0.0008 U
Bicarbonate as CaCO3	mg/L	none	658	639	652	NA	685 H	702
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	<0.003 U	0.00006 B	< 0.0005 U
Calcium, Dissolved	mg/L	none	51	44	41	47	40	45.4
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	<0.003 U	0.00024 B	< 0.0005 U
Cyanide, Free	mg/L	0.2	NA	NA	NA	0.009 B	0.012	< 0.003 U
Magnesium, Dissolved	mg/L	none	16	16	16	16	14	15.8
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	0.025 B	0.0208 U	0.021
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	0.007 B	0.0063 U	0.01
Potassium, Dissolved	mg/L	none	9 B	9 B	8 B	10	9 B	11.6
Silver, Dissolved	mg/L	0.05	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Sodium, Dissolved	mg/L	none	3,920	4,060	3,870	3,960	3,910	3,960
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	<0.02 U	0.0005 U	< 0.005 U

H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.

NA = Analyte not analyzed

^ = Second and third quarter 2015 reports presented calculated total dissolved solids results

"Interim Narrative Standard" , is the minimum of Table

*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling

Values in **bold** indicate a value greater than the BSGW

in units of exposure, millirems per year (mrems/yr),

Table 7: Summary of Monitoring Results for MW-7

Date	Interim Narrative Standard	3/19/2013	5/29/2013	8/27/2013	11/14/2013	2/18/2014	5/21/2014	8/27/2014	11/11/2014	2/18/2015	5/27/2015	8/27/2015	11/9/2015	2/15/2016	5/31/2016	8/16/2016	11/9/2016
Metals																	
Arsenic, Dissolved (mg/L)	0.01	0.010	0.010 B	0.011	0.008 B	0.015	0.009 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Dissolved (mg/L)	2	0.16 B	0.14 B	0.33	2.08	1.78	3.52	2.35	3.7	5.43	4.74	2.66	2.65	4.66	3.79	1.24	4.19
Boron, Dissolved (mg/L)	0.75	0.6	0.9	0.79	0.75	0.75	0.7	0.8	0.8	0.7 B	0.6	0.73	0.7	0.8	0.6	0.5	0.63
Chromium, Dissolved (mg/L)	0.1	< 0.01 U	< 0.02 U	0.009 B	< 0.02 U	< 0.02 U	< 0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved (mg/L)	0.2	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved (mg/L)	0.3	1.6	3.4	1.5	2.9	2.9	2.8	4.4	3.8	4.6	5.8	4.7	4.6	6.3	5.9	2.3	3.26
Lead, Dissolved (mg/L)	0.05	< 0.003 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved (mg/L)	0.05	0.27	0.66	0.51	0.61	0.53	0.41	0.66	0.45	0.3 B	0.38	0.37	0.36	0.3	0.3	0.26 B	0.205
Selenium, Dissolved (mg/L)	0.02	0.0025	0.006	< 0.003 U	0.002 B	0.001 B	0.001 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Dissolved (mg/L)	0.002	< 0.003 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved (mg/L)	2	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
Chloride (mg/L)	250	3,701	5,280	6,040	6,430	6,030	6,510	5,330	5,850	6,140	6,330	5,860	5,680	6,230	5,850	5,550	5,990
Fluoride (mg/L)	2	1.3	1.0	1.1	1.1	1	1.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lab pH (s.u)	6.5 - 8.5	8.1 H	8.0 H	7.9 H	7.9 H	8.0 H	7.6 H	7.9 H	7.9 H	7.8 H	7.8 H	7.9 H	7.8 H	7.75	7.6 H	7.6 H	8 H
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	8,640	11,500	10,200 H	10,700 H	10,300	10,600 H	10,100	10,600	10,500	10,200 ^	8,800 ^	10,400	10,800	10,900	10,100	10,700
Sulfate (mg/L)	250	1,589	1,240	510	130 B	104 B	60.9 B	80.2 B	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	179 B	101 B
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Parameters (Not Available pre-2010)																	
Field pH (s.u)	6.5 - 8.5	7.85	7.08	6.86	7.55	7.27	6.95	7.37	6.94	7.05	6.27	7.08	7.42	7.75	7.22	6.91	7.3
Field Conductivity (µS/cm)	none	13	19,280	19,810	19,358	18,640	18,880	18,970	18,440	8,770	16,170	18,020	14,000	13,820	16,530	17,520	18,050
Temperature (Degrees Celsius)	none	13.4	12.2	20.5	13	11.3	16.2	15.1	8	13.5	17.2	18.3	12.1	13.3	17.6	18.1	16.1
Supplementary Analytes																	
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	458	596	696	715	838	822	785	837	NA	765	853	828	821	828	844	836
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	NA	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Dissolved (mg/L)	none	105	142	103	72	67.8	58	56	51	50	47	52	53	54	50	54	47.1
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	40	43	30	25	22	21	21	20	23	19	19	18	20	18	19	18
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved (mg/L)	none	11 B	13 B	12	11	10	10	11	9 B	13 B	9 B	9	10	11	10	10	8.8
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Dissolved (mg/L)	none	3,200	4,150	4,720	4,280	4,020	4,350	3,910	3,740	3,970	4,010	3,930	3,880	4,240	3,930	3,820	4,330
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit
U = Analyte not detected, reported less than the practical quantitation limit
H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.
NA = Analyte not analyzed
^ = Second and third quarter 2015 reports presented calculated total dissolved solids results

Per Section 41.5 (C) (6) the of Regulation 41, the "Interim Narrative Standard" , is the minimum of Table 1- Table 4 of The Basic Standards for Groundwater (BSGW)

*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling

Values in **bold** indicate a value greater than the BSGW

**The regulatory standard for Gross Beta is provided in units of exposure, millirems per year (mrems/yr), which would require the measurement of specific nuclides (Tritium and Strontium) with known energy levels. Specific nuclides were not part of the approved constituent list.

Table 7: Summary of Monitoring Results for MW-7

Date	Units	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018	6/12/2019	12/12/2019
Metals								
Arsenic, Dissolved	mg/L	0.01	NA	NA	NA	0.002 B	0.0031	0.002 B
Barium, Dissolved	mg/L	2	3.96	3.8	5.5	3.42	4.42	2.86
Boron, Dissolved	mg/L	0.75	0.7	0.8	0.7	0.7	0.7 B	0.64
Chromium, Dissolved	mg/L	0.1	NA	NA	NA	<0.02 U	<0.002 U	< 0.005 U
Copper, Dissolved	mg/L	0.2	NA	NA	NA	<0.02 U	<0.002 U	< 0.008 U
Iron, Dissolved	mg/L	0.3	5.5	6.1	3.2	3.9	2	2.81
Lead, Dissolved	mg/L	0.05	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Lithium, Dissolved	mg/L	2.5	NA	NA	NA	1.84	2.02	2.30
Manganese, Dissolved	mg/L	0.05	0.19 B	0.18 B	0.14 B	0.11 B	0.2 B	0.122
Selenium, Dissolved	mg/L	0.02	NA	NA	NA	<0.003 U	0.001	< 0.001 U
Thallium, Dissolved	mg/L	0.002	NA	NA	NA	<0.005 U	<0.0005 U	< 0.0001 U
Uranium, Dissolved	mg/L	0.03	NA	NA	NA	0.005	0.004	0.005
Zinc, Dissolved	mg/L	2	NA	NA	NA	<0.5 U	0.1 B	0.19 B
Other								
Chloride	mg/L	250	6,480	6,240	6,440	7,310	7,480 H	6,780
Fluoride	mg/L	2	NA	NA	NA	0.88	1	0.9
Nitrate as N	mg/L	10	NA	NA	NA	NA	NA	0.57
Nitrite as N	mg/L	1	NA	NA	NA	NA	NA	< 0.01 U
Nitrate+Nitrite as N	mg/L	10	NA	NA	NA	NA	NA	0.57
Lab pH	s.u	6.5 - 8.5	8 H	7.8 H	7.7 H	7.9 H	7.9 H	7.9 H
Total Dissolved Solids, filterable residue	mg/L	1.25 x Background*	11,100	11,300	11,500 H	11,300	11,300	11,200
Sulfate	mg/L	250	59 B	58 B	75 B	83.9 B	63.8 B	54.1 B
Gross Alpha	pCi/L	15	NA	NA	NA	5.8 (±29)	23 (±41)	-50(±26)
Gross Beta	pCi/L	**	NA	NA	NA	34 (±42)	42 (±252)	35(±59)
Field Parameters (Not Available pre-2010))								
Field pH	s.u	6.5 - 8.5	7.65	7.17	7.37	7.19	7.61	7.58
Field Conductivity	µS/cm	none	19,350	18,550	20,050	19,200	19,110	11,900
Temperature	Degrees Celsius	none	22.5	12.3	16.4	12.9	16.3	8.3
Supplementary Analytes (Not Historically analyzed) Not Historically analyzed								
Aluminum, Dissolved	mg/L	5	NA	NA	NA	<2 U	<3 U	< 0.05 U
Antimony, Dissolved	mg/L	0.006	NA	NA	NA	<0.02 U	0.0015 B	< 0.004 U
Beryllium, Dissolved	mg/L	0.004	NA	NA	NA	<0.003 U	<0.0003 U	< 0.0008 U
Bicarbonate as CaCO3	mg/L	none	745	700	714	NA	681 H	701
Carbonate as CaCO3	mg/L	none	< 20 U	< 20 U	< 20 U	NA	<20 UH	< 2 U
Cadmium, Dissolved	mg/L	0.005	NA	NA	NA	<0.003 U	0.00007 B	< 0.0005 U
Calcium, Dissolved	mg/L	none	52	55	52	54	53	54.4
Cobalt, Dissolved	mg/L	0.05	NA	NA	NA	<0.003 U	0.00025 B	< 0.0005 U
Cyanide, Free	mg/L	0.2	NA	NA	NA	0.005 B	0.012	0.003 B
Magnesium, Dissolved	mg/L	none	19	20	20	19	18	18.5
Mercury, Dissolved	mg/L	0.002	NA	NA	NA	<0.001 U	<0.001 U	< 0.0002 U
Molybdenum, Dissolved	mg/L	0.21	NA	NA	NA	0.022 B	0.0182 U	0.017
Nickel, Dissolved	mg/L	0.1	NA	NA	NA	<0.03 U	<0.001 U	< 0.004 U
Potassium, Dissolved	mg/L	none	11	9 B	9 B	11	11	12.7
Silver, Dissolved	mg/L	0.05	NA	NA	NA	<0.005 U	<0.0005 U	< 0.001 U
Sodium, Dissolved	mg/L	none	4,240	4,320	4,170	4,250	4,220	4,250
Vanadium, Dissolved	mg/L	0.1	NA	NA	NA	<0.02 U	0.0008 U	< 0.005 U

H = Analysis exceeded method hold time. pH is a field test with an immediate hold time.

NA = Analyte not analyzed

^ = Second and third quarter 2015 reports presented calculated total dissolved solids results

"Interim Narrative Standard" , is the minimum of Table

*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling

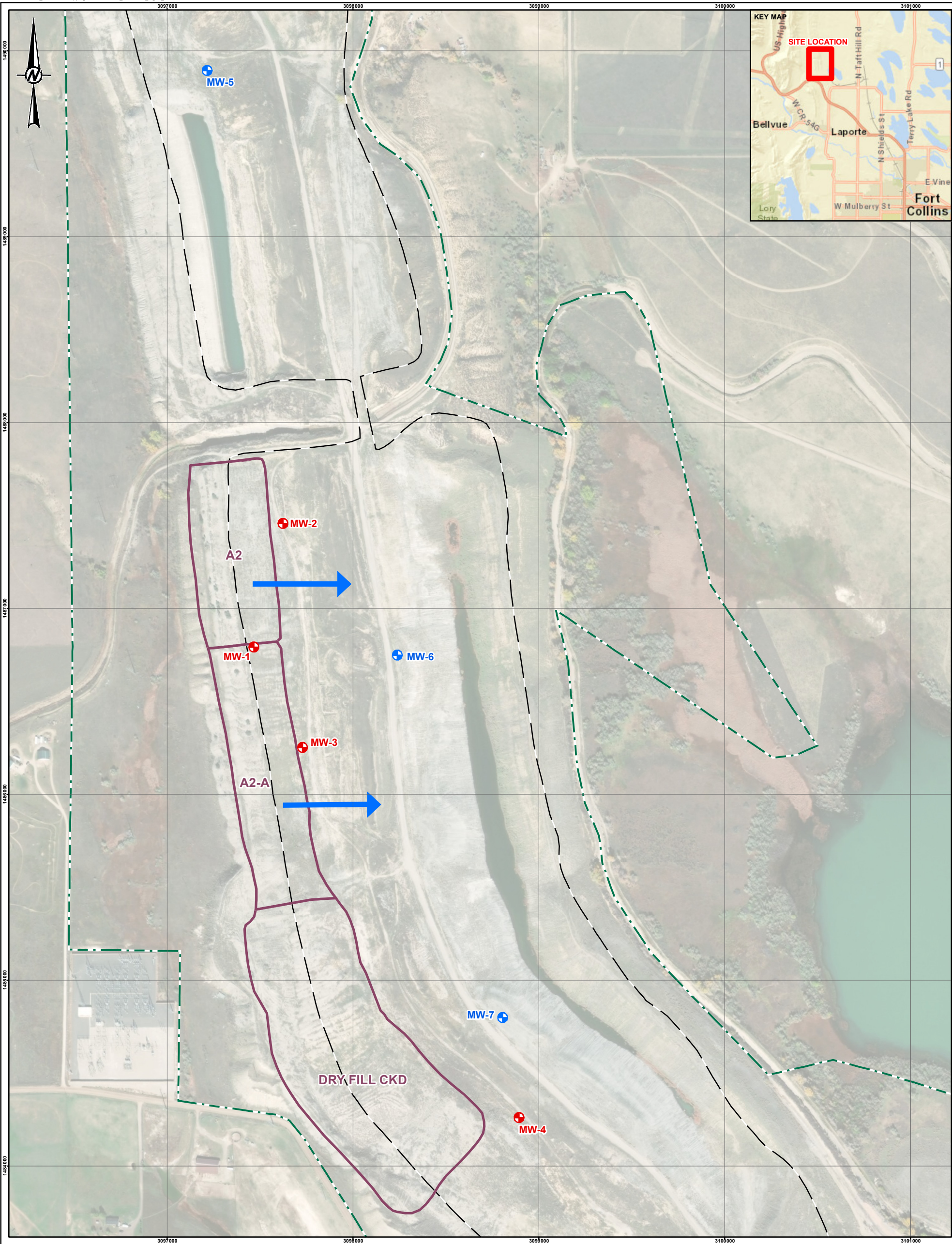
Values in **bold** indicate a value greater than the BSGW

units of exposure, millirems per year (mrem/yr), which

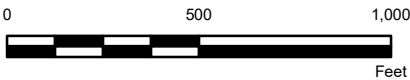
Figures

Figure 1: Location Map

Figure 2: Groundwater Elevations vs. Time



- LEGEND**
- **MW-1** PRE-2012 MONITORING WELL
 - **MW-6** MONITORING WELL INSTALLED 2012
 - APPROXIMATE CKD DISPOSAL AREA BOUNDARY
 - - - AMENDED PERMIT BOUNDARY
 - - - PROPERTY BOUNDARY
 - ➡ APPROXIMATE GROUNDWATER FLOW DIRECTION



NOTES

1. PROPERTY AND PERMIT BOUNDARIES PROVIDED BY HOLCIM (US) INC.
2. COORDINATE SYSTEM: NAD83 STATE PLANE COLORADO NORTH (US FT).
3. AERIAL IMAGERY: ESRI BASEMAPS, DIGITAL GLOBE. IMAGERY CAPTURED OCTOBER 2017.

CLIENT
HOLCIM (US) INC.

PROJECT
BOETTCHER LIMESTONE QUARRY
LARIMER COUNTY, COLORADO

TITLE
SITE LOCATION PLAN

CONSULTANT



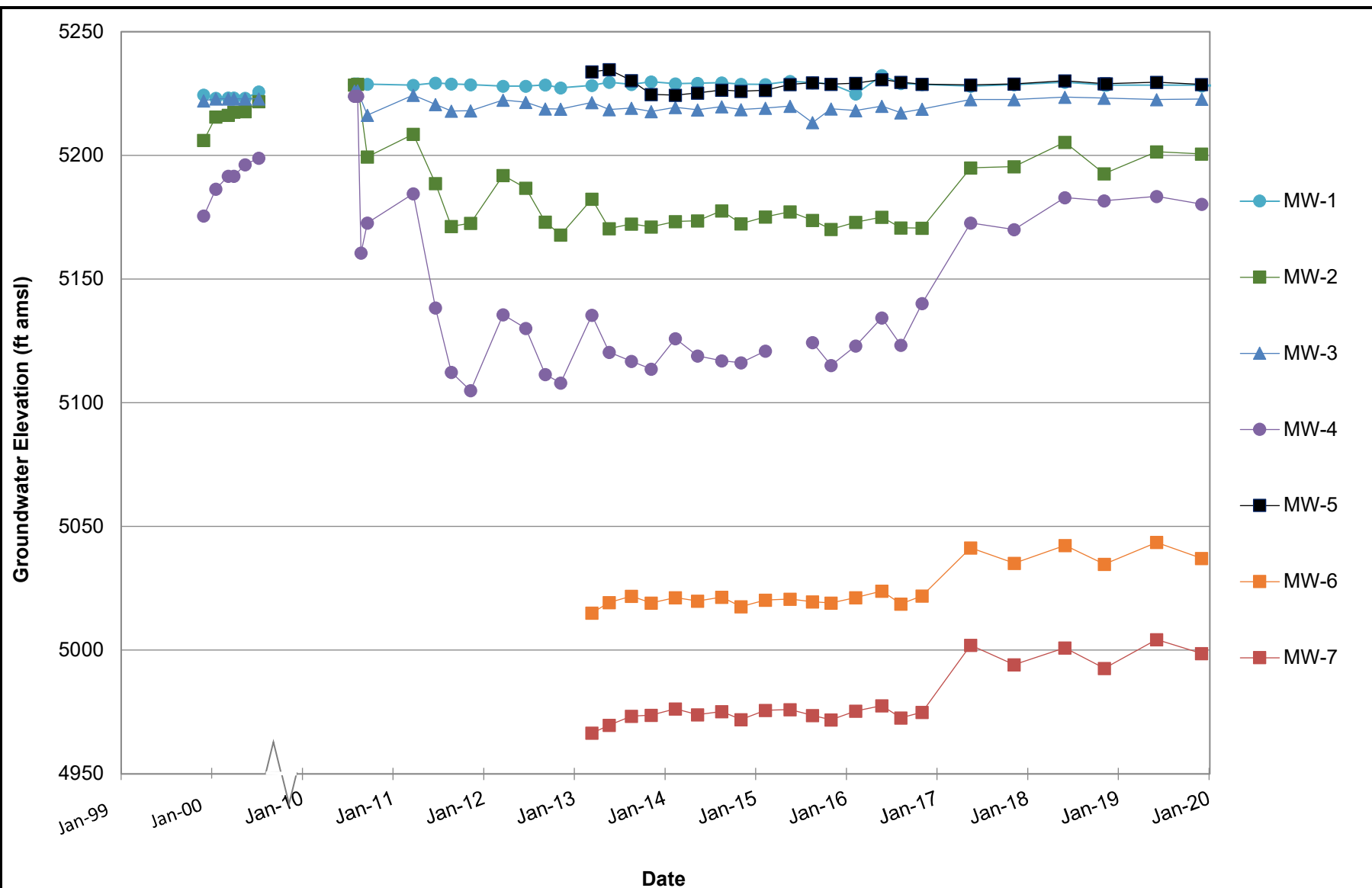
GOLDER

YYYY-MM-DD	2019-02-08
DESIGNED	SAH
PREPARED	KJC
REVIEWED	SAH
APPROVED	RSM

PROJECT NO.
18107649

FIGURE

1



Notes:

Unable to collect water level measurement at MW-4 on 5/20/2015

ft amsl: feet above mean sea level

Figure 2
Groundwater Elevations vs. Time
Holcim Boettcher Quarry

ATTACHMENT 1

ACZ Laboratory Report

March 06, 2020

Report to:

Sara Harkins
Golder Associates
44 Union Blvd., Suite 300
Lakewood, CO 80228

Bill to:

Accounts Payable
Golder Associates
44 Union Blvd., Suite 300
Lakewood, CO 80228

cc: Tricia Hall

Project ID: 19121576

ACZ Project ID: L56433

Sara Harkins:

Enclosed are revised analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 13, 2019 and originally reported on December 31, 2019. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L56433. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L56433. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 30, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.



Scott Habermehl has reviewed
and approved this report.



Golder Associates

March 06, 2020

Project ID: 19121576

ACZ Project ID: L56433

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 9 groundwater samples from Golder Associates on December 13, 2019. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L56433. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic, radiochemistry parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. This project has been revised to report a re-analysis of dissolved Lithium on L56433-06 and -07.

Golder Associates

Project ID: 19121576

Sample ID: MW-1

ACZ Sample ID: **L56433-01**

Date Sampled: 12/12/19 13:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5		U	*	mg/L	0.3	1	12/18/19 22:43	jlw
Antimony, dissolved	M200.8 ICP-MS	5	0.004	B	*	mg/L	0.002	0.01	12/31/19 13:38	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.002	B	*	mg/L	0.001	0.005	12/27/19 9:43	mfm
Barium, dissolved	M200.7 ICP	5		U	*	mg/L	0.04	0.2	12/18/19 22:43	jlw
Beryllium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0004	0.001	12/27/19 9:43	mfm
Boron, dissolved	M200.7 ICP	5	0.6		*	mg/L	0.1	0.5	12/18/19 22:43	jlw
Cadmium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	12/27/19 9:43	mfm
Calcium, dissolved	M200.7 ICP	5	131		*	mg/L	0.5	3	12/18/19 22:43	jlw
Chromium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.01	12/27/19 9:43	mfm
Cobalt, dissolved	M200.8 ICP-MS	5	0.0019		*	mg/L	0.0003	0.001	12/27/19 9:43	mfm
Copper, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.004	0.01	12/27/19 9:43	mfm
Iron, dissolved	M200.7 ICP	5		U	*	mg/L	0.2	0.4	12/18/19 22:43	jlw
Lead, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	12/27/19 9:43	mfm
Lithium, dissolved	M200.7 ICP	5	1.05		*	mg/L	0.04	0.2	12/18/19 22:43	jlw
Magnesium, dissolved	M200.7 ICP	5	135		*	mg/L	1	5	12/18/19 22:43	jlw
Manganese, dissolved	M200.8 ICP-MS	5	0.030		*	mg/L	0.002	0.01	12/27/19 9:43	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:30	slm
Molybdenum, dissolved	M200.8 ICP-MS	5	0.090		*	mg/L	0.001	0.003	12/27/19 9:43	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.007		*	mg/L	0.002	0.005	12/27/19 9:43	mfm
Potassium, dissolved	M200.7 ICP	5	10		*	mg/L	1	5	12/18/19 22:43	jlw
Selenium, dissolved	M200.8 ICP-MS	5	0.0474		*	mg/L	0.0005	0.001	12/27/19 9:43	mfm
Silver, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	12/27/19 9:43	mfm
Sodium, dissolved	M200.7 ICP	5	1710		*	mg/L	1	5	12/18/19 22:43	jlw
Thallium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	12/17/19 14:13	bsu
Uranium, dissolved	M200.8 ICP-MS	5	0.0407		*	mg/L	0.0005	0.003	12/27/19 9:43	mfm
Vanadium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.01	12/27/19 9:43	mfm
Zinc, dissolved	M200.7 ICP	5		U	*	mg/L	0.05	0.3	12/18/19 22:43	jlw

Golder Associates

Project ID: 19121576

Sample ID: MW-1

ACZ Sample ID: **L56433-01**

Date Sampled: 12/12/19 13:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	402			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	402			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	50	36.2	B	*	mg/L	20	100	12/18/19 18:09	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:44	rbt
Fluoride	SM4500F-C	1	0.7			mg/L	0.1	0.4	12/18/19 23:07	enb
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		5.93			mg/L	0.06	0.3	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	3	5.97		*	mg/L	0.06	0.3	12/13/19 23:17	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.04	B	*	mg/L	0.01	0.05	12/13/19 22:58	pjb
pH (lab)	SM4500H+ B									
pH		1	8.2	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	22.1			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	10	6280			mg/L	200	400	12/19/19 14:37	jck
Sulfate	M300.0 - Ion Chromatography	50	4230			mg/L	20	100	12/18/19 18:09	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-2

ACZ Sample ID: **L56433-02**

Date Sampled: 12/12/19 11:40

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/19/19 19:33	jlw
Antimony, dissolved	M200.8 ICP-MS	5	0.003	B	*	mg/L	0.002	0.01	12/31/19 13:40	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.004	B	*	mg/L	0.001	0.005	12/27/19 9:49	mfm
Barium, dissolved	M200.7 ICP	1	3.85		*	mg/L	0.007	0.04	12/19/19 19:33	jlw
Beryllium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0004	0.001	12/27/19 9:49	mfm
Boron, dissolved	M200.7 ICP	1	0.76		*	mg/L	0.02	0.1	12/19/19 19:33	jlw
Cadmium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	12/27/19 9:49	mfm
Calcium, dissolved	M200.7 ICP	1	18.1		*	mg/L	0.1	0.5	12/19/19 19:33	jlw
Chromium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.01	12/27/19 9:49	mfm
Cobalt, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	12/27/19 9:49	mfm
Copper, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.004	0.01	12/27/19 9:49	mfm
Iron, dissolved	M200.7 ICP	1	0.38		*	mg/L	0.03	0.08	12/19/19 19:33	jlw
Lead, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	12/27/19 9:49	mfm
Lithium, dissolved	M200.7 ICP	1	1.83		*	mg/L	0.008	0.04	12/19/19 19:33	jlw
Magnesium, dissolved	M200.7 ICP	1	6.6		*	mg/L	0.2	1	12/19/19 19:33	jlw
Manganese, dissolved	M200.8 ICP-MS	5	0.054		*	mg/L	0.002	0.01	12/27/19 9:49	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:31	slm
Molybdenum, dissolved	M200.8 ICP-MS	5	0.001	B	*	mg/L	0.001	0.003	12/27/19 9:49	mfm
Nickel, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.002	0.005	12/27/19 9:49	mfm
Potassium, dissolved	M200.7 ICP	1	6.8		*	mg/L	0.2	1	12/19/19 19:33	jlw
Selenium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.001	12/27/19 9:49	mfm
Silver, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	12/27/19 9:49	mfm
Sodium, dissolved	M200.7 ICP	5	2420			mg/L	1	5	12/20/19 14:57	kja
Thallium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00005	0.0003	12/17/19 14:18	bsu
Uranium, dissolved	M200.8 ICP-MS	5	0.0026	B	*	mg/L	0.0005	0.003	12/27/19 9:49	mfm
Vanadium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.01	12/27/19 9:49	mfm
Zinc, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	12/20/19 14:57	kja

Golder Associates

Project ID: 19121576

Sample ID: MW-2

ACZ Sample ID: **L56433-02**

Date Sampled: 12/12/19 11:40

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1080			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	1080			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	100	3130		*	mg/L	40	200	12/17/19 21:16	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:50	rbt
Fluoride	SM4500F-C	1	1.4			mg/L	0.1	0.4	12/18/19 23:15	enb
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		0.67			mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.67		*	mg/L	0.02	0.1	12/13/19 22:59	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 22:59	pjb
pH (lab)	SM4500H+ B									
pH		1	8.1	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	20.8			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	2	6210		*	mg/L	40	80	12/17/19 17:03	nmc
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	12/17/19 21:16	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-3

ACZ Sample ID: **L56433-03**

Date Sampled: 12/12/19 14:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/18/19 22:56	jlw
Antimony, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0008	0.004	12/31/19 13:42	mfm
Arsenic, dissolved	M200.8 ICP-MS	2	0.0004	B	*	mg/L	0.0004	0.002	12/27/19 9:50	mfm
Barium, dissolved	M200.7 ICP	1	2.77		*	mg/L	0.007	0.04	12/18/19 22:56	jlw
Beryllium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.0005	12/27/19 9:50	mfm
Boron, dissolved	M200.7 ICP	1	0.77		*	mg/L	0.02	0.1	12/18/19 22:56	jlw
Cadmium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/27/19 9:50	mfm
Calcium, dissolved	M200.7 ICP	1	6.9		*	mg/L	0.1	0.5	12/18/19 22:56	jlw
Chromium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.001	0.004	12/27/19 9:50	mfm
Cobalt, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/27/19 9:50	mfm
Copper, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.002	0.004	12/27/19 9:50	mfm
Iron, dissolved	M200.7 ICP	1	0.07	B	*	mg/L	0.03	0.08	12/18/19 22:56	jlw
Lead, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.001	12/27/19 9:50	mfm
Lithium, dissolved	M200.7 ICP	1	0.708		*	mg/L	0.008	0.04	12/18/19 22:56	jlw
Magnesium, dissolved	M200.7 ICP	1	2.6		*	mg/L	0.2	1	12/18/19 22:56	jlw
Manganese, dissolved	M200.8 ICP-MS	2	0.0195		*	mg/L	0.0008	0.004	12/27/19 9:50	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:32	slm
Molybdenum, dissolved	M200.8 ICP-MS	2	0.0004	B	*	mg/L	0.0004	0.001	12/27/19 9:50	mfm
Nickel, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0008	0.002	12/27/19 9:50	mfm
Potassium, dissolved	M200.7 ICP	1	3.7		*	mg/L	0.2	1	12/18/19 22:56	jlw
Selenium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.0005	12/27/19 9:50	mfm
Silver, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.001	12/27/19 9:50	mfm
Sodium, dissolved	M200.7 ICP	2	1540		*	mg/L	0.4	2	12/19/19 19:36	jlw
Thallium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00005	0.0003	12/17/19 14:19	bsu
Uranium, dissolved	M200.8 ICP-MS	2	0.0005	B	*	mg/L	0.0002	0.001	12/27/19 9:50	mfm
Vanadium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.001	0.004	12/27/19 9:50	mfm
Zinc, dissolved	M200.7 ICP	1		U	*	mg/L	0.01	0.05	12/18/19 22:56	jlw

Golder Associates

Project ID: 19121576

Sample ID: MW-3

ACZ Sample ID: **L56433-03**

Date Sampled: 12/12/19 14:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1190			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1	55.1			mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	1240			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	20	1620		*	mg/L	8	40	12/17/19 21:51	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:52	rht
Fluoride	SM4500F-C	1	2.5			mg/L	0.1	0.4	12/18/19 23:19	enb
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		1.20			mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	1.20		*	mg/L	0.02	0.1	12/13/19 23:00	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:00	pjb
pH (lab)	SM4500H+ B									
pH		1	8.4	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	20.8			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	1	3940		*	mg/L	20	40	12/17/19 17:07	nmc
Sulfate	M300.0 - Ion Chromatography	20		U	*	mg/L	8	40	12/17/19 21:51	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-4

ACZ Sample ID: **L56433-04**

Date Sampled: 12/12/19 08:30

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/18/19 23:00	jlw
Antimony, dissolved	M200.8 ICP-MS	10	0.005	B	*	mg/L	0.004	0.02	12/31/19 13:47	mfm
Arsenic, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.002	0.01	12/27/19 9:52	mfm
Barium, dissolved	M200.7 ICP	1	8.94		*	mg/L	0.007	0.04	12/18/19 23:00	jlw
Beryllium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0008	0.003	12/27/19 9:52	mfm
Boron, dissolved	M200.7 ICP	1	0.63		*	mg/L	0.02	0.1	12/18/19 23:00	jlw
Cadmium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 9:52	mfm
Calcium, dissolved	M200.7 ICP	1	37.0		*	mg/L	0.1	0.5	12/18/19 23:00	jlw
Chromium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:52	mfm
Cobalt, dissolved	M200.8 ICP-MS	10	0.0012	B	*	mg/L	0.0005	0.003	12/27/19 9:52	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	12/27/19 9:52	mfm
Iron, dissolved	M200.7 ICP	1	0.12		*	mg/L	0.03	0.08	12/18/19 23:00	jlw
Lead, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:52	mfm
Lithium, dissolved	M200.7 ICP	1	1.81		*	mg/L	0.008	0.04	12/18/19 23:00	jlw
Magnesium, dissolved	M200.7 ICP	1	16.6		*	mg/L	0.2	1	12/18/19 23:00	jlw
Manganese, dissolved	M200.8 ICP-MS	10	0.007	B	*	mg/L	0.004	0.02	12/27/19 9:52	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:32	slm
Molybdenum, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.002	0.005	12/27/19 9:52	mfm
Nickel, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.01	12/27/19 9:52	mfm
Potassium, dissolved	M200.7 ICP	1	11.7		*	mg/L	0.2	1	12/18/19 23:00	jlw
Selenium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.003	12/27/19 9:52	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:52	mfm
Sodium, dissolved	M200.7 ICP	5	4180		*	mg/L	1	5	12/19/19 19:39	jlw
Thallium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/18/19 17:29	bsu
Uranium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:52	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:52	mfm
Zinc, dissolved	M200.7 ICP	1		U	*	mg/L	0.01	0.05	12/18/19 23:00	jlw

Golder Associates

Project ID: 19121576

Sample ID: MW-4

ACZ Sample ID: **L56433-04**

Date Sampled: 12/12/19 08:30

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	606			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	606			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	100	7100		*	mg/L	40	200	12/18/19 18:45	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:54	rbt
Fluoride	SM4500F-C	1	1.1			mg/L	0.1	0.4	12/18/19 23:23	enb
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂			U		mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	12/13/19 23:01	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.01	B	*	mg/L	0.01	0.05	12/13/19 23:01	pjb
pH (lab)	SM4500H+ B									
pH		1	8.2	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	20.8			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	10	10600			mg/L	200	400	12/19/19 14:40	jck
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	12/18/19 18:45	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-5

ACZ Sample ID: **L56433-05**

Date Sampled: 12/12/19 11:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/18/19 23:03	jlw
Antimony, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0008	0.004	12/31/19 13:49	mfm
Arsenic, dissolved	M200.8 ICP-MS	2	0.0011	B	*	mg/L	0.0004	0.002	12/27/19 9:54	mfm
Barium, dissolved	M200.7 ICP	1	0.010	B	*	mg/L	0.007	0.04	12/18/19 23:03	jlw
Beryllium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.0005	12/27/19 9:54	mfm
Boron, dissolved	M200.7 ICP	1	0.35		*	mg/L	0.02	0.1	12/18/19 23:03	jlw
Cadmium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/27/19 9:54	mfm
Calcium, dissolved	M200.7 ICP	1	405		*	mg/L	0.1	0.5	12/18/19 23:03	jlw
Chromium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.001	0.004	12/27/19 9:54	mfm
Cobalt, dissolved	M200.8 ICP-MS	2	0.0046		*	mg/L	0.0001	0.0005	12/27/19 9:54	mfm
Copper, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.002	0.004	12/27/19 9:54	mfm
Iron, dissolved	M200.7 ICP	1	9.22		*	mg/L	0.03	0.08	12/18/19 23:03	jlw
Lead, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.001	12/27/19 9:54	mfm
Lithium, dissolved	M200.7 ICP	1	0.417		*	mg/L	0.008	0.04	12/18/19 23:03	jlw
Magnesium, dissolved	M200.7 ICP	1	116		*	mg/L	0.2	1	12/18/19 23:03	jlw
Manganese, dissolved	M200.8 ICP-MS	2	0.0772		*	mg/L	0.0008	0.004	12/27/19 9:54	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:35	slm
Molybdenum, dissolved	M200.8 ICP-MS	2	0.0045		*	mg/L	0.0004	0.001	12/27/19 9:54	mfm
Nickel, dissolved	M200.8 ICP-MS	2	0.021		*	mg/L	0.0008	0.002	12/27/19 9:54	mfm
Potassium, dissolved	M200.7 ICP	1	9.4		*	mg/L	0.2	1	12/18/19 23:03	jlw
Selenium, dissolved	M200.8 ICP-MS	2	0.0002	B	*	mg/L	0.0002	0.0005	12/27/19 9:54	mfm
Silver, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0002	0.001	12/27/19 9:54	mfm
Sodium, dissolved	M200.7 ICP	1	617		*	mg/L	0.2	1	12/18/19 23:03	jlw
Thallium, dissolved	M200.8 ICP-MS	1	0.00007	B	*	mg/L	0.00005	0.0003	12/17/19 14:22	bsu
Uranium, dissolved	M200.8 ICP-MS	2	0.0241		*	mg/L	0.0002	0.001	12/27/19 9:54	mfm
Vanadium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.001	0.004	12/27/19 9:54	mfm
Zinc, dissolved	M200.7 ICP	1		U	*	mg/L	0.01	0.05	12/18/19 23:03	jlw

Golder Associates

Project ID: 19121576

Sample ID: MW-5

ACZ Sample ID: **L56433-05**

Date Sampled: 12/12/19 11:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	354			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	354			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	50	36.0	B	*	mg/L	20	100	12/17/19 23:03	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:56	rbt
Fluoride	SM4500F-C	1	0.7		*	mg/L	0.1	0.4	12/19/19 16:20	emk
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		0.57			mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.57		*	mg/L	0.02	0.1	12/13/19 23:03	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:03	pjb
pH (lab)	SM4500H+ B									
pH		1	7.7	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	20.9			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	2	3800		*	mg/L	40	80	12/17/19 17:16	nmc
Sulfate	M300.0 - Ion Chromatography	50	2480			mg/L	20	100	12/17/19 23:03	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-6

ACZ Sample ID: **L56433-06**

Date Sampled: 12/12/19 10:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/19/19 19:42	jlw
Antimony, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.02	12/31/19 13:51	mfm
Arsenic, dissolved	M200.8 ICP-MS	10	0.007	B	*	mg/L	0.002	0.01	12/27/19 9:56	mfm
Barium, dissolved	M200.7 ICP	1	6.84		*	mg/L	0.007	0.04	12/19/19 19:42	jlw
Beryllium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0008	0.003	12/27/19 9:56	mfm
Boron, dissolved	M200.7 ICP	1	0.67		*	mg/L	0.02	0.1	12/19/19 19:42	jlw
Cadmium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 9:56	mfm
Calcium, dissolved	M200.7 ICP	1	45.4		*	mg/L	0.1	0.5	12/19/19 19:42	jlw
Chromium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:56	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 9:56	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	12/27/19 9:56	mfm
Iron, dissolved	M200.7 ICP	1	2.87		*	mg/L	0.03	0.08	12/19/19 19:42	jlw
Lead, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:56	mfm
Lithium, dissolved	M200.7 ICP	5	2.21			mg/L	0.04	0.2	12/20/19 15:01	kja
Magnesium, dissolved	M200.7 ICP	1	15.8		*	mg/L	0.2	1	12/19/19 19:42	jlw
Manganese, dissolved	M200.8 ICP-MS	10	0.079		*	mg/L	0.004	0.02	12/27/19 9:56	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:36	slm
Molybdenum, dissolved	M200.8 ICP-MS	10	0.021		*	mg/L	0.002	0.005	12/27/19 9:56	mfm
Nickel, dissolved	M200.8 ICP-MS	10	0.010		*	mg/L	0.004	0.01	12/27/19 9:56	mfm
Potassium, dissolved	M200.7 ICP	1	11.6		*	mg/L	0.2	1	12/19/19 19:42	jlw
Selenium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.003	12/27/19 9:56	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:56	mfm
Sodium, dissolved	M200.7 ICP	5	3960			mg/L	1	5	12/20/19 15:01	kja
Thallium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/18/19 17:31	bsu
Uranium, dissolved	M200.8 ICP-MS	10	0.004	B	*	mg/L	0.001	0.005	12/27/19 9:56	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:56	mfm
Zinc, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	12/20/19 15:01	kja

Golder Associates

Project ID: 19121576

Sample ID: MW-6

ACZ Sample ID: **L56433-06**

Date Sampled: 12/12/19 10:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	702			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	702			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	100	6390		*	mg/L	40	200	12/17/19 23:21	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 10:58	rbt
Fluoride	SM4500F-C	1	1.2		*	mg/L	0.1	0.4	12/19/19 16:41	emk
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂			U		mg/L	0.02	0.1	03/06/20 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	12/13/19 23:05	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:05	pjb
pH (lab)	SM4500H+ B									
pH		1	8.1	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	21.2			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	10	10300			mg/L	200	400	12/19/19 14:43	jck
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	12/17/19 23:21	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-7

ACZ Sample ID: **L56433-07**

Date Sampled: 12/12/19 09:20

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/19/19 19:52	jlw
Antimony, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.02	12/31/19 13:52	mfm
Arsenic, dissolved	M200.8 ICP-MS	10	0.002	B	*	mg/L	0.002	0.01	12/27/19 9:58	mfm
Barium, dissolved	M200.7 ICP	1	2.86		*	mg/L	0.007	0.04	12/19/19 19:52	jlw
Beryllium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0008	0.003	12/27/19 9:58	mfm
Boron, dissolved	M200.7 ICP	1	0.64		*	mg/L	0.02	0.1	12/19/19 19:52	jlw
Cadmium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 9:58	mfm
Calcium, dissolved	M200.7 ICP	1	54.4		*	mg/L	0.1	0.5	12/19/19 19:52	jlw
Chromium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:58	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 9:58	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	12/27/19 9:58	mfm
Iron, dissolved	M200.7 ICP	1	2.81		*	mg/L	0.03	0.08	12/19/19 19:52	jlw
Lead, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:58	mfm
Lithium, dissolved	M200.7 ICP	5	2.32			mg/L	0.04	0.2	12/20/19 15:04	kja
Magnesium, dissolved	M200.7 ICP	1	18.5		*	mg/L	0.2	1	12/19/19 19:52	jlw
Manganese, dissolved	M200.8 ICP-MS	10	0.122		*	mg/L	0.004	0.02	12/27/19 9:58	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:39	slm
Molybdenum, dissolved	M200.8 ICP-MS	10	0.017		*	mg/L	0.002	0.005	12/27/19 9:58	mfm
Nickel, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.01	12/27/19 9:58	mfm
Potassium, dissolved	M200.7 ICP	1	12.7		*	mg/L	0.2	1	12/19/19 19:52	jlw
Selenium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.003	12/27/19 9:58	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 9:58	mfm
Sodium, dissolved	M200.7 ICP	5	4250			mg/L	1	5	12/20/19 15:04	kja
Thallium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/18/19 17:32	bsu
Uranium, dissolved	M200.8 ICP-MS	10	0.005		*	mg/L	0.001	0.005	12/27/19 9:58	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 9:58	mfm
Zinc, dissolved	M200.7 ICP	5	0.19	B		mg/L	0.05	0.3	12/20/19 15:04	kja

Golder Associates

Project ID: 19121576

Sample ID: MW-7

ACZ Sample ID: **L56433-07**

Date Sampled: 12/12/19 09:20

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	701			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	701			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	100	6780		*	mg/L	40	200	12/17/19 23:39	krh
Cyanide, Free	D6888-09/OIA-1677-09	1	0.003	B		mg/L	0.003	0.01	12/16/19 11:00	rht
Fluoride	SM4500F-C	1	0.9		*	mg/L	0.1	0.4	12/19/19 16:49	emk
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		0.57			mg/L	0.02	0.1	03/06/20 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.57		*	mg/L	0.02	0.1	12/13/19 23:08	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:08	pjb
pH (lab)	SM4500H+ B									
pH		1	7.9	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	21.7			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	10	11200			mg/L	200	400	12/19/19 14:45	jck
Sulfate	M300.0 - Ion Chromatography	100	54.1	B	*	mg/L	40	200	12/17/19 23:39	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-15

ACZ Sample ID: **L56433-08**

Date Sampled: 12/12/19 08:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/19/19 19:55	jlw
Antimony, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0004	0.002	12/31/19 13:58	mfm
Arsenic, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0002	0.001	12/27/19 9:59	mfm
Barium, dissolved	M200.7 ICP	1		U	*	mg/L	0.007	0.04	12/19/19 19:55	jlw
Beryllium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00008	0.0003	12/27/19 9:59	mfm
Boron, dissolved	M200.7 ICP	1		U	*	mg/L	0.02	0.1	12/19/19 19:55	jlw
Cadmium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00005	0.0003	12/27/19 9:59	mfm
Calcium, dissolved	M200.7 ICP	1		U	*	mg/L	0.1	0.5	12/19/19 19:55	jlw
Chromium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0005	0.002	12/27/19 9:59	mfm
Cobalt, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00005	0.0003	12/27/19 9:59	mfm
Copper, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0008	0.002	12/27/19 9:59	mfm
Iron, dissolved	M200.7 ICP	1		U	*	mg/L	0.03	0.08	12/19/19 19:55	jlw
Lead, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0001	0.0005	12/27/19 9:59	mfm
Lithium, dissolved	M200.7 ICP	1		U	*	mg/L	0.008	0.04	12/19/19 19:55	jlw
Magnesium, dissolved	M200.7 ICP	1		U	*	mg/L	0.2	1	12/19/19 19:55	jlw
Manganese, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0004	0.002	12/27/19 9:59	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:40	slm
Molybdenum, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0002	0.0005	12/27/19 9:59	mfm
Nickel, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0004	0.001	12/27/19 9:59	mfm
Potassium, dissolved	M200.7 ICP	1		U	*	mg/L	0.2	1	12/19/19 19:55	jlw
Selenium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0001	0.0003	12/27/19 9:59	mfm
Silver, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0001	0.0005	12/27/19 9:59	mfm
Sodium, dissolved	M200.7 ICP	1	0.4	B		mg/L	0.2	1	12/20/19 15:07	kja
Thallium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.00005	0.0003	12/17/19 14:30	bsu
Uranium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0001	0.0005	12/27/19 9:59	mfm
Vanadium, dissolved	M200.8 ICP-MS	1		U	*	mg/L	0.0005	0.002	12/27/19 9:59	mfm
Zinc, dissolved	M200.7 ICP	1		U		mg/L	0.01	0.05	12/20/19 15:07	kja

Golder Associates

Project ID: 19121576

Sample ID: MW-15

ACZ Sample ID: **L56433-08**

Date Sampled: 12/12/19 08:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1		U		mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	1		U	*	mg/L	0.4	2	12/18/19 19:39	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 11:08	rbt
Fluoride	SM4500F-C	1		U	*	mg/L	0.1	0.4	12/19/19 16:55	emk
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂			U		mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	12/13/19 23:13	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:13	pjb
pH (lab)	SM4500H+ B									
pH		1	6.8	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	21.5			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	1		U	*	mg/L	20	40	12/17/19 17:30	nmc
Sulfate	M300.0 - Ion Chromatography	1		U		mg/L	0.4	2	12/18/19 19:39	krh

Golder Associates

Project ID: 19121576

Sample ID: MW-20

ACZ Sample ID: **L56433-09**

Date Sampled: 12/12/19 10:15

Date Received: 12/13/19

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1		U	*	mg/L	0.05	0.3	12/19/19 19:58	jlw
Antimony, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.02	12/31/19 14:00	mfm
Arsenic, dissolved	M200.8 ICP-MS	10	0.006	B	*	mg/L	0.002	0.01	12/27/19 10:05	mfm
Barium, dissolved	M200.7 ICP	1	6.39		*	mg/L	0.007	0.04	12/19/19 19:58	jlw
Beryllium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0008	0.003	12/27/19 10:05	mfm
Boron, dissolved	M200.7 ICP	1	0.68		*	mg/L	0.02	0.1	12/19/19 19:58	jlw
Cadmium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 10:05	mfm
Calcium, dissolved	M200.7 ICP	1	47.3		*	mg/L	0.1	0.5	12/19/19 19:58	jlw
Chromium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 10:05	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	12/27/19 10:05	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	12/27/19 10:05	mfm
Iron, dissolved	M200.7 ICP	1	3.13		*	mg/L	0.03	0.08	12/19/19 19:58	jlw
Lead, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 10:05	mfm
Lithium, dissolved	M200.7 ICP	1	3.37		*	mg/L	0.008	0.04	12/19/19 19:58	jlw
Magnesium, dissolved	M200.7 ICP	1	15.8		*	mg/L	0.2	1	12/19/19 19:58	jlw
Manganese, dissolved	M200.8 ICP-MS	10	0.089		*	mg/L	0.004	0.02	12/27/19 10:05	mfm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	12/17/19 15:41	slm
Molybdenum, dissolved	M200.8 ICP-MS	10	0.017		*	mg/L	0.002	0.005	12/27/19 10:05	mfm
Nickel, dissolved	M200.8 ICP-MS	10	0.008	B	*	mg/L	0.004	0.01	12/27/19 10:05	mfm
Potassium, dissolved	M200.7 ICP	1	11.9		*	mg/L	0.2	1	12/19/19 19:58	jlw
Selenium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.003	12/27/19 10:05	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	12/27/19 10:05	mfm
Sodium, dissolved	M200.7 ICP	10	4000			mg/L	2	10	12/20/19 15:16	kja
Thallium, dissolved	M200.8 ICP-MS	2		U	*	mg/L	0.0001	0.0005	12/18/19 17:37	bsu
Uranium, dissolved	M200.8 ICP-MS	10	0.003	B	*	mg/L	0.001	0.005	12/27/19 10:05	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	12/27/19 10:05	mfm
Zinc, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	12/20/19 15:16	kja

Golder Associates

Project ID: 19121576

Sample ID: MW-20

ACZ Sample ID: **L56433-09**

Date Sampled: 12/12/19 10:15

Date Received: 12/13/19

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	706			mg/L	2	20	12/14/19 0:00	eep
Carbonate as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Hydroxide as CaCO ₃		1		U		mg/L	2	20	12/14/19 0:00	eep
Total Alkalinity		1	706			mg/L	2	20	12/14/19 0:00	eep
Chloride	M300.0 - Ion Chromatography	100	6350		*	mg/L	40	200	12/18/19 19:57	krh
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	12/16/19 11:10	rbt
Fluoride	SM4500F-C	1	1.0		*	mg/L	0.1	0.4	12/19/19 16:58	emk
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		0.12			mg/L	0.02	0.1	12/31/19 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.12		*	mg/L	0.02	0.1	12/13/19 23:14	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	12/13/19 23:14	pjb
pH (lab)	SM4500H+ B									
pH		1	8.0	H		units	0.1	0.1	12/14/19 0:00	eep
pH measured at		1	21.3			C	0.1	0.1	12/14/19 0:00	eep
Residue, Filterable (TDS) @180C	SM2540C	10	10300			mg/L	200	400	12/19/19 14:48	jck
Sulfate	M300.0 - Ion Chromatography	50	25.3	B	*	mg/L	20	100	12/18/19 0:15	krh



Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

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ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alkalinity as CaCO₃

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488154													
WG488154PBW1	PBW	12/14/19 15:06				U	mg/L		-20	20			
WG488154LCSW3	LCSW	12/14/19 15:24	WC191203-1	820		803	mg/L	98	90	110			
WG488154LCSW6	LCSW	12/14/19 18:07	WC191203-1	820		804	mg/L	98	90	110			
WG488154PBW2	PBW	12/14/19 18:14				3.5	mg/L		-20	20			
L56433-01DUP	DUP	12/14/19 21:51			402	414	mg/L				3	20	
WG488154LCSW9	LCSW	12/14/19 22:09	WC191203-1	820		792	mg/L	97	90	110			
WG488154PBW3	PBW	12/14/19 22:15				U	mg/L		-20	20			
L56439-02DUP	DUP	12/15/19 0:27			634	636	mg/L				0	20	
WG488154LCSW12	LCSW	12/15/19 2:24	WC191203-1	820		815	mg/L	99	90	110			
WG488154PBW4	PBW	12/15/19 2:30				U	mg/L		-20	20			

Aluminum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.974	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.15	0.15			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	1.0012		.998	mg/L	100	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	1.0012	U	1.023	mg/L	102	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	1.0012	U	1.016	mg/L	101	85	115	1	20	

WG488549

WG488549ICV	ICV	12/19/19 18:56	II191210-1	2		1.986	mg/L	99	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.15	0.15			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	1.0012		1.003	mg/L	100	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	1.0012	.99	1.967	mg/L	98	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	1.0012	.99	1.958	mg/L	97	85	115	0	20	

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG489141													
WG489141ICV	ICV	12/31/19 13:33	MS191014-8	.02004		.02116	mg/L	106	90	110			
WG489141ICB	ICB	12/31/19 13:34				U	mg/L		-0.00088	0.00088			
WG489141LFB	LFB	12/31/19 13:36	MS191119-5	.01		.0094	mg/L	94	85	115			
L56433-03AS	AS	12/31/19 13:43	MS191119-5	.02	U	.01879	mg/L	94	70	130			
L56433-03ASD	ASD	12/31/19 13:45	MS191119-5	.02	U	.01877	mg/L	94	70	130	0	20	
L56582-02AS	AS	12/31/19 14:05	MS191119-5	.01	.0005	.00902	mg/L	85	70	130			
L56582-02ASD	ASD	12/31/19 14:07	MS191119-5	.01	.0005	.00914	mg/L	86	70	130	1	20	

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05056	mg/L	101	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00044	0.00044			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.046	mg/L	92	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	.002	.2268	mg/L	90	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	.002	.2187	mg/L	87	70	130	4	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.223	mg/L	89	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.2157	mg/L	86	70	130	3	20	

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ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.989	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.021	0.021			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	.5005		.497	mg/L	99	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	.5005	.015	.5187	mg/L	101	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	.5005	.015	.512	mg/L	99	85	115	1	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	2		2.0012	mg/L	100	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.021	0.021			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	.5005		.4902	mg/L	98	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	.5005	.02	.5239	mg/L	101	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	.5005	.02	.5209	mg/L	100	85	115	1	20	

Beryllium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.049524	mg/L	99	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.000176	#####			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.046203	mg/L	92	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	U	.21977	mg/L	88	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	U	.21628	mg/L	86	70	130	2	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.21738	mg/L	87	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.21426	mg/L	86	70	130	1	20	

Boron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.975	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.06	0.06			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	.5005		.512	mg/L	102	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	.5005	.21	.713	mg/L	100	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	.5005	.21	.708	mg/L	100	85	115	1	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	2		1.993	mg/L	100	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.06	0.06			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	.5005		.508	mg/L	101	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	.5005	.02	.543	mg/L	104	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	.5005	.02	.528	mg/L	101	85	115	3	20	

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ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cadmium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.051818	mg/L	104	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00011	0.00011			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.04707	mg/L	94	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	U	.23474	mg/L	94	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	U	.23353	mg/L	93	70	130	1	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.22855	mg/L	91	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.22607	mg/L	90	70	130	1	20	

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	100		98.78	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.3	0.3			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	68.00334		68.69	mg/L	101	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	68.00334	110	174.1	mg/L	94	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	68.00334	110	174.7	mg/L	95	85	115	0	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	100		100.17	mg/L	100	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.3	0.3			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	68.00334		69	mg/L	101	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	68.00334	129	191	mg/L	91	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	68.00334	129	189.1	mg/L	88	85	115	1	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487727													
WG487727ICV	ICV	12/06/19 17:01	WI191002-3	19.94		19.7	mg/L	99	90	110			
WG487727ICB	ICB	12/06/19 17:19				U	mg/L		-0.4	0.4			
WG488312													
WG488312LFB	LFB	12/17/19 16:11	WI190722-1	30		30	mg/L	100	90	110			
L56433-02AS	AS	12/17/19 21:34	WI190722-1	3000	3130	6460	mg/L	111	90	110			M3
L56433-01DUP	DUP	12/18/19 18:27			36.2	34.9	mg/L				4	20	RA

Chromium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05124	mg/L	102	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.0011	0.0011			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.04472	mg/L	89	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	U	.2159	mg/L	86	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	U	.2096	mg/L	84	70	130	3	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.2106	mg/L	84	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.2047	mg/L	82	70	130	3	20	

Golder AssociatesACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cobalt, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.053103	mg/L	106	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00011	0.00011			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.046291	mg/L	92	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	.0019	.22205	mg/L	88	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	.0019	.21995	mg/L	87	70	130	1	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	.001	.21943	mg/L	87	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	.001	.21592	mg/L	86	70	130	2	20	

Copper, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05102	mg/L	102	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00176	0.00176			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.0501		.04434	mg/L	89	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.2505	U	.195	mg/L	78	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.2505	U	.1889	mg/L	75	70	130	3	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.2505	U	.1914	mg/L	76	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.2505	U	.1878	mg/L	75	70	130	2	20	

Cyanide, Free

D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488169													
WG488169ICV	ICV	12/16/19 10:36	WI191201-5	.3		.2933	mg/L	98	90	110			
WG488169ICB	ICB	12/16/19 10:38				U	mg/L		-0.003	0.003			
WG488169LFB	LFB	12/16/19 10:42	WI191201-7	.1		.1012	mg/L	101	90	110			
L56433-01AS	AS	12/16/19 10:46	WI191201-7	.1	U	.0923	mg/L	92	90	110			
L56433-01ASD	ASD	12/16/19 10:48	WI191201-7	.1	U	.0944	mg/L	94	90	110	2	20	

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488379													
WG488379ICV	ICV	12/18/19 8:31	WC191212-1	2.004		2.05	mg/L	102	90	110			
WG488379ICB	ICB	12/18/19 8:35				U	mg/L		-0.3	0.3			
WG488412													
WG488412ICV	ICV	12/18/19 17:00	WC191212-1	2.004		2.13	mg/L	106	90	110			
WG488412ICB	ICB	12/18/19 17:08				U	mg/L		-0.3	0.3			
WG488412LFB1	LFB	12/18/19 17:15	WC191014-1	5.01		5.05	mg/L	101	90	110			
WG488412LFB2	LFB	12/18/19 20:33	WC191014-1	5.01		5.05	mg/L	101	90	110			
L56430-01AS	AS	12/18/19 22:37	WC191014-1	5.01	U	4.86	mg/L	97	90	110			
L56430-01ASD	ASD	12/18/19 22:43	WC191014-1	5.01	U	4.91	mg/L	98	90	110	1	20	
WG488524													
WG488524ICV	ICV	12/19/19 11:01	WC191212-1	2.004		1.95	mg/L	97	90	110			
WG488524ICB	ICB	12/19/19 11:07				U	mg/L		-0.3	0.3			
WG488581													
WG488581ICV	ICV	12/19/19 16:02	WC191212-1	2.004		2.06	mg/L	103	90	110			
WG488581ICB	ICB	12/19/19 16:06				.12	mg/L		-0.3	0.3			
WG488581LFB1	LFB	12/19/19 16:13	WC191014-1	5.01		4.58	mg/L	91	90	110			
L56433-05AS	AS	12/19/19 16:28	WC191014-1	5.01	.7	5.14	mg/L	89	90	110			MA
L56433-05ASD	ASD	12/19/19 16:35	WC191014-1	5.01	.7	5.24	mg/L	91	90	110	2	20	
WG488581LFB2	LFB	12/19/19 18:46	WC191014-1	5.01		4.75	mg/L	95	90	110			

Iron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.931	mg/L	97	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.09	0.09			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	1.0018		1.017	mg/L	102	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	1.0018	U	1.038	mg/L	104	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	1.0018	U	1.024	mg/L	102	85	115	1	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	2		1.952	mg/L	98	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.09	0.09			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	1.0018		1	mg/L	100	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	1.0018	.8	1.774	mg/L	97	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	1.0018	.8	1.758	mg/L	96	85	115	1	20	

Lead, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05168	mg/L	103	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00022	0.00022			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.04725	mg/L	94	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	U	.21419	mg/L	86	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	U	.20995	mg/L	84	70	130	2	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.20889	mg/L	83	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.20441	mg/L	82	70	130	2	20	

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Lithium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.9342	mg/L	97	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.024	0.024			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	1.002		.9653	mg/L	96	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	1.002	.064	1.053	mg/L	99	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	1.002	.064	1.033	mg/L	97	85	115	2	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	2		2.0568	mg/L	103	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.024	0.024			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	1.002		1.023	mg/L	102	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	1.002	.009	1.073	mg/L	106	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	1.002	.009	1.063	mg/L	105	85	115	1	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	100		96.13	mg/L	96	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.6	0.6			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	49.99771		48.7	mg/L	97	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	49.99771	82.4	127.6	mg/L	90	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	49.99771	82.4	128.3	mg/L	92	85	115	1	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	100		97.48	mg/L	97	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.6	0.6			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	49.99771		48.72	mg/L	97	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	49.99771	58.3	104.6	mg/L	93	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	49.99771	58.3	104.1	mg/L	92	85	115	0	20	

Manganese, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05141	mg/L	103	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00088	0.00088			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.0501		.0457	mg/L	91	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.2505	.03	.2421	mg/L	85	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.2505	.03	.2407	mg/L	84	70	130	1	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.2505	.238	.4508	mg/L	85	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.2505	.238	.4466	mg/L	83	70	130	1	20	

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury, dissolved

M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488254													
WG488254ICV	ICV	12/17/19 15:15	HG191211-3	.004995		.00518	mg/L	104	95	105			
WG488254ICB	ICB	12/17/19 15:16				U	mg/L		-0.0002	0.0002			
WG488254LRB	LRB	12/17/19 15:17				U	mg/L		-0.00044	0.00044			
WG488254LFB	LFB	12/17/19 15:18	HG191211-6	.002002		.0019	mg/L	95	85	115			
L56407-01LFM	LFM	12/17/19 15:20	HG191211-6	.002002	U	.00188	mg/L	94	85	115			
L56407-01LFMD	LFMD	12/17/19 15:21	HG191211-6	.002002	U	.00187	mg/L	93	85	115	1	20	
L56433-04LFM	LFM	12/17/19 15:33	HG191211-6	.002002	U	.00048	mg/L	24	85	115			M2
L56433-04LFMD	LFMD	12/17/19 15:34	HG191211-6	.002002	U	.0005	mg/L	25	85	115	4	20	M2

Molybdenum, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.0199		.02019	mg/L	101	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00044	0.00044			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.0501		.04476	mg/L	89	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.2505	.09	.3383	mg/L	99	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.2505	.09	.3382	mg/L	99	70	130	0	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.2505	U	.2393	mg/L	96	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.2505	U	.2388	mg/L	95	70	130	0	20	

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05081	mg/L	102	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00088	0.00088			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05		.04438	mg/L	89	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25	.007	.2098	mg/L	81	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25	.007	.2015	mg/L	78	70	130	4	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25	U	.1963	mg/L	79	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25	U	.1938	mg/L	78	70	130	1	20	

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488143													
WG488143ICV	ICV	12/13/19 22:37	WI191112-1	2.416		2.426	mg/L	100	90	110			
WG488143ICB	ICB	12/13/19 22:38				U	mg/L		-0.02	0.02			
WG488143LFB	LFB	12/13/19 22:42	WI191004-3	2		1.995	mg/L	100	90	110			
L56432-01AS	AS	12/13/19 22:45	WI191004-3	2	U	2.024	mg/L	101	90	110			
L56432-02DUP	DUP	12/13/19 22:47			U	U	mg/L				0	20	RA
L56433-05AS	AS	12/13/19 23:04	WI191004-3	2	.57	2.395	mg/L	91	90	110			
L56433-06DUP	DUP	12/13/19 23:06			U	.027	mg/L				200	20	RA

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488143													
WG488143ICV	ICV	12/13/19 22:37	WI191112-1	.609		.604	mg/L	99	90	110			
WG488143ICB	ICB	12/13/19 22:38				U	mg/L		-0.01	0.01			
WG488143LFB	LFB	12/13/19 22:42	WI191004-3	1		.998	mg/L	100	90	110			
L56432-01AS	AS	12/13/19 22:45	WI191004-3	1	U	1.002	mg/L	100	90	110			
L56432-02DUP	DUP	12/13/19 22:47			U	U	mg/L				0	20	RA
L56433-05AS	AS	12/13/19 23:04	WI191004-3	1	U	.975	mg/L	98	90	110			
L56433-06DUP	DUP	12/13/19 23:06			U	U	mg/L				0	20	RA

pH (lab)

SM4500H+ B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488154													
WG488154LCSW1	LCSW	12/14/19 15:09	PCN58053	6		6.1	units	102	5.9	6.1			
WG488154LCSW4	LCSW	12/14/19 17:52	PCN58053	6		6	units	100	5.9	6.1			
L56433-01DUP	DUP	12/14/19 21:51			8.2	8.2	units				0	20	
WG488154LCSW7	LCSW	12/14/19 21:55	PCN58053	6		6.1	units	102	5.9	6.1			
L56439-02DUP	DUP	12/15/19 0:27			7.9	8	units				1	20	
WG488154LCSW10	LCSW	12/15/19 2:09	PCN58053	6		6	units	100	5.9	6.1			
WG488154LCSW13	LCSW	12/15/19 7:22	PCN58053	6		6.1	units	102	5.9	6.1			

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	20		19.71	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.6	0.6			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	99.95798		99.91	mg/L	100	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	99.95798	9.6	111.7	mg/L	102	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	99.95798	9.6	112.1	mg/L	103	85	115	0	20	

WG488549

WG488549ICV	ICV	12/19/19 18:56	II191210-1	20		20.28	mg/L	101	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.6	0.6			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	99.95798		100.3	mg/L	100	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	99.95798	8.9	115.1	mg/L	106	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	99.95798	8.9	113.5	mg/L	105	85	115	1	20	

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488360													
WG488360PBW	PBW	12/17/19 16:45				U	mg/L		-40	40			
WG488360LCSW	LCSW	12/17/19 16:49	PCN59814	1000		968	mg/L	97	80	120			
L56433-09DUP	DUP	12/17/19 17:39			10500	10500	mg/L				0	10	
L56482-04DUP	DUP	12/17/19 18:30			332	334	mg/L				1	10	
WG488566													
WG488566PBW	PBW	12/19/19 14:30				U	mg/L		-40	40			
WG488566LCSW	LCSW	12/19/19 14:32	PCN59813	1000		990	mg/L	99	80	120			
L56444-01DUP	DUP	12/19/19 15:01			47200	47900	mg/L				1	10	

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05024	mg/L	100	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00022	0.00022			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05005		.04725	mg/L	94	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25025	.0474	.28944	mg/L	97	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25025	.0474	.27873	mg/L	92	70	130	4	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25025	U	.24053	mg/L	96	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25025	U	.2405	mg/L	96	70	130	0	20	

Silver, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.02004		.02094	mg/L	104	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00022	0.00022			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.01002		.00947	mg/L	95	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.0501	U	.04419	mg/L	88	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.0501	U	.04985	mg/L	100	70	130	12	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.0501	U	.04486	mg/L	90	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.0501	U	.04511	mg/L	90	70	130	1	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	100		99.26	mg/L	99	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.6	0.6			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	100.0046		99	mg/L	99	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	100.0046	94.5	191.3	mg/L	97	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	100.0046	94.5	191	mg/L	96	85	115	0	20	
WG488549													
WG488549ICV	ICV	12/19/19 18:56	II191210-1	100		99.45	mg/L	99	95	105			
WG488549ICB	ICB	12/19/19 19:02				U	mg/L		-0.6	0.6			
WG488549LFB	LFB	12/19/19 19:15	II191204-3	100.0046		98.61	mg/L	99	85	115			
L52843-25AS	AS	12/19/19 19:24	II191204-3	100.0046	.7	105	mg/L	104	85	115			
L52843-25ASD	ASD	12/19/19 19:27	II191204-3	100.0046	.7	103.5	mg/L	103	85	115	1	20	
WG488636													
WG488636ICV	ICV	12/20/19 14:36	II191210-1	100		97.78	mg/L	98	95	105			
WG488636ICB	ICB	12/20/19 14:42				U	mg/L		-0.6	0.6			
WG488636LFB	LFB	12/20/19 14:54	II191204-3	100.0046		99.76	mg/L	100	85	115			
L56433-08AS	AS	12/20/19 15:10	II191204-3	100.0046	.4	98.62	mg/L	98	85	115			
L56433-08ASD	ASD	12/20/19 15:13	II191204-3	100.0046	.4	97.21	mg/L	97	85	115	1	20	

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ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Sulfate

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487727													
WG487727ICV	ICV	12/06/19 17:01	WI191002-3	50		49.2	mg/L	98	90	110			
WG487727ICB	ICB	12/06/19 17:19				U	mg/L		-0.4	0.4			
WG488312													
WG488312LFB	LFB	12/17/19 16:11	WI190722-1	30		29.9	mg/L	100	90	110			
L56433-02AS	AS	12/17/19 21:34	WI190722-1	3000	U	3000	mg/L	100	90	110			
L56433-01DUP	DUP	12/18/19 18:27			4230	4240	mg/L				0	20	

Thallium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488308													
WG488308ICV	ICV	12/17/19 13:30	MS191014-8	.05		.052141	mg/L	104	90	110			
WG488308ICB	ICB	12/17/19 13:31				U	mg/L		-0.00011	0.00011			
WG488308LFB	LFB	12/17/19 14:00	MS191119-5	.0501		.049556	mg/L	99	85	115			
L56255-03AS	AS	12/17/19 14:06	MS191119-5	.0501	U	.049111	mg/L	98	70	130			
L56255-03ASD	ASD	12/17/19 14:07	MS191119-5	.0501	U	.049564	mg/L	99	70	130	1	20	
L56433-07AS	AS	12/17/19 14:27	MS191119-5	.0501	U	.044649	mg/L	89	70	130			
L56433-07ASD	ASD	12/17/19 14:28	MS191119-5	.0501	U	.045767	mg/L	91	70	130	2	20	
WG488466													
WG488466ICV	ICV	12/18/19 17:25	MS191014-8	.05		.052435	mg/L	105	90	110			
WG488466ICB	ICB	12/18/19 17:26				U	mg/L		-0.00011	0.00011			
WG488466LFB	LFB	12/18/19 17:28	MS191119-5	.0501		.048527	mg/L	97	85	115			
L56433-07AS	AS	12/18/19 17:34	MS191119-5	.1002	U	.08603	mg/L	86	70	130			
L56433-07ASD	ASD	12/18/19 17:35	MS191119-5	.1002	U	.09118	mg/L	91	70	130	6	20	

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.05128	mg/L	103	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.00022	0.00022			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05		.04379	mg/L	88	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25	.0407	.29121	mg/L	100	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25	.0407	.28987	mg/L	100	70	130	0	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25	.0005	.24048	mg/L	96	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25	.0005	.23821	mg/L	95	70	130	1	20	

Vanadium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488879													
WG488879ICV	ICV	12/27/19 9:32	MS191014-8	.05		.04989	mg/L	100	90	110			
WG488879ICB	ICB	12/27/19 9:34				U	mg/L		-0.0011	0.0011			
WG488879LFB	LFB	12/27/19 9:36	MS191119-5	.05		.04445	mg/L	89	85	115			
L56433-01AS	AS	12/27/19 9:45	MS191119-5	.25	U	.2319	mg/L	93	70	130			
L56433-01ASD	ASD	12/27/19 9:47	MS191119-5	.25	U	.2236	mg/L	89	70	130	4	20	
L56439-02AS	AS	12/27/19 10:10	MS191119-5	.25	U	.2237	mg/L	89	70	130			
L56439-02ASD	ASD	12/27/19 10:12	MS191119-5	.25	U	.2193	mg/L	88	70	130	2	20	

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NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488460													
WG488460ICV	ICV	12/18/19 21:19	II191210-1	2		1.955	mg/L	98	95	105			
WG488460ICB	ICB	12/18/19 21:25				U	mg/L		-0.03	0.03			
WG488460LFB	LFB	12/18/19 21:38	II191204-3	.50075		.511	mg/L	102	85	115			
L56431-06AS	AS	12/18/19 22:37	II191204-3	.50075	U	.514	mg/L	103	85	115			
L56431-06ASD	ASD	12/18/19 22:40	II191204-3	.50075	U	.521	mg/L	104	85	115	1	20	
WG488636													
WG488636ICV	ICV	12/20/19 14:36	II191210-1	2		1.931	mg/L	97	95	105			
WG488636ICB	ICB	12/20/19 14:42				U	mg/L		-0.03	0.03			
WG488636LFB	LFB	12/20/19 14:54	II191204-3	.50075		.516	mg/L	103	85	115			
L56433-08AS	AS	12/20/19 15:10	II191204-3	.50075	U	.509	mg/L	102	85	115			
L56433-08ASD	ASD	12/20/19 15:13	II191204-3	.50075	U	.504	mg/L	101	85	115	1	20	

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-01	WG488460	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M353.2 - Automated Cadmium Reduction	ZU	Analysis date/time precedes filter date/time. A portion of sample was filtered and analyzed prior to the creation of a Filter workgroup.
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488460	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Silver, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Sodium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488308	Thallium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Zinc, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-02	WG488549	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488549	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488360	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density did not meet method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Silver, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488308	Thallium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-03	WG488460	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488460	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488360	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density did not meet method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Silver, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Sodium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
	WG488308	Thallium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Zinc, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-04	WG488460	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488460	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Sodium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488466	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Zinc, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-05	WG488460	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488581	Fluoride	SM4500F-C	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG488460	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488460	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488360	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density did not meet method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Silver, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488460	Sodium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488308	Thallium, dissolved	M200.8 ICP-MS	Q5	Additional preservation performed by the laboratory. Sample received with inadequate chemical preservation.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Additional preservation performed by the laboratory. Sample received with inadequate chemical preservation.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Additional preservation performed by the laboratory. Sample received with inadequate chemical preservation.
	WG488460	Zinc, dissolved	M200.7 ICP	Q5	Additional preservation performed by the laboratory. Sample received with inadequate chemical preservation.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-06	WG488549	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488581	Fluoride	SM4500F-C	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG488549	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488549	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488466	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-07	WG488549	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488581	Fluoride	SM4500F-C	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG488549	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488549	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488466	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-08	WG488549	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488581	Fluoride	SM4500F-C	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG488549	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488549	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488360	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density did not meet method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
			SM2540C	Z3	Sample volume yielded a residue less than 2.5 mg
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Silver, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488308	Thallium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-09	WG488549	Aluminum, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG489141	Antimony, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Arsenic, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Barium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Beryllium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Boron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Cadmium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Calcium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Chloride	M300.0 - Ion Chromatography	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488879	Chromium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Cobalt, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Copper, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488581	Fluoride	SM4500F-C	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG488549	Iron, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Lead, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488549	Lithium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Magnesium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Manganese, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488254	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M245.1 CVAA	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Molybdenum, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Nickel, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488143	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488549	Potassium, dissolved	M200.7 ICP	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488879	Selenium, dissolved	M200.8 ICP-MS	EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG488312	Sulfate	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.

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ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG488466	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG488879	Uranium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
		Vanadium, dissolved	M200.8 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

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Project ID: 19121576

Sample ID: MW-1

Locator:

ACZ Sample ID: **L56433-01**

Date Sampled: 12/12/19 13:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:23		54	26	64	pCi/L	*	amk
Gross Beta	12/25/19 0:23		7.9	19	50	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-2

Locator:

ACZ Sample ID: **L56433-02**

Date Sampled: 12/12/19 11:40

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:24		10	24	83	pCi/L	*	amk
Gross Beta	12/25/19 0:24		41	31	87	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-3

Locator:

ACZ Sample ID: **L56433-03**

Date Sampled: 12/12/19 14:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:25		-1.5	14	130	pCi/L	*	amk
Gross Beta	12/25/19 0:25		12	18	120	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-4

Locator:

ACZ Sample ID: **L56433-04**

Date Sampled: 12/12/19 8:30

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:27		-3.9	37	360	pCi/L	*	amk
Gross Beta	12/25/19 0:27		40	44	330	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-5

Locator:

ACZ Sample ID: **L56433-05**

Date Sampled: 12/12/19 11:00

Date Received: 12/13/19

Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:28		24	14	46	pCi/L	*	amk
Gross Beta	12/25/19 0:28		25	12	29	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-6

Locator:

ACZ Sample ID: **L56433-06**

Date Sampled: 12/12/19 10:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:30		0.0	52	200	pCi/L	*	amk
Gross Beta	12/25/19 0:30		0.78	63	130	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-7

Locator:

ACZ Sample ID: **L56433-07**

Date Sampled: 12/12/19 9:20

Date Received: 12/13/19

Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:31		-50	26	150	pCi/L	*	amk
Gross Beta	12/25/19 0:31		35	59	190	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-15

Locator:

ACZ Sample ID: **L56433-08**

Date Sampled: 12/12/19 8:00

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:33		-0.87	0.82	7.3	pCi/L	*	amk
Gross Beta	12/25/19 0:33		0.82	2.4	11	pCi/L	*	amk

Golder Associates

Project ID: 19121576

Sample ID: MW-20

Locator:

ACZ Sample ID: **L56433-09**

Date Sampled: 12/12/19 10:15

Date Received: 12/13/19

Sample Matrix: Groundwater

Gross Alpha & Beta, dissolved

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/25/19 0:37		-20	37	170	pCi/L	*	amk
Gross Beta	12/25/19 0:37		-5.3	57	170	pCi/L	*	amk

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://aczk.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

Golder Associates

ACZ Project ID: **L56433**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alpha		M900.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG488418																
WG488418PBW	PBW	12/25/19						.03	0.81	1.1			2.2			
WG488418LCSWA	LCSW	12/25/19	PCN58725	100				100	8.7	1.6	100	67	144			
L56321-06DUP	DUP-RPD	12/25/19			11	3.4	2	10	3.2	1.8				10	20	
L56322-01MSA	MS	12/25/19	PCN58725	66.67	-0.28	1	1.6	39	5.9	1.9	59	67	144			M2
L56433-08DUP	DUP-RPD	12/25/19			-0.87	0.82	7.3	-.24	1	3.7				114	20	RG
L56433-08DUP	DUP-RER	12/25/19			-0.87	0.82	7.3	-.24	1	3.7				0.49	2	

Beta		M900.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG488418																
WG488418PBW	PBW	12/25/19						1.2	1.8	1.8			3.6			
WG488418LCSWB	LCSW	12/25/19	RC190918-11	102.6				110	6.5	2.5	107	82	122			
L56321-06DUP	DUP-RPD	12/25/19			9	2.2	1.8	6.9	2.1	1.8				26	20	N1
L56321-06DUP	DUP-RER	12/25/19			9	2.2	1.8	6.9	2.1	1.8				0.69	2	
L56433-08DUP	DUP-RPD	12/25/19			0.82	2.4	11	1.4	2.5	9				52	20	RG
L56433-08DUP	DUP-RER	12/25/19			0.82	2.4	11	1.4	2.5	9				0.17	2	
L56433-08MSB	MS	12/25/19	RC190918-11	102.6	0.82	2.4	11	110	6.6	6.6	106	82	122			

Golder Associates

ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-01	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-02	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-03	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-04	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-05	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-06	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-07	N/G488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

Golder Associates

ACZ Project ID: **L56433**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56433-08	WG488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L56433-09	WG488418	Gross Alpha	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
		Gross Beta	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

Golder Associates

ACZ Project ID: **L56433**

No certification qualifiers associated with this analysis

Golder Associates
19121576

ACZ Project ID: L56433
Date Received: 12/13/2019 11:38
Received By:
Date Printed: 12/16/2019

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	☐	☐	☒
2) Is the Chain of Custody form or other directive shipping papers present?	☒	☐	☐
3) Does this project require special handling procedures such as CLP protocol?	☐	☒	☐
4) Are any samples NRC licensable material?	☐	☐	☒
5) If samples are received past hold time, proceed with requested short hold time analyses?	☒	☐	☐
6) Is the Chain of Custody form complete and accurate?	☒	☐	☐
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	☒	☐	☐
A change was made in the Quote # and Copy of Report to section prior to ACZ custody.			

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	☒	☐	☐
9) Are all labels on containers and are they intact and legible?	☒	☐	☐
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	☒	☐	☐
11) For preserved bottle types, was the pH checked and within limits? ¹	☐	☒	☐
L56433-01 Container B2219865 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-02 Container B2219873 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-03 Container B2219878 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-04 Container B2219883 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-05 Container B2219888 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-06 Container B2219893 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-07 Container B2219898 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			
L56433-08 Container B2219903 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.			

Golder Associates
19121576

ACZ Project ID: L56433

Date Received: 12/13/2019 11:38

Received By:

Date Printed: 12/16/2019

L56433-09 Container B2219908 (GREEN PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

12) Is there sufficient sample volume to perform all requested work?

X		
---	--	--

13) Is the custody seal intact on all containers?

		X
--	--	---

14) Are samples that require zero headspace acceptable?

		X
--	--	---

15) Are all sample containers appropriate for analytical requirements?

X		
---	--	--

16) Is there an Hg-1631 trip blank present?

		X
--	--	---

17) Is there a VOA trip blank present?

		X
--	--	---

18) Were all samples received within hold time?

X		
---	--	--

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
-----	-----	-----	-----	-----
6308	-0.7	<=6.0	14	Yes
5337	0.5	<=6.0	14	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. **L56433**

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Sara Harkins
Company: Golder Associates
E-mail: Sara-Harkins@golder.com

Address: 2121 Abbott Rd, Ste 100
Anchorage, Alaska 99507
Telephone: (907) 865-2532

Copy of Report to:

Name: Tricia Hall
Company: Golder Associates

E-mail: Tricia-Hall@golder.com
Telephone: (907) 920-4517

Invoice to:

Name: Sara Harkins
Company: Golder Associates
E-mail: Sara-Harkins@golder.com

Address: 2121 Abbott Rd, Ste 100
Anchorage, Alaska 99507
Telephone: (907) 865-2532

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring?

Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: T. Hall Sampler's Site Information State Colorado Zip code 80535 Time Zone MT

*Sampler's Signature: Tricia Hall

I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Holcim-TAB1; B042395

PO#: 19121576

Reporting state for compliance testing:

Check box if samples include NRC licensed material?

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See Quote
MW-1	12/12/19 1300	GW	5	X
MW-2	12/12/19 1140	GW	5	X
MW-3	12/12/19 1400	GW	5	X
MW-4	12/12/19 0830	GW	5	X
MW-5	12/12/19 1100	GW	5	X
MW-6	12/12/19 1000	GW	5	X
MW-7	12/12/19 0930	GW	5	X
MW-15	12/12/19 0800	GW	5	X
MW-20	12/12/19 1015	GW	5	X

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

- ① 2 coolers associated w/ this COC
- ② Samples field filtered per bottle order
- ③ short hold times for nitrate as N, nitrite as N, nitrate/nitrite as N

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

Tricia Hall 12/12/19 1430

[Signature] 12/13/19 1435

ATTACHMENT 2

Field Sheets

feet $.1632 \text{ gal/ft}$

[illegible]



Project No.: 19121576

MW-7

T. Hall

Date _____

12	3	1	0
----	---	---	---

Time

0030

(circle one)

2.59.2 feet

~ 22 | feet

4	inches
	feet

24.9 cubic feet
gallons

0.6528 gal/ft
2"

$$= 249 \text{ gal}$$

Disposable, dedicated bailer

Date _____

12-3-17

Time

10.78

Date _____

12-3-19

Time

11.29

[illegible]

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-1	Weather Conditions: ~35 °F
Wellhead Inspection (note conditions): Casing good, ended under pad	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01 ft.)	44.0	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01 ft.)	65.59 ft btoc	9. Dedicated? (Yes or No)	<i>W</i>
3. Casing Diameter (in.)	2	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	3.5	11. Time to Purge Well (min)	1230-1258 28
5. 3 x Casing Volume (gallons)	10.6	12. Immiscible Layer Observed (yes or no)	N
6. Actual Volume of Water Purged	10.6	13. Thickness of Immiscible layer (if present)	-
7. Water Level Measuring Equip.	300' electronic	.1632 gal / ft	

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other
12/12/19	12:40	3.5	11.5	8.10	4.84	low	
12/12/19	12:48	7.0	12.2	7.71	4.63	low	
12/12/19	12:54	^{DV} 10.5 9	12.6	7.75	4.77	low	
12/12/19	12:58	10.6	^{DV} 13.1	7.85	4.89	low	

Well Evacuated to Dryness? (Yes or No) _____

Time to recharge? _____

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other
12/12/19	13:00	10.6	13.1	7.85	4.89	low	-

1. Sampling Equipment Used	Bailer	Other Information:	
2. Pump Rate	N/A	Decontamination Procedures	Alconox, DI rinse ✓
3. Sample Appearance:	clear ☐ low ☒ medium ☐ high ☐		
Color	light gray	Instrument Calibrations	pH, conductivity ✓
4. Odor	None		
5. Method of Sample Preservation	HNO ₃ , NaOH ✓	Unusual Occurrences	N/A

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-2	Weather Conditions: ~ 35°F
Wellhead Inspection (note conditions): gwd	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	105.45 (12/12/19) 65.46 (12/3/19)	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01ft.)	112 ft btoc	9. Dedicated? (Yes or No)	No
3. Casing Diameter (in.)	2	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	7.6	11. Time to Purge Well (min)	56
5. 3 x Casing Volume (gallons)	22.8	12. Immiscible Layer Observed (yes or no)	No
6. Actual Volume of Water Purged	13.5	13. Thickness of Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic		

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Purged dry on 12/3/19

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other

Well Evacuated to Dryness? (Yes) or No

Time to recharge? ~9 days

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other
12/12/19	1140	—	13.3	8.04	6.73	low	

1. Sampling Equipment Used	Bailer	Other Information:	
2. Pump Rate	N/A	Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☒ low ☐ medium ☐ high ☐		
Color	light grey	Instrument Calibrations	pH, conductivity
4. Odor	slight sulfur		
5. Method of Sample Preservation	HNO ₃ , NaOH	Unusual Occurrences	—

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-3	Weather Conditions: ~35 °F
Wellhead Inspection (note conditions): good, previous repairs	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	38.25 (12/14/19)	8. Purge Equipment Used	HDPE tubing with hydrolift
2. Bottom of Casing ¹ (±0.01ft.)	107.2 ft btoc	9. Dedicated? (Yes or No)	No
3. Casing Diameter (in.)	2	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	11.3	11. Time to Purge Well (min)	25
5. 3 x Casing Volume (gallons)	33.9	12. Immiscible Layer Observed (yes or no)	No
6. Actual Volume of Water Purged	15	13. Thickness if Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic		

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

purged dry on 12/14/19

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other

Well Evacuated to Dryness? (Yes or No) Yes

Time to recharge? ~8 days

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other
12/12/19	1400	—	12.4	8.23	4,348	low	—

1. Sampling Equipment Used	HDPE tubing				Other Information:	
2. Pump Rate	N/A				Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☐	low ☒	medium ☐	high ☐		
Color	Light grey				Instrument Calibrations	pH, conductivity
4. Odor	none					
5. Method of Sample Preservation	HNO ₃ , NaOH				Unusual Occurrences	—

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-4	Weather Conditions: ~35 °F
Wellhead Inspection (note conditions): good	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	139.97 (12/12/19) 65.9 (12/4/19)	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01ft.)	182 ft btoc	9. Dedicated? (Yes or No)	No
3. Casing Diameter (in.)	2	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	18.9	11. Time to Purge Well (min)	125
5. 3 x Casing Volume (gallons)	56.7	12. Immiscible Layer Observed (yes or no)	No
6. Actual Volume of Water Purged	30	13. Thickness if Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic		

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Purged dry on 12/4/19

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other

Well Evacuated to Dryness? (Yes or No) Yes

Time to recharge? ~8 days

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (mS/cm)	Relative Turbidity	Other
12/12/19	0830	—	7.3	7.79	11.03	low	—

1. Sampling Equipment Used	Bailer				Other Information:	
2. Pump Rate	N/A				Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☒	low ☐	medium ☐	high ☐		
Color	light grey				Instrument Calibrations	pH, conductivity
4. Odor	sulfur					
5. Method of Sample Preservation	HNO ₃ , NaOH				Unusual Occurrences	—

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-5	Weather Conditions: ~35 °F
Wellhead Inspection (note conditions): good	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	47.55	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01ft.)	60.3 ft btoc	9. Dedicated? (Yes or No)	NO
3. Casing Diameter (in.)	2	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	2.08	11. Time to Purge Well (min)	1040 - 1055 15 min
5. 3 x Casing Volume (gallons)	6.24	12. Immiscible Layer Observed (yes or no)	NO
6. Actual Volume of Water Purged	6.5	13. Thickness if Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic	1632 gal/ft	

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other
12/12/19	1048	2.5	11.5	7.28	2278	low	
12/12/19	1051	4.5	12.3	7.12	2347	low	
12/12/19	1055	6.5	12.2	7.08	2416	low	

Well Evacuated to Dryness? (Yes or No)

Time to recharge?

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (µS/cm)	Relative Turbidity	Other
12/12/19	1100	6.5	12.2	7.08	2416	low	

1. Sampling Equipment Used	Bailer	Other Information:	
2. Pump Rate	N/A	Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☐ low ☒ medium ☐ high ☐		
Color	light brown	Instrument Calibrations	pH, conductivity
4. Odor	slight sulfur		
5. Method of Sample Preservation	HNO ₃ , NaOH	Unusual Occurrences	—

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-6	Weather Conditions: ~ 40 °F
Wellhead Inspection (note conditions): gued	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	202.43 (12/3/19)	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01ft.)	229.7 ft btoe (12/12/19)	9. Dedicated? (Yes or No)	NO
3. Casing Diameter (in.)	4	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	17.7	11. Time to Purge Well (min)	60
5. 3 x Casing Volume (gallons)	53.1	12. Immiscible Layer Observed (yes or no)	NO
6. Actual Volume of Water Purged	25	13. Thickness if Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic		

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Purged dry on 12/3/19

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other
 							
 							
 							
 							

Well Evacuated to Dryness? (Yes or No) Yes

Time to recharge? ~9 days

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other
12/12/19	1000	—	10	7.72	11.29	low	—

1. Sampling Equipment Used	Bailer	Other Information: Collect MW-20 (field dup)	
2. Pump Rate	N/A	Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☐ low ☒ medium ☐ high ☐		
Color	light grey sulfur	Instrument Calibrations	pH, conductivity
4. Odor			
5. Method of Sample Preservation	HNO ₃ , NaOH	Unusual Occurrences	—

GROUNDWATER SAMPLING DATA SHEET

Project Name: Holcim/Boettcher Quarry 2019 Groundwater Monitoring	Sampler Name(s): Tricia Hall
Project Number: 19121576	Date: 12/12/2019
Monitoring Well I.D.: MW-7	Weather Conditions: ~35 °F
Wellhead Inspection (note conditions): good	

Groundwater Measurements and Purge Data:

1. Static Water Level ¹ (±0.01ft.)	~221 (12/13/19)	8. Purge Equipment Used	Bailer
2. Bottom of Casing ¹ (±0.01ft.)	259.2 ft btoc ^{4257.14} ₍₁₂₋₁₂₊₁₎	9. Dedicated? (Yes or No)	NO
3. Casing Diameter (in.)	4	10. Purge Rate (if pump used)	N/A
4. Casing Volume (gallons)	24.9	11. Time to Purge Well (min)	71
5. 3 x Casing Volume (gallons)	74.7	12. Immiscible Layer Observed (yes or no)	NO
6. Actual Volume of Water Purged	31.5	13. Thickness if Immiscible layer (if present)	—
7. Water Level Measuring Equip.	300' electronic		

¹Measured from a defined point on the edge of casing (surveyed top of casing)

Purge Parameters:

Purged dry on 12/13/19

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other

Well Evacuated to Dryness? (Yes or No) Yes

Time to recharge? ~9 days

Groundwater Sample Information:

Date	Time	Volume Purged (gallons)	Temp (°C)	pH	Specific Conductivity (S/cm)	Relative Turbidity	Other
12/14/19	0930	—	8.3	7.58	11.90	Low	

1. Sampling Equipment Used	Bailer	Other Information:	
2. Pump Rate	N/A	Decontamination Procedures	Alconox, DI rinse
3. Sample Appearance:	clear ☒ low ☐ medium ☐ high ☐		
Color	light grey sulfur	Instrument Calibrations	pH, conductivity
4. Odor			
5. Method of Sample Preservation	HNO ₃ , NaOH	Unusual Occurrences	—