STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Boettcher Quarry Groundwater Results

Harkins, Sara <Sara_Harkins@golder.com> Thu, Feb 14, 2019 at 6:57 PM
To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>
Cc: "Mike Toelle (mike.toelle@lafargeholcim.com)" <mike.toelle@lafargeholcim.com>, Derrick Dease <derrick.dease@lafargeholcim.com>, "March, Randy" <Randy_March@golder.com>, "McClain, Mark" <Mark_McClain@golder.com>

Dear Ms. Eschberger,

On behalf of Holcim (US) Inc., Golder is pleased to submit the results of the 2nd semi-annual 2018 groundwater sampling event at the Boettcher Limestone Quarry near La Porte, Colorado. We have also sent you a paper copy.

Please let us know if you have any questions or difficultly opening the document.

Thanks,

Sara

Sara Harkins, PG(WY)
Senior Project Geologist/Geochemist

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Work Safe, Home Safe

2 attachments

image001.jpg
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3660K

February 14, 2019 Project No. 1899205

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 2018 GROUNDWATER SAMPLING AT THE BOETTCHER QUARRY

Dear Ms. Eschberger:

On behalf of Holcim (US) Inc., Golder Associates Inc. is pleased to submit analytical laboratory results for the second semi-annual 2018 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 reports. In addition to sampling wells MW-1 through MW-7, a field duplicate at MW-1 (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.

The initial laboratory report contains the results of the full analyte list, but select elements (antimony, cobalt, copper, iron, manganese, molybdenum, nickel, silver, thallium, and vanadium) for at least one sample had detection limits greater than the Interim Narrative Standard due to sample dilutions required because of sample matrix interferences. Therefore, select analysis were re-run with an alternate method to lower the detection limit. However, even with the alternate method the detection limits remain above the Interim Narrative Standard for thallium and antimony for some samples because of analytical limitations due to matrix interferences. The analytes that exceeded the Interim Narrative Standard for this sampling event are listed by sampling location below:

- MW-1: Selenium, Uranium, Nitrate, Nitrate + Nitrite, Sulfate, Gross Alpha
- MW-2: Barium, Iron, Chloride, Gross Alpha
- MW-3: Barium, Boron, Chloride, Fluoride
- MW-4: Barium, Chloride
- MW-5: Iron, Manganese, Uranium, Sulfate

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- MW-6: Barium, Iron, Chloride, Gross Alpha
- MW-7: Barium, Iron, Manganese, Chloride

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

Sincerely,

GOLDER ASSOCIATES INC.

Sara Harkins, PG
Geologist

Randy March, PE, PG
Principal Geological Engineer

Attachments: 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
Figure 1 – Location Map
Figure 2 – Groundwater Elevations vs. Time
Attachment 1 – ACZ Laboratory Report

Tables

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	< 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
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 (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 1: Summary of Monitoring Results for MW-1

Date	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
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
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
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
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
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
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
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
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.13
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
Selenium, Dissolved (mg/L)	0.02	**0.2775**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0904**
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
Uranium, Dissolved (mg/L)	0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.035**
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
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
Fluoride (mg/L)	2.0	0.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.62
Nitrate as N (mg/L)	10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15**
Nitrite as N (mg/L)	1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06
Nitrate+Nitrite as N (mg/L)	10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15.2**
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
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
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**
Gross Alpha (pCi/L)	15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**40 (±31)**
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 (±29)
Supplementary Analytes (Not Historically analyzed)																
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.8 U
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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
Bicarbonate as CaCO3 (mg/L)	none	333	310	325	NA	320	302	306	319	307	329	325	369	361	358	NA
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
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U
Calcium, Dissolved (mg/L)	none	330	287	309	230	301	320	289	279	345	275	269	187	175	220	163
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0018
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U
Magnesium, Dissolved (mg/L)	none	364	297	303	247	300	342	301	290	376	301	283	202	188	225	175
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 U
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.085
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.009 B
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
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 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
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 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	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	**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	**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	0.7	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	< 0.01 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	< 0.05 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	0.1 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	< 0.003 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	1.3	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	**0.08** 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	0.0006 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	< 0.003 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	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	< 0.05 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	**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	1.5	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	0.14	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	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	NA	NA	NA	NA
Nitrate+Nitrite as N (mg/L)	10	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	**8.6** 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*	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	< 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	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)	**	4.5 (±30)	42 (±31)	12 (±29)	0 (±27)	73 (±44)	8.5 (±29)	82 (±30)	21 (±26)	11 (±28)	NA	NA	NA	NA
Supplementary Analytes (Not Historically analyzed)														
Aluminum, Dissolved (mg/L)	5	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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	993	965	978	953	914	995	968	964	978	955	963	979	1020
Carbonate as CaCO3 (mg/L)	none	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
Calcium, Dissolved (mg/L)	none	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
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	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
Molybdenum, Dissolved (mg/L)	0.21	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
Potassium, Dissolved (mg/L)	none	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
Sodium, Dissolved (mg/L)	none	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

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 sampli
Values in **bold** indicate a value greater than the BSGV
**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 constit

Table 2: Summary of Monitoring Results for MW-2

Date	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
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
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**
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
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
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
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**
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
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.16
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
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
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
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0028 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
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**
Fluoride (mg/L)	2	1.5	1.48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3
Nitrate as N (mg/L)	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08 B
Nitrite as N (mg/L)	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 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
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
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
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
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20 (±18)**
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 (±21)
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	<0.8 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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
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
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
Magnesium, Dissolved (mg/L)	none	7.3	6.9	6.6	7.4	7.4	7.0	8.0	7.0	8.0 B	7.0	8.0	6.6	7.0	7.0	7.0	7.0
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 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
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 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
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 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 sampli
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 constit

Table 3: Summary of Monitoring Results for MW-3

Date	Interim Narrative Standard	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	**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	**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	**0.77**	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	0.003 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	< 0.3 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	0.04 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	< 0.001 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	0.8	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	0.04 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	0.0006	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	< 0.001 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	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	< 0.3 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	**1,550**	**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**	**2.3**	**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	0.37	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	< 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	0.37	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	**8.6** 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*	3,930	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	< 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	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)	**	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
Supplementary Analytes (Not Historically analyzed)														
Aluminum, Dissolved (mg/L)	5	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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	1,110	1,130	1,100	1,090	1,100	1,160	1,130	1,130	1,130	1,140	1,130	1,130	1,170
Carbonate as CaCO3 (mg/L)	none	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
Calcium, Dissolved (mg/L)	none	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
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	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
Molybdenum, Dissolved (mg/L)	0.21	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
Potassium, Dissolved (mg/L)	none	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
Sodium, Dissolved (mg/L)	none	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

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	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
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
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**
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**
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
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
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
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
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.69
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
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
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
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003 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
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**
Fluoride (mg/L)	2	**2.4**	**2.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.38**
Nitrate as N (mg/L)	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 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
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
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
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
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
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 (±7.4)
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7 (±15)
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	<0.3 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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0005 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
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
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0005 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
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
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
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001 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
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.08 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
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 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
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 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 4: Summary of Monitoring Results for MW-4

Date	Interim Narrative Standard	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	**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	**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	0.7	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	< 0.02 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	< 0.5 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 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	< 0.005 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	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	< 0.3 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	< 0.003 U	0.012	< 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	< 0.003 U
Thallium, Dissolved (mg/L)	0.002	< 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	< 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	< 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	**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	1.1	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	< 0.1 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	0.01 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	0.02 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	8.3 H	8.2 H	8.2	8.2 H	8.3 U	8.1 H	8.1 H	8.1 H	8.2 H	8.1 H	8.2 H	8.1 H	8.1 H
Total Dissolved Solids, filterable residue (mg/L)	10,212*	**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	< 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	-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)	**	-7.5 (±53)	80 (±49)	22 (±45)	51 (±57)	66 (±63)	38 (±51)	270 (±61)	53 (±53)	9.9 (±42)	NA	NA	NA	NA
Supplementary Analytes (Not Historically analyzed)														
Aluminum, Dissolved (mg/L)	5	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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate as CaCO3 (mg/L)	none	585	565	569	562	573	597	580	576	571	573	567	590	576
Carbonate as CaCO3 (mg/L)	none	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
Calcium, Dissolved (mg/L)	none	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
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved (mg/L)	none	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
Molybdenum, Dissolved (mg/L)	0.21	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
Potassium, Dissolved (mg/L)	none	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
Sodium, Dissolved (mg/L)	none	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

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	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
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
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**
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
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
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
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
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
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.76
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
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
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
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 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
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**
Fluoride (mg/L)	2	1.1	1.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.03
Nitrate as N (mg/L)	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 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
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
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
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**
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
Gross Alpha (pCi/L)	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.83 (±26)
Gross Beta (pCi/L)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38 (±39)
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	<2 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
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U
Bicarbonate as CaCO3 (mg/L)	none	606	623	616	611	NA	604	599	615	606	664	613	619	612	592	602	NA
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
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 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
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003 U
Cyanide, Free (mg/L)	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004 B
Magnesium, Dissolved (mg/L)	none	16	17	18	18	21	17	18	17	17	16.4	18	16.1	16	16	17	17
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 B
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.03 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
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
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005 U
Sodium, Dissolved (mg/L)	none	4120	4360	4050	3950	4070	4040	4030	4050	4290	4020	4000	4160	4080	3950	4030	4130
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02 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 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**	**1720**	**1940**	**2250**	**1920**	**1770**	**1940**
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
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	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018
Metals					
Arsenic, Dissolved (mg/L)	0.01	NA	NA	NA	0.0019 B
Barium, Dissolved (mg/L)	2	0.01 B	< 0.03 U	< 0.03 U	<0.03 U
Boron, Dissolved (mg/L)	0.75	0.36	0.36	0.35	0.33
Chromium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.004 U
Copper, Dissolved (mg/L)	0.2	NA	NA	NA	<0.1 U
Iron, Dissolved (mg/L)	0.3	**2.15**	**10.3**	**0.97**	**32.8**
Lead, Dissolved (mg/L)	0.05	NA	NA	NA	<0.001 U
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	0.3
Manganese, Dissolved (mg/L)	0.05	**0.09**	**0.09**	**0.08**	**0.09**
Selenium, Dissolved (mg/L)	0.02	NA	NA	NA	0.0017
Thallium, Dissolved (mg/L)	0.002	NA	NA	NA	<0.001 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	**0.0379**
Zinc, Dissolved (mg/L)	2	NA	NA	NA	<0.1 U
Other					
Chloride (mg/L)	250	45.4 B	25.8 BH	19.7 B	36.2 B
Fluoride (mg/L)	2	NA	NA	NA	0.72
Lab pH (s.u)	6.5 - 8.5	7.8 H	7.3 H	7.7 H	7.5
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	3,970	3,160	3,020 H	3,340
Sulfate (mg/L)	250	**2,540**	**1,820** H	**1,780**	**2,190**
Gross Alpha (pCi/L)	15	NA	NA	NA	8.6 (±11)
Gross Beta (pCi/L)	**	NA	NA	NA	18 (±13)
Supplementary Analytes					
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	<0.3 U
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	<0.004 U
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	<0.0005 U
Bicarbonate as CaCO3 (mg/L)	none	348	375	401	NA
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	NA
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	<0.0005 U
Calcium, Dissolved (mg/L)	none	429	461	425	490
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	0.0047
Cyanide, Free (mg/L)	0.2	NA	NA	NA	<0.01 U
Magnesium, Dissolved (mg/L)	none	128	119	109	121
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	<0.001 U
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	<0.2 U
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	0.05 B
Potassium, Dissolved (mg/L)	none	8.2	7.2	6.6	8.1
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	<0.05 U
Sodium, Dissolved (mg/L)	none	614	322	329	317
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.05 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 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
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	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018
Metals					
Arsenic, Dissolved (mg/L)	0.01	NA	NA	NA	0.007 B
Barium, Dissolved (mg/L)	2	**7.85**	**7.77**	**7.65**	**7.25**
Boron, Dissolved (mg/L)	0.75	0.7	**0.8**	0.6	0.6
Chromium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.02 U
Copper, Dissolved (mg/L)	0.2	NA	NA	NA	<0.02 U
Iron, Dissolved (mg/L)	0.3	**1.7**	**3.4**	**3.0**	**2.9**
Lead, Dissolved (mg/L)	0.05	NA	NA	NA	<0.005 U
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	1.74
Manganese, Dissolved (mg/L)	0.05	**0.14** B	**0.07** B	**0.06** B	**0.09**
Selenium, Dissolved (mg/L)	0.02	NA	NA	NA	<0.003 U
Thallium, Dissolved (mg/L)	0.002	NA	NA	NA	<0.005 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.004
Zinc, Dissolved (mg/L)	2	NA	NA	NA	<0.5 U
Other					
Chloride (mg/L)	250	**6,130**	**5,900**	**5,880**	**6,490**
Fluoride (mg/L)	2	NA	NA	NA	1.09
Lab pH (s.u)	6.5 - 8.5	8.1 H	7.7 H	7.8 H	8 H
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	10,500	10,400	10,500	10,700
Sulfate (mg/L)	250	< 250 U	< 200 U	51 B	<200 U
Gross Alpha (pCi/L)	15	NA	NA	NA	**47 (±36)**
Gross Beta (pCi/L)	**	NA	NA	NA	43 (±35)
Supplementary Analytes					
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	<2 U
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	<0.02 U
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	<0.003 U
Bicarbonate as CaCO3 (mg/L)	none	658	639	652	NA
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	NA
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	<0.003 U
Calcium, Dissolved (mg/L)	none	51	44	41	47
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	<0.003 U
Cyanide, Free (mg/L)	0.2	NA	NA	NA	0.009 B
Magnesium, Dissolved (mg/L)	none	16	16	16	16
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	<0.001 U
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	0.025 B
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	0.007 B
Potassium, Dissolved (mg/L)	none	9 B	9 B	8 B	10
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	<0.005 U
Sodium, Dissolved (mg/L)	none	3,920	4,060	3,870	3,960
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.02 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
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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
*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	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
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:
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**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	Interim Narrative Standard	5/31/2017	11/15/2017	6/6/2018	11/15/2018
Metals					
Arsenic, Dissolved (mg/L)	0.01	NA	NA	NA	0.002 B
Barium, Dissolved (mg/L)	2	**3.96**	**3.8**	**5.5**	**3.42**
Boron, Dissolved (mg/L)	0.75	0.7	**0.8**	0.7	0.7
Chromium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.02 U
Copper, Dissolved (mg/L)	0.2	NA	NA	NA	<0.02 U
Iron, Dissolved (mg/L)	0.3	**5.5**	**6.1**	**3.2**	**3.9**
Lead, Dissolved (mg/L)	0.05	NA	NA	NA	<0.005 U
Lithium, Dissolved (mg/L)	2.5	NA	NA	NA	1.84
Manganese, Dissolved (mg/L)	0.05	**0.19** B	**0.18** B	**0.14** B	**0.11** B
Selenium, Dissolved (mg/L)	0.02	NA	NA	NA	<0.003 U
Thallium, Dissolved (mg/L)	0.002	NA	NA	NA	<0.005 U
Uranium, Dissolved (mg/L)	0.03	NA	NA	NA	0.005
Zinc, Dissolved (mg/L)	2	NA	NA	NA	<0.5 U
Other					
Chloride (mg/L)	250	**6,480**	**6,240**	**6,440**	**7,310**
Fluoride (mg/L)	2	NA	NA	NA	0.88
Lab pH (s.u)	6.5 - 8.5	8 H	7.8 H	7.7 H	7.9 H
Total Dissolved Solids, filterable residue (mg/L)	1.25 x Background*	11,100	11,300	11,500 H	11,300
Sulfate (mg/L)	250	59 B	58 B	75 B	83.9 B
Gross Alpha (pCi/L)	15	NA	NA	NA	5.8 (±29)
Gross Beta (pCi/L)	**	NA	NA	NA	34 (±42)
Supplementary Analytes					
Aluminum, Dissolved (mg/L)	5	NA	NA	NA	<2 U
Antimony, Dissolved (mg/L)	0.006	NA	NA	NA	<0.02 U
Beryllium, Dissolved (mg/L)	0.004	NA	NA	NA	<0.003 U
Bicarbonate as CaCO3 (mg/L)	none	745	700	714	NA
Carbonate as CaCO3 (mg/L)	none	< 20 U	< 20 U	< 20 U	NA
Cadmium, Dissolved (mg/L)	0.005	NA	NA	NA	<0.003 U
Calcium, Dissolved (mg/L)	none	52	55	52	54
Cobalt, Dissolved (mg/L)	0.05	NA	NA	NA	<0.003 U
Cyanide, Free (mg/L)	0.2	NA	NA	NA	0.005 B
Magnesium, Dissolved (mg/L)	none	19	20	20	19
Mercury, Dissolved (mg/L)	0.002	NA	NA	NA	<0.001 U
Molybdenum, Dissolved (mg/L)	0.21	NA	NA	NA	0.022 B
Nickel, Dissolved (mg/L)	0.1	NA	NA	NA	<0.03 U
Potassium, Dissolved (mg/L)	none	11	9 B	9 B	11
Silver, Dissolved (mg/L)	0.05	NA	NA	NA	<0.005 U
Sodium, Dissolved (mg/L)	none	4,240	4,320	4,170	4,250
Vanadium, Dissolved (mg/L)	0.1	NA	NA	NA	<0.02 U

Notes:
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**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.

Figures

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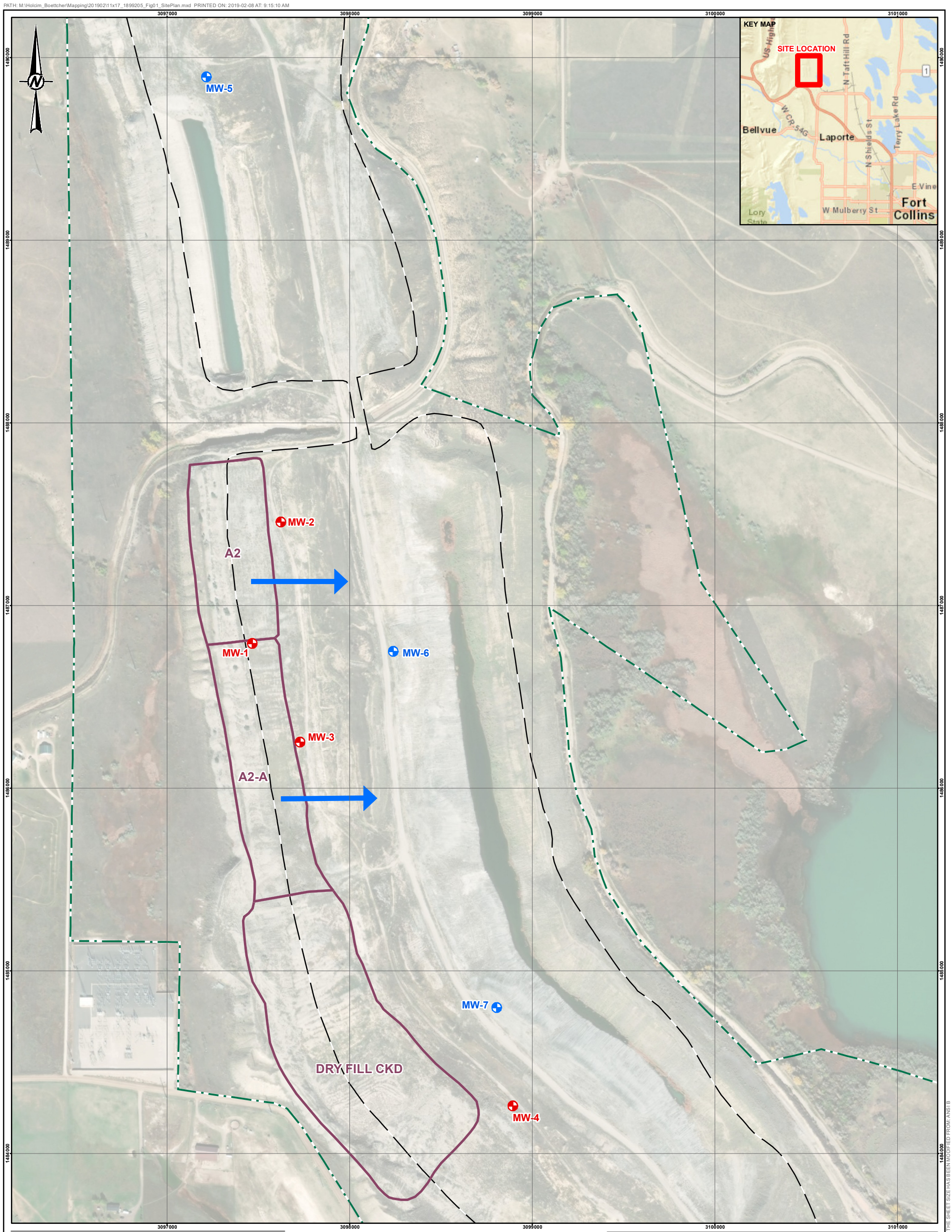


LEGEND

- 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

0 500 1,000
Feet

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

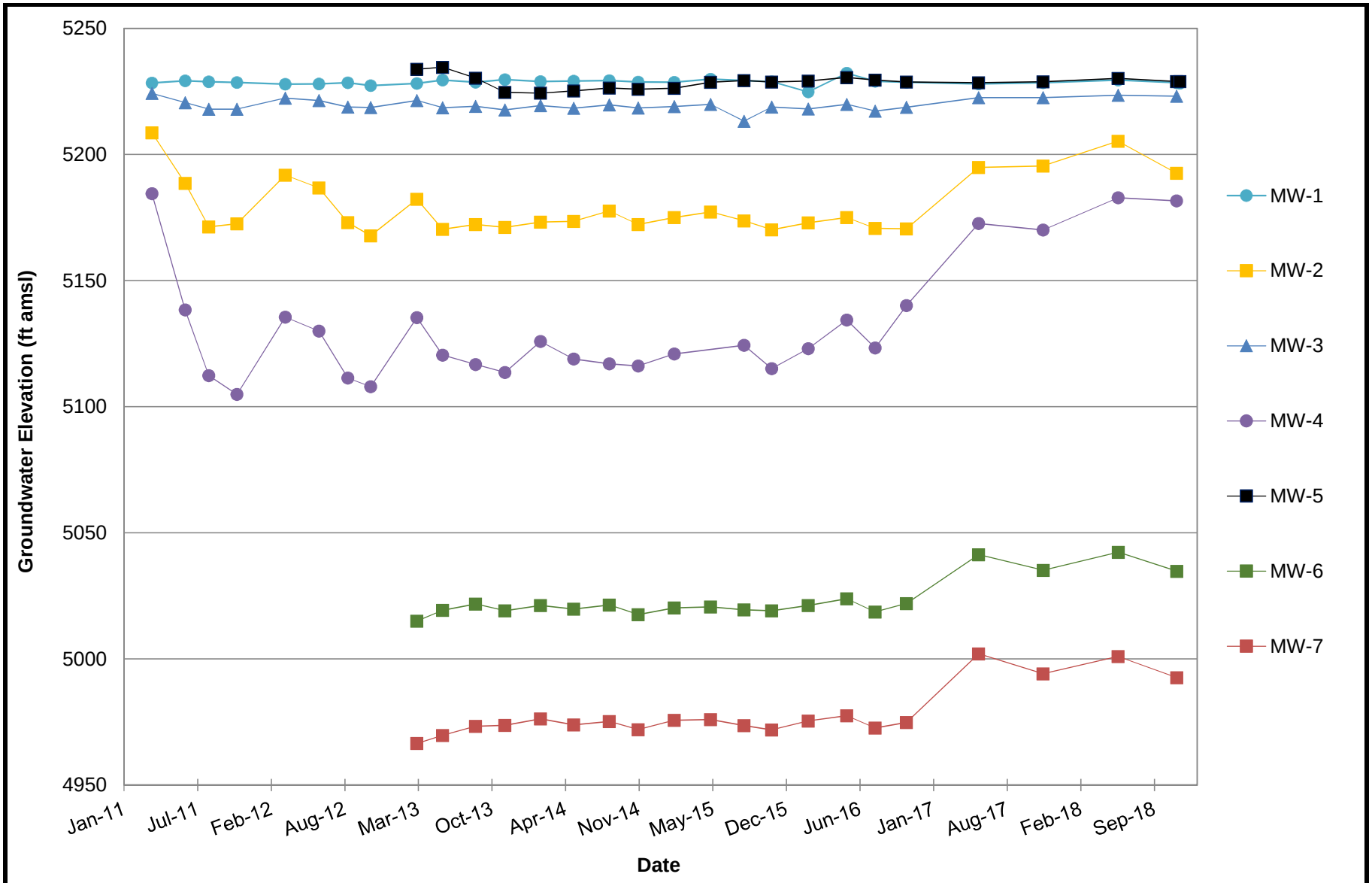
CONSULTANT
GOLDER

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

PROJECT NO.
1899205

FIGURE
1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B



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

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

November 30, 2018

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

Project ID: 1899205
ACZ Project ID: L48281

Sara Harkins:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 16, 2018. This project has been assigned to ACZ's project number, L48281. 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 L48281. 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 December 30, 2018. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/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 raw data reports for ten years.

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

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

Golder Associates
Project ID: 1899205
Sample ID: MW-1

ACZ Sample ID: ***L48281-01***
Date Sampled: *11/15/18 12:00*
Date Received: *11/16/18*
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	0.2	0.8	11/28/18 22:27	dcm
Antimony, dissolved	M200.8 ICP-MS	5		U		mg/L	0.002	0.01	11/27/18 20:04	msh
Arsenic, dissolved	M200.8 ICP-MS	5	0.001	B		mg/L	0.001	0.005	11/27/18 20:04	msh
Barium, dissolved	M200.7 ICP	5		U		mg/L	0.02	0.08	11/28/18 22:27	dcm
Beryllium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0003	0.001	11/27/18 20:04	msh
Boron, dissolved	M200.7 ICP	5	0.62			mg/L	0.05	0.3	11/28/18 22:27	dcm
Cadmium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0003	0.001	11/27/18 20:04	msh
Calcium, dissolved	M200.7 ICP	5	163			mg/L	0.5	3	11/28/18 22:27	dcm
Chromium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	11/27/18 20:04	msh
Cobalt, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:27	dcm
Copper, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:27	dcm
Iron, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.3	11/28/18 22:27	dcm
Lead, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	11/27/18 20:04	msh
Lithium, dissolved	M200.7 ICP	5	1.13			mg/L	0.04	0.2	11/28/18 22:27	dcm
Magnesium, dissolved	M200.7 ICP	5	175			mg/L	1	5	11/28/18 22:27	dcm
Manganese, dissolved	M200.7 ICP	5		U		mg/L	0.03	0.1	11/28/18 22:27	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:42	che
Molybdenum, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.5	11/28/18 22:27	dcm
Nickel, dissolved	M200.7 ICP	5		U		mg/L	0.04	0.2	11/28/18 22:27	dcm
Potassium, dissolved	M200.7 ICP	5	12			mg/L	1	5	11/28/18 22:27	dcm
Selenium, dissolved	M200.8 ICP-MS	5	0.0904			mg/L	0.0005	0.001	11/27/18 20:04	msh
Silver, dissolved	M200.7 ICP	5		U	*	mg/L	0.05	0.1	11/28/18 22:27	dcm
Sodium, dissolved	M200.7 ICP	5	1760			mg/L	1	5	11/28/18 22:27	dcm
Thallium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	11/27/18 20:04	msh
Uranium, dissolved	M200.8 ICP-MS	5	0.035			mg/L	0.0005	0.003	11/27/18 20:04	msh
Vanadium, dissolved	M200.7 ICP	5		U		mg/L	0.03	0.1	11/28/18 22:27	dcm
Zinc, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:27	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	11/26/18 23:23	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	11/19/18 15:38	rbt
Fluoride	SM4500F-C	1	0.62			mg/L	0.05	0.3	11/26/18 17:28	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2		15			mg/L	0.1	0.5	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	5	15.2			mg/L	0.1	0.5	11/17/18 0:30	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.06		*	mg/L	0.01	0.05	11/16/18 23:58	pjb
pH (lab)	SM4500H+ B									
pH		1	8.2	H	*	units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.4			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	2	6910			mg/L	20	40	11/21/18 16:41	nmc
Sulfate	M300.0 - Ion Chromatography	100	5090		*	mg/L	40	200	11/26/18 23:23	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-2

ACZ Sample ID: ***L48281-02***
Date Sampled: *11/15/18 15:30*
Date Received: *11/16/18*
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	0.2	0.8	11/28/18 22:30	dcm
Antimony, dissolved	M200.8 ICP-MS	5		U		mg/L	0.002	0.01	11/27/18 20:07	msh
Arsenic, dissolved	M200.8 ICP-MS	5	0.004	B		mg/L	0.001	0.005	11/27/18 20:07	msh
Barium, dissolved	M200.7 ICP	5	3.22			mg/L	0.02	0.08	11/28/18 22:30	dcm
Beryllium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0003	0.001	11/27/18 20:07	msh
Boron, dissolved	M200.7 ICP	5	0.75			mg/L	0.05	0.3	11/28/18 22:30	dcm
Cadmium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0003	0.001	11/27/18 20:07	msh
Calcium, dissolved	M200.7 ICP	5	18.6			mg/L	0.5	3	11/28/18 22:30	dcm
Chromium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	11/27/18 20:07	msh
Cobalt, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:30	dcm
Copper, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:30	dcm
Iron, dissolved	M200.7 ICP	5	0.4			mg/L	0.1	0.3	11/28/18 22:30	dcm
Lead, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	11/27/18 20:07	msh
Lithium, dissolved	M200.7 ICP	5	1.16			mg/L	0.04	0.2	11/28/18 22:30	dcm
Magnesium, dissolved	M200.7 ICP	5	7			mg/L	1	5	11/28/18 22:30	dcm
Manganese, dissolved	M200.7 ICP	5	0.04	B		mg/L	0.03	0.1	11/28/18 22:30	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:43	che
Molybdenum, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.5	11/28/18 22:30	dcm
Nickel, dissolved	M200.7 ICP	5		U		mg/L	0.04	0.2	11/28/18 22:30	dcm
Potassium, dissolved	M200.7 ICP	5	9			mg/L	1	5	11/28/18 22:30	dcm
Selenium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.001	11/27/18 20:07	msh
Silver, dissolved	M200.7 ICP	5		U	*	mg/L	0.05	0.1	11/28/18 22:30	dcm
Sodium, dissolved	M200.7 ICP	5	2460			mg/L	1	5	11/28/18 22:30	dcm
Thallium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	11/27/18 20:07	msh
Uranium, dissolved	M200.8 ICP-MS	5	0.0028	B		mg/L	0.0005	0.003	11/27/18 20:07	msh
Vanadium, dissolved	M200.7 ICP	5		U		mg/L	0.03	0.1	11/28/18 22:30	dcm
Zinc, dissolved	M200.7 ICP	5		U		mg/L	0.05	0.3	11/28/18 22:30	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	50	3530		*	mg/L	20	100	11/27/18 15:43	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	11/19/18 15:41	rbt
Fluoride	SM4500F-C	1	1.30			mg/L	0.05	0.3	11/26/18 17:31	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2		0.08	B		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.08	B		mg/L	0.02	0.1	11/17/18 0:31	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/16/18 23:59	pjb
pH (lab)	SM4500H+ B									
pH		1	8.2	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.2			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	2	6280			mg/L	20	40	11/21/18 16:44	nmc
Sulfate	M300.0 - Ion Chromatography	50		U	*	mg/L	20	100	11/27/18 15:43	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-3

ACZ Sample ID: ***L48281-03***
Date Sampled: *11/15/18 14:30*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	2		U		mg/L	0.06	0.3	11/28/18 22:34	dcm
Antimony, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0008	0.004	11/27/18 20:10	msh
Arsenic, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0004	0.002	11/27/18 20:10	msh
Barium, dissolved	M200.7 ICP	2	2.4			mg/L	0.006	0.03	11/28/18 22:34	dcm
Beryllium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	11/27/18 20:10	msh
Boron, dissolved	M200.7 ICP	2	0.77			mg/L	0.02	0.1	11/28/18 22:34	dcm
Cadmium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	11/27/18 20:10	msh
Calcium, dissolved	M200.7 ICP	2	7.4			mg/L	0.2	1	11/28/18 22:34	dcm
Chromium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.001	0.004	11/27/18 20:10	msh
Cobalt, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:34	dcm
Copper, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:34	dcm
Iron, dissolved	M200.7 ICP	2	0.18			mg/L	0.04	0.1	11/28/18 22:34	dcm
Lead, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	11/27/18 20:10	msh
Lithium, dissolved	M200.7 ICP	2	0.69			mg/L	0.02	0.08	11/28/18 22:34	dcm
Magnesium, dissolved	M200.7 ICP	2	2.5			mg/L	0.4	2	11/28/18 22:34	dcm
Manganese, dissolved	M200.7 ICP	2		U		mg/L	0.01	0.05	11/28/18 22:34	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:44	che
Molybdenum, dissolved	M200.7 ICP	2		U		mg/L	0.04	0.2	11/28/18 22:34	dcm
Nickel, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.08	11/28/18 22:34	dcm
Potassium, dissolved	M200.7 ICP	2	3.6			mg/L	0.4	2	11/28/18 22:34	dcm
Selenium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.0005	11/27/18 20:10	msh
Silver, dissolved	M200.7 ICP	2		U	*	mg/L	0.02	0.05	11/28/18 22:34	dcm
Sodium, dissolved	M200.7 ICP	2	1500			mg/L	0.4	2	11/28/18 22:34	dcm
Thallium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	11/27/18 20:10	msh
Uranium, dissolved	M200.8 ICP-MS	2	0.0003	B		mg/L	0.0002	0.001	11/27/18 20:10	msh
Vanadium, dissolved	M200.7 ICP	2		U		mg/L	0.01	0.05	11/28/18 22:34	dcm
Zinc, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:34	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	20	1750		*	mg/L	8	40	11/27/18 0:16	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	11/19/18 15:43	rbt
Fluoride	SM4500F-C	1	2.38			mg/L	0.05	0.3	11/26/18 17:39	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U		mg/L	0.02	0.1	11/17/18 0:00	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/17/18 0:00	pjb
pH (lab)	SM4500H+ B									
pH		1	8.4	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	20.7			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	1	3850			mg/L	10	20	11/20/18 12:58	kja
Sulfate	M300.0 - Ion Chromatography	20		U	*	mg/L	8	40	11/27/18 0:16	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-4

ACZ Sample ID: ***L48281-04***
Date Sampled: *11/15/18 12:45*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	10		U		mg/L	0.3	2	11/28/18 22:37	dcm
Antimony, dissolved	M200.8 ICP-MS	10		U		mg/L	0.004	0.02	11/27/18 20:20	msh
Arsenic, dissolved	M200.8 ICP-MS	10		U		mg/L	0.002	0.01	11/27/18 20:20	msh
Barium, dissolved	M200.7 ICP	10	8.90			mg/L	0.03	0.2	11/28/18 22:37	dcm
Beryllium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:20	msh
Boron, dissolved	M200.7 ICP	10	0.6			mg/L	0.1	0.5	11/28/18 22:37	dcm
Cadmium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:20	msh
Calcium, dissolved	M200.7 ICP	10	36			mg/L	1	5	11/28/18 22:37	dcm
Chromium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.02	11/27/18 20:20	msh
Cobalt, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:37	dcm
Copper, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:37	dcm
Iron, dissolved	M200.7 ICP	10		U		mg/L	0.2	0.5	11/28/18 22:37	dcm
Lead, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:20	msh
Lithium, dissolved	M200.7 ICP	10	1.76			mg/L	0.08	0.4	11/28/18 22:37	dcm
Magnesium, dissolved	M200.7 ICP	10	17			mg/L	2	10	11/28/18 22:37	dcm
Manganese, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 22:37	dcm
Mercury, dissolved	M245.1 CVAA	1	0.0002	B	*	mg/L	0.0002	0.001	11/29/18 12:45	che
Molybdenum, dissolved	M200.7 ICP	10		U		mg/L	0.2	1	11/28/18 22:37	dcm
Nickel, dissolved	M200.7 ICP	10		U		mg/L	0.08	0.4	11/28/18 22:37	dcm
Potassium, dissolved	M200.7 ICP	10	10			mg/L	2	10	11/28/18 22:37	dcm
Selenium, dissolved	M200.8 ICP-MS	10	0.017			mg/L	0.001	0.003	11/27/18 20:20	msh
Silver, dissolved	M200.7 ICP	10		U	*	mg/L	0.1	0.3	11/28/18 22:37	dcm
Sodium, dissolved	M200.7 ICP	10	4130			mg/L	2	10	11/28/18 22:37	dcm
Thallium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:20	msh
Uranium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:20	msh
Vanadium, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 22:37	dcm
Zinc, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:37	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	100	7780		*	mg/L	40	200	11/27/18 16:01	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1	0.004	B		mg/L	0.003	0.01	11/19/18 15:51	rbt
Fluoride	SM4500F-C	1	1.03			mg/L	0.05	0.3	11/26/18 17:44	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U		mg/L	0.02	0.1	11/17/18 0:01	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/17/18 0:01	pjb
pH (lab)	SM4500H+ B									
pH		1	8.1	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	20.5			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	5	11200			mg/L	50	100	11/21/18 16:46	nmc
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	11/27/18 16:01	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-5

ACZ Sample ID: ***L48281-05***
Date Sampled: *11/15/18 10:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	2		U		mg/L	0.06	0.3	11/28/18 22:40	dcm
Antimony, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0008	0.004	11/27/18 20:23	msh
Arsenic, dissolved	M200.8 ICP-MS	2	0.0019	B		mg/L	0.0004	0.002	11/27/18 20:23	msh
Barium, dissolved	M200.7 ICP	2		U		mg/L	0.006	0.03	11/28/18 22:40	dcm
Beryllium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	11/27/18 20:23	msh
Boron, dissolved	M200.7 ICP	2	0.33			mg/L	0.02	0.1	11/28/18 22:40	dcm
Cadmium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0001	0.0005	11/27/18 20:23	msh
Calcium, dissolved	M200.7 ICP	2	490			mg/L	0.2	1	11/28/18 22:40	dcm
Chromium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.001	0.004	11/27/18 20:23	msh
Cobalt, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:40	dcm
Copper, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:40	dcm
Iron, dissolved	M200.7 ICP	2	32.8			mg/L	0.04	0.1	11/28/18 22:40	dcm
Lead, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	11/27/18 20:23	msh
Lithium, dissolved	M200.7 ICP	2	0.30			mg/L	0.02	0.08	11/28/18 22:40	dcm
Magnesium, dissolved	M200.7 ICP	2	121			mg/L	0.4	2	11/28/18 22:40	dcm
Manganese, dissolved	M200.7 ICP	2	0.09			mg/L	0.01	0.05	11/28/18 22:40	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:48	che
Molybdenum, dissolved	M200.7 ICP	2		U		mg/L	0.04	0.2	11/28/18 22:40	dcm
Nickel, dissolved	M200.7 ICP	2	0.05	B		mg/L	0.02	0.08	11/28/18 22:40	dcm
Potassium, dissolved	M200.7 ICP	2	8.1			mg/L	0.4	2	11/28/18 22:40	dcm
Selenium, dissolved	M200.8 ICP-MS	2	0.0017			mg/L	0.0002	0.0005	11/27/18 20:23	msh
Silver, dissolved	M200.7 ICP	2		U	*	mg/L	0.02	0.05	11/28/18 22:40	dcm
Sodium, dissolved	M200.7 ICP	2	317			mg/L	0.4	2	11/28/18 22:40	dcm
Thallium, dissolved	M200.8 ICP-MS	2		U		mg/L	0.0002	0.001	11/27/18 20:23	msh
Uranium, dissolved	M200.8 ICP-MS	2	0.0379			mg/L	0.0002	0.001	11/27/18 20:23	msh
Vanadium, dissolved	M200.7 ICP	2		U		mg/L	0.01	0.05	11/28/18 22:40	dcm
Zinc, dissolved	M200.7 ICP	2		U		mg/L	0.02	0.1	11/28/18 22:40	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	50	36.2	B	*	mg/L	20	100	11/27/18 1:28	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	11/19/18 15:53	rbt
Fluoride	SM4500F-C	1	0.72		*	mg/L	0.05	0.3	11/26/18 17:47	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U		mg/L	0.02	0.1	11/17/18 0:03	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/17/18 0:03	pjb
pH (lab)	SM4500H+ B									
pH		1	7.5	H	*	units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	20.8			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	2	3340			mg/L	20	40	11/20/18 13:00	kja
Sulfate	M300.0 - Ion Chromatography	50	2190		*	mg/L	20	100	11/27/18 1:28	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-6

ACZ Sample ID: ***L48281-06***
Date Sampled: *11/15/18 17:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	10		U		mg/L	0.3	2	11/28/18 22:44	dcm
Antimony, dissolved	M200.8 ICP-MS	10		U		mg/L	0.004	0.02	11/27/18 20:32	msh
Arsenic, dissolved	M200.8 ICP-MS	10	0.007	B		mg/L	0.002	0.01	11/27/18 20:32	msh
Barium, dissolved	M200.7 ICP	10	7.25			mg/L	0.03	0.2	11/28/18 22:44	dcm
Beryllium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:32	msh
Boron, dissolved	M200.7 ICP	10	0.6			mg/L	0.1	0.5	11/28/18 22:44	dcm
Cadmium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:32	msh
Calcium, dissolved	M200.7 ICP	10	47			mg/L	1	5	11/28/18 22:44	dcm
Chromium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.02	11/27/18 20:32	msh
Cobalt, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:44	dcm
Copper, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:44	dcm
Iron, dissolved	M200.7 ICP	10	2.9			mg/L	0.2	0.5	11/28/18 22:44	dcm
Lead, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:32	msh
Lithium, dissolved	M200.7 ICP	10	1.74			mg/L	0.08	0.4	11/28/18 22:44	dcm
Magnesium, dissolved	M200.7 ICP	10	16			mg/L	2	10	11/28/18 22:44	dcm
Manganese, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 22:44	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:49	che
Molybdenum, dissolved	M200.7 ICP	10		U		mg/L	0.2	1	11/28/18 22:44	dcm
Nickel, dissolved	M200.7 ICP	10		U		mg/L	0.08	0.4	11/28/18 22:44	dcm
Potassium, dissolved	M200.7 ICP	10	10			mg/L	2	10	11/28/18 22:44	dcm
Selenium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.003	11/27/18 20:32	msh
Silver, dissolved	M200.7 ICP	10		U	*	mg/L	0.1	0.3	11/28/18 22:44	dcm
Sodium, dissolved	M200.7 ICP	10	3960			mg/L	2	10	11/28/18 22:44	dcm
Thallium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:32	msh
Uranium, dissolved	M200.8 ICP-MS	10	0.004	B		mg/L	0.001	0.005	11/27/18 20:32	msh
Vanadium, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 22:44	dcm
Zinc, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:44	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	100	6490		*	mg/L	40	200	11/27/18 1:46	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1	0.009	B		mg/L	0.003	0.01	11/19/18 15:55	rbt
Fluoride	SM4500F-C	1	1.09		*	mg/L	0.05	0.3	11/26/18 18:08	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	11/17/18 0:05	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.01	B	*	mg/L	0.01	0.05	11/17/18 0:05	pjb
pH (lab)	SM4500H+ B									
pH		1	8.0	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.1			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	5	10700			mg/L	50	100	11/21/18 16:49	nmc
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	11/27/18 1:46	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-7

ACZ Sample ID: ***L48281-07***
Date Sampled: *11/15/18 15:45*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	10		U		mg/L	0.3	2	11/28/18 22:54	dcm
Antimony, dissolved	M200.8 ICP-MS	10		U		mg/L	0.004	0.02	11/27/18 20:35	msh
Arsenic, dissolved	M200.8 ICP-MS	10	0.002	B		mg/L	0.002	0.01	11/27/18 20:35	msh
Barium, dissolved	M200.7 ICP	10	3.42			mg/L	0.03	0.2	11/28/18 22:54	dcm
Beryllium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:35	msh
Boron, dissolved	M200.7 ICP	10	0.7			mg/L	0.1	0.5	11/28/18 22:54	dcm
Cadmium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:35	msh
Calcium, dissolved	M200.7 ICP	10	54			mg/L	1	5	11/28/18 22:54	dcm
Chromium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.02	11/27/18 20:35	msh
Cobalt, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:54	dcm
Copper, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:54	dcm
Iron, dissolved	M200.7 ICP	10	3.9			mg/L	0.2	0.5	11/28/18 22:54	dcm
Lead, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:35	msh
Lithium, dissolved	M200.7 ICP	10	1.84			mg/L	0.08	0.4	11/28/18 22:54	dcm
Magnesium, dissolved	M200.7 ICP	10	19			mg/L	2	10	11/28/18 22:54	dcm
Manganese, dissolved	M200.7 ICP	10	0.11	B		mg/L	0.05	0.3	11/28/18 22:54	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:50	che
Molybdenum, dissolved	M200.7 ICP	10		U		mg/L	0.2	1	11/28/18 22:54	dcm
Nickel, dissolved	M200.7 ICP	10		U		mg/L	0.08	0.4	11/28/18 22:54	dcm
Potassium, dissolved	M200.7 ICP	10	11			mg/L	2	10	11/28/18 22:54	dcm
Selenium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.003	11/27/18 20:35	msh
Silver, dissolved	M200.7 ICP	10		U	*	mg/L	0.1	0.3	11/28/18 22:54	dcm
Sodium, dissolved	M200.7 ICP	10	4250			mg/L	2	10	11/28/18 22:54	dcm
Thallium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:35	msh
Uranium, dissolved	M200.8 ICP-MS	10	0.005			mg/L	0.001	0.005	11/27/18 20:35	msh
Vanadium, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 22:54	dcm
Zinc, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 22:54	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	100	7310		*	mg/L	40	200	11/27/18 2:04	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1	0.005	B		mg/L	0.003	0.01	11/19/18 15:57	rbt
Fluoride	SM4500F-C	1	0.88		*	mg/L	0.05	0.3	11/26/18 18:11	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	11/17/18 0:12	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1	0.02	B	*	mg/L	0.01	0.05	11/17/18 0:12	pjb
pH (lab)	SM4500H+ B									
pH		1	7.9	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.0			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	5	11300			mg/L	50	100	11/21/18 16:51	nmc
Sulfate	M300.0 - Ion Chromatography	100	83.9	B	*	mg/L	40	200	11/27/18 2:04	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-15

ACZ Sample ID: ***L48281-08***
Date Sampled: *11/15/18 13:30*
Date Received: *11/16/18*
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	0.03	0.2	11/28/18 22:57	dcm
Antimony, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0004	0.002	11/27/18 20:38	msh
Arsenic, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0002	0.001	11/27/18 20:38	msh
Barium, dissolved	M200.7 ICP	1		U		mg/L	0.003	0.02	11/28/18 22:57	dcm
Beryllium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.00005	0.0003	11/27/18 20:38	msh
Boron, dissolved	M200.7 ICP	1		U		mg/L	0.01	0.05	11/28/18 22:57	dcm
Cadmium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.00005	0.0003	11/27/18 20:38	msh
Calcium, dissolved	M200.7 ICP	1		U		mg/L	0.1	0.5	11/28/18 22:57	dcm
Chromium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0005	0.002	11/27/18 20:38	msh
Cobalt, dissolved	M200.7 ICP	1		U		mg/L	0.01	0.05	11/28/18 22:57	dcm
Copper, dissolved	M200.7 ICP	1		U		mg/L	0.01	0.05	11/28/18 22:57	dcm
Iron, dissolved	M200.7 ICP	1		U		mg/L	0.02	0.05	11/28/18 22:57	dcm
Lead, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0001	0.0005	11/27/18 20:38	msh
Lithium, dissolved	M200.7 ICP	1		U		mg/L	0.008	0.04	11/28/18 22:57	dcm
Magnesium, dissolved	M200.7 ICP	1		U		mg/L	0.2	1	11/28/18 22:57	dcm
Manganese, dissolved	M200.7 ICP	1		U		mg/L	0.005	0.03	11/28/18 22:57	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:51	che
Molybdenum, dissolved	M200.7 ICP	1		U		mg/L	0.02	0.1	11/28/18 22:57	dcm
Nickel, dissolved	M200.7 ICP	1		U		mg/L	0.008	0.04	11/28/18 22:57	dcm
Potassium, dissolved	M200.7 ICP	1		U		mg/L	0.2	1	11/28/18 22:57	dcm
Selenium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0001	0.0003	11/27/18 20:38	msh
Silver, dissolved	M200.7 ICP	1		U	*	mg/L	0.01	0.03	11/28/18 22:57	dcm
Sodium, dissolved	M200.7 ICP	1	0.3	B		mg/L	0.2	1	11/28/18 22:57	dcm
Thallium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0001	0.0005	11/27/18 20:38	msh
Uranium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0001	0.0005	11/27/18 20:38	msh
Vanadium, dissolved	M200.7 ICP	1		U		mg/L	0.005	0.03	11/28/18 22:57	dcm
Zinc, dissolved	M200.7 ICP	1		U		mg/L	0.01	0.05	11/28/18 22:57	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	1		U	*	mg/L	0.4	2	11/27/18 16:54	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1		U		mg/L	0.003	0.01	11/19/18 16:03	rbt
Fluoride	SM4500F-C	1		U	*	mg/L	0.05	0.3	11/26/18 18:16	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	11/17/18 0:15	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/17/18 0:15	pjb
pH (lab)	SM4500H+ B									
pH		1	6.9	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.4			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	1	34			mg/L	10	20	11/20/18 13:05	kja
Sulfate	M300.0 - Ion Chromatography	1		U	*	mg/L	0.4	2	11/27/18 16:54	mss2

Golder Associates
Project ID: 1899205
Sample ID: MW-20

ACZ Sample ID: ***L48281-09***
Date Sampled: *11/15/18 13:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	10		U		mg/L	0.3	2	11/28/18 23:07	dcm
Antimony, dissolved	M200.8 ICP-MS	10		U		mg/L	0.004	0.02	11/27/18 20:42	msh
Arsenic, dissolved	M200.8 ICP-MS	10		U		mg/L	0.002	0.01	11/27/18 20:42	msh
Barium, dissolved	M200.7 ICP	10	8.96			mg/L	0.03	0.2	11/28/18 23:07	dcm
Beryllium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:42	msh
Boron, dissolved	M200.7 ICP	10	0.7			mg/L	0.1	0.5	11/28/18 23:07	dcm
Cadmium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.0005	0.003	11/27/18 20:42	msh
Calcium, dissolved	M200.7 ICP	10	37			mg/L	1	5	11/28/18 23:07	dcm
Chromium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.02	11/27/18 20:42	msh
Cobalt, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 23:07	dcm
Copper, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 23:07	dcm
Iron, dissolved	M200.7 ICP	10		U		mg/L	0.2	0.5	11/28/18 23:07	dcm
Lead, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:42	msh
Lithium, dissolved	M200.7 ICP	10	1.75			mg/L	0.08	0.4	11/28/18 23:07	dcm
Magnesium, dissolved	M200.7 ICP	10	17			mg/L	2	10	11/28/18 23:07	dcm
Manganese, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 23:07	dcm
Mercury, dissolved	M245.1 CVAA	1		U	*	mg/L	0.0002	0.001	11/29/18 12:52	che
Molybdenum, dissolved	M200.7 ICP	10		U		mg/L	0.2	1	11/28/18 23:07	dcm
Nickel, dissolved	M200.7 ICP	10		U		mg/L	0.08	0.4	11/28/18 23:07	dcm
Potassium, dissolved	M200.7 ICP	10	13			mg/L	2	10	11/28/18 23:07	dcm
Selenium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.003	11/27/18 20:42	msh
Silver, dissolved	M200.7 ICP	10		U	*	mg/L	0.1	0.3	11/28/18 23:07	dcm
Sodium, dissolved	M200.7 ICP	10	4140			mg/L	2	10	11/28/18 23:07	dcm
Thallium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:42	msh
Uranium, dissolved	M200.8 ICP-MS	10		U		mg/L	0.001	0.005	11/27/18 20:42	msh
Vanadium, dissolved	M200.7 ICP	10		U		mg/L	0.05	0.3	11/28/18 23:07	dcm
Zinc, dissolved	M200.7 ICP	10		U		mg/L	0.1	0.5	11/28/18 23:07	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	100	8050		*	mg/L	40	200	11/27/18 2:40	mss2
Cyanide, Free	D6888-09/OIA-1677-09	1	0.006	B		mg/L	0.003	0.01	11/19/18 16:05	rbt
Fluoride	SM4500F-C	1	1.03		*	mg/L	0.05	0.3	11/26/18 18:20	emk
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2			U		mg/L	0.02	0.1	11/30/18 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.02	0.1	11/17/18 0:16	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/17/18 0:16	pjb
pH (lab)	SM4500H+ B									
pH		1	8.2	H		units	0.1	0.1	11/21/18 0:00	mh
pH measured at		1	21.0			C	0.1	0.1	11/21/18 0:00	mh
Residue, Filterable (TDS) @180C	SM2540C	5	11100			mg/L	50	100	11/21/18 16:54	nmc
Sulfate	M300.0 - Ion Chromatography	100		U	*	mg/L	40	200	11/27/18 2:40	mss2

Report Header Explanations

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

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	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: http://www.acz.com/public/extquallist.pdf

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ACZ Project ID: ***L48281***

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.

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2	mg/L	100	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.09	0.09			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	1.0019		1.028	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	1.0019	U	1.037	mg/L	104	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	1.0019	U	1.039	mg/L	104	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
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.02		.02058	mg/L	103	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00088	0.00088			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.01		.00933	mg/L	93	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.02	U	.0225	mg/L	113	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.02	U	.02334	mg/L	117	70	130	4	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04982	mg/L	100	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00044	0.00044			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05005		.04525	mg/L	90	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1001	U	.10098	mg/L	101	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1001	U	.1061	mg/L	106	70	130	5	20	

Barium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.0248	mg/L	101	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.009	0.009			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5025		.5064	mg/L	101	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5025	U	.5119	mg/L	102	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5025	U	.5095	mg/L	101	85	115	0	20	

Beryllium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04625	mg/L	93	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00011	0.00011			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05035		.04379	mg/L	87	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1007	U	.08098	mg/L	80	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1007	U	.08412	mg/L	84	70	130	4	20	

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ACZ Project ID: ***L48281***

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.

Boron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.08	mg/L	104	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.03	0.03			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5005		.515	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5005	U	.526	mg/L	105	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5005	U	.518	mg/L	103	85	115	2	20	

Cadmium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04893	mg/L	98	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00011	0.00011			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05005		.04505	mg/L	90	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1001	U	.09374	mg/L	94	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1001	U	.09754	mg/L	97	70	130	4	20	

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	100		97.82	mg/L	98	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.3	0.3			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	67.92974		69.27	mg/L	102	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	67.92974	U	69.64	mg/L	103	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	67.92974	U	69.8	mg/L	103	85	115	0	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461194													
WG461194LFB1	LFB	11/26/18 18:18	WI181011-3	30		30.9	mg/L	103	90	110			
L48272-06DUP	DUP	11/26/18 23:05			U	U	mg/L				0	20	RA
L48281-01AS	AS	11/26/18 23:41	WI181011-3	3000	U	3200	mg/L	107	90	110			
WG461194LFB2	LFB	11/27/18 2:58	WI181011-3	30		30.9	mg/L	103	90	110			

Chromium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.05066	mg/L	101	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.0011	0.0011			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05005		.04469	mg/L	89	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1001	U	.0949	mg/L	95	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1001	U	.0986	mg/L	99	70	130	4	20	

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ACZ Project ID: ***L48281***

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 M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2.002		1.952	mg/L	98	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.03	0.03			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.501		.497	mg/L	99	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.501	U	.502	mg/L	100	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.501	U	.492	mg/L	98	85	115	2	20	

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		1.974	mg/L	99	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.03	0.03			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5015		.513	mg/L	102	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5015	U	.507	mg/L	101	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5015	U	.511	mg/L	102	85	115	1	20	

Cyanide, Free D6888-09/OIA-1677-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG460920													
WG460920ICV	ICV	11/19/18 15:18	WI181119-7	.3		.2988	mg/L	100	90	110			
WG460920ICB	ICB	11/19/18 15:20				U	mg/L		-0.003	0.003			
WG460920LFB	LFB	11/19/18 15:24	WI181119-6	.1		.1051	mg/L	105	90	110			
L48275-01AS	AS	11/19/18 15:28	WI181119-6	.1	U	.1029	mg/L	103	90	110			
L48275-01ASD	ASD	11/19/18 15:30	WI181119-6	.1	U	.1038	mg/L	104	90	110	1	20	
L48281-07AS	AS	11/19/18 15:59	WI181119-6	.1	.005	.1042	mg/L	99	90	110			
L48281-07ASD	ASD	11/19/18 16:01	WI181119-6	.1	.005	.1074	mg/L	102	90	110	3	20	

Fluoride SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461155													
WG461155ICV	ICV	11/26/18 12:24	WC181126-1	2.01		1.944	mg/L	97	90	110			
WG461155ICB	ICB	11/26/18 12:29				U	mg/L		-0.15	0.15			
WG461165													
WG461165ICV	ICV	11/26/18 14:08	WC181126-1	2.01		2	mg/L	100	90	110			
WG461165ICB	ICB	11/26/18 14:16				U	mg/L		-0.15	0.15			
WG461165LFB1	LFB	11/26/18 14:23	WC181119-2	5.015		5.167	mg/L	103	90	110			
WG461165LFB2	LFB	11/26/18 16:32	WC181119-2	5.015		4.883	mg/L	97	90	110			
L45959-17AS	AS	11/26/18 16:43	WC181119-2	5.015	.72	5.363	mg/L	93	90	110			
L45959-17ASD	ASD	11/26/18 16:46	WC181119-2	5.015	.72	5.3	mg/L	91	90	110	1	20	
L48281-05AS	AS	11/26/18 17:51	WC181119-2	5.015	.72	5.264	mg/L	91	90	110			
L48281-05ASD	ASD	11/26/18 18:04	WC181119-2	5.015	.72	5.2	mg/L	89	90	110	1	20	MA

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ACZ Project ID: ***L48281***

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.

Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		1.973	mg/L	99	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.06	0.06			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	1.0018		1.03	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	1.0018	U	1.036	mg/L	103	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	1.0018	U	1.03	mg/L	103	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
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04682	mg/L	94	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00022	0.00022			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.0496		.0426	mg/L	86	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.0992	U	.09556	mg/L	96	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.0992	U	.09864	mg/L	99	70	130	3	20	

Lithium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.0072	mg/L	100	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.024	0.024			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	1.003		1.001	mg/L	100	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	1.003	U	1.001	mg/L	100	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	1.003	U	.9894	mg/L	99	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
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	100		98.07	mg/L	98	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.6	0.6			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	50.04094		49.05	mg/L	98	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	50.04094	U	49.5	mg/L	99	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	50.04094	U	49.73	mg/L	99	85	115	0	20	

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		1.9392	mg/L	97	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.015	0.015			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5005		.5051	mg/L	101	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5005	U	.5087	mg/L	102	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5005	U	.5054	mg/L	101	85	115	1	20	

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ACZ Project ID: ***L48281***

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
WG461233													
WG461233ICV	ICV	11/29/18 11:49	HG181126-2	.004995		.00495	mg/L	99	95	105			
WG461233ICB	ICB	11/29/18 11:49				U	mg/L		-0.0002	0.0002			
WG461250													
WG461250LRB	LRB	11/29/18 12:26				U	mg/L		-0.00044	0.00044			
WG461250LFB	LFB	11/29/18 12:27	HG181126-5	.002002		.00206	mg/L	103	85	115			
L48281-09LFM	LFM	11/29/18 12:52	HG181126-5	.002002	U	.00123	mg/L	61	85	115			M2
L48281-09LFMD	LFMD	11/29/18 12:53	HG181126-5	.002002	U	.00136	mg/L	68	85	115	10	20	M2

Molybdenum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.073	mg/L	104	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.06	0.06			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5015		.519	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5015	U	.521	mg/L	104	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5015	U	.519	mg/L	103	85	115	0	20	

Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2.004		1.9675	mg/L	98	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.024	0.024			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5		.513	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5	U	.5136	mg/L	103	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5	U	.5125	mg/L	103	85	115	0	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
WG460807													
WG460807ICV	ICV	11/16/18 23:18	WI180905-11	2.416		2.48	mg/L	103	90	110			
WG460807ICB	ICB	11/16/18 23:19				U	mg/L		-0.02	0.02			
WG460807LFB1	LFB	11/16/18 23:24	WI180703-7	2		2.041	mg/L	102	90	110			
L48249-02AS	AS	11/16/18 23:46	WI180703-7	2	.14	2.169	mg/L	101	90	110			
L48271-02DUP	DUP	11/16/18 23:48			.49	.484	mg/L				1	20	
WG460807LFB2	LFB	11/17/18 0:04	WI180703-7	2		2.034	mg/L	102	90	110			
L48281-06AS	AS	11/17/18 0:11	WI180703-7	2	U	2.099	mg/L	105	90	110			
L48281-07DUP	DUP	11/17/18 0:13			U	U	mg/L				0	20	RA

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ACZ Project ID: ***L48281***

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
WG460807													
WG460807ICV	ICV	11/16/18 23:18	WI180905-11	.609		.584	mg/L	96	90	110			
WG460807ICB	ICB	11/16/18 23:19				U	mg/L		-0.01	0.01			
WG460807LFB1	LFB	11/16/18 23:24	WI180703-7	1		.995	mg/L	100	90	110			
L48249-02AS	AS	11/16/18 23:46	WI180703-7	1	U	.998	mg/L	100	90	110			
L48271-02DUP	DUP	11/16/18 23:48			U	.013	mg/L				200	20	RA
WG460807LFB2	LFB	11/17/18 0:04	WI180703-7	1		1.006	mg/L	101	90	110			
L48281-06AS	AS	11/17/18 0:11	WI180703-7	1	.01	1.025	mg/L	102	90	110			
L48281-07DUP	DUP	11/17/18 0:13			.02	.013	mg/L				42	20	RA

pH (lab) SM4500H+ B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461012													
WG461012LCSW1	LCSW	11/20/18 18:09	PCN55475	6.01		6	units	100	5.9	6.1			
WG461012LCSW4	LCSW	11/20/18 21:48	PCN55475	6.01		6	units	100	5.9	6.1			
WG461012LCSW7	LCSW	11/21/18 1:24	PCN55475	6.01		6	units	100	5.9	6.1			
L48281-06DUP	DUP	11/21/18 3:07			8	8	units				0	20	
L48284-06DUP	DUP	11/21/18 4:16			8.3	8.3	units				0	20	
WG461012LCSW10	LCSW	11/21/18 4:19	PCN55475	6.01		6	units	100	5.9	6.1			
WG461012LCSW13	LCSW	11/21/18 8:30	PCN55475	6.01		6	units	100	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
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	20		20.05	mg/L	100	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.6	0.6			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	100.7068		103.2	mg/L	102	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	100.7068	U	103.8	mg/L	103	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	100.7068	U	103.8	mg/L	103	85	115	0	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG460977													
WG460977PBW	PBW	11/20/18 12:45				10	mg/L		-20	20			
WG460977LCSW	LCSW	11/20/18 12:46	PCN57006	260		272	mg/L	105	80	120			
L48281-05DUP	DUP	11/20/18 13:01			3340	3260	mg/L				2	10	
L48305-09DUP	DUP	11/20/18 13:14			1370	1380	mg/L				1	10	
WG461091													
WG461091PBW	PBW	11/21/18 16:31				12	mg/L		-20	20			
WG461091LCSW	LCSW	11/21/18 16:33	PCN57007	260		262	mg/L	101	80	120			
L48336-01DUP	DUP	11/21/18 17:02			4190	4120	mg/L				2	10	

Golder Associates

ACZ Project ID: ***L48281***

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
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04885	mg/L	98	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00022	0.00022			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05005		.0443	mg/L	89	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1001	U	.07836	mg/L	78	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1001	U	.08684	mg/L	87	70	130	10	20	

Silver, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	1.001		.999	mg/L	100	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.03	0.03			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.5		.487	mg/L	97	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.5	U	.315	mg/L	63	85	115			M2 ZA
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.5	U	.288	mg/L	58	85	115	9	20	M2 ZA

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	100		98.5	mg/L	99	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.6	0.6			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	100.0849		100.5	mg/L	100	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	100.0849	.3	101.8	mg/L	101	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	100.0849	.3	102.1	mg/L	102	85	115	0	20	

Sulfate M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461194													
WG461194LFB1	LFB	11/26/18 18:18	WI181011-3	30		30.8	mg/L	103	90	110			
L48272-06DUP	DUP	11/26/18 23:05			U	U	mg/L				0	20	RA
L48281-01AS	AS	11/26/18 23:41	WI181011-3	3000	5090	7960	mg/L	96	90	110			
WG461194LFB2	LFB	11/27/18 2:58	WI181011-3	30		30.7	mg/L	102	90	110			

Thallium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04676	mg/L	94	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00022	0.00022			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.0501		.04258	mg/L	85	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1002	U	.096	mg/L	96	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1002	U	.0985	mg/L	98	70	130	3	20	

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ACZ Project ID: ***L48281***

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.

Uranium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461284													
WG461284ICV	ICV	11/27/18 19:51	MS181025-2	.05		.04809	mg/L	96	90	110			
WG461284ICB	ICB	11/27/18 19:54				U	mg/L		-0.00022	0.00022			
WG461284LFB	LFB	11/27/18 19:58	MS181016-3	.05		.04298	mg/L	86	85	115			
L48281-03AS	AS	11/27/18 20:13	MS181016-3	.1	.0003	.10336	mg/L	103	70	130			
L48281-03ASD	ASD	11/27/18 20:17	MS181016-3	.1	.0003	.1066	mg/L	106	70	130	3	20	

Vanadium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.032	mg/L	102	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.015	0.015			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.502		.5179	mg/L	103	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.502	U	.5234	mg/L	104	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.502	U	.5261	mg/L	105	85	115	1	20	

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG461362													
WG461362ICV	ICV	11/28/18 21:15	II181121-1	2		2.003	mg/L	100	95	105			
WG461362ICB	ICB	11/28/18 21:21				U	mg/L		-0.03	0.03			
WG461362LFB	LFB	11/28/18 21:34	II181115-3	.4942		.542	mg/L	110	85	115			
L48281-08AS	AS	11/28/18 23:00	II181115-3	.4942	U	.542	mg/L	110	85	115			
L48281-08ASD	ASD	11/28/18 23:03	II181115-3	.4942	U	.542	mg/L	110	85	115	0	20	

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ACZ Project ID: ***L48281***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L48281-01	WG461194	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).
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461012	pH	SM4500H+ B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).
L48281-02	WG461194	Chloride	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).
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).
L48281-03	WG461194	Chloride	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).
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).

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ACZ Project ID: ***L48281***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L48281-04	WG461194	Chloride	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).
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).
L48281-05	WG461194	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).
	WG461165	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.
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461012	pH	SM4500H+ B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).
L48281-06	WG461194	Chloride	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).
	WG461165	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.
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).

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ACZ Project ID: ***L48281***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L48281-07	WG461194	Chloride	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).
	WG461165	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.
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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 preceeds 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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).
L48281-08	WG461194	Chloride	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).
	WG461165	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.
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).

Inorganic Extended Qualifier Report

Golder Associates

ACZ Project ID: ***L48281***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L48281-09	WG461194	Chloride	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).
	WG461165	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.
	WG461250	Mercury, dissolved	M245.1 CVAA	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG460807	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).
	WG461362	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG461194	Sulfate	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).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-1
Locator:

ACZ Sample ID: ***L48281-01***
Date Sampled: *11/15/18 12:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		40	31	100	pCi/L		amk
Gross Beta	11/29/18 0:00		33	29	64	pCi/L		amk

Golder Associates
Project ID: 1899205
Sample ID: MW-2
Locator:

ACZ Sample ID: ***L48281-02***
Date Sampled: *11/15/18 15:30*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		20	18	68	pCi/L		amk
Gross Beta	11/29/18 0:00		25	21	55	pCi/L		amk

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RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-3
Locator:

ACZ Sample ID: ***L48281-03***
Date Sampled: *11/15/18 14:30*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		0.15	7.4	46	pCi/L		amk
Gross Beta	11/29/18 0:00		3.7	15	45	pCi/L		amk

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RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-4
Locator:

ACZ Sample ID: ***L48281-04***
Date Sampled: *11/15/18 12:45*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		0.83	26	220	pCi/L		amk
Gross Beta	11/29/18 0:00		38	39	130	pCi/L		amk

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RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-5
Locator:

ACZ Sample ID: ***L48281-05***
Date Sampled: *11/15/18 10:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		8.6	11	32	pCi/L		amk
Gross Beta	11/29/18 0:00		18	13	20	pCi/L		amk

Golder Associates
Project ID: 1899205
Sample ID: MW-6
Locator:

ACZ Sample ID: ***L48281-06***
Date Sampled: *11/15/18 17:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		47	36	110	pCi/L		amk
Gross Beta	11/29/18 0:00		43	35	90	pCi/L		amk

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RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-7
Locator:

ACZ Sample ID: ***L48281-07***
Date Sampled: *11/15/18 15:45*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		5.8	29	100	pCi/L		amk
Gross Beta	11/29/18 0:00		34	42	110	pCi/L		amk

RadioChemistry Analytical Results

Golder Associates
Project ID: 1899205
Sample ID: MW-15
Locator:

ACZ Sample ID: ***L48281-08***
Date Sampled: *11/15/18 13:30*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		0.26	0.98	5.2	pCi/L		amk
Gross Beta	11/29/18 0:00		-0.41	2.6	12	pCi/L		amk

Golder Associates
Project ID: 1899205
Sample ID: MW-20
Locator:

ACZ Sample ID: ***L48281-09***
Date Sampled: *11/15/18 13:00*
Date Received: *11/16/18*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	11/29/18 0:00		9.6	29	96	pCi/L		amk
Gross Beta	11/29/18 0:00		48	39	98	pCi/L		amk

Report Header Explanations

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

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	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: http://www.acz.com/public/extquallist.pdf

Golder Associates

ACZ Project ID: ***L48281***

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
WG461550																
WG460906PBW	PBW	11/29/18						.89	0.87	0.86			1.72			
WG460906LCSWA	LCSW	11/29/18	PCN57385	100				120	9.2	1.4	120	67	144			
L48290-01DUP	DUP-RER	11/29/18			-0.4	1.4	8.6	-.85	1.5	6.8				0.22	2	
L48184-03MSA	MS	11/29/18	PCN57385	66.67	7.1	2.4	1.3	84	7.8	1.4	115	67	144			
L48184-02DUP	DUP-RER	11/29/18			5.3	1.9	1	4.5	2	1.4				0.29	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
WG461550																
WG460906PBW	PBW	11/29/18						2.5	1.9	1.9			3.8			
WG460906LCSWB	LCSW	11/29/18	PCN56196	100				95	6.1	2.4	95	82	122			
L48290-01DUP	DUP-RER	11/29/18			3.5	2.6	5.7	3.4	2.8	4.3				0.03	2	
L48184-04MSB	MS	11/29/18	PCN56196	66.67	4.7	2.1	1.9	71	4.6	2	99	82	122			
L48184-02DUP	DUP-RER	11/29/18			4	2.1	1.9	3.2	1.9	1.8				0.28	2	

ACZ Laboratories, Inc.
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RadChem Extended Qualifier Report

Golder Associates

ACZ Project ID: ***L48281***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION

No extended qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Golder Associates
1899205

ACZ Project ID: L48281
Date Received: 11/16/2018 10:49
Received By:
Date Printed: 11/16/2018

Receipt Verification

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

A change was made in the PO#: section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]	X		
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	

Some parameters were received past hold time.

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?
6214	1.7	<=6.0	16	Yes
6218	1.7	<=6.0	15	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.

REPAD LPII 2012-03

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Golder Associates
1899205

ACZ Project ID:	L48281
Date Received:	11/16/2018 10:49
Received By:	
Date Printed:	11/16/2018

[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).

ACZ Laboratories, Inc.

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

L48281

CHAIN of CUSTODY

Report to:

Name: Sara Harkins
Company: Golder Associates
E-mail: sharkins@golder.com
Address: 44 Union Blvd Suite 300 Lakewood CO 80228
Telephone: 303-980-0540

Copy of Report to:

Name:
Company:
E-mail:
Telephone:

Invoice to:

Name:
Company:
E-mail:
Address:
Telephone:

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 [X] 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 [X]

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

Sampler's Name: DBB **Sampler's Site Information** State CO Zip code _____ Time Zone MDT

***Sampler's Signature:** DBB

*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

Quote #:
PO#: ~~154769~~ 1899205
Reporting state for compliance testing: CO
Check box if samples include NRC licensed material?

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See Quote
MW-1	11/15/2018 12:00	GW	5	X
MW-2	11/15/2018 15:30			X
MW-3	11/15/2018 14:30			X
MW-4	11/15/2018 12:45			X
MW-5	11/15/2018 10:00			X
MW-6	11/15/2018 17:00			X
MW-7	11/15/2018 15:45			X
MW-15	11/15/2018 13:30			X
MW-20	11/15/2018 13:00	V	V	X

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

REMARKS

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
DBB	11/15/18 19:45	[illegible]	11/16/18 10:49

L48281 Chain of Custod

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

January 14, 2019

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

Project ID: 1899205
ACZ Project ID: L49176

Sara Harkins:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on January 07, 2019. This project has been assigned to ACZ's project number, L49176. 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 L49176. 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 February 13, 2019. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/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 raw data reports for ten years.

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

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

Golder Associates
Project ID: 1899205
Sample ID: MW-1

ACZ Sample ID: ***L49176-01***
Date Sampled: *11/15/18 12:00*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	5	0.004	B	*	mg/L	0.002	0.01	01/11/19 11:24	mfm
Cobalt, dissolved	M200.8 ICP-MS	5	0.0018			mg/L	0.0003	0.001	01/11/19 11:24	mfm
Copper, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.004	0.01	01/11/19 11:24	mfm
Manganese, dissolved	M200.8 ICP-MS	5	0.022			mg/L	0.002	0.01	01/11/19 11:24	mfm
Molybdenum, dissolved	M200.8 ICP-MS	5	0.085			mg/L	0.003	0.01	01/11/19 11:24	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.009	B	*	mg/L	0.003	0.02	01/11/19 11:24	mfm
Silver, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	01/11/19 11:24	mfm
Thallium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	01/11/19 11:24	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-2

ACZ Sample ID: ***L49176-02***
Date Sampled: *11/15/18 15:30*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.002	0.01	01/11/19 11:26	mfm
Cobalt, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	01/11/19 11:26	mfm
Copper, dissolved	M200.8 ICP-MS	5	0.005	B	*	mg/L	0.004	0.01	01/11/19 11:26	mfm
Molybdenum, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.01	01/11/19 11:26	mfm
Nickel, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.003	0.02	01/11/19 11:26	mfm
Silver, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	01/11/19 11:26	mfm
Thallium, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0005	0.003	01/11/19 11:26	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-3

ACZ Sample ID: ***L49176-03***
Date Sampled: *11/15/18 14:30*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cobalt, dissolved	M200.8 ICP-MS	5		U	*	mg/L	0.0003	0.001	01/11/19 11:27	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-4

ACZ Sample ID: ***L49176-04***
Date Sampled: *11/15/18 12:45*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	10	0.006	B	*	mg/L	0.004	0.02	01/11/19 11:33	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	01/11/19 11:33	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	01/11/19 11:33	mfm
Iron, dissolved	M200.8 ICP-MS	10	0.15		*	mg/L	0.04	0.1	01/11/19 11:33	mfm
Manganese, dissolved	M200.8 ICP-MS	10	0.008	B	*	mg/L	0.004	0.02	01/11/19 11:33	mfm
Molybdenum, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.03	01/11/19 11:33	mfm
Nickel, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.006	0.03	01/11/19 11:33	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:33	mfm
Thallium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:33	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	01/11/19 11:33	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-5

ACZ Sample ID: ***L49176-05***
Date Sampled: *11/15/18 10:00*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cobalt, dissolved	M200.8 ICP-MS	2	0.0047			mg/L	0.0001	0.0005	01/11/19 11:35	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-6

ACZ Sample ID: ***L49176-06***
Date Sampled: *11/15/18 17:00*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.02	01/11/19 11:36	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	01/11/19 11:36	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	01/11/19 11:36	mfm
Manganese, dissolved	M200.8 ICP-MS	10	0.090			mg/L	0.004	0.02	01/11/19 11:36	mfm
Molybdenum, dissolved	M200.8 ICP-MS	10	0.025	B	*	mg/L	0.005	0.03	01/11/19 11:36	mfm
Nickel, dissolved	M200.8 ICP-MS	10	0.007	B	*	mg/L	0.006	0.03	01/11/19 11:36	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:36	mfm
Thallium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:36	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	01/11/19 11:36	mfm

Golder Associates
Project ID: 1899205
Sample ID: MW-7

ACZ Sample ID: ***L49176-07***
Date Sampled: *11/15/18 15:45*
Date Received: *01/07/19*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.004	0.02	01/11/19 11:38	mfm
Cobalt, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.0005	0.003	01/11/19 11:38	mfm
Copper, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.008	0.02	01/11/19 11:38	mfm
Molybdenum, dissolved	M200.8 ICP-MS	10	0.022	B	*	mg/L	0.005	0.03	01/11/19 11:38	mfm
Nickel, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.006	0.03	01/11/19 11:38	mfm
Silver, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:38	mfm
Thallium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.001	0.005	01/11/19 11:38	mfm
Vanadium, dissolved	M200.8 ICP-MS	10		U	*	mg/L	0.005	0.02	01/11/19 11:38	mfm

Report Header Explanations

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

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	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: http://www.acz.com/public/extquallist.pdf

Golder Associates

ACZ Project ID: ***L49176***

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.

Antimony, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.02		.02024	mg/L	101	90	110			
WG464301ICB	ICB	01/11/19 11:20				.00067	mg/L		-0.00088	0.00088			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.01		.00957	mg/L	96	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.05	U	.0496	mg/L	99	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.05	U	.0497	mg/L	99	70	130	0	20	

Cobalt, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.051895	mg/L	104	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00011	0.00011			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.05005		.051788	mg/L	103	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.25025	U	.21191	mg/L	85	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.25025	U	.2068	mg/L	83	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
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.04902	mg/L	98	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00176	0.00176			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.0501		.04855	mg/L	97	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.2505	U	.1975	mg/L	79	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.2505	U	.1938	mg/L	77	70	130	2	20	

Iron, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.10008		.1073	mg/L	107	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.0088	0.0088			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.05		.0453	mg/L	91	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.25	.15	.332	mg/L	73	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.25	.15	.348	mg/L	79	70	130	5	20	

Manganese, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.05068	mg/L	101	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00088	0.00088			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.05		.05088	mg/L	102	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.25	.011	.2196	mg/L	83	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.25	.011	.2122	mg/L	80	70	130	3	20	

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ACZ Project ID: ***L49176***

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.

Molybdenum, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.02006		.01819	mg/L	91	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.0011	0.0011			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.0501		.05005	mg/L	100	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.2505	U	.2571	mg/L	103	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.2505	U	.2478	mg/L	99	70	130	4	20	

Nickel, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.05152	mg/L	103	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00132	0.00132			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.0501		.05079	mg/L	101	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.2505	U	.2114	mg/L	84	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.2505	U	.2078	mg/L	83	70	130	2	20	

Silver, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.02004		.02008	mg/L	100	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00022	0.00022			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.01002		.00982	mg/L	98	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.0501	U	.03105	mg/L	62	70	130			M2 ZA
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.0501	U	.03867	mg/L	77	70	130	22	20	RF

Thallium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.0513	mg/L	103	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.00022	0.00022			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.0501		.05099	mg/L	102	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.2505	U	.25861	mg/L	103	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.2505	U	.24704	mg/L	99	70	130	5	20	

Vanadium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG464301													
WG464301ICV	ICV	01/11/19 11:18	MS181210-2	.05		.04896	mg/L	98	90	110			
WG464301ICB	ICB	01/11/19 11:20				U	mg/L		-0.0011	0.0011			
WG464301LFB	LFB	01/11/19 11:22	MS190110-2	.05005		.05048	mg/L	101	85	115			
L49176-03AS	AS	01/11/19 11:29	MS190110-2	.25025	U	.2377	mg/L	95	70	130			
L49176-03ASD	ASD	01/11/19 11:31	MS190110-2	.25025	U	.2356	mg/L	94	70	130	1	20	

Golder Associates

ACZ Project ID: ***L49176***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L49176-01	WG464301	Antimony, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Copper, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Nickel, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Silver, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
			M200.8 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.8 ICP-MS	RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
			M200.8 ICP-MS	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Thallium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
L49176-02	WG464301	Antimony, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Cobalt, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Copper, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Molybdenum, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Nickel, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Silver, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
			M200.8 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.8 ICP-MS	RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
			M200.8 ICP-MS	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Thallium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
L49176-03	WG464301	Cobalt, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
L49176-04	WG464301	Antimony, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Cobalt, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Copper, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Manganese, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Molybdenum, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Nickel, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Silver, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
			M200.8 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.8 ICP-MS	RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
			M200.8 ICP-MS	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Thallium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Vanadium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.

Inorganic Extended Qualifier Report

Golder Associates

ACZ Project ID: ***L49176***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L49176-06	WG464301	Antimony, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Cobalt, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Copper, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Molybdenum, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Nickel, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Silver, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
			M200.8 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.8 ICP-MS	RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
			M200.8 ICP-MS	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Thallium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Vanadium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
L49176-07	WG464301	Antimony, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Cobalt, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Copper, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Molybdenum, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Nickel, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Silver, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
			M200.8 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.8 ICP-MS	RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
			M200.8 ICP-MS	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Thallium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.
		Vanadium, dissolved	M200.8 ICP-MS	DH	Sample required dilution due to high TDS and/or EC value.

Golder Associates

ACZ Project ID: ***L49176***

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Iron, dissolved	M200.8 ICP-MS

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Golder Associates
1899205

ACZ Project ID: L49176
Date Received: 01/07/2019 14:11
Received By:
Date Printed: 1/8/2019

Receipt Verification

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

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]	X		
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?
UNKNOWN		NA		

Was ice present in the shipment container(s)?

No - Wet or gel ice was not 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.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Golder Associates
1899205

ACZ Project ID: L49176
Date Received: 01/07/2019 14:11
Received By:
Date Printed: 1/8/2019

[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).

L49176 Re-log

ACZ Laboratories, Inc.

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

L48784 11/13/19

CHAIN of CUSTODY

Report to:

Name: Sara Harkins	Address: 44 Union Blvd Suite 300 Lakewood CO 80228
Company: Golder Associates	
E-mail: sharkins@golder.com	Telephone: 303-980-0540

Copy of Report to:

Name:	E-mail:
Company:	Telephone:

Invoice to:

Name:	Address:
Company:	
E-mail:	Telephone:

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 [X] 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 [X]

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

Sampler's Name: DBB **Sampler's Site Information** **State** CO **Zip code** _____ **Time Zone** MDT

***Sampler's Signature:** DBB

*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

Quote #:

PO#: ~~154769~~ 1899205

Reporting state for compliance testing: CO

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	See Quote
MW-1	11/15/2018 12:00	GW	5	X
MW-2	11/15/2018 15:30			X
MW-3	11/15/2018 14:30			X
MW-4	11/15/2018 12:45			X
MW-5	11/15/2018 10:00			X
MW-6	11/15/2018 17:00			X
MW-7	11/15/2018 15:45			X
MW-15	11/15/2018 13:30			X
MW-20	11/15/2018 13:00	V	V	X

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

REMARKS

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
DBB	11/15/18 19:45	[illegible]	11/16/18 10:49

L49176 Chain of Custody

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

Analyte	Regulatory Standard	Wells
Copper, Dissolved (mg/L)	0.2	MW-1, MW-2, MW-4, MW-6, MW-7
Iron, Dissolved (mg/L)	0.3	MW-4
Manganese, Dissolved (mg/L)	0.05	MW-1, MW-4, MW-6
Thallium, Dissolved (mg/L)	0.002	MW-1, MW-2, MW-4, MW-6, MW-7
Antimony, Dissolved (mg/L)	0.006	MW-1, MW-2, MW-4, MW-6, MW-7
Cobalt, Dissolved (mg/L)	0.05	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7
Molybdenum, Dissolved (mg/L)	0.21	MW-1, MW-2, MW-4, MW-6, MW-7
Nickel, Dissolved (mg/L)	0.1	MW-1, MW-2, MW-4, MW-6, MW-7
Silver, Dissolved (mg/L)	0.05	MW-1, MW-2, MW-4, MW-6, MW-7
Vanadium, Dissolved (mg/L)	0.1	MW-4, MW-6, MW-7