Reference No. 3140755.001-002-LTR-0

**Ms. Nikie Gagnon**
Colorado Division of Reclamation Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

**SECOND SEMI-ANNUAL EVENT 2023 GROUNDWATER SAMPLING AT THE BOETTCHER QUARRY**

Dear Ms. Gagnon:

On behalf of Holcim (US) Inc., WSP USA Inc. (WSP), is pleased to submit analytical laboratory results for the second semi-annual 2023 groundwater sampling event at the Boettcher Limestone Quarry near La Porte, Colorado. Attached are Tables 1 through 8, summarizing the results, and a copy of the laboratory reports (Attachment 1). Field sheets for the purging and sampling are presented in Attachment 2. In addition to sampling wells MW-1 through MW-8, 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-8 are presented in Figure 1. The second semi-annual 2023 groundwater sampling event was the seventh time MW-8 was sampled.

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

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

- The samples were received by the laboratory at the appropriate temperature.
- The required analyses were performed.

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- The analyses were conducted within their respective United States Environmental Protection Agency-recommended hold times, apart from pH, alkalinity, and chloride.
  - Measurements for pH should be conducted within 15 minutes of sample collection; thus, the laboratory pH measurement will always be out of hold time.
  - Alkalinity (bicarbonate and carbonate) was initially measured within hold time, however reanalysis was required due to quality assurance/quality control (QA/QC) failure identified by ACZ and documented in the laboratory report. Reanalysis was performed outside of the hold time.
  - The reported chloride value in MW-8 was analyzed out of hold time. The initial analysis was conducted within hold time; however, a reanalysis was requested due to QA/QC failure (elevated charge balance error and inconsistency between the measured and calculated total dissolved solids). After re-analysis, the values for MW-8 were within the limits observed previously.

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

- MW-1: manganese, selenium, uranium, sulfate, and gross alpha
- MW-2: barium, manganese, and chloride
- MW-3: barium, boron, chloride, and fluoride
- MW-4: barium, chloride, and total dissolved solids
- MW-5: iron, manganese, and sulfate
- MW-6: barium, iron, manganese, chloride, and gross alpha
- MW-7: barium, iron, manganese, chloride, gross alpha, and antimony
- MW-8: barium, uranium, chloride, gross alpha, and antimony

Consistent with previous events, some sample dilutions are required by the analytical laboratory due to matrix interferences of non-target analytes and concerns of damaging equipment. This results in non-detects with practical quantitation limits greater than the Interim Narrative Standard for:

- Antimony in MW-4 and MW-6
- Sulfate in MW-4 and MW-8
- Thallium in MW-4, MW-6, MW-7, and MW-8

These constituents were not detected above the method detection limit (MDL), which was lower than the Interim Narrative Standard.

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

Sincerely,

**WSP USA Inc.**

Jennifer Thompson
*Geochemist*

Sara Harkins, PG
*Senior Geochemist*

JT/SH/rm

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
Table 8: Summary of Monitoring Results for MW-8
Figure 1: Location Map
Figure 2: Groundwater Elevations vs. Time
Attachment 1: ACZ Laboratory Reports
Attachment 2: Field Sheets

https://wsponlinenam.sharepoint.com/sites/us-holcimboettcherqua/shared documents/2023_202300080_holcim 2023 boettcher gw co/2. technical work/q4 2023 groundwater sampling/_formatted/rev0/31404755.001-002-ltr-0-second_semiannual_event_2023_gws_boetcher_quarry_19jan24.docx

# 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 | 5/21/2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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 | 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 | 0.004 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 | 0.57 |
| 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 | <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 | <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 | <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 | <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 | 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** | 0.033 |
| 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** | **0.2775** |
| 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 | <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 | 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 | <0.05 U |
| **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 | <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 | 0.44 |
| 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 | 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 | 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 | 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 | 7.8 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 | 6,910 H |
| 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** | **6,850** |
| 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 | 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 | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | NA | NA | NA | NA | NA | NA | NA | NA | 7.4 | 7.42 | 7.27 | 7.42 | 7.42 | 7.6 | 7.36 | 7.42 | 7.62 | 7.59 | 7.23 | 7.34 | 7.4 | 7.39 | 7.15 |
| Field Conductivity (µS/cm) | none | NA | NA | NA | NA | NA | NA | NA | NA | 904 | 860 | 7,390 | 7,960 | 6,580 | 7,830 | 37.21 | 6,170 | 7,740 | 7,620 | 8,210 | 7,800 | 8,888 | 8,180 | 9,650 |
| Temperature (Degrees Celsius) | none | NA | NA | NA | NA | NA | NA | NA | NA | 16.83 | 14.6 | 18.7 | 20.9 | 16.1 | 15.6 | 18.4 | 16.1 | 14.6 | 14.3 | 16.3 | 17.1 | 13.62 | 14 | 15.9 |
| **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 | 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 | 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 | 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 | 333 |
| 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 | <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 | 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 | 330 |
| 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 | 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 | 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 | 364 |
| 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 | 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 | 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 | 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 | 18.9 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 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 | 1,910 |
| 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 | 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 8/27/2014 | 11/11/2014 | 2/18/2015 | 5/27/2015 | 8/27/2015 | 11/9/2015 | 2/15/2016 | 5/31/2016 | 8/16/2016 | 11/9/2016 | 5/31/2017 | 11/15/2017 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/16/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.001 B | 0.0018 | 0.002 B | 0.0027 | 0.00163 | <0.005 U | 0.00135 B | 0.00145 B | <0.01 U | 0.00244 B | 0.00104 B |
| Barium, Dissolved (mg/L) | 2.0 | 0.006 B | 0.007 B | 0.009 B | <0.08 U | <0.08 U | <0.08 U | 0.03 B | <0.08 U | <0.08 U | 0.007 B | <0.08 U | <0.08 U | <0.08 U | <0.08 U | <0.2 U | <0.04 U | 0.041 | 0.0104 | 0.00929 B | 0.00991 B | 0.0105 B | 0.00869 B | 0.0176 | 0.0104 B |
| Boron, Dissolved (mg/L) | 0.75 | 0.56 | 0.58 | 0.59 | 0.55 | 0.57 | 0.52 | 0.60 | 0.51 | 0.51 | 0.56 | 0.61 | 0.61 | 0.65 | 0.62 | 0.70 | 0.60 | 0.68 | 0.744 | 0.644 | 0.658 | 0.645 | **0.770** | **0.795** | 0.722 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | <0.002 U | <0.003 U | 0.001 B | <0.002 U | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | 0.0028 U | <0.004 U | <0.004 U | <0.002 U | <0.01 U | 0.0107 | <0.01 U | <0.02 U | <0.01 U | <0.01 U |
| Iron, Dissolved (mg/L) | 0.3 | <0.05 U | <0.05 U | <0.05 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | 0.018 U | <0.2 U | **0.93** | <0.3 U | <0.75 U | <0.15 U | <0.75 U | <0.75 U | 0.234 | <0.15 U |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.0005 U | 0.002 | <0.0005 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | 0.00083 B | <0.0025 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.13 | 1.23 | 1.05 | 1.09 | 1.09 | 1.24 | 1.28 | 1.13 | 1.06 | 1.12 | 1.06 |
| Manganese, Dissolved (mg/L) | 0.05 | 0.045 | 0.041 | **0.052** | <0.1 U | 0.04 B | <0.1 U | 0.04 B | <0.1 U | <0.1 U | 0.04 | <0.1 U | <0.1 U | <0.1 U | 0.022 | 0.05 B | 0.03 | 0.035 | 0.038 | **0.0741** | **0.0904** | **0.053** | **0.074** | **0.204** | **0.100** |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **0.0904** | **0.0998** | **0.0474** | **0.0378** | **0.0271** | **0.219** | **0.034** | 0.0174 | 0.00473 | 0.0015 | **0.0546** |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.0003 U | <0.001 U | <0.00125 U | 0.000465 B | <0.00125 U | <0.00125 U | 0.00045 B | 0.00007 B | <0.00125 U |
| Uranium, Dissolved (mg/L) | 0.0300 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **0.035** | **0.0352** | **0.0407** | **0.0385** | **0.0308** | **0.0452** | **0.0406** | **0.0395** | **0.0334** | **0.0386** | **0.0435** |
| Zinc, Dissolved (mg/L) | 2.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.3 U | <0.3 U | <0.05 U | <0.03 U | <0.015 U | <0.075 U | <0.075 U | <0.075 U | <0.15 U | <0.075 U | <0.075 U |
| Other | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | <250 U | <250 U | 68.9 B | 154 B | <250 U | <250 U | <250 U | <250 U | <250 U | 47.5 B | 32.2 B | 41.3 BH | 27.5 B | <200 U | <200 U | 36.2 B | 36.8 B | 36.6 B | <200 U | <200 U | 25.4 B | <200 U | <200 U | <200 U |
| Fluoride (mg/L) | 2.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.62 | 0.60 | 0.70 | 0.60 | 0.62 | 0.44 | 0.58 | 0.54 | 0.63 | 0.55 | 0.57 |
| Nitrate as N (mg/L) | 10.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **15** | **17** | 5.93 | 2.42 | 0.857 | **13** H | 2.96 | 0.468 | <0.1 U | 0.041 B | 6.07 |
| Nitrite as N (mg/L) | 1.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.06 | 0.17 | 0.04 B | 0.02 B | 0.013 B | 0.14 H | <0.05 U | 0.013 B | <0.05 U | <0.05 U | 0.01 B |
| Nitrate+Nitrite as N (mg/L) | 10.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **15.2** | **16.8** | 5.97 | 2.44 | 0.87 | **13.5** H | 2.96 | 0.481 | <0.1 U | 0.041 B | 6.08 |
| Lab pH (s.u) | 6.5 - 8.5 | 7.8 H | 8.0 H | 7.9 H | 7.9 H | 8.0 H | 7.9 H | 7.84 | 7.9 H | 8.1 H | 8.1 H | 8.2 H | 8.0 H | 8.3 H | 8.2 | 7.9 H | 8.2 H | 8.2 H | 8.2 H | 8.1 H | 8.2 H | 8.2 H | 8.2 H | 8.2 H | 8.0 H |
| Total Dissolved Solids, filterable residue (mg/L) | 8595 | 6,950 | 7,900 | 7,380 | 8,210 ^ | 7,760 ^ | 8,020 | 7,660 | 8,450 | 8,040 | 7,460 | 7,010 | 7,070 | 7,240 | 6,910 | 6,670 | 6,280 | 6,320 | 6,110 | 8,260 | 8,190 | 6,780 H | 6,720 | 6,280 | 5,770 |
| Sulfate (mg/L) | 250 | **4,670** | **4,300** | **4,800** | **5,540** | **5,640** | **5,430** | **5,250** | **5,470** | **5,540** | **4,700** | **4,690** | **4,340** H | **4,530** | **5,090** | **5,040** | **4,230** | **4,120** | **4,470** | **5,730** | **5,750** | **4,400** | **4,170** | **4,480** | **3,990** |
| Gross Alpha (pCi/L) | 15.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **40 (±31)** | **20 (±18)** | **54(±26)** | **67 (±26)** | **39 (±25)** | 7.6(±18) | **43(±36)** | 5.2(±24) | **18(±25)** | **45(±28)** | **52(±30)** |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33 (±29) | 28 (±22) | 7.9(±19) | 22(±22) | 13 (±21) | -5.6(±23) | 17(±34) | 26(±32) | 16(±26) | -6.2(±20) | 30(±22) |
| Field Parameters (Not Available pre-2010)) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.35 | 7.4 | 7.3 | 6.99 | 7.42 | 7.78 | 7.84 | 7.39 | 7.34 | 7.56 | 8.46 | 7.71 | 7.46 | 7.64 | 7.69 | 7.85 | 7.80 | 7.73 | 7.46 | 7.54 | 7.38 | 7.61 | 7.54 | 7.52 |
| Field Conductivity (µS/cm) | none | 8,560 | 8,600 | 5,330 | 8,050 | 9,130 | 7,000 | 6,580 | 7,650 | 8,610 | 8,280 | 8,380 | 7,520 | 8,480 | 7,900 | 6,740 | 4,890 | 5,700 | 6,929 | 7,998 | 8,895 | 8,567 | 6,378 | 6,953 | 7,551 |
| Temperature (Degrees Celsius) | none | 15.3 | 9.1 | 14.3 | 16 | 15.8 | 16.3 | 13.9 | 17 | 18 | 16.5 | 16.5 | 12.9 | 17 | 16.6 | 17.2 | 13.1 | 16.5 | 13.6 | 17.3 | 13.84 | 15.1 | 13.4 | 14.3 | 13.9 |
| Supplementary Analytes (Not Historically analyzed) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.8 U | <1 U | <0.3 U | 1.93 | 0.058 | <0.075 U | 0.10 | <0.075 U | <0.15 U | 0.127 | <0.075 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.004 B | 0.0021 | 0.004 B | 0.0024 B | 0.00171 B | <0.01 U | 0.00233 B | 0.00212 B | <0.01 U | <0.01 U | 0.00243 B |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0003 U | <0.0004 U | <0.0003 U | <0.00025 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.00125 U | 0.00047 B | <0.00125 U |
| Bicarbonate as CaCO3 (mg/L) | none | 310 | 325 | NA | 320 | 302 | 306 | 319 | 307 | 329 | 325 | 369 | 361 | 358 | NA | 376 H | 402 | 458 | 421 | 342 | 358 | 413 | 454 | 514 | 471 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | NA | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | 3.1 B | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | 6.7 B | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0003 U | <0.0003 U | 0.0002 B | <0.00025 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.0025 U | 0.000418 B | <0.00125 U |
| Calcium, Dissolved (mg/L) | none | 287 | 309 | 230 | 301 | 320 | 289 | 279 | 345 | 275 | 269 | 187 | 175 | 220 | 163 | 171 | 131 | 110 | 109 | 299 | 161 | 136 | 118 | 114 | 120 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0018 | 0.00349 | 0.0019 | 0.002 | 0.00168 | 0.00708 | 0.00308 | 0.00269 | 0.00299 | 0.0053 | 0.00264 |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | <0.01 U | <0.003 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 297 | 303 | 247 | 300 | 342 | 301 | 290 | 376 | 301 | 283 | 202 | 188 | 225 | 175 | 170 | 135 | 116 | 116 | 308 | 178 | 139 | 125 | 120 | 124 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.085 | 0.1 B | 0.09 | 0.084 | 0.0737 | 0.0754 | 0.0826 | 0.0695 | 0.0587 | 0.0559 | 0.069 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.009 B | <0.2 U | 0.007 | 0.0077 | 0.00692 | 0.0261 | 0.00881 | 0.00927 | 0.00695 B | 0.00867 | 0.00953 |
| Potassium, Dissolved (mg/L) | none | 19.4 | 21.8 | 15.6 | 19 | 20 | 18 | 18.6 | 22 | 16 | 20.5 | 13 | 12 | 16 | 12 | 13 | 10 | 10.1 | 9.56 | 19.3 | 11.6 | 10.7 | 8.52 | 9.36 | 10.3 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.0005 U | <0.001 U | <0.0005 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.005 U | <0.0025 U |
| Sodium, Dissolved (mg/L) | none | 1,570 | 1,510 | 1,770 | 1,670 | 1,740 | 1,770 | 1,720 | 1,570 | 1,710 | 1,640 | 1,710 | 1,660 | 1,650 | 1,760 | 1,730 | 1,710 | 1,680 | 1,640 | 1,630 | 1,850 | 1,790 | 1,750 | 1,730 | 1,730 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | <0.003 U | <0.002 U | <0.002 U | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 constitu

**Table 2: Summary of Monitoring Results for MW-2**

| Date | Interim Narrative Standard | 4/28/1999 | 7/21/1999 | 9/16/1999 | 11/10/1999 | 1/19/2000 | 3/13/2000 | 5/16/2000 | 7/10/2000 | 9/27/2010 | 3/31/2011 | 6/28/2011 | 8/31/2011 | 11/17/2011 | 3/27/2012 | 6/27/2012 | 9/13/2012 | 11/13/2012 | 3/19/2013 | 5/28/2013 | 8/26/2013 | 11/14/2013 | 2/18/2014 | 5/21/2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | 0.003 B | 0.004 B | **0.0567** | **0.05** B | **0.045** | **0.062** | **0.042** | **0.036** | **0.021** | **0.03** | **0.036** | <0.01 U | <0.01 U | <0.01 U | <0.005 U | 0.001 B | 0.002 B | 0.001 B | 0.002 B | 0.001 B | 0.004 B | 0.006 |
| Barium, Dissolved (mg/L) | 2 | 0.4 | 0.42 | 0.41 | 0.41 | 0.4 | 0.42 | 0.41 | 0.398 | **2.09** | 1.33 | 1.09 | 0.96 | 1.09 | 1.42 | 1.55 | 1.72 | 1.26 | 1.3 | 1.07 | 1.23 | 1.22 | 1.74 | **2.28** |
| Boron, Dissolved (mg/L) | 0.75 | 0.73 | 0.74 | 0.72 | 0.74 | 0.69 | 0.73 | 0.74 | 0.67 | 0.7 | 0.64 | 0.69 | **0.78** | 0.64 | 0.73 | 0.72 | 0.70 | **0.79** | 0.71 | **0.76** | 0.70 | 0.74 | 0.7 | 0.75 |
| Chromium, Dissolved (mg/L) | 0.1 | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U |
| Copper, Dissolved (mg/L) | 0.2 | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.05 U | <0.05 U |
| Iron, Dissolved (mg/L) | 0.3 | <0.3 U | <0.3 U | 0.27 B | 0.11 B | 0.16 B | 0.2 B | **0.5** | 0.07 | <0.3 U | 0.1 B | 0.15 | <0.3 U | 0.3 B | **0.91** | **0.8** | **0.7** | 0.16 | **1.1** | 0.2 B | **0.9** | **1.3** | **1.51** | **2.5** |
| Lead, Dissolved (mg/L) | 0.05 | <0.005 U | <0.005 U | 0.001 B | <0.005 U | <0.005 U | <0.005 U | 0.005 B | 0.002 B | <0.003 U | <0.003 U | 0.0011 B | 0.0006 B | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U |
| Lithium, Dissolved (mg/L) | 2.5 | 1 | 1 | 1 | 1 | 1 | 1.1 | 1 | 0.91 | 1.3 | 1.2 | 1.12 | 1.1 | 1.1 | 1.16 | 1.2 | 1.2 | 1.36 | NA | NA | NA | NA | NA | NA |
| Manganese, Dissolved (mg/L) | 0.05 | **0.49** | **0.44** | **0.4** | **0.33** | **0.33** | **0.33** | **0.33** | **0.329** | **0.08** B | **0.12** | **0.139** | **0.1** | **0.12** | **0.102** | **0.06** B | **0.06** B | **0.114** | **0.121** | **0.09** | **0.11** | **0.127** | **0.099** | **0.097** |
| Selenium, Dissolved (mg/L) | 0.02 | <0.005 U | 0.002 B | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | 0.0006 B | 0.0015 | 0.0006 B | <0.001 U | <0.001 U | <0.001 U | <0.001 U | 0.0008 B | 0.0007 B | 0.0011 | 0.0032 | <0.001 U | 0.0006 B | <0.001 U | 0.0007 B |
| Thallium, Dissolved (mg/L) | 0.002 | <0.01 U | <0.01 U | <5 U | <0.0003 U | <0.005 U | <0.001 U | <0.003 U | <0.003 U | <0.003 U | 0.0007 B | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U | <0.003 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | 0.00465 | 0.005 | 0.0041 | 0.0037 | 0.0042 | 0.0048 | 0.0033 | 0.0025 B | <0.003 U | 0.0011 B | 0.0009 B | 0.0012 B | 0.0012 B | 0.0012 B | NA | NA | NA | NA | NA | NA |
| Zinc, Dissolved (mg/L) | 2 | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.05 U | <0.05 U |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **2,890** | **2,260** | **2,670** | **2,700** | **2,240** | **2,880** | **3,100** | **2730** | **3,050** | **3,100** | **3,090** | **3,240** | **3,017** | **3,052** | **3,079** | **3,188** | **2,968** | **3,227** | **3,220** | **2,960** | **3,080** | **3,180** | **3,240** |
| Fluoride (mg/L) | 2 | 1.7 | 1.8 | 1.7 | 1.5 | 1.8 | 1.7 | **2.1** | 1.8 | 1.7 | 1.5 | 1.5 | 1.4 | 1.6 | 1.5 | 1.6 | 1.5 | 1.7 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.48 |
| Nitrate as N (mg/L) | 10 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | 0.03 | NA | <0.1 U | <0.1 U | 0.14 | 0.07 B | 0.06 B | 0.03 B | <0.1 U | 0.04 B | 0.04 B | 0.03 B | 0.04 B | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | 0.03 B | NA | <0.1 U | <0.1 U | 0.14 | 0.07 B | 0.06 B | 0.03 B | <0.1 U | 0.04 B | 0.04 B | 0.03 B | 0.04 B | NA | NA | NA | NA | NA | NA |
| Lab pH (s.u) | 6.5 - 8.5 | 8.2 | 8.2 | 8.1 | 8 | 8.5 | 7.9 | 8 | 8.1 | **8.6** H | 8.2 H | 8.4 H | 8.3 H | 8.2 H | 8.3 H | 8.3 H | **8.6** H | 8.3 H | 8.3 H | 8.3 H | 8.2 H | 8.1 H | 8.0 H | 8.0 H |
| Total Dissolved Solids, filterable residue (mg/L) | 7084 | 5,680.0 | 5,640.0 | 5,680.0 | 5,700.0 | 5,600.0 | 5,740.0 | 5,600.0 | 5,700.0 | 6,270 | 6,390 | 6,350 | 6,320 | 6,140 | 6,340 | 6,120 | 6,270 | 6,180 | 6,300 | 6,400 | 6,210 H | 6,150 H | 5,720 | 6,040 H |
| Sulfate (mg/L) | 250 | 140 | 160 | 190 | 210 | 240 | 220 | 220 | 220 | <300 U | 60 B | 90 B | <100 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U |
| Gross Alpha (pCi/L) | 15 | NA | **44** | 0 | **140** | 0.9 | 0 | 1 | 8.4 | **15 (±26)** | 9.8 (±25) | **18 (±24)** | 0 (±26) | **38 (±38)** | -1.1 (±21) | 5.1 (±12) | -6.2 (±13) | -12 (±21) | NA | NA | NA | NA | NA | NA |
| Gross Beta (pCi/L) | ** | NA | 81 | 52 | 80 | 52 | 19 | 26 | 0 | 4.5 (±30) | 42 (±31) | 12 (±29) | 0 (±27) | 73 (±44) | 8.5 (±29) | 82 (±30) | 21 (±26) | 11 (±28) | NA | NA | NA | NA | NA | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | NA | NA | NA | NA | NA | NA | NA | NA | 8.71 | 7.84 | 7.98 | 7.54 | 7.91 | 8.2 | 7.61 | 9.58 | 8.11 | 7.6 | 7.74 | 7.61 | 7.61 | 7.6 | 7.32 |
| Field Conductivity (µS/cm) | none | NA | NA | NA | NA | NA | NA | NA | NA | 1,169 | 1,088 | 10,160 | 10,350 | 10,500 | 10,630 | 11 | 10,640 | 10,520 | 6,840 | 1,130 | 10,840 | 11,220 | 10,440 | 11,040 |
| Temperature (Degrees Celsius) | none | NA | NA | NA | NA | NA | NA | NA | NA | 15.47 | 16 | 21.4 | 22.4 | 12.5 | 14.5 | 14.6 | 19.4 | 13.9 | 12.2 | 20.8 | 18.7 | 12.58 | 12.9 | 16.7 |
| **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 | 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 | 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 | NA |
| Bicarbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 993 | 965 | 978 | 953 | 914 | 995 | 968 | 964 | 978 | 955 | 963 | 979 | 1020 | 1,060 | 1,100 |
| Carbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 108 | <20 U | 37 | 22 | 57 | <20 U | 21 | <20 U | 23 | 29 | 22 | <20 U | <20 U | <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 | NA |
| Calcium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 14 | 14 | 14.4 | 16 | 15 | 15.5 | 14 | 16 | 16.3 | 15.1 | 18 | 17 | 16.9 | 17.6 | 18.2 |
| 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 | 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 | NA |
| Magnesium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 8 | 8 | 7.8 | 7 | 7 | 7.4 | 8 | 8 | 8 | 7.5 | 8 | 7 | 7.4 | 7.3 | 6.9 |
| 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 | 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 | 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 | NA |
| Potassium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 7 B | 8 B | 7.4 | 4 B | 6 B | 6.6 | 7 B | 7 B | 10.8 B | 7.0 | 7 | 6 B | 6.1 | 6.2 | 6.5 |
| 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 | NA |
| Sodium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 2,480 | 2,430 | 2,470 | 2,410 | 2,260 | 2,410 | 2,420 | 2,420 | 2,310 | 2,550 | 2,500 | 2,540 | 2,490 | 2,440 | 2,440 |
| 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 | 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 8/27/2014 | 11/11/2014 | 2/18/2015 | 5/27/2015 | 8/27/2015 | 11/9/2015 | 2/15/2016 | 5/31/2016 | 8/16/2016 | 11/9/2016 | 5/31/2017 | 11/15/2017 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/17/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.004 B | 0.0063 | 0.004 B | 0.0043 | 0.00527 | 0.0041 B | 0.00377 B | 0.0039 B | <0.01 U | 0.00295 B | 0.00295 B |
| Barium, Dissolved (mg/L) | 2.0 | **2.57** | 1.71 | **2.03** | **2.65** | **2.04** | 1.90 | 2.0 | 1.93 | **2.23** | 1.88 | **2.61** | **2.77** | **3.32** | **3.22** | **3.19** | **3.85** | **3.75** | **2.99** | **3.38** | **3.11** | **3.69** | **3.28** | **3.89** | **3.38** |
| Boron, Dissolved (mg/L) | 0.75 | 0.75 | 0.74 | 0.73 | 0.72 | 0.75 | 0.68 | **0.79** | 0.68 | 0.73 | 0.71 | **0.77** | 0.72 | **0.78** | 0.75 | **0.80** | **0.76** | **0.76** | **0.784** | **0.802** | **0.762** | 0.711 | 0.741 | **0.757** | 0.741 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | <0.002 U | <0.003 U | <0.002 U | <0.002 U | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.005 B | <0.002 U | <0.004 U | <0.002 U | <0.002 U | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 U |
| Iron, Dissolved (mg/L) | 0.3 | **1.16** | **0.82** | **0.38** | **0.60** | **0.70** | **0.40** | **0.40** B | 0.20 B | **1.20** | 0.28 | **0.50** | 0.30 | 0.30 | **0.40** | **0.40** | **0.38** | **0.37** | **0.34** | <0.75 U | 0.226 | **0.588** B | **0.373** B | 0.258 | 0.24 |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0025 U | <0.0025 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.16 | 1.31 | 1.83 | 1.19 | 1.16 | 1.15 | 1.23 | 1.14 | 1.09 | 1.17 | 1.17 |
| Manganese, Dissolved (mg/L) | 0.05 | **0.105** | **0.103** | **0.075** | 0.05 B | **0.07** B | **0.08** B | **0.08** B | 0.05 B | **0.10** | **0.06** | 0.05 B | <0.1 U | **0.06** B | 0.04 B | **0.07** B | **0.054** | **0.0639** | **0.0556** | **0.0577** | **0.0598** | **0.0529** | **0.0742** | **0.0527** | **0.0538** |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | 0.0004 | <0.0005 U | <0.001 U | <0.005 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.0025 U | <0.005 U | <0.005 U |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.00005 U | <0.001 U | <0.00125 U | 0.000329 B | <0.00125 U | <0.00125 U | <0.00125 U | <0.00025 U | <0.00125 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0028 B | 0.0028 | 0.0026 B | 0.0028 | 0.00232 | 0.00246 B | 0.00227 B | 0.00303 | 0.00302 B | 0.00219 B | 0.00193 B |
| Zinc, Dissolved (mg/L) | 2.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.3 U | <0.3 U | <0.05 U | <0.02 U | <0.015 U | <0.075 U | <0.075 U | <0.075 U | <0.15 U | <0.075 U | <0.075 U |
| Other | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **2,930** | **2,980** | **2,990** | **3,150** | **3,100** | **3,040** | **3,240** | **3,120** | **3,110** | **3,010** | **3,170** | **3,070** | **3,030** | **3,530** | **3,340** | **3,130** | **3,090** | **3,820** | **3,250** | **3,290** | **3,630** | **3,420** | **3,280** | **3,470** |
| Fluoride (mg/L) | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.3 | 1.6 | 1.4 | 1.3 | 1.39 | 1.46 | 1.48 | 1.35 | 1.34 | 1.4 | 1.61 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.08 B | <0.1 U | 0.67 | 0.06 | <0.1 | <0.1 UH | <0.1 U | <0.1 U | <0.1 U | <0.1 U | 0.082 B |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.05 U | <0.05 U | <0.01 U | <0.05 U | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.08 B | <0.1 U | 0.67 | 0.06 B | <0.1 U | <0.1 UH | <0.1 U | <0.1 U | <0.1 U | <0.1 U | 0.082 B |
| Lab pH (s.u) | 6.5 - 8.5 | 8.0 H | 8.3 H | 8.0 H | 8.0 H | 8.3 H | 8.2 H | 8.3 | 8.1 H | 8.4 H | 8.4 H | 8.2 H | 8.0 H | 8.0 H | 8.2 H | 8.0 H | 8.1 H | 8.1 H | 8.1 H | 8.3 H | 8.0 H | 8.2 H | 8.4 H | 8.31 H | 8.1 H |
| Total Dissolved Solids, filterable residue (mg/L) | 7084 | 5,730 | 6,180 | 6,230 | 6,000 ^ | 5,520 ^ | 6,020 | 6,230 | 6,080 | 6,010 | 6,300 | 6,160 | 6,400 | 6,270 H | 6,280 | 6,310 | 6,210 | 6,260 | 6,450 | 6,270 | 6,400 | 6,280 H | 6,370 | 6,230 | 6,160 |
| Sulfate (mg/L) | 250 | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <125 U | <250 U | <125 U | <250 U | <200 U | 22 B | <100 U | <100 U | <40 U | <100 U | <200 U | <100 U | <100 U | <100 U | <100 U | <200 U | <200 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **20 (±18)** | 0.14 (±18) | 10 (±24) | **20 (±21)** | 11 (±23) | 11 (±21) | 1.4 (±27) | **21 (±28)** | 1.6 (±27) | -12 (±19) | -9.1 (±16) |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 25 (±21) | -3.9 (±30) | 41 (±31) | 0.8 (±26) | -3.2 (±26) | 27 (±28) | -8.6 (±28) | 17 (±32) | 16 (±29) | 44 (±32) | 31 (±32) |
| Field Parameters (Not Available pre-2010)) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 6.95 | 7.6 | 7.56 | 7.38 | 7.53 | 7.99 | 8.28 | 7.51 | 7.63 | 7.53 | 8.02 | 8.06 | 7.93 | 7.53 | 8.15 | 8.04 | 8.03 | 7.82 | 8.02 | 7.95 | 7.47 | 7.53 | 7.70 | 7.74 |
| Field Conductivity (µS/cm) | none | 11,310 | 11,100 | 11,440 | 9,630 | 11,050 | 6,750 | 8,770 | 10,020 | 10,890 | 10,510 | 10,360 | 10,570 | 11,060 | 11,000 | 11,080 | 6,730 | 8,600 | 9,622 | 10,340 | 11,199 | 11,428 | 8,675 | 9,660 | 10,621 |
| Temperature (Degrees Celsius) | none | 15.7 | 7.5 | 11.7 | 17.3 | 17.6 | 14.9 | 16.8 | 15.6 | 17.1 | 14.3 | 18.5 | 12.2 | 18.1 | 13.9 | 18.6 | 13.3 | 20 | 11.5 | 20.7 | 13.8 | 16.1 | 11 | 14.9 | 12.9 |
| Supplementary Analytes (Not Historically analyzed) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.8 U | <1 U | <0.05 U | <0.02 U | <0.015 U | <0.075 U | <0.075 U | <0.075 U | <0.15 U | <0.075 U | <0.075 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | 0.0023 | 0.003 B | 0.0017 B | <0.01 U | <0.01 U | <0.01 U | 0.00349 B | <0.01 U | <0.01 U | 0.00352 B |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0003 U | <0.0004 U | <0.0003 U | <0.00025 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.00125 U | <0.00125 U |
| Bicarbonate as CaCO3 (mg/L) | none | 1,080 | 1,100 | NA | 1,070 | 1,040 | 1,050 | 1,040 | 1,100 | 1,000 | 1,010 | 1,070 | 1,030 | 1,080 | NA | 1,090 H | 1080 | 1,140 | 1,040 | 1,030 | 1,020 | 1,030 | 1,080 H | 1180 | 1040 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | NA | <20 U | <20 U | <20 U | <20 U | <20 U | 40.9 | 40.7 | <20 U | <20 U | <20 U | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | 9.3 B | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | 0.00011 B | <0.0003 U | <0.0003 U | 0.000077 B | <0.00125 U | 0.000349 B | <0.00125 U | <0.0025 U | <0.00125 U | <0.00125 U |
| Calcium, Dissolved (mg/L) | none | 17.9 | 17.4 | 17.5 | 17.3 | 17.3 | 17.2 | 18 | 16.9 | 17.5 | 16.6 | 16.7 | 16.6 | 16.8 | 18.6 | 17.3 | 18.1 | 18.6 | 17.6 | 18.3 | 17.6 | 18.5 | 17.4 | 18.6 | 17.3 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | 0.00009 B | <0.0003 U | 0.0002 B | 0.000073 B | <0.00125 U | <0.00125 U | <0.00125 U | <0.0025 U | 0.000319 B | 0.001 B |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | 0.004 B | <0.003 U | <0.01 U | 0.003 B | 0.0063 B | 0.0037 B | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 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 | 6 | 6.6 | 6.6 | 6.95 | 6.26 | 6.67 | 7.03 | 6.99 | 7.08 | 6.87 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | 0.0013 U | 0.001 B | 0.0009 B | 0.00102 | <0.0025 U | 0.00216 B | 0.00202 B | 0.00279 B | 0.00105 B | 0.00375 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.02 U | <0.001 U | <0.002 U | <0.001 U | <0.001 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U |
| Potassium, Dissolved (mg/L) | none | 6.1 | 6 | 6.4 | 7.0 | 7.0 | 6.0 | 8.0 | 6.0 | 6.0 | 6.7 | 6.0 | 6.0 | 6.0 | 9.0 | 6 | 6.8 | 7.7 | 5.7 | 5.54 | 7.15 | 5.99 | 4.75 B | 6.15 | 6.43 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0005 U | <0.0005 U | 0.0006 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.005 U | <0.0025 U |
| Sodium, Dissolved (mg/L) | none | 2,330 | 2,260 | 2,390 | 2,270 | 2,370 | 2,260 | 2,560 | 2,350 | 2,230 | 2,430 | 2,430 | 2,270 | 2,360 | 2,460 | 2,420 | 2,420 | 2,440 | 2,160 | 2,360 | 2,450 | 2,370 | 2,360 | 2,400 | 2,510 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | <0.003 U | <0.004 U | 0.00185 B | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 4/28/1999 | 7/21/1999 | 9/16/1999 | 11/10/1999 | 1/19/2000 | 3/13/2000 | 5/16/2000 | 7/10/2000 | 9/27/2010 | 3/31/2011 | 6/30/2011 | 8/31/2011 | 11/17/2011 | 3/27/2012 | 6/27/2012 | 9/13/2012 | 11/13/2012 | 3/19/2013 | 5/28/2013 | 8/26/2013 | 11/14/2013 | 2/18/2014 | 5/21/2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | 0.005 | 0.005 | **0.0362** | **0.03** B | **0.025** | **0.036** | **0.025** | **0.019** | 0.01 | **0.011** | **0.02** | <0.004 U | <0.01 U | 0.0011 B | <0.005 U | 0.0005 B | 0.0008 B | <0.005 U | 0.001 B | <0.002 U | 0.0009 B | 0.0005 B |
| Barium, Dissolved (mg/L) | 2 | 0.177 | 0.172 | 0.218 | 0.213 | 0.249 | 0.261 | 0.287 | 0.307 | **2.4** | **2.95** | **2.23** | **2.73** | **2.25** | **2.51** | **2.08** | **2.52** | **2.23** | **2.5** | **2.20** | **2.41** | **2.25** | **2.31** | **2.02** |
| Boron, Dissolved (mg/L) | 0.75 | 0.63 | 0.53 | 0.62 | 0.58 | 0.62 | 0.62 | 0.6 | 0.6 | **0.77** | 0.75 | 0.74 | **0.8** | **0.78** | **0.77** | **0.76** | **0.76** | **0.85** | **0.79** | **0.84** | 0.75 | **0.76** | 0.74 | **0.76** |
| Chromium, Dissolved (mg/L) | 0.1 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.05 U | 0.003 B | 0.001 B | <0.01 U | 0.004 B | <0.004 U | <0.01 U | <0.002 U | <0.01 U | <0.01 U | <0.004 U | <0.01 U | <0.01 U | <0.004 U | <0.004 U | <0.004 U |
| Copper, Dissolved (mg/L) | 0.2 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.05 U | <0.1 U | <0.1 U | <0.3 U | <0.1 U | <0.1 U | <0.05 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.05 U | <0.05 U |
| Iron, Dissolved (mg/L) | 0.3 | 0.02 B | 0.03 B | 0.12 | 0.03 B | 0.03 B | 0.05 B | 0.17 | 0.02 B | 0.04 B | 0.27 | <0.3 U | <0.1 U | 0.1 | 0.22 | **0.32** | <0.3 U | 0.1 | 0.11 | <0.3 U | <0.3 U | 0.14 | 0.19 | 0.30 |
| Lead, Dissolved (mg/L) | 0.05 | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | 0.0031 | <0.003 U | <0.001 U | 0.0007 B | 0.0002 *B | 0.0004 B | <0.001 U | <0.003 U | 0.0007 | <0.003 U | 0.0003 B | <0.001 U | <0.003 U | <0.003 U | <0.001 U | <0.001 U | 0.0002 B |
| Lithium, Dissolved (mg/L) | 2.5 | 0.71 | 0.65 | 0.6 | 0.7 | 0.75 | 0.74 | 0.7 | 0.67 | 0.8 | 0.74 | 0.8 | 0.71 | 0.64 | 0.72 | 0.7 | 0.7 | 0.83 | NA | NA | NA | NA | NA | NA |
| Manganese, Dissolved (mg/L) | 0.05 | **0.19** | 0.05 | **0.06** | 0.05 B | 0.05 | 0.05 | **0.07** | **0.06** | 0.04 B | 0.05 | 0.03 B | 0.04 B | 0.03 B | 0.021 B | 0.034 | <0.1 U | 0.047 | 0.026 | <0.1 | <0.1 U | 0.031 | 0.043 | 0.05 |
| Selenium, Dissolved (mg/L) | 0.02 | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | 0.0006 | 0.0012 | <0.001 U | 0.0005 | <0.005 U | 0.0065 | 0.0007 | <0.001 U | 0.0005 B | 0.0006 | 0.0043 | <0.001 U | 0.0003 B | <0.0005 U | 0.0002 B |
| Thallium, Dissolved (mg/L) | 0.002 | <0.01 U | <0.01 U | <2 U | <0.0003 U | <0.005 U | <0.0005 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.003 U | <0.001 U | <0.001 U | <0.003 U | <0.0005 U | <0.003 U | <0.003 U | <0.001 U | <0.003 U | <0.003 U | <0.001 U | <0.001 U | <0.001 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | 0.00871 | 0.007 | 0.0065 | 0.0058 | 0.0058 | 0.0015 | 0.0008 B | 0.001 B | 0.0006 B | 0.0012 | 0.0006 B | 0.0011 | 0.0005 B | 0.0005 B | NA | NA | NA | NA | NA | NA |
| Zinc, Dissolved (mg/L) | 2 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.05 U | <0.1 U | <0.1 U | <0.3 U | <0.1 U | <0.1 U | <0.05 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | <0.3 U | <0.3 U | <0.05 U | 0.02 B | <0.05 U |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **1,480** | **1,350** | **1,310** | **1,450** | **1,360** | **1,480** | **1,400** | **1,460** | **1,550** | **1,530** | **1,550** | **1,620** | **1,530** | **1,565** | **1,505** | **1,681** | **1,721** | **1,665** | **1,620** | **1,570** | **1,610** | **1,570** | **1,580** |
| Fluoride (mg/L) | 2 | **2.4** | **2.8** | **3** B | **2.2** | **3** B | **2.6** | **2.8** | **2.6** | **2.4** | **2.3** | **2.2** | **2.4** | **2.4** | **2.3** | **2.5** | **2.3** | **2.4** | **2.3** | **2.4** | **2.4** | **2.3** | **2.4** | **2.4** |
| Nitrate as N (mg/L) | 10 | <0.1 U | <0.1 U | 0.02 | <0.1 U | <0.1 U | NA | <0.1 U | 0.17 | <0.1 U | 0.37 | 0.79 | 0.03 B | <0.1 U | <0.1 U | 0.02 B | 0.17 | 0.09 B | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | <0.1 U | <0.1 U | 0.02 B | <1 U | <0.1 U | NA | <0.1 U | 0.17 | <0.1 U | 0.37 | 0.79 | 0.03 B | <0.1 U | <0.1 U | 0.02 B | 0.17 | 0.09 B | NA | NA | NA | NA | NA | NA |
| Lab pH (s.u) | 6.5 - 8.5 | 8.5 | **8.9** | **8.6** | 8.4 | **8.6** | 8.2 | 8.2 | 8.4 | **8.6** H | 8.4 H | **8.6** H | 8.5 H | 8.2 H | 8.4 H | 8.4 H | 8.5 H | 8.5 H | 8.5 H | 8.4 H | 8.5 H | 8.4 H | 8.4 H | 8.3 H |
| Total Dissolved Solids, filterable residue (mg/L) | 4620 | 3,780.0 | 3,740.0 | 3,690.0 | 3,720.0 | 3,660.0 | 3,680.0 | 3,620.0 | 3,680.0 | 3,930 | 3,940 | 4,000 | 3,940 | 3,860 | 4,000 | 3,790 | 4,000 | 3,950 | 3,990 | 4,000 | 4,000 | 3,880 H | 3,890 | 3,910 H |
| Sulfate (mg/L) | 250 | 140 | 110 | 100 | 100 | 90 | 90 | 90 | 90 | <100 U | <100 U | <300 U | <50 U | <125 U | <125 U | 30.1 B | <125 U | <125 U | <125 U | <125 U | <125 U | <125 U | <125 U | <125 U |
| Gross Alpha (pCi/L) | 15 | NA | **54** | 0 | **77** | **15** | 8.4 | 6.2 | 9.6 | 5.7 (±13) | **33 (±20)** | 5.7 (±17) | **15 (±18)** | **20 (±18)** | 8 (±13) | **66 (±27)** | 0.85 (±14) | -8.2 (±8.6) | NA | NA | NA | NA | NA | NA |
| Gross Beta (pCi/L) | ** | NA | 25 | 0 | 64 | 19 | 6.7 | 32 | 4.7 | 3.2 (±17) | 25 (±21) | 7.2 (±18) | 5 (±19) | 5.4 (±18) | 13 (±18) | 110 (±24) | 15 (±17) | -4.9 (±18) | NA | NA | NA | NA | NA | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | NA | NA | NA | NA | NA | NA | NA | NA | 8.01 | 8.06 | NA | 8.46 | 7.98 | 8.36 | 7.95 | 8.14 | 8.34 | 8.24 | 8.31 | 8.25 | 8.15 | 8.12 | 7.78 |
| Field Conductivity (µS/cm) | none | NA | NA | NA | NA | NA | NA | NA | NA | 6186 | 675 | NA | 6,660 | 5,240 | 6,710 | 7 | 6,270 | 6,980 | 6,840 | 7,010 | 6,920 | 7,093 | 6,610 | 7,140 |
| Temperature (Degrees Celsius) | none | NA | NA | NA | NA | NA | NA | NA | NA | 17.55 | 16 | NA | 30.4 | 13.8 | 17.7 | 22.2 | 20.4 | 13.6 | 14.3 | 19.1 | 23.9 | 14.35 | 14.8 | 17.1 |
| **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 | 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 | 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 | NA |
| Bicarbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 1,110 | 1,130 | 1,100 | 1,090 | 1,100 | 1,160 | 1,130 | 1,130 | 1,130 | 1,140 | 1,130 | 1,130 | 1,170 | 1,220 | 982 |
| Carbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 98 | 31 | 96 | 75 | 78 | 50 | 52 | 51 | 78 | 71 | 60 | 75 | 40 | 37 | 57 |
| 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 | NA |
| Calcium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 6.6 | 11.9 | 7 | 7.5 | 6.8 | 6.3 | 9.4 | 7 | 7.5 | 6.1 | 7 | 8 | 6.8 | 6.7 | 7.2 |
| 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 | 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 | NA |
| Magnesium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 3 | 3.4 | 3 B | 2.7 | 2.8 | 2.9 | 2.9 | 4 B | 3.6 | 3.0 | 3 | 3 B | 2.8 | 3 | 3.1 |
| 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 | 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 | 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 | NA |
| Potassium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 4.4 | 5.5 | 5.0 B | 3.2 | 3.6 | 4.2 | 4.1 | 4.0 B | 6.9 | 4.4 | 4.0 | 4.0 B | 3.9 | 4.0 | 3.8 |
| 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 | NA |
| Sodium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 1,600 | 1,450 | 1,560 | 1,490 | 1,370 | 1,550 | 1,530 | 1,580 | 1,550 | 1,620 | 1,590 | 1,600 | 1,600 | 1,570 | 1,610 |
| 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 | 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 8/27/2014 | 11/11/2014 | 2/18/2015 | 5/27/2015 | 8/27/2015 | 11/9/2015 | 2/15/2016 | 5/31/2016 | 8/16/2016 | 11/9/2016 | 5/31/2017 | 11/15/2017 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/16/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.002 U | 0.0009 B | 0.0004 B | 0.0004 B | <0.001 U | <0.005 U | <0.002 U | 0.00046 B | <0.005 U | <0.002 U | 0.00051 B |
| Barium, Dissolved (mg/L) | 2.0 | **2.23** | **2.62** | **2.25** | **2.83** | **2.47** | **2.81** | **2.58** | **3.16** | **3.16** | **2.57** | **2.45** | **2.93** | **2.18** | **2.4** | **2.93** | **2.77** | **2.42** | 1.93 | **2.66** | **2.52** | **2.62** | **2.66** | **2.85** | **3.02** |
| Boron, Dissolved (mg/L) | 0.75 | **0.76** | **0.78** | **0.81** | 0.74 | **0.79** | 0.74 | **0.76** | 0.74 | **0.79** | **0.77** | 0.75 | 0.74 | **0.81** | **0.77** | **0.80** | **0.77** | **0.76** | **0.841** | **0.782** | **0.786** | 0.748 | **0.770** | **0.791** | **0.763** |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.004 U | <0.002 U | <0.001 U | <0.002 U | <0.002 U | <0.01 U | <0.004 U | <0.002 U | <0.01 U | <0.004 U | <0.004 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | <0.002 U | <0.002 U | <0.002 U | <0.01 U | <0.004 U | <0.002 U | <0.01 U | <0.004 U | <0.004 U |
| Iron, Dissolved (mg/L) | 0.3 | 0.29 | 0.29 | **0.79** | 0.19 | 0.26 | 0.21 | 0.2 B | 0.2 B | 0.17 | 0.29 | 0.11 | 0.14 | **0.41** | 0.18 | <0.2 U | 0.07 B | 0.16 B | <0.3 U | <0.3 U | 0.154 | 0.154 B | <0.3 U | 0.134 B | 0.114 B |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0005 U | <0.0002 U | <0.0005 U | <0.0005 U | <0.0025 U | <0.001 U | <0.0005 U | <0.0025 U | <0.001 U | <0.001 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.69 | 0.86 | 0.708 | 0.711 | 0.747 | 0.714 | 0.737 | 0.690 | 0.666 | 0.708 | 0.698 |
| Manganese, Dissolved (mg/L) | 0.05 | 0.05 | **0.061** | **0.054** | 0.02 B | 0.03 B | 0.03 B | <0.1 U | <0.1 U | 0.02 B | 0.033 | 0.01 B | 0.01 B | **0.06** | <0.05 U | 0.02 B | 0.0195 | 0.0223 | 0.0259 | 0.016 | 0.0154 | 0.00855 | 0.0241 | 0.0181 | 0.0270 |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.0005 U | 0.0002 B | <0.0002 U | <0.0005 U | 0.00025 B | <0.00125 U | <0.0005 U | <0.00025 U | <0.00125 U | <0.005 U | <0.0005 U |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0005 U | <0.00005 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.0005 U | <0.00025 U | <0.0005 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0003 B | 0.0008 | 0.0005 B | 0.0004 B | 0.0001 B | 0.0007 B | <0.001 U | 0.00036 B | <0.0025 U | <0.01 U | 0.0009 B |
| Zinc, Dissolved (mg/L) | 2.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | <0.01 U | <0.02 U | <0.015 U | <0.075 U | <0.03 U | <0.015 U | <0.075 U | <0.03 U | <0.03 U |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **1,520** | **1,540** | **1,530** | **1,620** | **1,570** | **1,560** | **1,640** | **1,690** | **1,550** | **1,550** | **1,550** | **1,580** | **1,560** | **1,750** | **1,660** | **1,620** | **1,640** | **1,670** | **1,670** | **1,670** | **1,650** | **1,780** | **1,800** | **1,570** |
| Fluoride (mg/L) | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **NA** | **2.38** | **2.4** | **2.5** | **2.5** | **2.44** | **2.48** | **2.49** | **2.67** | **2.27** | **2.4** | **2.38** |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | 1.2 | 0.02 B | <0.1 | <0.1 UH | 0.055 B | <0.1 UH | <0.1 U | <0.1 U | <0.1 U |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.05 U | <0.05 U | <0.01 U | <0.05 U | <0.05 U | <0.05 UH | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | <0.1 U | 1.2 | 0.02 B | <0.1 U | <0.1 UH | 0.055 B | <0.1 UH | <0.1 U | <0.1 U | <0.1 U |
| Lab pH (s.u) | 6.5 - 8.5 | 8.3 H | 8.4 H | 8.2 H | 8.3 H | 8.4 H | 8.3 H | 8.4 | 8.3 H | 8.5 H | 8.4 H | 8.5 H | 8.3 H | 8.3 H | 8.4 H | 8.4 H | 8.4 H | 8.5 H | 8.4 H | 8.5 H | 8.4 H | 8.2 H | 8.5 H | 8.54 H | 8.3 H |
| Total Dissolved Solids, filterable residue (r | 4620 | 3,920 | 3,890 | 3,920 | 3,930 ^ | 3,910 ^ | 3,970 | 3,970 | 4,040 | 3,790 | 4,000 | 3,820 | 3,940 | 4,020 H | 3,850 | 3,960 | 3,940 | 3,910 | 3,890 | 3,890 | 3,930 | 3,960 | 3,990 | 3,840 | 3,940 |
| Sulfate (mg/L) | 250 | <125 U | <125 U | <125 U | <125 U | <125 U | <125 U | <50 U | <50 U | <50 U | <50 U | <50 U | <40 U | <40 U | <40 U | <40 U | <8 U | <40 U | <40 U | <100 U | <40 U | <100 U | <100 U | <100 U | <40 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.15 (±7.4) | 3.5 | -1.5(±14) | 10 (±13) | -7.4 (±13) | 5.1(±11) | -3.4(±15) | 3.7(±11) | 13(±21) | -6.3(±10) | 2.6(±13) |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3.7 (±15) | 1.6 | 12(±18) | -2.2 (±16) | -5.4 (±20) | 1.9(±17) | -10(±21) | -9.8(±17) | 18(±22) | -9.7(±18) | 15(±19) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.94 | 7.9 | 7.78 | 7.78 | 7.83 | 8.02 | 8.4 | 8.05 | 7.52 | 7.77 | NA | 8.61 | 7.98 | 7.83 | 8.25 | 8.23 | 8.25 | 8.1 | 8.02 | 8.04 | 7.95 | 8.22 | 8.03 | 8.12 |
| Field Conductivity (µS/cm) | none | 7,220 | 6,800 | 7,140 | 6,120 | 7,010 | 5,820 | 4,850 | 6,290 | 6,710 | 7,030 | NA | 6,730 | 7,160 | 6,790 | 7,030 | 4,348 | 5,730 | 6,140 | 6,452 | 6,743 | 7,225 | 5,585 | 6,097 | 6,902 |
| Temperature (Degrees Celsius) | none | 17.0 | 9.0 | 14 | 19.7 | 18.5 | 17.3 | 11.4 | 18.6 | 20.7 | 20.7 | NA | 10.8 | 20.1 | 16 | 21.8 | 12.4 | 25.1 | 13.2 | 26 | 16.7 | 22.2 | 12.8 | 16.7 | 16.7 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.3 U | <0.5 U | <0.05 U | 0.008 B | 0.0057 B | <0.075 U | <0.03 U | 0.0146 B | <0.075 U | <0.03 U | 0.0101 B |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.004 U | 0.0007 B | <0.0008 U | <0.002 U | <0.004 U | <0.01 U | <0.004 U | <0.002 U | <0.004 U | <0.004 U | 0.00103 B |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.0005 U | <0.0003 U | <0.0002 U | <0.0003 U | <0.00025 U | <0.00125 U | <0.0005 U | <0.00025 U | <0.0005 U | <0.0005 U | <0.0005 U |
| Bicarbonate as CaCO3 (mg/L) | none | 1,270 | 1,260 | NA | 1,200 | 1,170 | 1,230 | 1,210 | 1,300 | 1,170 | 1200 | 1160 | 1160 | 1250 | NA | 1,260 H | 1190 | 1,240 | 1,160 | 1,140 | 1,120 | 1,190 | 1,200 H | 1280 | 1190 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | 41.6 | NA | 56.5 | 98.5 | 30.6 | 37.4 | 21.4 | 71.5 | 44.9 | 54.5 | 26.7 | 19.6 B | NA | <20 UH | 55.1 | 60.4 | 51.2 | 74.5 | 54.3 | <20 U | 71.2 H | 81.6 | 58.6 H |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.0005 U | <0.0003 U | <0.0001 U | <0.0003 U | <0.00025 U | <0.00125 U | <0.0005 U | <0.00025 U | <0.00125 U | <0.0005 U | <0.0005 U |
| Calcium, Dissolved (mg/L) | none | 6.7 | 7.7 | 8.7 | 7 | 7.6 | 6.9 | 6.7 | 7.4 | 7.8 | 7.3 | 6.8 | 6.5 | 6.9 | 7.4 | 6.7 | 6.9 | 6.7 | 6.69 | 6.45 | 6.25 | 7.36 | 6.21 | 7.02 | 6.3 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.0003 U | <0.0001 U | 0.0001 B | <0.00025 U | <0.00125 U | <0.0005 U | <0.00025 U | <0.00125 U | <0.0005 U | 0.000656 |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | <0.01 U | <0.003 U | <0.01 U | <0.01 U | 0.0031 B | <0.01 U | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 3.4 | 3.2 | 3.3 | 2.8 | 3.1 | 2.9 | 2.8 | 3.0 B | 3.2 | 2.6 | 2.5 | 2.6 | 3.1 | 2.5 | 2.5 | 2.6 | 2.5 | 2.91 | 2.57 | 2.78 | 2.60 | 2.73 | 2.75 | 2.72 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.2 U | <0.2 U | 0.0004 B | <0.001 U | 0.00032 B | <0.0025 U | <0.001 U | 0.00047 B | <0.0025 U | 0.00047 B | 0.00044 B |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.08 U | <0.08 U | <0.0008 U | <0.001 U | <0.001 U | <0.005 U | <0.002 U | 0.0006 B | <0.005 U | <0.002 U | <0.002 U |
| Potassium, Dissolved (mg/L) | none | 4.0 | 4.1 | 4.0 | 5.3 | 4.0 | 4.0 | 4.1 | 4.0 | 4 | 4.4 | 3.5 | 4.0 | 3.4 | 3.6 | 3.9 | 3.7 | 3.3 | 3.82 | 3.86 | 3.95 | 3.61 | 3.22 | 4.21 | 4.61 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.05 U | <0.0005 U | <0.0002 U | <0.001 U | <0.001 U | <0.0025 U | <0.001 U | <0.0005 U | <0.0025 U | <0.005 U | <0.001 U |
| Sodium, Dissolved (mg/L) | none | 1,500 | 1,490 | 1,430 | 1,480 | 1,450 | 1,480 | 1,540 | 1,510 | 1,470 | 1600 | 1430 | 1410 | 1490 | 1500 | 1,560 | 1,540 | 1,490 | 1,460 | 1,460 | 1,530 | 1,440 | 1,490 | 1,510 | 1,610 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.05 U | <0.05 U | <0.001 U | <0.002 U | <0.002 U | <0.01 U | <0.004 U | <0.002 U | <0.01 U | <0.004 U | <0.004 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

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

**Table 4: Summary of Monitoring Results for MW-4**

| Date | Interim Narrative Standard | 5/26/1999 | 7/21/1999 | 9/23/1999 | 11/10/1999 | 1/19/2000 | 3/13/2000 | 5/16/2000 | 7/10/2000 | 9/27/2010 | 3/31/2011 | 6/28/2011 | 8/31/2011 | 11/172011 | 3/27/2012 | 6/27/2012 | 9/13/2012 | 11/13/2012 | 3/19/2013 | 5/28/2013 | 8/26/2013 | 11/15/2013 | 2/18/2014 | 5/21/2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | <0.005 U | NA | **0.0894** | **0.08** | **0.075** | **0.103** | **0.08** | **0.068** | **0.04** | **0.055** | **0.076** | <0.02 U | <0.02 U | 0.0009 B | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U |
| Barium, Dissolved (mg/L) | 2 | 0.14 | 0.29 | 0.461 | 0.55 | 0.69 | 0.81 | 0.92 | 0.972 | **8.69** | **8.84** | **7.83** * | **8.93** | **7.94** | **8.73** | **8.41** | **8.91** | **8.67** | **9.22** | **8.74** | **9.13** | **8.8** | **8.58** | **9.64** |
| Boron, Dissolved (mg/L) | 0.75 | 0.49 | 0.54 | 0.53 | 0.59 | 0.56 | 0.6 | 0.6 | 0.55 | 0.7 | 0.5 B | 0.62 * | 0.7 | 0.7 | 0.7 | **0.8** B | 0.5 | 0.72 | 0.7 | 0.7 | 0.6 | 0.7 | 0.63 | 0.6 |
| Chromium, Dissolved (mg/L) | 0.1 | <0.3 U | <0.3 U | <0.25 U | <0.3 U | <0.3 U | NA | <0.3 U | <0.05 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | 0.0014 B | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U |
| Copper, Dissolved (mg/L) | 0.2 | <0.3 U | <0.3 U | 0.11 B | <0.3 U | <0.3 U | NA | <0.3 U | <0.05 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <1 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.3 U | <0.5 U |
| Iron, Dissolved (mg/L) | 0.3 | <0.3 U | <0.3 U | **1.13** | 0.07 B | 0.05 B | 0.17 B | **0.44** | 0.04 B | 0.3 B | 0.3 B | 0.28 * | **0.8** | <0.5 U | **0.6** | **1.0** | <0.5 U | **0.32** U | **0.8** | **0.5** U | **0.4** B | 0.3 B | **0.8** | 0.2 B |
| Lead, Dissolved (mg/L) | 0.05 | <0.01 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | NA | 0.009 | <0.01 U | <0.005 U | <0.005 U | 0.002 B | 0.001 B | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U |
| Lithium, Dissolved (mg/L) | 2.5 | 0.9 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.5 | 1.51 | 2 | 1.9 | 2.25 * | 1.8 | 1.6 | 1.8 | 1.9 B | 1.9 | 2.38 | NA | NA | NA | NA | NA | NA |
| Manganese, Dissolved (mg/L) | 0.05 | **0.21** | **0.89** | **0.977** | **0.94** | **0.87** | **0.81** | **0.75** | **0.703** | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.5 U | <0.3 U | 0.018 B | <0.3 U | <0.3 U | <0.3 U | <0.3 U | <0.1 U | <0.3 U |
| Selenium, Dissolved (mg/L) | 0.02 | <0.5 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.003 U | 0.012 | <0.003 U | <0.003 U | <0.003 U | 0.007 | 0.0029 | <0.003 U | 0.002 B | 0.003 B | 0.006 | <0.003 U | <0.003 U | <0.003 U | <0.003 U |
| Thallium, Dissolved (mg/L) | 0.002 | <5 U | <0.01 U | <5 U | <0.0003 U | <0.005 U | <0.001 U | <0.003 U | <0.005 U | <0.005 U | 0.001 B | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | 0.0235 | 0.019 | 0.0168 | 0.0138 | 0.015 | <0.005 U | 0.001 B | <0.005 U | 0.002 B | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U | NA | NA | NA | NA | NA | NA |
| Zinc, Dissolved (mg/L) | 2 | 1.07 | 1.03 | 1.71 | <0.3 U | <3 U | <0.3 U | <0.3 U | 0.01 B | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <1.0 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.5 U | <0.3 U | <0.5 U |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **2,770** | **2,940** | **4,260** | **4,800** | **4,970** | **5,200** | **6,900** | **5,300** | **6,300** | **6,200** | **6,200** | **6,500** | **6,282** | **6,063** | **6,105** | **6,566** | **6,077** | **6,744** | **6,490** | **6,470** | **6,750** | **7,080** | **6,450** |
| Fluoride (mg/L) | 2 | 1 | 1.1 | 0.9 | 0.9 | 1.1 | 1.1 | 1.4 | 1.1 | 1.1 | 1.1 | 1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.13 |
| Nitrate as N (mg/L) | 10 | <0.1 U | 0.07 | <0.1 U | <0.1 U | 0.13 | NA | <0.1 U | 0.73 | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U | 1.83 | 0.04 B | 0.04 B | 0.04 B | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | <0.05 U | <0.05 U | <0.05 U | 0.01 B | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | <0.1 U | 0.07 B | <0.1 U | <0.1 U | 0.13 | NA | <0.1 U | 0.73 | <0.1 U | 0.02 B | <0.1 U | <0.1 U | <0.1 U | 1.83 | 0.04 B | 0.04 B | 0.04 B | NA | NA | NA | NA | NA | NA |
| Lab pH (s.u) | 6.5 - 8.5 | 8.1 | 7.7 | 7.8 | 7.8 | 8.1 | 7.6 | 8 | 8 | 8.3 H | 8.2 H | 8.2 | 8.2 H | 8.3 U | 8.1 H | 8.1 H | 8.1 H | 8.2 H | 8.1 H | 8.2 H | 8.1 H | 8.1 H | 8.00 H | 7.9 H |
| Total Dissolved Solids, filterable residue (mg/L) | 10,212* | 5,870.0 | 7,610.0 | 8,170.0 | 8,660.0 | 8,670.0 | 9,110.0 | 8,980.0 | 9,350.0 | **11,000** | **11,100** | **11,100** | **10,900** | **11,100** | **11,200** | **10,800** | **11,100** | **10,800** | **11,100** | **11,000** | **10,900** | **10,300** H | **10,800** H | **10,300** H |
| Sulfate (mg/L) | 250 | **970** | **600** | **460** | **390** | **3150** | **290** | **270** | 250 | <500 U | <500 U | <500 U | <300 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U |
| Gross Alpha (pCi/L) | 15 | **26** | 12 | **53** | -4.3 | **57** | 4.7 | 0 | **65** | -10 (±39) | **73 (±47)** | **16 (±37)** | **40 (±52)** | **19 (±52)** | -33 (±18) | **260 (±76)** | -0.11 (±17) | -15 (±30) | NA | NA | NA | NA | NA | NA |
| Gross Beta (pCi/L) | ** | 23 | 37 | 27 | -24 | 18 | 20 | 4.7 | 8.6 | -7.5 (±53) | 80 (±49) | 22 (±45) | 51 (±57) | 66 (±63) | 38 (±51) | 270 (±61) | 53 (±53) | 9.9 (±42) | NA | NA | NA | NA | NA | NA |
| **Field Paramters (Not Avalible pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | NA | NA | NA | NA | NA | NA | NA | NA | 7.95 | 7.85 | 7.68 | 7.97 | 7.92 | 8.23 | 7.48 | 7.84 | 8.05 | 7.53 | 7.36 | 7.73 | 6.57 | 7.27 | 7.25 |
| Field Conductivity (µS/cm) | none | NA | NA | NA | NA | NA | NA | NA | NA | 1,825 | 1,959 | 17,420 | 18,450 | 18,230 | 18,500 | 9 | 17,080 | 18,790 | 11,720 | 18,800 | 18,750 | 19,055 | 18,020 | 19,380 |
| Temperature (Degrees Celsius) | none | NA | NA | NA | NA | NA | NA | NA | NA | 17.7 | 15 | 19.9 | 23.4 | 14 | 14.6 | 18.6 | 22.0 | 12.3 | 12.1 | 16.7 | 18.8 | 11.46 | 12.1 | 14.9 |
| **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 | 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 | 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 | NA |
| Bicarbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 585 | 565 | 569 | 562 | 573 | 597 | 580 | 576 | 571 | 573 | 567 | 590 | 576 | 606 | 623 |
| Carbonate as CaCO3 (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 16 B | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <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 | NA |
| Calcium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 37 | 38 | 79 | 37 | 35 | 36 | 42 | 38 | 39.2 | 37 | 37 | 37 | 36 | 36.1 | 38 |
| 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 | 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 | NA |
| Magnesium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 18 | 18 | 38 | 16 | 16 | 17 | 22 | 19 | 18.9 | 18 | 18 | 17 | 16 | 16 | 17 |
| 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 | 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 | 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 | NA |
| Potassium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 10 B | 12 B | 20 B | 7.0 B | 9.0 B | 7.0 B | 15 B | 10 B | 22 | 10 B | 10 B | 9.0 B | 9 B | 9 | 9 B |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Sodium, Dissolved (mg/L) | none | NA | NA | NA | NA | NA | NA | NA | NA | 4,270 | 4,180 | 4,280 | 4,200 | 3,930 | 4,220 | 4,240 | 4,250 | 4,150 | 4,390 | 4,260 | 4,350 | 4070 | 4120 | 4360 |
| 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 | 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 8/27/2014 | 11/11/2014 | 2/18/2015 | 5/27/2015 | 8/27/2015 | 11/9/2015 | 2/15/2016 | 5/31/2016 | 8/16/2016 | 11/9/2016 | 5/31/2017 | 11/15/2017 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/17/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.01 U | 0.0004 B | <0.002 U | <0.02 U | 0.00055 B | <0.01 U | <0.01 U | <0.02 U | <0.02 U | <0.01 U | <0.01 U |
| Barium, Dissolved (mg/L) | 2.0 | **8.01** | **8.56** | **8.77** | **8.76** | **8.81** | **8.80** | **8.66** | **8.79** | **8.91** | **8.61** | **8.95** | **8.60** | **9.00** | **8.90** | **8.42** | **8.94** | **9.17** | **7.95** | **8.80** | **8.58** | **8.73** | **9.18** | **9.18** | **8.99** |
| Boron, Dissolved (mg/L) | 0.75 | 0.7 | 0.7 | **0.8** B | 0.6 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 | 0.61 | 0.7 | 0.6 | **0.8** | 0.6 | 0.7 B | 0.63 | 0.63 | **0.76** | 0.747 B | 0.67 | 0.705 B | 0.71 B | 0.671 | 0.671 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.02 U | <0.002 U | <0.005 U | <0.002 U | <0.002 U | <0.02 U | <0.02 U | <0.002 U | <0.04 U | <0.02 U | <0.02 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.02 U | <0.002 U | <0.008 U | <0.002 U | <0.002 U | <0.02 U | <0.02 U | <0.04 U | <0.04 U | <0.02 U | <0.02 U |
| Iron, Dissolved (mg/L) | 0.3 | **0.5** | 0.3 B | <1 U | 0.3 B | 0.1 B | **0.4** B | 0.2 B | 0.14 | <0.5 U | 0.15 | <0.5 U | <0.5 U | <0.5 U | 0.15 | 0.114 U | 0.12 | 0.11 B | <0.75 U | <1.5 U | <0.15 | <1.5 U | <1.5 U | 0.141 B | 0.145 B |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.0005 U | <0.0005 U | <0.005 U | <0.005 U | <0.01 U | <0.01 U | <0.005 U | <0.005 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.76 | 1.93 | 1.81 | 1.91 | 1.81 | 1.80 | 1.98 | 1.78 | 1.67 | 1.82 | 1.91 |
| Manganese, Dissolved (mg/L) | 0.05 | <0.3 U | <0.3 U | <0.5 U | <0.3 U | <0.1 U | <0.3 U | <0.3 U | <0.03 U | <0.3 U | <0.03 U | <0.3 U | <0.3 U | <0.3 U | 0.008 B | 0.0065 U | 0.007 B | 0.011 B | 0.00724 | 0.00612 B | 0.00886 B | 0.00752 | <0.04 U | 0.00903 B | 0.02 |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.017 | 0.0014 | <0.001 U | <0.003 U | <0.002 U | <0.0025 U | <0.0025 U | 0.00026 | <0.005 U | <0.0125 U | <0.0125 U |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.005 U | <0.0005 U | <0.0001 U | <0.003 U | <0.0025 U | 0.000825 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.0005 U | <0.0025 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.005 U | 0.0001 B | <0.001 U | <0.01 U | 0.0003 B | <0.005 U | <0.005 U | <0.01 U | <0.01 U | <0.005 U | <0.005 U |
| Zinc, Dissolved (mg/L) | 2.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.5 U | <0.5 U | <0.01 U | <0.02 U | <0.015 U | <0.15 U | <0.15 U | <0.015 U | <0.3 U | <0.15 U | 0.135 B |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **5,600** | **6,260** | **6,650** | **6,410** | **6,630** | **6,880** | **6,530** | **6,290** | **6,350** | **5,960** | **6,390** | **6,170** H | **6,150** | **7,780** | **7,140** | **7,100** | **7,020** | **6,160** | **6,680** | **7,010** | **6,490** H | **7,670** | **6,900** H | **8,140** |
| Fluoride (mg/L) | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.03 | 1.10 | 1.10 | 1.10 | 1.07 | 1.10 | 1.11 | 1.25 | 1.00 | 1.06 | 1.13 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | 0.12 | <0.02 U | <0.1 U | <0.1 U | <0.1 UH | <0.1 U | <0.1 UH | <0.1 U | <0.1 U | 0.057 B |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.05 U | <0.05 U | 0.01 B | <0.05 U | <0.05 U | <0.05 UH | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.1 U | 0.12 | <0.02 U | <0.1 U | <0.1 U | <0.1 UH | <0.1 U | <0.1 UH | <0.1 U | <0.1 U | 0.057 B |
| Lab pH (s.u) | 6.5 - 8.5 | 8.1 H | 8.2 H | 8.00 H | 8.1 H | 8.2 H | 8.2 H | 8.2 | 7.9 H | 8.3 H | 8.2 H | 8.3 H | 7.9 H | 8.1 H | 8.1 | 8.00 H | 8.2 H | 8.1 H | 8.00 H | 8.1 H | 8.00 H | 8.00 H | 8.20 H | 8.18 H | 8.10 H |
| Total Dissolved Solids, filterable residue (mg/L) | 10,212 | 9,530 | **10,900** | **10,600** | **10,600** ^ | 9,720 ^ | **10,800** | **10,900** | 10,100 | **10,800** | **11,100** | **10,500** | **11,000** | **10,900** | **11,200** | **11,000** | **10,600** | **11,700** | **11,000** | 11,200 | 11,500 | **10,600** H | **11,000** | **11,000** | **11,200** H |
| Sulfate (mg/L) | 250 | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <500 U | <250 U | <250 U | <250 U | <250 U | <200 UH | <200 U | <200 U | <200 U | <40 U | <200 U | <400 U | <200 U | <200 U | <400 U | <200 U | <200 UH | <400 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.83 (±26) | -17 (±22) | -3.9(±37) | **19(±31)** | **19 (±44)** | 11(±30) | **87(±72)** | 9.7(±22) | **15(±54)** | -56(±32) | 0.7(±15) |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 38 (±39) | -11 (±57) | 40(±44) | 1.3(±43) | -2.6 (±53) | 16(±57) | 28(±61) | 88(±74) | 17(±58) | 3.4(±66) | 41(±46) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.52 | 7.56 | 7.54 | 9.09 | 7.49 | 8.26 | 8.2 | 7.74 | 7.31 | 7.65 | 8.05 | 7.81 | 7.89 | 7.63 | 7.96 | 7.79 | 8.28 | 7.86 | 7.9 | 7.94 | 7.71 | 7.78 | 7.71 | 7.81 |
| Field Conductivity (µS/cm) | none | 19,500 | 18,510 | 19,550 | 16,610 | 19,050 | 14,650 | 13,890 | 16,140 | 18,530 | 19,320 | 17,800 | 18,260 | 19,620 | 18,570 | 18,390 | 11,030 | 15,330 | 16,872 | 17,690 | 19,307 | 20,248 | 14,998 | 17,145 | 18,528 |
| Temperature (Degrees Celsius) | none | 14.5 | 11.7 | 12.5 | 17.5 | 16.6 | 13.1 | 11.6 | 16 | 18.3 | 16.1 | 14.7 | 12.4 | 16.8 | 14 | 15.6 | 7.3 | 22.4 | 11.3 | 20.7 | 14.8 | 16.1 | 11.4 | 14.1 | 11.6 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <2 U | <3 U | <0.05 U | <0.02 U | <0.015 U | <0.15 U | <0.15 U | <0.015 U | <0.3 U | <0.15 U | <0.15 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.006 B | <0.002 U | 0.005 B | <0.04 U | <0.02 U | <0.02 U | <0.02 U | <0.002 U | <0.02 U | <0.02 U | <0.02 U |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | <0.0003 U | <0.0008 U | <0.0003 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U |
| Bicarbonate as CaCO3 (mg/L) | none | 616 | 611 | NA | 604 | 599 | 615 | 606 | 664 | 613 | 619 | 612 | 592 | 602 | NA | 601 H | 606 | 644 | 585 | 595 | 567 | 586 | 605 | 667 | 604 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | NA | <20 U | <20 U | <20 U | <20 U | <20 U | 6.2 B | <20 U | <20 U | <20 U | <20 U | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | 0.00007 B | <0.0005 U | <0.0003 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.00025 U | <0.005 U | <0.0025 U | <0.0025 U |
| Calcium, Dissolved (mg/L) | none | 37 | 37 | 38 | 38 | 36.9 | 38 | 38 | 36 | 37 | 35.8 | 36 | 36 | 36 | 36 | 35 | 37 | 35.6 | 35.7 | 36.8 | 34.1 | 36.00 | 34.6 | 36.5 | 34.9 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.003 U | 0.00015 B | 0.0012 B | <0.005 U | 0.000116 B | <0.0025 U | <0.0025 U | 0.000119 B | <0.005 U | 0.000636 B | 0.00455 |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.004 B | 0.009 B | <0.003 U | <0.01 U | 0.0061 B | 0.0097 B | <0.01 U | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 18 | 18 | 21 | 17 | 18 | 17 | 17 | 16.4 | 18 | 16.1 | 16 | 16 | 17 | 17 | 15 | 16.6 | 16.00 | 16.4 | 15.6 | 15.8 | 16.2 | 16.0 | 17.1 | 16.6 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.0002 B | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.03 U | 0.0002 U | <0.002 U | <0.01 U | 0.00045 B | <0.005 U | 0.00216 B | <0.0005 U | <0.01 U | 0.00219 B | <0.005 U |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.03 U | <0.001 U | <0.004 U | <0.001 U | <0.001 U | <0.01 U | <0.01 U | <0.02 U | <0.02 U | <0.01 U | <0.01 U |
| Potassium, Dissolved (mg/L) | none | 9 B | 10 | 12 B | 9 | 9 | 10 | 11 | 9.1 | 9 | 9 | 10 | 9 | 8 B | 10 | 8 B | 11.7 | 15.3 | 8.34 | 8.04 B | 10.90 | 8.60 B | 6.55 B | 8.76 | 10.5 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.01 U | <0.005 U | <0.005 U | <0.005 U | <0.0005 U | <0.01 U | <0.01 U | <0.005 U |
| Sodium, Dissolved (mg/L) | none | 4050 | 3950 | 4070 | 4040 | 4030 | 4050 | 4290 | 4020 | 4000 | 4160 | 4080 | 3950 | 4030 | 4130 | 4,030 | 4,180 | 4,240 | 3,830 | 4,050 | 4,050 | 3,940 | 4,050 | 4,070 | 4,400 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <0.02 U | <0.002 U | <0.005 U | <0.04 U | 0.00067 B | <0.02 U | <0.02 U | 0.00059 B | <0.04 U | <0.02 U | <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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 5/31/2017 | 11/15/2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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 | 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 | 0.01 B | <0.03 U |
| 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 | 0.36 | 0.36 |
| 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 | 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 | 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** | **2.15** | **10.3** |
| 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 | NA | NA |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | 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** | **0.09** | **0.09** |
| 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 | 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 | NA | NA |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | 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 | 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 | 45.4 B | 25.8 BH |
| 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 | NA | NA |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | 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 | 7.8 H | 7.3 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 | 3,970 | 3,160 |
| Sulfate (mg/L) | 250 | **3,273** | **2,050** | **2,200** | **1,690** | **1,770** | **1,870** | **1,630** | **1,690** | **1,900** | **1,860** | **1,720** | **1,940** | **2,250** | **1,920** | **1,770** | **1,940** | **2,540** | **1,820** H |
| Gross Alpha (pCi/L) | 15 | NA | NA | 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 | NA | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 6.65 | 6.67 | 7 | 6.74 | 6.83 | 6.56 | 6.76 | 6.77 | 6.67 | 6.47 | 6.76 | 7.06 | 7.2 | 6.77 | 6.74 | 6.59 | 7.23 | 7.04 |
| Field Conductivity (µS/cm) | none | 2,631 | 3,735 | 3,774 | 3324 | 3,262 | 3,370 | 3,345 | 33,200 | 3,787 | 3,016 | 3,340 | 2,900 | 2,800 | 2,649 | 3,192 | 3,546 | 4,530,000 | 3,280 |
| Temperature (Degrees Celsius) | none | 12 | 14.3 | 15.8 | 11.34 | 12.3 | 13.9 | 13.8 | 10.5 | 11.1 | 15.1 | 14.4 | 13.9 | 10.7 | 14.1 | 16.1 | 12.8 | 15.4 | 12.8 |
| **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 |
| Antimony, Dissolved (mg/L) | 0.006 | 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 |
| Bicarbonate as CaCO3 (mg/L) | none | 225 | 320 | 205 | 343 | 380 | 410 | 378 | 377 | NA | 347 | 376 | 377 | 361 | 409 | 357 | 311 | 348 | 375 |
| 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 | <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 |
| Calcium, Dissolved (mg/L) | none | 426 | 464 | 523 | 446 | 433 | 441 | 442 | 461 | 453 | 505 | 520 | 478 | 464 | 486 | 495 | 494 | 429 | 461 |
| Cobalt, Dissolved (mg/L) | 0.05 | 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 |
| Magnesium, Dissolved (mg/L) | none | 147 | 126 | 131 | 101 | 109 | 106 | 101 | 111 | 118 | 112 | 115 | 115 | 124 | 112 | 113 | 122 | 128 | 119 |
| Mercury, Dissolved (mg/L) | 0.002 | 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 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | 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 | 8.2 | 7.2 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | 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 | 614 | 322 |
| Vanadium, Dissolved (mg/L) | 0.1 | 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/17/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | 0.0019 B | 0.0018 | 0.0011 B | 0.0037 | 0.00273 | <0.002 U | 0.00167 B | 0.00284 | <0.005 U | 0.00222 B | 0.00208 |
| Barium, Dissolved (mg/L) | 2 | <0.03 U | <0.03 U | 0.02 B | 0.01 B | 0.011 | 0.0106 | 0.00986 | 0.0128 | 0.0121 | 0.0116 B | 0.0151 | 0.0114 |
| Boron, Dissolved (mg/L) | 0.75 | 0.35 | 0.33 | 0.35 | 0.35 | 0.33 | 0.32 | 0.307 | 0.344 | 0.315 | 0.347 | 0.383 | 0.399 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | <0.004 U | <0.002 U | <0.001 U | <0.002 U | <0.002 U | <0.004 U | <0.004 U | <0.002 U | <0.01 U | <0.01 U | <0.004 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | <0.1 U | <0.1 U | <0.002 U | <0.002 U | <0.002 U | <0.004 U | <0.004 U | <0.004 U | <0.01 U | <0.01 U | <0.004 U |
| Iron, Dissolved (mg/L) | 0.3 | **0.97** | **32.8** | **7.67** | **9.22** | **38** | **28.1** | **0.404** | **17.0** | **39.7** | **15.0** | **13.2** | **17.1** |
| Lead, Dissolved (mg/L) | 0.05 | NA | <0.001 U | <0.0005 U | <0.0002 U | <0.0005 U | <0.0005 U | <0.001 U | <0.001 U | <0.001 U | <0.0025 U | <0.0025 U | <0.001 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | 0.3 | 0.39 | 0.417 | 0.364 | 0.385 | 0.242 | 0.344 | 0.317 | 0.363 | 0.433 | 0.328 |
| Manganese, Dissolved (mg/L) | 0.05 | **0.08** | **0.09** | **0.09** B | **0.0772** | **0.0775** | **0.0935** | **0.0767** | **0.0899** | **0.105** | **0.0946** | **0.102** | **0.0986** |
| Selenium, Dissolved (mg/L) | 0.02 | NA | 0.0017 | 0.0005 | 0.0002 B | 0.001 | 0.00154 | 0.00503 | <0.0005 U | 0.00055 | <0.00125 U | 0.00082 B | 0.00023 B |
| Thallium, Dissolved (mg/L) | 0.002 | NA | <0.001 U | 0.0001 B | 0.00007 B | 0.0002 B | 0.00021 B | 0.00044 B | <0.0005 U | <0.0005 U | <0.0005 U | 0.000118 B | <0.0005 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | **0.0379** | 0.0261 | 0.0241 | **0.0465** | 0.0243 | **0.0416** | **0.031** | **0.0381** | 0.0217 | 0.0258 | 0.028 |
| Zinc, Dissolved (mg/L) | 2 | NA | <0.1 U | <0.1 U | <0.01 U | 0.007 B | 0.0075 B | <0.03 U | <0.03 U | 0.0123 B | <0.075 U | <0.075 U | <0.03 U |
| **Other** | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | 19.7 B | 36.2 B | 29.8 B | 36 B | 27.3 B | 30.8 B | 11.8 B | <100 U | 31.6 U | 31.6 B | 31 B | 21 B |
| Fluoride (mg/L) | 2 | NA | 0.72 | 0.60 | 0.70 | 0.70 | 0.73 | 0.47 | 0.74 | 0.95 | 0.66 | 0.64 | 0.68 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | 0.57 | <0.1 U | <0.1 U | <0.1 UH | 0.188 | <0.1 UH | <0.1 U | <0.1 U | <0.1 U |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | <0.01 U | <0.05 U | <0.05 U | <0.05 UH | 0.014 B | <0.05 UH | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | 0.57 | 0.1 U | <0.1 U | <0.1 UH | 0.202 | <0.1 UH | <0.1 U | <0.1 U | <0.1 U |
| Lab pH (s.u) | 6.5 - 8.5 | 7.7 H | 7.5 | 7.7 H | 7.7 H | 7.6 H | 7.4 H | 7.6 H | 7.4 H | 7.3 H | 7.8 H | 8.0 H | 7.7 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 3,020 H | 3,340 | 3,630 | 3,800 | 3630 | 3830 | 2,910 | 3,300 | 3640 | 3,780 | 4,160 | 3,200 |
| Sulfate (mg/L) | 250 | **1,780** | **2,190** | **2,180** | **2,480** | **2,290** | **2,530** | **1,860** | **2,120** | **2,190** | **2,300** | **2,410** | **1,740** |
| Gross Alpha (pCi/L) | 15 | NA | 8.6 (±11) | 8.5 (±9.2) | **24(±14)** | **32(±15)** | **26 (±13)** | **31(±13)** | **38(±19)** | **20(±16)** | 13(±17) | 11(±14) | 12(±12) |
| Gross Beta (pCi/L) | ** | NA | 18 (±13) | 8.2 (±13) | 25(±12) | 12(±12) | 19 (±13) | 20(±9.2) | 8.6(±12) | 31(±17) | 3.1(±13) | 20(±15) | 15(±13) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 6.81 | 6.85 | 7.06 | 7.08 | 7.06 | 7.27 | 6.93 | 6.79 | 6.78 | 7.08 | 7.02 | 6.96 |
| Field Conductivity (µS/cm) | none | 3,397 | 3,622 | 3,983 | 2,416 | 2,808 | 3,810 | 2,928 | 3,921 | 3,899 | 3,350 | 4,162 | 3,582 |
| Temperature (Degrees Celsius) | none | 16 | 13.6 | 15.2 | 12.2 | 14.3 | 11.2 | 15.9 | 12.5 | 13.6 | 12.4 | 13.1 | 13.6 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | <0.3 U | <0.5 U | <0.05 U | <0.02 U | 0.013 B | <0.03 U | <0.03 U | <0.015 U | <0.075 U | <0.075 U | <0.03 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | <0.004 U | <0.002 U | <0.0008 U | <0.002 U | <0.002 U | <0.004 U | <0.004 U | <0.002 U | <0.004 U | <0.01 U | <0.004 U |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | <0.0005 U | <0.0003 U | <0.0002 U | <0.0003 U | <0.00025 U | <0.0005 U | <0.0005 U | <0.00025 U | <0.0005 U | <0.00125 U | <0.0005 U |
| Bicarbonate as CaCO3 (mg/L) | none | 401 | NA | 392 H | 354 | 328 | 304 | 360 | 323 | 258 | 346 | 393 | 383 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | <0.0005 U | <0.0003 U | <0.0001 U | 0.00014 B | <0.00025 U | <0.0005 U | <0.0005 U | <0.00025 U | <0.00125 U | <0.00125 U | <0.0005 U |
| Calcium, Dissolved (mg/L) | none | 425 | 490 | 402 | 405 | 474 | 427 | 477 | 433 | 475 | 385 | 410 | 419 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | 0.0047 | 0.00595 | 0.0046 | 0.00805 | 0.00527 | 0.00582 | 0.00508 | 0.00554 | 0.00491 | 0.00723 | 0.00836 |
| Cyanide, Free (mg/L) | 0.2 | NA | <0.01 U | <0.01 U | <0.003 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 109 | 121 | 113 | 116 | 117 | 120 | 104 | 109 | 114 | 113 | 120 | 112 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | <0.2 U | <0.2 U | 0.0045 | 0.0146 | 0.0089 | 0.00157 | 0.00892 | 0.0126 | 0.00913 | 0.00782 | 0.0101 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | 0.05 B | 0.04 B | 0.021 | 0.0511 | 0.0436 | 0.0237 | 0.0268 | 0.0477 | 0.0214 | 0.0291 | 0.0263 |
| Potassium, Dissolved (mg/L) | none | 6.6 | 8.1 | 8.1 | 9.4 | 9.7 | 9.03 | 6.08 | 8.49 | 8.08 | 8.77 | 9.33 | 9.04 |
| Silver, Dissolved (mg/L) | 0.05 | NA | <0.05 U | <0.0005 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.0005 U | <0.0025 U | <0.005 U | <0.001 U |
| Sodium, Dissolved (mg/L) | none | 329 | 317 | 501 | 617 | 439 | 497 | 230 | 413 | 356 | 569 | 700 | 417 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | <0.05 U | <0.05 U | <0.001 U | <0.002 U | <0.002 U | <0.004 U | <0.004 U | <0.002 U | <0.01 U | <0.01 U | <0.004 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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lab pH (s.u) | 6.5 - 8.5 | 8.1 H | 8.2 H | 8.2 H | 8.2 H | 8.2 H | 7.9 H | 8.0 H | 8.1 H | 7.7 H | 7.8 H | 7.8 H | 7.7 H | 7.78 | 7.4 H | 7.6 H | 7.7 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 9,110 | 10,200 | 9,340 H | 10,100 H | 10,900 | 8,800 H | 9,350 | 10,400 | 10,600 | 10,300 ^ | 8,840 ^ | 10,200 | 9,780 | 10,800 | 10,400 | 10500 |
| Sulfate (mg/L) | 250 | 249.7 | <250 U | <250 U | 98.6 B | <250 U | 52.5 B | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.91 | 7.67 | 7.58 | 7.46 | 7.85 | 7.47 | 7.46 | 7.75 | 7.43 | 7.55 | 7.2 | 7.51 | 7.78 | 7.32 | 6.6 | 7.24 |
| Field Conductivity (µS/cm) | none | 9,340 | 16,470 | 17,850 | 18,064 | 17,460 | 18,250 | 18,670 | 17,940 | 18,880 | 16,370 | 18,670 | 13,820 | 14,380 | 16,600 | 17,790 | 17,570 |
| Temperature (Degrees Celsius) | none | 12.8 | 17 | 18.4 | 13.72 | 11.3 | 16.1 | 17.1 | 7.9 | 14.5 | 17.1 | 19.8 | 12.7 | 15.3 | 17.8 | 18.3 | 18.9 |
| **Supplementary Analytes** | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Bicarbonate as CaCO3 (mg/L) | none | 463 | 507 | 513 | 529 | 558 | 580 | 608 | 632 | NA | 656 | 673 | 702 | 691 | 736 | 716 | 715 |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | NA | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Calcium, Dissolved (mg/L) | none | 58 | 44 | 33 | 34 | 32.2 | 40 | 41 | 45 | 51 | 49 | 57.9 | 63 | 68 | 67 | 69 | 66.1 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Magnesium, Dissolved (mg/L) | none | 21 | 20 | 18 | 17 | 16 | 16 | 17 | 18 | 22 | 17 | 18 | 17 | 18 | 16 | 19 | 17.3 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Potassium, Dissolved (mg/L) | none | 14 B | 12 B | 12 B | 11 | 10 | 11 | 10 | 10 | 13 B | 10 | 10 | 10 | 11 | 9 B | 10 | 10.7 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Sodium, Dissolved (mg/L) | none | 3,600 | 3,920 | 3,860 | 4,000 | 3,960 | 4,060 | 3,770 | 3,710 | 3,840 | 3,930 | 3,850 | 3,840 | 4,100 | 3,770 | 3,780 | 3,960 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

Notes:

B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit

U = Analyte not detected, reported less than the practical quantitation limit

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

NA = Analyte not analyzed

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

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

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

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/16/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | 0.007 B | 0.0074 | 0.007 B | 0.009 B | 0.00928 | 0.00574 B | 0.00479 B | 0.00603 B | <0.02 U | 0.00887 B | 0.00803 B |
| Barium, Dissolved (mg/L) | 2 | **7.85** | **7.77** | **7.65** | **7.25** | **6.66** | **6.84** | **6.64** | **6.00** | **5.81** | **6.01** | **6.57** | **6.27** | **5.96** | **5.92** |
| Boron, Dissolved (mg/L) | 0.75 | 0.7 | **0.8** | 0.6 | 0.6 | 0.6 B | 0.67 | 0.58 | **0.757** | **0.765** B | 0.657 | 0.594 B | 0.659 B | 0.645 | 0.534 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | <0.02 U | <0.002 U | <0.005 U | <0.04 U | <0.002 U | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | <0.02 U | <0.002 U | <0.008 U | 0.05 | 0.00195 B | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Iron, Dissolved (mg/L) | 0.3 | **1.7** | **3.4** | **3.0** | **2.9** | **2.2** | **2.87** | **1.93** | **2.99** | **3.14** | **3.62** | **3.69** | **2.57** | **3.68** | **2.93** |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.01 U | <0.0005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.005 U | 0.00179 B |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | 1.74 | 1.87 | 2.21 | 1.81 | 1.79 | 1.76 | 1.96 | 1.74 | 1.60 | 1.82 | 1.80 |
| Manganese, Dissolved (mg/L) | 0.05 | **0.14** B | **0.07** B | **0.06** B | **0.09** | **0.0733** U | **0.079** | **0.072** | **0.0585** | **0.0862** | **0.0831** | **0.0667** | **0.0513** | **0.113** | **0.0977** |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | <0.003 U | 0.0009 | <0.001 U | <0.003 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0125 U | <0.0025 U |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | <0.005 U | <0.0005 U | <0.0001 U | <0.003 U | <0.0025 U | 0.000924 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.0005 U | <0.0025 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | 0.004 | 0.0023 | 0.004 B | 0.003 B | 0.00322 | 0.00264 B | 0.00306 B | 0.00361 B | 0.00398 B | 0.00543 | 0.00651 |
| Zinc, Dissolved (mg/L) | 2 | NA | NA | NA | <0.5 U | <0.5 U | <0.05 U | <0.02 U | <0.015 U | <0.15 U | <0.15 U | <0.15 U | <0.3 U | <0.15 U | <0.15 U |
| **Other** | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **6,130** | **5,900** | **5,880** | **6,490** | **6,610** H | **6,390** | **7,100** | **6,110** | **6,810** | **6,190** | **6,730** | **6,130** | **6,390** H | **5,830** |
| Fluoride (mg/L) | 2 | NA | NA | NA | 1.09 | 1.20 | 1.20 | 1.10 | 1.12 | 1.18 | 1.27 | 1.01 | 1.00 | 0.94 | 1.04 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | <0.02 U | <0.1 U | <0.1 U | <0.1 UH | <0.1 U | 0.032 B | <0.1 U | <0.1 U | <0.1 U |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | <0.01 U | <0.05 U | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | <0.02 U | <0.1 U | <0.1 U | <0.1 UH | <0.1 U | 0.032 B | <0.1 U | <0.1 U | <0.1 U |
| Lab pH (s.u) | 6.5 - 8.5 | 8.1 H | 7.7 H | 7.8 H | 8 H | 7.9 H | 8.1 H | 8.1 H | 8 H | 7.9 H | 7.9 H | 8.1 H | 8.3 H | 8.11 H | 7.9 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 10,500 | 10,400 | 10,500 | 10,700 | 10,600 | 10,300 | 10,700 | 10,600 | 11,100 | 10,500 | 10,400 H | 10,600 | 10,600 | 10,100 |
| Sulfate (mg/L) | 250 | <250 U | <200 U | 51 B | <200 U | <200 U | <40 U | <200 U | <200 U | <200 U | <200 U | <200 U | <200 U | <200 UH | <200 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | **47 (±36)** | -33 (±24) | 0.0(±52) | **16(±29)** | 14 (±33) | **65(±40)** | **21(±56)** | **19(±53)** | **32(±66)** | -8.4(±36) | **82(±57)** |
| Gross Beta (pCi/L) | ** | NA | NA | NA | 43 (±35) | 56 (±47) | 0.78(±63) | 33(±46) | -28 (±47) | 57(±44) | -0.71(±50) | 630(±110) | 6(±60) | 18(±55) | 50(±54) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.79 | 7.86 | 7.76 | 7.34 | 7.76 | 7.72 | 7.29 | 7.72 | 7.52 | 7.52 | 7.56 | 7.76 | 7.35 | 7.42 |
| Field Conductivity (µS/cm) | none | 17,850 | 17,470 | 18,950 | 17,560 | 18,000 | 11,290 | 14,930 | 16,067 | 16,612 | 19,008 | 19,509 | 13,868 | 16,557 | 18,024 |
| Temperature (Degrees Celsius) | none | 16.6 | 11.3 | 17.7 | 11.1 | 17.9 | 10 | 21.5 | 12.1 | 19.4 | 11.95 | 16.6 | 12.0 | 15.1 | 15.7 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | <2 U | <3 U | <0.05 U | <0.3 U | <0.015 U | <0.15 U | <0.15 U | <0.15 U | <0.3 U | <0.15 U | <0.15 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | <0.02 U | 0.0014 B | <0.004 U | <0.04 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U | <0.02 U |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | <0.003 U | <0.0003 U | <0.0008 U | <0.0003 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U |
| Bicarbonate as CaCO3 (mg/L) | none | 658 | 639 | 652 | NA | 685 H | 702 | 720 | 647 | 625 | 629 | 624 | 691 | 827 | 700 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | <20 U | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | <0.003 U | 0.00006 B | <0.0005 U | <0.0003 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0025 U | <0.0025 U |
| Calcium, Dissolved (mg/L) | none | 51 | 44 | 41 | 47 | 40 | 45.4 | 43.2 | 41.1 | 45.7 | 40.3 | 44.4 | 40.8 | 57.7 | 52.6 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.003 U | 0.00024 B | <0.0005 U | <0.005 U | 0.000315 | 0.000693 B | 0.000723 B | 0.000533 B | <0.005 U | 0.00136 B | 0.00115 B |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | 0.009 B | 0.012 | <0.003 U | 0.004 B | 0.005 B | 0.008 B | 0.0088 B | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 16 | 16 | 16 | 16 | 14 | 15.8 | 15 | 15.8 | 14.7 | 14.7 | 16.2 | 15.4 | 17.3 | 15.6 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | 0.025 B | 0.0208 U | 0.021 | 0.022 | 0.0279 | 0.0177 | 0.0254 | 0.0291 | 0.0369 | 0.0362 | 0.0397 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | 0.007 B | 0.0063 U | 0.01 | 0.02 | 0.023 | 0.0204 | 0.0167 | 0.019 | 0.0195 B | 0.0204 | 0.0189 |
| Potassium, Dissolved (mg/L) | none | 9 B | 9 B | 8 B | 10 | 9 B | 11.6 | 14.8 | 8.7 | 7.67 B | 10.6 | 9.1 B | 7.11 B | 9.2 | 10.5 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.01 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.01 U | <0.005 U |
| Sodium, Dissolved (mg/L) | none | 3,920 | 4,060 | 3,870 | 3,960 | 3,910 | 3,960 | 3,890 | 3,710 | 3,860 | 3,900 | 3,940 | 3,910 | 3,970 | 3,950 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | <0.02 U | 0.0005 U | <0.005 U | <0.04 U | 0.00145 B | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lab pH (s.u) | 6.5 - 8.5 | 8.1 H | 8.0 H | 7.9 H | 7.9 H | 8.0 H | 7.6 H | 7.9 H | 7.9 H | 7.8 H | 7.8 H | 7.9 H | 7.8 H | 7.75 | 7.6 H | 7.6 H | 8 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 8,640 | 11,500 | 10,200 H | 10,700 H | 10,300 | 10,600 H | 10,100 | 10,600 | 10,500 | 10,200 ^ | 8,800 ^ | 10,400 | 10,800 | 10,900 | 10,100 | 10,700 |
| Sulfate (mg/L) | 250 | **1,589** | **1,240** | **510** | 130 B | 104 B | 60.9 B | 80.2 B | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | <250 U | 179 B | 101 B |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Gross Beta (pCi/L) | ** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.85 | 7.08 | 6.86 | 7.55 | 7.27 | 6.95 | 7.37 | 6.94 | 7.05 | 6.27 | 7.08 | 7.42 | 7.75 | 7.22 | 6.91 | 7.3 |
| Field Conductivity (µS/cm) | none | 13 | 19,280 | 19,810 | 19,358 | 18,640 | 18,880 | 18,970 | 18,440 | 8,770 | 16,170 | 18,020 | 14,000 | 13,820 | 16,530 | 17,520 | 18,050 |
| Temperature (Degrees Celsius) | none | 13.4 | 12.2 | 20.5 | 13 | 11.3 | 16.2 | 15.1 | 8 | 13.5 | 17.2 | 18.3 | 12.1 | 13.3 | 17.6 | 18.1 | 16.1 |
| **Supplementary Analytes** | | | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Bicarbonate as CaCO3 (mg/L) | none | 458 | 596 | 696 | 715 | 838 | 822 | 785 | 837 | NA | 765 | 853 | 828 | 821 | 828 | 844 | 836 |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | NA | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Calcium, Dissolved (mg/L) | none | 105 | 142 | 103 | 72 | 67.8 | 58 | 56 | 51 | 50 | 47 | 52 | 53 | 54 | 50 | 54 | 47.1 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Magnesium, Dissolved (mg/L) | none | 40 | 43 | 30 | 25 | 22 | 21 | 21 | 20 | 23 | 19 | 19 | 18 | 20 | 18 | 19 | 18 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Potassium, Dissolved (mg/L) | none | 11 B | 13 B | 12 | 11 | 10 | 10 | 11 | 9 B | 13 B | 9 B | 9 | 10 | 11 | 10 | 10 | 8.8 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Sodium, Dissolved (mg/L) | none | 3,200 | 4,150 | 4,720 | 4,280 | 4,020 | 4,350 | 3,910 | 3,740 | 3,970 | 4,010 | 3,930 | 3,880 | 4,240 | 3,930 | 3,820 | 4,330 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

Notes:

B = Estimated value, less than the practical quantitation limit for that analyte, but greater than the method detection limit

U = Analyte not detected, reported less than the practical quantitation limit

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

NA = Analyte not analyzed

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

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

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

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 | 5/31/2017 | 11/15/2017 | 6/6/2018 | 11/15/2018 | 6/12/2019 | 12/12/2019 | 6/4/2020 | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/16/2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | NA | NA | NA | 0.002 B | 0.0031 | 0.002 B | 0.0039 | 0.00175 | <0.01 U | 0.0026 B | 0.00265 B | <0.02 U | <0.01 U | 0.00379 B |
| Barium, Dissolved (mg/L) | 2 | **3.96** | **3.8** | **5.5** | **3.42** | **4.42** | **2.86** | 1.06 | **2.54** | **4.32** | **2.28** | **3.05** | **2.52** | **4.4** | **3.12** |
| Boron, Dissolved (mg/L) | 0.75 | 0.7 | **0.8** | 0.7 | 0.7 | 0.7 B | 0.64 | 0.65 | 0.735 | 0.717 B | 0.634 | 0.604 B | 0.55 B | 0.632 | 0.665 |
| Chromium, Dissolved (mg/L) | 0.1 | NA | NA | NA | <0.02 U | <0.002 U | <0.005 U | <0.004 U | <0.002 U | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Copper, Dissolved (mg/L) | 0.2 | NA | NA | NA | <0.02 U | <0.002 U | <0.008 U | <0.004 U | 0.00177 B | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Iron, Dissolved (mg/L) | 0.3 | **5.5** | **6.1** | **3.2** | **3.9** | **2** | **2.81** | **11.6** | **0.932** | **2.95** | **1.96** | **2.07** | **0.622** B | **1.04** | **3.78** |
| Lead, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.0005 U | 0.00012 B | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U |
| Lithium, Dissolved (mg/L) | 2.5 | NA | NA | NA | 1.84 | 2.02 | 2.30 | 1.92 | 1.84 | 1.88 | 2.06 | 1.85 | 1.66 | 1.87 | 1.93 |
| Manganese, Dissolved (mg/L) | 0.05 | **0.19** B | **0.18** B | **0.14** B | **0.11** B | **0.2** B | **0.122** | **0.166** | **0.117** | **0.112** | **0.14** | **0.109** | **0.119** | **0.168** | **0.129** |
| Selenium, Dissolved (mg/L) | 0.02 | NA | NA | NA | <0.003 U | 0.001 | <0.001 U | <0.003 U | <0.001 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0125 U | <0.0025 U |
| Thallium, Dissolved (mg/L) | 0.002 | NA | NA | NA | <0.005 U | <0.0005 U | <0.0001 U | <0.003 U | <0.0025 U | 0.000757 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.0005 U | <0.0025 U |
| Uranium, Dissolved (mg/L) | 0.03 | NA | NA | NA | 0.005 | 0.004 | 0.005 | 0.0093 | 0.00185 | 0.00426 B | 0.00494 B | 0.00423 B | 0.00344 B | 0.00318 B | 0.00566 |
| Zinc, Dissolved (mg/L) | 2 | NA | NA | NA | <0.5 U | 0.1 B | 0.19 B | 0.01 B | <0.015 U | <0.15 U | <0.15 U | 0.116 B | <0.3 U | <0.15 U | <0.15 U |
| **Other** | | | | | | | | | | | | | | | |
| Chloride (mg/L) | 250 | **6,480** | **6,240** | **6,440** | **7,310** | **7,480** H | **6,780** | **6,550** | **6,690** | **7,410** | **6,420** | **6,650** H | **6,480** | **6,340** H | **6,320** |
| Fluoride (mg/L) | 2 | NA | NA | NA | 0.88 | 1.00 | 0.90 | 0.80 | 1.00 | 0.95 | 0.90 | 0.91 | 0.90 | 0.92 | 0.87 |
| Nitrate as N (mg/L) | 10 | NA | NA | NA | NA | NA | 0.57 | <0.1 U | 0.083 | 0.05 BH | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U |
| Nitrite as N (mg/L) | 1 | NA | NA | NA | NA | NA | <0.01 U | 0.02 B | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 0 | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | NA | NA | NA | NA | NA | 0.57 | 0.03 B | 0.083 B | 0.052 BH | <0.1 U | <0.1 U | <0.1 U | <0.1 U | <0.1 U |
| Lab pH (s.u) | 6.5 - 8.5 | 8 H | 7.8 H | 7.7 H | 7.9 H | 7.9 H | 7.9 H | 8 H | 7.8 H | 7.8 H | 7.8 H | 8 H | 8.2 H | 8.2 H | 7.9 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 11,100 | 11,300 | 11,500 H | 11,300 | 11,300 | 11,200 | 11,200 | 11,300 | 12,100 | 11,100 | 11,200 H | 11,100 | 11,200 | 10,300 |
| Sulfate (mg/L) | 250 | 59 B | 58 B | 75 B | 83.9 B | 63.8 B | 54.1 B | 125 B | <200 U | 43 B | <200 U | 94.8 B | <200 U | <200 UH | <200 U |
| Gross Alpha (pCi/L) | 15 | NA | NA | NA | 5.8 (±29) | **23 (±41)** | -50(±26) | 2.4(±37) | -21 (±31) | **64(±53)** | -19(±51) | -23(±35) | **150(±85)** | 11(±39) | **15(±24)** |
| Gross Beta (pCi/L) | ** | NA | NA | NA | 34 (±42) | 42 (±252) | 35(±59) | 11(±53) | 1.9 (±53) | 92(±58) | 26(±67) | 39(±66) | -2.3(±56) | 20(±56) | -1.9(±51) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 7.65 | 7.17 | 7.37 | 7.19 | 7.61 | 7.58 | 7.85 | 7.69 | 7.71 | 7.32 | 7.18 | 7.33 | 7.27 | 7.28 |
| Field Conductivity (µS/cm) | none | 19,350 | 18,550 | 20,050 | 19,200 | 19,110 | 11,900 | 15,310 | 17,263 | 17,831 | 19,845 | 20,634 | 14,884 | 17,050 | 18,898 |
| Temperature (Degrees Celsius) | none | 22.5 | 12.3 | 16.4 | 12.9 | 16.3 | 8.3 | 19.8 | 12.5 | 20.9 | 12.14 | 17.4 | 13.2 | 14.1 | 15.8 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | NA | NA | NA | <2 U | <3 U | <0.05 U | <0.02 U | 0.0067 B | <0.15 U | <0.15 U | <0.15 U | <0.3 U | <0.15 U | <0.15 U |
| Antimony, Dissolved (mg/L) | 0.006 | NA | NA | NA | <0.02 U | 0.0015 B | <0.004 U | 0.0045 | <0.02 U | **0.00691** B | <0.02 U | <0.02 U | <0.02 U | **0.0145** B | **0.0138** B |
| Beryllium, Dissolved (mg/L) | 0.004 | NA | NA | NA | <0.003 U | <0.0003 U | <0.0008 U | <0.0003 U | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U |
| Bicarbonate as CaCO3 (mg/L) | none | 745 | 700 | 714 | NA | 681 H | 701 | 876 | 663 | 650 | 713 | 688 | 765 | 836 | 776 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | <20 U | NA | <20 UH | <2 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | NA | NA | NA | <0.003 U | 0.00007 B | <0.0005 U | <0.0005 U | 0.000056 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0025 U | <0.0025 U |
| Calcium, Dissolved (mg/L) | none | 52 | 55 | 52 | 54 | 53 | 54.4 | 54.2 | 52.5 | 56.8 | 52 | 54 | 52.1 | 52.7 | 53.1 |
| Cobalt, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.003 U | 0.00025 B | <0.0005 U | 0.0004 B | 0.000208 B | 0.000587 B | <0.0025 U | <0.0025 U | <0.005 U | <0.0025 U | 0.00125 B |
| Cyanide, Free (mg/L) | 0.2 | NA | NA | NA | 0.005 B | 0.012 | 0.003 B | 0.003 B | 0.0096 B | 0.0098 B | 0.0197 | <0.01 U | <0.01 UH | 0.0101 | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 19 | 20 | 20 | 19 | 18 | 18.5 | 17.9 | 18.4 | 17.9 | 17.1 | 18.8 | 17.7 | 19.4 | 18.4 |
| Mercury, Dissolved (mg/L) | 0.002 | NA | NA | NA | <0.001 U | <0.001 U | <0.0002 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | NA | NA | NA | 0.022 B | 0.0182 U | 0.017 | 0.0416 | 0.00375 | 0.0148 | 0.0103 | 0.012 | 0.00734 B | 0.00509 | 0.0222 |
| Nickel, Dissolved (mg/L) | 0.1 | NA | NA | NA | <0.03 U | <0.001 U | <0.004 U | 0.0015 B | <0.001 U | <0.01 U | <0.01 U | <0.01 U | <0.02 U | <0.01 U | <0.01 U |
| Potassium, Dissolved (mg/L) | none | 11 | 9 B | 9 B | 11 | 11 | 12.7 | 17.6 | 8.85 | 9.09 B | 10.9 | 9.98 B | 7.47 B | 10.1 | 12.5 |
| Silver, Dissolved (mg/L) | 0.05 | NA | NA | NA | <0.005 U | <0.0005 U | <0.001 U | <0.001 U | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.01 U | <0.005 U |
| Sodium, Dissolved (mg/L) | none | 4,240 | 4,320 | 4,170 | 4,250 | 4,220 | 4,250 | 4,070 | 3,840 | 4,160 | 4,160 | 4,260 | 4,030 | 4,220 | 4,270 |
| Vanadium, Dissolved (mg/L) | 0.1 | NA | NA | NA | <0.02 U | 0.0008 U | <0.005 U | <0.004 U | 0.00118 B | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <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 (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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 8: Summary of Monitoring Results for MW-8**

| Date | Interim Narrative Standard | 12/14/2020 | 6/23/2021 | 12/8/2021 | 6/23/2022 | 11/21/2022 | 6/1/2023 | 11/16/2023 |
|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | |
| Arsenic, Dissolved (mg/L) | 0.01 | 0.00546 | <0.01 U | 0.0025 B | 0.00361 B | <0.02 U | 0.00333 B | 0.00368 B |
| Barium, Dissolved (mg/L) | 2 | 0.299 | 0.137 | 0.161 | 0.847 | 0.885 | **4.52** | **3.62** |
| Boron, Dissolved (mg/L) | 0.75 | **0.9** | **0.823** B | **0.763** | 0.682 B | **0.763** B | 0.701 | 0.637 |
| Chromium, Dissolved (mg/L) | 0.1 | <0.002 U | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Copper, Dissolved (mg/L) | 0.2 | 0.00306 | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <0.02 U |
| Iron, Dissolved (mg/L) | 0.3 | <0.75 U | <1.5 U | 0.13 B | <1.5 U | <1.5 U | <0.15 U | 0.147 B |
| Lead, Dissolved (mg/L) | 0.05 | <0.0005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.005 U | <0.005 U |
| Lithium, Dissolved (mg/L) | 2.5 | 1.55 | 1.70 | 1.97 | 1.80 | 1.71 | 1.91 | 1.97 |
| Manganese, Dissolved (mg/L) | 0.05 | 0.0161 | 0.0336 | 0.0455 | 0.0233 | 0.0174 B | 0.0395 | 0.0341 |
| Selenium, Dissolved (mg/L) | 0.02 | 0.00179 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0125 U | <0.0025 U |
| Thallium, Dissolved (mg/L) | 0.002 | <0.0025 U | 0.000826 B | <0.0025 U | <0.0025 U | <0.0025 U | <0.0005 U | <0.0025 U |
| Uranium, Dissolved (mg/L) | 0.03 | 0.0167 | **0.056** | **0.0452** | **0.0311** | 0.0046 B | 0.0107 B | **0.0309** |
| Zinc, Dissolved (mg/L) | 2 | 0.0091 B | <0.15 U | <0.15 U | <0.15 U | <0.3 U | <0.15 U | <0.15 U |
| **Other** | | | | | | | | |
| Chloride (mg/L) | 250 | **5,910** | **7,000** | **6,910** | **7,130** | **7,130** | **7,580** H | **8,500** H |
| Fluoride (mg/L) | 2 | 1.66 | 1.54 | 1.40 | 1.34 | 1.15 | 1.36 | 1.62 |
| Nitrate as N (mg/L) | 10 | <0.1 U | <0.1 UH | <0.1 U | 0.041 B | <0.1 U | 0.23 | 0.03 B |
| Nitrite as N (mg/L) | 1 | <0.05 U | <0.05 UH | <0.05 U | <0.05 U | <0.05 U | <0.05 U | <0.05 U |
| Nitrate+Nitrite as N (mg/L) | 10 | <0.1 U | <0.1 UH | <0.1 U | 0.041 B | <0.1 U | 0.23 | 0.034 B |
| Lab pH (s.u) | 6.5 - 8.5 | 8.3 H | 8.0 H | 8.0 H | 8.1 H | 8.2 H | 8.1 H | 8.0 H |
| Total Dissolved Solids, filterable residue (mg/L) | 1.25 x Background* | 10,100 | 12,600 | 12,300 | 11,600 H | 12000 | 12,000 | 10,300 |
| Sulfate (mg/L) | 250 | **529** | **885** | **444** | 135 B | <200 U | <200 UH | <400 U |
| Gross Alpha (pCi/L) | 15 | **45 (±45)** | **-1.4(±38)** | **36(±60)** | 4.9(±46) | 6.1(±54) | -6.5(±30) | **51(±50)** |
| Gross Beta (pCi/L) | ** | 9.1 (±44) | -1.9(±57) | 7.8(±67) | -5.8(±56) | -35(±57) | 33(±69) | 77(±59) |
| **Field Parameters (Not Available pre-2010))** | | | | | | | | |
| Field pH (s.u) | 6.5 - 8.5 | 8.15 | 8.00 | 7.47 | 7.62 | 7.32 | 7.56 | 7.67 |
| Field Conductivity (µS/cm) | none | 14,360 | 18,379 | 21,344 | 21,985 | 17,322 | 18,782 | 20,907 |
| Temperature (Degrees Celsius) | none | 12.5 | 21.3 | 13.3 | 18.5 | 12.7 | 14.2 | 14 |
| **Supplementary Analytes (Not Historically analyzed)** | | | | | | | | |
| Aluminum, Dissolved (mg/L) | 5 | 0.0057 B | <0.15 U | <0.15 U | <0.15 U | <0.3 U | <0.3 U | <0.15 U |
| Antimony, Dissolved (mg/L) | 0.006 | **0.0125** B | **0.0102** B | **0.0109** B | **0.0134** B | <0.02 U | **0.00926** B | **0.0519** |
| Beryllium, Dissolved (mg/L) | 0.004 | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.0025 U |
| Bicarbonate as CaCO3 (mg/L) | none | 664 | 612 | 582 | 545 | 615 | 622 | 514 H |
| Carbonate as CaCO3 (mg/L) | none | <20 U | <20 U | <20 U | <20 U | <20 U | <20 U | <20 UH |
| Cadmium, Dissolved (mg/L) | 0.005 | <0.00025 U | <0.0025 U | <0.0025 U | <0.0025 U | <0.005 U | <0.0025 U | <0.0025 U |
| Calcium, Dissolved (mg/L) | none | 23.4 | 56.1 | 93.6 | 92.4 | 91 | 108 | 81.7 |
| Cobalt, Dissolved (mg/L) | 0.05 | 0.000745 | 0.000951 B | 0.00158 B | 0.00122 B | 0.00113 B | 0.000787 B | 0.0022 B |
| Cyanide, Free (mg/L) | 0.2 | <0.01 U | 0.0128 | 0.0158 | <0.01 U | <0.01 UH | <0.01 U | <0.01 U |
| Magnesium, Dissolved (mg/L) | none | 18.8 | 18.4 | 19.7 | 21.2 | 20.1 | 20.8 | 19.5 |
| Mercury, Dissolved (mg/L) | 0.002 | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U | <0.001 U |
| Molybdenum, Dissolved (mg/L) | 0.21 | 0.0225 | 0.0469 | 0.0425 | 0.0193 | <0.01 U | 0.00974 | 0.0463 |
| Nickel, Dissolved (mg/L) | 0.1 | 0.00469 | 0.00575 B | 0.00905 B | 0.00634 B | <0.02 U | <0.01 U | 0.00989 B |
| Potassium, Dissolved (mg/L) | none | 16.6 | 12.5 | 14.4 | 12.5 | 8.03 B | 11.7 | 15.5 |
| Silver, Dissolved (mg/L) | 0.05 | <0.005 U | <0.005 U | <0.005 U | <0.005 U | <0.01 U | <0.01 U | <0.005 U |
| Sodium, Dissolved (mg/L) | none | 3,380 | 4,260 | 4,490 | 4,530 | 4,410 | 4,680 | 4,490 |
| Vanadium, Dissolved (mg/L) | 0.1 | 0.0044 | <0.02 U | <0.02 U | <0.02 U | <0.04 U | <0.02 U | <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)

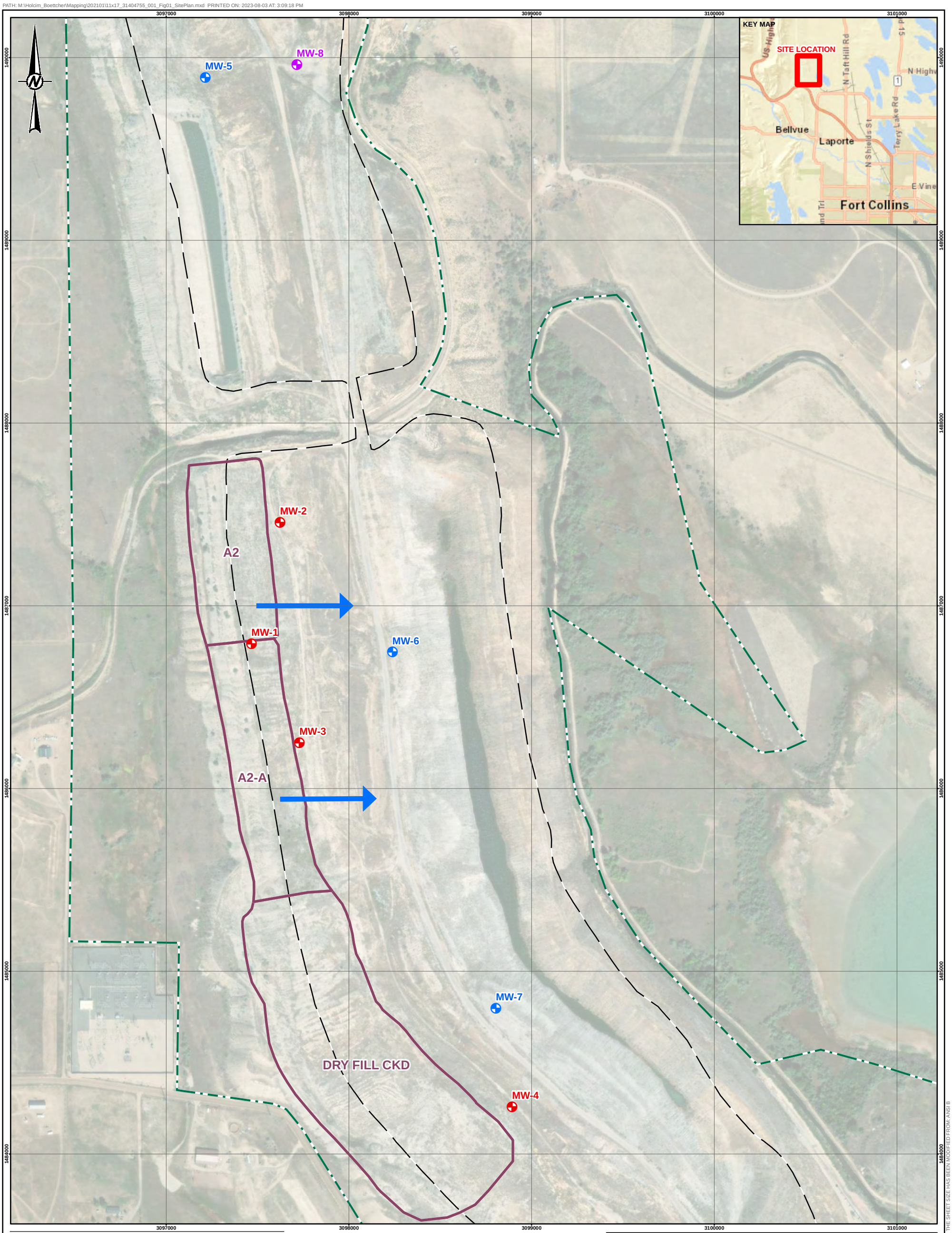
*TDS standard is 1.25 * Background, where background is the average of the 1999-2000 sampling (when available)

Values in **bold** indicate a value greater than the Interim Narrative Standard

**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

PATH: M:\Holcim_Boettcher\Mapping\202101\11x17_31404755_001_Fig01_SitePlan.mxd PRINTED ON: 2023-08-03 AT: 3:09:18 PM




**LEGEND**

- MW-1 — PRE-2012 MONITORING WELL
- MW-6 — MONITORING WELL INSTALLED 2012
- MW-8 — MONITORING WELL INSTALLED 2020
- 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, VIVID. MAXAR. IMAGERY COLLECTED 09/22/2021.

CLIENT
HOLCIM (US) INC.

PROJECT
BOETTCHER LIMESTONE QUARRY
LARIMER COUNTY, COLORADO

TITLE
**SITE LOCATION PLAN**

CONSULTANT
wsp

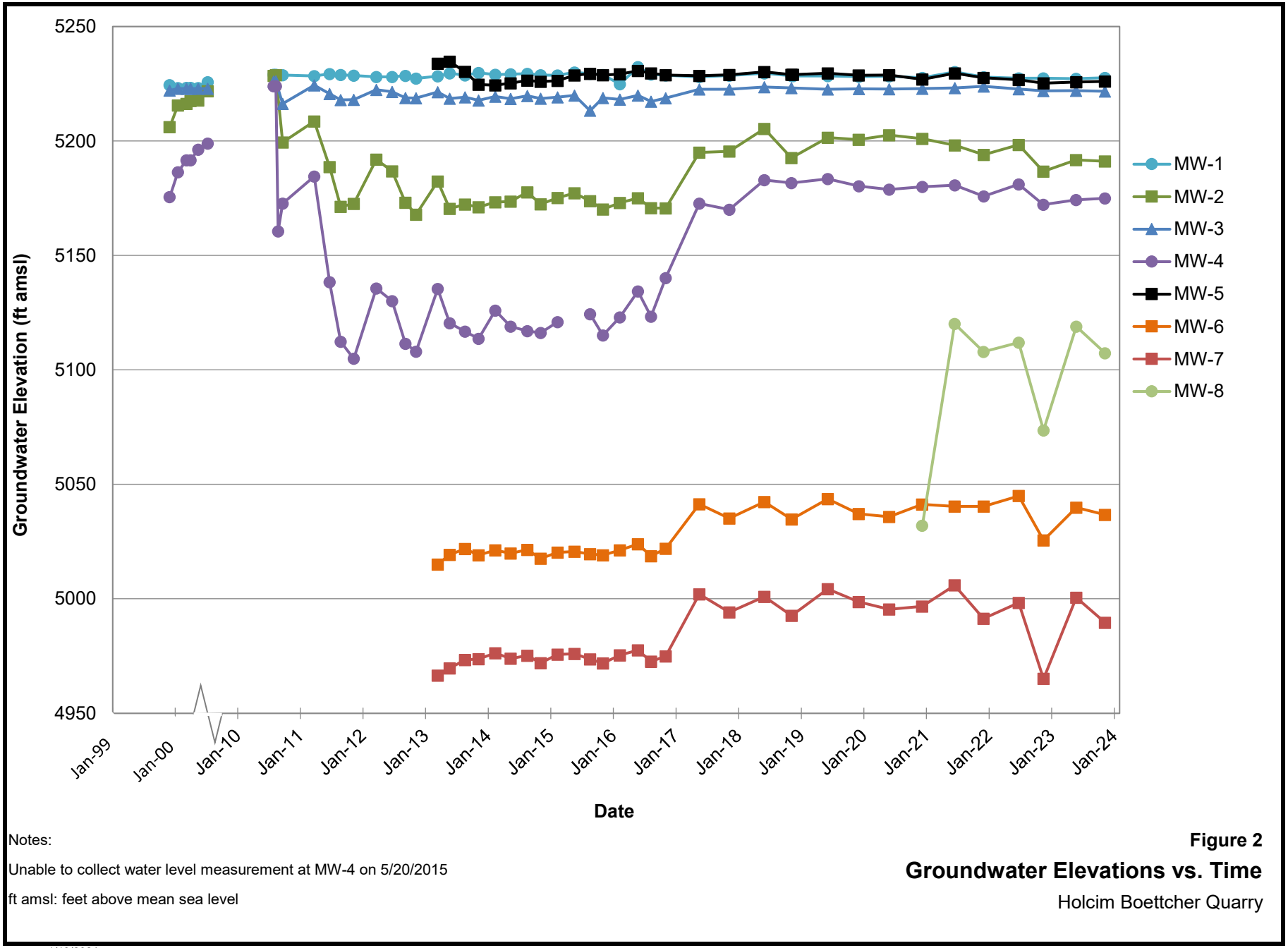
| | |
|---|---|
| YYYY-MM-DD | 2022-08-10 |
| DESIGNED | SAH |
| PREPARED | RHG |
| REVIEWED | SAH |
| APPROVED | RSM |

PROJECT NO.
31404755.001

FIGURE
1

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

1 in
0




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 Reports

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

# Analytical Report

December 22, 2023

Report to:
Jennifer Thompson
Golder Associates
7245 W Alaska Drive
Suite 200
Lakewood, CO 80226

cc: Sara Harkins

Bill to:
Accounts Payable
Golder Associates
44 Union Blvd., Suite 300

Lakewood, CO 80228

Project ID:
ACZ Project ID: L84675

Jennifer Thompson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 18, 2023. This project has been assigned to ACZ's project number, L84675. 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 L84675. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after January 21, 2024. 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.

Mark McNeal

Mark McNeal has reviewed and approved this report.

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

ACZ Sample ID: ***L84675-01***
Date Sampled: *11/17/23 08:17*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 5 | <0.025 | U | | mg/L | 0.025 | 0.075 | 12/16/23 14:26 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 5 | 0.00352 | B | | mg/L | 0.002 | 0.01 | 12/16/23 14:26 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 5 | 0.00295 | B | | mg/L | 0.001 | 0.005 | 12/16/23 14:26 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 5 | 3.38 | | * | mg/L | 0.0025 | 0.0125 | 12/16/23 14:26 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 5 | <0.0004 | U | | mg/L | 0.0004 | 0.00125 | 12/16/23 14:26 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.741 | | | mg/L | 0.03 | 0.1 | 11/28/23 20:43 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 12/16/23 14:26 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 17.3 | | | mg/L | 0.1 | 0.5 | 11/28/23 20:43 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | | mg/L | 0.0025 | 0.01 | 12/16/23 14:26 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 5 | 0.001000 | B | | mg/L | 0.00025 | 0.00125 | 12/16/23 14:26 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 5 | <0.004 | U | | mg/L | 0.004 | 0.01 | 12/16/23 14:26 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 0.240 | | | mg/L | 0.06 | 0.15 | 11/28/23 20:43 | brc |
| Lead, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 14:26 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.17 | | | mg/L | 0.008 | 0.04 | 11/28/23 20:43 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 6.87 | | | mg/L | 0.2 | 1 | 11/28/23 20:43 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 5 | 0.0538 | | | mg/L | 0.002 | 0.01 | 12/16/23 14:26 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:26 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 5 | 0.00375 | | | mg/L | 0.001 | 0.0025 | 12/16/23 14:26 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 5 | <0.002 | U | | mg/L | 0.002 | 0.005 | 12/16/23 14:26 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 6.43 | | | mg/L | 0.5 | 1 | 11/28/23 20:43 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 20 | <0.002 | U | * | mg/L | 0.002 | 0.005 | 12/21/23 16:46 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 14:26 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 10 | 2510 | | | mg/L | 2 | 10 | 11/30/23 8:20 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 11/30/23 22:30 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 5 | 0.00193 | B | | mg/L | 0.0005 | 0.0025 | 12/16/23 14:26 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | | mg/L | 0.0025 | 0.01 | 12/16/23 14:26 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 5 | <0.03 | U | | mg/L | 0.03 | 0.075 | 12/16/23 14:26 | gjl/scp |

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

ACZ Sample ID: ***L84675-01***
Date Sampled: *11/17/23 08:17*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 1040 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 1040 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | -2.6 | | | % | | | 12/22/23 0:00 | calc |
| Sum of Anions | | | 118 | | | meq/L | | | 12/22/23 0:00 | calc |
| Sum of Cations | | | 112 | | | meq/L | | | 12/22/23 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 100 | 3470 | | * | mg/L | 40 | 200 | 11/29/23 1:48 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 15:19 | mrd |
| Fluoride | SM4500F-C | 1 | 1.61 | | | mg/L | 0.15 | 0.35 | 12/14/23 21:45 | emk |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 0.082 | B | | mg/L | 0.02 | 0.1 | 12/22/23 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.082 | B | * | mg/L | 0.02 | 0.1 | 11/18/23 22:10 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 22:10 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.1 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 21.5 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 2 | 6160 | | * | mg/L | 40 | 80 | 11/22/23 15:54 | emk |
| Sulfate | M300.0 - Ion Chromatography | 100 | <90 | U | * | mg/L | 90 | 200 | 11/29/23 1:48 | bls |
| TDS (calculated) | Calculation | | 6650 | | | mg/L | | | 12/22/23 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.93 | | | | | | 12/22/23 0:00 | calc |

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

ACZ Sample ID: ***L84675-02***
Date Sampled: *11/17/23 09:22*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 10 | <0.05 | U | | mg/L | 0.05 | 0.15 | 12/16/23 14:33 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 10 | <0.004 | U | | mg/L | 0.004 | 0.02 | 12/16/23 14:33 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 10 | <0.002 | U | | mg/L | 0.002 | 0.01 | 12/16/23 14:33 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 10 | 8.99 | | * | mg/L | 0.005 | 0.025 | 12/16/23 14:33 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 10 | <0.0008 | U | | mg/L | 0.0008 | 0.0025 | 12/16/23 14:33 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.671 | | | mg/L | 0.03 | 0.1 | 11/28/23 20:46 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 14:33 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 34.9 | | | mg/L | 0.1 | 0.5 | 11/28/23 20:46 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 14:33 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 10 | 0.00455 | | | mg/L | 0.0005 | 0.0025 | 12/16/23 14:33 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 10 | <0.008 | U | | mg/L | 0.008 | 0.02 | 12/16/23 14:33 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 0.145 | B | | mg/L | 0.06 | 0.15 | 11/28/23 20:46 | brc |
| Lead, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 14:33 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.91 | | | mg/L | 0.008 | 0.04 | 11/28/23 20:46 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 16.6 | | | mg/L | 0.2 | 1 | 11/28/23 20:46 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 10 | 0.0200 | | | mg/L | 0.004 | 0.02 | 12/16/23 14:33 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:27 | ntc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 10 | <0.002 | U | | mg/L | 0.002 | 0.005 | 12/16/23 14:33 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 10 | <0.004 | U | | mg/L | 0.004 | 0.01 | 12/16/23 14:33 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 10.5 | | | mg/L | 0.5 | 1 | 11/28/23 20:46 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 50 | <0.005 | U | * | mg/L | 0.005 | 0.0125 | 12/21/23 16:48 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 14:33 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 20 | 4400 | | | mg/L | 4 | 20 | 11/30/23 8:23 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 11/30/23 22:34 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 14:33 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 14:33 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 10 | 0.135 | B | | mg/L | 0.06 | 0.15 | 12/16/23 14:33 | gjl/scp |

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

ACZ Sample ID: ***L84675-02***
Date Sampled: *11/17/23 09:22*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 604 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 604 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | -9.8 | | | % | | | 12/22/23 0:00 | calc |
| Sum of Anions | | | 240 | | | meq/L | | | 12/22/23 0:00 | calc |
| Sum of Cations | | | 197 | | | meq/L | | | 12/22/23 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 200 | 8140 | | * | mg/L | 80 | 400 | 11/29/23 2:06 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 15:21 | mrd |
| Fluoride | SM4500F-C | 1 | 1.13 | | | mg/L | 0.15 | 0.35 | 12/14/23 21:49 | emk |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 0.057 | B | | mg/L | 0.02 | 0.1 | 12/22/23 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.057 | B | * | mg/L | 0.02 | 0.1 | 11/18/23 22:13 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 22:13 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.1 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 21.7 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 5 | 11200 | H | * | mg/L | 100 | 200 | 12/04/23 18:06 | trt |
| Sulfate | M300.0 - Ion Chromatography | 200 | <180 | U | * | mg/L | 180 | 400 | 11/29/23 2:06 | bls |
| TDS (calculated) | Calculation | | 13000 | | | mg/L | | | 12/22/23 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.86 | | | | | | 12/22/23 0:00 | calc |

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

ACZ Sample ID: ***L84675-03***
Date Sampled: *11/17/23 10:40*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 2 | <0.01 | U | | mg/L | 0.01 | 0.03 | 12/16/23 14:35 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 2 | <0.0008 | U | | mg/L | 0.0008 | 0.004 | 12/16/23 14:35 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 2 | 0.00208 | | | mg/L | 0.0004 | 0.002 | 12/16/23 14:35 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 2 | 0.0114 | | * | mg/L | 0.001 | 0.005 | 12/16/23 14:35 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 2 | <0.00016 | U | | mg/L | 0.00016 | 0.0005 | 12/16/23 14:35 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.399 | | | mg/L | 0.03 | 0.1 | 11/28/23 20:50 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 2 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 12/16/23 14:35 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 419 | | | mg/L | 0.1 | 0.5 | 11/28/23 20:50 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 2 | <0.001 | U | | mg/L | 0.001 | 0.004 | 12/16/23 14:35 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 2 | 0.00836 | | | mg/L | 0.0001 | 0.0005 | 12/16/23 14:35 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 2 | <0.0016 | U | | mg/L | 0.0016 | 0.004 | 12/16/23 14:35 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 17.1 | | | mg/L | 0.06 | 0.15 | 11/28/23 20:50 | brc |
| Lead, dissolved | M200.8 ICP-MS | 2 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/16/23 14:35 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 0.328 | | | mg/L | 0.008 | 0.04 | 11/28/23 20:50 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 112 | | | mg/L | 0.2 | 1 | 11/28/23 20:50 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 2 | 0.0986 | | | mg/L | 0.0008 | 0.004 | 12/16/23 14:35 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:28 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 2 | 0.0101 | | | mg/L | 0.0004 | 0.001 | 12/16/23 14:35 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 2 | 0.0263 | | | mg/L | 0.0008 | 0.002 | 12/16/23 14:35 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 9.04 | | | mg/L | 0.5 | 1 | 11/28/23 20:50 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 2 | 0.00023 | B | | mg/L | 0.0002 | 0.0005 | 12/16/23 14:35 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 2 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/16/23 14:35 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 2 | 417 | | | mg/L | 0.4 | 2 | 11/30/23 8:27 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 2 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 11/30/23 22:36 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 2 | 0.0280 | | | mg/L | 0.0002 | 0.001 | 12/16/23 14:35 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 2 | <0.001 | U | | mg/L | 0.001 | 0.004 | 12/16/23 14:35 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 2 | <0.012 | U | | mg/L | 0.012 | 0.03 | 12/16/23 14:35 | gjl/scp |

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

ACZ Sample ID: ***L84675-03***
Date Sampled: *11/17/23 10:40*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 383 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 383 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 5.3 | | | % | | | 12/22/23 0:00 | calc |
| Sum of Anions | | | 45 | | | meq/L | | | 12/22/23 0:00 | calc |
| Sum of Cations | | | 50 | | | meq/L | | | 12/22/23 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 50 | 20.9 | B | * | mg/L | 20 | 100 | 11/29/23 2:24 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 15:23 | mrd |
| Fluoride | SM4500F-C | 1 | 0.68 | | | mg/L | 0.15 | 0.35 | 12/15/23 16:51 | emk |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | <0.02 | U | | mg/L | 0.02 | 0.1 | 12/22/23 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.02 | U | * | mg/L | 0.02 | 0.1 | 11/18/23 22:16 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 22:16 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 7.7 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 21.8 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 2 | 3200 | | * | mg/L | 40 | 80 | 11/22/23 15:58 | emk |
| Sulfate | M300.0 - Ion Chromatography | 50 | 1740 | | * | mg/L | 45 | 100 | 11/29/23 2:24 | bls |
| TDS (calculated) | Calculation | | 2970 | | | mg/L | | | 12/22/23 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 1.08 | | | | | | 12/22/23 0:00 | calc |

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

REP001.03.15.02

**GOLDER**

ACZ Project ID: ***L84675***

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

**Alkalinity as CaCO3** SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579875** | | | | | | | | | | | | | |
| WG579875PBW1 | PBW | 12/05/23 16:26 | | | | 2.4 | mg/L | | -20 | 20 | | | |
| WG579875LCSW2 | LCSW | 12/05/23 16:34 | WC231129-1 | 820.0001 | | 758 | mg/L | 92 | 90 | 110 | | | |
| WG579875LCSW4 | LCSW | 12/05/23 18:15 | WC231129-1 | 820.0001 | | 765.2 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW2 | PBW | 12/05/23 18:21 | | | | 2.2 | mg/L | | -20 | 20 | | | |
| WG579875LCSW6 | LCSW | 12/05/23 19:57 | WC231129-1 | 820.0001 | | 762.4 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW3 | PBW | 12/05/23 20:03 | | | | U | mg/L | | -20 | 20 | | | |
| WG579875LCSW8 | LCSW | 12/05/23 21:37 | WC231129-1 | 820.0001 | | 766.6 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW4 | PBW | 12/05/23 21:43 | | | | U | mg/L | | -20 | 20 | | | |
| L84676-06DUP | DUP | 12/05/23 23:46 | | | 33.7 | 34 | mg/L | | | | 1 | 20 | |
| WG579875LCSW10 | LCSW | 12/05/23 23:55 | WC231129-1 | 820.0001 | | 784.8 | mg/L | 96 | 90 | 110 | | | |
| WG579875PBW5 | PBW | 12/06/23 0:02 | | | | 3.2 | mg/L | | -20 | 20 | | | |
| WG579875LCSW12 | LCSW | 12/06/23 1:56 | WC231129-1 | 820.0001 | | 783.3 | mg/L | 96 | 90 | 110 | | | |

**Aluminum, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .1 | | .1055 | mg/L | 106 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.011 | 0.011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .050065 | | .0543 | mg/L | 108 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .050065 | .248 | .3053 | mg/L | 114 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .050065 | .248 | .3117 | mg/L | 127 | 70 | 130 | 2 | 20 | |

**Antimony, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .02002 | | .0198 | mg/L | 99 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | .00052 | mg/L | | -0.00088 | 0.00088 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .01 | | .00971 | mg/L | 97 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .01 | .0026 | .01211 | mg/L | 95 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .01 | .0026 | .01268 | mg/L | 101 | 70 | 130 | 5 | 20 | |

**Arsenic, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05086 | mg/L | 102 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .0501 | | .05157 | mg/L | 103 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .0501 | .00831 | .05515 | mg/L | 93 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .0501 | .00831 | .05719 | mg/L | 98 | 70 | 130 | 4 | 20 | |

**Barium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05117 | mg/L | 102 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .04762 | mg/L | 95 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | 1.27 | 1.33618 | mg/L | 132 | 70 | 130 | | | M3 |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | 1.27 | 1.33491 | mg/L | 130 | 70 | 130 | 0 | 20 | M3 |

**GOLDER**

ACZ Project ID: ***L84675***

*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.*

**Beryllium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .050049 | mg/L | 100 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.000176 | 0.000176 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .047238 | mg/L | 94 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | U | .049164 | mg/L | 98 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | U | .050604 | mg/L | 101 | 70 | 130 | 3 | 20 | |

**Boron, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 2 | | 2.082 | mg/L | 104 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -0.09 | 0.09 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | .5005 | | .523 | mg/L | 104 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | .5005 | .294 | .81 | mg/L | 103 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | .5005 | .294 | .811 | mg/L | 103 | 85 | 115 | 0 | 20 | |

**Cadmium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .052198 | mg/L | 104 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .048465 | mg/L | 97 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | U | .051984 | mg/L | 104 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | U | .054854 | mg/L | 110 | 70 | 130 | 5 | 20 | |

**Calcium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 100 | | 98.79 | mg/L | 99 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | 67.98753 | | 68.37 | mg/L | 101 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | 67.98753 | 34.9 | 102.1 | mg/L | 99 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | 67.98753 | 34.9 | 99.01 | mg/L | 94 | 85 | 115 | 3 | 20 | |

**Chloride** M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579181** | | | | | | | | | | | | | |
| WG579181ICV | ICV | 11/17/23 15:35 | WI231116-7 | 20.02 | | 20.01 | mg/L | 100 | 90 | 110 | | | |
| WG579181ICB | ICB | 11/17/23 15:53 | | | | U | mg/L | | -0.4 | 0.4 | | | |
| **WG579444** | | | | | | | | | | | | | |
| WG579444LFB1 | LFB | 11/28/23 16:51 | WI230714-6 | 30 | | 32.36 | mg/L | 108 | 90 | 110 | | | |
| WG579444LFB2 | LFB | 11/29/23 1:30 | WI230714-6 | 30 | | 30.93 | mg/L | 103 | 90 | 110 | | | |
| L84767-01DUP | DUP | 11/29/23 5:06 | | | 10.8 | 12.34 | mg/L | | | | 13 | 20 | RA |
| L84767-02AS | AS | 11/29/23 5:41 | WI230714-6 | 15000 | 12400 | 27032.85 | mg/L | 98 | 90 | 110 | | | |

**GOLDER**

ACZ Project ID: ***L84675***

*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.*

**Chromium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05325 | mg/L | 107 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .0501 | | .05082 | mg/L | 101 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .0501 | .00059 | .04704 | mg/L | 93 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .0501 | .00059 | .0494 | mg/L | 97 | 70 | 130 | 5 | 20 | |

**Cobalt, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .053924 | mg/L | 108 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .050485 | mg/L | 101 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | .000178 | .050536 | mg/L | 101 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | .000178 | .054225 | mg/L | 108 | 70 | 130 | 7 | 20 | |

**Copper, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05171 | mg/L | 103 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00176 | 0.00176 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .05025 | mg/L | 100 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | U | .04124 | mg/L | 82 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | U | .04344 | mg/L | 87 | 70 | 130 | 5 | 20 | |

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

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579519** | | | | | | | | | | | | | |
| WG579519ICV | ICV | 11/29/23 12:25 | WI231127-11 | .3003 | | .2906 | mg/L | 97 | 90 | 110 | | | |
| WG579519ICB | ICB | 11/29/23 12:27 | | | | U | mg/L | | -0.003 | 0.003 | | | |
| WG579519LFB | LFB | 11/29/23 12:31 | WI231127-10 | .1001 | | .0915 | mg/L | 91 | 90 | 110 | | | |
| L84667-01AS | AS | 11/29/23 12:35 | WI231127-10 | .1001 | U | .0943 | mg/L | 94 | 90 | 110 | | | |
| L84667-01ASD | ASD | 11/29/23 12:37 | WI231127-10 | .1001 | U | .0998 | mg/L | 100 | 90 | 110 | 6 | 20 | |
| WG579519ICV1 | ICV | 11/29/23 15:07 | WI231127-11 | .3003 | | .2893 | mg/L | 96 | 90 | 110 | | | |
| WG579519ICB1 | ICB | 11/29/23 15:09 | | | | U | mg/L | | -0.003 | 0.003 | | | |

**GOLDER**

ACZ Project ID: ***L84675***

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

**Fluoride** SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580566** | | | | | | | | | | | | | |
| WG580566ICV | ICV | 12/14/23 13:26 | WC231213-7 | 2.002 | | 2.07 | mg/L | 103 | 90 | 110 | | | |
| WG580566ICB | ICB | 12/14/23 13:31 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| **WG580574** | | | | | | | | | | | | | |
| WG580574ICV | ICV | 12/14/23 19:58 | WC231213-7 | 2.002 | | 1.97 | mg/L | 98 | 90 | 110 | | | |
| WG580574ICB | ICB | 12/14/23 20:05 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG580574LFB1 | LFB | 12/14/23 20:18 | WC230825-1 | 5.005 | | 4.88 | mg/L | 98 | 90 | 110 | | | |
| L49989-250AS | AS | 12/14/23 20:29 | WC230825-1 | 5.005 | U | 4.83 | mg/L | 97 | 90 | 110 | | | |
| L49989-250ASD | ASD | 12/14/23 20:36 | WC230825-1 | 5.005 | U | 4.9 | mg/L | 98 | 90 | 110 | 1 | 20 | |
| WG580574LFB2 | LFB | 12/14/23 23:14 | WC230825-1 | 5.005 | | 5.02 | mg/L | 100 | 90 | 110 | | | |
| **WG580660** | | | | | | | | | | | | | |
| WG580660ICV | ICV | 12/15/23 15:45 | WC231213-7 | 2.002 | | 2.15 | mg/L | 107 | 90 | 110 | | | |
| WG580660ICB | ICB | 12/15/23 15:53 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG580660LFB | LFB | 12/15/23 16:00 | WC230825-1 | 5.005 | | 5.45 | mg/L | 109 | 90 | 110 | | | |
| L82095-02AS | AS | 12/15/23 16:12 | WC230825-1 | 5.005 | 1.22 | 5.89 | mg/L | 93 | 90 | 110 | | | |
| L82095-02ASD | ASD | 12/15/23 16:20 | WC230825-1 | 5.005 | 1.22 | 5.92 | mg/L | 94 | 90 | 110 | 1 | 20 | |

**Iron, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 2 | | 1.97 | mg/L | 99 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -0.18 | 0.18 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | .9981 | | 1.047 | mg/L | 105 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | .9981 | U | 1.052 | mg/L | 105 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | .9981 | U | 1.035 | mg/L | 104 | 85 | 115 | 2 | 20 | |

**Lead, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05163 | mg/L | 103 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .04847 | mg/L | 97 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | .00011 | .05207 | mg/L | 104 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | .00011 | .05435 | mg/L | 108 | 70 | 130 | 4 | 20 | |

**Lithium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 2 | | 1.9505 | mg/L | 98 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -0.024 | 0.024 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | 1.003 | | .9904 | mg/L | 99 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | 1.003 | .0133 | 1.016 | mg/L | 100 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | 1.003 | .0133 | 1.025 | mg/L | 101 | 85 | 115 | 1 | 20 | |

**GOLDER**

ACZ Project ID: ***L84675***

*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.*

**Magnesium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 100 | | 98.47 | mg/L | 98 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | 49.81683 | | 49.64 | mg/L | 100 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | 49.81683 | 8.43 | 57.86 | mg/L | 99 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | 49.81683 | 8.43 | 55.83 | mg/L | 95 | 85 | 115 | 4 | 20 | |

**Manganese, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05284 | mg/L | 106 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00088 | 0.00088 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .04995 | | .05013 | mg/L | 100 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .04995 | .00304 | .05165 | mg/L | 97 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .04995 | .00304 | .0562 | mg/L | 106 | 70 | 130 | 8 | 20 | |

**Mercury, dissolved** M245.1 CVAA

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579635** | | | | | | | | | | | | | |
| WG579635ICV | ICV | 12/01/23 14:24 | HG231106-3 | .005 | | .00513 | mg/L | 103 | 95 | 105 | | | |
| WG579635ICB | ICB | 12/01/23 14:25 | | | | U | mg/L | | -0.0002 | 0.0002 | | | |
| **WG579636** | | | | | | | | | | | | | |
| WG579636LRB | LRB | 12/01/23 15:04 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG579636LFB | LFB | 12/01/23 15:05 | HG231106-6 | .002002 | | .00197 | mg/L | 98 | 85 | 115 | | | |
| L84677-01LFM | LFM | 12/01/23 15:30 | HG231106-6 | .002002 | U | .00194 | mg/L | 97 | 85 | 115 | | | |
| L84677-01LFMD | LFMD | 12/01/23 15:31 | HG231106-6 | .002002 | U | .00196 | mg/L | 98 | 85 | 115 | 1 | 20 | |

**Molybdenum, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .02 | | .01981 | mg/L | 99 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .04836 | mg/L | 97 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | .00554 | .05958 | mg/L | 108 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | .00554 | .06312 | mg/L | 115 | 70 | 130 | 6 | 20 | |

**Nickel, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05239 | mg/L | 105 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00088 | 0.00088 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .0501 | | .04959 | mg/L | 99 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .0501 | .00092 | .04278 | mg/L | 84 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .0501 | .00092 | .04506 | mg/L | 88 | 70 | 130 | 5 | 20 | |

**GOLDER**

ACZ Project ID: ***L84675***

*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.*

**Nitrate/Nitrite as N** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579008** | | | | | | | | | | | | | |
| WG579008ICV | ICV | 11/18/23 22:04 | WI231003-5 | 2.416 | | 2.406 | mg/L | 100 | 90 | 110 | | | |
| WG579008ICB | ICB | 11/18/23 22:05 | | | | U | mg/L | | -0.02 | 0.02 | | | |
| WG579008LFB | LFB | 11/18/23 22:09 | WI230829-3 | 2 | | 2.04 | mg/L | 102 | 90 | 110 | | | |
| L84675-01AS | AS | 11/18/23 22:12 | WI230829-3 | 2 | .082 | 2.121 | mg/L | 102 | 90 | 110 | | | |
| L84675-02DUP | DUP | 11/18/23 22:14 | | | .057 | .056 | mg/L | | | | 2 | 20 | RA |

**Nitrite as N** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579008** | | | | | | | | | | | | | |
| WG579008ICV | ICV | 11/18/23 22:04 | WI231003-5 | .608 | | .618 | mg/L | 102 | 90 | 110 | | | |
| WG579008ICB | ICB | 11/18/23 22:05 | | | | U | mg/L | | -0.01 | 0.01 | | | |
| WG579008LFB | LFB | 11/18/23 22:09 | WI230829-3 | 1 | | 1.041 | mg/L | 104 | 90 | 110 | | | |
| L84675-01AS | AS | 11/18/23 22:12 | WI230829-3 | 1 | U | 1.051 | mg/L | 105 | 90 | 110 | | | |
| L84675-02DUP | DUP | 11/18/23 22:14 | | | U | U | mg/L | | | | 0 | 20 | RA |

**pH (lab)** SM4500H+ B

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579875** | | | | | | | | | | | | | |
| WG579875LCSW1 | LCSW | 12/05/23 16:32 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW3 | LCSW | 12/05/23 18:12 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW5 | LCSW | 12/05/23 19:54 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW7 | LCSW | 12/05/23 21:34 | PCN624449 | 6 | | 5.99 | units | 100 | 5.9 | 6.1 | | | |
| L84676-06DUP | DUP | 12/05/23 23:46 | | | 7.1 | 7.1 | units | | | | 0 | 20 | |
| WG579875LCSW9 | LCSW | 12/05/23 23:52 | PCN624449 | 6 | | 6.01 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW11 | LCSW | 12/06/23 1:53 | PCN624449 | 6 | | 6.01 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579431** | | | | | | | | | | | | | |
| WG579431ICV | ICV | 11/28/23 19:08 | II231128-1 | 20 | | 19.46 | mg/L | 97 | 95 | 105 | | | |
| WG579431ICB | ICB | 11/28/23 19:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG579431LFB | LFB | 11/28/23 19:27 | II231120-3 | 99.97581 | | 98.02 | mg/L | 98 | 85 | 115 | | | |
| L84614-03AS | AS | 11/28/23 20:24 | II231120-3 | 99.97581 | 4.61 | 104.3 | mg/L | 100 | 85 | 115 | | | |
| L84614-03ASD | ASD | 11/28/23 20:27 | II231120-3 | 99.97581 | 4.61 | 100.4 | mg/L | 96 | 85 | 115 | 4 | 20 | |

**Residue, Filterable (TDS) @180C** SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579283** | | | | | | | | | | | | | |
| WG579283PBW | PBW | 11/22/23 15:45 | | | | U | mg/L | | -20 | 20 | | | |
| WG579283LCSW | LCSW | 11/22/23 15:46 | PCN626025 | 1000 | | 964 | mg/L | 96 | 80 | 120 | | | |
| L84721-02DUP | DUP | 11/22/23 16:08 | | | 2150 | 2142 | mg/L | | | | 0 | 10 | |
| **WG579850** | | | | | | | | | | | | | |
| WG579850PBW | PBW | 12/04/23 17:25 | | | | U | mg/L | | -20 | 20 | | | |
| WG579850LCSW | LCSW | 12/04/23 17:27 | PCN626028 | 1000 | | 984 | mg/L | 98 | 80 | 120 | | | |
| L84792-01DUP | DUP | 12/04/23 18:25 | | | 98 | 100 | mg/L | | | | 2 | 10 | RA |

**GOLDER**

ACZ Project ID: ***L84675***

*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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .0533 | mg/L | 107 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | .00013 | mg/L | | -0.00022 | 0.00022 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .0508 | mg/L | 101 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | .00014 | .0508 | mg/L | 101 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | .00014 | .05307 | mg/L | 106 | 70 | 130 | 4 | 20 | |
| **WG580905** | | | | | | | | | | | | | |
| WG580905ICV | ICV | 12/21/23 15:38 | MS231205-4 | .05 | | .05055 | mg/L | 101 | 90 | 110 | | | |
| WG580905ICB | ICB | 12/21/23 15:40 | | | | .00014 | mg/L | | -0.00022 | 0.00022 | | | |
| WG580905LFB | LFB | 12/21/23 15:42 | MS231108-4 | .05005 | | .05378 | mg/L | 107 | 85 | 115 | | | |
| L84579-02AS | AS | 12/21/23 16:22 | MS231108-4 | .1001 | | .08681 | mg/L | 87 | 70 | 130 | | | |
| L84579-02ASD | ASD | 12/21/23 16:25 | MS231108-4 | .1001 | | .08963 | mg/L | 90 | 70 | 130 | 3 | 20 | |

**Silver, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .02 | | .02117 | mg/L | 106 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .01 | | .00987 | mg/L | 99 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .01 | U | .00865 | mg/L | 87 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .01 | U | .00883 | mg/L | 88 | 70 | 130 | 2 | 20 | |

**Sodium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579524** | | | | | | | | | | | | | |
| WG579524ICV | ICV | 11/30/23 7:58 | II231128-3 | 100 | | 99.98 | mg/L | 100 | 95 | 105 | | | |
| WG579524ICB | ICB | 11/30/23 8:04 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG579524LFB | LFB | 11/30/23 8:17 | II231120-3 | 100.1305 | | 102.1 | mg/L | 102 | 85 | 115 | | | |
| L84723-04AS | AS | 11/30/23 8:43 | II231120-3 | 100.1305 | 40.5 | 136.2 | mg/L | 96 | 85 | 115 | | | |
| L84723-04ASD | ASD | 11/30/23 8:46 | II231120-3 | 100.1305 | 40.5 | 136.2 | mg/L | 96 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579181** | | | | | | | | | | | | | |
| WG579181ICV | ICV | 11/17/23 15:35 | WI231116-7 | 50 | | 50.46 | mg/L | 101 | 90 | 110 | | | |
| WG579181ICB | ICB | 11/17/23 15:53 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| **WG579444** | | | | | | | | | | | | | |
| WG579444LFB1 | LFB | 11/28/23 16:51 | WI230714-6 | 30 | | 31.99 | mg/L | 107 | 90 | 110 | | | |
| WG579444LFB2 | LFB | 11/29/23 1:30 | WI230714-6 | 30 | | 30.6 | mg/L | 102 | 90 | 110 | | | |
| L84767-01DUP | DUP | 11/29/23 5:06 | | | U | U | mg/L | | | | 0 | 20 | RA |
| L84767-02AS | AS | 11/29/23 5:41 | WI230714-6 | 15000 | U | 14058.19 | mg/L | 94 | 90 | 110 | | | |

**GOLDER**

ACZ Project ID: ***L84675***

*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.*

**Thallium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579613** | | | | | | | | | | | | | |
| WG579613ICV | ICV | 11/30/23 22:06 | MS231106-9 | .05 | | .048737 | mg/L | 97 | 90 | 110 | | | |
| WG579613ICB | ICB | 11/30/23 22:07 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG579613LFB | LFB | 11/30/23 22:09 | MS231108-4 | .0501 | | .042929 | mg/L | 86 | 85 | 115 | | | |
| L84667-01AS | AS | 11/30/23 22:15 | MS231108-4 | .2505 | U | .242624 | mg/L | 97 | 70 | 130 | | | |
| L84667-01ASD | ASD | 11/30/23 22:16 | MS231108-4 | .2505 | U | .247847 | mg/L | 99 | 70 | 130 | 2 | 20 | |
| L84675-01AS | AS | 11/30/23 22:31 | MS231108-4 | .2505 | U | .261827 | mg/L | 105 | 70 | 130 | | | |
| L84675-01ASD | ASD | 11/30/23 22:33 | MS231108-4 | .2505 | U | .256478 | mg/L | 102 | 70 | 130 | 2 | 20 | |

**Uranium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05332 | mg/L | 107 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05 | | .04885 | mg/L | 98 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05 | U | .05587 | mg/L | 112 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05 | U | .05875 | mg/L | 118 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .05188 | mg/L | 104 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .05005 | | .04989 | mg/L | 100 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .05005 | .00088 | .04866 | mg/L | 95 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .05005 | .00088 | .05108 | mg/L | 100 | 70 | 130 | 5 | 20 | |

**Zinc, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580679** | | | | | | | | | | | | | |
| WG580679ICV | ICV | 12/16/23 13:33 | MS231205-4 | .05 | | .052 | mg/L | 104 | 90 | 110 | | | |
| WG580679ICB | ICB | 12/16/23 13:35 | | | | U | mg/L | | -0.0132 | 0.0132 | | | |
| WG580679LFB | LFB | 12/16/23 13:37 | MS231108-4 | .050015 | | .0514 | mg/L | 103 | 85 | 115 | | | |
| L84575-02AS | AS | 12/16/23 14:14 | MS231108-4 | .050015 | U | .055 | mg/L | 110 | 70 | 130 | | | |
| L84575-02ASD | ASD | 12/16/23 14:17 | MS231108-4 | .050015 | U | .059 | mg/L | 118 | 70 | 130 | 7 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84675***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84675-01** | WG580679 | Barium, dissolved | M200.8 ICP-MS | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG579444 | 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). |
| | WG579008 | Nitrate/Nitrite as N | 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 | 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). |
| | WG579283 | Residue, Filterable (TDS) @180C | SM2540C | Z5 | Oven temperature observed out of range. Sample and Quality Control attained a consistent weight and all Quality controls were within limits. Reanalyze at client request |
| | WG580905 | Selenium, dissolved | M200.8 ICP-MS | D1 | Sample required dilution due to matrix. |
| | | | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579444 | 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). |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| **L84675-02** | WG580679 | Barium, dissolved | M200.8 ICP-MS | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG579444 | 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). |
| | WG579008 | Nitrate/Nitrite as N | 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 | 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). |
| | WG579850 | Residue, Filterable (TDS) @180C | SM2540C | H2 | Initial analysis within holding time. Reanalysis for the required dilution was past holding time. |
| | | | SM2540C | 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). |
| | WG580905 | Selenium, dissolved | M200.8 ICP-MS | D1 | Sample required dilution due to matrix. |
| | | | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579444 | 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). |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |

**Golder Associates**

ACZ Project ID: ***L84675***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84675-03** | WG580679 | Barium, dissolved | M200.8 ICP-MS | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG579444 | 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). |
| | WG579008 | Nitrate/Nitrite as N | 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 | 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). |
| | WG579283 | Residue, Filterable (TDS) @180C | SM2540C | Z5 | Oven temperature observed out of range. Sample and Quality Control attained a consistent weight and all Quality controls were within limits. Reanalyze at client request |
| | WG579444 | 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). |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84675-01***
Date Sampled: *11/17/23 8:17*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:30 | | -9.1 | 16 | 200 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:30 | | 31 | 32 | 150 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84675-02***
Date Sampled: *11/17/23 9:22*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:31 | | 0.68 | 15 | 82 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:31 | | 41 | 46 | 170 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84675-03***
Date Sampled: *11/17/23 10:40*
Date Received: *11/18/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:33 | | 12 | 12 | 52 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:33 | | 15 | 13 | 34 | pCi/L | | ajp |

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

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# Radiochemistry QC Summary

**GOLDER**

ACZ Project ID: ***L84675***

*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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579110** | | | | | | | | | | | | | | | | |
| WG579110PBW | PBW | 12/01/23 | | | | | | .07 | 0.43 | 0.75 | | | 1.5 | | | |
| WG579110LCSWA | LCSW | 12/01/23 | PCN625402 | 75.19 | | | | 82 | 6.8 | 0.86 | 109 | 67 | 144 | | | |
| L84596-01DUP | DUP-RPD | 12/01/23 | | | 34 | 15 | 55 | 23 | 12 | 35 | | | | 39 | 20 | RG |
| L84596-01DUP | DUP-RER | 12/01/23 | | | 34 | 15 | 55 | 23 | 12 | 35 | | | | 0.57 | 2 | |
| L84620-01MSA | MS | 12/01/23 | PCN625402 | 100 | 3.7 | 3.1 | 12 | 75 | 12 | 10 | 71 | 67 | 144 | | | |
| L84675-03DUP | DUP-RPD | 12/01/23 | | | 12 | 12 | 52 | 38 | 18 | 120 | | | | 104 | 20 | RG |
| L84675-03DUP | DUP-RER | 12/01/23 | | | 12 | 12 | 52 | 38 | 18 | 120 | | | | 1.2 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579110** | | | | | | | | | | | | | | | | |
| WG579110PBW | PBW | 12/01/23 | | | | | | -.43 | 2.1 | 2.3 | | | 4.6 | | | |
| WG579110LCSWB | LCSW | 12/01/23 | RC230912-10 | 75.19 | | | | 74 | 5 | 1.9 | 98 | 82 | 122 | | | |
| L84596-01DUP | DUP-RPD | 12/01/23 | | | 17 | 9.2 | 39 | 25 | 9.6 | 23 | | | | 38 | 20 | RG |
| L84596-01DUP | DUP-RER | 12/01/23 | | | 17 | 9.2 | 39 | 25 | 9.6 | 23 | | | | 0.6 | 2 | |
| L84667-04MSB | MS | 12/01/23 | RC230912-10 | 1666.67 | -1.9 | 51 | 360 | 1400 | 110 | 380 | 84 | 82 | 122 | | | |
| L84675-03DUP | DUP-RPD | 12/01/23 | | | 15 | 13 | 34 | 16 | 14 | 91 | | | | 6 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84675***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84675-01** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84675-02** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84675-03** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |

# Certification Qualifiers

**Golder Associates**

ACZ Project ID: ***L84675***

No certification qualifiers associated with this analysis

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

# Sample Receipt

Golder Associates

ACZ Project ID: L84675
Date Received: 11/18/2023 10:18
Received By:
Date Printed: 11/20/2023

## 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? |
|---|---|---|---|---|
| 7170 | 2.2 | <=6.0 | 15 | N/A |

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.

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

# Sample Receipt

Golder Associates

| | |
|---|---|
| ACZ Project ID: | L84675 |
| Date Received: | 11/18/2023 10:18 |
| Received By: | |
| Date Printed: | 11/20/2023 |

[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 | Accredited Environmental Testing | 2773 Downhill Drive Steamboat Springs, CO 80487 (970) 879-6590 | L84675

# CHAIN of CUSTODY

**Report to:**

Name: Jennifer Thompson
Company: WSP
E-mail: Jennifer.Thompson2@wsp.com
Address: 7245 W Alaska Dr, Suite 200
Lakewood, CO 80226
Telephone: 832-571-5982

**Copy of Report to:**

Name: Sara Harkins
Company: WSP
E-mail: Sara.Harkins@wsp.com
Telephone: 847-877-9734

**Invoice to:**

Name: Jennifer Thompson
Company: WSP
E-mail: Jennifer.Thompson2@wsp.com
Address: 7245 W Alaska Dr, Suite 200
Lakewood, CO 80226
Telephone: 832-571-5982

**Copy of Invoice to:**

Name: Sara Harkins
Company: WSP
E-mail: Sara.Harkins@wsp.com
Address: 7245 W Alaska Dr. Suite 200
Lakewood, CO 80226
Telephone: 847-877-9734

**If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?** YES ✓ NO
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

**Are samples for SDWA Compliance Monitoring?** Yes ☐ No ✓
**If yes, please include state forms. Results will be reported to PQL for Colorado.**

**Sampler's Name:** Jennifer Thompson **Sampler's Site Information** **State** CO **Zip code** 80535 **Time Zone** MT
***Sampler's Signature:** [signature]
*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 #: Holcim-Tabl
PO#: B0546S8
Reporting state for compliance testing:
Check box if samples include NRC licensed material? ☐

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | PQL Volatile |
|---|---|---|---|---|
| MW-2 | 11/17/23/8:17 | GW | 5 | |
| MW-4 | 11/17/23/ 9:22 | GW | 5 | |
| MW-5 | 11/17/23/ 10:40 | GW | 5 | |

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

**REMARKS**

Second shipment of samples - on this quote.

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Jennifer Thompson | 11/17/23 2PM | [signature] | 11/18/23 10:18 |
| | | | |

Qualtrax ID: 1984 Revision #: 2 White - Return with sample. Yellow - Retain for your records.

L84675 Chain of Custod

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

**Revised Analytical Report**

January 09, 2024

Report to:
Jennifer Thompson
Golder Associates
7245 W Alaska Drive
Suite 200
Lakewood, CO 80226

cc: Sara Harkins

Bill to:
Accounts Payable
Golder Associates
44 Union Blvd., Suite 300

Lakewood, CO 80228

Project ID:
ACZ Project ID: L84667

Jennifer Thompson:

Enclosed are revised analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 17, 2023 and originally reported on January 09, 2024. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L84667. 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 L84667. 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 08, 2024. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

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

Mark McNeal

Mark McNeal has reviewed
and approved this report.

Golder Associates

January 09, 2024

Project ID:
ACZ Project ID: L84667

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 7 groundwater samples from Golder Associates on November 17, 2023. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L84667. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

## Sample Analysis

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

This report is being reissued to include an updated value for Cl on -05.

1. The below is from WG579233
Qualifier: N1
Applies to: L84667-01/TOTAL DISSOLVED SOLIDS
L84667-02/TOTAL DISSOLVED SOLIDS
L84667-03/TOTAL DISSOLVED SOLIDS
L84667-04/TOTAL DISSOLVED SOLIDS
L84667-05/TOTAL DISSOLVED SOLIDS
L84667-06/TOTAL DISSOLVED SOLIDS
L84667-07/TOTAL DISSOLVED SOLIDS

Samples were placed in 177 degree C oven (limits=180+/-2). It is not believed to impact data. Samples were in the oven for over 5 hours and removed from oven within limits.

2. The below is from WG580678
Qualifier: N1
Applies to: L84667-05/ARSENIC
L84667-05/CHROMIUM
L84667-05/COPPER
L84667-05/NICKEL
L84667-05/VANADIUM
L84667-06/ARSENIC
L84667-06/CHROMIUM
L84667-06/COPPER
L84667-06/NICKEL
L84667-06/VANADIUM
L84667-07/ARSENIC
L84667-07/CHROMIUM
L84667-07/COPPER
L84667-07/LEAD
L84667-07/NICKEL
L84667-07/URANIUM
L84667-07/VANADIUM

Some internal standards were outside method 200.8 limits for L84667. Client requested minimal dilutions - pass and qualify E6.

3. The below is from WG580983

Qualifier: N1
Applies to: L84667-06/PH

Quality Control just exceeded limits. pH sample has been run multiple times. Reanalyze at client request.

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

ACZ Sample ID: ***L84667-01***
Date Sampled: *11/16/23 15:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 5 | <0.025 | U | | mg/L | 0.025 | 0.075 | 12/16/23 12:44 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 5 | 0.00243 | B | | mg/L | 0.002 | 0.01 | 12/16/23 12:44 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 5 | 0.00104 | B | | mg/L | 0.001 | 0.005 | 12/16/23 12:44 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 5 | 0.0104 | B | | mg/L | 0.0025 | 0.0125 | 12/16/23 12:44 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 5 | <0.0004 | U | | mg/L | 0.0004 | 0.00125 | 12/16/23 12:44 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.722 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:25 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 12/16/23 12:44 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 120 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:25 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | | mg/L | 0.0025 | 0.01 | 12/16/23 12:44 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 5 | 0.00264 | | | mg/L | 0.00025 | 0.00125 | 12/16/23 12:44 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 5 | <0.004 | U | | mg/L | 0.004 | 0.01 | 12/16/23 12:44 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | <0.06 | U | | mg/L | 0.06 | 0.15 | 11/28/23 12:25 | brc |
| Lead, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:44 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.06 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:25 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 124 | | | mg/L | 0.2 | 1 | 11/28/23 12:25 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 5 | 0.0998 | | | mg/L | 0.002 | 0.01 | 12/16/23 12:44 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:16 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 5 | 0.0690 | | | mg/L | 0.001 | 0.0025 | 12/16/23 12:44 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 5 | 0.00953 | | | mg/L | 0.002 | 0.005 | 12/16/23 12:44 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 10.3 | | | mg/L | 0.5 | 1 | 11/28/23 12:25 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 5 | 0.0546 | | | mg/L | 0.0005 | 0.00125 | 12/16/23 12:44 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:44 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 5 | 1730 | | | mg/L | 1 | 5 | 11/29/23 12:01 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 11/30/23 22:13 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 5 | 0.0435 | | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:44 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | | mg/L | 0.0025 | 0.01 | 12/16/23 12:44 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 5 | <0.03 | U | | mg/L | 0.03 | 0.075 | 12/16/23 12:44 | gjl/scp |

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

ACZ Sample ID: ***L84667-01***
Date Sampled: *11/16/23 15:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 471 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 471 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 0.0 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 93 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 93 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 100 | <40 | U | * | mg/L | 40 | 200 | 11/28/23 7:04 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:33 | mrd |
| Fluoride | SM4500F-C | 1 | 0.57 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:05 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 6.07 | | | mg/L | 0.06 | 0.3 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 3 | 6.08 | | | mg/L | 0.06 | 0.3 | 11/18/23 0:45 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.010 | B | * | mg/L | 0.01 | 0.05 | 11/18/23 0:19 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.0 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 22.0 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 2 | 5770 | | * | mg/L | 40 | 80 | 11/22/23 9:26 | trt |
| Sulfate | M300.0 - Ion Chromatography | 100 | 3990 | | | mg/L | 90 | 200 | 11/28/23 7:04 | bls |
| TDS (calculated) | Calculation | | 6260 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.92 | | | | | | 01/09/24 0:00 | calc |

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

ACZ Sample ID: ***L84667-02***
Date Sampled: *11/16/23 14:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 2 | 0.0101 | B | | mg/L | 0.01 | 0.03 | 12/16/23 12:46 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 2 | 0.00103 | B | | mg/L | 0.0008 | 0.004 | 12/16/23 12:46 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 2 | 0.00051 | B | | mg/L | 0.0004 | 0.002 | 12/16/23 12:46 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 2 | 3.02 | | | mg/L | 0.001 | 0.005 | 12/16/23 12:46 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 2 | <0.00016 | U | | mg/L | 0.00016 | 0.0005 | 12/16/23 12:46 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.763 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:28 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 2 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 12/16/23 12:46 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 6.30 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:28 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 2 | <0.001 | U | | mg/L | 0.001 | 0.004 | 12/16/23 12:46 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 2 | 0.000656 | | | mg/L | 0.0001 | 0.0005 | 12/16/23 12:46 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 2 | <0.0016 | U | | mg/L | 0.0016 | 0.004 | 12/16/23 12:46 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 0.114 | B | | mg/L | 0.06 | 0.15 | 11/28/23 12:28 | brc |
| Lead, dissolved | M200.8 ICP-MS | 2 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/16/23 12:46 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 0.698 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:28 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 2.72 | | | mg/L | 0.2 | 1 | 11/28/23 12:28 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 2 | 0.0270 | | | mg/L | 0.0008 | 0.004 | 12/16/23 12:46 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:19 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 2 | 0.00044 | B | | mg/L | 0.0004 | 0.001 | 12/16/23 12:46 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 2 | <0.0008 | U | | mg/L | 0.0008 | 0.002 | 12/16/23 12:46 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 4.61 | | | mg/L | 0.5 | 1 | 11/28/23 12:28 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 2 | <0.0002 | U | * | mg/L | 0.0002 | 0.0005 | 12/16/23 12:46 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 2 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/16/23 12:46 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 5 | 1610 | | | mg/L | 1 | 5 | 11/29/23 12:04 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 2 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 11/30/23 22:18 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 2 | 0.00090 | B | | mg/L | 0.0002 | 0.001 | 12/16/23 12:46 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 2 | <0.001 | U | | mg/L | 0.001 | 0.004 | 12/16/23 12:46 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 2 | <0.012 | U | | mg/L | 0.012 | 0.03 | 12/16/23 12:46 | gjl/scp |

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

ACZ Sample ID: ***L84667-02***
Date Sampled: *11/16/23 14:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 1190 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | 58.6 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 1250 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 2.1 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 69 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 72 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 20 | 1570 | | * | mg/L | 8 | 40 | 11/28/23 7:22 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | * | mg/L | 0.003 | 0.01 | 11/29/23 12:39 | mrd |
| Fluoride | SM4500F-C | 1 | 2.38 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:12 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | <0.02 | U | | mg/L | 0.02 | 0.1 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.02 | U | | mg/L | 0.02 | 0.1 | 11/18/23 0:21 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 0:21 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.3 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 21.9 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 1 | 3940 | | * | mg/L | 20 | 40 | 11/22/23 9:28 | trt |
| Sulfate | M300.0 - Ion Chromatography | 20 | <18 | U | * | mg/L | 18 | 40 | 11/28/23 7:22 | bls |
| TDS (calculated) | Calculation | | 3960 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.99 | | | | | | 01/09/24 0:00 | calc |

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

ACZ Sample ID: ***L84667-03***
Date Sampled: *11/16/23 12:10*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 10 | <0.05 | U | | mg/L | 0.05 | 0.15 | 12/16/23 12:53 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 10 | <0.004 | U | | mg/L | 0.004 | 0.02 | 12/16/23 12:53 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 10 | 0.00803 | B | | mg/L | 0.002 | 0.01 | 12/16/23 12:53 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 10 | 5.92 | | | mg/L | 0.005 | 0.025 | 12/16/23 12:53 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 10 | <0.0008 | U | | mg/L | 0.0008 | 0.0025 | 12/16/23 12:53 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.534 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:38 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:53 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 52.6 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:38 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 12:53 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 10 | 0.00115 | B | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:53 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 10 | <0.008 | U | | mg/L | 0.008 | 0.02 | 12/16/23 12:53 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 2.93 | | | mg/L | 0.06 | 0.15 | 11/28/23 12:38 | brc |
| Lead, dissolved | M200.8 ICP-MS | 10 | 0.00179 | B | | mg/L | 0.001 | 0.005 | 12/16/23 12:53 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.80 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:38 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 15.6 | | | mg/L | 0.2 | 1 | 11/28/23 12:38 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 10 | 0.0977 | | | mg/L | 0.004 | 0.02 | 12/16/23 12:53 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:19 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 10 | 0.0397 | | | mg/L | 0.002 | 0.005 | 12/16/23 12:53 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 10 | 0.0189 | | | mg/L | 0.004 | 0.01 | 12/16/23 12:53 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 10.5 | | | mg/L | 0.5 | 1 | 11/28/23 12:38 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | * | mg/L | 0.001 | 0.0025 | 12/16/23 12:53 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 12:53 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 10 | 3950 | | * | mg/L | 2 | 10 | 11/29/23 12:08 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 11/30/23 22:19 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 10 | 0.00651 | | | mg/L | 0.001 | 0.005 | 12/16/23 12:53 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 12:53 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 10 | <0.06 | U | | mg/L | 0.06 | 0.15 | 12/16/23 12:53 | gjl/scp |

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

ACZ Sample ID: ***L84667-03***
Date Sampled: *11/16/23 12:10*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 700 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 700 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 0.3 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 177 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 178 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 100 | 5830 | | * | mg/L | 40 | 200 | 11/28/23 7:40 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:41 | mrd |
| Fluoride | SM4500F-C | 1 | 1.04 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:15 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | <0.02 | U | | mg/L | 0.02 | 0.1 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.02 | U | | mg/L | 0.02 | 0.1 | 11/18/23 0:27 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 0:27 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 7.9 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 22.0 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 25 | 10100 | | * | mg/L | 500 | 1000 | 11/22/23 9:31 | trt |
| Sulfate | M300.0 - Ion Chromatography | 100 | <90 | U | * | mg/L | 90 | 200 | 11/28/23 7:40 | bls |
| TDS (calculated) | Calculation | | 10300 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.98 | | | | | | 01/09/24 0:00 | calc |

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

ACZ Sample ID: ***L84667-04***
Date Sampled: *11/16/23 13:40*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 10 | <0.05 | U | | mg/L | 0.05 | 0.15 | 12/16/23 12:55 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 10 | 0.0138 | B | | mg/L | 0.004 | 0.02 | 12/16/23 12:55 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 10 | 0.00379 | B | | mg/L | 0.002 | 0.01 | 12/16/23 12:55 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 10 | 3.12 | | | mg/L | 0.005 | 0.025 | 12/16/23 12:55 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 10 | <0.0008 | U | | mg/L | 0.0008 | 0.0025 | 12/16/23 12:55 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.665 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:41 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:55 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 53.1 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:41 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 12:55 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 10 | 0.00125 | B | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:55 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 10 | <0.008 | U | | mg/L | 0.008 | 0.02 | 12/16/23 12:55 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 3.78 | | | mg/L | 0.06 | 0.15 | 11/28/23 12:41 | brc |
| Lead, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 12:55 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.93 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:41 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 18.4 | | | mg/L | 0.2 | 1 | 11/28/23 12:41 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 10 | 0.129 | | | mg/L | 0.004 | 0.02 | 12/16/23 12:55 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:20 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 10 | 0.0222 | | | mg/L | 0.002 | 0.005 | 12/16/23 12:55 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 10 | <0.004 | U | | mg/L | 0.004 | 0.01 | 12/16/23 12:55 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 12.5 | | | mg/L | 0.5 | 1 | 11/28/23 12:41 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | * | mg/L | 0.001 | 0.0025 | 12/16/23 12:55 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 12:55 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 10 | 4270 | | * | mg/L | 2 | 10 | 11/29/23 12:11 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 11/30/23 22:24 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 10 | 0.00566 | | | mg/L | 0.001 | 0.005 | 12/16/23 12:55 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | | mg/L | 0.005 | 0.02 | 12/16/23 12:55 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 10 | <0.06 | U | | mg/L | 0.06 | 0.15 | 12/16/23 12:55 | gjl/scp |

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

ACZ Sample ID: ***L84667-04***
Date Sampled: *11/16/23 13:40*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 776 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 776 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 0.0 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 193 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 193 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 100 | 6320 | | * | mg/L | 40 | 200 | 11/28/23 7:58 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:43 | mrd |
| Fluoride | SM4500F-C | 1 | 0.87 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:20 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | <0.02 | U | | mg/L | 0.02 | 0.1 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.02 | U | | mg/L | 0.02 | 0.1 | 11/18/23 0:28 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 0:28 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 7.9 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 22.0 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 25 | 10300 | | * | mg/L | 500 | 1000 | 11/22/23 9:34 | trt |
| Sulfate | M300.0 - Ion Chromatography | 100 | <90 | U | * | mg/L | 90 | 200 | 11/28/23 7:58 | bls |
| TDS (calculated) | Calculation | | 11200 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.92 | | | | | | 01/09/24 0:00 | calc |

**Golder Associates**
Project ID:
Sample ID: MW-8

ACZ Sample ID: ***L84667-05***
Date Sampled: *11/16/23 11:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 10 | <0.05 | U | | mg/L | 0.05 | 0.15 | 12/16/23 12:58 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 10 | 0.0519 | | | mg/L | 0.004 | 0.02 | 12/16/23 12:58 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 10 | 0.00368 | B | * | mg/L | 0.002 | 0.01 | 12/16/23 12:58 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 10 | 3.62 | | | mg/L | 0.005 | 0.025 | 12/16/23 12:58 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 10 | <0.0008 | U | | mg/L | 0.0008 | 0.0025 | 12/16/23 12:58 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.637 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:44 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:58 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 81.7 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:44 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | * | mg/L | 0.005 | 0.02 | 12/16/23 12:58 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 10 | 0.00220 | B | | mg/L | 0.0005 | 0.0025 | 12/16/23 12:58 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 10 | <0.008 | U | * | mg/L | 0.008 | 0.02 | 12/16/23 12:58 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | 0.147 | B | | mg/L | 0.06 | 0.15 | 11/28/23 12:44 | brc |
| Lead, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 12:58 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.97 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:44 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 19.5 | | | mg/L | 0.2 | 1 | 11/28/23 12:44 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 10 | 0.0341 | | | mg/L | 0.004 | 0.02 | 12/16/23 12:58 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:21 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 10 | 0.0463 | | | mg/L | 0.002 | 0.005 | 12/16/23 12:58 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 10 | 0.00989 | B | * | mg/L | 0.004 | 0.01 | 12/16/23 12:58 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 15.5 | | | mg/L | 0.5 | 1 | 11/28/23 12:44 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | * | mg/L | 0.001 | 0.0025 | 12/16/23 12:58 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 10 | <0.001 | U | | mg/L | 0.001 | 0.005 | 12/16/23 12:58 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 10 | 4490 | | * | mg/L | 2 | 10 | 11/29/23 12:14 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 10 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 11/30/23 22:25 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 10 | 0.0309 | | | mg/L | 0.001 | 0.005 | 12/16/23 12:58 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 10 | <0.005 | U | * | mg/L | 0.005 | 0.02 | 12/16/23 12:58 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 10 | <0.06 | U | | mg/L | 0.06 | 0.15 | 12/16/23 12:58 | gjl/scp |

**Golder Associates**
Project ID:
Sample ID: MW-8

ACZ Sample ID: ***L84667-05***
Date Sampled: *11/16/23 11:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 514 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 514 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | -9.7 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 248 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 204 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 200 | 8500 | H | * | mg/L | 80 | 400 | 01/03/24 17:02 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:45 | mrd |
| Fluoride | SM4500F-C | 1 | 1.62 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:24 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 0.034 | B | | mg/L | 0.02 | 0.1 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.034 | B | | mg/L | 0.02 | 0.1 | 11/18/23 0:29 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | U | * | mg/L | 0.01 | 0.05 | 11/18/23 0:29 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.0 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 22.0 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 25 | 10300 | | * | mg/L | 500 | 1000 | 11/22/23 9:36 | trt |
| Sulfate | M300.0 - Ion Chromatography | 200 | <180 | U | * | mg/L | 180 | 400 | 11/28/23 8:15 | bls |
| TDS (calculated) | Calculation | | 13400 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.77 | | | | | | 01/09/24 0:00 | calc |

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

ACZ Sample ID: ***L84667-06***
Date Sampled: *11/16/23 00:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 1 | <0.005 | U | | mg/L | 0.005 | 0.015 | 12/16/23 13:00 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 1 | <0.0004 | U | | mg/L | 0.0004 | 0.002 | 12/16/23 13:00 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 1 | <0.0002 | U | * | mg/L | 0.0002 | 0.001 | 12/16/23 13:00 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 1 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 13:00 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 1 | <0.00008 | U | | mg/L | 0.00008 | 0.00025 | 12/16/23 13:00 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | <0.03 | U | | mg/L | 0.03 | 0.1 | 11/28/23 12:48 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 1 | <0.00005 | U | | mg/L | 0.00005 | 0.00025 | 12/16/23 13:00 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | <0.1 | U | * | mg/L | 0.1 | 0.5 | 11/28/23 12:48 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 1 | <0.0005 | U | * | mg/L | 0.0005 | 0.002 | 12/16/23 13:00 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 1 | 0.000296 | | | mg/L | 0.00005 | 0.00025 | 12/16/23 13:00 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 1 | <0.0008 | U | * | mg/L | 0.0008 | 0.002 | 12/16/23 13:00 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | <0.06 | U | | mg/L | 0.06 | 0.15 | 11/28/23 12:48 | brc |
| Lead, dissolved | M200.8 ICP-MS | 1 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 12/16/23 13:00 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | <0.008 | U | | mg/L | 0.008 | 0.04 | 11/28/23 12:48 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | <0.2 | U | | mg/L | 0.2 | 1 | 11/28/23 12:48 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 1 | 0.00057 | B | | mg/L | 0.0004 | 0.002 | 12/16/23 13:00 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:22 | ɯtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.0005 | 12/16/23 13:00 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 1 | <0.0004 | U | * | mg/L | 0.0004 | 0.001 | 12/16/23 13:00 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | <0.5 | U | | mg/L | 0.5 | 1 | 11/28/23 12:48 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 1 | <0.0001 | U | | mg/L | 0.0001 | 0.00025 | 12/16/23 13:00 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 1 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 12/16/23 13:00 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 1 | <0.2 | U | | mg/L | 0.2 | 1 | 12/06/23 19:48 | wtc |
| Thallium, dissolved | M200.8 ICP-MS | 1 | <0.00005 | U | | mg/L | 0.00005 | 0.00025 | 11/30/23 22:27 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 1 | <0.0001 | U | | mg/L | 0.0001 | 0.0005 | 12/16/23 13:00 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 1 | <0.0005 | U | * | mg/L | 0.0005 | 0.002 | 12/16/23 13:00 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 1 | <0.006 | U | | mg/L | 0.006 | 0.015 | 12/16/23 13:00 | gjl/scp |

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

ACZ Sample ID: ***L84667-06***
Date Sampled: *11/16/23 00:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 2.8 | BH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 2.8 | BH | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | n/a | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 0.101 | B | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | < | U | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 1 | <0.4 | U | * | mg/L | 0.4 | 2 | 11/28/23 8:33 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:47 | mrd |
| Fluoride | SM4500F-C | 1 | <0.15 | U | * | mg/L | 0.15 | 0.35 | 12/07/23 16:52 | emk |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 0.665 | H | | mg/L | 0.02 | 0.1 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.665 | H | * | mg/L | 0.02 | 0.1 | 11/18/23 0:31 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | <0.01 | UH | * | mg/L | 0.01 | 0.05 | 11/18/23 0:31 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 7.3 | H | * | units | 0.1 | 0.1 | 12/20/23 0:00 | emk |
| pH measured at | | 1 | 22.8 | | | C | 0.1 | 0.1 | 12/20/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 1 | <20 | U | * | mg/L | 20 | 40 | 11/22/23 9:39 | trt |
| Sulfate | M300.0 - Ion Chromatography | 1 | 2.12 | | | mg/L | 0.9 | 2 | 11/28/23 8:33 | bls |
| TDS (calculated) | Calculation | | 3.83 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | n/a | | | | | | 01/09/24 0:00 | calc |

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

ACZ Sample ID: ***L84667-07***
Date Sampled: *11/16/23 00:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Metals Analysis

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum, dissolved | M200.8 ICP-MS | 5 | <0.025 | U | | mg/L | 0.025 | 0.075 | 12/16/23 13:02 | gjl/scp |
| Antimony, dissolved | M200.8 ICP-MS | 5 | 0.00918 | B | | mg/L | 0.002 | 0.01 | 12/16/23 13:02 | gjl/scp |
| Arsenic, dissolved | M200.8 ICP-MS | 5 | 0.00447 | B | * | mg/L | 0.001 | 0.005 | 12/16/23 13:02 | gjl/scp |
| Barium, dissolved | M200.8 ICP-MS | 5 | 0.0493 | | | mg/L | 0.0025 | 0.0125 | 12/16/23 13:02 | gjl/scp |
| Beryllium, dissolved | M200.8 ICP-MS | 5 | <0.0004 | U | | mg/L | 0.0004 | 0.00125 | 12/16/23 13:02 | gjl/scp |
| Boron, dissolved | M200.7 ICP | 1 | 0.706 | | | mg/L | 0.03 | 0.1 | 11/28/23 12:51 | brc |
| Cadmium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 12/16/23 13:02 | gjl/scp |
| Calcium, dissolved | M200.7 ICP | 1 | 116 | | * | mg/L | 0.1 | 0.5 | 11/28/23 12:51 | brc |
| Chromium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | * | mg/L | 0.0025 | 0.01 | 12/16/23 13:02 | gjl/scp |
| Cobalt, dissolved | M200.8 ICP-MS | 5 | 0.0123 | | | mg/L | 0.00025 | 0.00125 | 12/16/23 13:02 | gjl/scp |
| Copper, dissolved | M200.8 ICP-MS | 5 | <0.004 | U | * | mg/L | 0.004 | 0.01 | 12/16/23 13:02 | gjl/scp |
| Iron, dissolved | M200.7 ICP | 1 | <0.06 | U | | mg/L | 0.06 | 0.15 | 11/28/23 12:51 | brc |
| Lead, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | * | mg/L | 0.0005 | 0.0025 | 12/16/23 13:02 | gjl/scp |
| Lithium, dissolved | M200.7 ICP | 1 | 1.04 | | | mg/L | 0.008 | 0.04 | 11/28/23 12:51 | brc |
| Magnesium, dissolved | M200.7 ICP | 1 | 119 | | | mg/L | 0.2 | 1 | 11/28/23 12:51 | brc |
| Manganese, dissolved | M200.8 ICP-MS | 5 | 0.514 | | | mg/L | 0.002 | 0.01 | 12/16/23 13:02 | gjl/scp |
| Mercury, dissolved | M245.1 CVAA | 1 | <0.0002 | U | | mg/L | 0.0002 | 0.001 | 12/01/23 15:23 | mtc/aeh |
| Molybdenum, dissolved | M200.8 ICP-MS | 5 | 0.396 | | | mg/L | 0.001 | 0.0025 | 12/16/23 13:02 | gjl/scp |
| Nickel, dissolved | M200.8 ICP-MS | 5 | 0.0413 | | * | mg/L | 0.002 | 0.005 | 12/16/23 13:02 | gjl/scp |
| Potassium, dissolved | M200.7 ICP | 1 | 10.5 | | | mg/L | 0.5 | 1 | 11/28/23 12:51 | brc |
| Selenium, dissolved | M200.8 ICP-MS | 5 | 0.279 | | | mg/L | 0.0005 | 0.00125 | 12/16/23 13:02 | gjl/scp |
| Silver, dissolved | M200.8 ICP-MS | 5 | <0.0005 | U | | mg/L | 0.0005 | 0.0025 | 12/16/23 13:02 | gjl/scp |
| Sodium, dissolved | M200.7 ICP | 5 | 1760 | | * | mg/L | 1 | 5 | 11/29/23 12:17 | brc |
| Thallium, dissolved | M200.8 ICP-MS | 5 | <0.00025 | U | | mg/L | 0.00025 | 0.00125 | 11/30/23 22:28 | jrj |
| Uranium, dissolved | M200.8 ICP-MS | 5 | 0.216 | | * | mg/L | 0.0005 | 0.0025 | 12/16/23 13:02 | gjl/scp |
| Vanadium, dissolved | M200.8 ICP-MS | 5 | <0.0025 | U | * | mg/L | 0.0025 | 0.01 | 12/16/23 13:02 | gjl/scp |
| Zinc, dissolved | M200.8 ICP-MS | 5 | 0.0409 | B | | mg/L | 0.03 | 0.075 | 12/16/23 13:02 | gjl/scp |

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

ACZ Sample ID: ***L84667-07***
Date Sampled: *11/16/23 00:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Wet Chemistry

| Parameter | EPA Method | Dilution | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity as CaCO3 | SM2320B - Titration | | | | | | | | | |
| Bicarbonate as CaCO3 | | 1 | 473 | H | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Carbonate as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Hydroxide as CaCO3 | | 1 | <2 | UH | | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Total Alkalinity | | 1 | 473 | H | * | mg/L | 2 | 20 | 12/05/23 0:00 | emk |
| Cation-Anion Balance | Calculation | | | | | | | | | |
| Cation-Anion Balance | | | 2.2 | | | % | | | 01/09/24 0:00 | calc |
| Sum of Anions | | | 89 | | | meq/L | | | 01/09/24 0:00 | calc |
| Sum of Cations | | | 93 | | | meq/L | | | 01/09/24 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 100 | <40 | U | * | mg/L | 40 | 200 | 11/29/23 1:13 | bls |
| Cyanide, Free | D6888-09/OIA-1677-09 | 1 | <0.003 | U | | mg/L | 0.003 | 0.01 | 11/29/23 12:49 | mrd |
| Fluoride | SM4500F-C | 1 | 0.58 | | | mg/L | 0.15 | 0.35 | 12/14/23 1:32 | jck |
| Nitrate as N | Calculation: NO3NO2 minus NO2 | | 6.28 | H | | mg/L | 0.08 | 0.4 | 01/09/24 0:00 | calc |
| Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | 4 | 6.29 | H | * | mg/L | 0.08 | 0.4 | 11/18/23 0:48 | pjb |
| Nitrite as N | M353.2 - Automated Cadmium Reduction | 1 | 0.010 | BH | * | mg/L | 0.01 | 0.05 | 11/18/23 0:32 | pjb |
| pH (lab) | SM4500H+ B | | | | | | | | | |
| pH | | 1 | 8.1 | H | | units | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| pH measured at | | 1 | 22.0 | | | C | 0.1 | 0.1 | 12/05/23 0:00 | emk |
| Residue, Filterable (TDS) @180C | SM2540C | 50 | 5700 | | * | mg/L | 1000 | 2000 | 11/22/23 9:42 | trt |
| Sulfate | M300.0 - Ion Chromatography | 100 | 3800 | | | mg/L | 90 | 200 | 11/29/23 1:13 | bls |
| TDS (calculated) | Calculation | | 6100 | | | mg/L | | | 01/09/24 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | | 0.93 | | | | | | 01/09/24 0:00 | calc |

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

**Golder Associates**

ACZ Project ID: ***L84667***

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

**Alkalinity as CaCO3** SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579875** | | | | | | | | | | | | | |
| WG579875PBW1 | PBW | 12/05/23 16:26 | | | | 2.4 | mg/L | | -20 | 20 | | | |
| WG579875LCSW2 | LCSW | 12/05/23 16:34 | WC231129-1 | 820.0001 | | 758 | mg/L | 92 | 90 | 110 | | | |
| WG579875LCSW4 | LCSW | 12/05/23 18:15 | WC231129-1 | 820.0001 | | 765.2 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW2 | PBW | 12/05/23 18:21 | | | | 2.2 | mg/L | | -20 | 20 | | | |
| WG579875LCSW6 | LCSW | 12/05/23 19:57 | WC231129-1 | 820.0001 | | 762.4 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW3 | PBW | 12/05/23 20:03 | | | | U | mg/L | | -20 | 20 | | | |
| WG579875LCSW8 | LCSW | 12/05/23 21:37 | WC231129-1 | 820.0001 | | 766.6 | mg/L | 93 | 90 | 110 | | | |
| WG579875PBW4 | PBW | 12/05/23 21:43 | | | | U | mg/L | | -20 | 20 | | | |
| L84667-06DUP | DUP | 12/05/23 22:47 | | | 2.8 | U | mg/L | | | | 200 | 20 | RA |
| L84676-06DUP | DUP | 12/05/23 23:46 | | | 33.7 | 34 | mg/L | | | | 1 | 20 | |
| WG579875LCSW10 | LCSW | 12/05/23 23:55 | WC231129-1 | 820.0001 | | 784.8 | mg/L | 96 | 90 | 110 | | | |
| WG579875PBW5 | PBW | 12/06/23 0:02 | | | | 3.2 | mg/L | | -20 | 20 | | | |
| WG579875LCSW12 | LCSW | 12/06/23 1:56 | WC231129-1 | 820.0001 | | 783.3 | mg/L | 96 | 90 | 110 | | | |

**Aluminum, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .1 | | .0985 | mg/L | 99 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.011 | 0.011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .050065 | | .0542 | mg/L | 108 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .050065 | U | .0561 | mg/L | 112 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .050065 | U | .0567 | mg/L | 113 | 70 | 130 | 1 | 20 | |

**Antimony, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .02002 | | .01983 | mg/L | 99 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | .00056 | mg/L | | -0.00088 | 0.00088 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .01 | | .00996 | mg/L | 100 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .01 | U | .00944 | mg/L | 94 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .01 | U | .01051 | mg/L | 105 | 70 | 130 | 11 | 20 | |

**Arsenic, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .04878 | mg/L | 98 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .0501 | | .05057 | mg/L | 101 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .0501 | .0006 | .05441 | mg/L | 107 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .0501 | .0006 | .05468 | mg/L | 108 | 70 | 130 | 0 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

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

**Barium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .04888 | mg/L | 98 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .04813 | mg/L | 96 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | .0458 | .10227 | mg/L | 113 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | .0458 | .10407 | mg/L | 116 | 70 | 130 | 2 | 20 | |

**Beryllium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .047781 | mg/L | 96 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.000176 | 0.000176 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .047483 | mg/L | 95 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | U | .050363 | mg/L | 101 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | U | .05128 | mg/L | 102 | 70 | 130 | 2 | 20 | |

**Boron, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 2 | | 2.034 | mg/L | 102 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -0.09 | 0.09 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | .5005 | | .493 | mg/L | 99 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | .5005 | .294 | .79 | mg/L | 99 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | .5005 | .294 | .771 | mg/L | 95 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .049546 | mg/L | 99 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .048979 | mg/L | 98 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | U | .055386 | mg/L | 111 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | U | .055874 | mg/L | 112 | 70 | 130 | 1 | 20 | |

**Calcium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 100 | | 99.49 | mg/L | 99 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | 67.98753 | | 68.15 | mg/L | 100 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | 67.98753 | 182 | 239.5 | mg/L | 85 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | 67.98753 | 182 | 239 | mg/L | 84 | 85 | 115 | 0 | 20 | MA |

**Golder Associates**

ACZ Project ID: ***L84667***

*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.*

**Chloride** M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579181** | | | | | | | | | | | | | |
| WG579181ICV | ICV | 11/17/23 15:35 | WI231116-7 | 20.02 | | 20.01 | mg/L | 100 | 90 | 110 | | | |
| WG579181ICB | ICB | 11/17/23 15:53 | | | | U | mg/L | | -0.4 | 0.4 | | | |
| **WG579335** | | | | | | | | | | | | | |
| WG579335LFB1 | LFB | 11/27/23 19:43 | WI230714-6 | 30 | | 31.38 | mg/L | 105 | 90 | 110 | | | |
| WG579335LFB2 | LFB | 11/28/23 4:23 | WI230714-6 | 30 | | 32.54 | mg/L | 108 | 90 | 110 | | | |
| L84617-05AS | AS | 11/28/23 4:58 | WI230714-6 | 600 | 8.38 | 572.5 | mg/L | 94 | 90 | 110 | | | |
| L84617-06DUP | DUP | 11/28/23 6:10 | | | U | U | mg/L | | | | 0 | 20 | RA |
| **WG579444** | | | | | | | | | | | | | |
| WG579444LFB1 | LFB | 11/28/23 16:51 | WI230714-6 | 30 | | 32.36 | mg/L | 108 | 90 | 110 | | | |
| L84617-02DUP | DUP | 11/29/23 0:19 | | | 1.32 | 1.28 | mg/L | | | | 3 | 20 | RA |
| L84617-03AS | AS | 11/29/23 0:55 | WI230714-6 | 1500 | U | 1438.15 | mg/L | 96 | 90 | 110 | | | |
| WG579444LFB2 | LFB | 11/29/23 1:30 | WI230714-6 | 30 | | 30.93 | mg/L | 103 | 90 | 110 | | | |
| **WG581527** | | | | | | | | | | | | | |
| WG581527LFB1 | LFB | 01/03/24 16:44 | WI230714-6 | 30 | | 29.31 | mg/L | 98 | 90 | 110 | | | |
| L85070-08DUP | DUP | 01/03/24 17:56 | | | 13.4 | 13.46 | mg/L | | | | 0 | 20 | |
| L85070-09AS | AS | 01/04/24 15:51 | WI230714-6 | 150 | 131 | 288.65 | mg/L | 105 | 90 | 110 | | | |

**Chromium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05107 | mg/L | 102 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .0501 | | .05087 | mg/L | 102 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .0501 | U | .05249 | mg/L | 105 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .0501 | U | .05351 | mg/L | 107 | 70 | 130 | 2 | 20 | |

**Cobalt, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .050003 | mg/L | 100 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .050135 | mg/L | 100 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | .000761 | .048543 | mg/L | 95 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | .000761 | .048872 | mg/L | 96 | 70 | 130 | 1 | 20 | |

**Copper, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05011 | mg/L | 100 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00176 | 0.00176 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .05018 | mg/L | 100 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | U | .04798 | mg/L | 96 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | U | .04826 | mg/L | 96 | 70 | 130 | 1 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

*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.*

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

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579519** | | | | | | | | | | | | | |
| WG579519ICV | ICV | 11/29/23 12:25 | WI231127-11 | .3003 | | .2906 | mg/L | 97 | 90 | 110 | | | |
| WG579519ICB | ICB | 11/29/23 12:27 | | | | U | mg/L | | -0.003 | 0.003 | | | |
| WG579519LFB | LFB | 11/29/23 12:31 | WI231127-10 | .1001 | | .0915 | mg/L | 91 | 90 | 110 | | | |
| L84667-01AS | AS | 11/29/23 12:35 | WI231127-10 | .1001 | U | .0943 | mg/L | 94 | 90 | 110 | | | |
| L84667-01ASD | ASD | 11/29/23 12:37 | WI231127-10 | .1001 | U | .0998 | mg/L | 100 | 90 | 110 | 6 | 20 | |
| WG579519ICV1 | ICV | 11/29/23 15:07 | WI231127-11 | .3003 | | .2893 | mg/L | 96 | 90 | 110 | | | |
| WG579519ICB1 | ICB | 11/29/23 15:09 | | | | U | mg/L | | -0.003 | 0.003 | | | |

**Fluoride** SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579939** | | | | | | | | | | | | | |
| WG579939ICV | ICV | 12/07/23 11:29 | WC231206-1 | 2.002 | | 2.12 | mg/L | 106 | 90 | 110 | | | |
| WG579939ICB | ICB | 12/07/23 11:34 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG579939LFB1 | LFB | 12/07/23 11:42 | WC230825-1 | 5.005 | | 5.37 | mg/L | 107 | 90 | 110 | | | |
| L84664-06AS | AS | 12/07/23 16:12 | WC230825-1 | 5.005 | .17 | 5.67 | mg/L | 110 | 90 | 110 | | | |
| L84664-06ASD | ASD | 12/07/23 16:16 | WC230825-1 | 5.005 | .17 | 5.6 | mg/L | 108 | 90 | 110 | 1 | 20 | |
| **WG580510** | | | | | | | | | | | | | |
| WG580510ICV | ICV | 12/13/23 22:56 | WC231213-7 | 2.002 | | 1.96 | mg/L | 98 | 90 | 110 | | | |
| WG580510ICB | ICB | 12/13/23 23:04 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG580510LFB1 | LFB | 12/13/23 23:11 | WC230825-1 | 5.005 | | 4.95 | mg/L | 99 | 90 | 110 | | | |
| L84605-04AS | AS | 12/14/23 0:28 | WC230825-1 | 5.005 | 1.26 | 6.26 | mg/L | 100 | 90 | 110 | | | |
| L84605-04ASD | ASD | 12/14/23 0:31 | WC230825-1 | 5.005 | 1.26 | 6.12 | mg/L | 97 | 90 | 110 | 2 | 20 | |
| WG580510LFB2 | LFB | 12/14/23 1:27 | WC230825-1 | 5.005 | | 4.93 | mg/L | 99 | 90 | 110 | | | |
| L84684-05AS | AS | 12/14/23 1:59 | WC230825-1 | 5.005 | .17 | 4.68 | mg/L | 90 | 90 | 110 | | | |
| L84684-05ASD | ASD | 12/14/23 2:03 | WC230825-1 | 5.005 | .17 | 4.73 | mg/L | 91 | 90 | 110 | 1 | 20 | |

**Iron, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 2 | | 1.916 | mg/L | 96 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -0.18 | 0.18 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | .9981 | | .993 | mg/L | 99 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | .9981 | U | 1 | mg/L | 100 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | .9981 | U | .957 | mg/L | 96 | 85 | 115 | 4 | 20 | |

**Lead, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .04982 | mg/L | 100 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .05041 | mg/L | 101 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | U | .05695 | mg/L | 114 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | U | .05714 | mg/L | 114 | 70 | 130 | 0 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

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

**Lithium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 2 | | 1.9168 | mg/L | 96 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -0.024 | 0.024 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | 1.003 | | .9541 | mg/L | 95 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | 1.003 | .0509 | 1.005 | mg/L | 95 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | 1.003 | .0509 | 1.023 | mg/L | 97 | 85 | 115 | 2 | 20 | |

**Magnesium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 100 | | 99.29 | mg/L | 99 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | 49.81683 | | 49.63 | mg/L | 100 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | 49.81683 | 26.3 | 74.09 | mg/L | 96 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | 49.81683 | 26.3 | 73.81 | mg/L | 95 | 85 | 115 | 0 | 20 | |

**Manganese, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05003 | mg/L | 100 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00088 | 0.00088 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .04995 | | .05072 | mg/L | 102 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .04995 | .00395 | .0597 | mg/L | 112 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .04995 | .00395 | .06037 | mg/L | 113 | 70 | 130 | 1 | 20 | |

**Mercury, dissolved** M245.1 CVAA

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579635** | | | | | | | | | | | | | |
| WG579635ICV | ICV | 12/01/23 14:24 | HG231106-3 | .005 | | .00513 | mg/L | 103 | 95 | 105 | | | |
| WG579635ICB | ICB | 12/01/23 14:25 | | | | U | mg/L | | -0.0002 | 0.0002 | | | |
| **WG579636** | | | | | | | | | | | | | |
| WG579636LRB | LRB | 12/01/23 15:04 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG579636LFB | LFB | 12/01/23 15:05 | HG231106-6 | .002002 | | .00197 | mg/L | 98 | 85 | 115 | | | |
| L84667-01LFM | LFM | 12/01/23 15:17 | HG231106-6 | .002002 | U | .00191 | mg/L | 95 | 85 | 115 | | | |
| L84667-01LFMD | LFMD | 12/01/23 15:18 | HG231106-6 | .002002 | U | .00221 | mg/L | 110 | 85 | 115 | 15 | 20 | |
| L84677-01LFM | LFM | 12/01/23 15:30 | HG231106-6 | .002002 | U | .00194 | mg/L | 97 | 85 | 115 | | | |
| L84677-01LFMD | LFMD | 12/01/23 15:31 | HG231106-6 | .002002 | U | .00196 | mg/L | 98 | 85 | 115 | 1 | 20 | |

**Molybdenum, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .02 | | .01996 | mg/L | 100 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00044 | 0.00044 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .04943 | mg/L | 99 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | .00036 | .05723 | mg/L | 114 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | .00036 | .05907 | mg/L | 117 | 70 | 130 | 3 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

*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.*

**Nickel, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05068 | mg/L | 101 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00088 | 0.00088 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .0501 | | .04963 | mg/L | 99 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .0501 | .00041 | .04865 | mg/L | 96 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .0501 | .00041 | .04895 | mg/L | 97 | 70 | 130 | 1 | 20 | |

**Nitrate/Nitrite as N** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG578998** | | | | | | | | | | | | | |
| WG578998ICV | ICV | 11/17/23 23:50 | WI231003-5 | 2.416 | | 2.404 | mg/L | 100 | 90 | 110 | | | |
| WG578998ICB | ICB | 11/17/23 23:51 | | | | U | mg/L | | -0.02 | 0.02 | | | |
| WG578998LFB | LFB | 11/17/23 23:55 | WI230829-3 | 2 | | 2.045 | mg/L | 102 | 90 | 110 | | | |
| L84666-04AS | AS | 11/18/23 0:17 | WI230829-3 | 2 | U | 2.077 | mg/L | 104 | 90 | 110 | | | |
| L84667-01DUP | DUP | 11/18/23 0:46 | | | 6.08 | 6.122 | mg/L | | | | 1 | 20 | |

**Nitrite as N** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG578998** | | | | | | | | | | | | | |
| WG578998ICV | ICV | 11/17/23 23:50 | WI231003-5 | .608 | | .619 | mg/L | 102 | 90 | 110 | | | |
| WG578998ICB | ICB | 11/17/23 23:51 | | | | U | mg/L | | -0.01 | 0.01 | | | |
| WG578998LFB | LFB | 11/17/23 23:55 | WI230829-3 | 1 | | 1.032 | mg/L | 103 | 90 | 110 | | | |
| L84666-04AS | AS | 11/18/23 0:17 | WI230829-3 | 1 | U | 1.048 | mg/L | 105 | 90 | 110 | | | |
| L84667-01DUP | DUP | 11/18/23 0:20 | | | .01 | U | mg/L | | | | 200 | 20 | RA |

**pH (lab)** SM4500H+ B

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579875** | | | | | | | | | | | | | |
| WG579875LCSW1 | LCSW | 12/05/23 16:32 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW3 | LCSW | 12/05/23 18:12 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW5 | LCSW | 12/05/23 19:54 | PCN624449 | 6 | | 6.02 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW7 | LCSW | 12/05/23 21:34 | PCN624449 | 6 | | 5.99 | units | 100 | 5.9 | 6.1 | | | |
| L84667-06DUP | DUP | 12/05/23 22:47 | | | 5.7 | 5.5 | units | | | | 4 | 20 | |
| L84676-06DUP | DUP | 12/05/23 23:46 | | | 7.1 | 7.1 | units | | | | 0 | 20 | |
| WG579875LCSW9 | LCSW | 12/05/23 23:52 | PCN624449 | 6 | | 6.01 | units | 100 | 5.9 | 6.1 | | | |
| WG579875LCSW11 | LCSW | 12/06/23 1:53 | PCN624449 | 6 | | 6.01 | units | 100 | 5.9 | 6.1 | | | |
| **WG580983** | | | | | | | | | | | | | |
| WG580983LCSW1 | LCSW | 12/20/23 16:24 | PCN624449 | 6 | | 6.1 | units | 102 | 5.9 | 6.1 | | | |
| L84804-01DUP | DUP | 12/20/23 18:27 | | | 9.6 | 9.7 | units | | | | 1 | 20 | |

**Potassium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579407** | | | | | | | | | | | | | |
| WG579407ICV | ICV | 11/28/23 11:01 | II231107-1 | 20 | | 19.49 | mg/L | 97 | 95 | 105 | | | |
| WG579407ICB | ICB | 11/28/23 11:07 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG579407LFB | LFB | 11/28/23 11:20 | II231120-3 | 99.97581 | | 97.63 | mg/L | 98 | 85 | 115 | | | |
| L84663-03AS | AS | 11/28/23 12:18 | II231120-3 | 99.97581 | 2.61 | 101.6 | mg/L | 99 | 85 | 115 | | | |
| L84663-03ASD | ASD | 11/28/23 12:21 | II231120-3 | 99.97581 | 2.61 | 100.5 | mg/L | 98 | 85 | 115 | 1 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

*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.*

**Residue, Filterable (TDS) @180C** SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579233** | | | | | | | | | | | | | |
| WG579233PBW | PBW | 11/22/23 9:18 | | | | U | mg/L | | -20 | 20 | | | |
| WG579233LCSW | LCSW | 11/22/23 9:20 | PCN626025 | 1000 | | 970 | mg/L | 97 | 80 | 120 | | | |
| L84676-02DUP | DUP | 11/22/23 9:50 | | | 64 | 56 | mg/L | | | | 13 | 10 | N1 RA |

**Selenium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05046 | mg/L | 101 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | .00013 | mg/L | | -0.00022 | 0.00022 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .05199 | mg/L | 104 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | .00647 | .06496 | mg/L | 117 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | .00647 | .06692 | mg/L | 121 | 70 | 130 | 3 | 20 | |

**Silver, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .02 | | .02083 | mg/L | 104 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .01 | | .01016 | mg/L | 102 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .01 | U | .0091 | mg/L | 91 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .01 | U | .00973 | mg/L | 97 | 70 | 130 | 7 | 20 | |

**Sodium, dissolved** M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579455** | | | | | | | | | | | | | |
| WG579455ICV | ICV | 11/29/23 11:04 | II231128-1 | 100 | | 101.24 | mg/L | 101 | 95 | 105 | | | |
| WG579455ICB | ICB | 11/29/23 11:10 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG579455LFB | LFB | 11/29/23 11:22 | II231120-3 | 100.1305 | | 102.5 | mg/L | 102 | 85 | 115 | | | |
| L84599-01AS | AS | 11/29/23 11:31 | II231120-3 | 100.1305 | 42.6 | 146.1 | mg/L | 103 | 85 | 115 | | | |
| L84599-01ASD | ASD | 11/29/23 11:34 | II231120-3 | 100.1305 | 42.6 | 142.7 | mg/L | 100 | 85 | 115 | 2 | 20 | |
| L84680-05AS | AS | 11/29/23 12:41 | II231120-3 | 200.261 | 150 | 346.2 | mg/L | 98 | 85 | 115 | | | |
| L84680-05ASD | ASD | 11/29/23 12:44 | II231120-3 | 200.261 | 150 | 316.8 | mg/L | 83 | 85 | 115 | 9 | 20 | MA |
| **WG579986** | | | | | | | | | | | | | |
| WG579986ICV | ICV | 12/06/23 19:05 | II231128-3 | 100 | | 98.22 | mg/L | 98 | 95 | 105 | | | |
| WG579986ICB | ICB | 12/06/23 19:11 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG579986LFB | LFB | 12/06/23 19:24 | II231205-2 | 100.1305 | | 103.8 | mg/L | 104 | 85 | 115 | | | |
| L76852-58AS | AS | 12/06/23 19:33 | II231205-2 | 100.1305 | U | 107.7 | mg/L | 108 | 85 | 115 | | | |
| L76852-58ASD | ASD | 12/06/23 19:36 | II231205-2 | 100.1305 | U | 109.3 | mg/L | 109 | 85 | 115 | 1 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

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

**Sulfate** M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579181** | | | | | | | | | | | | | |
| WG579181ICV | ICV | 11/17/23 15:35 | WI231116-7 | 50 | | 50.46 | mg/L | 101 | 90 | 110 | | | |
| WG579181ICB | ICB | 11/17/23 15:53 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| **WG579335** | | | | | | | | | | | | | |
| WG579335LFB1 | LFB | 11/27/23 19:43 | WI230714-6 | 30 | | 31.12 | mg/L | 104 | 90 | 110 | | | |
| WG579335LFB2 | LFB | 11/28/23 4:23 | WI230714-6 | 30 | | 32.13 | mg/L | 107 | 90 | 110 | | | |
| L84617-05AS | AS | 11/28/23 4:58 | WI230714-6 | 600 | 1320 | 1885.04 | mg/L | 94 | 90 | 110 | | | |
| L84617-06DUP | DUP | 11/28/23 6:10 | | | 549 | 611.37 | mg/L | | | | 11 | 20 | |
| **WG579444** | | | | | | | | | | | | | |
| WG579444LFB1 | LFB | 11/28/23 16:51 | WI230714-6 | 30 | | 31.99 | mg/L | 107 | 90 | 110 | | | |
| L84617-02DUP | DUP | 11/29/23 0:19 | | | 62.2 | 61.98 | mg/L | | | | 0 | 20 | |
| L84617-03AS | AS | 11/29/23 0:55 | WI230714-6 | 1500 | 1420 | 2800.14 | mg/L | 92 | 90 | 110 | | | |
| WG579444LFB2 | LFB | 11/29/23 1:30 | WI230714-6 | 30 | | 30.6 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579613** | | | | | | | | | | | | | |
| WG579613ICV | ICV | 11/30/23 22:06 | MS231106-9 | .05 | | .048737 | mg/L | 97 | 90 | 110 | | | |
| WG579613ICB | ICB | 11/30/23 22:07 | | | | U | mg/L | | -0.00011 | 0.00011 | | | |
| WG579613LFB | LFB | 11/30/23 22:09 | MS231108-4 | .0501 | | .042929 | mg/L | 86 | 85 | 115 | | | |
| L84667-01AS | AS | 11/30/23 22:15 | MS231108-4 | .2505 | U | .242624 | mg/L | 97 | 70 | 130 | | | |
| L84667-01ASD | ASD | 11/30/23 22:16 | MS231108-4 | .2505 | U | .247847 | mg/L | 99 | 70 | 130 | 2 | 20 | |

**Uranium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .05037 | mg/L | 101 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.00022 | 0.00022 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05 | | .04975 | mg/L | 100 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05 | .00493 | .06715 | mg/L | 124 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05 | .00493 | .06755 | mg/L | 125 | 70 | 130 | 1 | 20 | |

**Vanadium, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .04966 | mg/L | 99 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.0011 | 0.0011 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .05005 | | .04976 | mg/L | 99 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .05005 | .00052 | .05318 | mg/L | 105 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .05005 | .00052 | .05441 | mg/L | 108 | 70 | 130 | 2 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

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

**Zinc, dissolved** M200.8 ICP-MS

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec% | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG580678** | | | | | | | | | | | | | |
| WG580678ICV | ICV | 12/16/23 11:53 | MS231205-4 | .05 | | .0483 | mg/L | 97 | 90 | 110 | | | |
| WG580678ICB | ICB | 12/16/23 11:55 | | | | U | mg/L | | -0.0132 | 0.0132 | | | |
| WG580678LFB | LFB | 12/16/23 11:58 | MS231108-4 | .050015 | | .0513 | mg/L | 103 | 85 | 115 | | | |
| L84663-01AS | AS | 12/16/23 12:34 | MS231108-4 | .050015 | U | .0584 | mg/L | 117 | 70 | 130 | | | |
| L84663-01ASD | ASD | 12/16/23 12:37 | MS231108-4 | .050015 | U | .0592 | mg/L | 118 | 70 | 130 | 1 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-01** | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | 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). |
| | WG578998 | Nitrite as N | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |
| **L84667-02** | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | 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). |
| | WG579519 | Cyanide, Free | D6888-09/OIA-1677-09 | Q3 | Sample received with improper or inadequate chemical preservation. |
| | WG578998 | Nitrite as N | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG580678 | Selenium, dissolved | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579335 | Sulfate | M300.0 - Ion Chromatography | DC | Sample required dilution. Non-target analyte exceeded calibration range. |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-03** | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | 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). |
| | WG578998 | Nitrite as N | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG580678 | Selenium, dissolved | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579455 | Sodium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | Sulfate | M300.0 - Ion Chromatography | DC | Sample required dilution. Non-target analyte exceeded calibration range. |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |
| **L84667-04** | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | 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). |
| | WG578998 | Nitrite as N | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG580678 | Selenium, dissolved | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579455 | Sodium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | Sulfate | M300.0 - Ion Chromatography | DC | Sample required dilution. Non-target analyte exceeded calibration range. |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-05** | WG580678 | Arsenic, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG581527 | Chloride | M300.0 - Ion Chromatography | B7 | Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank. |
| | | | M300.0 - Ion Chromatography | C5 | Confirmatory analysis was past holding time. Original result not confirmed. |
| | WG580678 | Chromium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Copper, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Nickel, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG578998 | Nitrite as N | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG580678 | Selenium, dissolved | M200.8 ICP-MS | DB | Sample required dilution due to low bias result. |
| | | | M200.8 ICP-MS | EA | Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences. |
| | WG579455 | Sodium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | Sulfate | M300.0 - Ion Chromatography | DC | Sample required dilution. Non-target analyte exceeded calibration range. |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |
| | WG580678 | Vanadium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-06** | WG580678 | Arsenic, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579335 | 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). |
| | WG580678 | Chromium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Copper, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG579939 | Fluoride | SM4500F-C | LA | Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL]. |
| | | | SM4500F-C | VC | CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL]. |
| | WG580678 | Nickel, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG578998 | Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | Nitrite as N | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | 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). |
| | WG580983 | pH | SM4500H+ B | N1 | See Case Narrative. |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | | | SM2540C | Z3 | Sample volume yielded a residue less than 2.5 mg |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | | | SM2320B - Titration | 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). |
| | WG580678 | Vanadium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-07** | WG580678 | Arsenic, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG579407 | Calcium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579444 | 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). |
| | WG580678 | Chromium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Copper, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Lead, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Nickel, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | WG578998 | Nitrate/Nitrite as N | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | Nitrite as N | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | 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). |
| | WG579233 | Residue, Filterable (TDS) @180C | SM2540C | N1 | See Case Narrative. |
| | | | SM2540C | 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). |
| | WG579455 | Sodium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG579875 | Total Alkalinity | SM2320B - Titration | HC | Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis. |
| | WG580678 | Uranium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |
| | | Vanadium, dissolved | M200.8 ICP-MS | E6 | Concentration estimated. Internal standard recoveries did not meet method acceptance criteria. |
| | | | M200.8 ICP-MS | N1 | See Case Narrative. |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-01***
Date Sampled: *11/16/23 15:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:18 | | 52 | 30 | 140 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:18 | | 30 | 22 | 97 | pCi/L | * | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-02***
Date Sampled: *11/16/23 14:20*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:20 | | 2.6 | 13 | 82 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:20 | | 15 | 19 | 53 | pCi/L | * | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-03***
Date Sampled: *11/16/23 12:10*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:21 | | 82 | 57 | 190 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:21 | | 50 | 54 | 170 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-04***
Date Sampled: *11/16/23 13:40*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:23 | | 15 | 24 | 360 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:23 | | -1.9 | 51 | 360 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

**Golder Associates**
Project ID:
Sample ID: MW-8
Locator:

ACZ Sample ID: ***L84667-05***
Date Sampled: *11/16/23 11:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:25 | | 51 | 50 | 320 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:25 | | 77 | 59 | 170 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-06***
Date Sampled: *11/16/23 0:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:27 | | 0.19 | 0.78 | 4.7 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:27 | | 2.2 | 2.5 | 5.8 | pCi/L | | ajp |

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# RadioChemistry Analytical Results

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

ACZ Sample ID: ***L84667-07***
Date Sampled: *11/16/23 0:00*
Date Received: *11/17/23*
Sample Matrix: *Groundwater*

Gross Alpha & Beta, dissolved
M900.0

Prep Method:

| Parameter | Measure Date | Prep Date | Result | Error(+/-) | LLD | Units | XQ | Analyst |
|---|---|---|---|---|---|---|---|---|
| Gross Alpha | 12/01/23 0:28 | | 26 | 24 | 82 | pCi/L | * | ajp |
| Gross Beta | 12/01/23 0:28 | | 39 | 27 | 87 | pCi/L | | ajp |

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

**Golder Associates**

ACZ Project ID: ***L84667***

*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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579110** | | | | | | | | | | | | | | | | |
| WG579110PBW | PBW | 12/01/23 | | | | | | .07 | 0.43 | 0.75 | | | 1.5 | | | |
| WG579110LCSWA | LCSW | 12/01/23 | PCN625402 | 75.19 | | | | 82 | 6.8 | 0.86 | 109 | 67 | 144 | | | |
| L84596-01DUP | DUP-RPD | 12/01/23 | | | 34 | 15 | 55 | 23 | 12 | 35 | | | | 39 | 20 | RG |
| L84596-01DUP | DUP-RER | 12/01/23 | | | 34 | 15 | 55 | 23 | 12 | 35 | | | | 0.57 | 2 | |
| L84620-01MSA | MS | 12/01/23 | PCN625402 | 100 | 3.7 | 3.1 | 12 | 75 | 12 | 10 | 71 | 67 | 144 | | | |
| L84675-03DUP | DUP-RPD | 12/01/23 | | | 12 | 12 | 52 | 38 | 18 | 120 | | | | 104 | 20 | RG |
| L84675-03DUP | DUP-RER | 12/01/23 | | | 12 | 12 | 52 | 38 | 18 | 120 | | | | 1.2 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG579110** | | | | | | | | | | | | | | | | |
| WG579110PBW | PBW | 12/01/23 | | | | | | -.43 | 2.1 | 2.3 | | | 4.6 | | | |
| WG579110LCSWB | LCSW | 12/01/23 | RC230912-10 | 75.19 | | | | 74 | 5 | 1.9 | 98 | 82 | 122 | | | |
| L84596-01DUP | DUP-RPD | 12/01/23 | | | 17 | 9.2 | 39 | 25 | 9.6 | 23 | | | | 38 | 20 | RG |
| L84596-01DUP | DUP-RER | 12/01/23 | | | 17 | 9.2 | 39 | 25 | 9.6 | 23 | | | | 0.6 | 2 | |
| L84667-04MSB | MS | 12/01/23 | RC230912-10 | 1666.67 | -1.9 | 51 | 360 | 1400 | 110 | 380 | 84 | 82 | 122 | | | |
| L84675-03DUP | DUP-RPD | 12/01/23 | | | 15 | 13 | 34 | 16 | 14 | 91 | | | | 6 | 20 | |

**Golder Associates**

ACZ Project ID: ***L84667***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L84667-01** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| | | Gross Beta | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-02** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| | | Gross Beta | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-03** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-04** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-05** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-06** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |
| **L84667-07** | WG579110 | Gross Alpha | M900.0 | RG | Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control. |

# Certification Qualifiers

**Golder Associates**

ACZ Project ID: ***L84667***

No certification qualifiers associated with this analysis

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

# Sample Receipt

Golder Associates

ACZ Project ID: L84667
Date Received: 11/17/2023 12:52
Received By:
Date Printed: 11/20/2023

## 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? |
|---|---|---|---|---|
| 7313 | 1.2 | <=6.0 | 15 | N/A |

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.

# Sample Receipt

Golder Associates

| | |
|---|---|
| ACZ Project ID: | L84667 |
| Date Received: | 11/17/2023 12:52 |
| Received By: | |
| Date Printed: | 11/20/2023 |

[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 | Accredited Environmental Testing | 2773 Downhill Drive, Steamboat Springs, CO 80487, (970) 879-6590 | L84667

# CHAIN of CUSTODY

**Report to:**

Name: Jennifer Thompson
Company: WSP
E-mail: Jennifer.Thompson2@WSP.COM
Address: 7245 W Alaska Dr, Suite 200, Lakewood CO 80226
Telephone: 832-571-5982

**Copy of Report to:**

Name: Sara Harkins
Company: WSP
E-mail: Sara.Harkins@WSP.COM
Telephone: 847-877-9734

**Invoice to:**

Name: Jennifer Thompson
Company: WSP
E-mail: Jennifer.Thompson2@WSP.COM
Address: 7245 W Alaska Dr, Suite 200, Lakewood CO 80226
Telephone: 832-571-5982

**Copy of Invoice to:**

Name: Sara Harkins
Company: WSP
E-mail: Sara.Harkins@WSP.COM
Address: 7245 W Alask Dr, Suite 200, Lakewood, CO 80226
Telephone: 847-877-9734

L84667 Chain of Custod

sample(s) received past holding time (HT), or if insufficient HT remains to complete
alysis before expiration, shall ACZ proceed with requested short HT analyses? YES ✓ NO
IO" 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

e samples for SDWA Compliance Monitoring? Yes No
es, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Jennifer Thompson Sampler's Site Information State CO Zip code 80535 Time Zone MT

*Sampler's Signature: Jenn

*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 #: HOLCIM-TAB1
PO#:
Reporting state for compliance testing:
Check box if samples include NRC licensed material?

ANALYSES REQUESTED (attach list or use quote number)

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers |
|---|---|---|---|
| MW-1 | 11/16/23: 3:20pm | GW | 5 |
| MW-3 | 11/16/23: 2:20pm | GW | 5 |
| MW-6 | 11/16/23: 12:16pm | GW | 5 |
| [redacted] | 11/16/23: 1:[redacted]m | GW | 5 |
| [redacted] | 11/16/23: 11:00am | GW | 5 |
| MW-15 | 11/16/23 | | |
| MW-20 | 11/16/23 | | |
| Entered per | | | |
| containers, ana 11/17/23 | | | |
| | | | |

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 |
|---|---|---|---|
| Jennifer Thompson | | | 11/17/23 1252 |
| | | | |

**ATTACHMENT 2**

# Field Sheets

# INSTRUMENT CALIBRATION FORM

**Project Name:** Holcim 2023 Boettcher Quarry **Project Number:** 31404755.001

Calibration By: Brenna Barone

**Instrument Details**

Instrument Name: YSI Pro 1030

Serial No.: Pro 1030, 16E100971

Model No.: 5595

**Calibration Details**

Calibration Standard: pH 4, pH 7, pH 10 Buffers, 3 point calibration
Specific conductivity std 1413 µs/cm

Calibration Standard(s) Expiration Date: September 2025 x3 pH buffers, October 2024 spec cond

**Calibration:**

| Date | Time | Calibration Standard | Temp (°C) | Instrument Reading | Notes |
|---|---|---|---|---|---|
| 11-8-23 | 9:30 pm | pH 7 | 66°F | 7.00 | Calibrated @ home ~ |
| 11-8-23 | 9:35 pm | pH 10 | 66°F | 10.01 | |
| 11-8-23 | 9:40 pm | pH 4 | 66°F | 4.00 | |
| 11/9/23 | 8:36 am | SC 1413 µs/cm | 16.3°C | 1413 | |
| 11/9/23 | 7:07 pm | pH 7 check | 17.2°C | 7.03 | |
| 11/9/23 | 7:08 pm | pH 7 | 17.8°C | 7.03 | |
| 11/9/23 | 7:10 pm | pH 10 | 16.5°C | 10.10 | |
| 11/9/23 | 7:12 pm | pH 4 | 17.1°C | 4.00 | |
| 11/9/23 | 7:17 pm | SC | 17.4°C | 1415 | |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-2

Monitored By: JL + BB Date 11/9/23 Time 8:36 am

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 112 | feet |
| Depth of Water (from top of PVC or ground) | 74.96 | feet |
| Casing Diameter | 2 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/9/2023 Time 8:45 am

Stop Purging Date 11/9/2023 Time 9:54 am

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°C) | pH | Spec.Cond. (µS/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11-9-23 | 9:06 | 5 | 13.4 | 7.77 | 10414 | — | | "Bubbly", Smells of Sulfur, Slightly Yellow |
| 11/9/23 | 9:39 | 10 | 13.4 | 7.65 | 10589 | — | | |
| 11/9/23 | 9:54 | 12.3 | 13.2 | 7.73 | 11029 | — | | |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-3

Monitored By: BB • JL Date 11-9-23 Time 10:30 am

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 107.2 | feet |
| Depth of Water (from top of PVC or ground) | 39.4 | feet |
| Casing Diameter | 2 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/09/23 Time 10:40 am

Stop Purging Date 11/09/23 Time 11:10 am

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°C) | pH | Spec.Cond. (µS/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11-9-23 | 10:45 | 5 | 15.7 | 7.74 | 6211 | | | clear, no bubbles, ~~not~~ |
| | 10:50 | 10 | 15.9 | 7.70 | 6182 | | | |
| | 10:56 | 15 | 15.8 | 7.73 | 6447 | | | some particulates |
| | 11:06 | 19 | 15.7 | 7.89 | 6607 | | | cloudy, no particulates |
| | | | | | | | | |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-4

Monitored By: BB + JL Date 11-9-23 Time 11:39

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 141.9 | feet |
| Depth of Water (from top of PVC or ground) | 71.2 | feet |
| Casing Diameter | 2 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

Data Logger
Removed 11:43 am
Installed 3:45 pm

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/09/23 Time 12:45 pm

Stop Purging Date 11/9/23 Time 3:40 pm

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°C) | pH | Spec.Cond. (µS/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11/9/23 | 1:10 | 5 | 12.4 | 7.61 | 18542 | | | clear |
| 11/9/23 | 1:29 | 10 | 12.4 | 7.63 | 18917 | | | |
| 11/9/23 | 1:56 | 15 | 12.6 | 7.58 | 18510 | | | |
| 11/9/23 | 2:16 | 20 | 12.6 | 7.43 | 18700 | | | |
| 11/9/23 | 2:47 | 25 | 12.7 | 7.63 | 18578 | | | |
| 11/9/23 | 3:07 | 30 | 12.4 | 7.77 | 18798 | | | Turbid Brown color |
| 11/9/23 | 340 | 34.5 | 12.3 | 7.85 | 18619 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | — | | | | | | |
| | | Bailed to | | consistent | | ½ | full | bailers |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-6

Monitored By: BB + JL Date 11/10/23 Time 2:30

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 229.7 | feet |
| Depth of Water (from top of PVC or ground) | ~203 | feet |
| Casing Diameter | 4 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

Data logger Removed 2:53 pm

Installed 4:25 pm

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/10/23 Time 3:00

Stop Purging Date 11/10/23 Time 4:15

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°C) | pH | Spec.Cond. (µS/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11-10-23 | 3:22 | 5 | 13.2 | 7.63 | 17872 | — | | Black |
| 11-10-23 | 3:33 | 10 | 13.1 | 7.62 | 18349 | — | | |
| 11-10-23 | 3:44 | 15 | 13.2 | 7.56 | 18501 | — | | |
| 11-10-23 | 3:56 | 20 | 13.2 | 7.54 | 18864 | — | | |
| 11/10/23 | 4:15 | 25 | 12.8 | 7.59 | 19539 | — | | |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-7

Monitored By: JL + BB Date 11/10/23 Time 11:00am

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 259.2 | feet |
| Depth of Water (from top of PVC or ground) | ~230 | feet |
| Casing Diameter | 4 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

Data Logger:
Removed 11:15am
Installed ~3:00pm

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/10/23 Time 11:40am

Stop Purging Date 11/10/23 Time 2:50 pm

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°c) | pH | Spec.Cond. (__S/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11-10-23 | 12:04 | 5 | 13.4 | 7.22 | 15926 | — | | Clear |
| 11-10-23 | 12:20 | 10 | 13.6 | 7.24 | 16824 | — | | Darkish brown |
| 11-10-23 | 12:36 | 15 | 13.5 | 7.03 | 17373 | — | | Dark brown, more turbid |
| 11-10-23 | 1:04 | 20 | 13.8 | 7.33 | 19240 | — | | Sediment in bailer, almost black water |
| 11-10-23 | 1:24 | 25 | 13.6 | 7.39 | 19526 | — | | |
| 11-10-23 | 2:20 | 30 | 13.8 | 7.49 | 19982 | — | | |
| 11-10-23 | 2:37 | 32 | 13.4 | 7.5 | 20401 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | Stopped after 3 empty bailers | | | | | |
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# WELL DEVELOPMENT/PURGING FORM

**Project Ref:** Holcim 2023 Boettcher Quarry **Project No.: 31404755.001**

**Location** MW-8

Monitored By: DB + JL Date 11/10/23 Time 6:45 am

## Well Piezometer Data

*(circle one)*

| | | |
|---|---|---|
| Depth of Well (from top of PVC or ground) | 229 | feet |
| Depth of Water (from top of PVC or ground) | 143.2 | feet |
| Casing Diameter | 4 | inches |
| | | feet |
| Casing Volume | | cubic feet |
| | | gallons |

logger Removed on 45 am

Installed ~10:45am

## Development / Purging Discharge Data

Purging Method: disposable, dedicated bailer

Start Purging Date 11/10/23 Time 7:20 am

Stop Purging Date 11/10/23 Time 10:25 am

Monitoring

| Date | Time | Volume Discharge (gals) | Temp (°C) | pH | Spec.Cond. (__S/cm) | Turbidity (NTU) | | Appearance of Water and Comments |
|---|---|---|---|---|---|---|---|---|
| 11-10-23 | 07:33 am | 5 | 11.6 | 7.75 | 21181 | — | | Sediment Sample |
| 11-10-23 | 07:46 am | 10 | 12.8 | 7.76 | 21109 | | | |
| 11-10-23 | 07:56 am | 15 | 13 | 7.74 | 20807 | — | | |
| 11-10-23 | 8:09 | 20 | 13.2 | 7.74 | 21336 | — | | |
| 11-10-23 | 8:22 | 25 | 13.3 | 7.75 | 21154 | — | | |
| 11-10-23 | 8:39 am | 30 | 13.4 | 7.75 | 21176 | — | | |
| 11-10-23 | 08:51 am | 35 | 13.6 | 7.74 | 20850 | — | | |
| 11-10-23 | 9:02 | 40 | 13.5 | 7.75 | 21193 | — | | |
| 11-10-23 | 9:14 | 45 | 13.5 | 7.71 | 20795 | — | | |
| 11-10-23 | 9:29 | 50 | 13.5 | 7.57 | 21101 | — | | |
| 11-10-23 | 09:42 | 55 | 13.6 | 7.57 | 21075 | — | | Cloudy |
| 11-10-23 | 9:53 | 60 | 13.7 | 7.47 | 21421 | — | | Cloudy + greyish/brownish |
| 11-10-24 | 10:14 | 63 | 13.5 | 7.49 | 21880 | — | | opaque grey |
| 11-10-24 | 10:25 | 63.5 | — | — | — | — | | |
| | | | | | | | | |
| | | | | | (¼ full) | | | |
| | | Stopped after 5 | | | partially full | | buckets | |
| | | | | | | | | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson • Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16/23 |
| Monitoring Well I.D.:<br>**MW-1** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 44.49 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 65.59 ft btoc | 9. Dedicated? (Yes or No) | yes |
| 3. Casing Diameter (in.) | 2 | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | 35 | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | 10.3 | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

0.163 gal / foot

## Purge Parameters:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| | 2:53 | 2.5 | 14.0 | 7:47 | 7201 | — | — |
| | 2:59 | 5.0 | 13.9 | 7.39 | 7375 | — | — |
| | 3:04 | 7.5 | 13.9 | 7.41 | 7329 | — | — |
| | 3:12 | 10.5 | 13.9 | 7.52 | 7551 | — | — |

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (__S/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/16/23 | 3:15 | 10.5 | 13.9 | 7.52 | 7551 | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☐ | low ☐ | medium ☐ | high ☐ | | |
| **Color** | | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson + Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16/23 |
| Monitoring Well I.D.:<br>**MW-2** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 107.18 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 112 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | 2 | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

## Purge Parameters:

Purged previous week

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (__S/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/18 | 8:17 AM | 1 | 12.9 | 7.74 | 10621 | Low | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse | |
| **3. Sample Appearance:** | clear ☒ | low ☐ | medium ☐ | high ☐ | | | |
| **Color** | slightly gray | | | | **Instrument Calibrations** | pH, conductivity | |
| **4. Odor** | strong | | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson + Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16 |
| Monitoring Well I.D.:<br>**MW-3** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 79.08 | 8. Purge Equipment Used | HDPE tubing with hydrolift |
| 2. Bottom of Casing[1] (±0.01ft.) | 107.2 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | 2 | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

## Purge Parameters:

Previously Purged.

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (__S/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/16 | 2:20 | 1 gal | 16.7 | 8.12 | 6902 | Low | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | HDPE tubing | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☑ | low ☐ | medium ☐ | high ☐ | | |
| **Color** | None | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | None | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson |
| Project Number:<br>**31404755.001** | Date:<br>11/17/23 |
| Monitoring Well I.D.:<br>**MW-4** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 149.23 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 182 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | 2 | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

## Purge Parameters:

Purged Previous week

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

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/17/23 | 9:22 AM | 1 | 11.6 | 7.81 | 18528 | low | — |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse | |
| **3. Sample Appearance:** | clear ☒ | low ☐ | medium ☐ | high ☐ | | | |
| **Color** | Slightly yellow | | | | **Instrument Calibrations** | pH, conductivity | |
| **4. Odor** | Mild | | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson |
| Project Number:<br>**31404755.001** | Date:<br>11/17/23 |
| Monitoring Well I.D.:<br>**MW-5** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 50.46 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 60.3 ft btoc | 9. Dedicated? (Yes or No) | Yes |
| 3. Casing Diameter (in.) | 2 | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | 1.6 | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | 4.8 | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

## Purge Parameters:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/17/23 | 10:46 | 1 | 13.0 | 6.93 | 2265 | | |
| | | 1 | 13.0 | 6.94 | 2616 | | |
| | | 1 | 12.9 | 6.94 | 2930 | | |
| | | 1 | 13.0 | 6.94 | 3057 | | |
| | | 1 | 12.9 | 6.96 | 3308 | | |

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/17 | 10:40 | 1 | 13.6 | 6.96 | 3582 | None | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☒ | low ☐ | medium ☐ | high ☐ | | |
| **Color** | Yellow | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | None | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson + Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16/23 |
| Monitoring Well I.D.:<br>**MW-6** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 228.4 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 229.7 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

Logger removed: 11:36am

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

## Purge Parameters:

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

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (µS/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/16/23 | 12:05 | 1 | 15.7 | 7.42 | 18024 | — | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☐ | low ☐ | medium ☑ | high ☐ | | |
| **Color** | Gray | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | Gasoline | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson + Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16/23 |
| Monitoring Well I.D.:<br>**MW-7** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 259.34 | 8. Purge Equipment Used | Bailer |
| 2. Bottom of Casing[1] (±0.01ft.) | 259.2 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

Logger removed: 12:40pm

Logger installed:

## Purge Parameters:

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

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity (u S/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| | 1:38 pm | 0.75 | 15.8 | 7.28 | 18898 | ~ | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☐ | low ☐ | medium ☐ | high ☐ | | |
| **Color** | | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# GROUNDWATER SAMPLING DATA SHEET

| | |
|---|---|
| Project Name:<br>**Holcim 2023 Boettcher Quarry Groundwater Monitoring** | Sampler Name(s):<br>Jennifer Thompson + Jack Lindauer |
| Project Number:<br>**31404755.001** | Date:<br>11/16/23 |
| Monitoring Well I.D.:<br>**MW-8** | Weather Conditions:<br>~ °F |
| Wellhead Inspection (note conditions): | |

## Groundwater Measurements and Purge Data:

| | | | |
|---|---|---|---|
| 1. Static Water Level[1] (±0.01ft.) | 225.94 | 8. Purge Equipment Used | |
| 2. Bottom of Casing[1] (±0.01ft.) | ~229 ft btoc | 9. Dedicated? (Yes or No) | |
| 3. Casing Diameter (in.) | | 10. Purge Rate (if pump used) | N/A |
| 4. Casing Volume (gallons) | | 11. Time to Purge Well (min) | |
| 5. 3 x Casing Volume (gallons) | | 12. Immiscible Layer Observed (yes or no) | |
| 6. Actual Volume of Water Purged | | 13. Thickness if Immiscible layer (if present) | |
| 7. Water Level Measuring Equip. | 300' electronic | | |

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

Logger removed: 10:30 am
Logger installed: 11:20 am

## Purge Parameters:

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

Well Evacuated to Dryness? (Yes or No) _____ Time to recharge? _____

## Groundwater Sample Information:

| Date | Time | Volume Purged (gallons) | Temp (°C) | pH | Specific Conductivity ( S/cm) | Relative Turbidity | Other |
|---|---|---|---|---|---|---|---|
| 11/16/23 | 10:50 | 1 | 14.0 | 7.67 | 20907 | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1. Sampling Equipment Used** | Bailer | | | | **Other Information:** | |
| **2. Pump Rate** | N/A | | | | **Decontamination Procedures** | Alconox, DI rinse |
| **3. Sample Appearance:** | clear ☐ | low ☐ | medium ☐ | high ☑ | | |
| **Color** | Gray | | | | **Instrument Calibrations** | pH, conductivity |
| **4. Odor** | Sulfur | | | | | |
| **5. Method of Sample Preservation** | $HNO_3$, NaOH | | | | **Unusual Occurrences** | |

# RECORD OF WATER LEVEL READINGS

**Project Name: Holcim 2023 Boettcher Quarry** **Location:** Laporte, CO **Project No. 31404755.001**

| Borehole No. | Date | Time | Measuring Device / Serial No. | Measurement Point (M.P) | Water Level Below M.P. | Correction To Survey Mark | Survey Mark Elevation | Water Level Elevation | By | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 11/16 | 2:40 | WLM - 300' | TPVC | 44.49 | -- | -- | -- | | |
| MW-2 | 11/16 | 9:09 | WLM - 300' | TPVC | 107.18 | -- | -- | -- | | |
| MW-3 | 11/16 | 2:04 | WLM - 300' | TPVC | 92.08 | -- | -- | -- | | |
| MW-4 | 11/17 | 8:55 a.m | WLM - 300' | TPVC | 149.23 | -- | -- | -- | | |
| MW-5 | 11/17 | 9:57 | WLM - 300' | TPVC | 50.46 | -- | -- | -- | | |
| MW-6 | 11/16 | 11:40 | WLM - 300' | TPVC | 228.4 | -- | -- | -- | | |
| MW-7 | 11/16 | 12:55 | WLM - 300' | TPVC | 259.34 | -- | -- | -- | | |
| MW-8 | 11/16 | 10:40 | WLM - 300' | TPVC | 225.94 | -- | -- | -- | | |

# RECORD OF WATER LEVEL READINGS

**Project Name: Holcim 2023 Boettcher Quarry** **Location:** Laporte, CO **Project No. 31404755.001**

| Borehole No. | Date | Time | Measuring Device / Serial No. | Measurement Point (M.P) | Water Level Below M.P. | Correction To Survey Mark | Survey Mark Elevation | Water Level Elevation | By | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 11-9-23 | 10:13 | WLM - 300' | TPVC | 44.51 | -- | -- | -- | BB | |
| MW-2 | ~~8:36~~ | 8:36am | WLM - 300' | TPVC | 74.96 | -- | -- | -- | JL | |
| MW-3 | 11-9-23 | 10:27am | WLM - 300' | TPVC | 39.4 | -- | -- | -- | DM | |
| MW-4 | 11-9-23 | 11:50am | WLM - 300' | TPVC | 71.2 | -- | -- | -- | DM | |
| MW-5 | 11-9-23 | 4:05pm | WLM - 300' | TPVC | 50.4 | -- | -- | -- | JL | |
| MW-6 | 11-10-23 | 2:55 | WLM - 300' | TPVC | ~230 | -- | -- | -- | BB | |
| MW-7 | 11-10-23 | 11:42 | WLM - 300' | TPVC | ~230. | -- | -- | -- | BB | |
| MW-8 | 11-10-23 | 08:50am | WLM - 300' | TPVC | 143.2 | -- | -- | -- | BB | |

Sheet ___ of ___