LMS/GJO/47036

2024 Annual Inspection and Monitoring Report for the Grand Junction, Colorado, Site

July 2024

U.S. DEPARTMENT OF ENERGY | Legacy Management

This document has been designed for online viewing.

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Abbreviations

CASI	Condition Assessment Survey Inspection
DOE	U.S. Department of Energy
IC	institutional control
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M Plan	Long-Term Surveillance and Maintenance Plan
PL	photograph location
RTC	Riverview Technology Corporation

Executive Summary

Physical and institutional controls enacted at the Grand Junction, Colorado, Site continue to be effective in preventing exposure to contamination remaining on the property. The concrete pad that retains the plaque over the decommissioned well continues to be monitored for potential repair; however, no follow-up inspection is required. There were no new observations or maintenance needs identified during the 2024 inspection.

Annual groundwater and surface water sampling was conducted in 2024 as required in the *Long-Term Surveillance and Maintenance Plan for the Grand Junction, Colorado, Site*. Sampling results are summarized in this report and displayed in Appendixes A through D.

1.0 Introduction

The *Long-Term Surveillance and Maintenance Plan for the Grand Junction, Colorado, Site* (DOE 2021), also called the Long-Term Surveillance and Maintenance Plan (LTS&M Plan), requires a report to document the results of the annual site inspection and to address monitoring results from annual groundwater and surface water monitoring. This report documents the results of the annual inspection conducted on February 13, 2024, and presents the results of the annual groundwater and surface water sampling event conducted on February 21–22, 2024.

2.0 Site History

The Grand Junction, Colorado, Site was contaminated during uranium milling and uranium oxide procurement activities conducted by the federal government between 1943 and 1974. The U.S. Department of Energy (DOE) remediated the property between 1986 and 2014. Removal of uranium mill tailings and contaminated soil began in late 1989, and most of the contaminated soil was removed by 1994. Additional small deposits of contaminated soil and material were removed during remedial action conducted from 1998 through 2014. Remediation involved decontaminating or demolishing contaminated buildings and removing contaminated soil. Contaminated materials were disposed of at the Uranium Mill Tailings Radiation Control Act Title I Grand Junction, Colorado, Disposal Site south of Grand Junction.

In 2001, DOE transferred approximately 8 acres of the site, including Building 7, to the U.S. Department of the Army (occupied by an engineering unit of the U.S. Army Reserve). The remainder of the facility was transferred to the nonprofit Riverview Technology Corporation (RTC) in 2001 following approval of the covenant for deferred remediation. RTC leases several buildings to DOE so the agency can conduct ongoing operations. In 2018, the U.S. Army Reserve transferred ownership of Building 7 back to the DOE Office of Legacy Management (LM) via the U.S. General Services Administration.

LM remains responsible for ensuring that contamination left on its former property is controlled to prevent exposure to the public and the environment. Two types of contamination remain:

- In groundwater and surface water within the site perimeter.
- As radium foil sealed below ground in a decommissioned calibration well.

The site transfer agreement between DOE and RTC stipulated that contamination beneath Building 12A (the former computer and storage facility) and Building 20 (the former analytical chemistry laboratory) would be remediated when DOE vacated and demolished those buildings. DOE concluded operations in the laboratory in December 2003, and demolition of the building and remediation of underlying contaminated materials occurred in 2006. Demolition of Building 12A and associated remediation of the concrete slab and soil beneath the building were completed in 2014. These areas of the site are no longer part of the annual inspection requirements. Groundwater and surface water are being remediated by natural flushing of the alluvial aquifer. LM will provide stewardship oversight of the decommissioned calibration well in perpetuity.

3.0 Site Inspection

3.1 Inspection Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the site-specific LTS&M Plan (DOE 2021).

3.2 Institutional Controls

Institutional controls (ICs) at the site consist of warning signs around the surface water locations (North Pond, South Pond, and wetlands) to prevent use, an information and warning plaque over the decommissioned well that contains radium foil, locks on groundwater monitoring wells, and deed restrictions that prohibit unauthorized excavations that could expose contaminated groundwater under the facility. Verification of these ICs is part of the annual inspection, and the results are included in this report.

3.3 Inspection Results

This report presents the results of the annual LM inspection of the Grand Junction site. H. Petrie of the Legacy Management Support (LMS) contractor conducted the inspection. S. Woods of LM, A. Lawrence of the Colorado Department of Public Health and Environment, and S. Campbell, L. Tegelman, L. Friesen, and M. Guziak of the LMS contractor attended the inspection.

The purposes of the annual inspection are to confirm the integrity of visible features at the site, identify changes in conditions that might affect site protectiveness, and determine the need, if any, for maintenance, additional inspections, or monitoring. Additionally, a Condition Assessment Survey Inspection (CASI) of Facilities Information Management System assets occurs every 5 years. A portion of the CASI occurred in fiscal year 2021; the next CASI will occur in fiscal year 2026.

The annual inspection addresses only those portions of the site with remaining contaminated media that must be monitored and maintained to ensure continued protection of human health and the environment. Features discussed in this report are shown in Figure 1. Photographs to support specific observations are identified in the text and in Figure 1 by photograph location (PL) numbers.

3.3.1 Site Surveillance Features

Figure 1 shows the locations of site surveillance features. Inspection results and assessment of potential maintenance activities associated with site surveillance features are included in the following subsections.

3.3.1.1 Monument

A National Geodetic Survey monument near the former north gate establishes elevation control for the site (PL-1). No maintenance needs were identified.

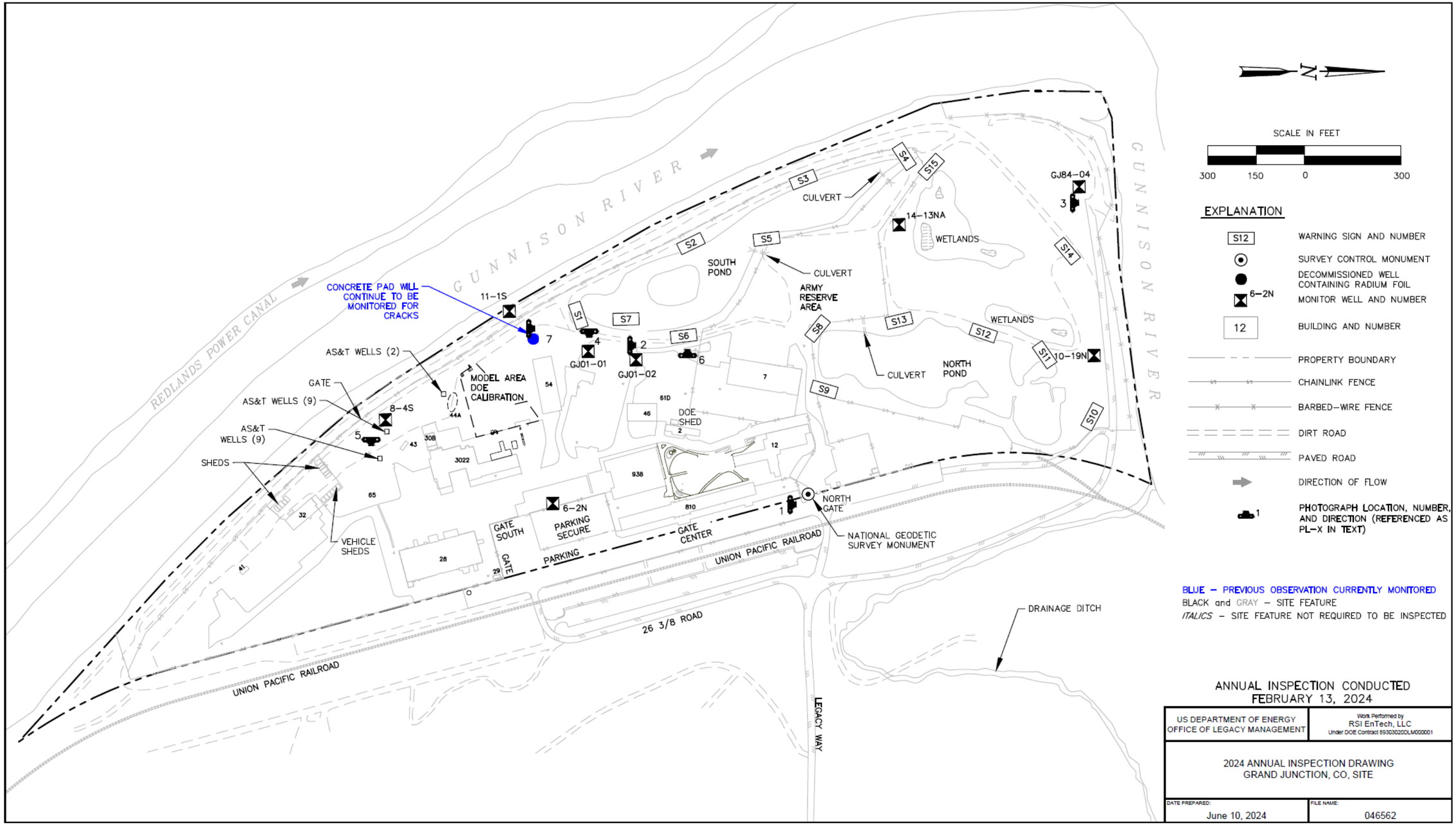


Figure 1. 2024 Annual Inspection Drawing for the Grand Junction, Colorado, Site

3.3.1.2 Monitoring Wells

DOE owns eight monitoring wells on the property that have been used in the long-term monitoring program; seven of these wells are currently used to monitor the progress of natural flushing of contaminants from the alluvial aquifer. Wells 10-19N, 11-1S, 14-13NA, GJ01-02 (PL-2, not currently monitored), and GJ84-04 (PL-3) are flush mounted and protected with standard metal monitoring well covers or manhole covers; well GJ84-04 is also protected by steel bollards. Wells 6-2N, 8-4S, and GJ01-01 (PL-4) have aboveground steel protective casing; steel bollards are in place as further protection for wells 6-2N and 8-4S. Twenty additional monitoring wells (PL-5) installed as part of a tracer project in association with the Applied Studies and Technology group were inspected. No maintenance needs were identified.

All wells requiring locks have been replaced with new security locks with controlled keys.

3.3.1.3 Warning Signs

Fifteen warning signs installed on steel posts are positioned around the surface water areas to ensure that the signs are visible to a person approaching from any direction of reasonable access. All warning signs were undamaged, legible, and in good condition (PL-6). No maintenance needs were identified.

3.3.1.4 Radium Foil Well

In the 1980s, DOE installed a 300-foot-deep cased well to calibrate depth measurement systems on borehole geophysical logging trucks. Two strips of radium-226 foil were placed around the casing at depths of 81 feet (29 picocuries activity) and 181 feet (3 picocuries activity). During calibration, the instruments in the trucks detected the gamma radiation signal from the radium.

The well was decommissioned in place in 2000. DOE perforated the casing above and below each strip of foil and pressure-grouted the annulus with Portland cement to seal the foil in place. The well was filled with grout, and a metal plaque was mounted in concrete at ground level over the well. During the 2020 inspection, inspectors observed that the corner of the concrete pad was chipped off; it was repaired immediately following the inspection. The corner of the concrete pad that was repaired in 2020 was showing cracks in 2021; however, there was no structural damage to the concrete pad. During the 2022 inspection, the inspectors observed the northwest corner of the concrete pad was chipped; however, no repairs were made as there is no structural damage to the rest of the concrete pad that would affect the integrity of the well. No further cracking or chipping has been observed during the annual inspections since 2022. The concrete pad will continue to be assessed during future inspections to determine if repairs are needed. The metal plaque includes the well information and an engraved warning (PL-7).

3.3.2 Inspection Areas

To ensure a thorough and efficient inspection, the site is divided into two areas referred to as transects: (1) the interior portion of the site and area within the former DOE property boundary that is addressed in the LTS&M Plan and (2) the outlying area.

Specific site surveillance features, such as survey markers, warning signs, and monitoring wells, were observed within each transect. Each transect was inspected for evidence of erosion, excavation, vandalism, or other phenomena that might indicate a loss of IC protectiveness or otherwise diminished protectiveness.

3.3.2.1 Interior Portions of the Site

This transect includes the surface water areas and other site surveillance features within the former DOE property boundary.

Most of the site surveillance features and surface water features are in areas not easily accessible by the public due to fencing. There were no signs of activity, development, or land use change (e.g., well installations or excavations that could expose groundwater) on the site that might degrade protectiveness.

3.3.2.2 Outlying Area

There were no signs of activity, development, or land use change in areas adjacent to the site that might expose contaminated groundwater or impact the natural flushing of the aquifer.

3.4 Follow-Up or Contingency Inspections

DOE will conduct follow-up inspections if (1) the annual inspection or other site visit reveals a condition that requires a return to the site to further evaluate the condition or (2) a citizen or outside agency notifies DOE that conditions at or near the site are substantially changed.

No need for a follow-up inspection was identified.

3.5 Maintenance and Repairs

Inspection of the concrete pad around the 300-foot-deep decommissioned well revealed the northwest corner was still chipped. There were no further changes to the concrete pad, and there was no structural damage that would affect the integrity of the well. The concrete pad will continue to be observed to determine if repairs are necessary following future inspections.

3.6 Corrective Action

No corrective action was required in 2024.

3.7 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	—	National Geodetic Survey Monument
PL-2	—	Monitoring Well GJ01-02
PL-3	—	Monitoring Well GJ84-04
PL-4	90	Monitoring Well GJ01-01
PL-5	90	Applied Studies and Technology Monitoring Well Gallery
PL-6	270	Warning Sign S6
PL-7	—	Decommissioned Radium Foil Well Plaque

Note:
— = Photograph taken vertically from above.

PL-1. National Geodetic Survey Monument

PL-2. Monitoring Well GJ01-02

PL-3. Monitoring Well GJ84-04

PL-4. Monitoring Well GJ01-01

PL-5. Applied Studies and Technology Monitoring Well Gallery

PL-6. Warning Sign S6

PL-7. Decommissioned Radium Foil Well Plaque

4.0 Environmental Monitoring

In accordance with the site-specific *Grand Junction Projects Office Remedial Action Project, Declaration for the Record of Decision and Record of Decision Summary* (DOE 1989), the compliance strategy for groundwater remediation at the Grand Junction site is natural flushing of the alluvial aquifer. Groundwater modeling predicted that groundwater remediation is expected to be completed 50–80 years after remediation of contaminated soils.

4.1 2023 Monitoring Results

The LTS&M Plan requires annual groundwater and surface water monitoring. Sampling was conducted on February 21–22, 2024. In accordance with the LTS&M Plan, the 2024 monitoring network at the Grand Junction site consisted of seven monitoring wells and six surface water locations, as shown in Figure 2. The Wetland Area surface water location was not sampled in 2024 because no surface water was present. Samples were collected according to procedures specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351) and were analyzed for manganese (groundwater only), molybdenum, selenium, sulfate, and uranium; field measurements were taken of total alkalinity, pH, specific conductance, temperature, and turbidity. In addition, groundwater levels were measured at each monitoring well.

Groundwater and surface monitoring results are summarized in Table 1. Time versus concentration graphs for each analyte for all monitoring wells and surface water locations in the long-term monitoring network are displayed in Appendix A. A complete set of groundwater and surface water data, as well as static water-level data are displayed in Appendixes B, C, and D, respectively.

All water quality data for the Grand Junction site are archived in the environmental database at the LM Field Support Center at Grand Junction, Colorado. Water quality data are also available for viewing with dynamic mapping via the Geospatial Environmental Mapping System (GEMS) website at https://gems.lm.doe.gov/#&site=GJO.

Abbreviation: GIS = Geographic Information System

Figure 2. 2024 Sampling Locations at the Grand Junction Site

Table 1. Summary of Historical and 2024 Results

Location	Analyte									
	Manganese		Molybdenum		Selenium		Sulfate		Uranium	
	Historical Maximum	2024 Result	Historical Maximum	2024 Result	Historical Maximum	2024 Result	Historical Maximum	2024 Result	Historical Maximum	2024 Result
Groundwater[a]										
10-19N	10	0.165	0.541	0.016	0.03	0.00499	5710	2120	1.43	0.351
11-1S	2.4	0.135	0.552	0.00853	0.0504	<0.0015	2800	240	2.2	0.0409
14-13NA	6.24	4.48	0.57	0.0998	0.0572	<0.0015	2270	1670	1.7	0.228
6-2N	1.9	0.584	0.15	0.0464	0.14	0.0308	1480	903	1.1	0.128
8-4S	3.28	1.99	2.65	0.0631	0.685	<0.0015	2200	767	4.8	0.365
GJ01-01	0.71	0.405	0.162	0.0906	0.0634	0.00975	762	619	0.507	0.293
GJ84-04	4.8	4.71	0.413	0.0669	0.015	<0.0015	3100	1560	1.5	0.254
Surface Water[b]										
North Pond			0.134	0.0265	0.015	0.00179	7300	1840	0.993	0.646
South Pond			1.39	0.0382	0.064	<0.0015	5060	1400	0.56	0.21
Wetland Area			8.9	—	0.0231	—	45,200	—	47	—
Upper Gunnison			0.09	0.00239	0.015	0.00309	513	236	0.012	0.00547
Upper Mid Gunnison			0.031	0.00218	0.016	0.00281	511	232	0.013	0.00515
Lower Gunnison			0.05	0.0031	0.017	0.0028	541	292	0.034	0.0106

Notes:

Historical maximums are from 1984 to 2024. All units are in milligrams per liter (mg/L). A < indicates the analyte was below the detection limit.

— = No data because a sample was not collected.

[a] Results in red font exceed standards from "The Basic Standards for Groundwater" in Volume 5 *Code of Colorado Regulations* Section 1002-41 (5 CCR 1002-41) or background (for manganese and sulfate). The standards are molybdenum, 0.21 mg/L; selenium, 0.05 mg/L; and uranium, 0.03 mg/L. Background concentrations of manganese (0.72 mg/L) and sulfate (1150 mg/L) are the maximum concentrations observed in upgradient monitoring wells GJ84-09 and GJ84-10.

[b] For the pond locations (North Pond, South Pond, and Wetland Area), results in red exceed the groundwater benchmarks listed above. For the Gunnison River locations, results in red exceed the standards from 5 CCR 1002-35, "Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins." The standards are molybdenum, 0.16 mg/L; selenium, 0.0046 mg/L; and uranium, 0.03 mg/L.

5.0 References

5 CCR 1002-35. "Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins," *Code of Colorado Regulations*, https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8117&fileName=5%20CCR%201002-35.

5 CCR 1002-41. "The Basic Standards for Groundwater," *Code of Colorado Regulations*, https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8819&fileName=5%20CCR%201002-41.

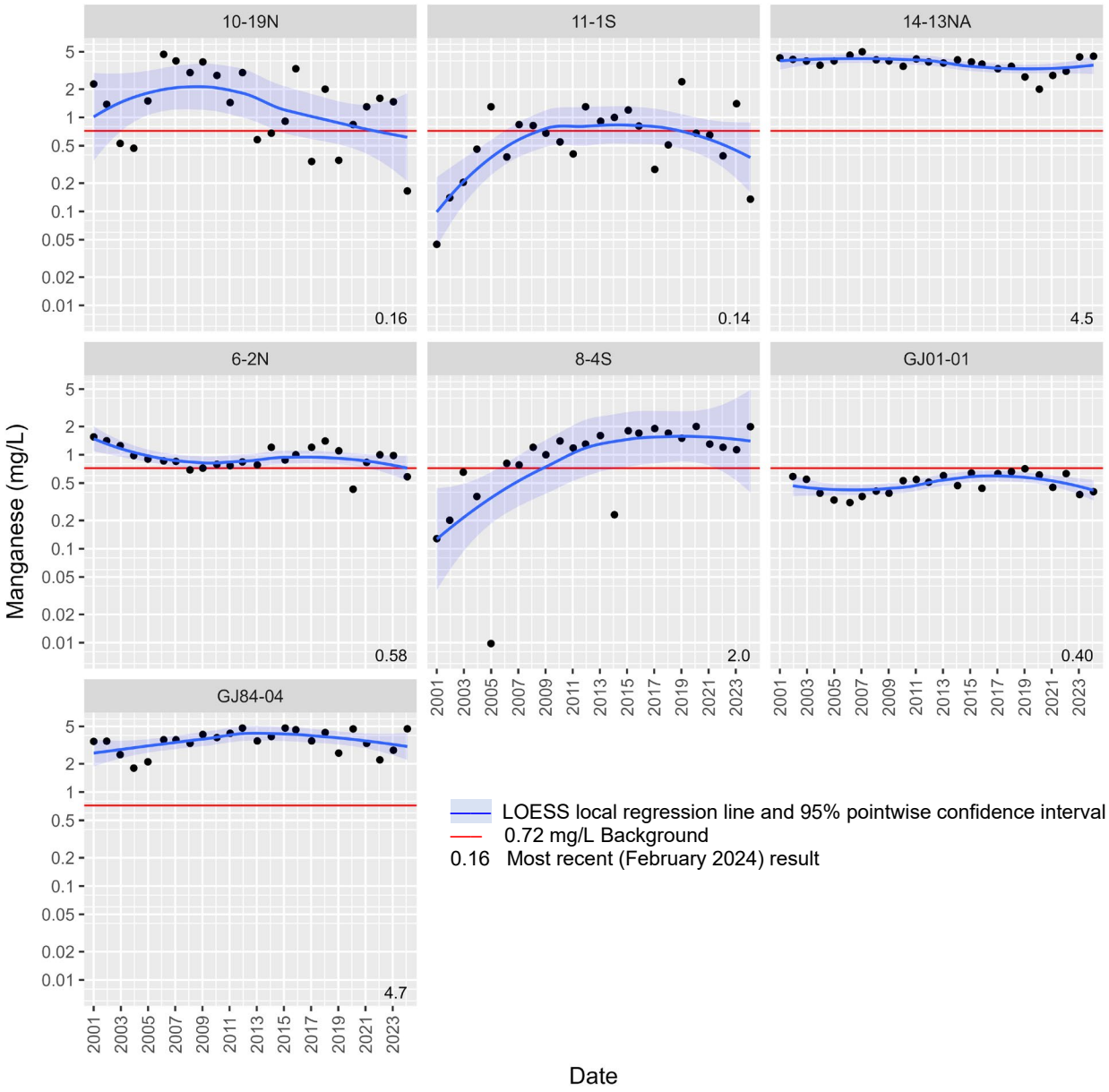
DOE (U.S. Department of Energy), 1989. *Grand Junction Projects Office Remedial Action Project, Declaration for the Record of Decision and Record of Decision Summary*, Grand Junction Projects Office, Grand Junction, Colorado, April.

DOE (U.S. Department of Energy), 2021. *Long-Term Surveillance and Maintenance Plan for the Grand Junction, Colorado, Site*, LMS/GJO/S02013, Office of Legacy Management, March.

Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites, LMS/PRO/S04351, continually updated, prepared by the LMS contractor for the U.S. Department of Energy Office of Legacy Management.

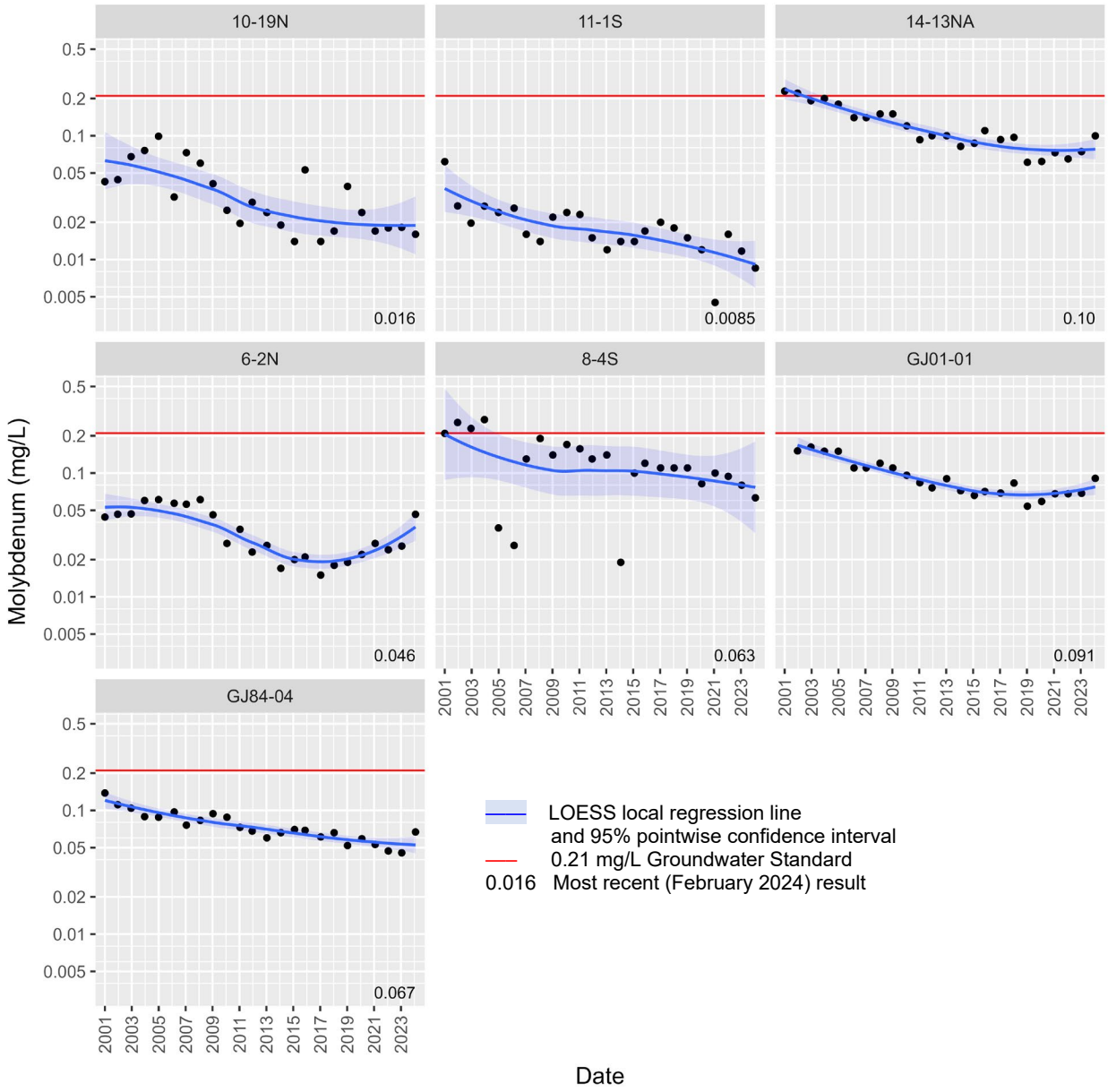
Appendix A

Time Versus Concentration Graphs



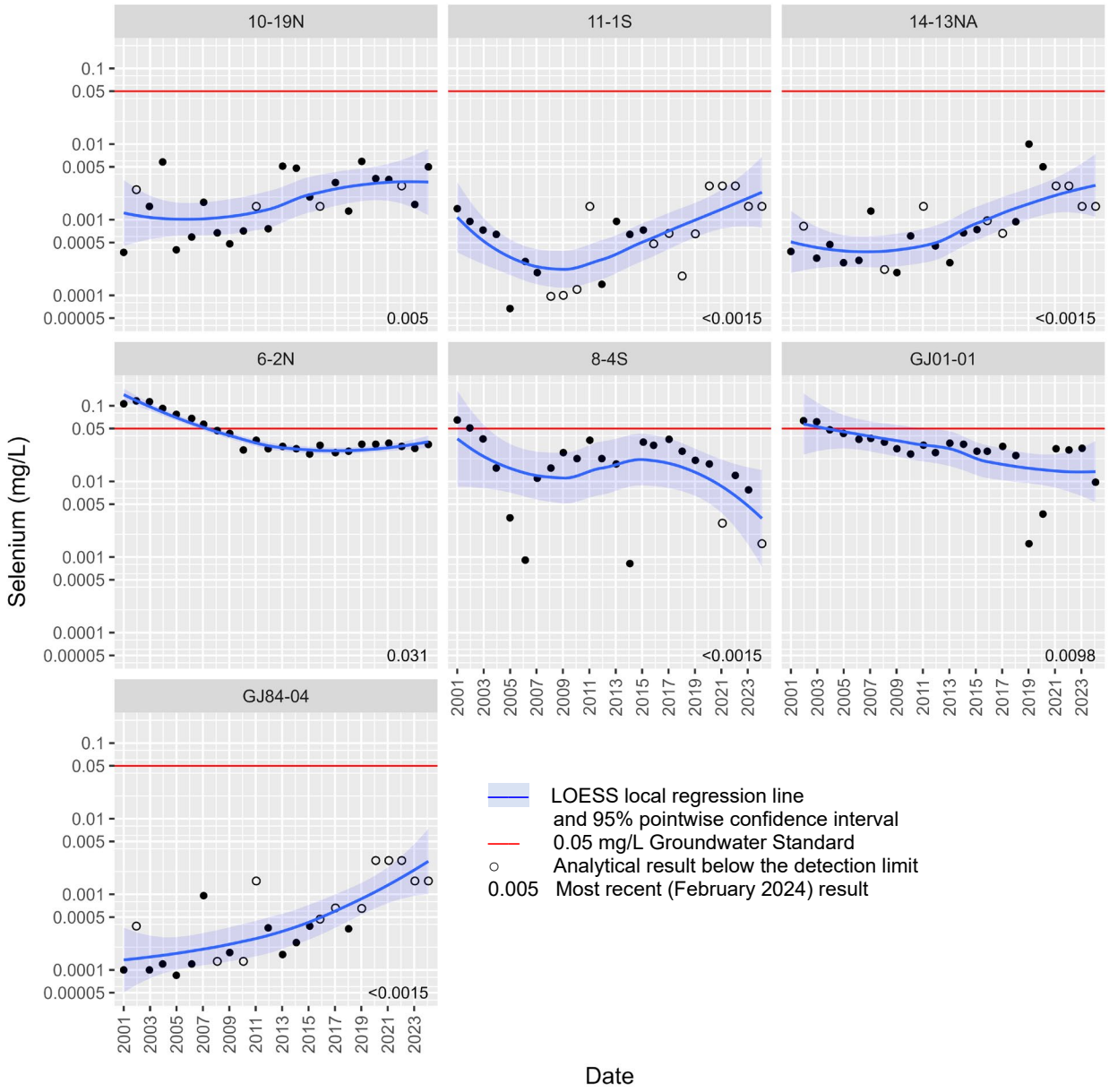
Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-1. Manganese Concentrations in Onsite Monitoring Wells



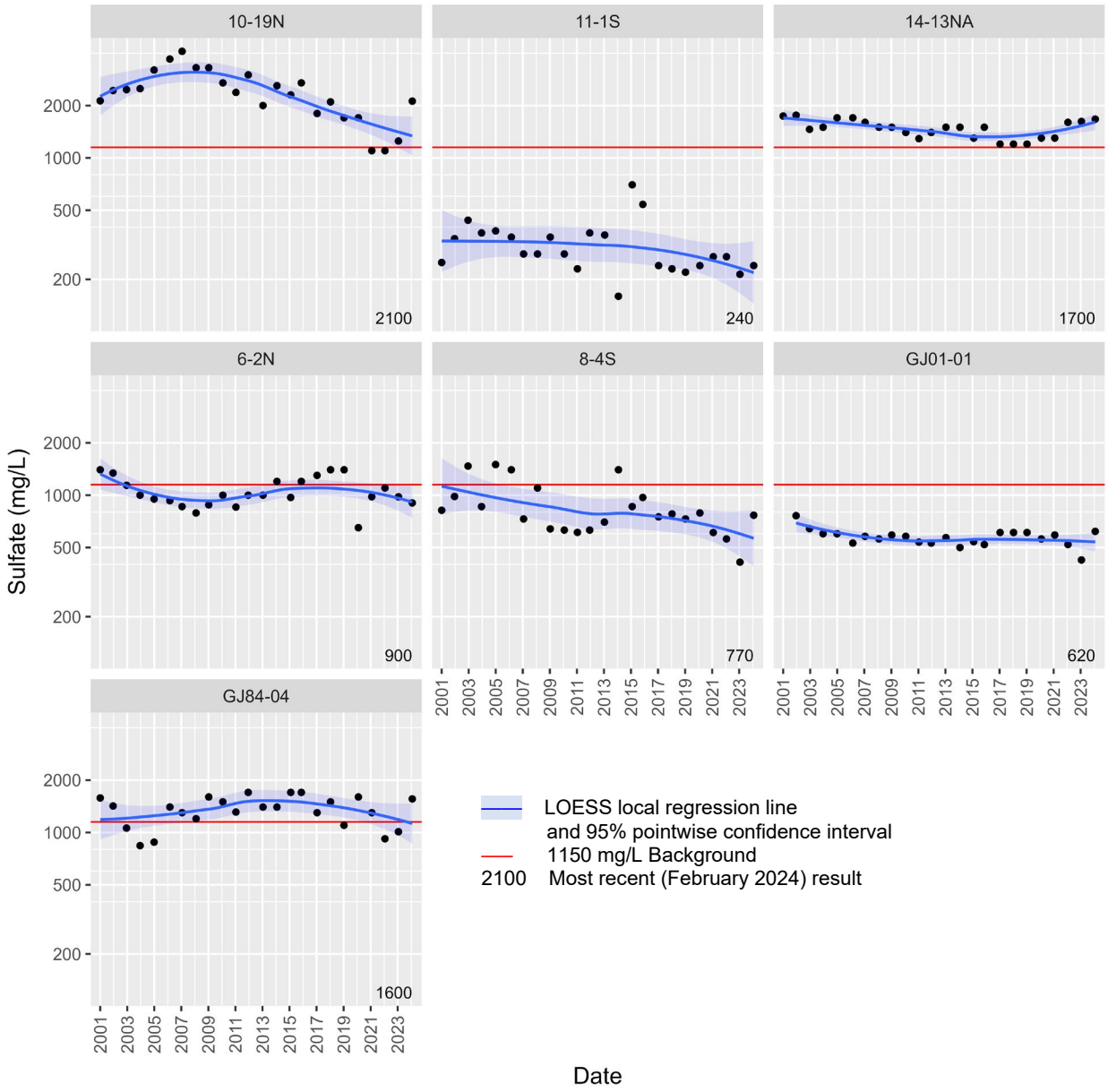
Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-2. Molybdenum Concentrations in Onsite Monitoring Wells



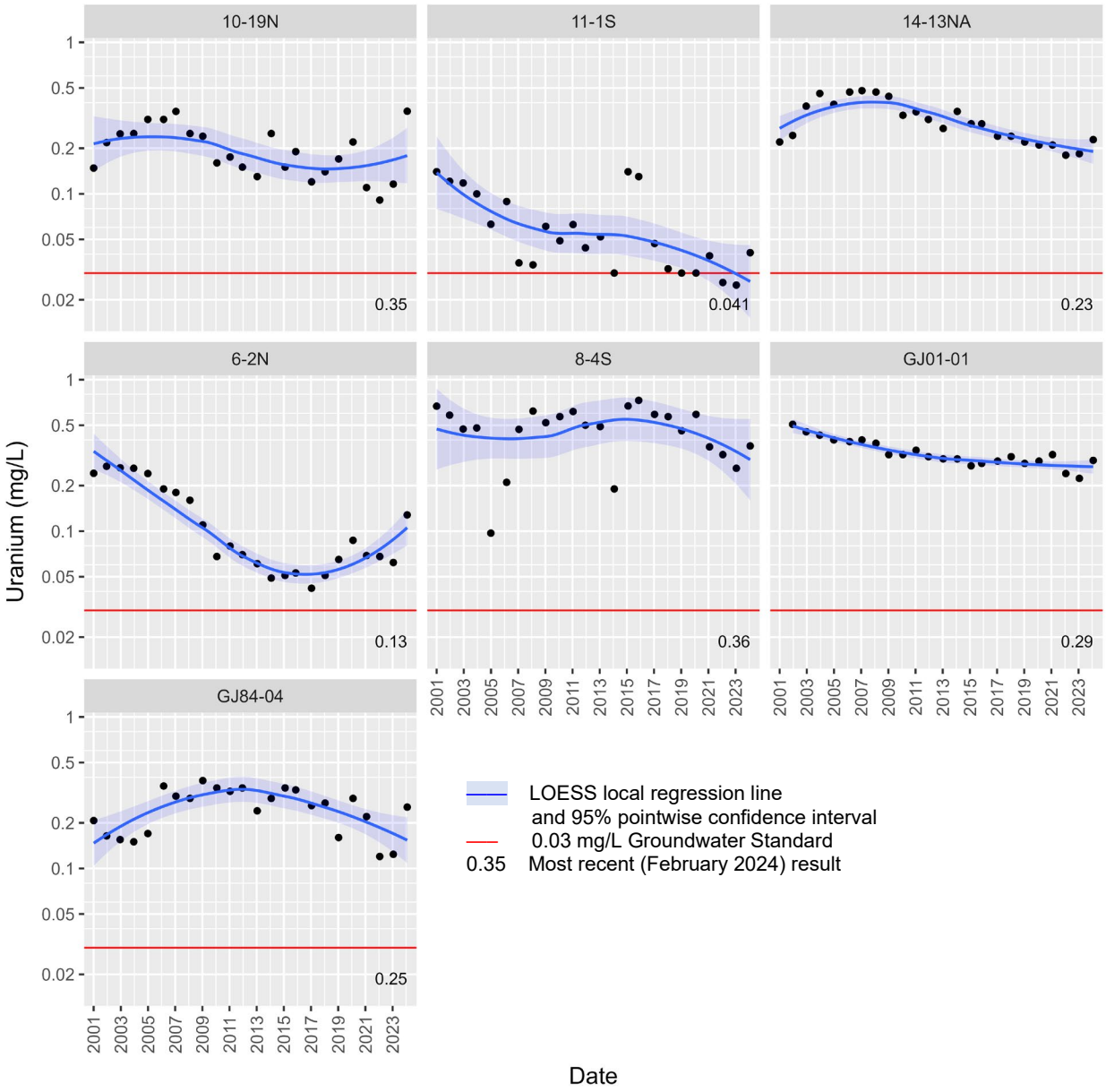
Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-3. Selenium Concentrations in Onsite Monitoring Wells



Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-4. Sulfate Concentrations in Onsite Monitoring Wells



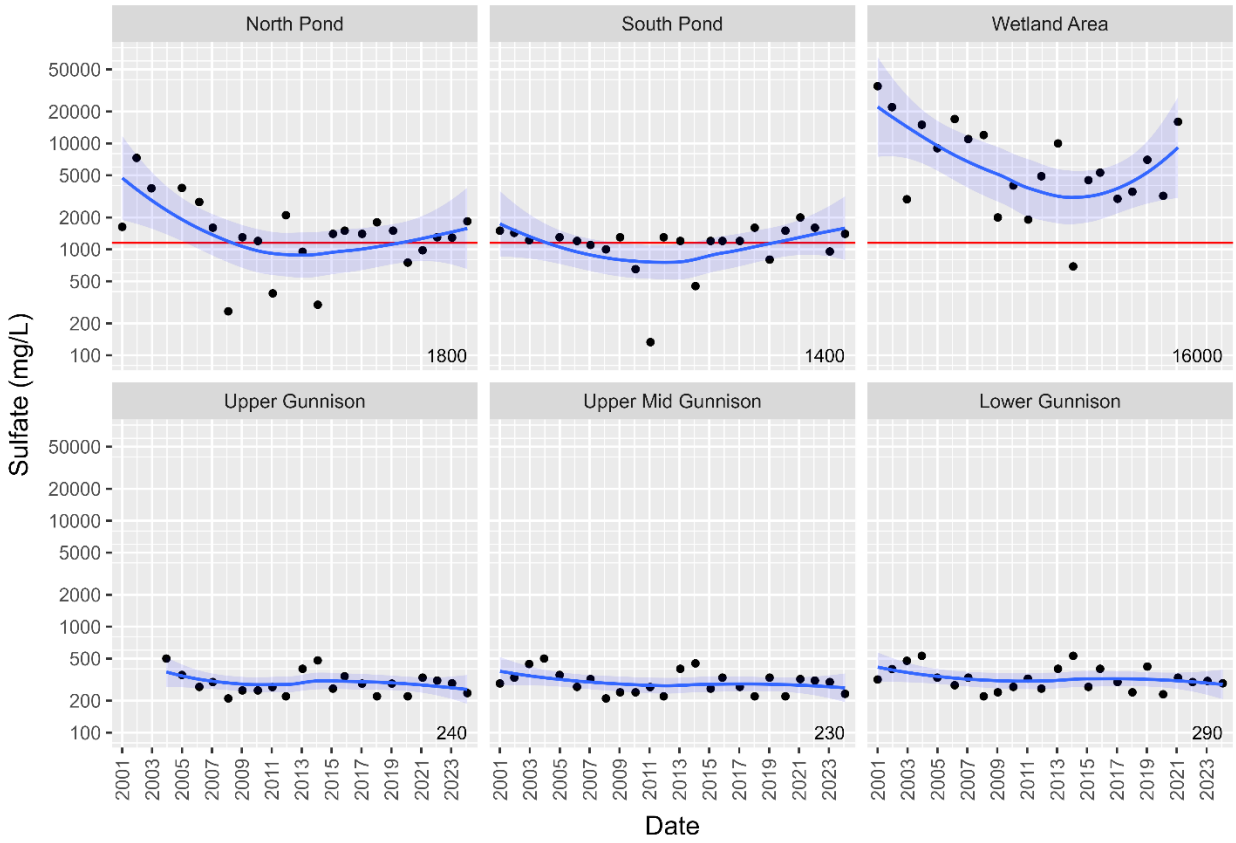
Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-5. Uranium Concentrations in Onsite Monitoring Wells

LOESS local regression line and 95% pointwise confidence interval
0.21 mg/L Groundwater Standard
0.16 mg/L Gunnison River Standard
Analytical result below the detection limit
0.026 Most recent (February 2024) result

Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-6. Molybdenum Concentrations in Surface Water



LOESS local regression line and 95% pointwise confidence interval
1150 mg/L Groundwater Background
1800 Most recent (February 2024) result

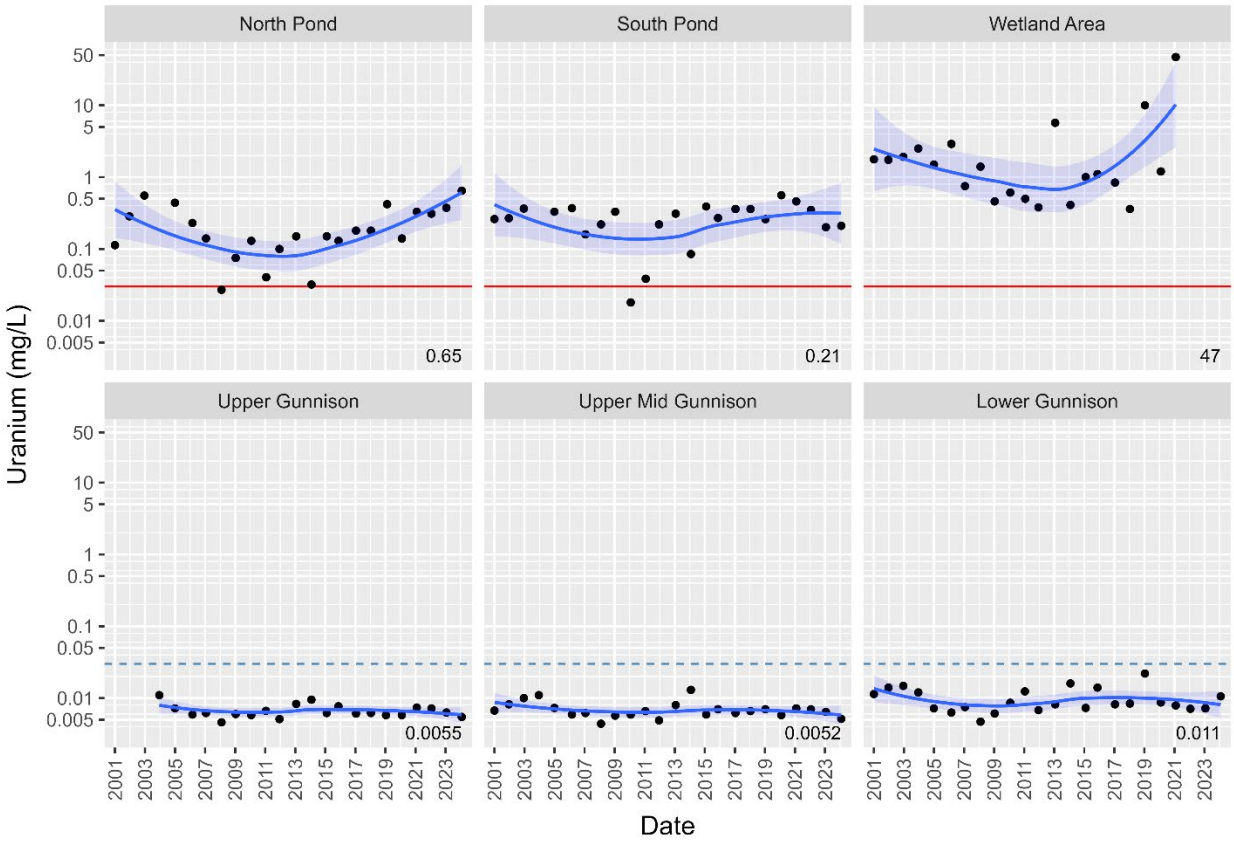
Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-7. Sulfate Concentrations in Surface Water

LOESS local regression line and 95% pointwise confidence interval
0.05 mg/L Groundwater Standard
0.0046 mg/L Gunnison River Standard
○ Analytical result below the detection limit
0.0018 Most recent (February 2024) result

Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-8. Selenium Concentrations in Surface Water



LOESS local regression line and 95% pointwise confidence interval
0.03 mg/L Groundwater Standard
0.03 mg/L Gunnison River Standard
0.65 Most recent (February 2024) result

Abbreviations:
LOESS = locally estimated scatterplot smoothing
mg/L = milligrams per liter

Figure A-9. Uranium Concentrations in Surface Water

Appendix B

Groundwater Data

GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (EQuIS201) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:21:19 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	ZONE COMPLETION	FLOW REL.	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)													
Alkalinity, Total (As CaCO3)	10-19N	WL	2/22/2024	(N)F	AL	O	424	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	11-1S	WL	2/21/2024	(N)F	AL	O	219	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	14-13NA	WL	2/22/2024	(N)F	AL	O	340	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	6-2N	WL	2/21/2024	(N)F	AL	O	247	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	8-4S	WL	2/21/2024	(N)F	AL	O	250	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	GJ01-01	WL	2/21/2024	(N)F	AL		249	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	GJ84-04	WL	2/22/2024	(N)F	AL	D	333	mg/L		F	#	-	-
Manganese													
Manganese	10-19N	WL	2/22/2024	(T)F	AL	O	0.165	mg/L		F	#	0.001	-
Manganese	11-1S	WL	2/21/2024	(T)F	AL	O	0.135	mg/L		F	#	0.001	-
Manganese	14-13NA	WL	2/22/2024	(T)F	AL	O	4.48	mg/L		F	#	0.01	-
Manganese	6-2N	WL	2/21/2024	(T)F	AL	O	0.584	mg/L		F	#	0.001	-
Manganese	8-4S	WL	2/21/2024	(T)D	AL	O	1.94	mg/L		F	#	0.01	-
Manganese	8-4S	WL	2/21/2024	(T)F	AL	O	1.99	mg/L		F	#	0.01	-
Manganese	GJ01-01	WL	2/21/2024	(T)F	AL		0.405	mg/L		F	#	0.001	-
Manganese	GJ84-04	WL	2/22/2024	(T)F	AL	D	4.71	mg/L		F	#	0.01	-
Molybdenum													
Molybdenum	10-19N	WL	2/22/2024	(T)F	AL	O	0.016	mg/L		F	#	0.0002	-
Molybdenum	11-1S	WL	2/21/2024	(T)F	AL	O	0.00853	mg/L		F	#	0.0002	-
Molybdenum	14-13NA	WL	2/22/2024	(T)F	AL	O	0.0998	mg/L		F	#	0.0002	-
Molybdenum	6-2N	WL	2/21/2024	(T)F	AL	O	0.0464	mg/L		F	#	0.0002	-
Molybdenum	8-4S	WL	2/21/2024	(T)D	AL	O	0.0628	mg/L		F	#	0.0002	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (EQuIS201) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:21:19 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	ZONE COMPLETION	FLOW REL.	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	8-4S	WL	2/21/2024	(T)F	AL	O	0.0631	mg/L		F	#	0.0002	-
Molybdenum	GJ01-01	WL	2/21/2024	(T)F	AL		0.0906	mg/L		F	#	0.0002	-
Molybdenum	GJ84-04	WL	2/22/2024	(T)F	AL	D	0.0669	mg/L		F	#	0.0002	-
pH													
pH	10-19N	WL	2/22/2024	(N)F	AL	O	7.17	s.u.		F	#	-	-
pH	11-1S	WL	2/21/2024	(N)F	AL	O	7.29	s.u.		F	#	-	-
pH	14-13NA	WL	2/22/2024	(N)F	AL	O	7.14	s.u.		F	#	-	-
pH	6-2N	WL	2/21/2024	(N)F	AL	O	7.71	s.u.		F	#	-	-
pH	8-4S	WL	2/21/2024	(N)F	AL	O	7.23	s.u.		F	#	-	-
pH	GJ01-01	WL	2/21/2024	(N)F	AL		7.21	s.u.		F	#	-	-
pH	GJ84-04	WL	2/22/2024	(N)F	AL	D	7.16	s.u.		F	#	-	-
Selenium													
Selenium	10-19N	WL	2/22/2024	(T)F	AL	O	0.00499	mg/L	B	F	#	0.0015	-
Selenium	11-1S	WL	2/21/2024	(T)F	AL	O	0.0015	mg/L	U	F	#	0.0015	-
Selenium	14-13NA	WL	2/22/2024	(T)F	AL	O	0.0015	mg/L	U	F	#	0.0015	-
Selenium	6-2N	WL	2/21/2024	(T)F	AL	O	0.0308	mg/L		F	#	0.0015	-
Selenium	8-4S	WL	2/21/2024	(T)D	AL	O	0.0015	mg/L	U	F	#	0.0015	-
Selenium	8-4S	WL	2/21/2024	(T)F	AL	O	0.0015	mg/L	U	F	#	0.0015	-
Selenium	GJ01-01	WL	2/21/2024	(T)F	AL		0.00975	mg/L		F	#	0.0015	-
Selenium	GJ84-04	WL	2/22/2024	(T)F	AL	D	0.0015	mg/L	U	F	#	0.0015	-
Specific Conductance													
Specific Conductance	10-19N	WL	2/22/2024	(N)F	AL	O	4626	umhos/cm		F	#	-	-
Specific Conductance	11-1S	WL	2/21/2024	(N)F	AL	O	832	umhos/cm		F	#	-	-
Specific Conductance	14-13NA	WL	2/22/2024	(N)F	AL	O	3661	umhos/cm		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (EQuIS201) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:21:20 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	ZONE COMPLETION	FLOW REL.	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Specific Conductance	6-2N	WL	2/21/2024	(N)F	AL	O	1806	umhos/cm		F	#	-	-
Specific Conductance	8-4S	WL	2/21/2024	(N)F	AL	O	1718	umhos/cm		F	#	-	-
Specific Conductance	GJ01-01	WL	2/21/2024	(N)F	AL		1641	umhos/cm		F	#	-	-
Specific Conductance	GJ84-04	WL	2/22/2024	(N)F	AL	D	3450	umhos/cm		F	#	-	-
Sulfate													
Sulfate	10-19N	WL	2/22/2024	(N)F	AL	O	2120	mg/L		F	#	33.3	-
Sulfate	11-1S	WL	2/21/2024	(N)F	AL	O	240	mg/L		F	#	2.66	-
Sulfate	14-13NA	WL	2/22/2024	(N)F	AL	O	1670	mg/L		F	#	26.6	-
Sulfate	6-2N	WL	2/21/2024	(N)F	AL	O	903	mg/L		F	#	6.65	-
Sulfate	8-4S	WL	2/21/2024	(N)D	AL	O	709	mg/L		F	#	6.65	-
Sulfate	8-4S	WL	2/21/2024	(N)F	AL	O	767	mg/L		F	#	6.65	-
Sulfate	GJ01-01	WL	2/21/2024	(N)F	AL		619	mg/L		F	#	6.65	-
Sulfate	GJ84-04	WL	2/22/2024	(N)F	AL	D	1560	mg/L		F	#	26.6	-
Temperature													
Temperature	10-19N	WL	2/22/2024	(N)F	AL	O	12.56	C		F	#	-	-
Temperature	11-1S	WL	2/21/2024	(N)F	AL	O	13.16	C		F	#	-	-
Temperature	14-13NA	WL	2/22/2024	(N)F	AL	O	14.51	C		F	#	-	-
Temperature	6-2N	WL	2/21/2024	(N)F	AL	O	18.94	C		F	#	-	-
Temperature	8-4S	WL	2/21/2024	(N)F	AL	O	13.32	C		F	#	-	-
Temperature	GJ01-01	WL	2/21/2024	(N)F	AL		14.28	C		F	#	-	-
Temperature	GJ84-04	WL	2/22/2024	(N)F	AL	D	12.97	C		F	#	-	-
Turbidity													
Turbidity	10-19N	WL	2/22/2024	(N)F	AL	O	1.59	NTU		F	#	-	-
Turbidity	11-1S	WL	2/21/2024	(N)F	AL	O	1.26	NTU		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (EQuIS201) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:21:20 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	ZONE COMPLETION	FLOW REL.	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Turbidity	14-13NA	WL	2/22/2024	(N)F	AL	O	0.79	NTU		F	#	-	-
Turbidity	6-2N	WL	2/21/2024	(N)F	AL	O	1.04	NTU		F	#	-	-
Turbidity	8-4S	WL	2/21/2024	(N)F	AL	O	1.31	NTU		F	#	-	-
Turbidity	GJ01-01	WL	2/21/2024	(N)F	AL		1.11	NTU		F	#	-	-
Turbidity	GJ84-04	WL	2/22/2024	(N)F	AL	D	1.27	NTU		F	#	-	-
Uranium													
Uranium	10-19N	WL	2/22/2024	(T)F	AL	O	0.351	mg/L		F	#	0.000067	-
Uranium	11-1S	WL	2/21/2024	(T)F	AL	O	0.0409	mg/L		F	#	0.000067	-
Uranium	14-13NA	WL	2/22/2024	(T)F	AL	O	0.228	mg/L		F	#	0.000067	-
Uranium	6-2N	WL	2/21/2024	(T)F	AL	O	0.128	mg/L		F	#	0.000067	-
Uranium	8-4S	WL	2/21/2024	(T)D	AL	O	0.354	mg/L		F	#	0.000067	-
Uranium	8-4S	WL	2/21/2024	(T)F	AL	O	0.365	mg/L		F	#	0.000067	-
Uranium	GJ01-01	WL	2/21/2024	(T)F	AL		0.293	mg/L		F	#	0.000067	-
Uranium	GJ84-04	WL	2/22/2024	(T)F	AL	D	0.254	mg/L		F	#	0.000067	-

ZONES OF COMPLETION:

AL	ALLUVIUM

LOCATION TYPE:

WL	WELL

DATA QUALIFIERS:

F	Low flow sampling method used.
G	Possible grout contamination, pH > 9.
J	Estimated Value.
L	Less than 3 bore volumes purged prior to sampling.
N	Tentatively identified compound (TIC).
Q	Qualitative result due to sampling technique
R	Unusable result.

U	Parameter analyzed for but was not detected.
X	Location is undefined.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated Value.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P	> 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Parameter analyzed for but was not detected.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined qualifier, see case narrative.
Y	Laboratory defined qualifier, see case narrative.
Z	Laboratory defined qualifier, see case narrative.

SAMPLE TYPES:

Fraction:
(T) Total (for metal concentrations)
(D) Dissolved (for dissolved or filtered metal concentrations)
(N) Organic (or other) constituents for which neither total nor dissolved is applicable

Type Codes:
F-Field Sample R-Replicate FR-Field Sample with Replicates
D-Duplicate N-Not Known S-Split Sample

FLOW CODES:

B	BACKGROUND	C	CROSS GRADIENT	D	DOWN GRADIENT
F	OFF-SITE	N	UNKNOWN	O	ON-SITE

U UPGRADIENT

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

Appendix C

Surface Water Data

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:30:13 PM

PARAMETER	LOCATION CODE	SAMPLE DATE	SAMPLE TYPE	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECT. LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)										
Alkalinity, Total (As CaCO3)	Lower Gunnison	2/21/2024	(N)F	135	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	North Pond	2/21/2024	(N)F	368	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	South Pond	2/21/2024	(D)F	169	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	Upper Gunnison	2/21/2024	(N)F	155	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	Upper Mid Gunnison	2/21/2024	(N)F	135	mg/L			#	-	-
Molybdenum										
Molybdenum	Lower Gunnison	2/21/2024	(T)F	0.0031	mg/L			#	0.0002	-
Molybdenum	North Pond	2/21/2024	(T)F	0.0265	mg/L			#	0.0002	-
Molybdenum	South Pond	2/21/2024	(D)F	0.0382	mg/L			#	0.0002	-
Molybdenum	Upper Gunnison	2/21/2024	(T)F	0.00239	mg/L	B		#	0.0002	-
Molybdenum	Upper Mid Gunnison	2/21/2024	(T)F	0.00218	mg/L	B		#	0.0002	-
pH										
pH	Lower Gunnison	2/21/2024	(N)F	8.58	s.u.			#	-	-
pH	North Pond	2/21/2024	(N)F	7.9	s.u.			#	-	-
pH	South Pond	2/21/2024	(N)F	8.34	s.u.			#	-	-
pH	Upper Gunnison	2/21/2024	(N)F	8.44	s.u.			#	-	-
pH	Upper Mid Gunnison	2/21/2024	(N)F	8.49	s.u.			#	-	-
Selenium										
Selenium	Lower Gunnison	2/21/2024	(T)F	0.0028	mg/L	B		#	0.0015	-
Selenium	North Pond	2/21/2024	(T)F	0.00179	mg/L	B		#	0.0015	-
Selenium	South Pond	2/21/2024	(D)F	0.0015	mg/L	U		#	0.0015	-
Selenium	Upper Gunnison	2/21/2024	(T)F	0.00309	mg/L	B		#	0.0015	-
Selenium	Upper Mid Gunnison	2/21/2024	(T)F	0.00281	mg/L	B		#	0.0015	-
Specific Conductance										
Specific Conductance	Lower Gunnison	2/21/2024	(N)F	819	umhos/cm			#	-	-
Specific Conductance	North Pond	2/21/2024	(N)F	4223	umhos/cm			#	-	-
Specific Conductance	South Pond	2/21/2024	(N)F	2954	umhos/cm			#	-	-
Specific Conductance	Upper Gunnison	2/21/2024	(N)F	766	umhos/cm			#	-	-
Specific Conductance	Upper Mid Gunnison	2/21/2024	(N)F	723	umhos/cm			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:30:13 PM

PARAMETER	LOCATION CODE	SAMPLE DATE	SAMPLE TYPE	RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECT. LIMIT	UNCERTAINTY
Sulfate										
Sulfate	Lower Gunnison	2/21/2024	(N)F	292	mg/L			#	2.66	-
Sulfate	North Pond	2/21/2024	(N)F	1840	mg/L			#	26.6	-
Sulfate	South Pond	2/21/2024	(N)F	1400	mg/L			#	13.3	-
Sulfate	Upper Gunnison	2/21/2024	(N)F	236	mg/L			#	2.66	-
Sulfate	Upper Mid Gunnison	2/21/2024	(N)F	232	mg/L			#	2.66	-
Temperature										
Temperature	Lower Gunnison	2/21/2024	(N)F	8.63	C			#	-	-
Temperature	North Pond	2/21/2024	(N)F	9.45	C			#	-	-
Temperature	South Pond	2/21/2024	(N)F	6.08	C			#	-	-
Temperature	Upper Gunnison	2/21/2024	(N)F	7.73	C			#	-	-
Temperature	Upper Mid Gunnison	2/21/2024	(N)F	8.82	C			#	-	-
Turbidity										
Turbidity	Lower Gunnison	2/21/2024	(N)F	5.44	NTU			#	-	-
Turbidity	North Pond	2/21/2024	(N)F	5.73	NTU			#	-	-
Turbidity	South Pond	2/21/2024	(N)F	11.9	NTU			#	-	-
Turbidity	Upper Gunnison	2/21/2024	(N)F	7.61	NTU			#	-	-
Turbidity	Upper Mid Gunnison	2/21/2024	(N)F	6.44	NTU			#	-	-
Uranium										
Uranium	Lower Gunnison	2/21/2024	(T)F	0.0106	mg/L			#	0.000067	-
Uranium	North Pond	2/21/2024	(T)F	0.646	mg/L			#	0.000067	-
Uranium	South Pond	2/21/2024	(D)F	0.21	mg/L			#	0.000067	-
Uranium	Upper Gunnison	2/21/2024	(T)F	0.00547	mg/L			#	0.000067	-
Uranium	Upper Mid Gunnison	2/21/2024	(T)F	0.00515	mg/L			#	0.000067	-

DATA QUALIFIERS:

- F Low flow sampling method used.
- G Possible grout contamination, pH > 9.
- J Estimated Value.
- L Less than 3 bore volumes purged prior to sampling.
- N Tentatively identified compound (TIC).
- Q Qualitative result due to sampling technique
- R Unusable result.
- U Parameter analyzed for but was not detected.
- X Location is undefined.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.

+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated Value.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P	> 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Parameter analyzed for but was not detected.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined qualifier, see case narrative.
Y	Laboratory defined qualifier, see case narrative.
Z	Laboratory defined qualifier, see case narrative.

SAMPLE TYPES:
(T) Total (for metal concentrations)
(D) Dissolved (for dissolved or filtered metal concentrations)
(N) Organic (or other) constituents for which neither total nor dissolved is applicable

Type Codes: F-Field Sample R-Replicate FR-Field Sample with Replicates
D-Duplicate N-Not Known S-Split Sample

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

Appendix D

Static Water-Level Data

STATIC WATER LEVELS (EQuIS700) FOR SITE GJO01, Grand Junction Site

REPORT DATE: 4/16/2024 2:32:26 PM

LOCATION CODE	MEASUREMENT DATE/TIME	TOP OF CASING ELEVATION (FT)	DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
10-19N	02/22/2024 11:06	4569.95	14.49	4555.46	
11-1S	02/21/2024 12:01	4576.08	17.14	4558.94	
14-13NA	02/22/2024 10:38	4563.95	7.11	4556.84	
6-2N	02/21/2024 13:56	4574.14	14.96	4559.18	
8-4S	02/21/2024 08:58	4571.99	12.52	4559.47	
GJ01-01	02/21/2024 07:50	4574.49	16.05	4558.44	
GJ84-04	02/22/2024 11:32	4566.54	10.54	4556.00	
Wetland Area	02/21/2024 13:18				D

FLOW CODES:

B	BACKGROUND	C	CROSS GRADIENT	D	DOWN GRADIENT
F	OFF-SITE	N	UNKNOWN	O	ON-SITE
U	UPGRADIENT				

WATER LEVEL FLAGS:

B	Water level is below the top of the pump	D	Dry
E	Water elevation may not be comparable to other water elevations at this site	F	Flowing
I	Inaccessible		