LMS/RVT/46372

2023 Verification Monitoring Report, Riverton, Wyoming, Processing Site

April 2024

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Abbreviations

AWSS	alternate water supply system
bgs	below ground surface
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
COC	contaminant of concern
CSM	conceptual site model
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	feet
IC	institutional control
LM	Office of Legacy Management
LOESS	locally estimated scatterplot smoothing
LTMP	Long-Term Management Plan
MCL	maximum concentration limit
mg/L	milligrams per liter
NAW&SD	Northern Arapaho Water & Sewer Department
NRZ	naturally reduced zone
pCi/L	picocuries per liter
UMTRCA	Uranium Mill Tailings Radiation Control Act
USGS	U.S. Geological Survey

Executive Summary

This verification monitoring report presents data collected during calendar year 2023 and provides updates on the natural flushing compliance strategy and conceptual site model at the Riverton, Wyoming, Processing Site. Routine activities included monitoring institutional controls (ICs) and routine sampling of groundwater, surface water, and domestic wells.

ICs continue to function as intended at the Riverton site. IC monitoring was conducted to verify that ICs are in place and working to ensure that potential exposure to contaminated groundwater is minimized during the natural flushing period. Land and water use inspections within the IC boundary verified that warning signs around the oxbow lake were in place and in good condition. No additional anthropogenic land or water uses were identified that exposed or involved shallow groundwater. Sampling results from domestic wells indicated no impacts from site-related contaminants. Upgrades to the alternate water supply system are planned so that the system will remain a viable IC for the Riverton site into the future.

Concentrations of uranium and molybdenum at the site continue to remain above the standards for groundwater in numerous surficial aquifer wells. Increases in molybdenum and uranium concentrations were observed in numerous surficial aquifer wells, likely as a result of snow melt from the highest winter snowfall on record. Sampling results from semiconfined monitoring wells continue to indicate no impact from site-related molybdenum and uranium contamination. Sampling results from surface water indicate that groundwater discharge continues to affect the water quality in the oxbow lake, but there are no significant impacts to surface water in the Little Wind River or other ponds near the site.

Several types of information (e.g., contaminants mobilized by flood events, the current plume size and contaminant concentration levels, comparison of results to groundwater modeling predictions, historical data, and experience at other Uranium Mill Tailings Radiation Control Act sites) indicate that natural flushing of the surficial aquifer is occurring at the Riverton site but not at a rate that will meet the 100-year regulatory time frame. Based on this information, the U.S. Department of Energy Office of Legacy Management is working to fill data gaps with additional field investigations and conduct additional modeling to evaluate groundwater remedy alternatives and determine an appropriate alternate compliance strategy for the site. The new compliance strategy will be presented to the U.S. Nuclear Regulatory Commission for concurrence in an updated Groundwater Compliance Action Plan.

1.0 Introduction

This Verification Monitoring Report presents routine data collected during calendar year 2023 and provides updates on the natural flushing compliance strategy and conceptual site model (CSM) at the Riverton, Wyoming, Processing Site. Data were generated from one routine groundwater and surface water sampling event conducted at the Riverton site during August 2023.

The Riverton site is regulated under Title I of the Uranium Mill Tailings Radiation Control Act (UMTRCA). The compliance strategy for the Riverton site is natural flushing in conjunction with institutional controls (ICs) (DOE 1998b), as allowed by UMTRCA. Monitoring required during the natural flushing period is called verification monitoring because its purpose is to verify that the natural flushing strategy is progressing as predicted (or not) and to verify that ICs are in place and functioning as intended. Data collected during verification monitoring are reported annually in a Verification Monitoring Report. These reports have been issued since 2001, and the reports from 2005 to 2022 are available on the U.S. Department of Energy (DOE) Office of Legacy Management (LM) website at https://lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Riverton. All water quality data for the Riverton 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=RVT. The monitoring program at the Riverton site is specified in the *Long-Term Management Plan for the Riverton, Wyoming, Processing Site* (DOE 2023a), also called the Long-Term Management Plan (LTMP). The LTMP was updated in 2023 to reflect current conditions, monitoring locations, and ICs at the site.

2.0 Conceptual Site Model

The CSM provided in the *2015 Advanced Site Investigation and Monitoring Report, Riverton, Wyoming, Processing Site* (DOE 2016) does not require any updates based on the 2023 sampling results. Among other components, this CSM includes an ongoing contaminant source zone underneath the former tailings impoundment in the saturated zone, secondary contaminant sources within the plume footprint in evaporites within the unsaturated zone, and naturally reduced zones (NRZs) in the variably saturated zone. Data from 2023 confirmed the presence of an ongoing source underneath the former tailings pile that results in a persistent uranium plume with onsite concentrations up to 1.6 milligrams per liter (mg/L). The CSM (DOE 2016) also suggests that the unsaturated zone above the plume footprint has elevated solid-phase contaminants as seasonal high-water levels bring and store contaminants into the typically unsaturated sediments from the underlying groundwater. During these high-water levels, contaminants are wicked up and stored in the silt layer overlying much of the surficial aquifer and can be released during river flooding or other high recharge events (direct rain or snowmelt infiltration). This release of contaminants from the unsaturated zone into the groundwater was confirmed after flooding in 2010, 2016, and 2017 (Dam et al. 2015; DOE 2019). Data from 2023 continued to confirm the CSM. Although the Little Wind River did not flood in 2023, the 2022–2023 winter was the snowiest on record (since 1907) in Riverton with 94.7 inches of snowfall recorded (NWS 2023). The heavy snowfall and subsequent infiltration at the site provided input of secondary sources from the unsaturated zone, causing contaminant concentrations in the surficial aquifer to increase (Section 5.0). Whether or not the NRZs are a source or sink for uranium and molybdenum will be investigated in future solid-phase sampling and laboratory testing that are detailed in the *2022 Work Plan for Continued Site Investigation of the Riverton, Wyoming, Processing Site* (DOE 2022a).

3.0 Site Conditions

3.1 Surface Remediation

A uranium and vanadium ore processing mill operated from 1958 to 1963 at the Riverton site. A tailings pile covered about 72 acres of the 140-acre site (DOE 2023c). The tailings and associated slurry water were the primary original source of groundwater contamination of the surficial aquifer. In 1988 and 1989, the tailings pile was excavated down to an average depth of 4 feet (ft) below ground surface (bgs) based on a radium-226 soil standard in Title 40 *Code of Federal Regulations* Section 192 (40 CFR 192). Surface remediation activities resulted in removal of about 1.8 million cubic yards of tailings and associated materials, which were encapsulated at the Gas Hills East, Wyoming, Disposal Site (Figure 1) (DOE 1998b). Soils at and below the water table with elevated thorium-230 concentrations were left in place (DOE 1991) on portions of the former mill site as permitted by the supplemental standards provision of 40 CFR 192.

3.2 Hydrogeology

The Riverton site is on an alluvial terrace between the Wind River and the Little Wind River approximately 2.3 miles southwest of the town of Riverton, Wyoming (Figure 1). Groundwater is in three aquifers beneath the site: (1) a surficial unconfined aquifer (surficial aquifer), (2) a middle semiconfined aquifer, and (3) a deeper confined aquifer (DOE 1998c).

The surficial aquifer consists of approximately 15 to 20 ft of unconsolidated alluvial material; the semiconfined and confined aquifers are composed of shales and sandstones of the upper units of the Eocene Wind River Formation, which is more than 500 ft thick near the site. Depth to groundwater in the surficial aquifer is generally less than 10 ft bgs. For compliance purposes, the uppermost aquifer, where compliance with groundwater standards is assessed, comprises the surficial aquifer and semiconfined aquifer. Groundwater in the uppermost aquifer flows to the southeast.

Because the Riverton site is on an alluvial terrace between the Wind River and the Little Wind River, site groundwater conditions have been influenced by periodic flooding of these rivers. Artifacts of river flooding include the following:

- Formation of an oxbow lake in 1995
- Formation of a groundwater seep in a normally dry side channel of the Little Wind River in 2016
- Spikes in groundwater contaminant concentrations in areas inundated by flood waters
- Depositing of contaminants into the unsaturated zone from high groundwater elevations

- Destruction of an LM stilling well and two LM monitoring wells on the south side of the Little Wind River in 2010
- Destruction of an LM stilling well (north side of the river) and the U.S. Geological Survey (USGS) gaging station on the Little Wind River in 2017

Significant flooding of the Little Wind River flooded portions of the site in 1963, 1965, 1967, 1983, 1991, 1995, 2010, 2016, and 2017, when peak river discharge was greater than 8000 cubic feet per second (cfs) (USGS 2023). Discharge data and flood data from the Little Wind River are presented in Section 5.2.1.

3.3 Water Quality

Shallow groundwater beneath and downgradient from the site was contaminated as a result of uranium-processing activities that occurred between 1958 and 1963 (DOE 1998c; White et al. 1984). Contaminants of concern (COCs) in the groundwater beneath the Riverton site are manganese, molybdenum, sulfate, and uranium. COCs were selected using a screening process that compared contaminant concentrations with the maximum concentration limits (MCLs) in 40 CFR 192 and evaluated potential human health risks and ecological risks. The COC selection process is detailed in the *Environmental Assessment of Ground Water Compliance at the Riverton, Wyoming, Uranium Mill Tailings Site* (DOE 1998a). Molybdenum and uranium were selected as indicator contaminants for compliance monitoring in the *Final Ground Water Compliance Action Plan for the Riverton, Wyoming, Title I UMTRA Project Site* (DOE 1998b). These contaminants were selected as indicator contaminants because they are the most widely distributed and they form significant aqueous plumes in the uppermost aquifer near the site. The MCLs for molybdenum and uranium are 0.10 mg/L and 30 picocuries per liter (pCi/L), respectively. Manganese and sulfate are not regulated under Title I of UMTRCA.

To provide a consistent comparison with historical data, uranium concentrations continue to be measured in milligrams per liter; therefore, the uranium standard referenced in this report has been converted from 30 pCi/L to 0.044 mg/L (which assumes secular equilibrium of uranium isotopes) to allow direct comparison of uranium data to the standard. The MCLs for uranium discussed here are slightly different than the “MCLs” (i.e., maximum contaminant levels) for the U.S. Environmental Protection Agency (EPA) drinking water of 0.030 mg/L.

3.4 ICs

To protect human health and the environment during the natural flushing period, ICs are required to control exposure to contaminated groundwater. An IC boundary has been established that delineates the area that requires protection at the Riverton site (Figure 2). The IC boundary was set to encompass the area of current groundwater contamination and a surrounding buffer zone to account for potential future plume migration based on groundwater modeling for the site.

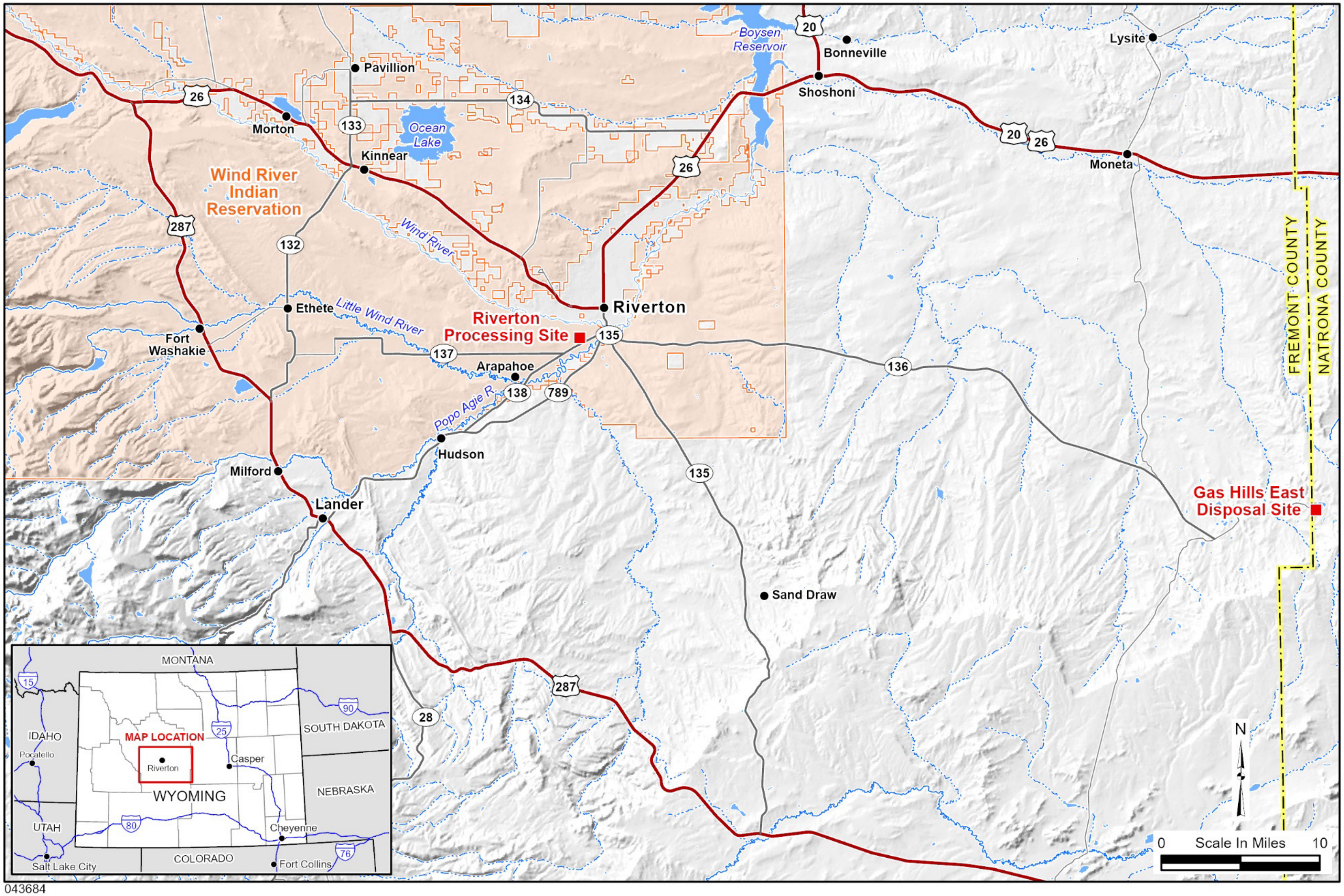


Figure 1. Riverton, Wyoming, Processing Site Location Map

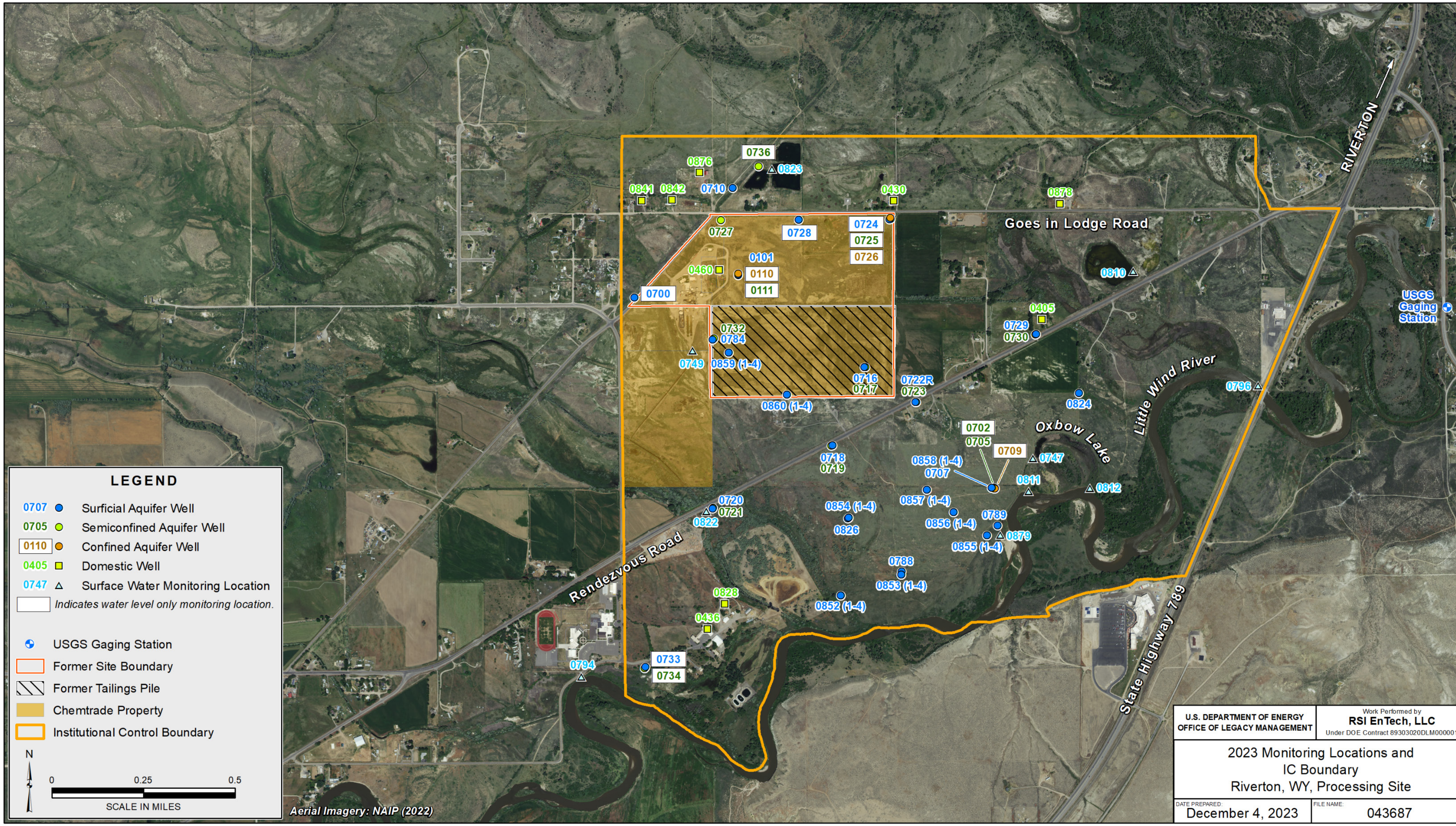


Figure 2. 2023 Monitoring Locations and IC Boundary at the Riverton Site

3.4.1 Site ICs

Cooperative efforts are ongoing among LM, the Northern Arapaho Tribe and Eastern Shoshone Tribe, and the State of Wyoming to implement and maintain viable and enforceable ICs at the Riverton site. ICs currently in place include the following:

- An alternate water supply system (AWSS), cofunded by DOE and the Indian Health Service and operated by Northern Arapaho Water & Sewer Department (NAW&SD), that supplies potable water to residents within the IC boundary to minimize use of groundwater.
- Warning signs installed around the oxbow lake that explain that the contaminated water is not safe for human consumption, with instructions not to drink from, fish in, or swim in the lake.
- A tribal ordinance that restricts well installation, prohibits surface impoundments, authorizes access to inspect and sample new wells, and notifies drilling contractors of the groundwater contamination within the IC boundary. Restrictions on well installation include a minimum depth of 150 ft bgs (approximately 50 ft below the top of the confined aquifer) and a requirement that surface casing be installed through the contaminated upper aquifer.
- An LM notification to area drilling contractors of the existing groundwater contamination.
- A State of Wyoming Department of Environmental Quality notification of existing groundwater contamination to be provided to private landowners who apply for a gravel pit permit within the IC boundary.
- Notification to LM by the Wyoming State Engineer's Office when it receives permit applications for wells or surface impoundments within or adjacent to the IC boundary. This includes providing LM with a copy of the application (so LM may comment on it) and incorporating LM's comments on the permit, if approved.
- An easement and covenant to restrict land use and well drilling on the former mill site property, which was finalized on June 29, 2009; the former mill site was purchased by Chemtrade Refinery Services, Inc. (Chemtrade).

3.4.2 IC Monitoring

The LTMP specifies ongoing IC monitoring to verify that ICs are in place and working to ensure that potential exposure to contaminated groundwater is minimized during the natural flushing period. IC monitoring consists of two components: (1) sampling and (2) land and water use verification. The sampling component consists of sampling domestic wells. The land and water use verification consists of periodic inspection of land within the IC boundary to verify and document that no additional anthropogenic land or water uses expose or involve shallow groundwater, such as new wells, gravel pits, seeps, and recreational ponds.

Eight domestic wells were sampled during the August 2023 sampling event. Results for samples collected from domestic wells are presented in Section 5.1.2.2 and Appendix A.

NAW&SD is responsible for ensuring that the quality, safety, and quantity of the water in the AWSS are adequate. The organization is also required to maintain compliance with EPA standards that regulate community water systems. To assist in this effort and maintain the AWSS as a viable IC, LM has worked with the Northern Arapaho Tribe to ensure cooperative efforts and funding for ongoing maintenance, flushing, sampling, and capital improvements of the AWSS. In 2023, LM subcontracted an engineering firm that generated engineering design drawings for needed maintenance of the AWSS based on a condition assessment of the system that was updated in 2022 (WWC 2022).

Inspection of areas within the IC boundary is a requirement of the LTMP. Land and water use verification within the IC boundary was conducted by Northern Arapaho Natural Resources Office personnel before the August 2023 sampling event and by the sampling crews during the August 2023 sampling event. Results of the water and land use inspections include the following:

- Warning signs around the oxbow lake were verified to be in place and in good condition (Figure 3)
- No additional land or water uses were identified that exposed or involved shallow groundwater

4.0 Monitoring Program

The verification monitoring program consists of 21 conventional monitoring wells, 9 multilevel monitoring wells, 9 domestic wells, and 10 surface water locations, all of which are listed in Table 1 and shown in Figure 2. The annual water sampling event at the Riverton site is conducted in late summer when water levels in surface water and the surficial aquifer are typically low. During the 2023 sampling event, the top ports (e.g., 0852-1) of all the multilevel monitoring wells were dry. In addition, domestic well 0430 was not sampled during the 2023 sampling event because the pump was not functional, and the homeowner was not using the well. At each sampling location, water samples were analyzed for COCs (i.e., manganese, molybdenum, sulfate, and uranium), and field measurements were taken of temperature, pH, specific conductance, total alkalinity, and turbidity. Water levels were measured in all monitoring wells in the monitoring network during the annual sampling event.

Figure 3. Warning Signs at the Oxbow Lake

Table 1. 2023 Sampling Network at the Riverton Site

Location ID	Description	Rationale	Comments
LM Monitoring Wells			
0101	Surficial aquifer	Monitor upgradient portion of the plume	
0705	Semiconfined aquifer	Monitor semiconfined aquifer	
0707	Surficial aquifer	Monitor centroid of plume	
0710	Surficial aquifer	Background location	
0716	Surficial aquifer	Monitor upgradient portion of plume	
0717	Semiconfined aquifer	Monitor semiconfined aquifer	
0718	Surficial aquifer	Monitor lateral plume movement	
0719	Semiconfined aquifer	Monitor semiconfined aquifer	
0720	Surficial aquifer	Monitor lateral plume movement	
0721	Semiconfined aquifer	Monitor semiconfined aquifer	
0722R	Surficial aquifer	Monitor centroid of plume	
0723	Semiconfined aquifer	Monitor semiconfined aquifer	
0727	Semiconfined aquifer	Geochemical evidence of connection with surficial aquifer	
0729	Surficial aquifer	Monitor lateral plume movement	
0730	Semiconfined aquifer	Monitor semiconfined aquifer	
0732	Semiconfined aquifer	Geochemical evidence of connection with surficial aquifer	
0784	Surficial aquifer	Monitor lateral plume movement	
0788	Surficial aquifer	Monitor lateral plume movement	
0789	Surficial aquifer	Monitor centroid of plume	
0824	Surficial aquifer	Monitor lateral plume movement	
0826	Surficial aquifer	Monitor lateral plume movement	
852 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
853 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
854 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
855 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
856 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
857 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
858 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
859 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
860 (1–4)	Surficial aquifer	Monitor vertical variation in the surficial aquifer	Multilevel monitoring well
Domestic Wells			
0405	Confined aquifer	Potential POE	Private residence
0430	Confined aquifer	Potential POE	Private residence
0436	Confined aquifer	Potential POE	St. Stephens Indian Mission
0460	Confined aquifer	Potential POE	Chemtrade refinery
0828	Confined aquifer	Potential POE	St. Stephens Indian Mission
0841	Semiconfined aquifer	Potential POE	Private residence
0842	Confined aquifer	Potential POE	Private residence

Table 1. 2023 Sampling Network at the Riverton Site (continued)

Location ID	Description	Rationale	Comments
0876	Confined aquifer	Potential POE	Private residence
0878	Confined aquifer	Potential POE	Private residence
Surface Water			
0747	Oxbow lake	Impacted by groundwater discharge	
0749	Chemtrade refinery discharge ditch	Effluent from sulfuric acid plant	
0794	Little Wind River	Upstream of predicted plume discharge	
0796	Little Wind River	Downstream of predicted plume discharge	
0810	Pond—former gravel pit	Potential for impact—within IC boundary	
0811	Little Wind River	Within area of predicted plume discharge	
0812	Little Wind River	Within area of predicted plume discharge	
0822	West side ditch	Potential for impact—within IC boundary	
0823	Pond—former gravel pit	Upgradient of plume—within IC area	
0879	Seep	Impacted by groundwater discharge	Side channel of the Little Wind River

Abbreviation:
POE = point of exposure

5.0 Results of 2023 Monitoring

5.1 Groundwater

5.1.1 Groundwater Flow

Water levels were measured at all monitoring wells in the monitoring network (Figure 2) in August to verify groundwater flow direction and assess vertical gradients throughout the IC area. Water level data are included in Appendix B.

Assessment of horizontal groundwater flow direction in the surficial aquifer is required to ensure that the monitoring network is adequate for assessing contaminant plume movement and to ensure that the IC boundary provides a sufficient buffer to prevent access to contaminated groundwater. As shown in Figure 4, groundwater elevation contours for the surficial aquifer indicate a general flow direction to the southeast in August 2023, which is consistent with the historical flow direction. In addition to water levels measured in August, continuous water level measurements were recorded by pressure transducers installed in wells along the groundwater flow path (Figure 5). Continuous groundwater elevations in Figure 5 demonstrate that the general groundwater flow direction was consistent throughout the year. In 2023 and in past years, June was an exception when groundwater and river levels were high because the groundwater flow direction reversed temporarily near the river (see Figure 5, well 0789).

Vertical gradients are used to assess the direction that groundwater will flow vertically. The methods traditionally applied to assess vertical flow use a negative gradient to indicate the potential for upward groundwater flow and a positive gradient to indicate the potential for downward groundwater flow. Regardless of the direction and magnitude indicated by the gradient, vertical migration of groundwater between the Riverton site aquifers is expected to be limited because of the aquitards separating aquifers (DOE 1998c). Vertical gradients are calculated from monitoring wells in an upper aquifer (aquifer 1) and lower aquifer (aquifer 2) using the following formula: $(GE_1 - GE_2)/(SE_1 - SE_2)$, where GE = groundwater elevation and SE = screen elevation at the midpoint of the screen. Table 2 shows vertical gradients calculated from grouped monitoring wells (from August 2023 data). No vertical gradient was greater than an absolute magnitude of 0.1.

5.1.2 Groundwater Quality

Figure 6 through Figure 10 summarize surficial aquifer data from the 2023 sampling event. On these figures, the blue line is the locally estimated scatterplot smoothing (LOESS) line, which is an estimate of the average molybdenum or uranium concentration as it changes through time. The distribution of molybdenum in the surficial aquifer from the August 2023 sampling event is shown in Figure 6. Time-concentration plots for molybdenum in wells within contaminant plumes and wells on the edge and outside the contaminant plumes in the surficial aquifer are shown in Figure 7 and Figure 8, respectively. The distribution of uranium in the surficial aquifer, based on August 2023 sampling results, is shown in Figure 9. Time-concentration plots for uranium in wells within contaminant plumes and wells on the edge and outside the contaminant plumes in the surficial aquifer are shown in Figure 10 and Figure 11, respectively. The distribution of molybdenum and uranium plumes (shown in Figure 6 for molybdenum and Figure 9 for uranium) included data from conventional and multilevel monitoring wells. The multilevel monitoring well port with the highest molybdenum and uranium concentrations was plotted on the figures; in areas where a conventional monitoring well was colocated with a multiport monitoring well (0707 and 0858, 0788 and 0853, 0826 and 0854; each pair is a conventional well and multiport well, respectively) the highest molybdenum and uranium concentration from either well was plotted.

As shown in the plots and figures, concentrations of molybdenum and uranium in groundwater in the surficial aquifer are still above their respective MCLs. Flooding of the Little Wind River in 2010, 2016, and 2017 caused the molybdenum and uranium concentrations in wells within the area of inundation (wells 0707, 0788, 0789, and 0826) to increase dramatically (2010 and 2016) and remain elevated (2017). No flooding or minor flooding (above flood stage but no floodplain inundation) of the Little Wind River occurred from 2018 to 2022. This resulted in a general decline in molybdenum and uranium concentrations in that time period as the natural flushing progressed in the surficial aquifer without input of secondary sources from the unsaturated zone.

Although there was no flooding of the Little Wind River in 2023, infiltration of snow melt from the heavy winter snowfall likely produced conditions similar to a flood event (increased recharge) over the entire site, resulting in an input of secondary sources from the unsaturated zone. This caused increased concentrations of molybdenum and uranium in some locations compared to data from 2022 (DOE 2023b). This resulted in an expansion of the molybdenum plume (Figure 6) to the southwest (0.14 mg/L in monitoring well 0718) and the northwest (0.17 mg/L in monitoring well 0784) along with increased concentrations in the center of the plume (1.1 mg/L in monitoring well 0707). The uranium plume (Figure 9) also expanded to the southwest (0.07 in monitoring well 0854-4) and north (0.18 mg/L in monitoring well 0101) along with increased concentrations in the center of the plume (1.0 mg/L in monitoring well 0707, 1.2 mg/L in monitoring well 0856-2, 1.6 mg/L in monitoring well 0857-2, and 1.6 mg/L in monitoring well 0860-2).

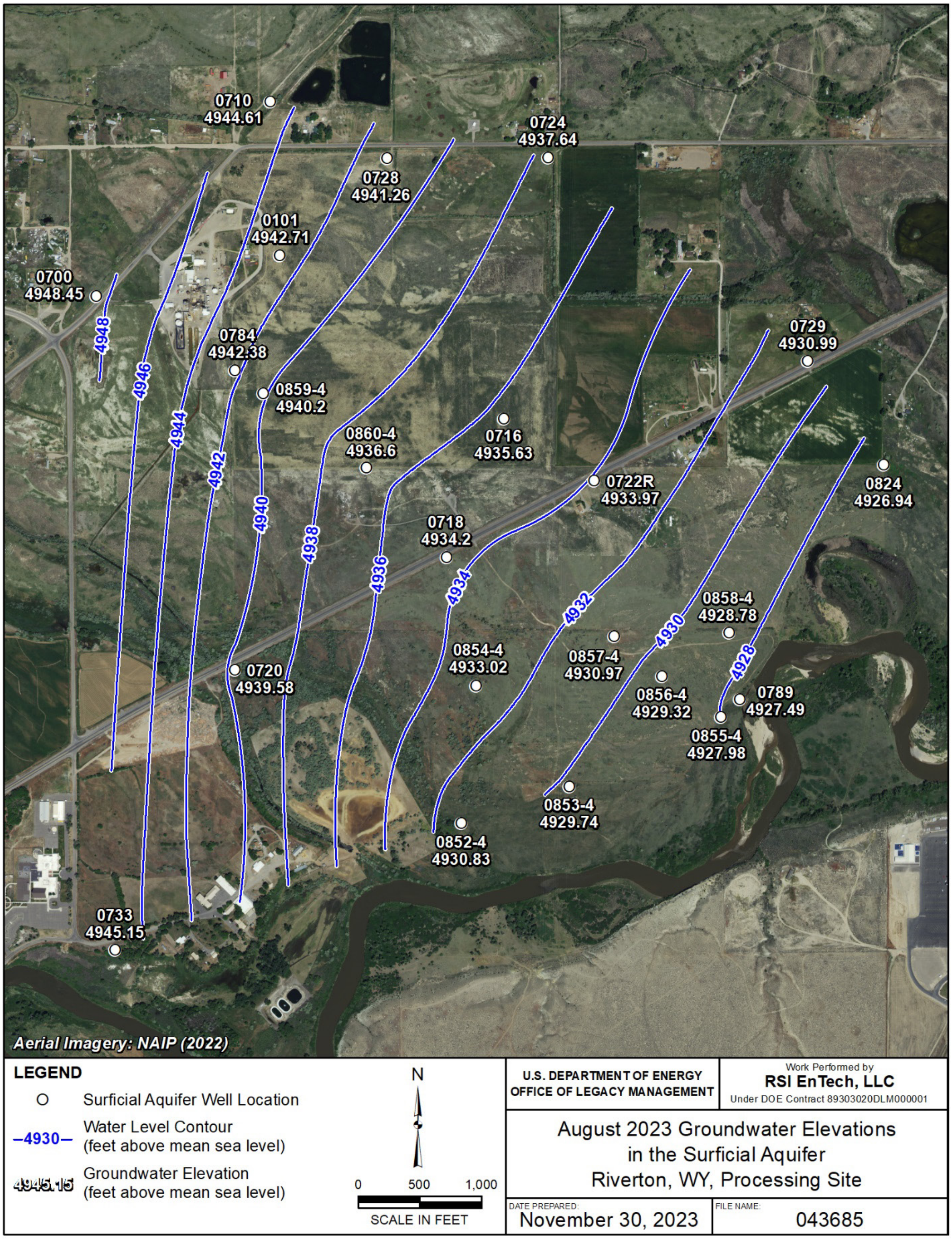


Figure 4. August 2023 Groundwater Elevations in the Surficial Aquifer at the Riverton Site

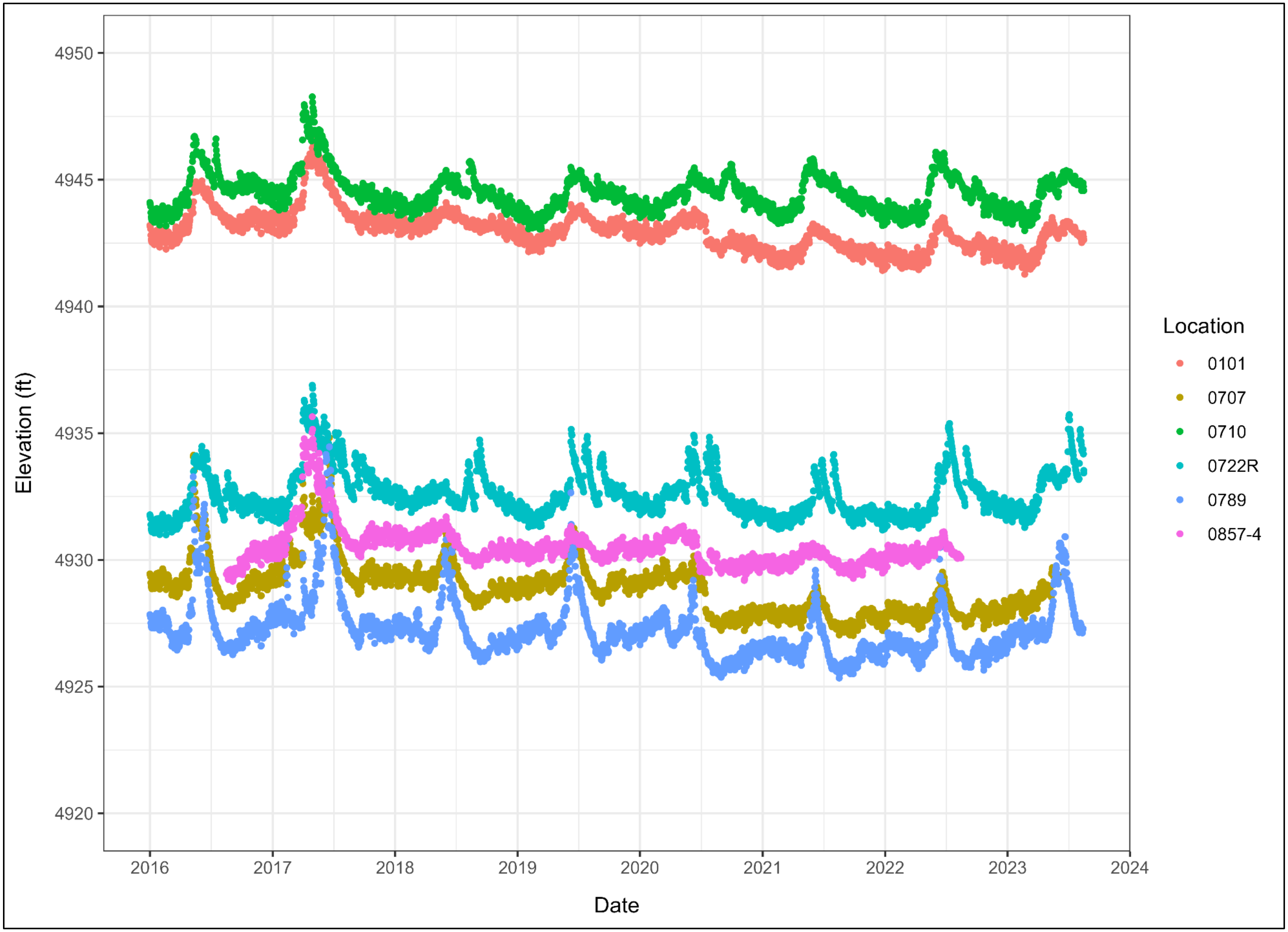


Figure 5. Continuous Water Elevations in Selected Surficial Aquifer Wells, 2016 Through August 16, 2023

Table 2. August 2023 Vertical Gradients at the Riverton Site

Well ID	Aquifer	Water Elevation	Vertical Gradient[a]
0724	Surficial	4938.00	
0725	Semiconfined	4938.18	-0.004
0726	Confined	4937.88	-0.005
0101	Surficial	4942.56	
0111	Semiconfined	4941.52	0.052
0110	Confined	4941.54	0.027
0784	Surficial	4941.75	
0732	Semiconfined	4940.00	0.060
0716	Surficial	4934.30	
0717	Semiconfined	4934.54	−0.009
0707	Surficial	4927.85	
0705	Semiconfined	4927.61	0.013
0709	Confined	4930.55	-0.036
0718	Surficial	4933.02	
0719	Semiconfined	4933.49	−0.027
0722R	Surficial	4932.58	
0723	Semiconfined	4932.62	0.00
0720	Surficial	4939.48	
0721	Semiconfined	4935.87	0.076
0729	Surficial	4933.98	
0730	Semiconfined	4933.60	0.023
0733	Surficial	4945.72	
0734	Semiconfined	4943.63	0.081

Note:
[a] The vertical gradient from the semiconfined aquifer is between the semiconfined aquifer and the surficial aquifer, and the vertical gradient from the confined aquifer is between the confined aquifer and the surficial aquifer. A negative value indicates an upward vertical gradient; a positive value indicates a downward vertical gradient.

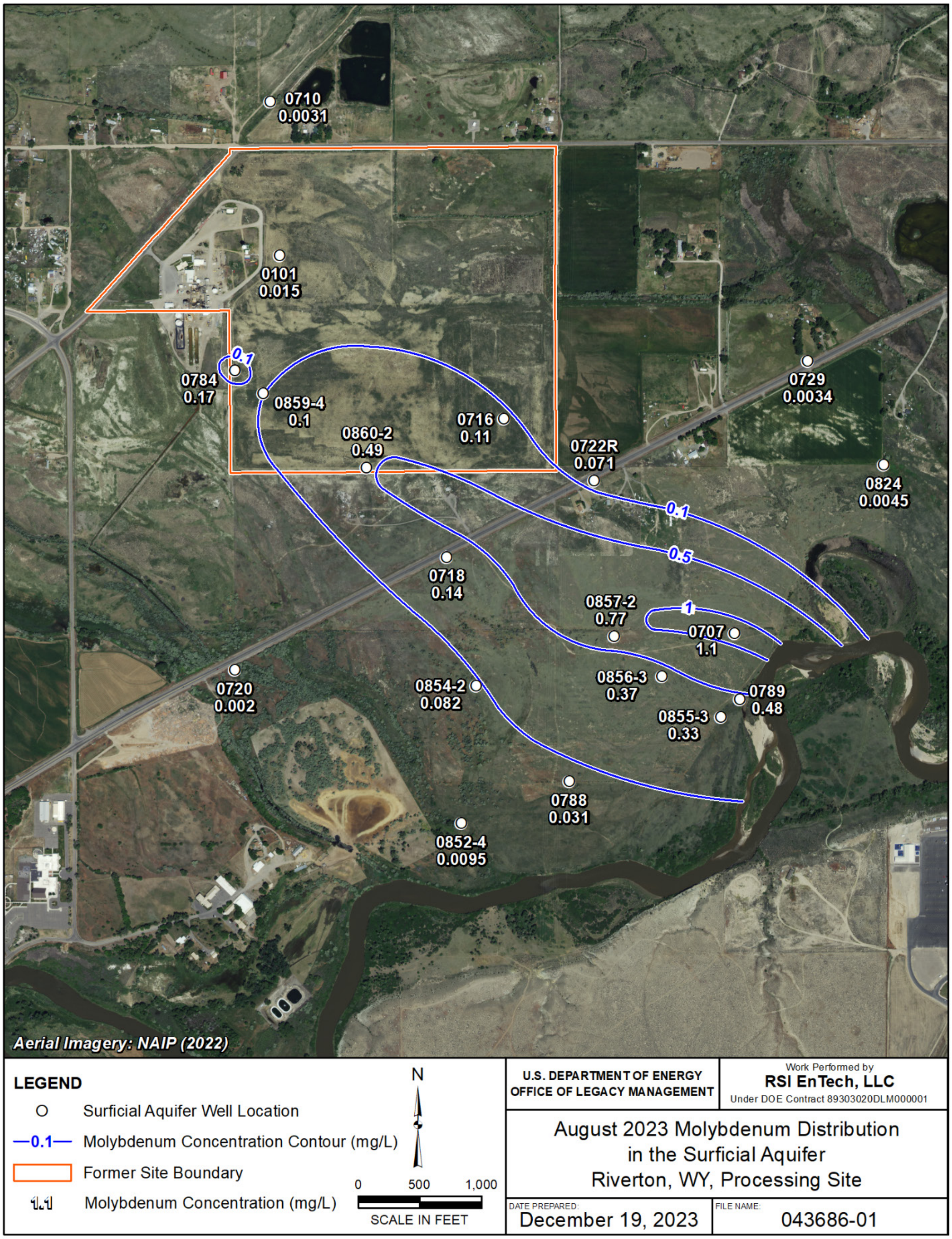
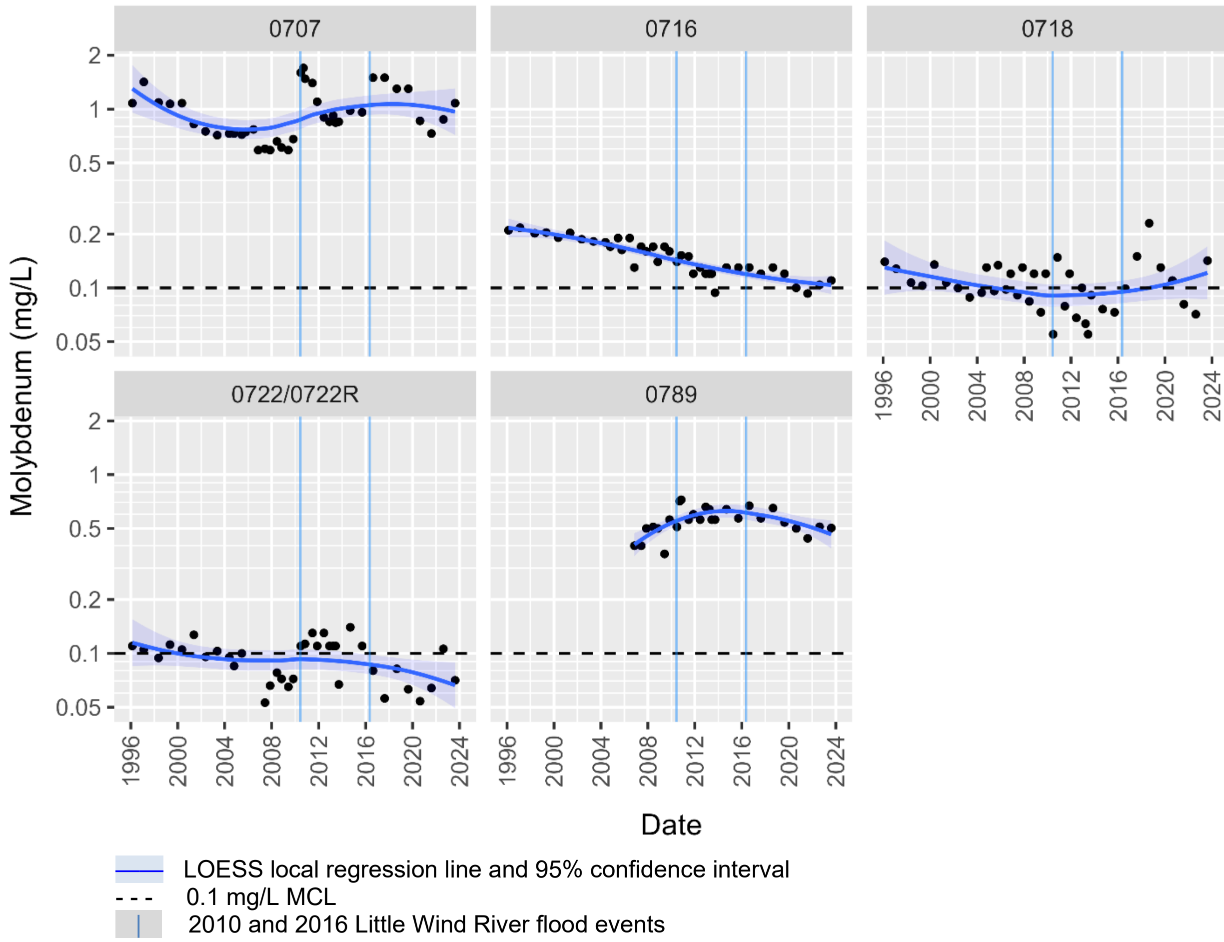


Figure 6. Molybdenum Distribution in the Surficial Aquifer at the Riverton Site in August 2023



Note: Former well 0722 (monitored 1993–2005) was replaced with well 0722R in 2007.

Figure 7. Time-Concentrations Plots of Molybdenum in Surficial Aquifer Wells Within the Contaminant Plume, 1996–2023

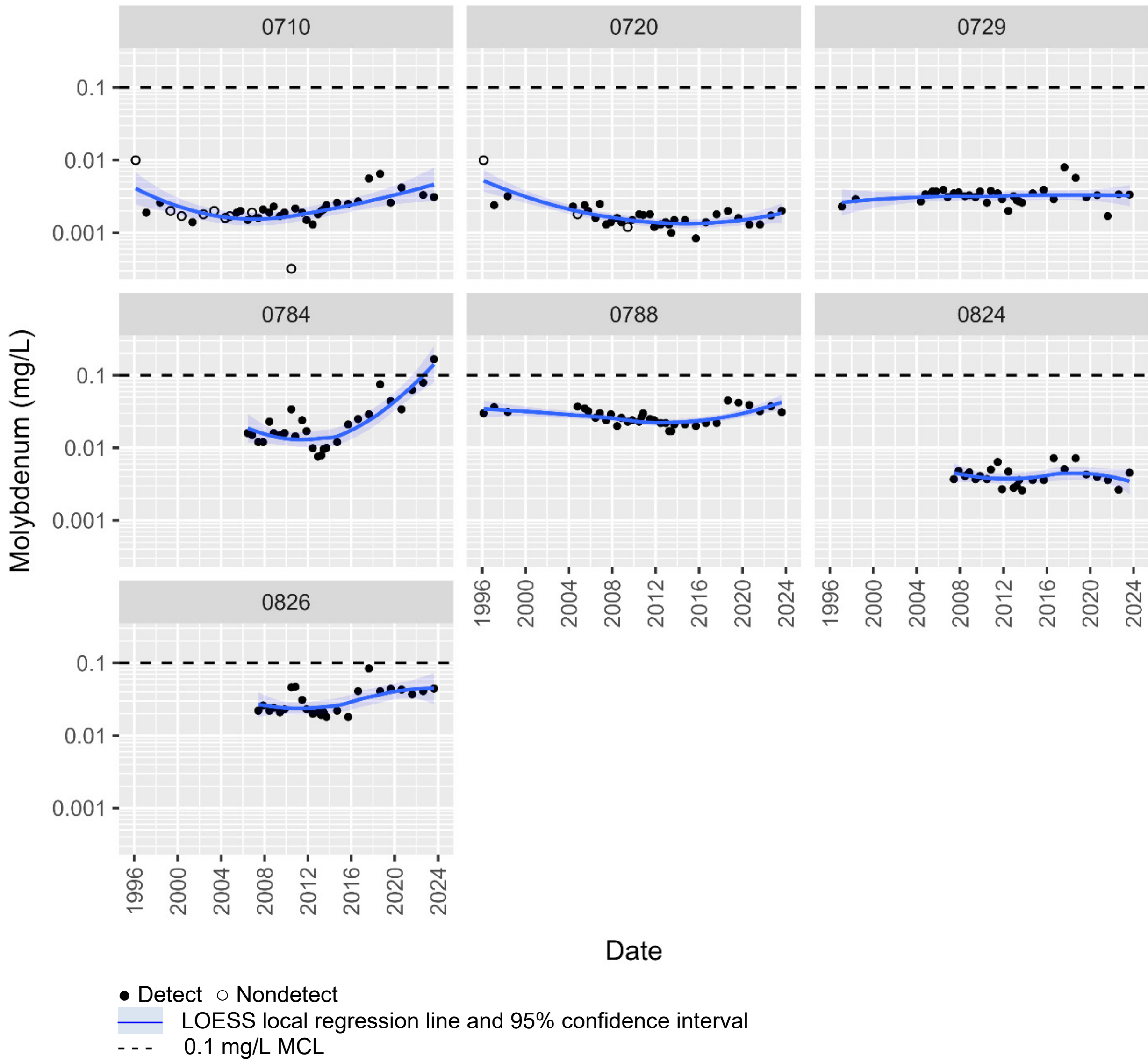


Figure 8. Time-Concentration Plots of Molybdenum in Surficial Aquifer Wells on the Edge and Outside of the Contaminant Plume, 1996–2023

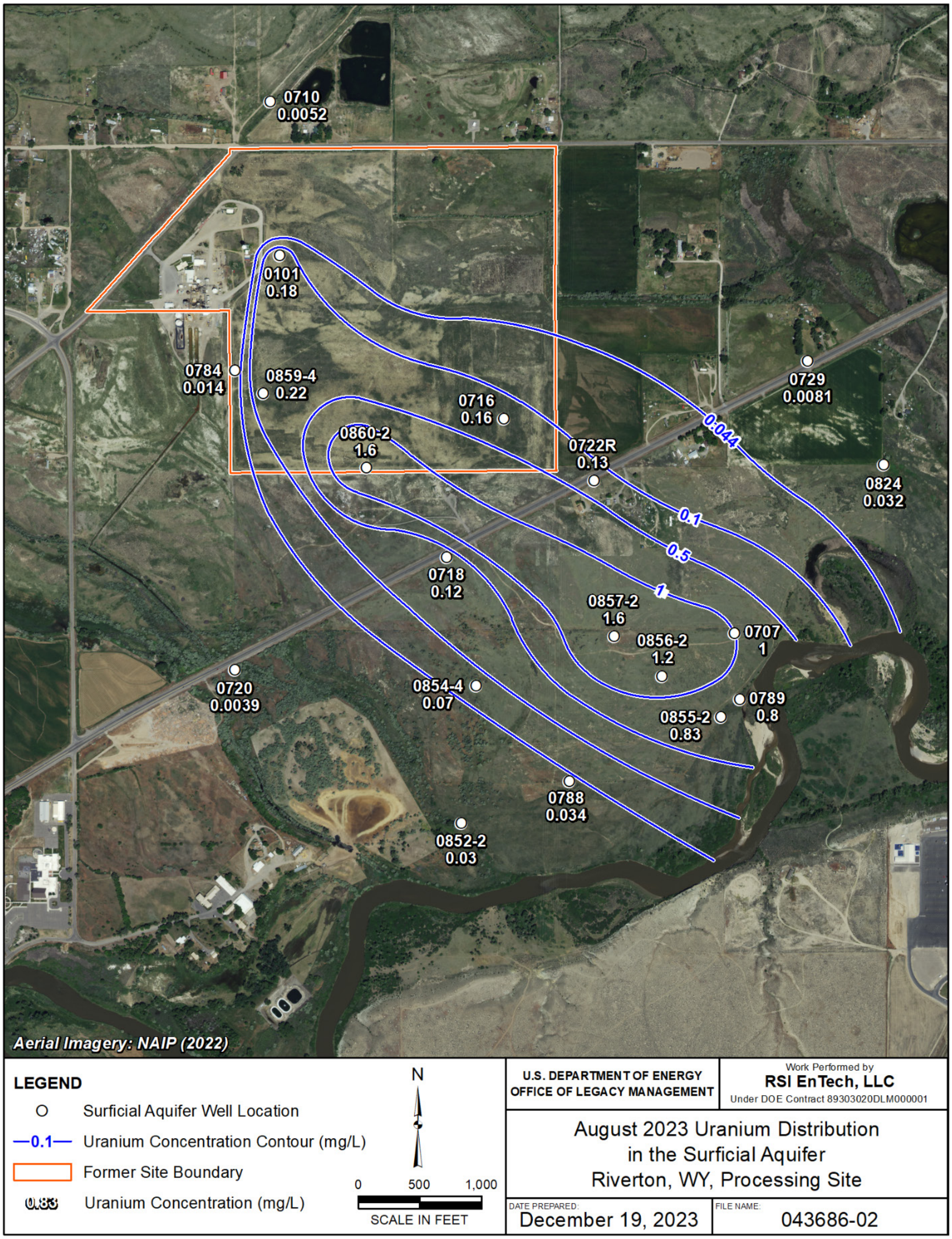


Figure 9. Uranium Distribution in the Surficial Aquifer at the Riverton Site in August 2023

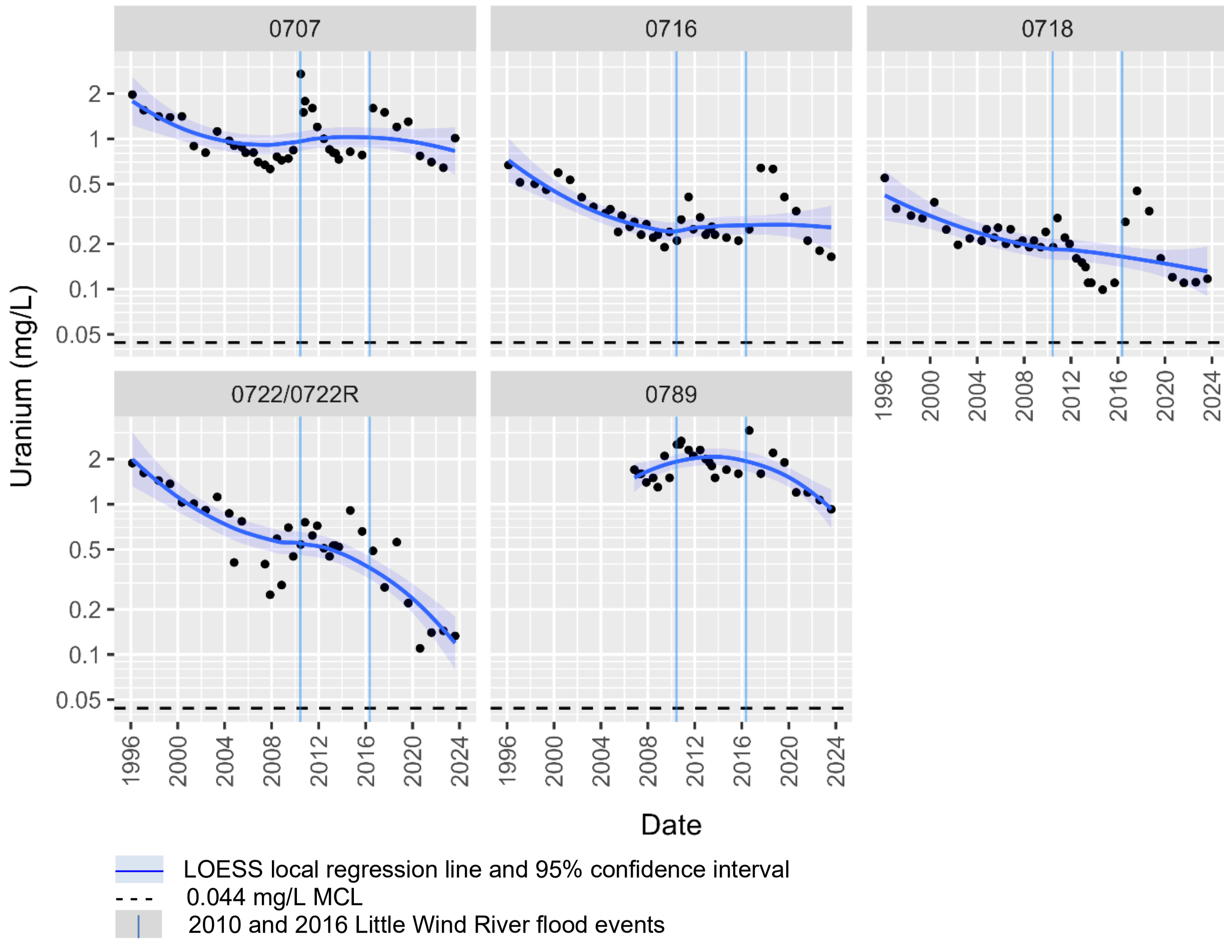


Figure 10. Time-Concentration Plots of Uranium in Surficial Aquifer Wells Within the Contaminant Plume, 1996–2023

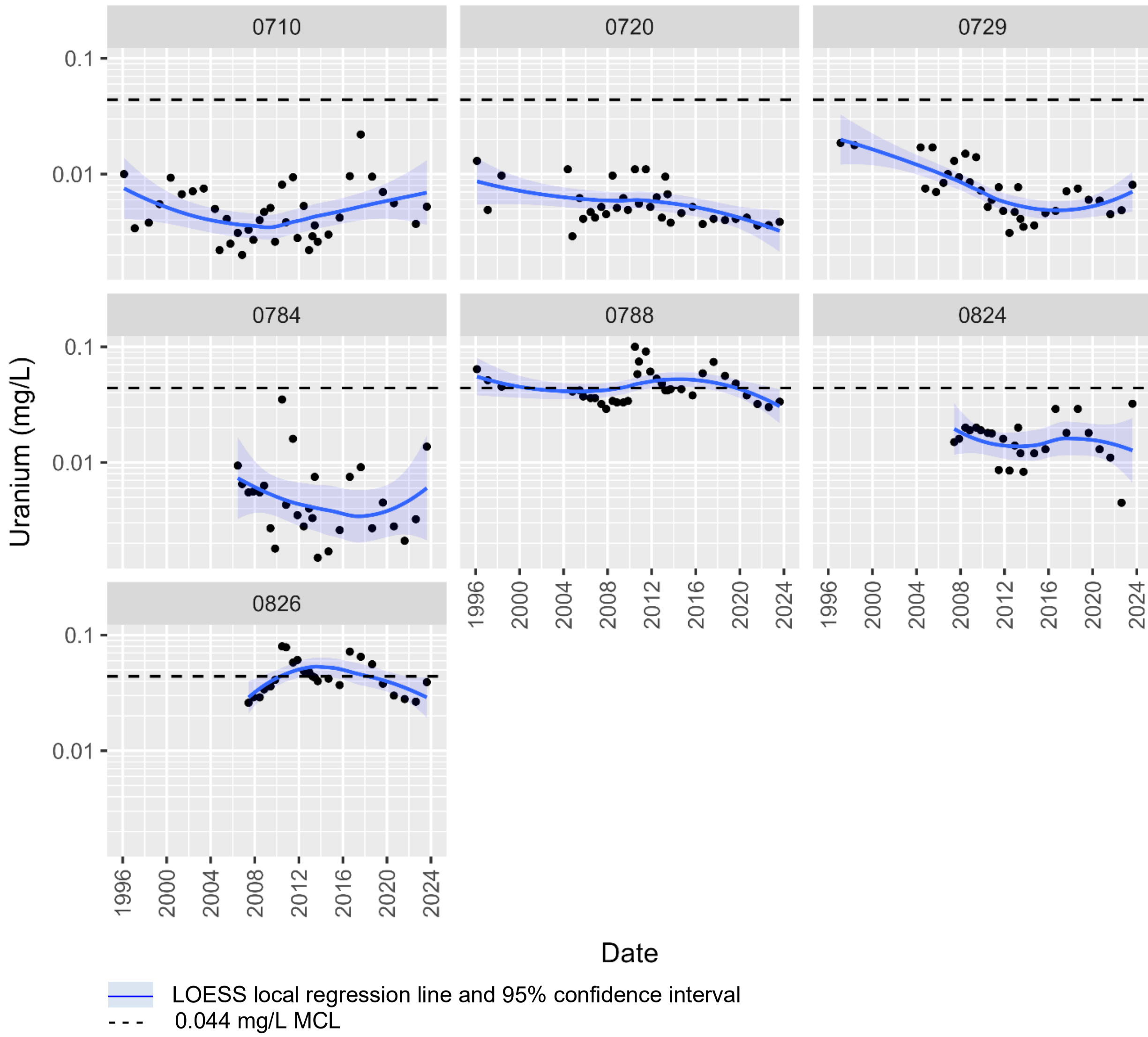


Figure 11. Time-Concentration Plots of Uranium in Surficial Aquifer Wells on the Edge and Outside of the Contaminant Plume, 1996–2023

Concentrations of molybdenum and uranium in groundwater in the semiconfined aquifer are still below corresponding MCLs in areas where the overlying surficial aquifer groundwater is contaminated. This indicates no significant impact from site-related molybdenum or uranium contamination in this unit (Figure 12 for molybdenum and Figure 13 for uranium). Appendix C provides groundwater quality data by parameter for monitoring wells in the long-term monitoring network sampled in 2023.

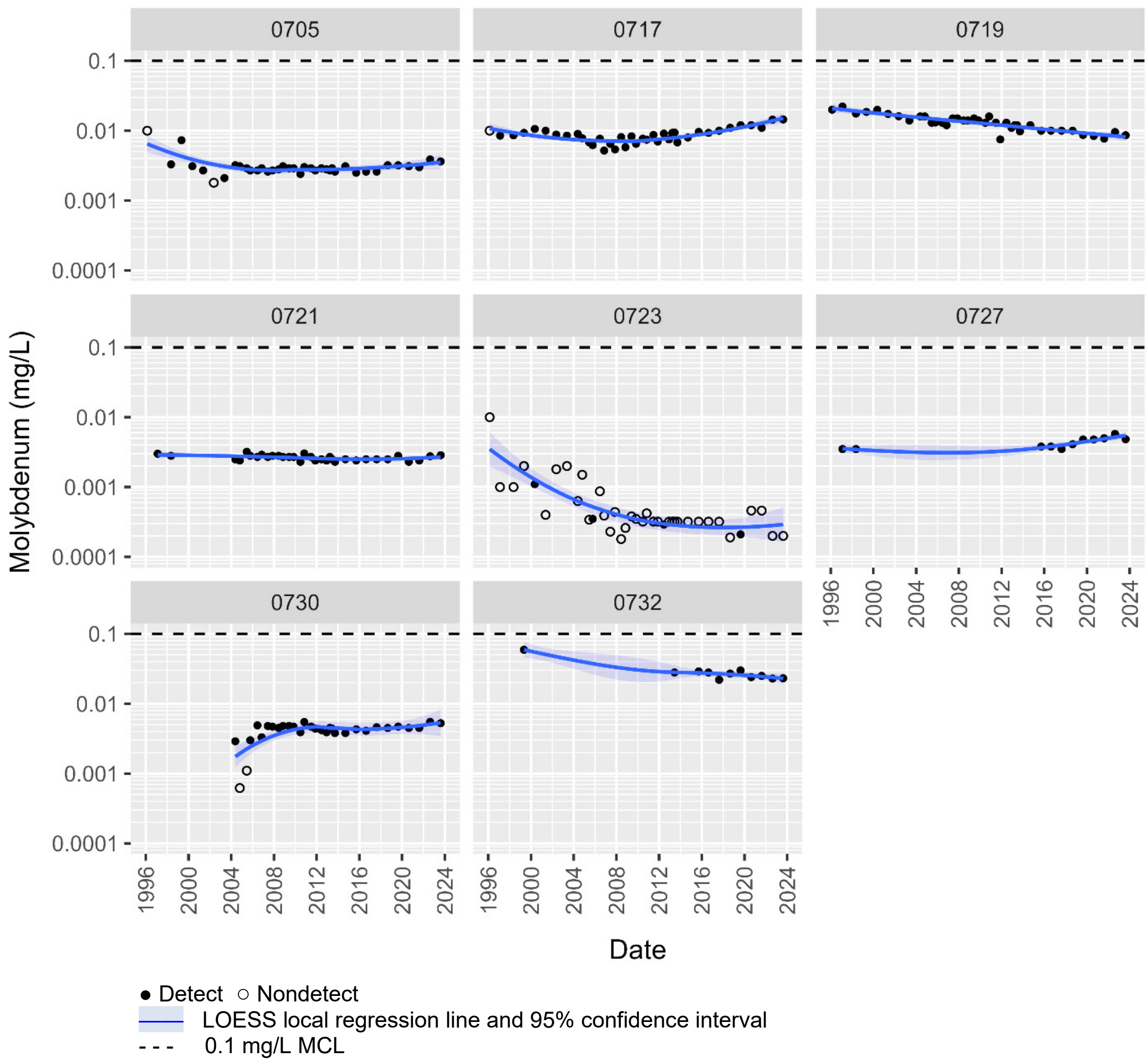


Figure 12. Time-Concentration Plots of Molybdenum in Semiconfined Aquifer Wells, 1996–2023

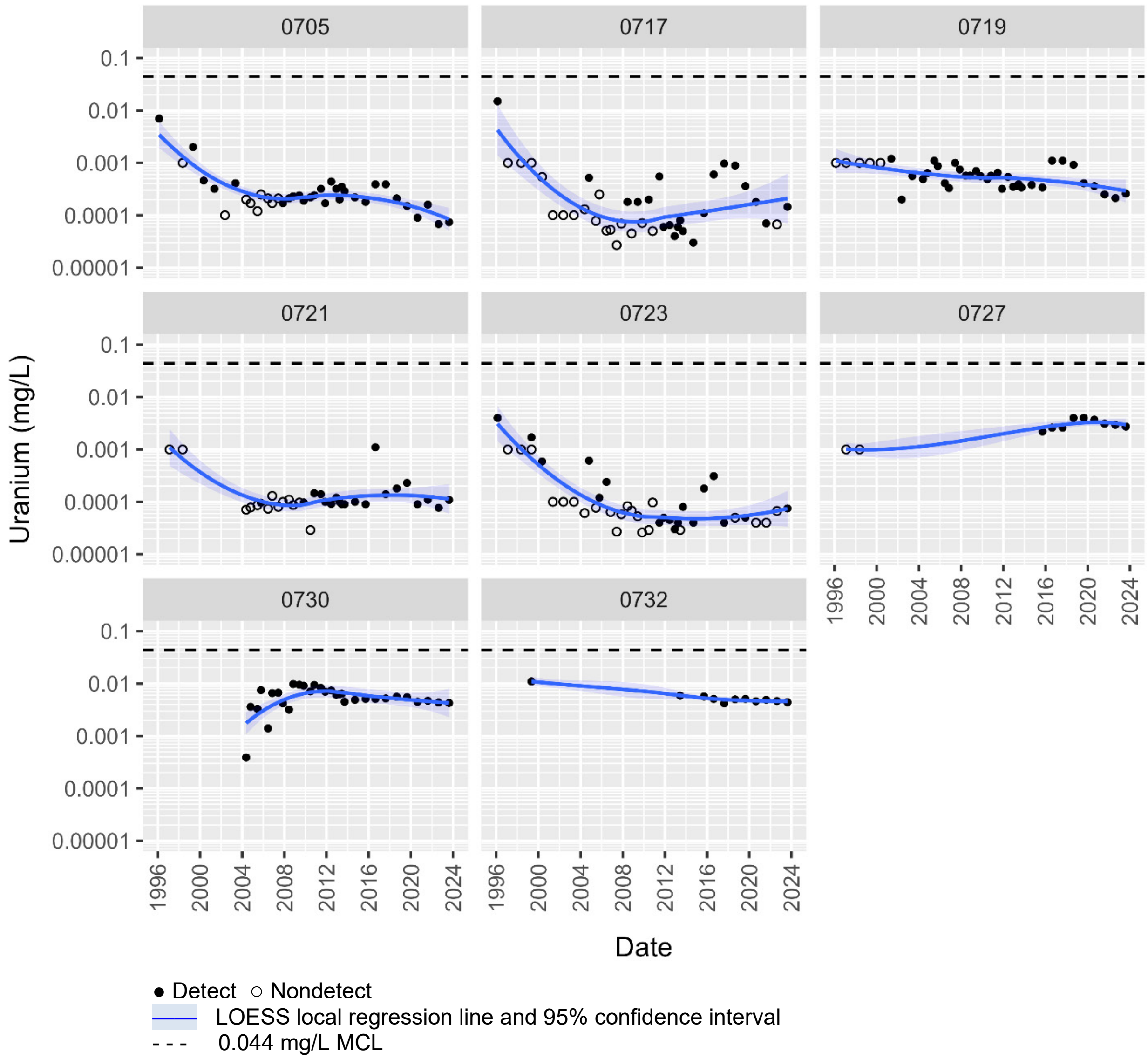


Figure 13. Time-Concentration Plots of Uranium in Semiconfined Aquifer Wells, 1996–2023

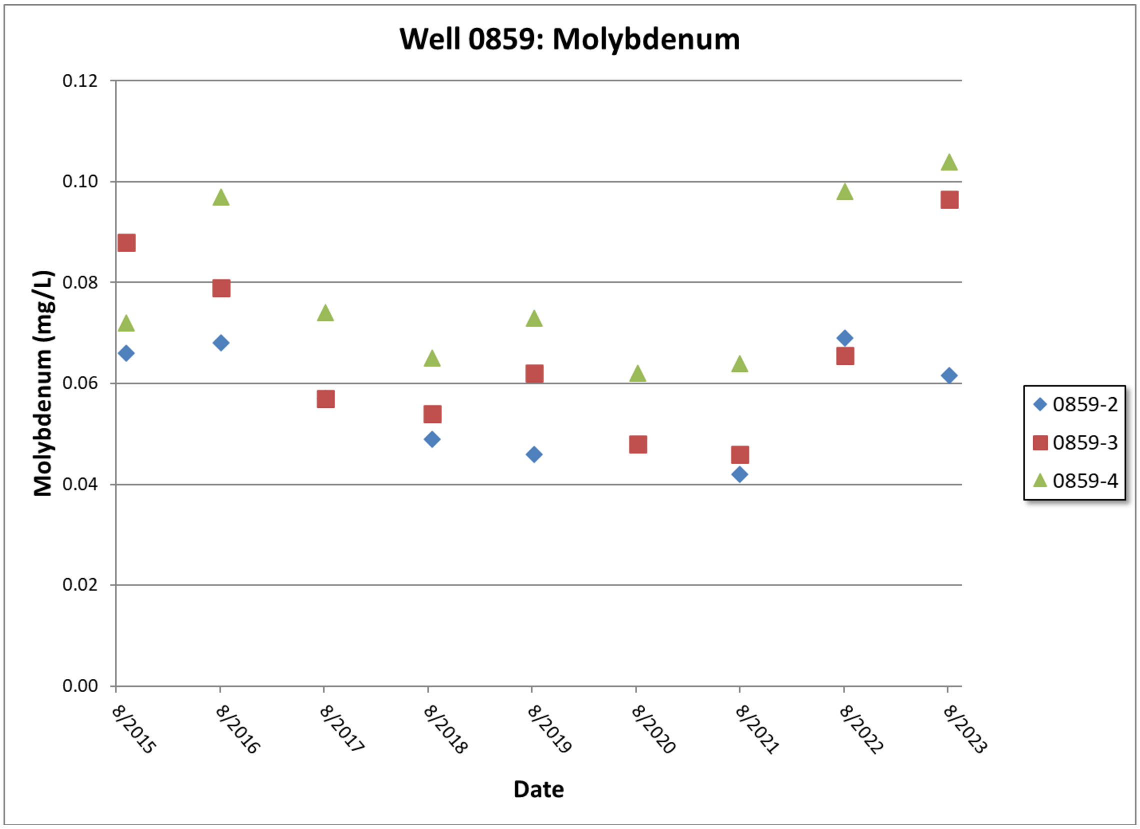
5.1.2.1 Multilevel Monitoring Wells

Nine multilevel groundwater monitoring wells (0852 through 0860) were installed in 2015. Each multilevel monitoring well has four ports designated as -1, -2, -3, and -4 (e.g., 0860-1), with -1 being the top port and -4 being the bottom port. Construction details for the multilevel monitoring wells are provided in the *2015 Advanced Site Investigation and Monitoring Report, Riverton, Wyoming, Processing Site* (DOE 2016). Because of the low water table elevation at the time of sampling, all top ports in the multilevel wells were dry during the sampling event in August.

Figure 14 shows molybdenum and uranium concentrations, respectively, in multilevel monitoring well 0859, which is on the former mill site and beyond the reach of Little Wind River flooding. As shown in these graphs, molybdenum and uranium concentrations were higher and vertically stratified after the record snow fall last winter, which appears to confirm the CSM of contaminants being stored in the unsaturated zone and released during significant infiltration events such as river flooding or snow melt. Multilevel monitoring wells 0857 and 0860 also showed vertical stratification in 2023 (Appendix D). Graphs showing molybdenum and uranium concentrations in all multilevel monitoring wells are provided in Appendix D.

5.1.2.2 Domestic Wells

Domestic wells used as potable water sources at residences within the IC boundary were sampled in 2023. Domestic wells sampled in 2023, with the exception of domestic well 0841, are completed in the confined aquifer; domestic well 0841 is completed in the semiconfined aquifer. Results from domestic wells did not indicate any impacts from the Riverton site. Concentrations of molybdenum in samples collected from domestic wells were 2 orders of magnitude below the standard, and concentrations of uranium in samples collected from domestic wells were 1 (well 0841) to 3 (all other domestic wells) orders of magnitude below the standard. Figure 15 and Figure 16 show time-concentration graphs for molybdenum and uranium, respectively. Appendix A provides data obtained from sampling domestic wells in 2023.



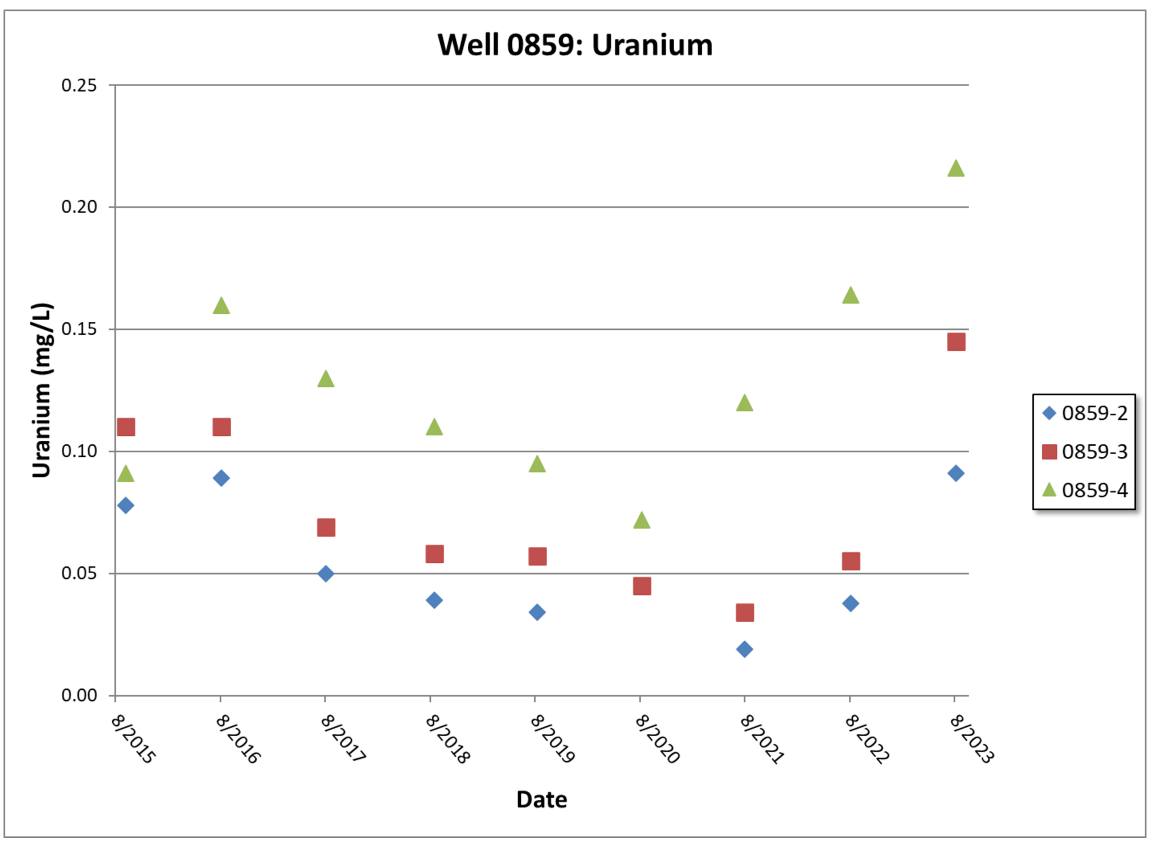


Figure 14. Time-Concentration Plots of Molybdenum and Uranium in Multilevel Monitoring Well 0859, 2015–2023

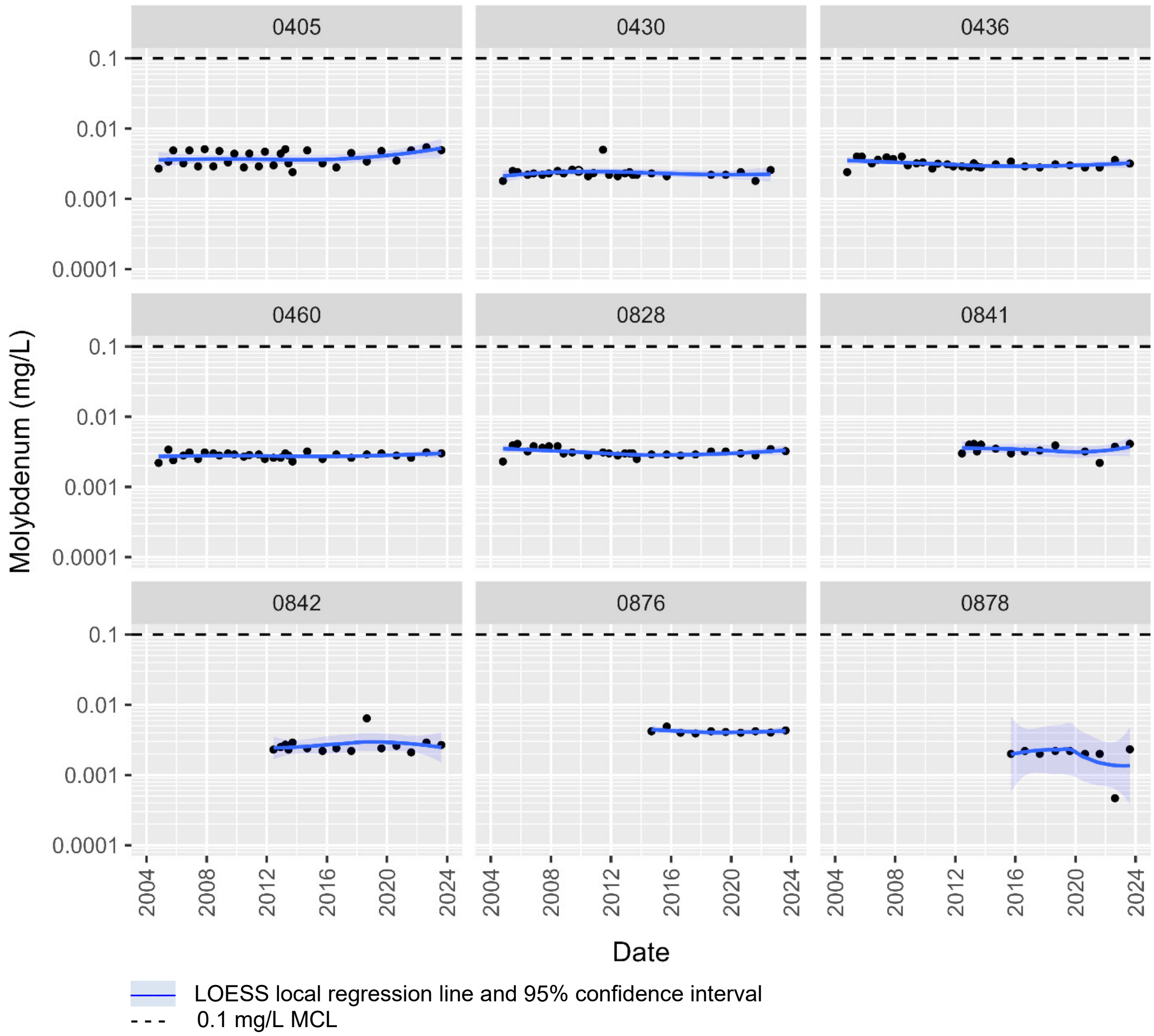


Figure 15. Time-Concentration Plots of Molybdenum in Domestic Wells, 2004–2023

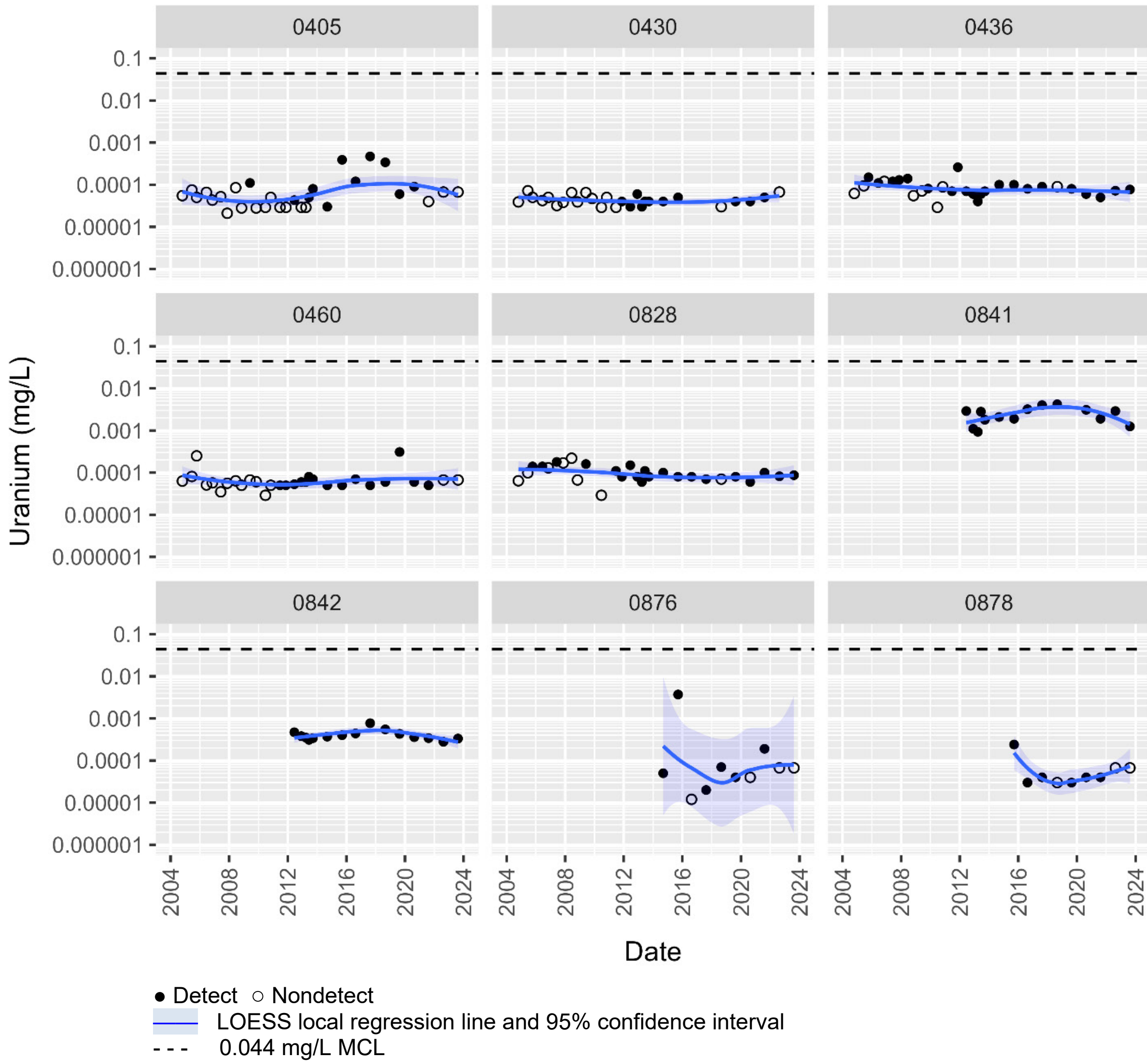


Figure 16. Time-Concentration Plots of Uranium in Domestic Wells, 2004–2023

5.2 Surface Water

5.2.1 Surface Water Flow

Surface water flow in the Little Wind River has a direct impact on groundwater conditions at the Riverton site. The 2010 flood of the Little Wind River demonstrated a direct correlation between flooding of the Little Wind River and increased contaminant concentrations in the surficial aquifer (DOE 2011). This correlation was confirmed in 2016 and 2017. In addition, flooding of the Little Wind River has impacted the geomorphology of the Riverton site next to the Little Wind River with development and evolution of surface water features, such as the oxbow lake and a scour feature in the side channel of the Little Wind River that developed into a seep (Figure 17, location 0879).

Discharge in the Little Wind River is statistically the highest in June, which reflects spring runoff from the Wind River Range. An assessment of Little Wind River discharge data from June indicates that spring runoff and flow in the river were near normal in 2023 (Table 3) (USGS 2023). The peak 2023 discharge of 5400 cfs occurred on June 21, 2023. Figure 18 shows the 10 highest peak discharges recorded since the start of milling operations in 1958 (USGS 2023).

Figure 17. Surface Water Location 0879 in August 2023

Table 3. Discharge from the Little Wind River

Year[a]	Mean June Discharge (cfs)	Deviation from Mean[b] June Discharge (cfs)	Maximum June Discharge (cfs)
2001	233.2	-2116.8	2090
2002	740.6	-1609.4	1930
2003	861.7	-1488.3	2490
2004	1591	-759	4120
2005	2272	-78	4520
2006	642.4	-1707.6	1710
2007	738.9	-1611.1	1910
2008	2175	-175	3730
2009	3012	662	4190
2010	5829	3479	13,300
2011	2861	511	7210
2012	594	-1756	1610
2013	587	-1763	1640
2014	1333	-1017	3140
2015	2538	188	4240
2016	3443	1093	11,200
2017	6397	4047	12,855
2018	2375	25	4600
2019	3325	975	7920
2020	500	-1850	3740
2021	1484	-866	4220
2022	2183	-167	6260
2023	3760	1410	5400[c]

Notes:
[a] USGS gaging station statistics.
[b] Based on a mean June discharge of 2350 cfs from 1941 to 2023.
[c] Provisional data.

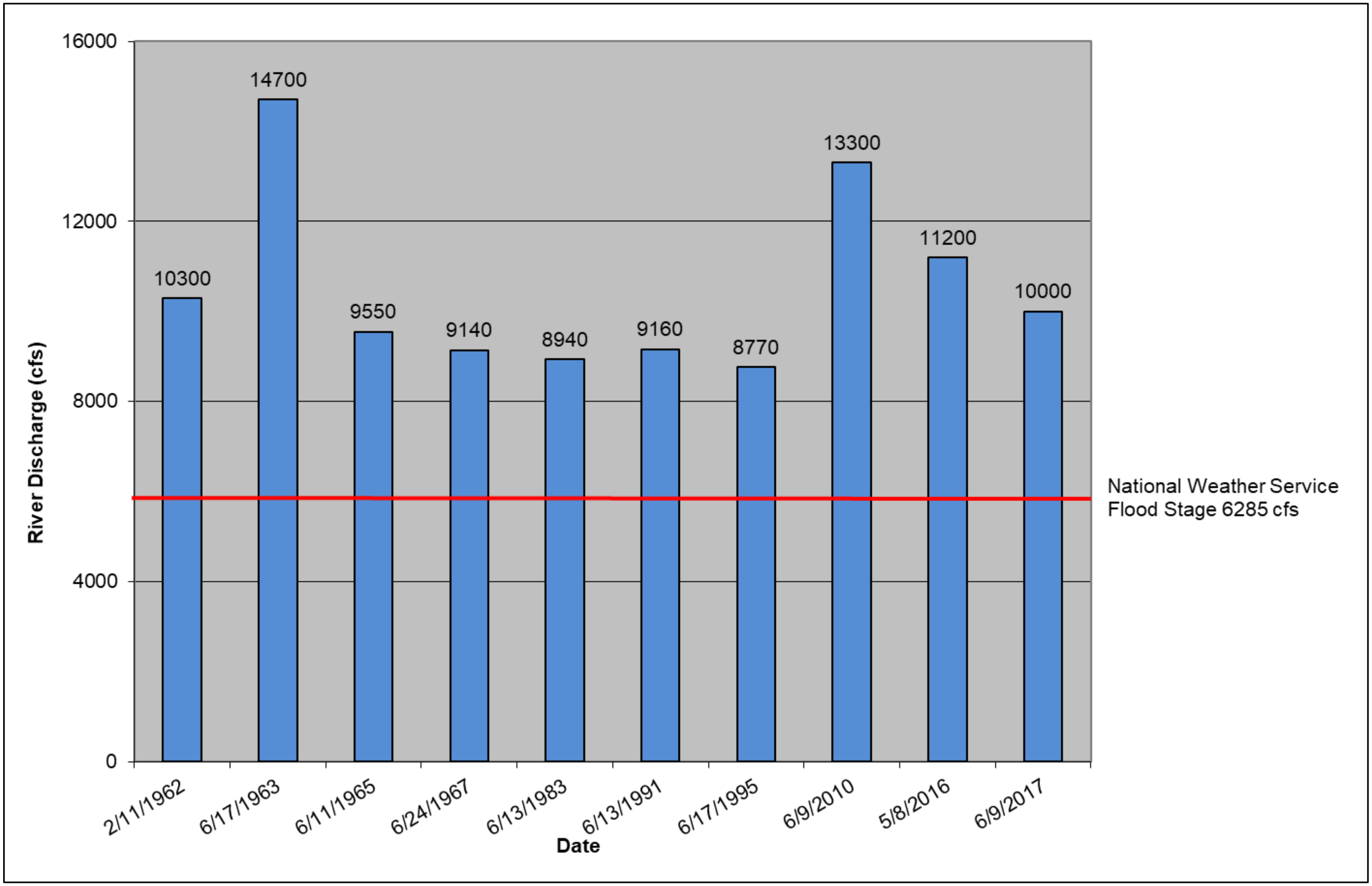


Figure 18. Historical Maximum Discharges of the Little Wind River

5.2.2 Surface Water Quality

Samples were collected at four locations on the Little Wind River (Figure 2), which flows generally to the northeast. Samples were collected from one location upstream of the groundwater plume (location 0794) and from three river locations adjacent to and downstream of the groundwater plume (locations 0811, 0812, and 0796). In 2023, molybdenum and uranium concentrations measured at adjacent and downstream locations were slightly lower than the upstream location 0794, as shown for molybdenum in Figure 19 and for uranium in Figure 20 Groundwater discharge to the river was not evident in 2023 because of dilution from flow in the Little Wind River (390 cfs) on the day the samples were collected from locations 0811 and 0812. Appendix E provides surface water quality data by parameter for all surface water locations sampled during 2023.

Two ponds (locations 0810 and 0823) formed from groundwater discharge into former gravel pits were sampled as part of the long-term monitoring network. These ponds are primarily used for fishing and swimming and are cross gradient (0810) and upgradient (0823) from contaminant plumes. Samples collected from the ponds had concentrations of molybdenum and uranium that were below their respective groundwater MCLs and are comparable to background groundwater concentrations, which indicates no discernible impacts from the site. Figure 21 and Figure 22 show concentrations of molybdenum and uranium, respectively, over time in these ponds.

Concentrations of molybdenum and uranium in the oxbow lake (location 0747) have varied over time (see Figure 21 for molybdenum and Figure 22 for uranium). This variability is partially attributed to the time at which these samples are taken. If inflow from the Little Wind River to the oxbow lake occurred just before or during the sampling event, then contaminant concentrations are diluted. In 2023, the Little Wind River was not flowing into the oxbow lake during the August sampling event when low-flow conditions were observed. Hydraulic and water quality data indicate that the oxbow lake is fed by the discharge of contaminated groundwater; therefore, elevated concentrations are expected. Variability in uranium concentrations in the oxbow lake is also attributed to fluctuations in groundwater chemistry. In 2023, the concentration of uranium (0.10 mg/L) in the sample collected from the oxbow lake was above the groundwater MCL and likely reflects uranium concentrations in the surficial groundwater in that area (Figure 9). Molybdenum concentrations in the oxbow lake have been historically below the groundwater MCL and were again in 2023 (Figure 21).

Field observations since 2002 indicate that the oxbow lake is gradually filling with sediment and vegetation over time, as expected. Numerous abandoned meanders (oxbows) of the Wind and Little Wind Rivers are evident from satellite imagery (Figure 2). Eventually, the oxbow lake will fill in as other abandoned channels have and not be an expression of surface water at the Riverton site. Figure 23 and Figure 24 show satellite imagery of the oxbow lake in 2003 and 2023, respectively, which illustrates the progress of the vegetation and sedimentation filling in the ponded water.

Surface water location 0879 is a scour feature in the side channel of the Little Wind River that developed into a seep (Figure 2). This location receives discharge of contaminated groundwater when water levels are high enough in the surficial aquifer (Figure 17); this feature contained water in 2023 with molybdenum and uranium concentrations of 0.10 mg/L and 0.14 mg/L, respectively, which indicates discharge of contaminated groundwater to this seep.

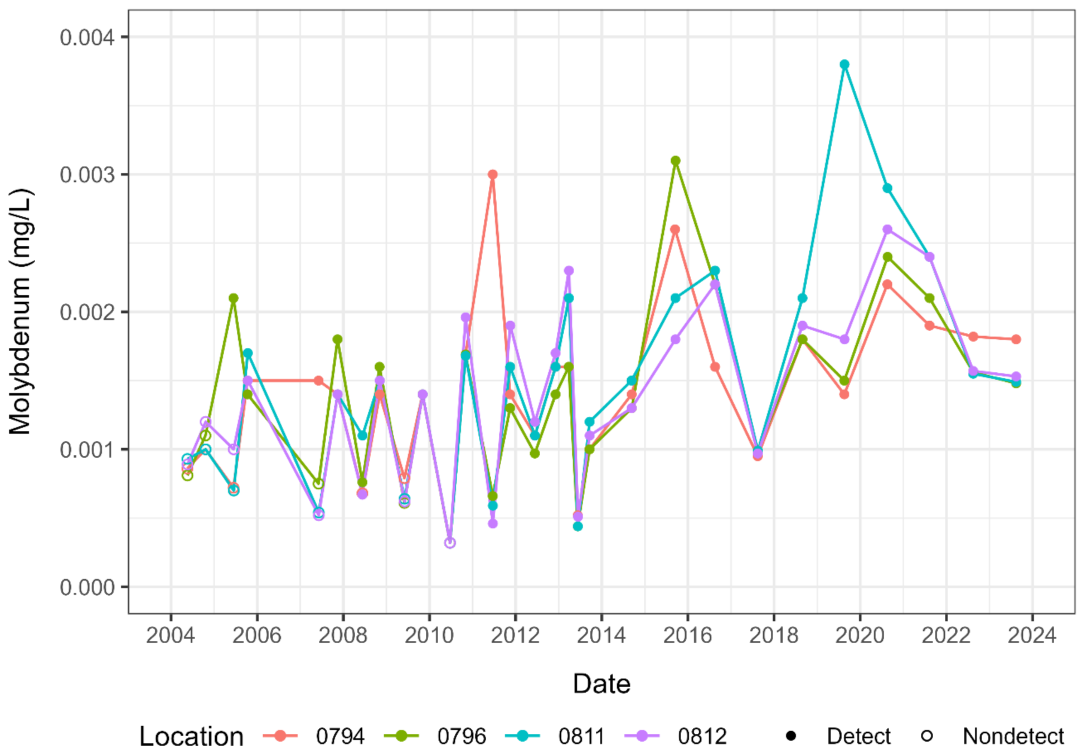


Figure 19. Time-Concentration Plots of Molybdenum in Little Wind River Locations, 2004–2023

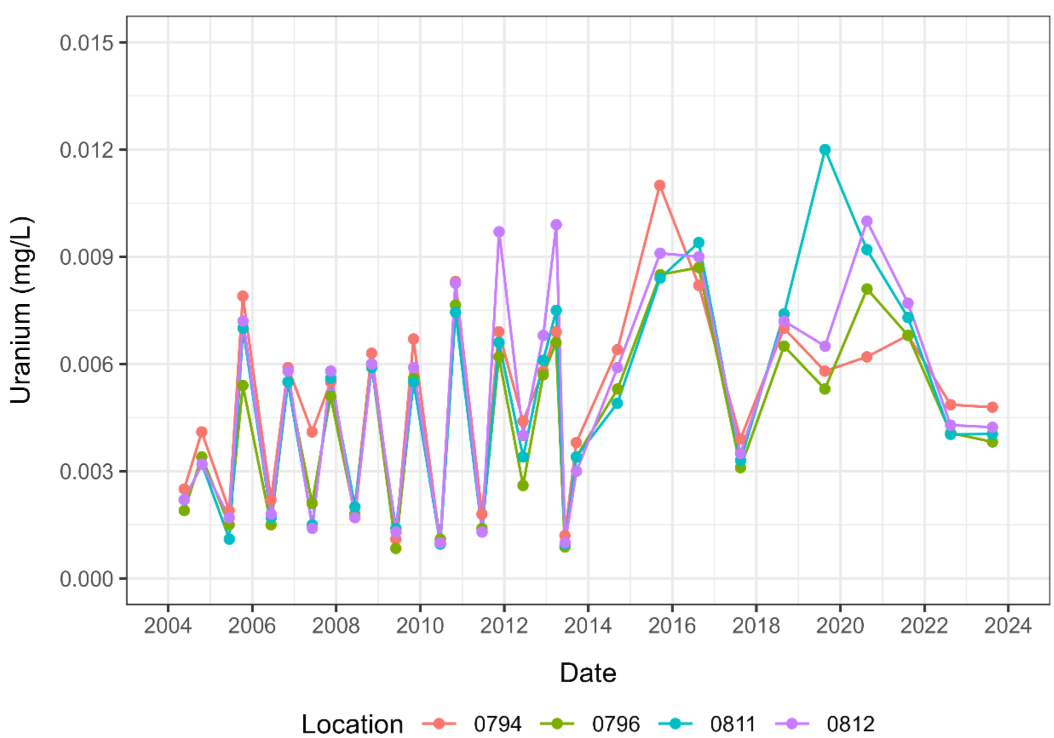


Figure 20. Time-Concentration Plots of Uranium in Little Wind River Locations, 2004–2023

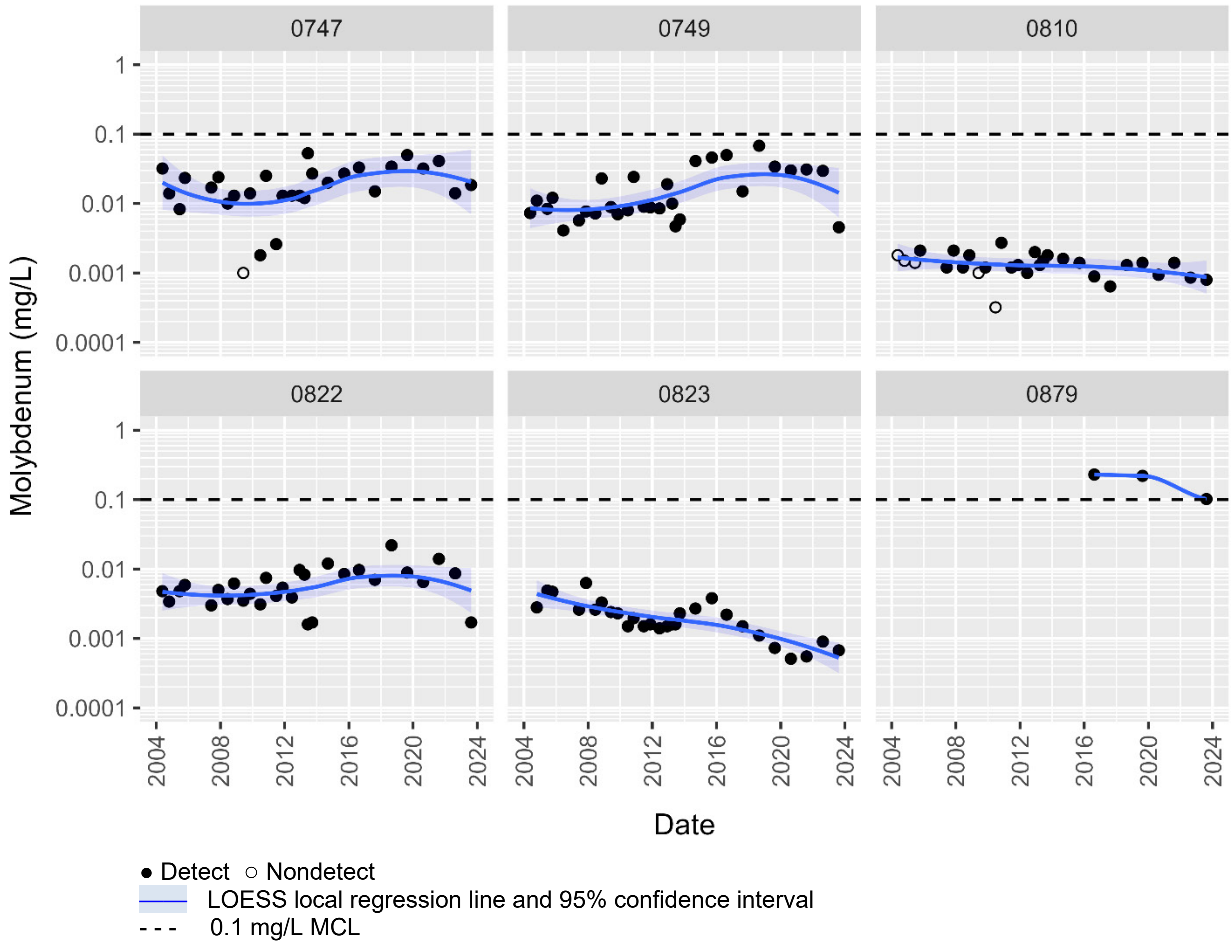


Figure 21. Time-Concentration Plots of Molybdenum in Ponds, Ditches, and Seeps, 2004–2023

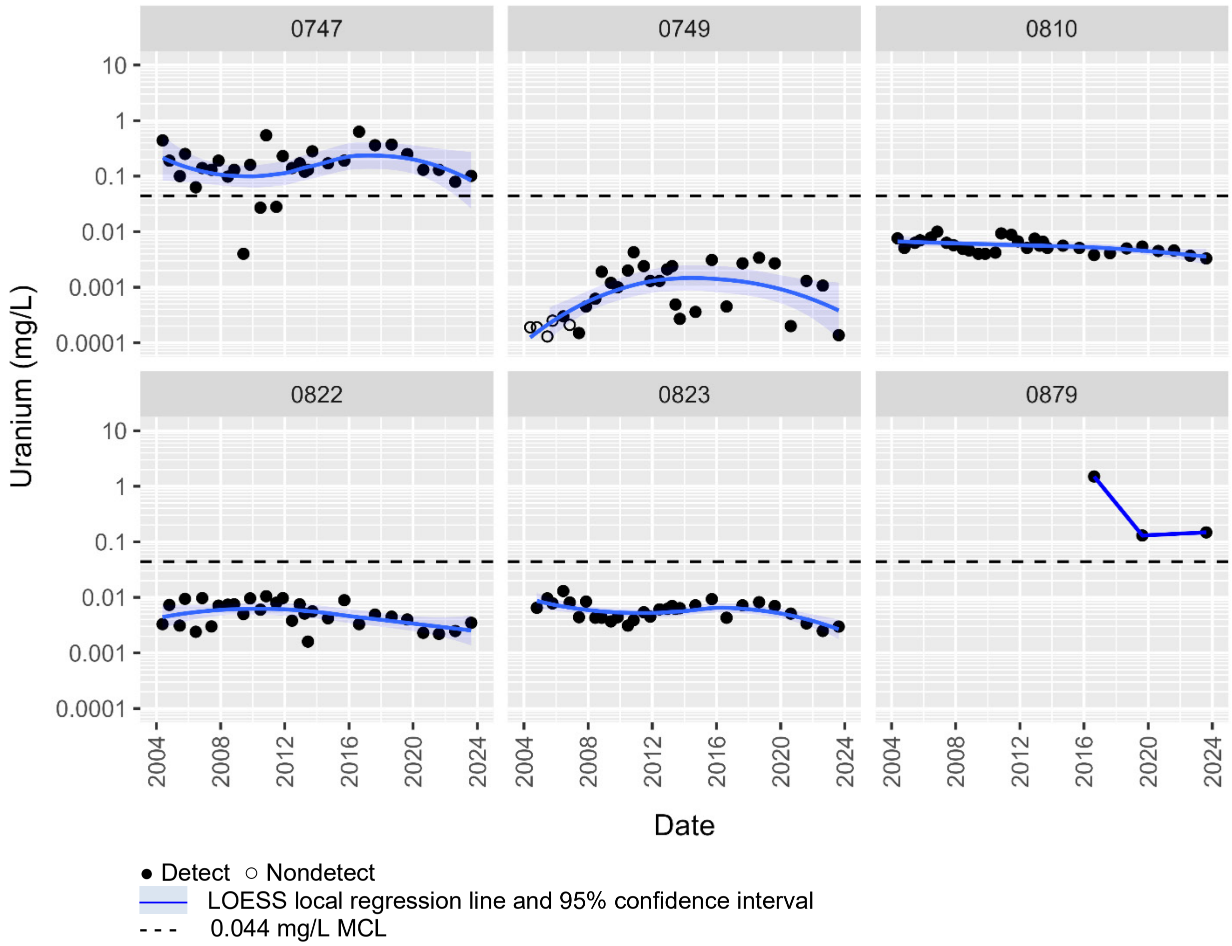


Figure 22. Time-Concentration Plots of Uranium in Ponds and Ditches, 2004–2023

043688-01

Figure 23. Satellite Imagery of the Oxbow Lake in 2003

043688-02

Figure 24. Satellite Imagery of the Oxbow Lake in 2023

The sample collected at the ditch that carries discharge water from the Chemtrade sulfuric acid refinery (location 0749) had elevated concentrations of sulfate that have been in the 1500–3000 mg/L range from 2004 to March 2013. In June 2013, however, concentrations were significantly reduced (550 mg/L at location 0749) because of a change in plant processes that reduced sulfate in water discharge and in air emissions. Discharge from the ditch is regulated through a National Pollutant Discharge Elimination System permit issued to Chemtrade and administered by EPA. Since 2013, sulfate concentrations in the ditch have been variable (Figure 25) and likely dependent on plant operations. The concentration of sulfate measured in August 2023 of 230 mg/L was comparable to the Chemtrade process water well 0460 with 170 mg/L sulfate. This lower concentration of sulfate in the ditch was likely due to the plant shutdown for cleaning and maintenance at the time of sampling. The unlined ditch will continue to be monitored because it is a continual source of sulfate to the surficial aquifer.

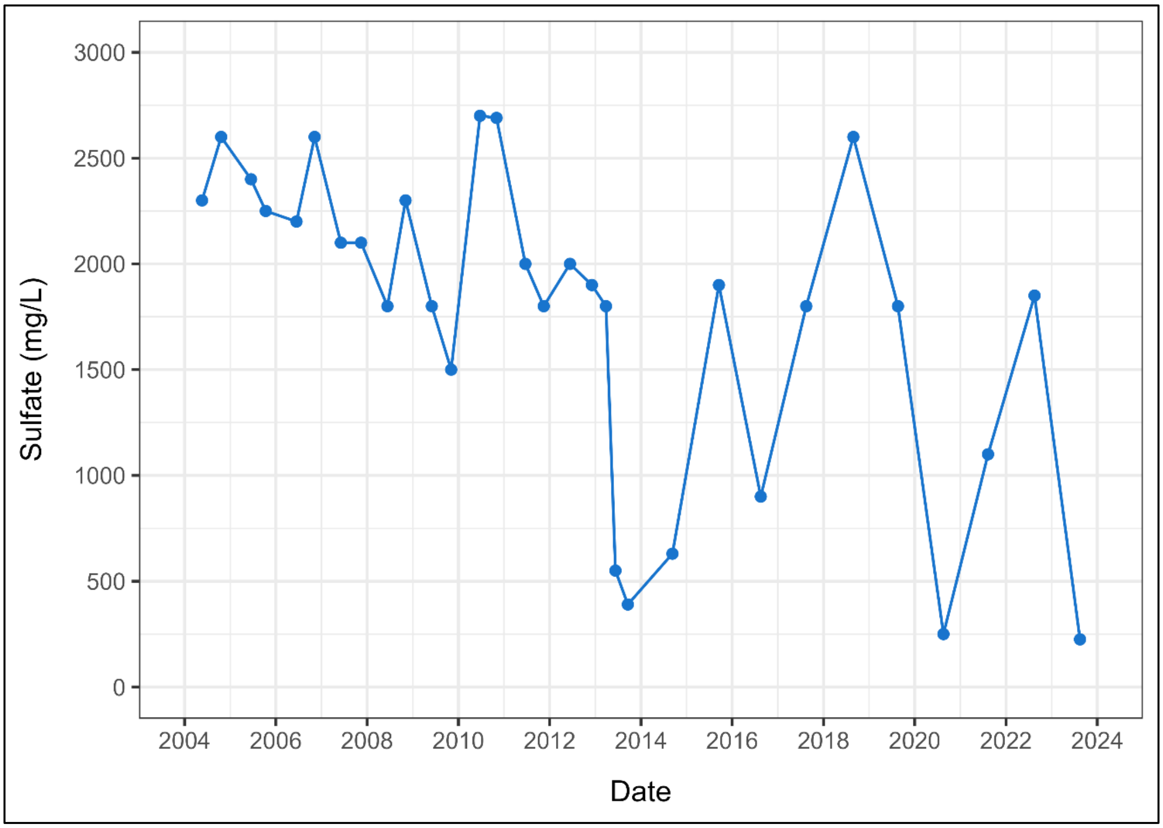


Figure 25. Time-Concentration Plot of Sulfate at Location 0749, 2004–2023

Concentrations of molybdenum and uranium in the Chemtrade ditch (location 0749) are below the groundwater MCLs, but concentrations in the past have indicated a small contribution from plant processes (DOE 2023b); however, the plant was shut down for cleaning and maintenance at the time of sampling. Therefore, the 2023 concentration of molybdenum in the sample collected from the ditch (0.0046 mg/L) was comparable to the molybdenum concentration in process water used by the sulfuric acid plant that is supplied by well 0460 (0.0030 mg/L). In addition, the concentration of uranium in the sample collected from the ditch (0.00014 mg/L) and the concentrations of the process water used at the plant (not detected, <0. 0.000067 mg/L) were also low and comparable.

Downstream of the Chemtrade ditch, a sample was collected from the west side irrigation ditch (location 0822). The molybdenum concentrations in this irrigation ditch are consistently lower than the Chemtrade ditch sample (location 0749) (Figure 21), which reflects a mixing of the ditch water with upgradient surface water or groundwater along the ditch flow path from location 0749 to location 0822 (Figure 2). The uranium concentrations in the west side irrigation ditch (0822) (Figure 21) have been relatively consistent through time and are similar to background groundwater and surface water concentrations (locations 810 and 823), and thus indicate no impacts to the water quality in the ditch with respect to uranium.

6.0 Compliance Strategy Assessment

After surface remediation was completed, groundwater numerical modeling in 1998 predicted that the alluvial aquifer will naturally flush contaminants to levels below applicable standards within the 100-year regulatory time frame. This modeling formed the basis for the natural flushing strategy that was approved in the *Final Ground Water Compliance Action Plan for the Riverton, Wyoming, Title I UMTRA Project Site* (DOE 1998b) in 1998. Before 2010, the progress of natural flushing was assessed using three tools: comparison to hydrogeologic modeling predictions, trend analysis, and curve matching and interpolation techniques applied to temporal plots of contaminant concentrations at individual locations. These techniques were based on a CSM of gradually declining contaminant concentrations after surface remediation of source material on the former mill site. Before 2010, these techniques indicated that natural flushing of the surficial aquifer was progressing toward applicable standards.

However, based on observations made in 2010 in context with historical data, the CSM and groundwater computer modeling were too simplistic to account for the spikes in contaminant concentrations in the surficial aquifer groundwater. Spikes in contaminant concentrations are attributed to flooding of the Little Wind River in June 2010, which mobilized contaminants into the saturated zone of the surficial aquifer. Cross-correlation of flood events in the Little Wind River with monitoring data reveals that uranium concentrations spiked in monitoring well 0707 in 1991, 1995, 2010, 2016, and 2017 following floods of the Little Wind River (Figure 26). Uranium concentrations in well 0707 decreased from 2020 to 2022 when there was no overbank flooding of the Little Wind River and, therefore, no additional contaminant transfer from the unsaturated zone to the surficial aquifer. Although the river did not flood in 2023 (Figure 26), uranium concentrations increased in well 0707 in response to contaminants being mobilized from the unsaturated zone, likely from snowmelt after the heavy winter snowpack. Figure 27 shows the average uranium concentration in surficial aquifer wells with a long history above the MCL (wells 0707, 0716, 0718, and 0722/0722R). As shown in Figure 27, the average uranium concentration in these wells increased significantly after the 2010 flood event, increased again after the 2016 and 2017 flood events, continued to decline in nonflood years, and increased in 2023 in response to the heavy snowfall.

Although the 2010 flood of the Little Wind River caused significant spikes in contaminant concentrations in the surficial aquifer, uranium concentrations declined to preflood concentrations by 2013 (Figure 26 and Figure 27). These data indicate that the effects of the 2010 flood are relatively short-lived in the context of the 100-year regulatory time frame. In 2016, significant concentration increases were seen again for molybdenum, uranium, and sulfate (Table 4, Figure 26, and Figure 27). Concentrations of uranium generally remained high after the

2016 and 2017 floods compared to preflood levels but declined between 2017 and 2022 after 5 years without a significant flood (Figure 26 and Figure 27). In 2023, an increase in uranium concentrations was observed in the surficial aquifer, likely due to melting of the record snow fall in the Riverton area during the winter of 2022–2023, albeit with a smaller increase in concentrations than seen with flooding events (Figure 26 and Figure 27). In flood years, spikes in uranium concentration were confined to areas of inundation from flood waters. The increased uranium concentrations from snow melt in 2023 occurred in most monitoring wells in the center of the plume including 0707 (+ 0.368 mg/L), 0856-2 (+ 0.17 mg/L), 0857-2 (+ 0.45 mg/L), and 0860-2 (+ 0.19 mg/L). This appears to confirm the CSM of uranium being stored in the unsaturated zone above the plume footprint that can be released during recharge events.

Overall, natural flushing (contaminant movement and removal via groundwater flow) in the surficial aquifer is occurring; however, when natural flushing is coupled with the addition of secondary sources from the saturated (former mill site) and unsaturated (near the Little Wind River) zone, the rate does not appear to be fast enough to restore the aquifer within the 100-year regulatory time requirement (DOE 2022b). Several lines of evidence indicate that the natural flushing compliance strategy will not meet the 2098 target date. These include:

- Current plume configurations and magnitude.
  - A uranium concentration of 1.6 mg/L was measured in groundwater beneath the former mill site in 2023. Research indicates that the high uranium concentration is influenced by additional sources in the saturated zone (DOE 2022b).
  - Uranium concentrations in the center of the plume adjacent to the Little Wind River were as high as 1.6 mg/L in 2023, which is 2 orders of magnitude higher than the uranium standard of 0.044 mg/L.
- Groundwater concentrations of molybdenum and uranium are outside the predicted error range generated from the initial groundwater modeling (Figure 28 and Figure 29).
- At other UMTRCA sites with similar geology and contaminants, concentrations of groundwater COCs are not attenuating as quickly as predicted by groundwater modeling (Shafer et al. 2014).
- Time versus concentration graphs for some individual wells in the contaminant plume at the Riverton site show flat trendlines (Figure 7 and Figure 10).
- Future flooding of the Little Wind River, extreme precipitation events, and heavy winter snows will likely cause an increase in contaminant concentrations in groundwater, even if the increase is relatively short-lived, which will prolong the time required for natural flushing (DOE 2022b).
- Additional contaminants in the saturated zone, unsaturated zone, or both (Section 2.0) (DOE 2016) may be acting as additional contaminant sources for elevated concentrations in groundwater (DOE 2022b).

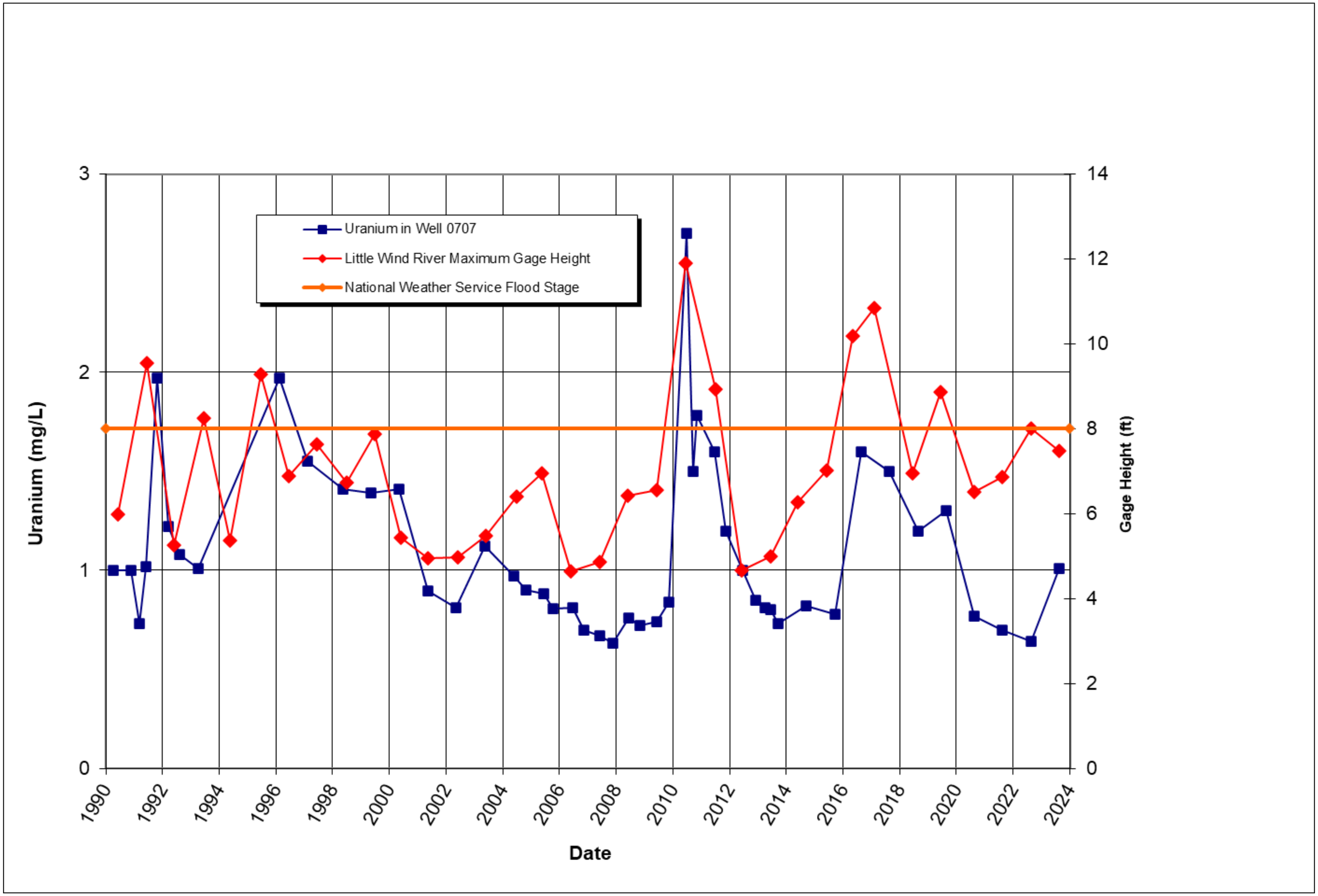


Figure 26. Time-Concentration Plot of Uranium in Monitoring Well 0707 Versus Little Wind River Stage, 1990–2023

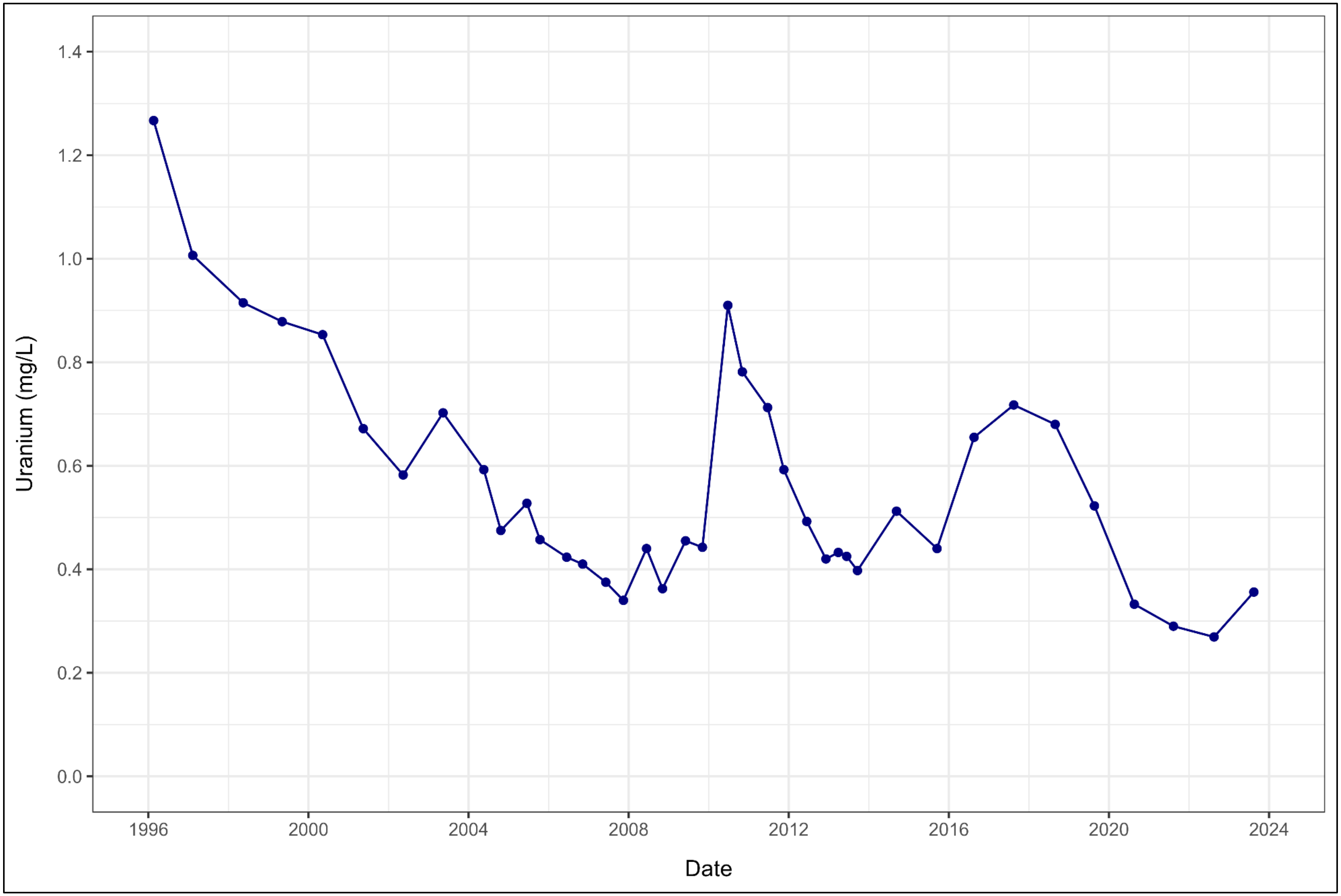


Figure 27. Time-Concentration Plot of Average Uranium in the Surficial Aquifer (Wells 0707, 0716, 0718, and 0722/0722R)

Table 4. Comparison of Preflood (2009 and 2015), Flood (2016), and 2023 Results

Well	Molybdenum			Uranium			Sulfate		
	Preflood[a]	Flood 2016	2023	Preflood[a]	Flood 2016	2023	Preflood[a]	Flood 2016	2023
0707	0.68	1.5	1.1	0.84	1.6	1.0	1900	5800	2800
0788	0.024	0.022	0.031	0.034	0.059	0.034	630	2800	1100
0789	0.51	0.67	0.50	1.3	3.1	0.93	3900	11,000	4500
0826	0.023	0.041	0.044	0.041	0.072	0.039	580	3400	1300
0855-4	0.25	0.25	0.30	0.31	1.1	0.46	5100	6600	4500
0856-4	0.30	0.83	0.32	1.1	5.6	1.0	4000	14,000	3600

Notes:
Units are mg/L.
[a] Preflood data are from November 2009 for wells 0707, 0788, 0789, and 0826 and from August 2015 for wells 0855-4 and 0856-4.

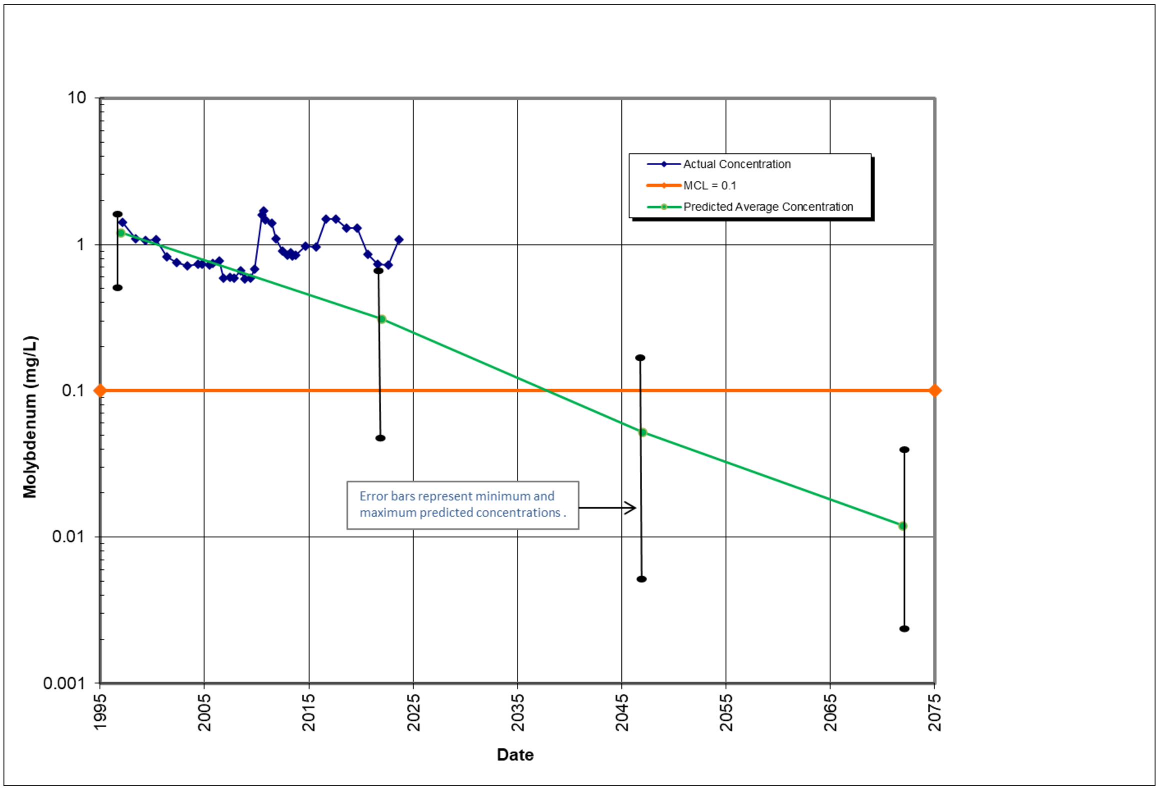


Figure 28. Predicted Versus Measured Molybdenum Concentrations in Well 0707

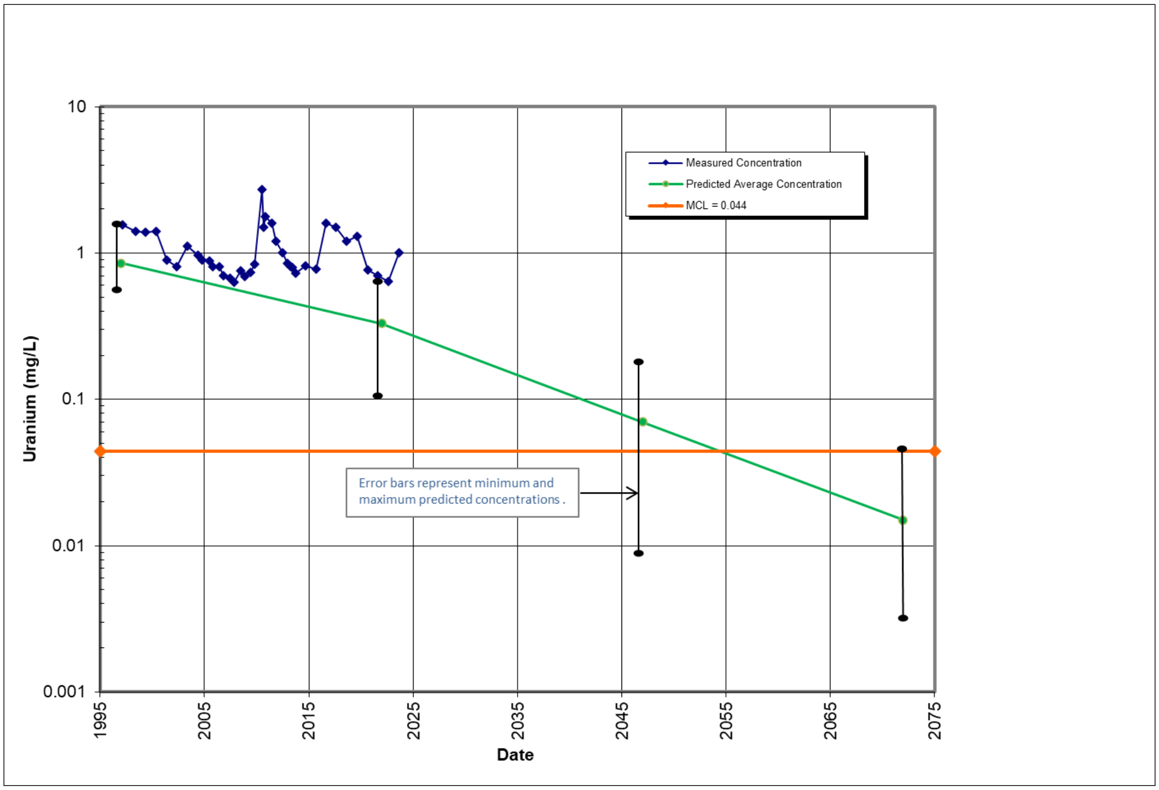


Figure 29. Predicted Versus Measured Uranium Concentrations in Well 0707

Based on the information above, natural flushing will not reduce contaminant concentrations in the surficial aquifer to levels below the MCL within the 100-year regulatory time frame. Ongoing work will include addressing data gaps with additional field investigations, laboratory testing, and reactive transport modeling (DOE 2022a). As part of this ongoing work, a groundwater investigation was conducted in 2023 that involved sampling an intensive network of boreholes installed with a Geoprobe to better define contaminant distributions on the former mill site. Results of this investigation will be analyzed and presented in a report in 2024, and they will be used in the assessment of new compliance strategies for the Riverton site. This work will result in a recommendation for a new compliance strategy that will be detailed in an updated Groundwater Compliance Action Plan.

7.0 Conclusion and Recommendations

Verification monitoring results from 2023 verify that mill-related groundwater contamination continues to impact the surficial aquifer and oxbow lake, but ICs are in place and functioning as intended to protect human health and the environment. Cooperative work continues with the Northern Arapaho Tribe to ensure that the AWWS functions as a viable IC into the future. In 2023, this work included completion of an engineering assessment and design for upgrades to the AWSS. In addition, verification monitoring results continue to verify that mill-related contamination has not impacted any potable domestic wells within the IC boundary and has not impacted water quality in the Little Wind River or the gravel pit ponds.

Molybdenum and uranium concentrations in the surficial aquifer groundwater remain above their respective MCLs. After the 2010 flood on the Little Wind River, molybdenum and uranium concentrations increased but then returned to their preflood levels by 2013. A flood in 2016 and two floods on the Little Wind River in 2017 confirmed that contaminant concentrations tend to spike after flooding events in inundated areas. In 2023, molybdenum and uranium concentrations increased again in the surficial aquifer, likely in response to snowmelt from the record winter snowfall that mobilized contaminants from the unsaturated zone.

LM has gained a better understanding of the CSM, contaminant distributions, and properties of the surficial aquifer's unsaturated zone at the Riverton site. As a result, LM has determined that the natural flushing compliance strategy will not reduce contaminant concentrations in the surficial aquifer to levels below the MCL within the 100-year regulatory time frame; therefore, new compliance strategies will be evaluated, and a new compliance strategy will be selected and presented to the U.S. Nuclear Regulatory Commission for concurrence.

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Appendix A

Domestic Well Data

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

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PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)													
Alkalinity, Total (As CaCO3)	0405	WL	8/15/2023	(N)F			44	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0436	WL	8/15/2023	(N)F			140	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0460	WL	8/16/2023	(N)F			160	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0828	WL	8/15/2023	(N)F			143	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0841	WL	8/15/2023	(N)F			182	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0842	WL	8/15/2023	(N)F			148	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0876	WL	8/15/2023	(N)F			40	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0878	WL	8/15/2023	(N)F			132	mg/L			#	-	-
Manganese													
Manganese	0405	WL	8/15/2023	(T)F			0.0034	mg/L	B		#	0.002	-
Manganese	0436	WL	8/15/2023	(T)F			0.00258	mg/L	B		#	0.002	-
Manganese	0460	WL	8/16/2023	(T)F			0.002	mg/L	U		#	0.002	-
Manganese	0828	WL	8/15/2023	(T)F			0.00221	mg/L	B		#	0.002	-
Manganese	0841	WL	8/15/2023	(T)F			0.107	mg/L			#	0.002	-
Manganese	0842	WL	8/15/2023	(T)F			0.0469	mg/L			#	0.002	-
Manganese	0876	WL	8/15/2023	(T)F			0.002	mg/L	U		#	0.002	-
Manganese	0878	WL	8/15/2023	(T)F			0.00344	mg/L	B		#	0.002	-
Molybdenum													
Molybdenum	0405	WL	8/15/2023	(T)F			0.00494	mg/L			#	0.0002	-
Molybdenum	0436	WL	8/15/2023	(T)F			0.00318	mg/L			#	0.0002	-
Molybdenum	0460	WL	8/16/2023	(T)F			0.00301	mg/L			#	0.0002	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	0828	WL	8/15/2023	(T)F			0.00323	mg/L			#	0.0002	-
Molybdenum	0841	WL	8/15/2023	(T)F			0.00411	mg/L			#	0.0002	-
Molybdenum	0842	WL	8/15/2023	(T)F			0.00268	mg/L	B		#	0.0002	-
Molybdenum	0876	WL	8/15/2023	(T)F			0.00432	mg/L			#	0.0002	-
Molybdenum	0878	WL	8/15/2023	(T)F			0.00232	mg/L	B		#	0.0002	-
pH													
pH	0405	WL	8/15/2023	(N)F			9.53	s.u.			#	-	-
pH	0436	WL	8/15/2023	(N)F			8.68	s.u.			#	-	-
pH	0460	WL	8/16/2023	(N)F			8.87	s.u.			#	-	-
pH	0828	WL	8/15/2023	(N)F			8.7	s.u.			#	-	-
pH	0841	WL	8/15/2023	(N)F			7.73	s.u.			#	-	-
pH	0842	WL	8/15/2023	(N)F			8.14	s.u.			#	-	-
pH	0876	WL	8/15/2023	(N)F			9.41	s.u.			#	-	-
pH	0878	WL	8/15/2023	(N)F			8.86	s.u.			#	-	-
Specific Conductance													
Specific Conductance	0405	WL	8/15/2023	(N)F			1071	umhos/cm			#	-	-
Specific Conductance	0436	WL	8/15/2023	(N)F			855	umhos/cm			#	-	-
Specific Conductance	0460	WL	8/16/2023	(N)F			778	umhos/cm			#	-	-
Specific Conductance	0828	WL	8/15/2023	(N)F			847	umhos/cm			#	-	-
Specific Conductance	0841	WL	8/15/2023	(N)F			972	umhos/cm			#	-	-
Specific Conductance	0842	WL	8/15/2023	(N)F			692	umhos/cm			#	-	-
Specific Conductance	0876	WL	8/15/2023	(N)F			821	umhos/cm			#	-	-
Specific Conductance	0878	WL	8/15/2023	(N)F			850	umhos/cm			#	-	-
Sulfate													
Sulfate	0405	WL	8/15/2023	(N)F			361	mg/L			#	13.3	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 2/2/2024 3:33:22 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Sulfate	0436	WL	8/15/2023	(N)F			221	mg/L			#	13.3	-
Sulfate	0460	WL	8/16/2023	(N)F			171	mg/L			#	13.3	-
Sulfate	0828	WL	8/15/2023	(N)F			208	mg/L			#	13.3	-
Sulfate	0841	WL	8/15/2023	(N)F			257	mg/L			#	13.3	-
Sulfate	0842	WL	8/15/2023	(N)F			151	mg/L			#	13.3	-
Sulfate	0876	WL	8/15/2023	(N)F			266	mg/L			#	13.3	-
Sulfate	0878	WL	8/15/2023	(N)F			241	mg/L			#	13.3	-
Temperature													
Temperature	0405	WL	8/15/2023	(N)F			15.29	C			#	-	-
Temperature	0436	WL	8/15/2023	(N)F			21.84	C			#	-	-
Temperature	0460	WL	8/16/2023	(N)F			25.7	C			#	-	-
Temperature	0828	WL	8/15/2023	(N)F			18.76	C			#	-	-
Temperature	0841	WL	8/15/2023	(N)F			16.75	C			#	-	-
Temperature	0842	WL	8/15/2023	(N)F			11.93	C			#	-	-
Temperature	0876	WL	8/15/2023	(N)F			16.22	C			#	-	-
Temperature	0878	WL	8/15/2023	(N)F			13.6	C			#	-	-
Turbidity													
Turbidity	0405	WL	8/15/2023	(N)F			4.18	NTU			#	-	-
Turbidity	0436	WL	8/15/2023	(N)F			8.65	NTU			#	-	-
Turbidity	0460	WL	8/16/2023	(N)F			1.99	NTU			#	-	-
Turbidity	0828	WL	8/15/2023	(N)F			0.83	NTU			#	-	-
Turbidity	0841	WL	8/15/2023	(N)F			0.55	NTU			#	-	-
Turbidity	0842	WL	8/15/2023	(N)F			0.78	NTU			#	-	-
Turbidity	0876	WL	8/15/2023	(N)F			2.84	NTU			#	-	-
Turbidity	0878	WL	8/15/2023	(N)F			0.7	NTU			#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 2/2/2024 3:33:22 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Uranium													
Uranium	0405	WL	8/15/2023	(T)F			0.000067	mg/L	U		#	0.000067	-
Uranium	0436	WL	8/15/2023	(T)F			0.000077	mg/L	B		#	0.000067	-
Uranium	0460	WL	8/16/2023	(T)F			0.000067	mg/L	U		#	0.000067	-
Uranium	0828	WL	8/15/2023	(T)F			0.000087	mg/L	B		#	0.000067	-
Uranium	0841	WL	8/15/2023	(T)F			0.00125	mg/L			#	0.000067	-
Uranium	0842	WL	8/15/2023	(T)F			0.000333	mg/L			#	0.000067	-
Uranium	0876	WL	8/15/2023	(T)F			0.000067	mg/L	U		#	0.000067	-
Uranium	0878	WL	8/15/2023	(T)F			0.000067	mg/L	U		#	0.000067	-

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

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

Appendix B

Static Water Level Data

STATIC WATER LEVELS (EQuIS700) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 11/3/2023 2:46:51 PM

LOCATION CODE	MEASUREMENT DATE/TIME	TOP OF CASING ELEVATION (FT)	DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
0101	08/16/2023 17:14	4953.16	10.45	4942.71	
0110	08/15/2023 17:33	4954.58	13.28	4941.30	
0111	08/15/2023 17:37	4951.26	9.96	4941.30	
0700	08/15/2023 09:45	4955.27	6.82	4948.45	
0702	08/15/2023 14:45	4934.44	4.90	4929.54	
0705	08/15/2023 14:31	4934.32	6.08	4928.24	
0707	08/15/2023 14:56	4933.75	5.15	4928.60	
0709	08/15/2023 14:43	4934.17	2.83	4931.34	
0710	08/15/2023 11:10	4950.97	6.36	4944.61	
0716	08/16/2023 13:15	4943.14	7.51	4935.63	
0717	08/16/2023 12:48	4942.79	6.83	4935.96	
0718	08/16/2023 14:06	4941.35	7.15	4934.20	
0719	08/16/2023 13:53	4941.44	6.70	4934.74	
0720	08/16/2023 16:48	4944.44	4.86	4939.58	
0721	08/16/2023 17:04	4944.37	7.54	4936.83	
0722R	08/16/2023 16:03	4941.14	7.17	4933.97	
0723	08/16/2023 15:46	4939.94	5.97	4933.97	
0724	08/15/2023 15:30	4945.14	7.50	4937.64	
0725	08/15/2023 15:30	4945.44	7.73	4937.71	
0726	08/15/2023 15:30	4945.43	7.26	4938.17	
0727	08/16/2023 14:31	4955.62	10.44	4945.18	
0728	08/15/2023 15:20	4949.96	8.70	4941.26	
0729	08/16/2023 15:12	4936.65	5.66	4930.99	
0730	08/16/2023 14:42	4937.16	6.69	4930.47	
0732	08/16/2023 15:49	4949.06	8.28	4940.78	
0733	08/15/2023 08:35	4950.72	5.57	4945.15	
0734	08/15/2023 08:40	4950.33	7.01	4943.32	
0736	08/15/2023 13:00	4949.69	7.33	4942.36	
0784	08/16/2023 16:12	4949.47	7.09	4942.38	
0788	08/16/2023 10:35	4937.96	8.20	4929.76	
0789	08/15/2023 09:36	4936.39	8.90	4927.49	
0824	08/15/2023 15:24	4932.94	6.00	4926.94	
0826	08/16/2023 10:08	4939.89	6.85	4933.04	
0852-4	08/16/2023 13:06	4940.80	9.97	4930.83	
0853-4	08/16/2023 11:30	4938.49	8.75	4929.74	

STATIC WATER LEVELS (EQuIS700) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 11/3/2023 2:46:51 PM

LOCATION CODE	MEASUREMENT DATE/TIME	TOP OF CASING ELEVATION (FT)	DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
0854-4	08/16/2023 09:46	4939.95	6.93	4933.02	
0855-4	08/15/2023 12:39	4934.79	6.81	4927.98	
0856-4	08/15/2023 16:23	4937.23	7.91	4929.32	
0857-4	08/16/2023 08:42	4939.11	8.14	4930.97	
0858-4	08/15/2023 14:11	4935.69	6.91	4928.78	
0859-4	08/16/2023 09:43	4948.69	8.49	4940.20	
0860-4	08/16/2023 12:06	4946.82	10.22	4936.60	

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				

Appendix C

Monitoring Well Data

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 2/22/2024 3:05:53 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)													
Alkalinity, Total (As CaCO3)	0101	WL	8/16/2023	(N)F			263	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0707	WL	8/15/2023	(N)F			371	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0710	WL	8/15/2023	(N)F			188	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0716	WL	8/16/2023	(N)F			269	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0718	WL	8/16/2023	(N)F			260	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0719	WL	8/16/2023	(N)F			74	mg/L		FQ	#	-	-
Alkalinity, Total (As CaCO3)	0720	WL	8/16/2023	(N)F			226	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0721	WL	8/16/2023	(N)F			104	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0722R	WL	8/16/2023	(N)F			230	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0723	WL	8/16/2023	(N)F			289	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0727	WL	8/16/2023	(N)F			178	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0729	WL	8/16/2023	(N)F			292	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0730	WL	8/16/2023	(N)F			307	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0732	WL	8/16/2023	(N)F			209	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0784	WL	8/16/2023	(N)F			370	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0788	WL	8/16/2023	(N)F			382	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0789	WL	8/15/2023	(N)F			365	mg/L		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 2/22/2024 3:05:54 PM

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)	0824	WL	8/15/2023	(N)F			386	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0826	WL	8/16/2023	(N)F			353	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0852-2	WL	8/16/2023	(N)F			440	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0852-3	WL	8/16/2023	(N)F			378	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0852-4	WL	8/16/2023	(N)F			369	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0853-2	WL	8/16/2023	(N)F			472	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0853-3	WL	8/16/2023	(N)F			386	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0853-4	WL	8/16/2023	(N)F			360	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0854-2	WL	8/16/2023	(N)F			400	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0854-3	WL	8/16/2023	(N)F			376	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0854-4	WL	8/16/2023	(N)F			354	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0855-2	WL	8/15/2023	(N)F			435	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0855-3	WL	8/15/2023	(N)F			388	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0855-4	WL	8/15/2023	(N)F			386	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0856-2	WL	8/15/2023	(N)F			367	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0856-3	WL	8/15/2023	(N)F			323	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0856-4	WL	8/15/2023	(N)F			324	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0857-2	WL	8/16/2023	(N)F			425	mg/L		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Alkalinity, Total (As CaCO3)	0857-3	WL	8/16/2023	(N)F			356	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0857-4	WL	8/16/2023	(N)F			310	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0858-2	WL	8/15/2023	(N)F			364	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0858-3	WL	8/15/2023	(N)F			363	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0858-4	WL	8/15/2023	(N)F			360	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0859-2	WL	8/16/2023	(N)F			331	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0859-3	WL	8/16/2023	(N)F			305	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0859-4	WL	8/16/2023	(N)F			260	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0860-2	WL	8/16/2023	(N)F			243	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0860-3	WL	8/16/2023	(N)F			248	mg/L		F	#	-	-
Alkalinity, Total (As CaCO3)	0860-4	WL	8/16/2023	(N)F			253	mg/L		F	#	-	-
Manganese													
Manganese	0101	WL	8/16/2023	(T)F			0.151	mg/L		F	#	0.002	-
Manganese	0705	WL	8/15/2023	(T)F			0.002	mg/L	U	FQ	#	0.002	-
Manganese	0707	WL	8/15/2023	(T)F			1.22	mg/L		F	#	0.002	-
Manganese	0710	WL	8/15/2023	(T)F			0.0184	mg/L		F	#	0.002	-
Manganese	0716	WL	8/16/2023	(T)D			0.204	mg/L		F	#	0.002	-
Manganese	0716	WL	8/16/2023	(T)F			0.199	mg/L		F	#	0.002	-
Manganese	0717	WL	8/16/2023	(T)F			0.161	mg/L		F	#	0.002	-
Manganese	0718	WL	8/16/2023	(T)F			5.42	mg/L		F	#	0.002	-
Manganese	0719	WL	8/16/2023	(T)F			0.146	mg/L		FQ	#	0.002	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Manganese	0720	WL	8/16/2023	(T)F			0.002	mg/L	U	F	#	0.002	-
Manganese	0721	WL	8/16/2023	(T)F			0.0036	mg/L	B	F	#	0.002	-
Manganese	0722R	WL	8/16/2023	(T)F			0.002	mg/L	U	F	#	0.002	-
Manganese	0723	WL	8/16/2023	(T)F			0.384	mg/L		F	#	0.002	-
Manganese	0727	WL	8/16/2023	(T)F			0.0555	mg/L		F	#	0.002	-
Manganese	0729	WL	8/16/2023	(T)F			0.218	mg/L		F	#	0.002	-
Manganese	0730	WL	8/16/2023	(T)F			0.0501	mg/L		F	#	0.002	-
Manganese	0732	WL	8/16/2023	(T)F			0.0814	mg/L		F	#	0.002	-
Manganese	0784	WL	8/16/2023	(T)F			0.79	mg/L		F	#	0.002	-
Manganese	0788	WL	8/16/2023	(T)F			0.173	mg/L		F	#	0.002	-
Manganese	0789	WL	8/15/2023	(T)D			0.0761	mg/L		F	#	0.002	-
Manganese	0789	WL	8/15/2023	(T)F			0.0883	mg/L		F	#	0.002	-
Manganese	0824	WL	8/15/2023	(T)D			0.00259	mg/L	B	F	#	0.002	-
Manganese	0824	WL	8/15/2023	(T)F			0.00317	mg/L	B	F	#	0.002	-
Manganese	0826	WL	8/16/2023	(T)F			1.91	mg/L		F	#	0.002	-
Manganese	0852-2	WL	8/16/2023	(T)F			1.26	mg/L		F	#	0.002	-
Manganese	0852-3	WL	8/16/2023	(T)F			1.07	mg/L		F	#	0.002	-
Manganese	0852-4	WL	8/16/2023	(T)F			1.52	mg/L		F	#	0.002	-
Manganese	0853-2	WL	8/16/2023	(T)F			0.391	mg/L		F	#	0.002	-
Manganese	0853-3	WL	8/16/2023	(T)F			0.839	mg/L		F	#	0.002	-
Manganese	0853-4	WL	8/16/2023	(T)F			0.893	mg/L		F	#	0.002	-
Manganese	0854-2	WL	8/16/2023	(T)F			3.04	mg/L		F	#	0.002	-
Manganese	0854-3	WL	8/16/2023	(T)F			2.86	mg/L		F	#	0.002	-
Manganese	0854-4	WL	8/16/2023	(T)F			3.26	mg/L		F	#	0.002	-
Manganese	0855-2	WL	8/15/2023	(T)F			0.441	mg/L		F	#	0.002	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Manganese	0855-3	WL	8/15/2023	(T)F			0.839	mg/L		F	#	0.002	-
Manganese	0855-4	WL	8/15/2023	(T)F			1.48	mg/L		F	#	0.002	-
Manganese	0856-2	WL	8/15/2023	(T)F			0.313	mg/L		F	#	0.002	-
Manganese	0856-3	WL	8/15/2023	(T)F			0.458	mg/L		F	#	0.002	-
Manganese	0856-4	WL	8/15/2023	(T)F			1.43	mg/L		F	#	0.002	-
Manganese	0857-2	WL	8/16/2023	(T)F			2.6	mg/L		F	#	0.002	-
Manganese	0857-3	WL	8/16/2023	(T)F			2.79	mg/L		F	#	0.002	-
Manganese	0857-4	WL	8/16/2023	(T)F			3.27	mg/L		F	#	0.002	-
Manganese	0858-2	WL	8/15/2023	(T)F			0.637	mg/L		F	#	0.002	-
Manganese	0858-3	WL	8/15/2023	(T)F			0.767	mg/L		F	#	0.002	-
Manganese	0858-4	WL	8/15/2023	(T)F			0.807	mg/L		F	#	0.002	-
Manganese	0859-2	WL	8/16/2023	(T)F			4.69	mg/L		F	#	0.002	-
Manganese	0859-3	WL	8/16/2023	(T)F			1.03	mg/L		F	#	0.002	-
Manganese	0859-4	WL	8/16/2023	(T)F			1.1	mg/L		F	#	0.002	-
Manganese	0860-2	WL	8/16/2023	(T)F			0.145	mg/L		FJ	#	0.002	-
Manganese	0860-3	WL	8/16/2023	(T)F			1.44	mg/L		F	#	0.002	-
Manganese	0860-4	WL	8/16/2023	(T)F			1.36	mg/L		F	#	0.002	-
Molybdenum													
Molybdenum	0101	WL	8/16/2023	(T)F			0.0153	mg/L		F	#	0.0002	-
Molybdenum	0705	WL	8/15/2023	(T)F			0.00363	mg/L		FQ	#	0.0002	-
Molybdenum	0707	WL	8/15/2023	(T)F			1.08	mg/L		F	#	0.0004	-
Molybdenum	0710	WL	8/15/2023	(T)F			0.00311	mg/L		F	#	0.0002	-
Molybdenum	0716	WL	8/16/2023	(T)D			0.11	mg/L		F	#	0.0002	-
Molybdenum	0716	WL	8/16/2023	(T)F			0.107	mg/L		F	#	0.0002	-
Molybdenum	0717	WL	8/16/2023	(T)F			0.0145	mg/L		F	#	0.0002	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	0718	WL	8/16/2023	(T)F			0.142	mg/L		F	#	0.0002	-
Molybdenum	0719	WL	8/16/2023	(T)F			0.00861	mg/L		FQ	#	0.0002	-
Molybdenum	0720	WL	8/16/2023	(T)F			0.00201	mg/L	B	F	#	0.0002	-
Molybdenum	0721	WL	8/16/2023	(T)F			0.00286	mg/L	B	F	#	0.0002	-
Molybdenum	0722R	WL	8/16/2023	(T)F			0.0707	mg/L		F	#	0.0002	-
Molybdenum	0723	WL	8/16/2023	(T)F			0.0002	mg/L	U	F	#	0.0002	-
Molybdenum	0727	WL	8/16/2023	(T)F			0.00484	mg/L		F	#	0.0002	-
Molybdenum	0729	WL	8/16/2023	(T)F			0.00336	mg/L		F	#	0.0002	-
Molybdenum	0730	WL	8/16/2023	(T)F			0.00526	mg/L		F	#	0.0002	-
Molybdenum	0732	WL	8/16/2023	(T)F			0.0231	mg/L		F	#	0.0002	-
Molybdenum	0784	WL	8/16/2023	(T)F			0.167	mg/L		F	#	0.0002	-
Molybdenum	0788	WL	8/16/2023	(T)F			0.031	mg/L		F	#	0.0002	-
Molybdenum	0789	WL	8/15/2023	(T)D			0.503	mg/L		F	#	0.0002	-
Molybdenum	0789	WL	8/15/2023	(T)F			0.479	mg/L		F	#	0.0002	-
Molybdenum	0824	WL	8/15/2023	(T)D			0.00454	mg/L		F	#	0.0002	-
Molybdenum	0824	WL	8/15/2023	(T)F			0.00454	mg/L		F	#	0.0002	-
Molybdenum	0826	WL	8/16/2023	(T)F			0.0444	mg/L		F	#	0.0002	-
Molybdenum	0852-2	WL	8/16/2023	(T)F			0.00835	mg/L		F	#	0.0002	-
Molybdenum	0852-3	WL	8/16/2023	(T)F			0.00899	mg/L		F	#	0.0002	-
Molybdenum	0852-4	WL	8/16/2023	(T)F			0.00947	mg/L		F	#	0.0002	-
Molybdenum	0853-2	WL	8/16/2023	(T)F			0.0226	mg/L		F	#	0.0002	-
Molybdenum	0853-3	WL	8/16/2023	(T)F			0.0194	mg/L		F	#	0.0002	-
Molybdenum	0853-4	WL	8/16/2023	(T)F			0.0206	mg/L		F	#	0.0002	-
Molybdenum	0854-2	WL	8/16/2023	(T)F			0.0824	mg/L		F	#	0.0002	-
Molybdenum	0854-3	WL	8/16/2023	(T)F			0.0775	mg/L		F	#	0.0002	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	0854-4	WL	8/16/2023	(T)F			0.0726	mg/L		F	#	0.0002	-
Molybdenum	0855-2	WL	8/15/2023	(T)F			0.309	mg/L		F	#	0.001	-
Molybdenum	0855-3	WL	8/15/2023	(T)F			0.329	mg/L		F	#	0.001	-
Molybdenum	0855-4	WL	8/15/2023	(T)F			0.3	mg/L		F	#	0.001	-
Molybdenum	0856-2	WL	8/15/2023	(T)F			0.341	mg/L		F	#	0.001	-
Molybdenum	0856-3	WL	8/15/2023	(T)F			0.366	mg/L		F	#	0.001	-
Molybdenum	0856-4	WL	8/15/2023	(T)F			0.319	mg/L		F	#	0.001	-
Molybdenum	0857-2	WL	8/16/2023	(T)F			0.767	mg/L		F	#	0.001	-
Molybdenum	0857-3	WL	8/16/2023	(T)F			0.665	mg/L		F	#	0.001	-
Molybdenum	0857-4	WL	8/16/2023	(T)F			0.689	mg/L		F	#	0.0002	-
Molybdenum	0858-2	WL	8/15/2023	(T)F			1.01	mg/L		F	#	0.001	-
Molybdenum	0858-3	WL	8/15/2023	(T)F			0.995	mg/L		F	#	0.001	-
Molybdenum	0858-4	WL	8/15/2023	(T)F			1.06	mg/L		F	#	0.001	-
Molybdenum	0859-2	WL	8/16/2023	(T)F			0.0616	mg/L		F	#	0.0002	-
Molybdenum	0859-3	WL	8/16/2023	(T)F			0.0965	mg/L		F	#	0.0002	-
Molybdenum	0859-4	WL	8/16/2023	(T)F			0.104	mg/L		F	#	0.001	-
Molybdenum	0860-2	WL	8/16/2023	(T)F			0.488	mg/L		F	#	0.0002	-
Molybdenum	0860-3	WL	8/16/2023	(T)F			0.26	mg/L		F	#	0.0002	-
Molybdenum	0860-4	WL	8/16/2023	(T)F			0.225	mg/L		F	#	0.0002	-
Specific Conductance													
Specific Conductance	0101	WL	8/16/2023	(N)F			1345	umhos/cm		F	#	-	-
Specific Conductance	0705	WL	8/15/2023	(N)F			1247	umhos/cm		FQ	#	-	-
Specific Conductance	0707	WL	8/15/2023	(N)F			5195	umhos/cm		F	#	-	-
Specific Conductance	0710	WL	8/15/2023	(N)F			719	umhos/cm		F	#	-	-
Specific Conductance	0716	WL	8/16/2023	(N)F			1406	umhos/cm		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

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PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Specific Conductance	0717	WL	8/16/2023	(N)F			1905	umhos/cm		F	#	-	-
Specific Conductance	0718	WL	8/16/2023	(N)F			3731	umhos/cm		F	#	-	-
Specific Conductance	0719	WL	8/16/2023	(N)F			1363	umhos/cm		FQ	#	-	-
Specific Conductance	0720	WL	8/16/2023	(N)F			568	umhos/cm		F	#	-	-
Specific Conductance	0721	WL	8/16/2023	(N)F			866	umhos/cm		F	#	-	-
Specific Conductance	0722R	WL	8/16/2023	(N)F			772	umhos/cm		F	#	-	-
Specific Conductance	0723	WL	8/16/2023	(N)F			3694	umhos/cm		F	#	-	-
Specific Conductance	0727	WL	8/16/2023	(N)F			619	umhos/cm		F	#	-	-
Specific Conductance	0729	WL	8/16/2023	(N)F			747	umhos/cm		F	#	-	-
Specific Conductance	0730	WL	8/16/2023	(N)F			804	umhos/cm		F	#	-	-
Specific Conductance	0732	WL	8/16/2023	(N)F			2791	umhos/cm		F	#	-	-
Specific Conductance	0784	WL	8/16/2023	(N)F			4161	umhos/cm		F	#	-	-
Specific Conductance	0788	WL	8/16/2023	(N)F			2890	umhos/cm		F	#	-	-
Specific Conductance	0789	WL	8/15/2023	(N)F			7927	umhos/cm		F	#	-	-
Specific Conductance	0824	WL	8/15/2023	(N)F			1314	umhos/cm		F	#	-	-
Specific Conductance	0826	WL	8/16/2023	(N)F			3186	umhos/cm		F	#	-	-
Specific Conductance	0852-2	WL	8/16/2023	(N)F			2681	umhos/cm		F	#	-	-
Specific Conductance	0852-3	WL	8/16/2023	(N)F			2055	umhos/cm		FJ	#	-	-
Specific Conductance	0852-4	WL	8/16/2023	(N)F			2011	umhos/cm		F	#	-	-
Specific Conductance	0853-2	WL	8/16/2023	(N)F			2929	umhos/cm		F	#	-	-
Specific Conductance	0853-3	WL	8/16/2023	(N)F			2520	umhos/cm		F	#	-	-
Specific Conductance	0853-4	WL	8/16/2023	(N)F			2477	umhos/cm		F	#	-	-
Specific Conductance	0854-2	WL	8/16/2023	(N)F			4459	umhos/cm		F	#	-	-
Specific Conductance	0854-3	WL	8/16/2023	(N)F			4228	umhos/cm		F	#	-	-
Specific Conductance	0854-4	WL	8/16/2023	(N)F			4560	umhos/cm		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Specific Conductance	0855-2	WL	8/15/2023	(N)F			9240	umhos/cm		F	#	-	-
Specific Conductance	0855-3	WL	8/15/2023	(N)F			8336	umhos/cm		F	#	-	-
Specific Conductance	0855-4	WL	8/15/2023	(N)F			8212	umhos/cm		F	#	-	-
Specific Conductance	0856-2	WL	8/15/2023	(N)F			7091	umhos/cm		F	#	-	-
Specific Conductance	0856-3	WL	8/15/2023	(N)F			6969	umhos/cm		F	#	-	-
Specific Conductance	0856-4	WL	8/15/2023	(N)F			6468	umhos/cm		F	#	-	-
Specific Conductance	0857-2	WL	8/16/2023	(N)F			7461	umhos/cm		F	#	-	-
Specific Conductance	0857-3	WL	8/16/2023	(N)F			6842	umhos/cm		F	#	-	-
Specific Conductance	0857-4	WL	8/16/2023	(N)F			6475	umhos/cm		F	#	-	-
Specific Conductance	0858-2	WL	8/15/2023	(N)F			5001	umhos/cm		F	#	-	-
Specific Conductance	0858-3	WL	8/15/2023	(N)F			5099	umhos/cm		F	#	-	-
Specific Conductance	0858-4	WL	8/15/2023	(N)F			5115	umhos/cm		F	#	-	-
Specific Conductance	0859-2	WL	8/16/2023	(N)F			5805	umhos/cm		F	#	-	-
Specific Conductance	0859-3	WL	8/16/2023	(N)F			6047	umhos/cm		F	#	-	-
Specific Conductance	0859-4	WL	8/16/2023	(N)F			7416	umhos/cm		F	#	-	-
Specific Conductance	0860-2	WL	8/16/2023	(N)F			4618	umhos/cm		F	#	-	-
Specific Conductance	0860-3	WL	8/16/2023	(N)F			3741	umhos/cm		F	#	-	-
Specific Conductance	0860-4	WL	8/16/2023	(N)F			3734	umhos/cm		F	#	-	-
Sulfate													
Sulfate	0101	WL	8/16/2023	(N)F			394	mg/L		F	#	13.3	-
Sulfate	0705	WL	8/15/2023	(N)F			403	mg/L		FQ	#	13.3	-
Sulfate	0707	WL	8/15/2023	(N)F			2800	mg/L		F	#	26.6	-
Sulfate	0710	WL	8/15/2023	(N)F			146	mg/L		F	#	13.3	-
Sulfate	0716	WL	8/16/2023	(N)D			390	mg/L		F	#	13.3	-
Sulfate	0716	WL	8/16/2023	(N)F			398	mg/L		F	#	13.3	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (EQuIS200) FOR SITE RVT01, Riverton Processing Site

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PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Sulfate	0717	WL	8/16/2023	(N)F			671	mg/L		F	#	13.3	-
Sulfate	0718	WL	8/16/2023	(N)F			1980	mg/L		F	#	26.6	-
Sulfate	0719	WL	8/16/2023	(N)F			508	mg/L		FQ	#	13.3	-
Sulfate	0720	WL	8/16/2023	(N)F			78.2	mg/L		F	#	13.3	-
Sulfate	0721	WL	8/16/2023	(N)F			271	mg/L		F	#	13.3	-
Sulfate	0722R	WL	8/16/2023	(N)F			157	mg/L		F	#	13.3	-
Sulfate	0723	WL	8/16/2023	(N)F			1800	mg/L		F	#	13.3	-
Sulfate	0727	WL	8/16/2023	(N)F			109	mg/L		F	#	13.3	-
Sulfate	0729	WL	8/16/2023	(N)F			89.6	mg/L		F	#	13.3	-
Sulfate	0730	WL	8/16/2023	(N)F			109	mg/L		F	#	13.3	-
Sulfate	0732	WL	8/16/2023	(N)F			1270	mg/L		F	#	13.3	-
Sulfate	0784	WL	8/16/2023	(N)F			1830	mg/L		F	#	26.6	-
Sulfate	0788	WL	8/16/2023	(N)F			1090	mg/L		F	#	13.3	-
Sulfate	0789	WL	8/15/2023	(N)D			4470	mg/L		F	#	53.2	-
Sulfate	0789	WL	8/15/2023	(N)F			4280	mg/L		F	#	66.5	-
Sulfate	0824	WL	8/15/2023	(N)D			318	mg/L		F	#	13.3	-
Sulfate	0824	WL	8/15/2023	(N)F			284	mg/L		F	#	13.3	-
Sulfate	0826	WL	8/16/2023	(N)F			1280	mg/L		F	#	13.3	-
Sulfate	0852-2	WL	8/16/2023	(N)F			1000	mg/L		F	#	13.3	-
Sulfate	0852-3	WL	8/16/2023	(N)F			638	mg/L		F	#	13.3	-
Sulfate	0852-4	WL	8/16/2023	(N)F			614	mg/L		F	#	13.3	-
Sulfate	0853-2	WL	8/16/2023	(N)F			1160	mg/L		F	#	13.3	-
Sulfate	0853-3	WL	8/16/2023	(N)F			957	mg/L		F	#	13.3	-
Sulfate	0853-4	WL	8/16/2023	(N)F			934	mg/L		F	#	13.3	-
Sulfate	0854-2	WL	8/16/2023	(N)F			2090	mg/L		F	#	26.6	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Sulfate	0854-3	WL	8/16/2023	(N)F			1710	mg/L		F	#	26.6	-
Sulfate	0854-4	WL	8/16/2023	(N)F			1930	mg/L		F	#	26.6	-
Sulfate	0855-2	WL	8/15/2023	(N)F			5030	mg/L		F	#	133	-
Sulfate	0855-3	WL	8/15/2023	(N)F			4420	mg/L		F	#	66.5	-
Sulfate	0855-4	WL	8/15/2023	(N)F			4470	mg/L		F	#	66.5	-
Sulfate	0856-2	WL	8/15/2023	(N)F			3840	mg/L		F	#	66.5	-
Sulfate	0856-3	WL	8/15/2023	(N)F			3870	mg/L		F	#	26.6	-
Sulfate	0856-4	WL	8/15/2023	(N)F			3590	mg/L		F	#	26.6	-
Sulfate	0857-2	WL	8/16/2023	(N)F			3440	mg/L		F	#	53.2	-
Sulfate	0857-3	WL	8/16/2023	(N)F			3790	mg/L		F	#	26.6	-
Sulfate	0857-4	WL	8/16/2023	(N)F			3620	mg/L		F	#	26.6	-
Sulfate	0858-2	WL	8/15/2023	(N)F			3050	mg/L		F	#	26.6	-
Sulfate	0858-3	WL	8/15/2023	(N)F			2840	mg/L		F	#	26.6	-
Sulfate	0858-4	WL	8/15/2023	(N)F			2580	mg/L		F	#	53.2	-
Sulfate	0859-2	WL	8/16/2023	(N)F			3000	mg/L		F	#	26.6	-
Sulfate	0859-3	WL	8/16/2023	(N)F			3280	mg/L		F	#	26.6	-
Sulfate	0859-4	WL	8/16/2023	(N)F			4170	mg/L		F	#	66.5	-
Sulfate	0860-2	WL	8/16/2023	(N)F			2640	mg/L		F	#	26.6	-
Sulfate	0860-3	WL	8/16/2023	(N)F			1930	mg/L		F	#	26.6	-
Sulfate	0860-4	WL	8/16/2023	(N)F			1920	mg/L		F	#	26.6	-
Temperature													
Temperature	0101	WL	8/16/2023	(N)F			13.67	C		F	#	-	-
Temperature	0705	WL	8/15/2023	(N)F			11.96	C		FQ	#	-	-
Temperature	0707	WL	8/15/2023	(N)F			12.39	C		F	#	-	-
Temperature	0710	WL	8/15/2023	(N)F			11.57	C		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Temperature	0716	WL	8/16/2023	(N)F			13.83	C		F	#	-	-
Temperature	0717	WL	8/16/2023	(N)F			12.41	C		F	#	-	-
Temperature	0718	WL	8/16/2023	(N)F			14.94	C		F	#	-	-
Temperature	0719	WL	8/16/2023	(N)F			15.81	C		FQ	#	-	-
Temperature	0720	WL	8/16/2023	(N)F			13.5	C		F	#	-	-
Temperature	0721	WL	8/16/2023	(N)F			11.88	C		F	#	-	-
Temperature	0722R	WL	8/16/2023	(N)F			15.9	C		F	#	-	-
Temperature	0723	WL	8/16/2023	(N)F			14.29	C		F	#	-	-
Temperature	0727	WL	8/16/2023	(N)F			18.89	C		F	#	-	-
Temperature	0729	WL	8/16/2023	(N)F			14.41	C		F	#	-	-
Temperature	0730	WL	8/16/2023	(N)F			15.07	C		F	#	-	-
Temperature	0732	WL	8/16/2023	(N)F			12.63	C		F	#	-	-
Temperature	0784	WL	8/16/2023	(N)F			16.96	C		F	#	-	-
Temperature	0788	WL	8/16/2023	(N)F			12.95	C		F	#	-	-
Temperature	0789	WL	8/15/2023	(N)F			12.73	C		F	#	-	-
Temperature	0824	WL	8/15/2023	(N)F			14.48	C		F	#	-	-
Temperature	0826	WL	8/16/2023	(N)F			11.43	C		F	#	-	-
Temperature	0852-2	WL	8/16/2023	(N)F			12.5	C		F	#	-	-
Temperature	0852-3	WL	8/16/2023	(N)F			11.94	C		F	#	-	-
Temperature	0852-4	WL	8/16/2023	(N)F			11.02	C		F	#	-	-
Temperature	0853-2	WL	8/16/2023	(N)F			14.34	C		F	#	-	-
Temperature	0853-3	WL	8/16/2023	(N)F			13.35	C		F	#	-	-
Temperature	0853-4	WL	8/16/2023	(N)F			12.04	C		F	#	-	-
Temperature	0854-2	WL	8/16/2023	(N)F			12.57	C		F	#	-	-
Temperature	0854-3	WL	8/16/2023	(N)F			12.02	C		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Temperature	0854-4	WL	8/16/2023	(N)F			10.93	C		F	#	-	-
Temperature	0855-2	WL	8/15/2023	(N)F			15.11	C		F	#	-	-
Temperature	0855-3	WL	8/15/2023	(N)F			15.26	C		F	#	-	-
Temperature	0855-4	WL	8/15/2023	(N)F			12.4	C		F	#	-	-
Temperature	0856-2	WL	8/15/2023	(N)F			15.69	C		F	#	-	-
Temperature	0856-3	WL	8/15/2023	(N)F			15.48	C		F	#	-	-
Temperature	0856-4	WL	8/15/2023	(N)F			13.83	C		F	#	-	-
Temperature	0857-2	WL	8/16/2023	(N)F			16.39	C		F	#	-	-
Temperature	0857-3	WL	8/16/2023	(N)F			15.54	C		F	#	-	-
Temperature	0857-4	WL	8/16/2023	(N)F			14.73	C		F	#	-	-
Temperature	0858-2	WL	8/15/2023	(N)F			14.18	C		F	#	-	-
Temperature	0858-3	WL	8/15/2023	(N)F			13.64	C		F	#	-	-
Temperature	0858-4	WL	8/15/2023	(N)F			11.6	C		F	#	-	-
Temperature	0859-2	WL	8/16/2023	(N)F			16.47	C		F	#	-	-
Temperature	0859-3	WL	8/16/2023	(N)F			15.3	C		F	#	-	-
Temperature	0859-4	WL	8/16/2023	(N)F			14.63	C		F	#	-	-
Temperature	0860-2	WL	8/16/2023	(N)F			16.44	C		F	#	-	-
Temperature	0860-3	WL	8/16/2023	(N)F			15.34	C		F	#	-	-
Temperature	0860-4	WL	8/16/2023	(N)F			14.05	C		F	#	-	-
Turbidity													
Turbidity	0101	WL	8/16/2023	(N)F			1.02	NTU		F	#	-	-
Turbidity	0705	WL	8/15/2023	(N)F			2.37	NTU		FQ	#	-	-
Turbidity	0707	WL	8/15/2023	(N)F			1.84	NTU		F	#	-	-
Turbidity	0710	WL	8/15/2023	(N)F			0.29	NTU		F	#	-	-
Turbidity	0716	WL	8/16/2023	(N)F			2.09	NTU		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Turbidity	0717	WL	8/16/2023	(N)F			5.18	NTU		F	#	-	-
Turbidity	0718	WL	8/16/2023	(N)F			3.33	NTU		F	#	-	-
Turbidity	0719	WL	8/16/2023	(N)F			2.21	NTU		FQ	#	-	-
Turbidity	0720	WL	8/16/2023	(N)F			0.53	NTU		F	#	-	-
Turbidity	0721	WL	8/16/2023	(N)F			1.01	NTU		F	#	-	-
Turbidity	0722R	WL	8/16/2023	(N)F			0.47	NTU		F	#	-	-
Turbidity	0723	WL	8/16/2023	(N)F			2.92	NTU		F	#	-	-
Turbidity	0727	WL	8/16/2023	(N)F			3.77	NTU		F	#	-	-
Turbidity	0729	WL	8/16/2023	(N)F			1.12	NTU		F	#	-	-
Turbidity	0730	WL	8/16/2023	(N)F			4.2	NTU		F	#	-	-
Turbidity	0732	WL	8/16/2023	(N)F			1.29	NTU		F	#	-	-
Turbidity	0784	WL	8/16/2023	(N)F			1.62	NTU		F	#	-	-
Turbidity	0788	WL	8/16/2023	(N)F			3.66	NTU		F	#	-	-
Turbidity	0789	WL	8/15/2023	(N)F			0.65	NTU		F	#	-	-
Turbidity	0824	WL	8/15/2023	(N)F			1.8	NTU		F	#	-	-
Turbidity	0826	WL	8/16/2023	(N)F			2.61	NTU		F	#	-	-
Turbidity	0852-2	WL	8/16/2023	(N)F			2.05	NTU		F	#	-	-
Turbidity	0852-3	WL	8/16/2023	(N)F			4.42	NTU		F	#	-	-
Turbidity	0852-4	WL	8/16/2023	(N)F			2.5	NTU		F	#	-	-
Turbidity	0853-2	WL	8/16/2023	(N)F			3.88	NTU		F	#	-	-
Turbidity	0853-3	WL	8/16/2023	(N)F			0.53	NTU		F	#	-	-
Turbidity	0853-4	WL	8/16/2023	(N)F			1.46	NTU		F	#	-	-
Turbidity	0854-2	WL	8/16/2023	(N)F			1.79	NTU		F	#	-	-
Turbidity	0854-3	WL	8/16/2023	(N)F			0.82	NTU		F	#	-	-
Turbidity	0854-4	WL	8/16/2023	(N)F			1.52	NTU		F	#	-	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Turbidity	0855-2	WL	8/15/2023	(N)F			1.86	NTU		F	#	-	-
Turbidity	0855-3	WL	8/15/2023	(N)F			2.92	NTU		F	#	-	-
Turbidity	0855-4	WL	8/15/2023	(N)F			0.85	NTU		F	#	-	-
Turbidity	0856-2	WL	8/15/2023	(N)F			0.79	NTU		F	#	-	-
Turbidity	0856-3	WL	8/15/2023	(N)F			0.85	NTU		F	#	-	-
Turbidity	0856-4	WL	8/15/2023	(N)F			1.58	NTU		F	#	-	-
Turbidity	0857-2	WL	8/16/2023	(N)F			0.99	NTU		F	#	-	-
Turbidity	0857-3	WL	8/16/2023	(N)F			0.87	NTU		F	#	-	-
Turbidity	0857-4	WL	8/16/2023	(N)F			3.72	NTU		F	#	-	-
Turbidity	0858-2	WL	8/15/2023	(N)F			3.09	NTU		F	#	-	-
Turbidity	0858-3	WL	8/15/2023	(N)F			0.82	NTU		F	#	-	-
Turbidity	0858-4	WL	8/15/2023	(N)F			0.73	NTU		F	#	-	-
Turbidity	0859-2	WL	8/16/2023	(N)F			4.29	NTU		F	#	-	-
Turbidity	0859-3	WL	8/16/2023	(N)F			3.47	NTU		F	#	-	-
Turbidity	0859-4	WL	8/16/2023	(N)F			1.84	NTU		F	#	-	-
Turbidity	0860-2	WL	8/16/2023	(N)F			2.05	NTU		F	#	-	-
Turbidity	0860-3	WL	8/16/2023	(N)F			1.11	NTU		F	#	-	-
Turbidity	0860-4	WL	8/16/2023	(N)F			9.98	NTU		F	#	-	-
Uranium													
Uranium	0101	WL	8/16/2023	(T)F			0.181	mg/L		F	#	0.000067	-
Uranium	0705	WL	8/15/2023	(T)F			0.000074	mg/L	B	FQ	#	0.000067	-
Uranium	0707	WL	8/15/2023	(T)F			1.01	mg/L		F	#	0.000067	-
Uranium	0710	WL	8/15/2023	(T)F			0.00523	mg/L		F	#	0.000067	-
Uranium	0716	WL	8/16/2023	(T)D			0.164	mg/L		F	#	0.000067	-
Uranium	0716	WL	8/16/2023	(T)F			0.163	mg/L		F	#	0.000067	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Uranium	0717	WL	8/16/2023	(T)F			0.000145	mg/L	B	F	#	0.000067	-
Uranium	0718	WL	8/16/2023	(T)F			0.117	mg/L		F	#	0.000067	-
Uranium	0719	WL	8/16/2023	(T)F			0.000259	mg/L		FQ	#	0.000067	-
Uranium	0720	WL	8/16/2023	(T)F			0.00386	mg/L		F	#	0.000067	-
Uranium	0721	WL	8/16/2023	(T)F			0.000109	mg/L	B	F	#	0.000067	-
Uranium	0722R	WL	8/16/2023	(T)F			0.133	mg/L		F	#	0.000067	-
Uranium	0723	WL	8/16/2023	(T)F			0.000075	mg/L	B	F	#	0.000067	-
Uranium	0727	WL	8/16/2023	(T)F			0.00274	mg/L		F	#	0.000067	-
Uranium	0729	WL	8/16/2023	(T)F			0.00808	mg/L		F	#	0.000067	-
Uranium	0730	WL	8/16/2023	(T)F			0.00428	mg/L		F	#	0.000067	-
Uranium	0732	WL	8/16/2023	(T)F			0.00441	mg/L		F	#	0.000067	-
Uranium	0784	WL	8/16/2023	(T)F			0.0137	mg/L		F	#	0.000067	-
Uranium	0788	WL	8/16/2023	(T)F			0.0335	mg/L		F	#	0.000067	-
Uranium	0789	WL	8/15/2023	(T)D			0.927	mg/L		F	#	0.000067	-
Uranium	0789	WL	8/15/2023	(T)F			0.804	mg/L		F	#	0.000067	-
Uranium	0824	WL	8/15/2023	(T)D			0.0319	mg/L		F	#	0.000067	-
Uranium	0824	WL	8/15/2023	(T)F			0.0322	mg/L		F	#	0.000067	-
Uranium	0826	WL	8/16/2023	(T)F			0.0392	mg/L		F	#	0.000067	-
Uranium	0852-2	WL	8/16/2023	(T)F			0.0301	mg/L		F	#	0.000067	-
Uranium	0852-3	WL	8/16/2023	(T)F			0.025	mg/L		F	#	0.000067	-
Uranium	0852-4	WL	8/16/2023	(T)F			0.0244	mg/L		F	#	0.000067	-
Uranium	0853-2	WL	8/16/2023	(T)F			0.0275	mg/L		F	#	0.000067	-
Uranium	0853-3	WL	8/16/2023	(T)F			0.0183	mg/L		F	#	0.000067	-
Uranium	0853-4	WL	8/16/2023	(T)F			0.0195	mg/L		F	#	0.000067	-
Uranium	0854-2	WL	8/16/2023	(T)F			0.0666	mg/L		F	#	0.000067	-

PARAMETER	LOCATION CODE/TYPE		SAMPLE DATE	SAMPLE TYPE	DEPTH RANGE (FT BLS)		RESULT	UNITS	QUALIFIERS LAB/DATA		QA	DETECTION LIMIT	UNCERTAINTY
Uranium	0854-3	WL	8/16/2023	(T)F			0.0634	mg/L		F	#	0.000067	-
Uranium	0854-4	WL	8/16/2023	(T)F			0.0695	mg/L		F	#	0.000067	-
Uranium	0855-2	WL	8/15/2023	(T)F			0.825	mg/L		F	#	0.000067	-
Uranium	0855-3	WL	8/15/2023	(T)F			0.755	mg/L		F	#	0.000335	-
Uranium	0855-4	WL	8/15/2023	(T)F			0.464	mg/L		F	#	0.000067	-
Uranium	0856-2	WL	8/15/2023	(T)F			1.17	mg/L		F	#	0.000067	-
Uranium	0856-3	WL	8/15/2023	(T)F			1.15	mg/L		F	#	0.000067	-
Uranium	0856-4	WL	8/15/2023	(T)F			1.01	mg/L		F	#	0.000067	-
Uranium	0857-2	WL	8/16/2023	(T)F			1.55	mg/L		F	#	0.000067	-
Uranium	0857-3	WL	8/16/2023	(T)F			1.37	mg/L		F	#	0.000067	-
Uranium	0857-4	WL	8/16/2023	(T)F			1.27	mg/L		F	#	0.000067	-
Uranium	0858-2	WL	8/15/2023	(T)F			0.933	mg/L		F	#	0.000067	-
Uranium	0858-3	WL	8/15/2023	(T)F			0.896	mg/L		F	#	0.000067	-
Uranium	0858-4	WL	8/15/2023	(T)F			0.911	mg/L		F	#	0.000067	-
Uranium	0859-2	WL	8/16/2023	(T)F			0.0911	mg/L		F	#	0.000067	-
Uranium	0859-3	WL	8/16/2023	(T)F			0.145	mg/L		F	#	0.000067	-
Uranium	0859-4	WL	8/16/2023	(T)F			0.216	mg/L		F	#	0.000067	-
Uranium	0860-2	WL	8/16/2023	(T)F			1.59	mg/L		F	#	0.000067	-
Uranium	0860-3	WL	8/16/2023	(T)F			0.981	mg/L		F	#	0.000067	-
Uranium	0860-4	WL	8/16/2023	(T)F			0.754	mg/L		F	#	0.000067	-

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:

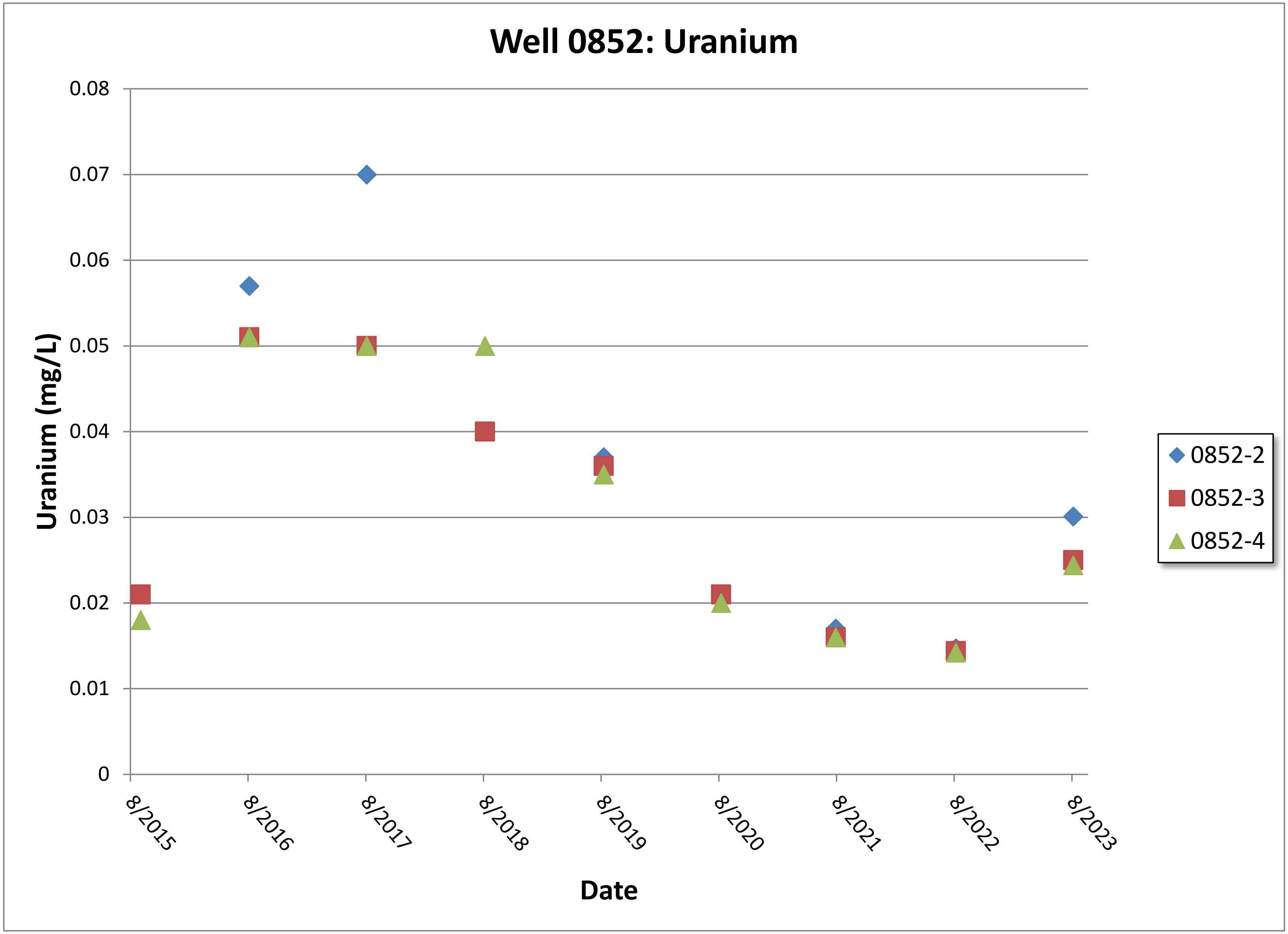
Fraction:
(T) Total (for metal concentrations)
(D) Dissolved (for dissolved or filtered metal concentrations)
(N) Organic (or other) constituents for which neither total nor dissolved is applicable

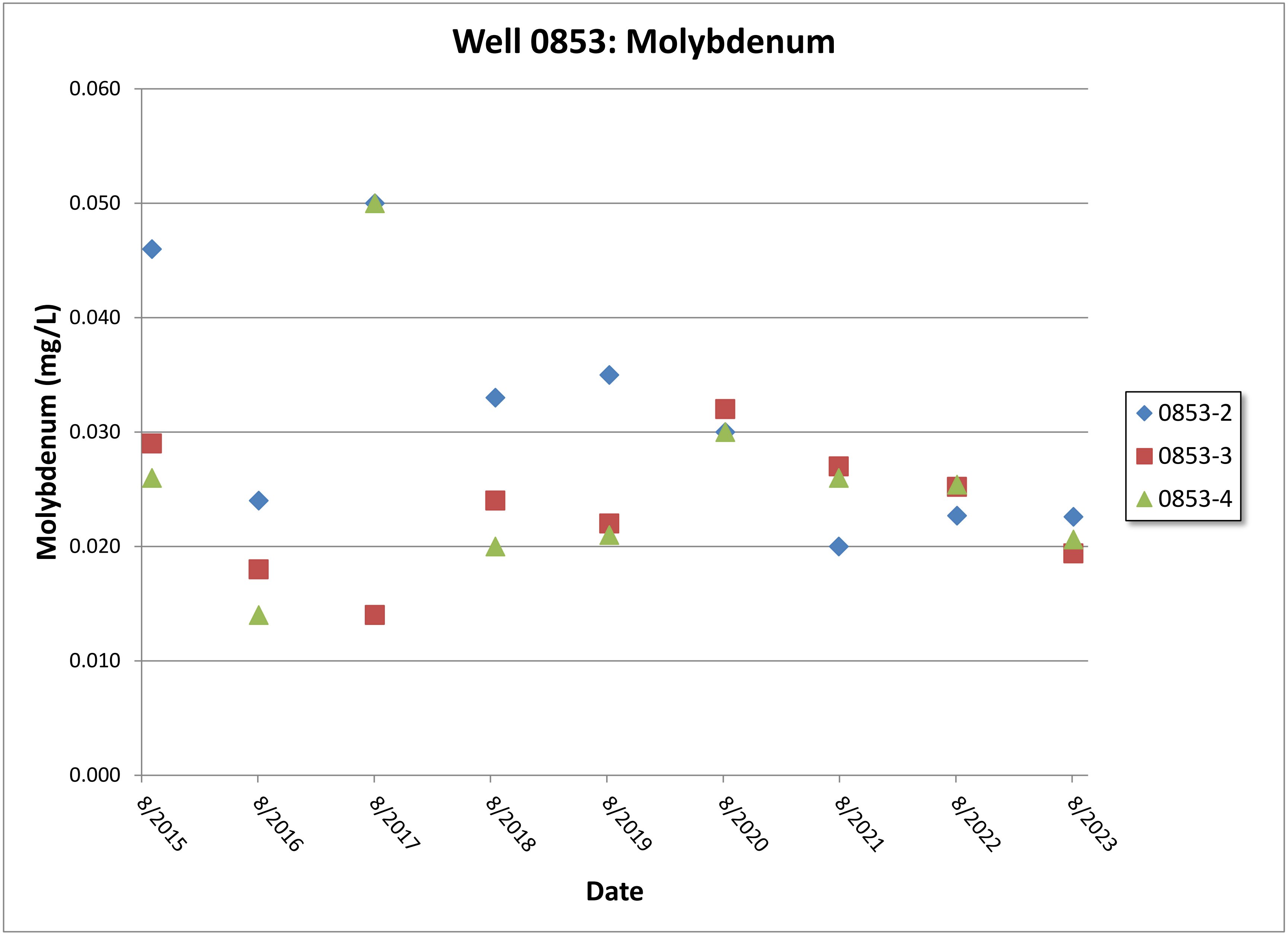
Type Codes:
F-Field Sample R-Replicate FR-Field Sample with Replicates
D-Duplicate N-Not Known S-Split Sample

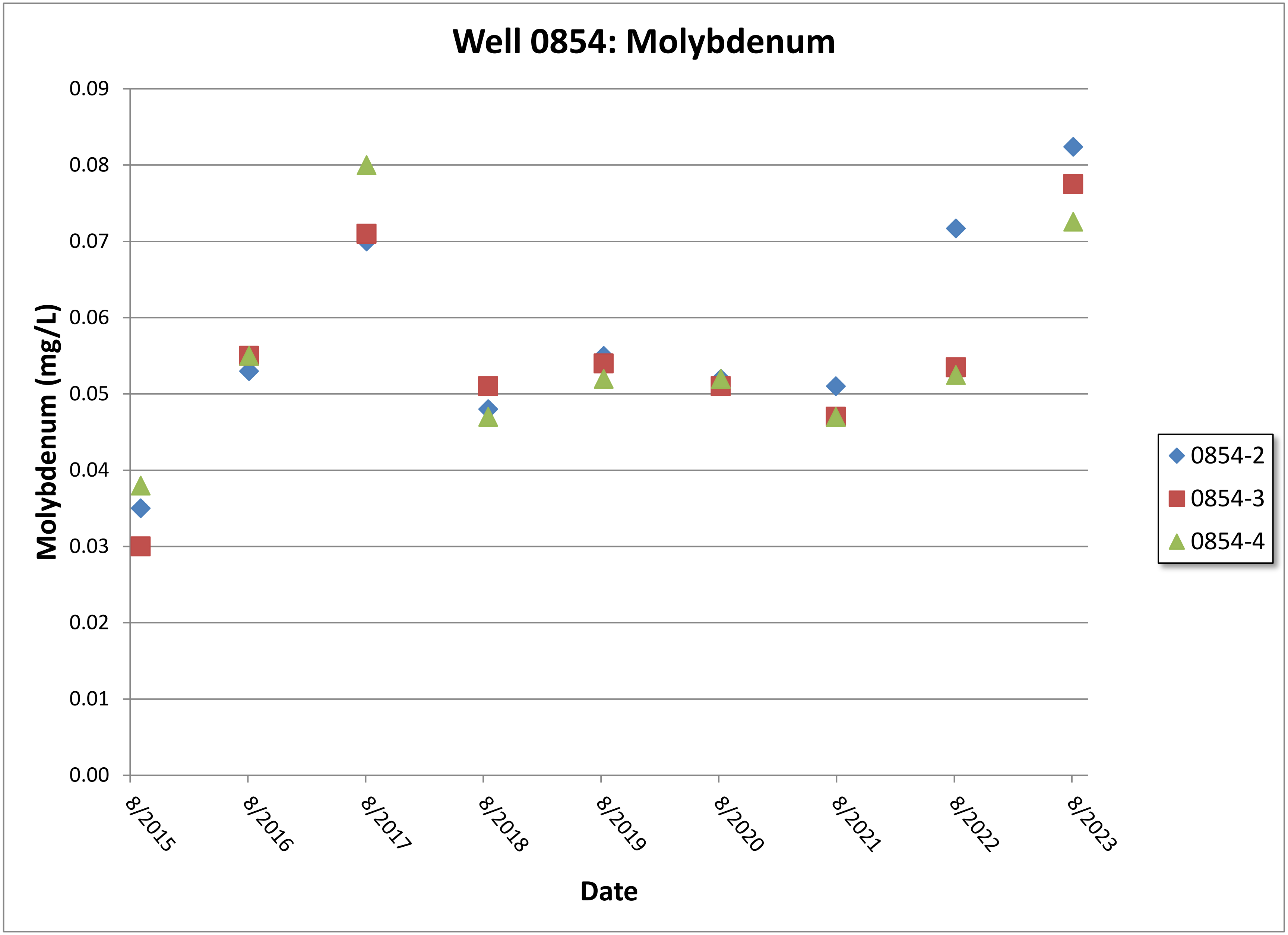
QA QUALIFIER: # = validated according to Quality Assurance guidelines.

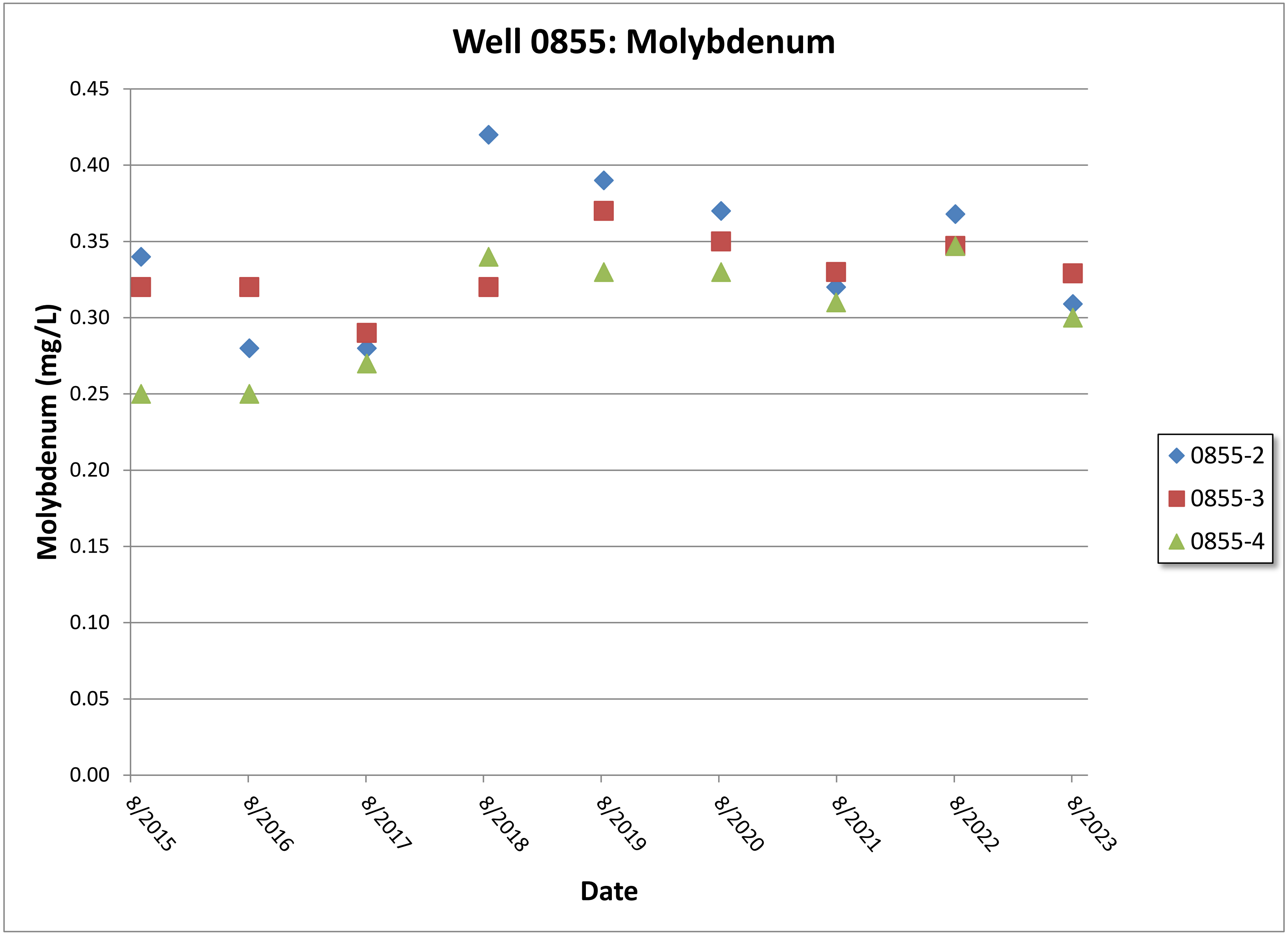
Appendix D

Multilevel Monitoring Well Graphs

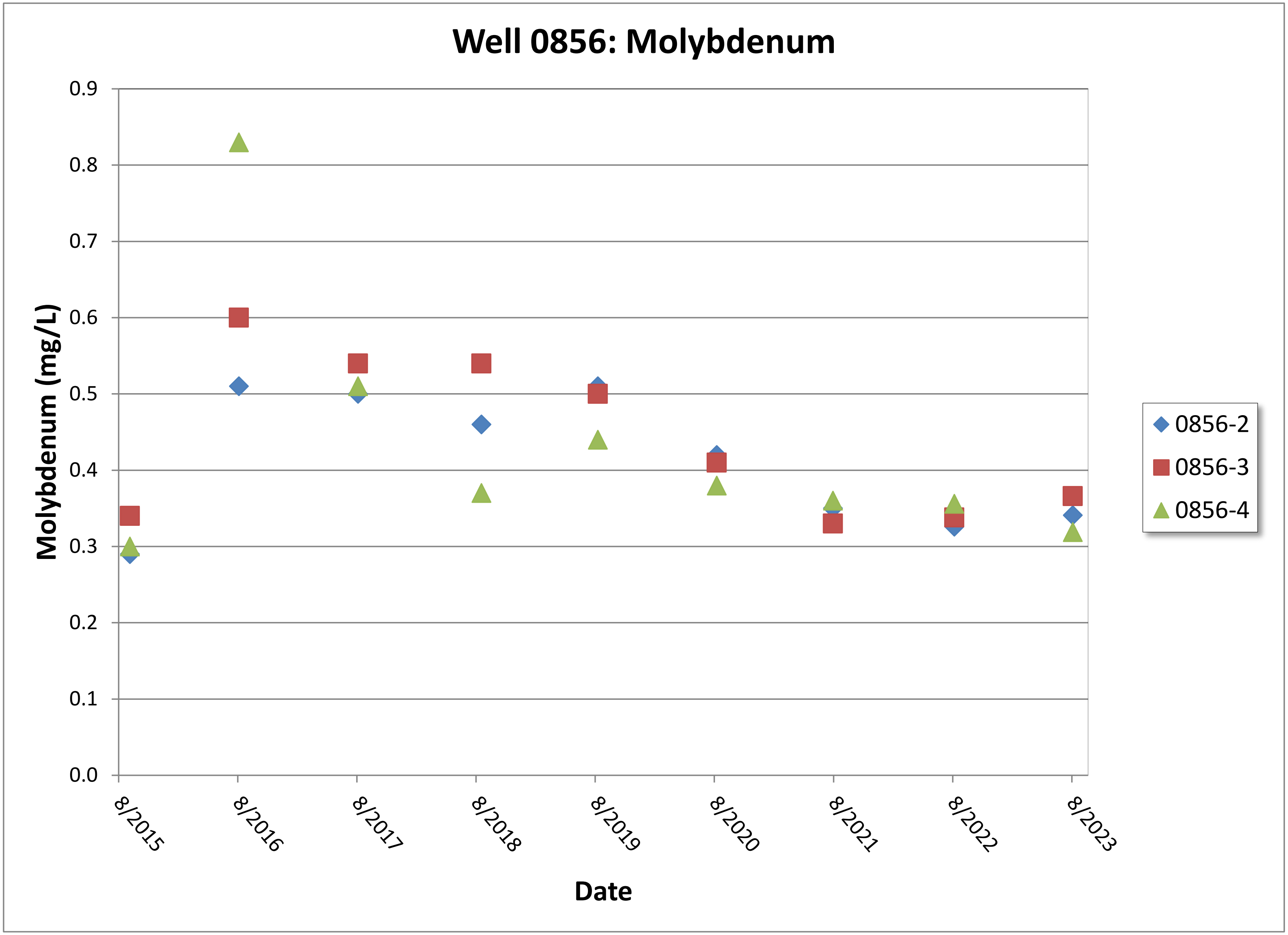

Well 0852: Uranium
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Uranium (mg/L)
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0852-2
0852-3
0852-4


Well 0853: Molybdenum
Molybdenum (mg/L)
0.060
0.050
0.040
0.030
0.020
0.010
0.000
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0853-2
0853-3
0853-4

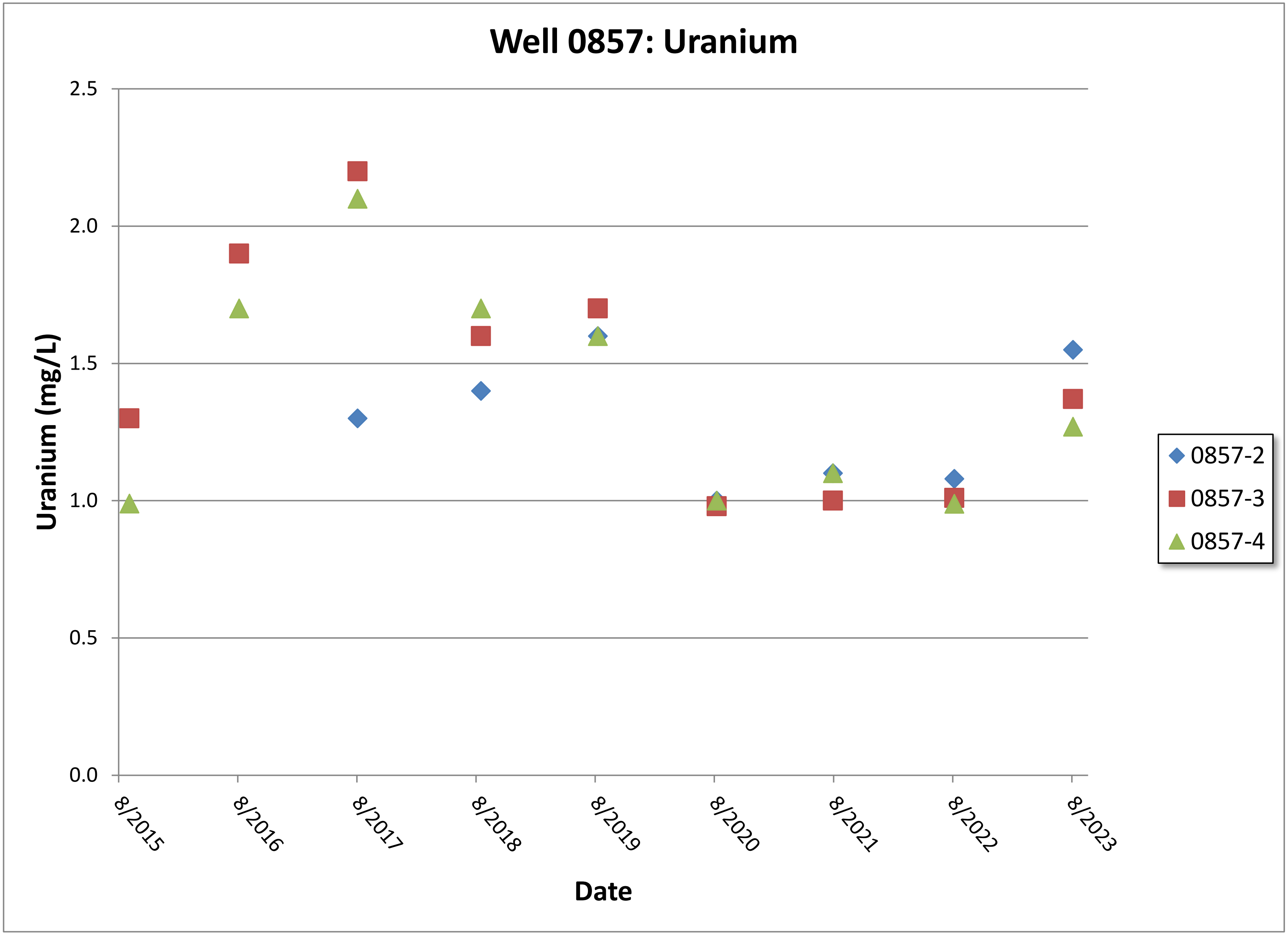

Well 0854: Molybdenum
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
Molybdenum (mg/L)
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0854-2
0854-3
0854-4



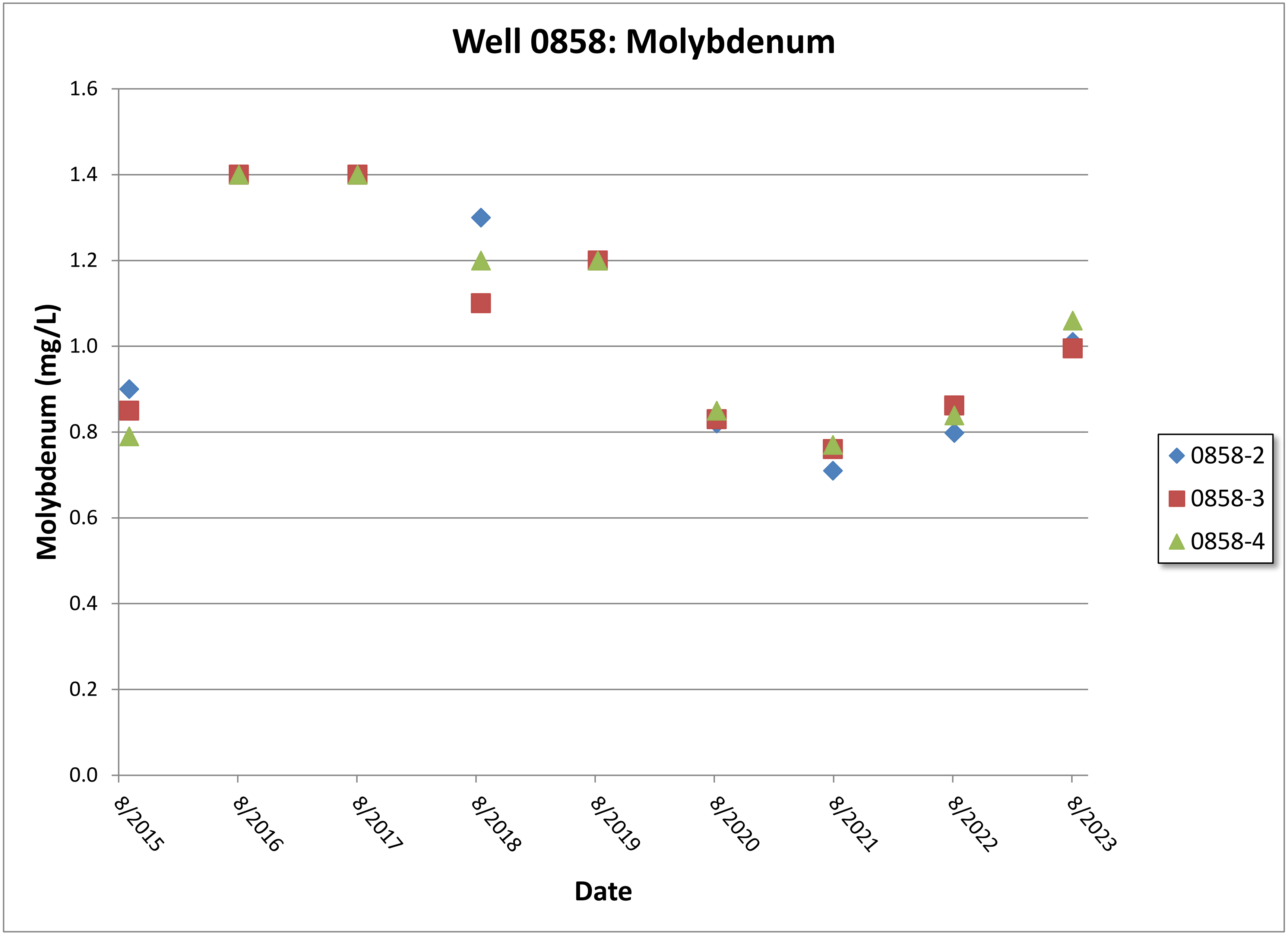
Well 0855: Molybdenum
Molybdenum (mg/L)
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0855-2
0855-3
0855-4



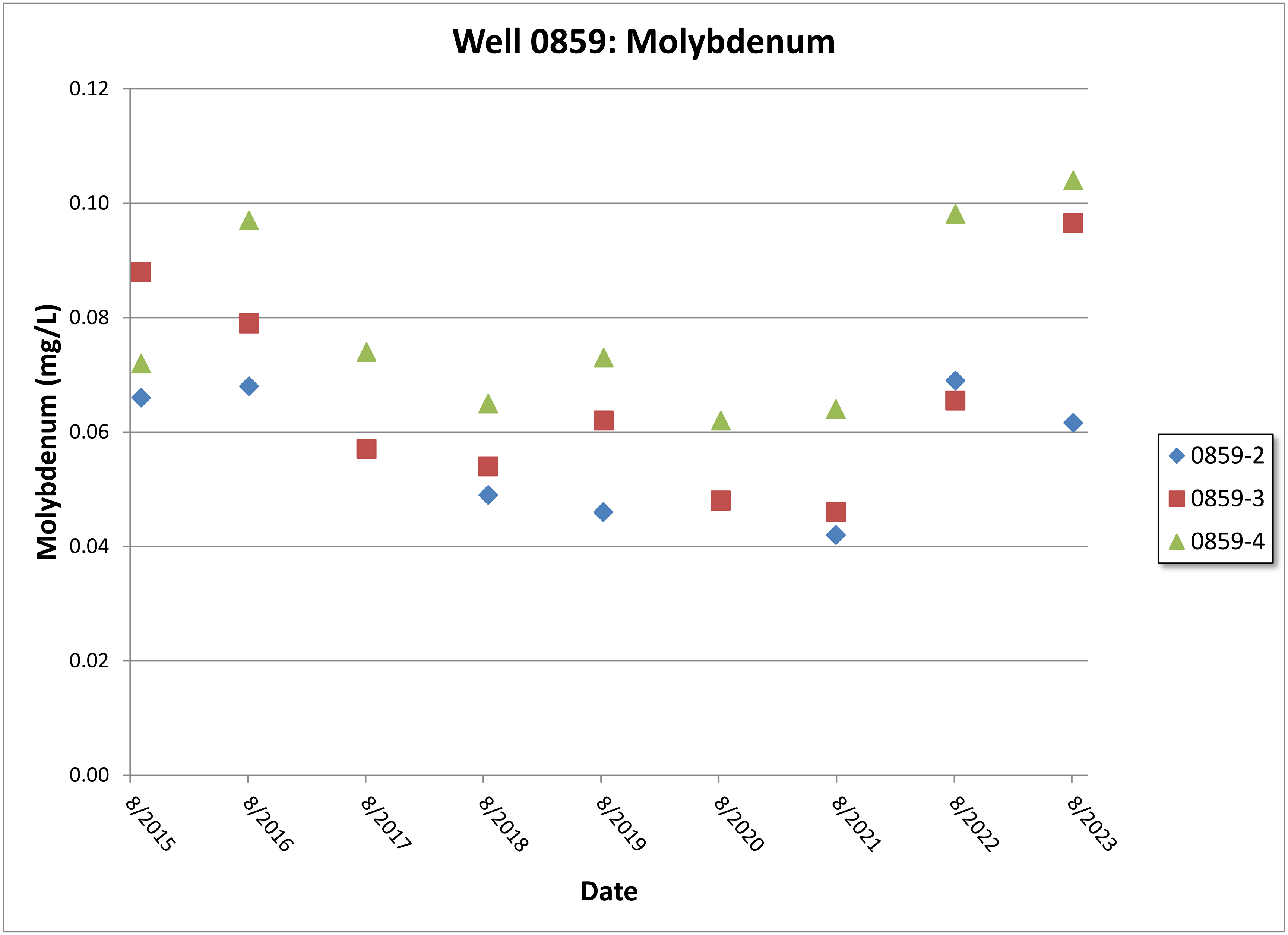
Well 0856: Molybdenum
Molybdenum (mg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0856-2
0856-3
0856-4

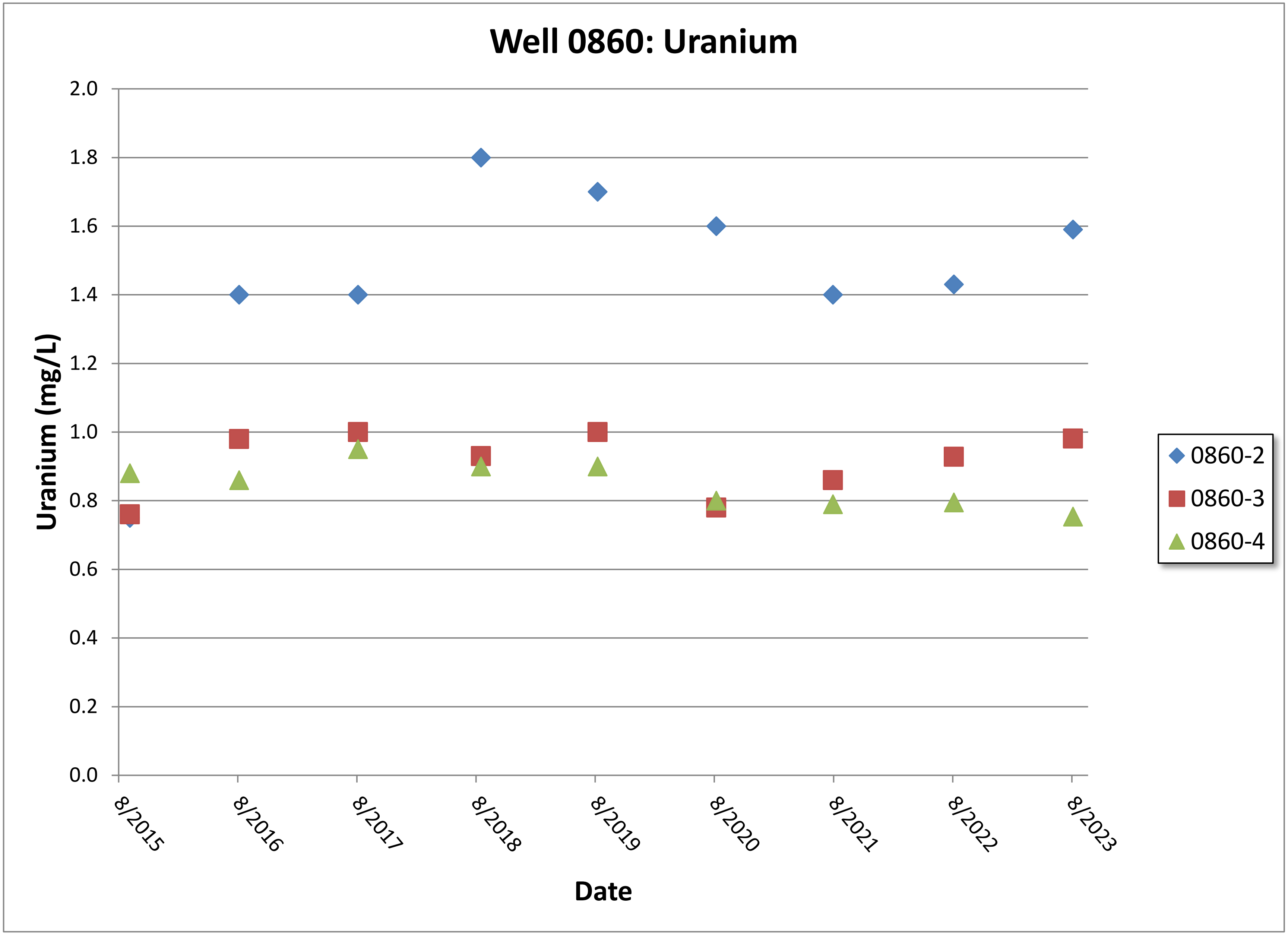


Well 0857: Uranium
Uranium (mg/L)
2.5
2.0
1.5
1.0
0.5
0.0
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0857-2
0857-3
0857-4



Well 0858: Molybdenum
Molybdenum (mg/L)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0858-2
0858-3
0858-4


Well 0859: Molybdenum
Molybdenum (mg/L)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0859-2
0859-3
0859-4


Well 0860: Uranium
Uranium (mg/L)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
8/2015
8/2016
8/2017
8/2018
8/2019
8/2020
8/2021
8/2022
8/2023
Date
0860-2
0860-3
0860-4

Appendix E

Surface Water Data

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/12/2024 2:56:00 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)	0747	8/15/2023	(D)F	323	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0749	8/16/2023	(N)F	179	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0794	8/15/2023	(D)F	198	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0796	8/15/2023	(D)F	135	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0810	8/15/2023	(N)F	371	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0811	8/15/2023	(D)F	159	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0812	8/15/2023	(D)F	66	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0822	8/16/2023	(N)F	205	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0823	8/15/2023	(N)F	95	mg/L			#	-	-
Alkalinity, Total (As CaCO3)	0879	8/15/2023	(D)F	136	mg/L			#	-	-
Manganese										
Manganese	0747	8/15/2023	(T)F	0.698	mg/L			#	0.002	-
Manganese	0749	8/16/2023	(T)F	0.0172	mg/L			#	0.002	-
Manganese	0794	8/15/2023	(T)F	0.00961	mg/L	B		#	0.002	-
Manganese	0796	8/15/2023	(T)F	0.00755	mg/L	B		#	0.002	-
Manganese	0810	8/15/2023	(T)F	0.00998	mg/L	B		#	0.002	-
Manganese	0811	8/15/2023	(T)F	0.00815	mg/L	B		#	0.002	-
Manganese	0812	8/15/2023	(T)F	0.0099	mg/L	B		#	0.002	-
Manganese	0822	8/16/2023	(T)F	0.0321	mg/L			#	0.002	-
Manganese	0823	8/15/2023	(T)F	0.0533	mg/L			#	0.002	-
Manganese	0879	8/15/2023	(D)D	0.55	mg/L			#	0.002	-
Manganese	0879	8/15/2023	(D)F	0.53	mg/L			#	0.002	-
Molybdenum										
Molybdenum	0747	8/15/2023	(T)F	0.0185	mg/L			#	0.0002	-
Molybdenum	0749	8/16/2023	(T)F	0.00455	mg/L			#	0.0002	-
Molybdenum	0794	8/15/2023	(T)F	0.0018	mg/L	B		#	0.0002	-
Molybdenum	0796	8/15/2023	(T)F	0.00148	mg/L	B		#	0.0002	-
Molybdenum	0810	8/15/2023	(T)F	0.000798	mg/L	B		#	0.0002	-
Molybdenum	0811	8/15/2023	(T)F	0.00149	mg/L	B		#	0.0002	-
Molybdenum	0812	8/15/2023	(T)F	0.00153	mg/L	B		#	0.0002	-
Molybdenum	0822	8/16/2023	(T)F	0.0017	mg/L	B		#	0.0002	-

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/12/2024 2:56:00 PM

PARAMETER	LOCATION CODE	SAMPLE DATE	SAMPLE TYPE	RESULT	UNITS	QUALIFIERS LAB	QUALIFIERS DATA	QA	DETECT. LIMIT	UNCERTAINTY
Molybdenum	0823	8/15/2023	(T)F	0.000673	mg/L	B		#	0.0002	-
Molybdenum	0879	8/15/2023	(D)D	0.102	mg/L			#	0.001	-
Molybdenum	0879	8/15/2023	(D)F	0.0973	mg/L			#	0.001	-
pH										
pH	0747	8/15/2023	(N)F	9.33	s.u.			#	-	-
pH	0749	8/16/2023	(N)F	7.17	s.u.			#	-	-
pH	0794	8/15/2023	(N)F	7.66	s.u.			#	-	-
pH	0796	8/15/2023	(N)F	8.59	s.u.			#	-	-
pH	0810	8/15/2023	(N)F	9.08	s.u.			#	-	-
pH	0811	8/15/2023	(N)F	10.95	s.u.			#	-	-
pH	0812	8/15/2023	(N)F	8.43	s.u.			#	-	-
pH	0822	8/16/2023	(N)F	7.77	s.u.			#	-	-
pH	0823	8/15/2023	(N)F	8.78	s.u.			#	-	-
pH	0879	8/15/2023	(N)F	9.69	s.u.			#	-	-
Specific Conductance										
Specific Conductance	0747	8/15/2023	(N)F	1349	umhos/cm			#	-	-
Specific Conductance	0749	8/16/2023	(N)F	954	umhos/cm			#	-	-
Specific Conductance	0794	8/15/2023	(N)F	811	umhos/cm			#	-	-
Specific Conductance	0796	8/15/2023	(N)F	669	umhos/cm			#	-	-
Specific Conductance	0810	8/15/2023	(N)F	1238	umhos/cm			#	-	-
Specific Conductance	0811	8/15/2023	(N)F	643	umhos/cm			#	-	-
Specific Conductance	0812	8/15/2023	(N)F	668	umhos/cm			#	-	-
Specific Conductance	0822	8/16/2023	(N)F	695	umhos/cm			#	-	-
Specific Conductance	0823	8/15/2023	(N)F	2757	umhos/cm			#	-	-
Specific Conductance	0879	8/15/2023	(N)F	8945	umhos/cm			#	-	-
Sulfate										
Sulfate	0747	8/15/2023	(N)F	321	mg/L			#	13.3	-
Sulfate	0749	8/16/2023	(N)F	225	mg/L			#	13.3	-
Sulfate	0794	8/15/2023	(N)F	159	mg/L			#	13.3	-
Sulfate	0796	8/15/2023	(N)F	159	mg/L			#	13.3	-
Sulfate	0810	8/15/2023	(N)F	195	mg/L			#	13.3	-
Sulfate	0811	8/15/2023	(N)F	156	mg/L			#	13.3	-

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/12/2024 2:56:01 PM

PARAMETER	LOCATION CODE	SAMPLE DATE	SAMPLE TYPE	RESULT	UNITS	QUALIFIERS LAB	QUALIFIERS DATA	QA	DETECT. LIMIT	UNCERTAINTY
Sulfate	0812	8/15/2023	(N)F	162	mg/L			#	13.3	-
Sulfate	0822	8/16/2023	(N)F	135	mg/L			#	13.3	-
Sulfate	0823	8/15/2023	(N)F	966	mg/L			#	13.3	-
Sulfate	0879	8/15/2023	(N)D	6980	mg/L		J	#	53.2	-
Sulfate	0879	8/15/2023	(N)F	5240	mg/L		J	#	53.2	-
Temperature										
Temperature	0747	8/15/2023	(N)F	18.38	C			#	-	-
Temperature	0749	8/16/2023	(N)F	20.59	C			#	-	-
Temperature	0794	8/15/2023	(N)F	17.69	C			#	-	-
Temperature	0796	8/15/2023	(N)F	24.49	C			#	-	-
Temperature	0810	8/15/2023	(N)F	27.22	C			#	-	-
Temperature	0811	8/15/2023	(N)F	21.46	C			#	-	-
Temperature	0812	8/15/2023	(N)F	23.81	C			#	-	-
Temperature	0822	8/16/2023	(N)F	24.31	C			#	-	-
Temperature	0823	8/15/2023	(N)F	27.28	C			#	-	-
Temperature	0879	8/15/2023	(N)F	23.96	C			#	-	-
Turbidity										
Turbidity	0747	8/15/2023	(N)F	13.1	NTU			#	-	-
Turbidity	0749	8/16/2023	(N)F	6.4	NTU			#	-	-
Turbidity	0794	8/15/2023	(N)F	32.2	NTU			#	-	-
Turbidity	0796	8/15/2023	(N)F	35.3	NTU			#	-	-
Turbidity	0810	8/15/2023	(N)F	2.65	NTU			#	-	-
Turbidity	0811	8/15/2023	(N)F	34.5	NTU			#	-	-
Turbidity	0812	8/15/2023	(N)F	30.3	NTU			#	-	-
Turbidity	0822	8/16/2023	(N)F	4.1	NTU			#	-	-
Turbidity	0823	8/15/2023	(N)F	3.82	NTU			#	-	-
Turbidity	0879	8/15/2023	(N)F	437	NTU			#	-	-
Uranium										
Uranium	0747	8/15/2023	(T)F	0.101	mg/L			#	0.000067	-
Uranium	0749	8/16/2023	(T)F	0.000137	mg/L	B		#	0.000067	-
Uranium	0794	8/15/2023	(T)F	0.00479	mg/L			#	0.000067	-
Uranium	0796	8/15/2023	(T)F	0.00382	mg/L			#	0.000067	-
Uranium	0810	8/15/2023	(T)F	0.0033	mg/L			#	0.000067	-
Uranium	0811	8/15/2023	(T)F	0.00404	mg/L			#	0.000067	-
Uranium	0812	8/15/2023	(T)F	0.00423	mg/L			#	0.000067	-
Uranium	0822	8/16/2023	(T)F	0.00349	mg/L			#	0.000067	-

SURFACE WATER QUALITY DATA BY PARAMETER (EQuIS800) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/12/2024 2:56:01 PM

PARAMETER	LOCATION CODE	SAMPLE DATE	SAMPLE TYPE	RESULT	UNITS	QUALIFIERS LAB	QUALIFIERS DATA	QA	DETECT. LIMIT	UNCERTAINTY
Uranium	0823	8/15/2023	(T)F	0.00298	mg/L			#	0.000067	-
Uranium	0879	8/15/2023	(D)D	0.148	mg/L			#	0.000067	-
Uranium	0879	8/15/2023	(D)F	0.144	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.