

2014 Verification Monitoring Report, Riverton, Wyoming, Processing Site

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2014 Verification Monitoring Report for the Riverton, Wyoming, Processing Site

The U.S. Department of Energy (DOE) has prepared a Verification Monitoring Report documenting the evaluation of groundwater, surface water, alternate water supply system, and soil sampling data generated in 2014 sampling at the Riverton, Wyoming, Processing Site. **At your request, you are receiving a hard copy of the report.**

The report is also available for your review on the Internet at the DOE Office of Legacy Management (LM) website – <http://energy.gov/lm>. From the LM website home page, select the LM SITES MAP. Then select Riverton Site from the LM SITES list in the right column. The report will be available on the Riverton Site page under Site Documents and Links.



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Abbreviations

AWSS	alternate water supply system
bgs	below ground surface
CFR	<i>Code of Federal Regulations</i>
cfs	cubic feet per second
COC	contaminant of concern
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot
ft/s	feet per second
IC	institutional control
LM	Office of Legacy Management
MCL	maximum concentration limit
mg/L	milligrams per liter
pCi/L	picocuries per liter
ppm	parts per million
SLAC	Stanford Linear Accelerator Center
UMTRA	Uranium Mill Tailings Remedial Action (Project)
WREQC	Wind River Environmental Quality Commission

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Executive Summary

Verification monitoring in 2014 at the Riverton, Wyoming, Processing Site involved routine sampling of groundwater, surface water, and domestic wells and a flushing and monitoring program of the alternate water supply system that was reinstituted in late 2011. Concentrations of uranium and molybdenum at the site remained above their groundwater standards in surficial aquifer wells; however, concentrations in 2014 were consistent with the previous 2013 levels that decreased to near 2009 levels after spiking following the 2010 flood of the Little Wind River. Sampling results from domestic wells continued to indicate no impact from site-related contaminants, and the flushing program for the alternate water supply system was effective in controlling the buildup of radionuclides in the system.

In addition to routine monitoring, sampling of evaporite mineral deposits was conducted in May along the Little Wind River. Constituent of concern concentrations measured in the mineral deposits were elevated in the area of groundwater plume discharge, but the concentrations do not pose an unacceptable risk to human health and the environment. Hand augering of sediments around the oxbow lake and near the Little Wind River was conducted in September in collaboration with Stanford Linear Accelerator Center personnel. This sampling identified areas of naturally reduced zones that had uranium concentrations up to 75 parts per million.

Several types of information, including uranium mobilized by flood events, current plume size and concentration, groundwater modeling results, historical data, and experience at other Uranium Mill Tailings Radiation Control Act sites, indicates natural flushing of the surficial aquifer is occurring at the Riverton site, but the rate at which it is occurring might not meet the 100-year regulatory time frame. Additional information will be needed and additional work conducted to gain a better understanding of the site before a final decision can be made regarding the natural flushing compliance strategy or before a selection of an alternate compliance strategy can be made.

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1.0 Introduction

This Riverton, Wyoming, Processing Site verification monitoring report presents data collected during calendar year 2014 and provides an update on the natural flushing compliance strategy. Data from 2014 was generated from one routine groundwater and surface water sampling event conducted at the Riverton site during September, two flushing events of the alternate water supply system (AWSS) conducted in March and September, and two soil sampling events conducted in May and September.

The compliance strategy for the Riverton site is natural flushing in conjunction with institutional controls (ICs) (DOE 1998a). Monitoring required during the natural flushing period is referred to as verification monitoring because its purpose is to verify that the natural flushing strategy is progressing as predicted 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 annually since 2001, and the reports from 2005 to 2013 are available on the U.S. Department of Energy (DOE) Office of Legacy Management (LM) website at <http://www.lm.doe.gov/Riverton/Sites.aspx>. All water quality data for the Riverton site are archived in the environmental database at the LM office in Grand Junction, Colorado. Water quality data also are available for viewing with dynamic mapping via the GEMS (Geospatial Environmental Mapping System) website at <http://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 2009).

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2.0 Site Conditions

2.1 Uranium Mill Tailings Remedial Action (UMTRA) Site and Surface Remediation

A uranium- and vanadium-ore-processing mill operated from 1958 to 1963 at the Riverton site. The milling process produced a tailings pile that covered about 72 acres of the 140-acre site. 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. Surface remediation activities resulted in removal of about 1.8 million cubic yards of tailings and associated materials from the site, 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 on portions of the former mill site by applying supplemental standards as allowed in Title 40 *Code of Federal Regulations* Part 192 (40 CFR 192). An easement and covenant to restrict land use on the former mill site is in place to prevent exposure to and disturbance of the supplemental-standards areas.

2.2 Hydrogeology

The Riverton site is located 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 1998b). 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 over 500 ft thick in the vicinity of the site. Depth to groundwater in the surficial aquifer is generally less than 10 ft bgs. For compliance purposes, the uppermost aquifer, which is the aquifer in which 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 located on an alluvial terrace between the Wind River and the Little Wind River, site conditions have been influenced by periodic flooding of these rivers. Influence of river flooding includes the formation of an oxbow lake in 1995, spikes in groundwater contaminant concentrations, high groundwater levels potentially leaving contaminants in the unsaturated zone, and high groundwater levels that leached contaminants from the former tailings pile (White et al. 1984). Significant floods of the Little Wind River that likely affected the site occurred in 1963, 1965, 1967, 1983, 1991, 1995, and 2010, when peak river discharge was greater than 8,000 cubic feet per second (cfs) (USGS 2012a). Significant floods of the Wind River that likely affected the site occurred in 1963, 1967, 1971, 1991, 1997, 1999, and 2011, when peak stream discharge was greater than 8,000 cfs (USGS 2012b). Discharge data and flood data from the Little Wind River are presented in Section 4.2.1.

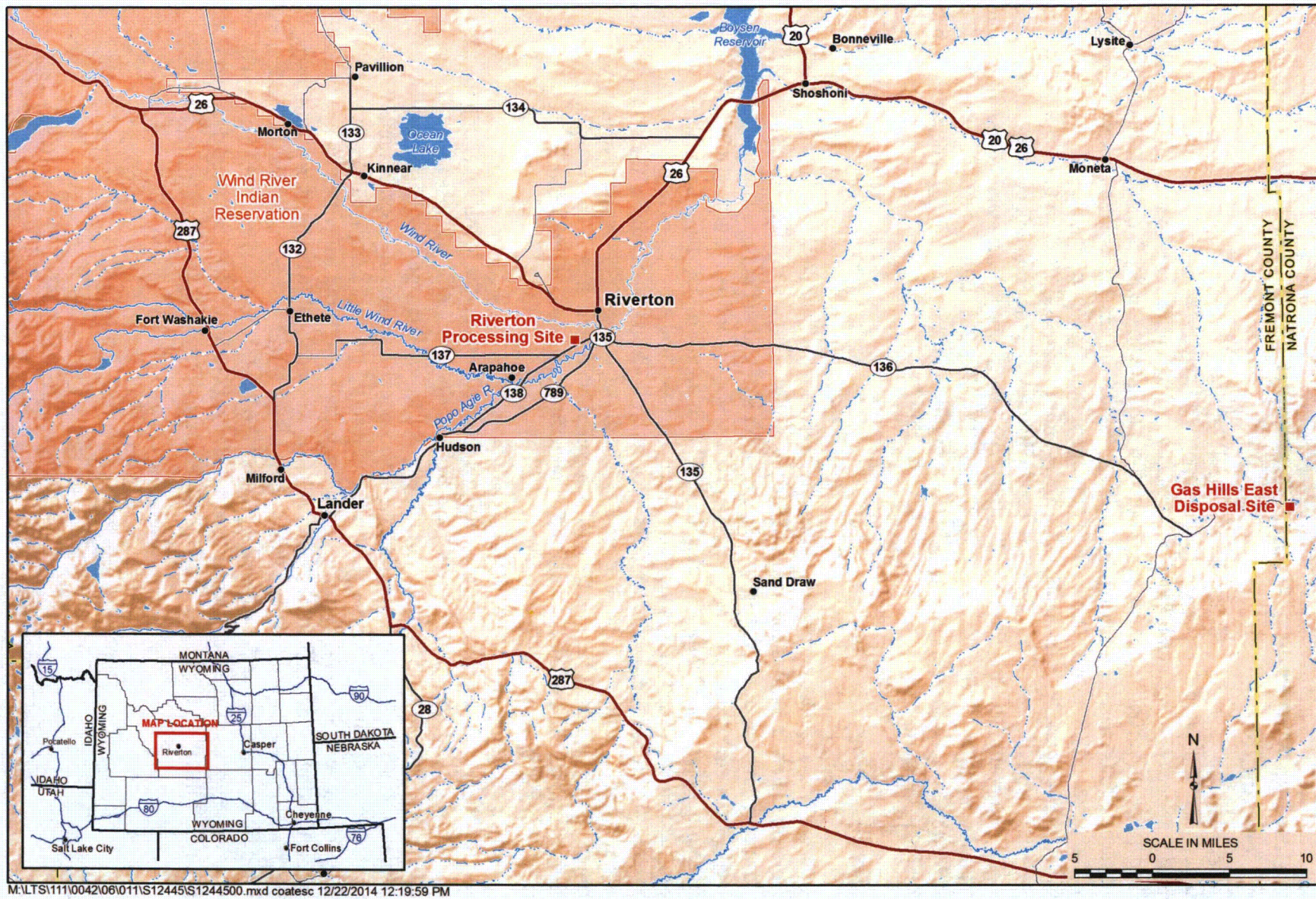


Figure 1. Site Location Map

2.3 Water Quality

Shallow groundwater beneath and downgradient from the site was contaminated as a result of uranium-processing activities from 1958 through 1963 (DOE 1998b). 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, as appropriate, and evaluated potential human health risks and ecological risks. (Note: The MCLs discussed in this document are not the same as the MCLs that the U.S. Environmental Protection Agency [EPA] sets as drinking water standards.) The COC-selection process is detailed in the *Environmental Assessment of Ground Water Compliance at the Riverton, Wyoming, Uranium Mill Tailings Site* (DOE 1998c). 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 1998a). These contaminants were selected as indicator contaminants because they are the most widely distributed and because they form significant aqueous plumes in the uppermost aquifer in the vicinity of the site. The MCLs for molybdenum and uranium are 0.10 milligram per liter (mg/L) and 30 picocuries per liter (pCi/L), respectively.

In order 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.

2.4 Institutional Controls

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 at the Riverton site (Figure 2), delineating the area that requires protection. 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.

2.4.1 Site Institutional Controls

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

- An AWSS, funded by DOE and currently operated by the Great Plains Utility Organization, supplies potable water to residents within the IC boundary to minimize use of groundwater.
- Warning signs installed around the oxbow lake (Figure 3) 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 places restrictions on well installation, prohibits surface impoundments, authorizes access to inspect and sample new wells, and provides notification to 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 installation of surface casing through the contaminated upper aquifer.

- DOE notification of 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 persons on privately owned land who apply for a gravel pit permit within the IC boundary.
- A U.S. Bureau of Indian Affairs notification of existing groundwater contamination to be provided to persons on tribal land applying for a surface impoundment within or adjacent to the IC boundary.
- Notification to DOE by the Wyoming State Engineer's Office when permit applications are received for wells or surface impoundments within or adjacent to the IC boundary, providing DOE with a copy of the application (so that DOE may comment on it), and incorporating DOE'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.

2.4.2 Institutional Control Monitoring

The Long-Term Management Plan specifies ongoing IC monitoring to verify that ICs are in place and working in order 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 and the AWSS. The land and water use verification consists of periodic inspection of land within the IC boundary to verify and document that no additional land or water uses expose or involve shallow groundwater, such as new wells, gravel pits, and recreational ponds.

Nine domestic wells were sampled during the September sampling event, including a new domestic well within the IC boundary. The new well (0876) was discovered by Wind River Environmental Quality Commission (WREQC) personnel, and they notified DOE of the discovery during the September sampling event. This well was sampled and added to the long-term monitoring network. It is unknown if the well was properly permitted because DOE did not receive notification from the State Engineer's Office as requested.

An additional stock well (0431) was sampled during the September sampling event; this well has been sampled in the past and was sampled in September to confirm low COC concentrations in this portion of the alluvial aquifer. Results of samples collected from domestic wells are presented in Section 4.1.2 and Appendix C.

Inspection of areas within the IC boundary is a requirement of the *Long-Term Management Plan for the Riverton, Wyoming, Processing Site* (DOE 2007). Land and water use verification within the IC boundary was conducted by WREQC prior to the September sampling event and by the sampling crews during the September sampling event. No evidence of new land disturbance that would expose groundwater or unauthorized use of surface water was observed. Warning signs around the oxbow lake were verified to be in place and in good condition. New well 0876 was discovered by WREQC as a result of the land and water use verification inspection process.

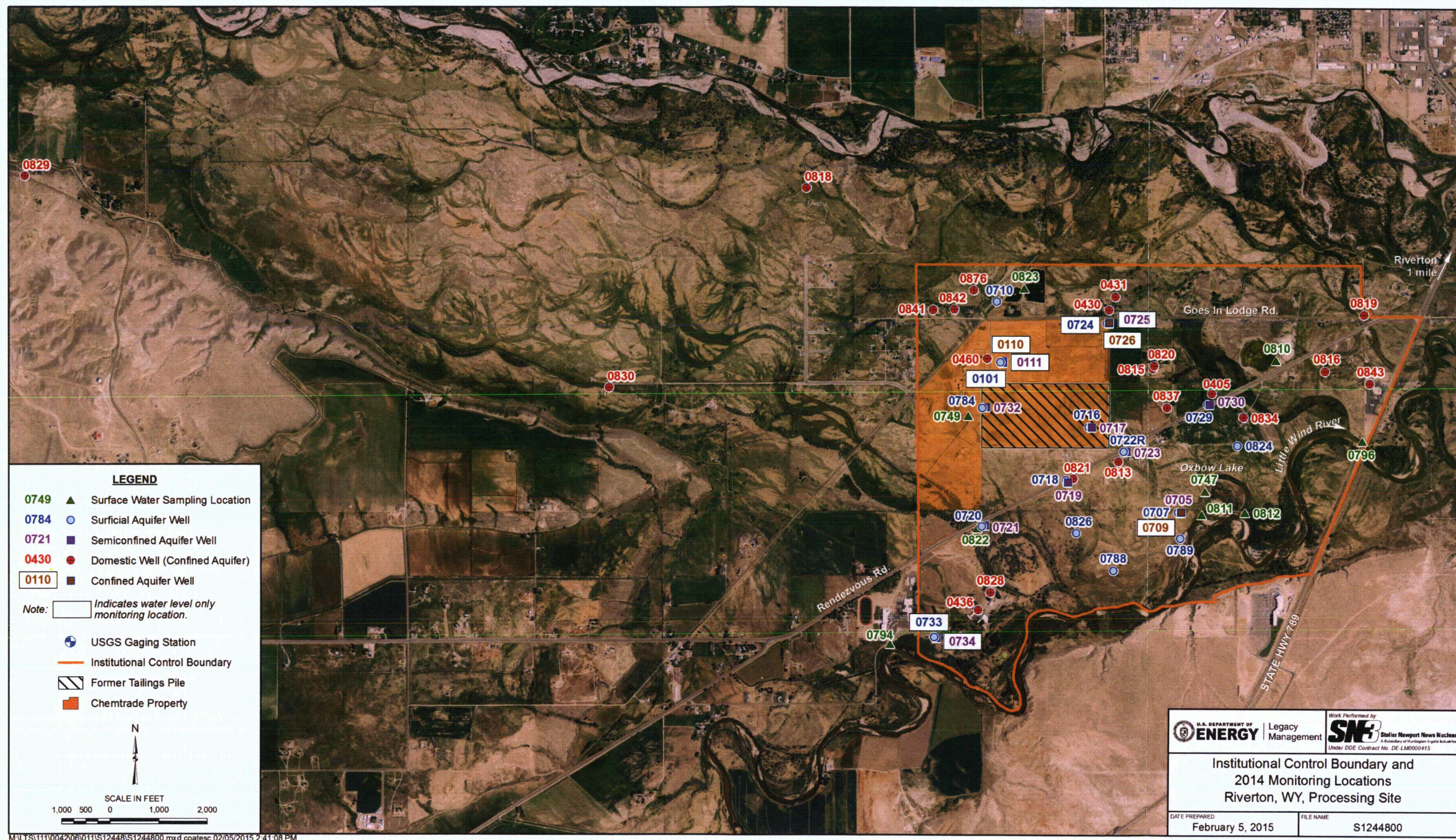


Figure 2. Institutional Control Boundary and 2014 Monitoring Locations at the Riverton Site

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Figure 3. Warning Sign at the Oxbow Lake in May 2014

The Northern Arapaho utilities organization 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 to maintain the AWSS as a viable IC, DOE has a cooperative agreement with the Northern Arapaho Tribe to ensure cooperative efforts and funding for ongoing maintenance, flushing, sampling, and capital improvements on the AWSS.

An AWSS hydrant flushing program was restarted in October of 2011 as specified in the cooperative agreement with the Northern Arapaho Tribe. As a result of some erroneous laboratory results from the October 2011 hydrant flushing and sampling event that were disclosed to DOE prior to a public meeting on May 6, 2012, DOE committed to managing the sampling and analysis portion of the hydrant flushing program to ensure that samples were analyzed by an accredited and audited analytical laboratory. In 2014, flushing and sampling events were conducted in March and September. The hydrant flushing events were conducted as a joint effort among Northern Arapaho utilities, WREQC, and DOE. WREQC collected samples at selected hydrant and tap monitoring locations; those results confirmed DOE sampling results. DOE results of the 2014 hydrant flushing events are presented in Section 4.4 and Appendix E.

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3.0 Monitoring Program

The verification monitoring program for 2014 consisted of 18 monitoring wells, 9 domestic wells, and 9 surface water locations, which are listed in Table 1 and shown in Figure 2. In addition, eight AWSS hydrant locations and four AWSS tap locations were sampled and are listed in Table 1 and discussed in Section 4.3. In September, water levels were measured at all wells in the monitoring network. Hydrant flushing of the AWSS system was conducted in March and September, and routine environmental sampling (groundwater, surface water, and domestic wells) occurred in September. AWSS samples were analyzed for radium-226, radium-228, and uranium and field measurements of chlorine, temperature, pH, specific conductance, oxidation-reduction potential, dissolved oxygen, alkalinity, and turbidity were measured at each location. Environmental samples were analyzed for COCs (manganese, molybdenum, sulfate, and uranium), major cations (calcium, magnesium, potassium, and sodium) and additional major anions (chloride), and field measurements of temperature, pH, specific conductance, oxidation-reduction potential, dissolved oxygen, alkalinity, and turbidity at each sampling location.

Table 1. 2014 Sampling Network at the Riverton Site

Location ID	Description	Rationale
DOE Monitoring Wells		
0705	Semiconfined aquifer	Monitor semiconfined aquifer
0707	Surficial aquifer	Monitor centroid of plume
0710	Surficial aquifer	Background location—surficial aquifer
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
0729	Surficial aquifer	Monitor lateral plume movement
0730	Semiconfined aquifer	Monitor semiconfined 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
Domestic Wells^a		
0405	Private residence	Potential point of exposure
0430	Private residence	Potential point of exposure
0431	Private residence	Shallow stock well—verify low COC concentration
0436	St. Stephens Mission	Potential point of exposure
0460	Chemtrade Refinery	Potential point of exposure
0828	St. Stephens Mission	Potential point of exposure
0841	Private residence	Potential point of exposure

Table 1 (continued). 2014 Sampling Network at the Riverton Site

Location ID	Description	Rationale
0842	Private residence	Potential point of exposure
0876	Private residence	Potential point of exposure
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 irrigation ditch	Potential for impact—within IC boundary
0823	Pond—former gravel pit	Upgradient of plume—within IC area
AWSS Hydrants		
0818	AWSS flushing hydrant	Verify effectiveness of flushing program
0819	AWSS flushing hydrant	Verify effectiveness of flushing program
0820	AWSS flushing hydrant	Verify effectiveness of flushing program
0821	AWSS flushing hydrant	Verify effectiveness of flushing program
0829	AWSS flushing hydrant	Verify effectiveness of flushing program
0830	AWSS flushing hydrant	Verify effectiveness of flushing program
0834	AWSS flushing hydrant	Verify effectiveness of flushing program
0843	AWSS flushing hydrant	Verify effectiveness of flushing program
AWSS Taps		
0813	AWSS tap at house	Verify taps unaffected by flushing process
0815	AWSS tap at house	Verify taps unaffected by flushing process
0816	AWSS tap at house	Verify taps unaffected by flushing process
0837	AWSS tap at house	Verify taps unaffected by flushing process

^a All domestic wells are completed in the confined aquifer, except for well 0841, which might be completed in the semiconfined aquifer.

4.0 Results of 2014 Monitoring

4.1 Groundwater

4.1.1 Groundwater Flow

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

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 indicated a general flow direction to the southeast in September. In addition to water levels measured in September, continuous water-level measurements recorded by pressure transducers installed in wells along the groundwater flow path demonstrate that, based on groundwater elevations, the groundwater flow does not reverse direction throughout the year (Figure 5).

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 potential for upward groundwater flow and a positive gradient to indicate potential for downward groundwater flow. Regardless of the direction and magnitude indicated by gradient, vertical migration of groundwater between the Riverton site aquifers is expected to be relatively minor because of the low vertical hydraulic conductivities of the confining layers separating aquifers. Vertical gradients are calculated from monitoring wells in an upper aquifer (aquifer 1) and lower aquifer (aquifer 2) using the following formula: $(GE_1 - GE_2) \div (SE_1 - SE_2)$, where GE = groundwater elevation and SE = screen elevation at the midpoint of the screen. Table 2 shows vertical gradients calculated (from September data) from grouped monitoring wells. General observations from Table 2 include the following:

- Vertical gradients in the confined aquifer are upward at two locations and downward at one location.
- In the past, the well cluster adjacent to the sulfuric acid plant (0101, 0111, and 0110) has typically shown a downward vertical gradient between the confined aquifer and surficial aquifer, which is likely a reflection of continuous long-term pumping of the confined aquifer from the acid-plant production well; in 2014, the gradient was slightly upward for the sampling event.
- Vertical gradients between the surficial and semiconfined aquifer vary but tend to be downward near surface water features and upward away from surface water features. Surface water is likely recharging the surficial aquifer, causing a localized increase in heads in the surficial aquifer and a resulting downward vertical gradient.



Figure 4. September 2014 Groundwater Elevations in the Surficial Aquifer at the Riverton Site

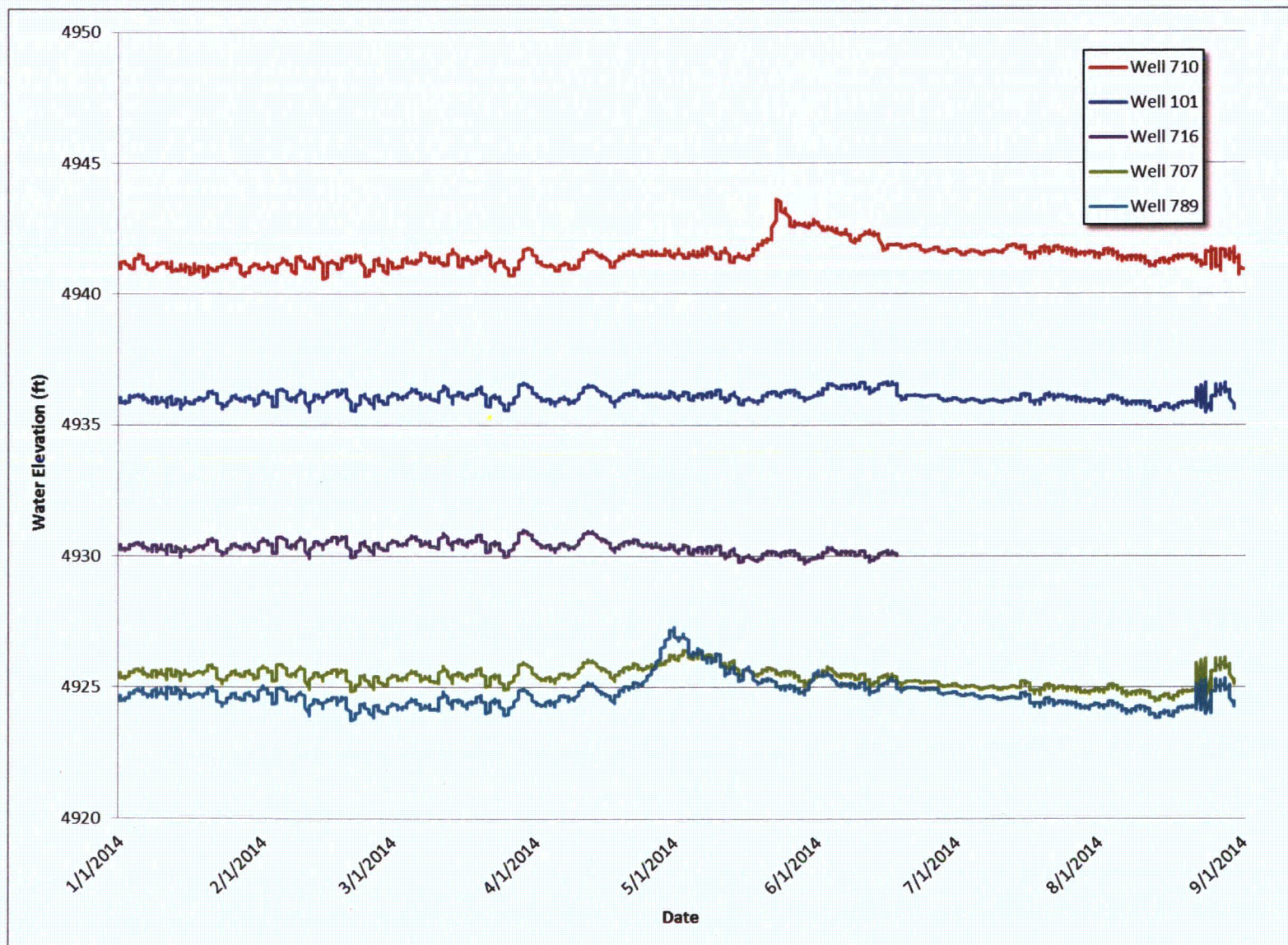


Figure 5. Continuous Water Elevations in Selected Surficial Aquifer Wells

Table 2. Riverton Vertical Gradients

Well ID	Aquifer	Water Elevation	Vertical Gradient ^a
		September 2014	
0724	Surficial	4933.47	
0725	Semiconfined	4933.53	-0.003
0726	Confined	4933.82	-0.003
0101	Surficial	4935.69	
0111	Semiconfined	4936.26	-0.021
0110	Confined	4936.30	-0.012
0784	Surficial	4938.07	
0732	Semiconfined	4936.22	0.071
0716	Surficial	4929.36	
0717	Semiconfined	4929.52	-0.005
0707	Surficial	4924.81	
0705	Semiconfined	4923.72	0.039
0709	Confined	4923.48	0.017
0718	Surficial	4928.46	
0719	Semiconfined	4928.82	-0.018
0722R	Surficial	4927.17	
0723	Semiconfined	4927.37	-0.007
0720	Surficial	4935.35	
0721	Semiconfined	4931.83	0.098
0729	Surficial	4926.27	
0730	Semiconfined	4925.93	0.015
0733	Surficial	4941.67	
0734	Semiconfined	4939.48	0.096

^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.

4.1.2 Groundwater Quality

Figures 6 through 15 summarize surficial aquifer data from the 2014 sampling events. Time-concentration plots for molybdenum in wells located within contaminant plumes and wells bordering the contaminant plumes in the surficial aquifer are shown in Figure 6 and Figure 7, respectively. The distribution of molybdenum in the surficial aquifer from the September 2014

sampling event is shown in Figure 8. Time-concentration plots for uranium in wells located within contaminant plumes and wells on the lateral edge of the contaminant plumes in the surficial aquifer are shown in Figure 9 and Figure 10, respectively. The distribution of uranium in the surficial aquifer, based on September 2014 sampling results, is shown in Figure 11.

As shown in the plots and figures, concentrations of molybdenum and uranium in groundwater in the surficial aquifer are still above their respective MCLs. In June 2010, the molybdenum and uranium concentrations in wells 0707, 0788, 0789, and 0826 increased dramatically following flooding of the Little Wind River. Increases in uranium concentrations in 2010 included wells on the western edge of the plume (0788 and 0826), where sample concentrations exceeded the uranium standard, indicating lateral expansion of the plume. Uranium concentrations in these wells were back below the MCL in 2013 and remained below the MCL in 2014 (Figure 10). Uranium concentration spikes from 2010 in wells 0707 and 0789 were back to pre-flood (2009) levels by 2012 and remained near pre-flood levels in 2014 (Figure 9).

Vertical-profile data (specific conductance and temperature) in selected surficial aquifer monitoring within the contaminant plume were collected in September of 2014. These data were collected as a preliminary step to determine if any vertical stratification of contaminants was occurring in these wells. Specific conductance was used as an analog for contaminant concentrations because historical data indicate a direct correlation between the two data sets. The preliminary findings from the profiling are detailed within the *Specific Conductance and Temperature Profiling at Riverton Processing Site, September 2014: Trip Report and Preliminary Findings* technical memorandum (DOE 2014b). Overall, these preliminary data showed little variation in Riverton site wells. The coefficient of variations, which is a statistical index of variation, were less than 0.1 and most maximum/minimum ratios were at or close to unity for specific conductance profiles at a majority of the wells, indicative of little variation.

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, which indicates no significant impact from site-related contamination in this unit (Figure 12 and Figure 13). Appendix B provides groundwater quality data by parameter for monitoring wells in the long-term monitoring network sampled during 2014.

4.1.3 Domestic Wells

Domestic wells used as a potable water source at residences within the IC boundary were sampled in 2014; most of these wells are completed in the confined aquifer with the exception of well 0841, which is likely 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 to 3 orders of magnitude below the standard.

Figure 14 and Figure 15 show time-concentration graphs for molybdenum and uranium, respectively. Appendix C provides data obtained from sampling domestic wells in 2014.

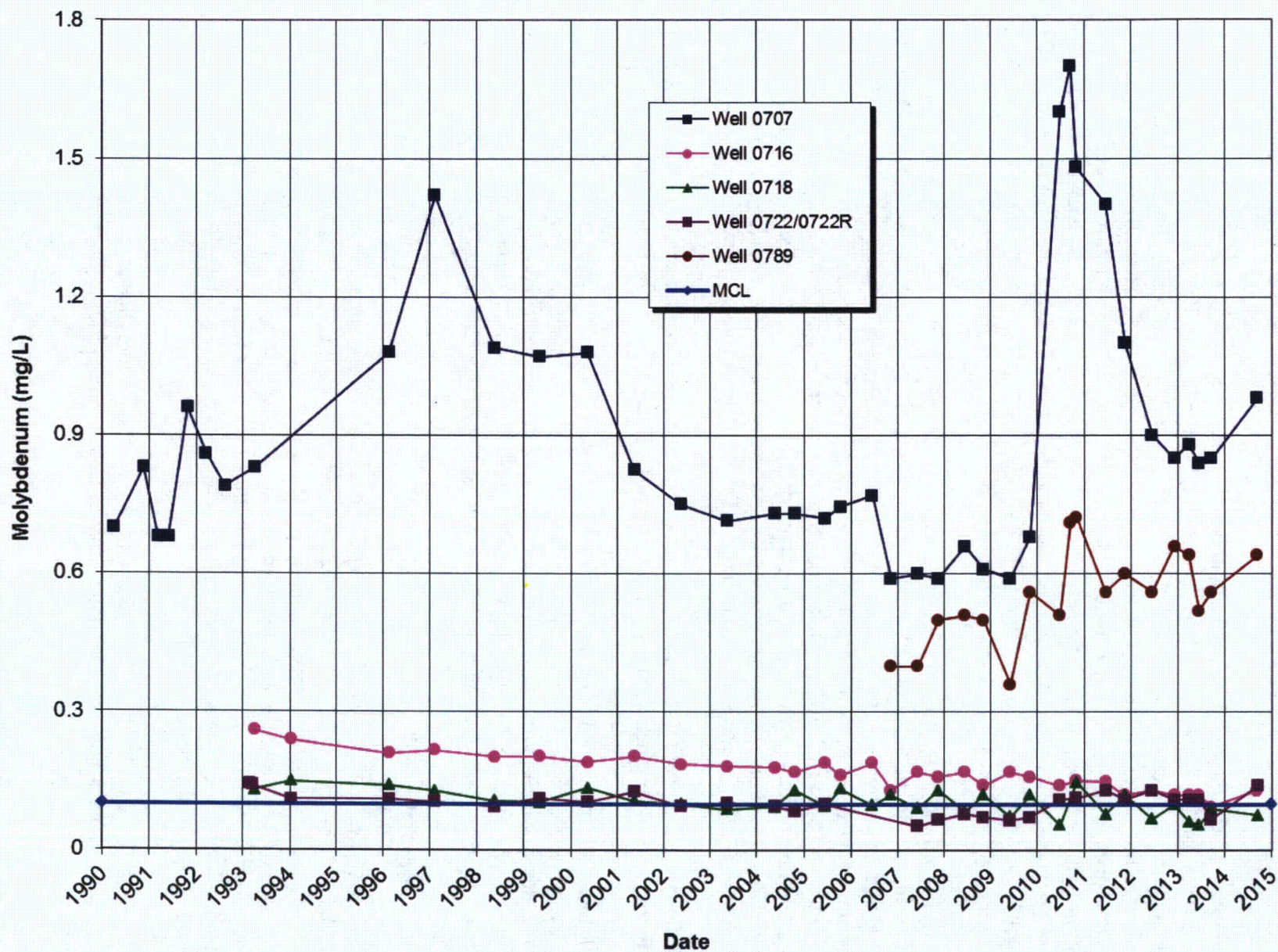
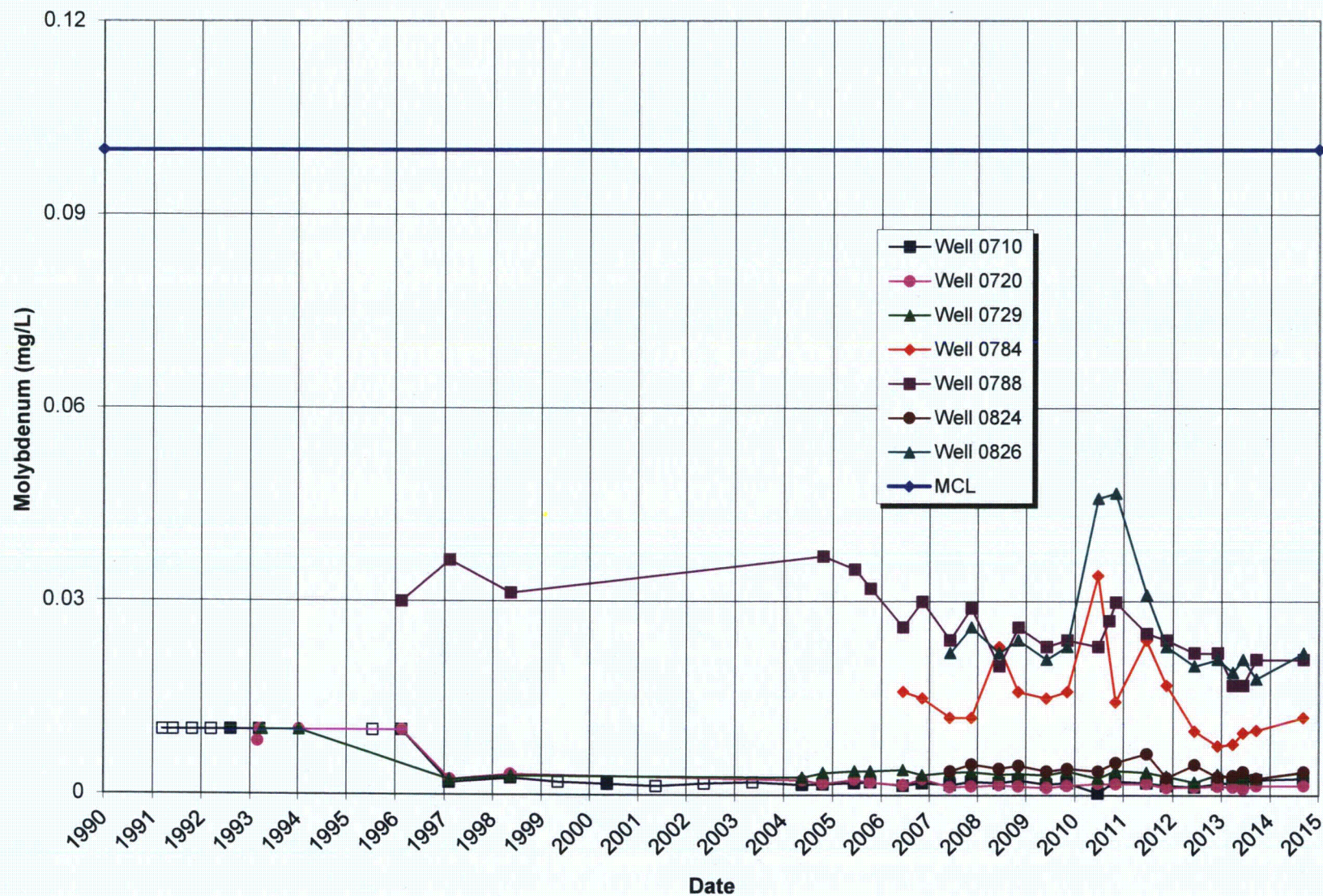


Figure 6. Molybdenum Concentrations in Surficial Aquifer Wells Within the Contaminant Plume



Note: A hollow symbol denotes an analytical result below the detection limit.

Figure 7. Molybdenum Concentrations in Surficial Aquifer Wells on the Edge of the Contaminant Plume



Figure 8. September 2014 Molybdenum Distribution in the Surficial Aquifer at the Riverton Site

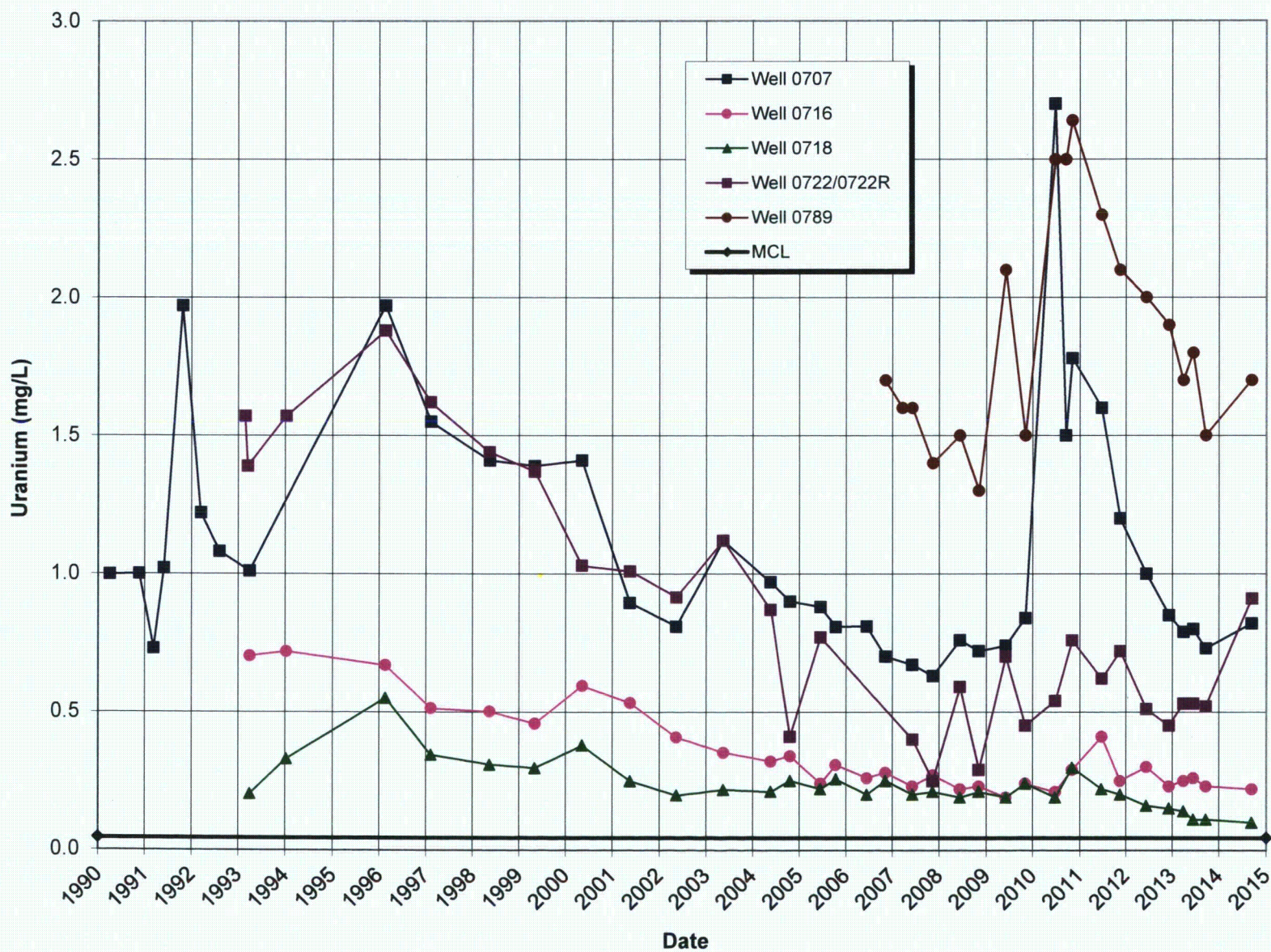
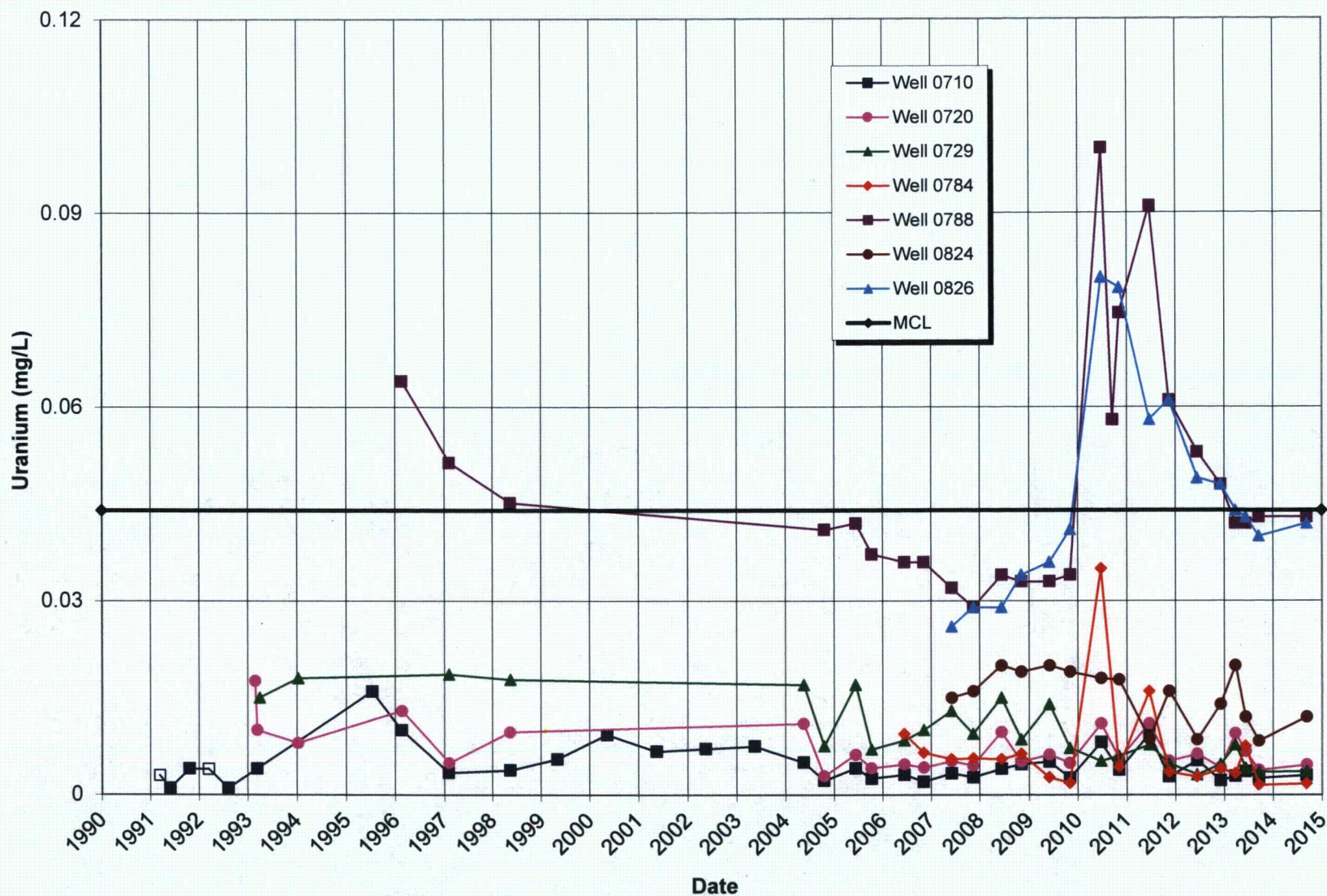


Figure 9. Uranium Concentrations in Surficial Aquifer Wells Within the Contaminant Plume

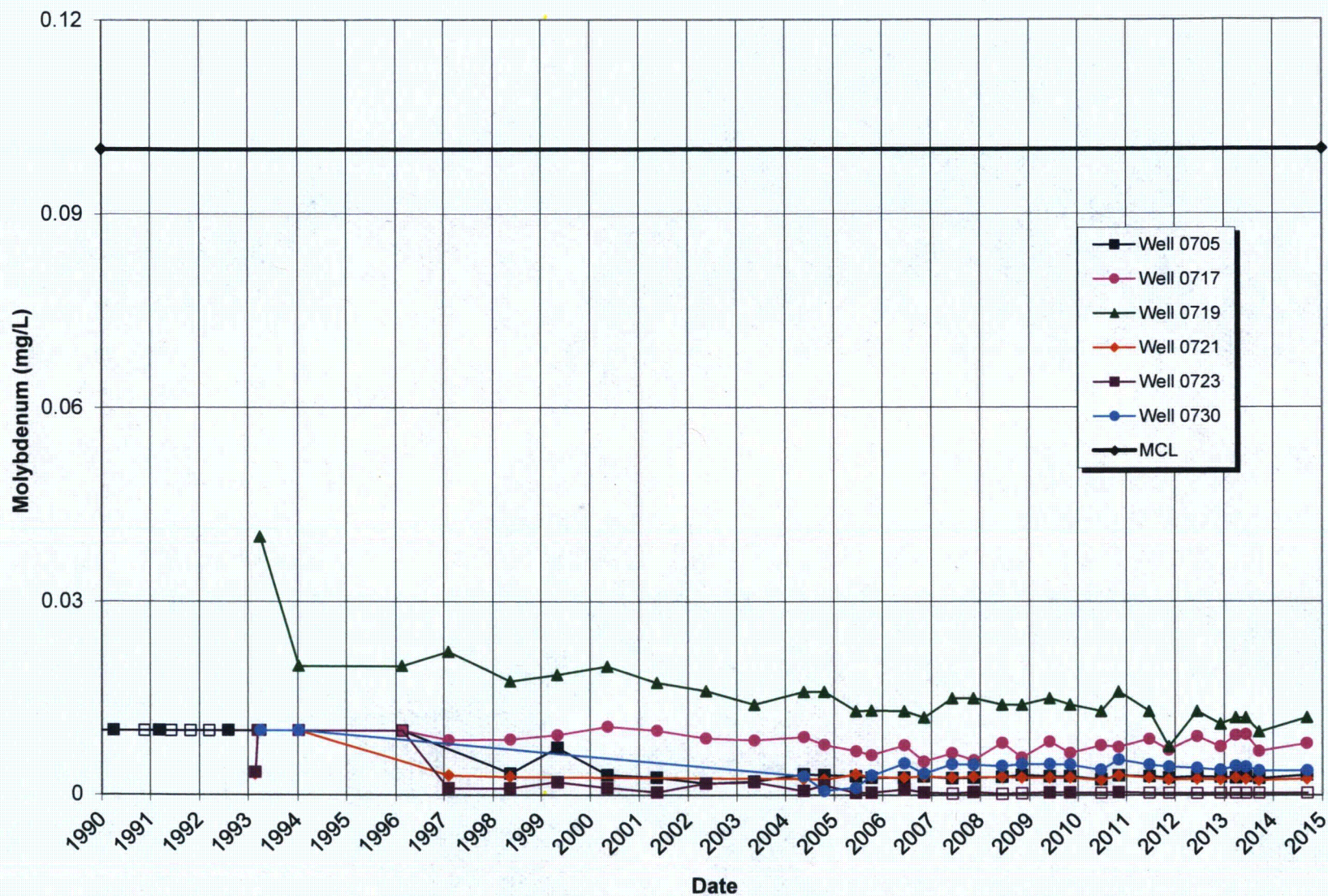


Note: A hollow symbol denotes an analytical result below the detection limit.

Figure 10. Uranium Concentrations in Surficial Aquifer Wells on the Edge of the Contaminant Plume

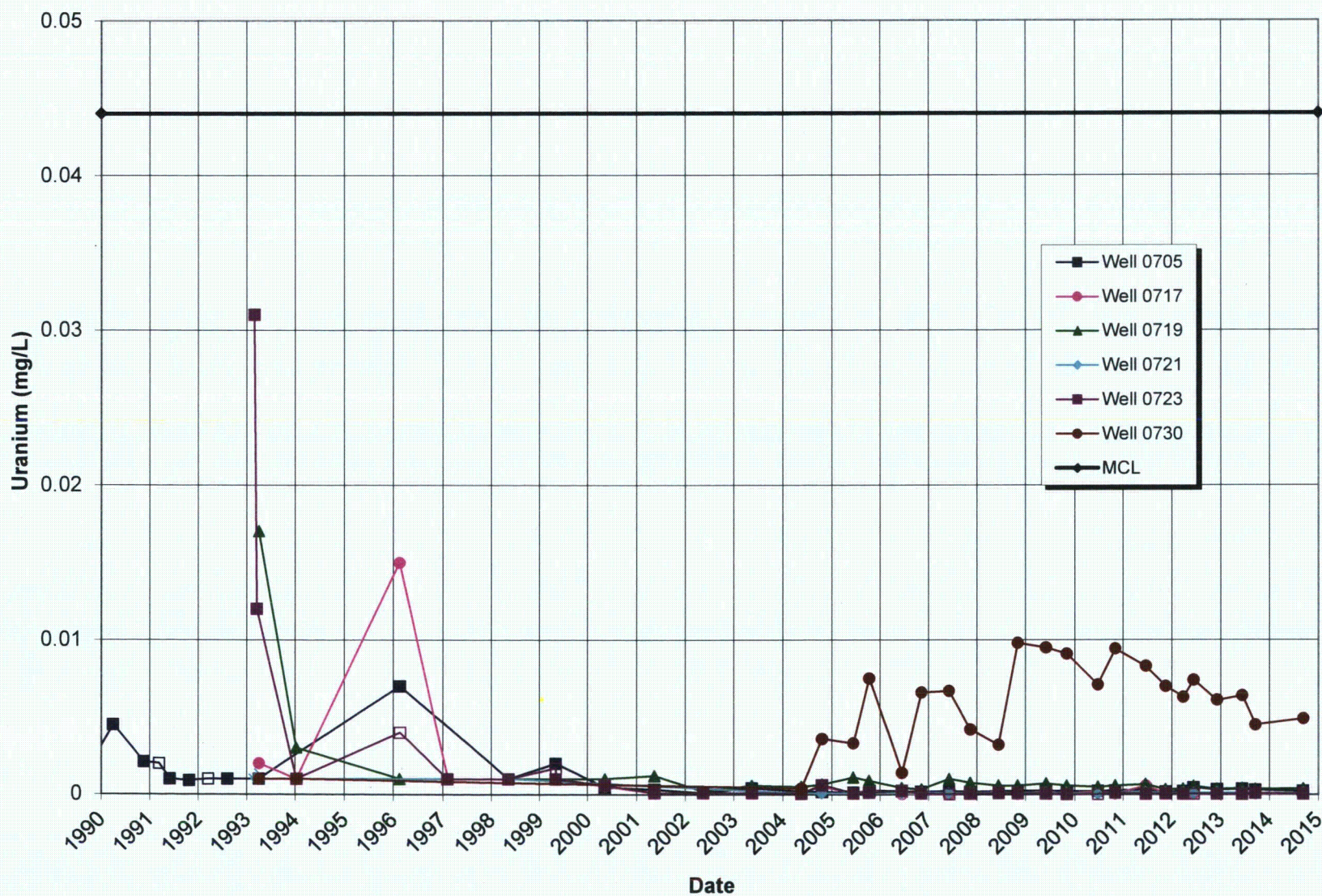


Figure 11. September 2014 Uranium Distribution in the Surficial Aquifer at the Riverton Site



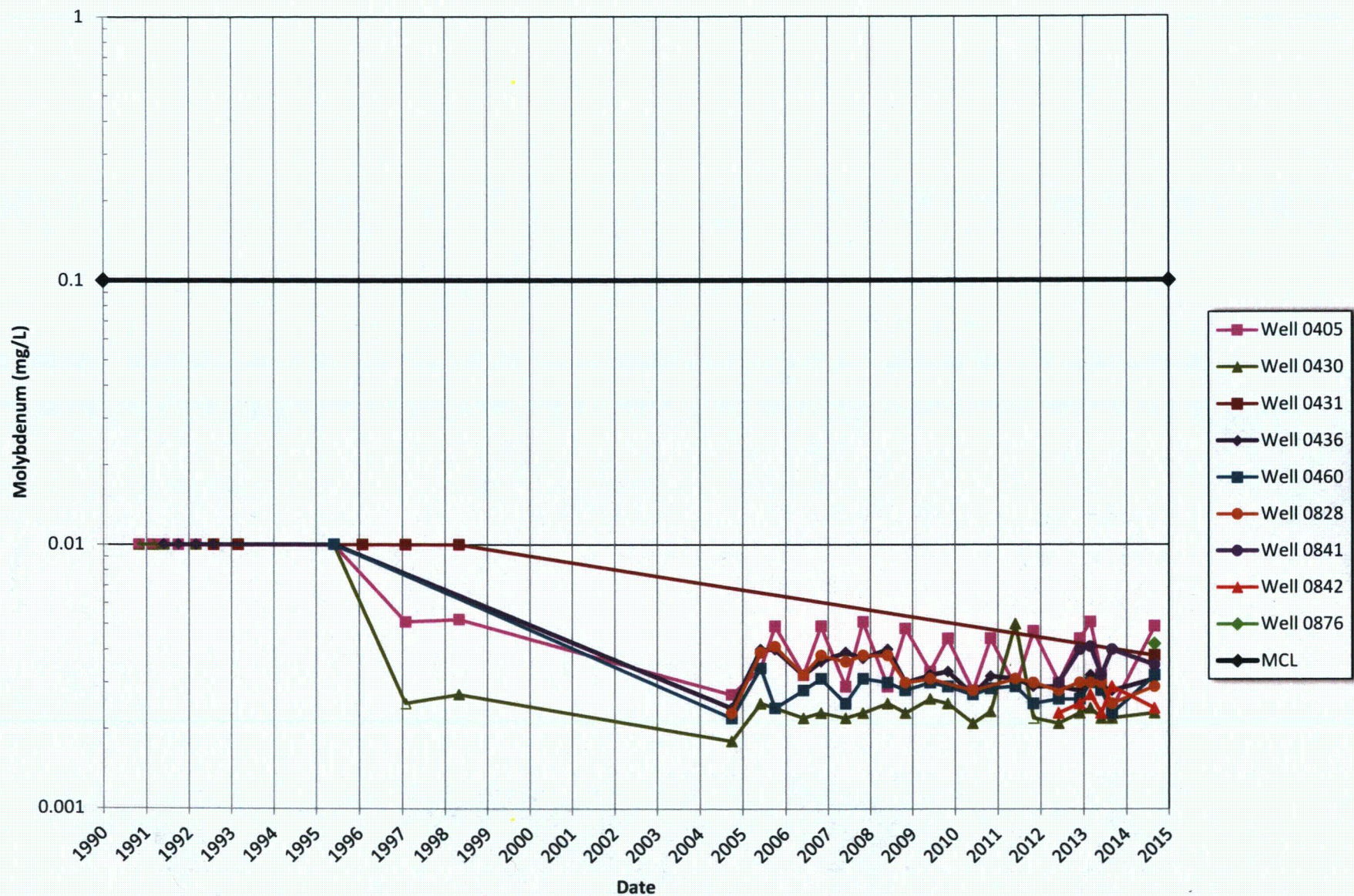
Note: A hollow symbol denotes an analytical result below the detection limit.

Figure 12. Molybdenum Concentrations in Semiconfined Aquifer Wells



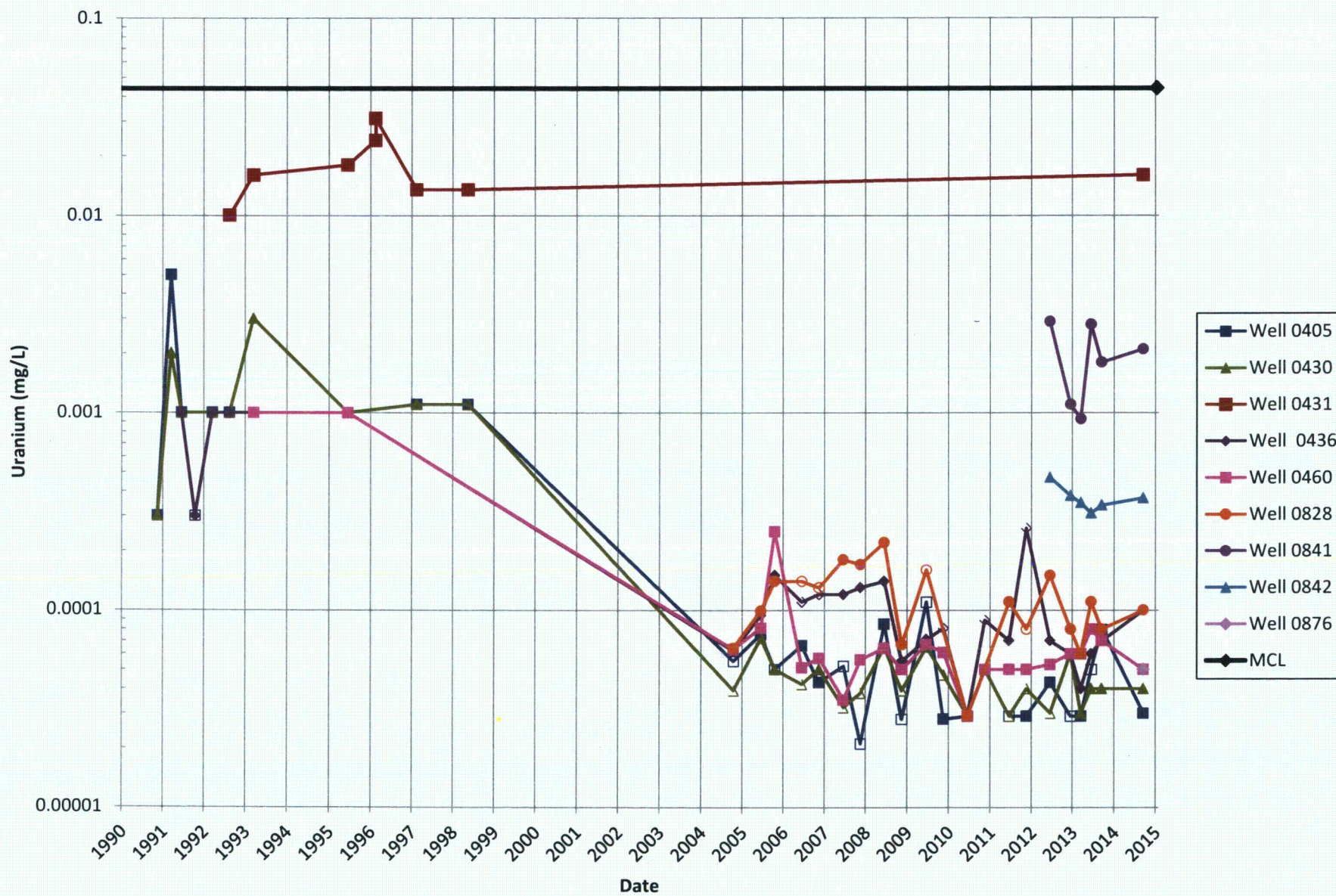
Note: A hollow symbol denotes an analytical result below the detection limit.

Figure 13. Uranium Concentrations in Semiconfined Aquifer Wells



Notes: A hollow symbol denotes an analytical result below the detection limit.
 The Y-axis is a logarithmic scale.

Figure 14. Molybdenum Concentrations in Domestic Wells



Note: A hollow symbol denotes an analytical result below the detection limit.
The Y-axis is a logarithmic scale.

Figure 15. Uranium Concentrations in Domestic Wells

4.2 Surface Water

4.2.1 Surface Water Flow

The 2010 flood of the Little Wind River demonstrated a direct correlation between high discharge in the Little Wind River and increased contaminant concentrations in the surficial aquifer; therefore, it is likely that pre-2010 flooding of the river affected the concentration and configuration of contaminants in the saturated and unsaturated zones of the surficial aquifer. Figure 16 shows the highest peak discharges recorded since the start of milling operations (1958) at the U.S. Geological Survey gaging station (USGS 2012a) located approximately 1.6 miles east of the former mill site (the gaging station location is shown in Figure 2). Discharge in the Little Wind River is statistically the highest in June, which reflects spring runoff from the Wind River Range. Most of the recharge to the alluvial aquifer likely occurs during these higher flows in the river. In 2014, the highest discharge for the year was measured on May 30 at 3,140 cfs. An assessment of Little Wind River discharge data from June indicates that spring runoff/flow in the river was below normal in 2014 and has been since 2012, after being above normal from 2009 through 2011 (Table 3). Prior to 2009, mean spring runoff/flow in the river had been below normal since 2000.

Table 3. Discharge Statistics from the Little Wind River

Year ^a	Mean June Discharge (cfs)	Deviation from Normal ^b June Discharge (cfs)	Maximum Discharge (cfs)
2000	1,089	-1,217	2,720
2001	233.2	-2,073	2,090
2002	740.6	-1,566	1,930
2003	861.7	-1,445	2,490
2004	1,591	-715	4,120
2005	2,272	-34	4,520
2006	642.4	-1,664	1,710
2007	738.9	-1,568	1,910
2008	2,175	-131	3,730
2009	3,012	706	4,190
2010	5,829	3,523	13,300
2011	2,861	555	7,210
2012	594	-1,712	1,610
2013	587	-1,719	1,640
2014	1,333	-973	3,140

^a U.S. Geological Survey gaging station statistics.

^b Based on a mean June discharge of 2,306 cfs since 1941.

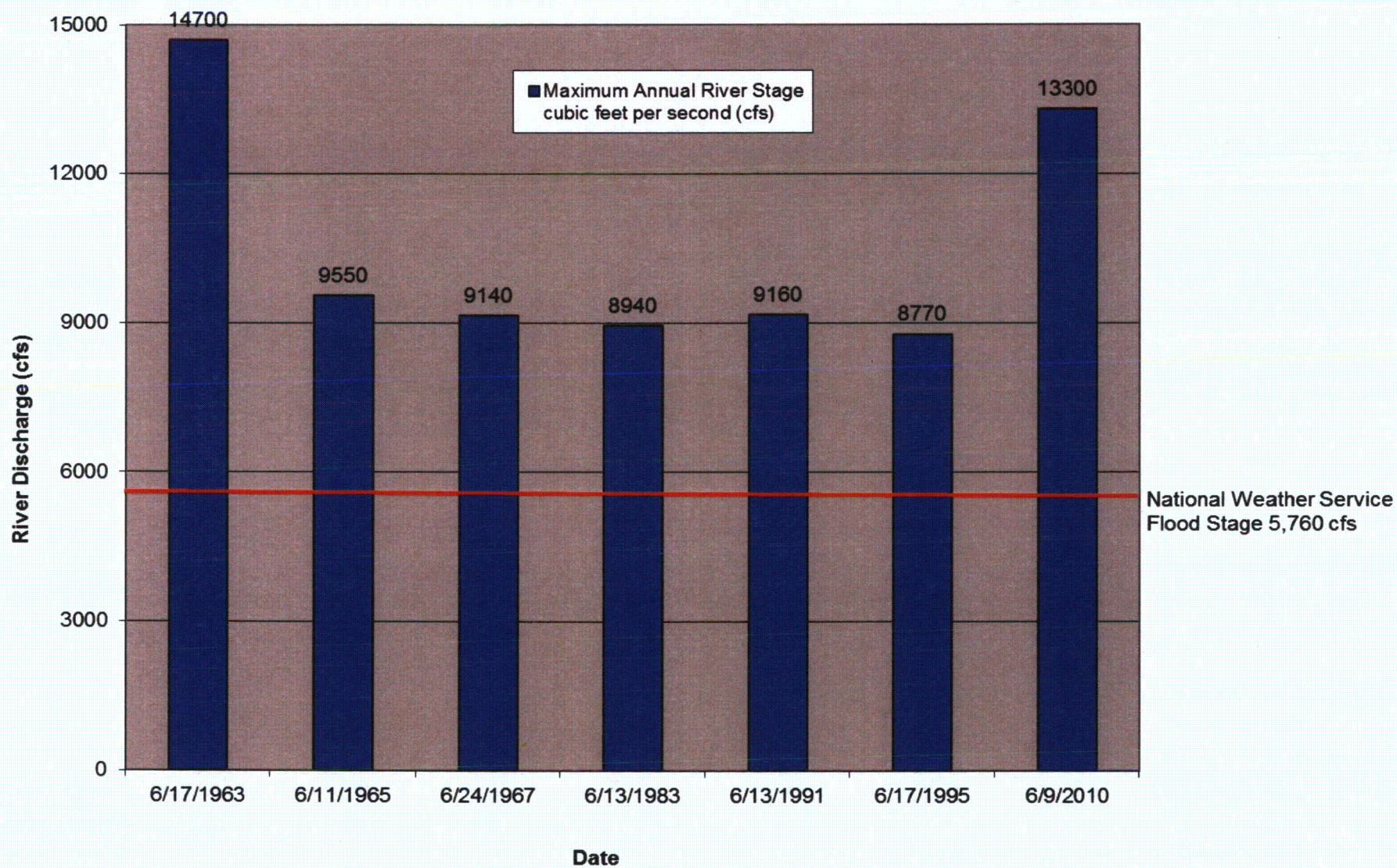


Figure 16. Historical Maximum Stages of the Little Wind River

4.2.2 Surface Water Quality

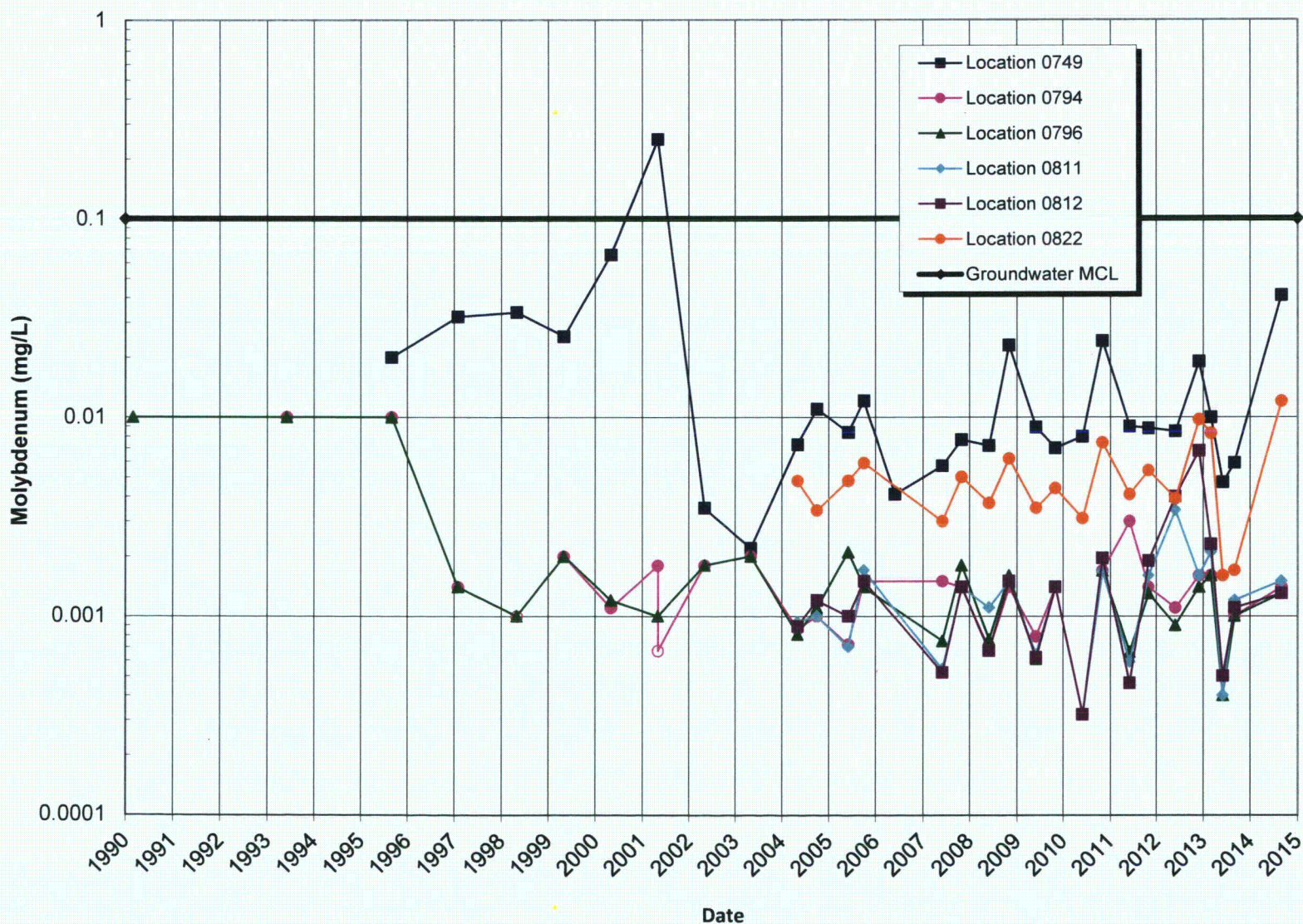
Samples were collected at four locations on the Little Wind River (Figure 2), which flows generally to the northeast adjacent to the site. Contaminated groundwater likely discharges to the Little Wind River, but there is no evidence that it adversely impacts surface water quality in the river. Molybdenum and uranium concentrations measured in samples collected from river locations adjacent to and downstream of the groundwater plume (locations 0811, 0812, and 0796) are comparable to concentrations from river samples collected upstream of the groundwater plume (location 0794), as shown in Figure 17 and Figure 18, respectively.

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. Samples collected from the ponds had concentrations of molybdenum and uranium that were below their respective groundwater MCLs and comparable to background groundwater concentrations, which indicates no discernible impacts from the site. Figure 19 and Figure 20 show concentrations of molybdenum and uranium, respectively, over time in these pond locations.

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 1,800 to 3,000 mg/L range from 2004 to March of 2013. In June of 2013, however, concentrations were significantly reduced (550 mg/L at location 0749) because of a change in plant processes that reduced sulfate in the water discharge and in the air emissions. Discharge from the ditch is regulated through a National Pollutant Discharge Elimination System permit issued to Chemtrade and administered by EPA. The sulfate concentration measured in September 2014 (360 mg/L at location 0749) continued on this reduced trend with the measurement similar to that of 2013. The concentration of molybdenum in the sample collected from the ditch (0.041 mg/L) was elevated compared to the molybdenum concentration in process water used by the sulfuric acid plant that is supplied by well 0460 (0.0032 mg/L), which indicates a minor molybdenum input from plant processes. The concentration of uranium in the sample collected from the ditch was very low (0.00036 mg/L) but slightly elevated compared to concentrations of the process water used at the plant (0.00005 mg/L).

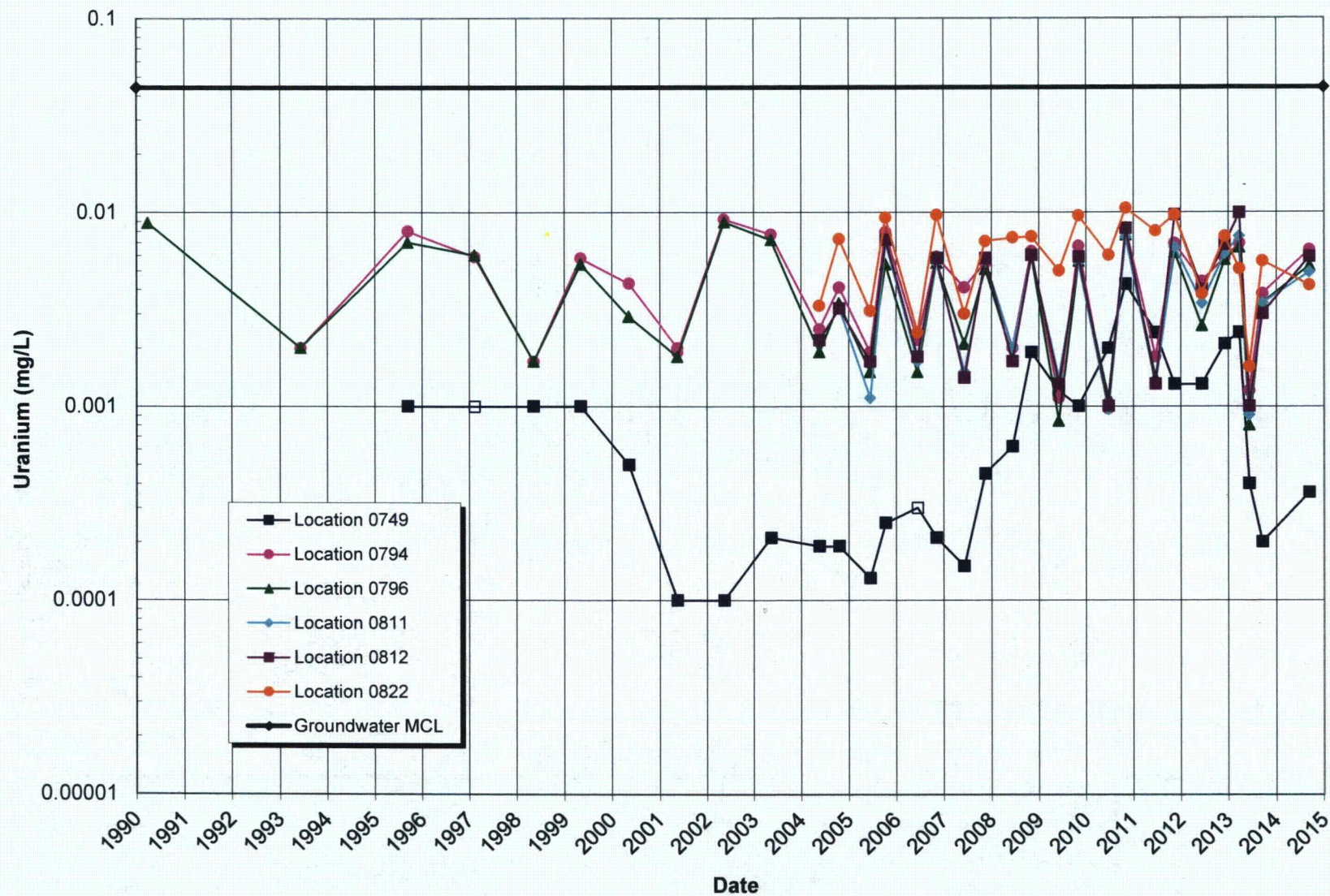
Downstream of the Chemtrade ditch, a sample was collected from the west side irrigation ditch (0822). The molybdenum concentrations were slightly lower and uranium concentration slightly higher in the west side irrigation ditch sample compared to the Chemtrade ditch sample, which reflects a mixing with background water upstream of the site. The low molybdenum and uranium concentrations (Figure 18) indicate minimal site impacts to the water quality in the ditch.

Concentrations of molybdenum and uranium in the oxbow lake (location 0747) have varied over time. This variability is attributed to surface inflow (this does not occur every year; it depends on the river stage) to the lake from the Little Wind River during a high river stage, which causes a dilution of uranium concentrations. Hydraulic and water quality data indicate that the oxbow lake is fed by the discharge of contaminated groundwater; therefore, elevated concentrations are expected.



Note: A hollow symbol denotes an analytic result below the the detection limit .
The Y-axis is a logarithmic scale.

Figure 17. Molybdenum Concentrations in Creek and River Locations



Note: A hollow symbol denotes an analytical result below the detection limit.
 The Y-axis is a logarithmic scale.

Figure 18. Uranium Concentrations in Creek and River Locations

Figure 19 and Figure 20 split oxbow-lake sampling data into high-flow and low-flow events; the high-flow events reflect the potential for river inflow to dilute analyte concentrations in the oxbow lake, and the low-flow events reflect a low potential for river inflow to dilute analyte concentrations in the oxbow lake. In 2014, the Little Wind River was not flowing into the oxbow lake during the September sampling event when low-flow conditions were observed. Appendix D provides surface water quality data by parameter for locations sampled during 2014.

Field observations since 2002 indicate the oxbow lake is gradually filling with sediment and vegetation over time, as expected. Evidence of numerous abandoned meanders (oxbows) of the Wind and Little Wind Rivers are evident from aerial photographs. Eventually, the oxbow lake will fill in like the other abandoned channels and not be an expression of surface water at the Riverton site. Figure 21 shows a photo of the oxbow lake in May of 2014, which illustrates the progress of the vegetation and sedimentation filling in the ponded water.

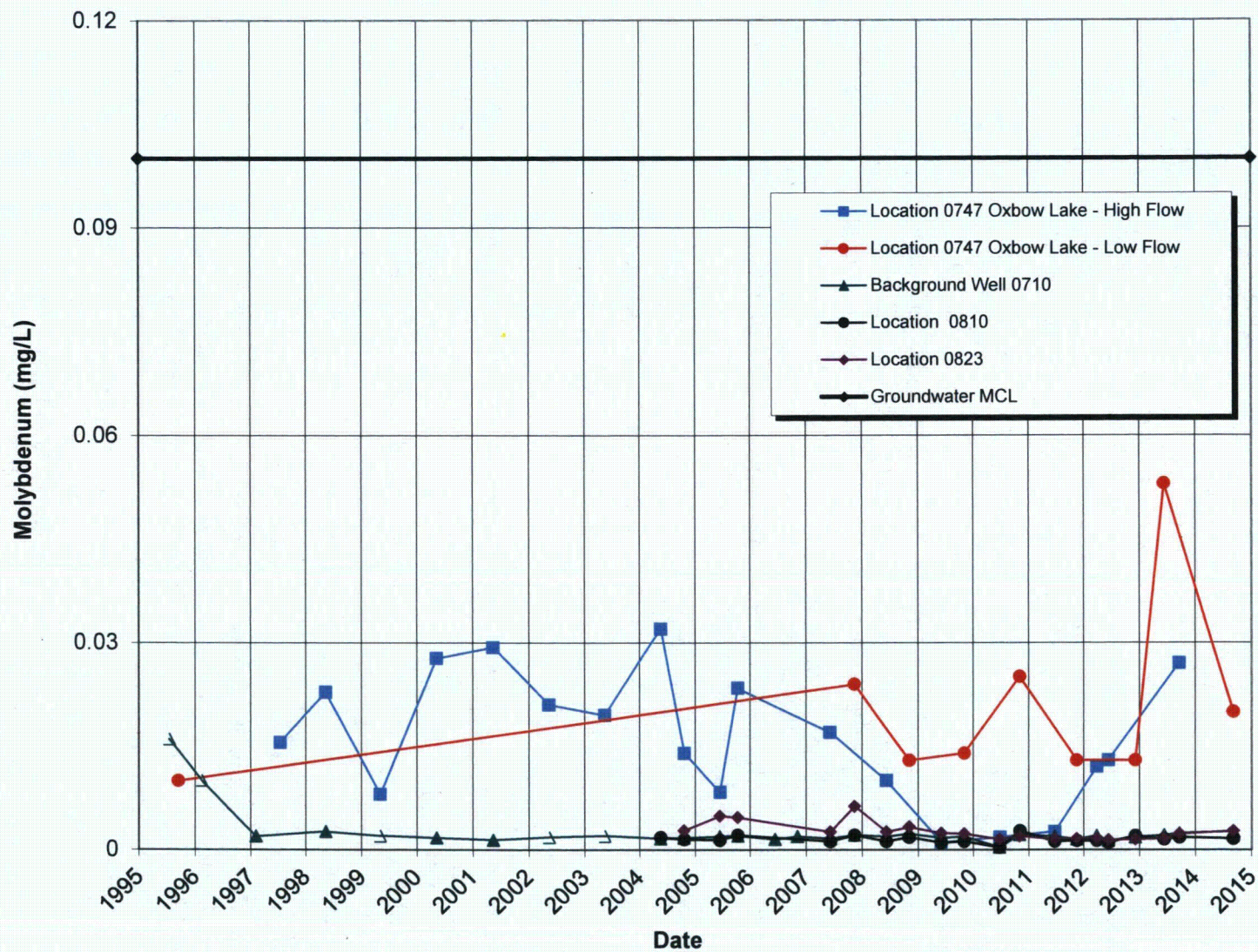
4.3 Soil

During field inspections at the Riverton site in 2013, a white evaporitic mineral deposit was identified along the bank of the Little Wind River within the discharge zone of the groundwater contamination plume. In December 2013, Savannah River National Laboratory personnel collected a sample and analyzed it by x-ray fluorescence, which indicated the sample had a uranium concentration of approximately 64 to 73 parts per million (ppm). Based on this sample, DOE determined that additional assessment of the mineral deposits along the Little Wind River (Figure 22) was warranted. The goals of the investigation were to:

- Identify the extent of the mineral deposits;
- Determine concentrations of COCs in the mineral deposits and associated soil; and,
- Determine if these mineral deposits pose unacceptable risk to human health or the environment.

The investigation resulted in the collection of 32 samples, as shown in Figure 23. Uranium concentrations ranged from 1.4 (background) to 66 ppm and generally correlated with the configuration of the groundwater plume. The mineral deposits do not pose any unacceptable risk to human health and the environment based on EPA screening levels for residential soil, dietary benchmarks for domestic animals, and realistic uptake scenarios. Results of the mineral deposit investigation are detailed in the *Evaluation of Mineral Deposits Along the Little Wind River, Riverton, Wyoming, Processing Site* (DOE 2014a).

In September of 2014, sediment samples were collected at three locations in the oxbow lake and one location near the Little Wind River by Stanford Linear Accelerator Center (SLAC) personnel, in conjunction with the routine water sampling event. The purpose of the sampling was to prospect for naturally reduced sediments, and, if found, characterize the uranium geochemistry. Naturally reduced sediments were located and sampled. Two samples were collected at each sample location and placed in canning jars; one sample consisted of sediment topped with lake and river water, and the second consisted of lake and river water only. Filtration of the samples occurred later in the day and the samples were then placed in sample vials for analysis at the SLAC. Figure 23 shows the sample locations that were collected with a GPS. Initial results indicate uranium concentrations of the naturally reduced sediments range from 48 to 75 ppm. A SLAC report detailing the findings is expected in 2015.



Note: A hollow symbol denotes an analytical result below the detection limit.

Figure 19. Molybdenum Concentrations in Ponds

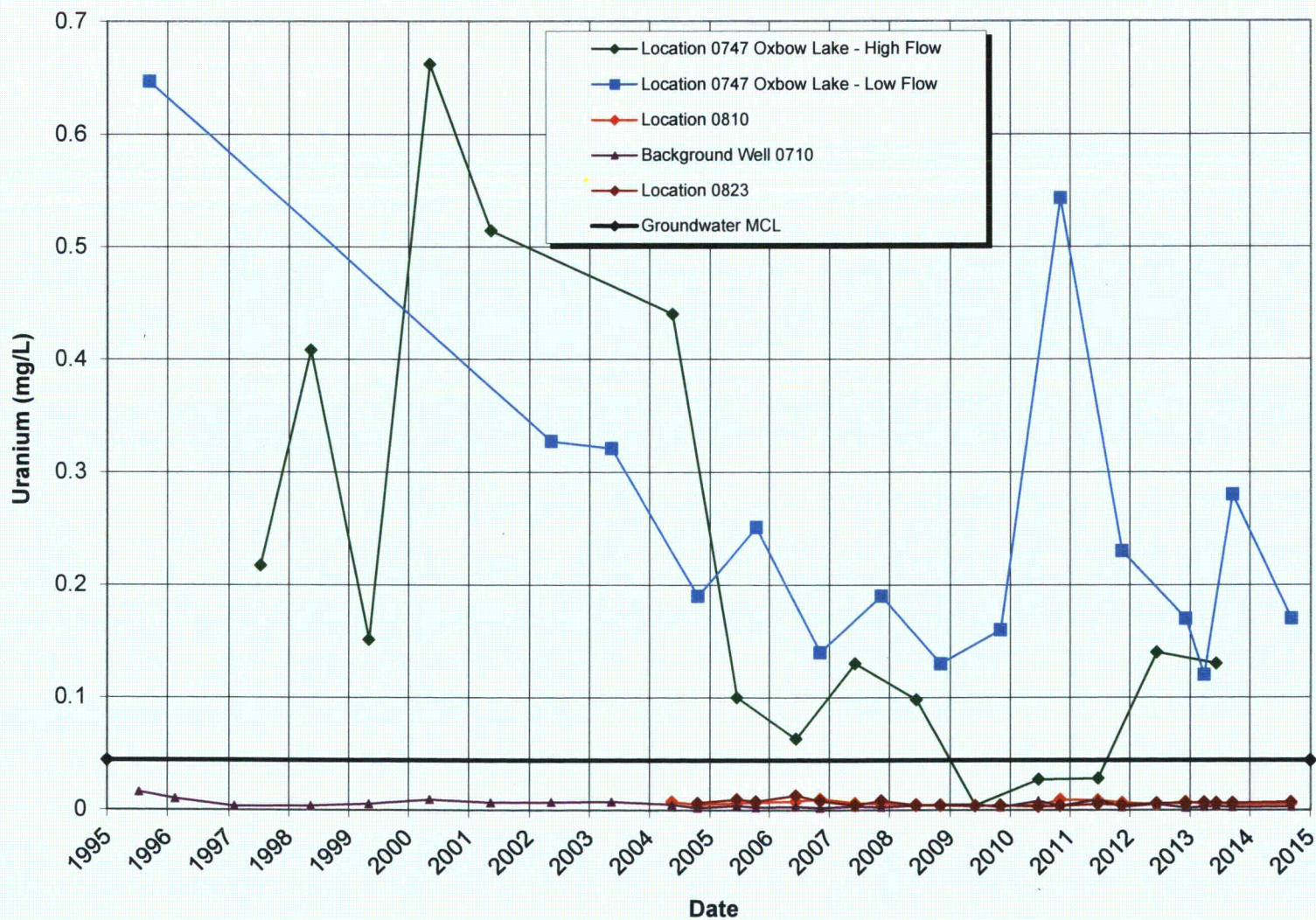


Figure 20. Uranium Concentrations in Ponds



Figure 21. Oxbow Lake in May 2014



Figure 22. Example of a Mineral Deposit along the Little Wind River



Figure 23. Extent of Mineral Deposit and Sample Locations

In conjunction with the sediment samples collected by SLAC personnel, hand augering was conducted at eight locations in the vicinity of monitoring well 0789 near the Little Wind River (Figure 24). The augering resulted in a variety of holes, and thin discontinuous layers of black reduced organics were found. Oxidized sediments occurred above the existing water table with mottled red and black zones at the capillary fringe. In all holes, the zone below the water table consisted of reduced sediments, even in the sands, which had a distinct gray color. Photos of selected sediments are shown in Figures 25 and 26. Sediment samples were submitted to the Environmental Sciences Laboratory for uranium analysis after a 5 percent nitric acid extraction. Specific information collected and uranium results from each borehole are displayed in Table 4. The uranium concentration measured in the samples from location HA-3 indicates that uranium is concentrated in the naturally reduced sediments.

Table 4. Sediment Sampling Information

Location ID	Total Depth (feet)	Temperature (°C)	Specific Conductance (µS/cm)	Uranium (ppm)	Comments
HA-1	2.2	-	-	4.65	Hit gravel layer before getting to the water table. Location was a small bench just above the river. Sediment was mostly oxidized with some black carbon "chips." Sampled at depths of 21" and 27". Note white evaporative chips at 21" and 27", along with some black organic chips (see photos). Sediment contained more sand at 27" just above the gravel layer. Uranium concentration is an average from the two sample depths.
HA-2	2.3	13.3	2,800		
HA-3	2.0	15.6	3,300	46.5	Samples HA-3-1, HA-3-2, HA-3-3 were collected. Numbers indicate deeper depth but not specific depth intervals (hole was collapsing). Leftover evaporite deposits nearby. Uranium concentration is an average from the three samples.
HA-4	1.0	13.5	7,000		HA-4, HA-5, and HA-6 were in close proximity going up the river bank (HA-4 closest to the sand bar and HA-6 highest up the bank). Could not put any hand auger holes in the sand bar because the sand was too dry for the borehole to stay open. There were no evaporite deposits on the sand bar, but remnant deposits were visible on the nearby cut bank at the top of the capillary fringe.
HA-5	1.3	14.5	8,350		
HA-6	2.6	14.9	8,600		
HA-7	2.5	12.9	7,400		
HA-8	3.0	12.4	11,800		

Abbreviations:

µS/cm = microsiemens per centimeter

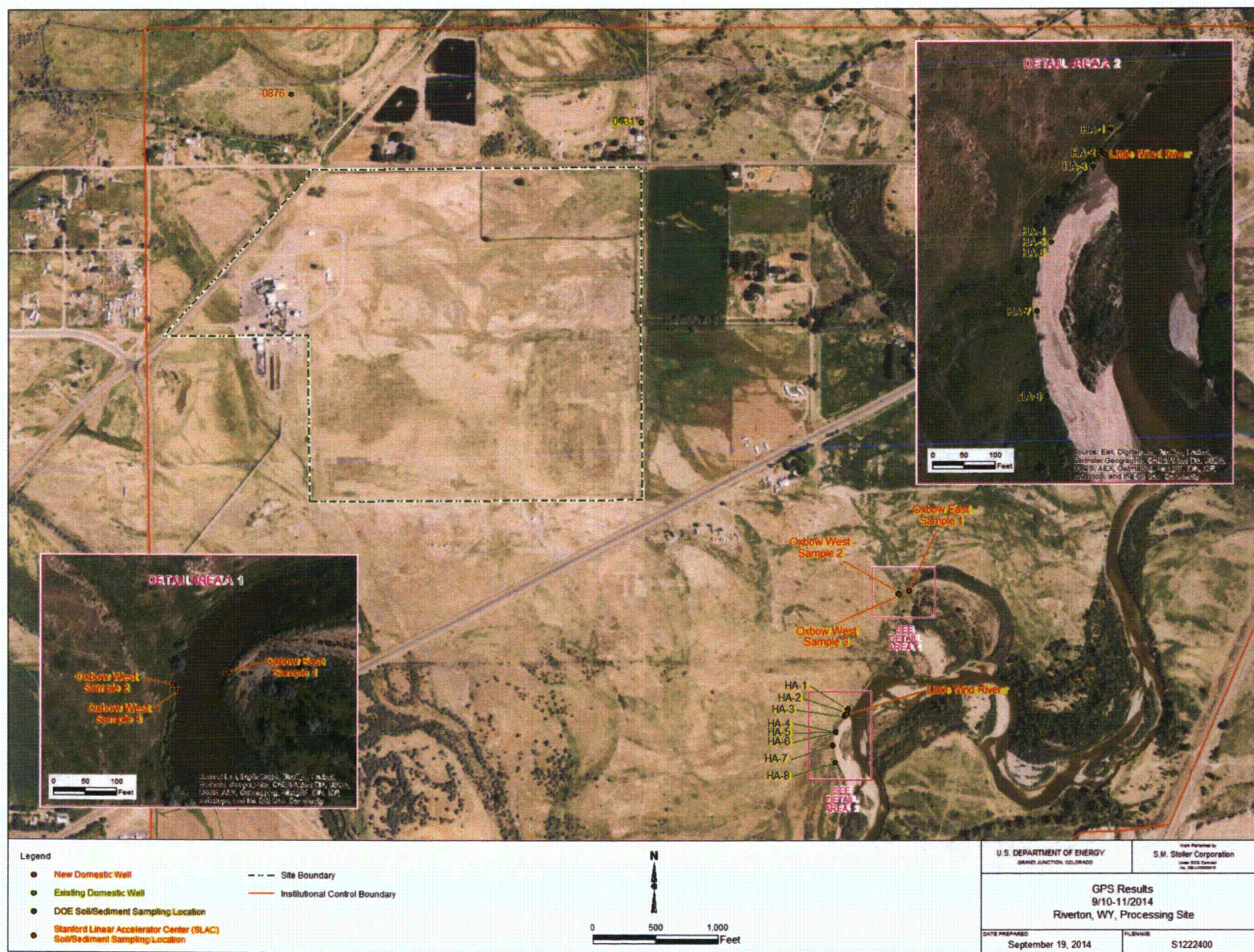


Figure 24. Locations of SLAC and DOE Sediment Sampling Locations

Naturally reduced sediments

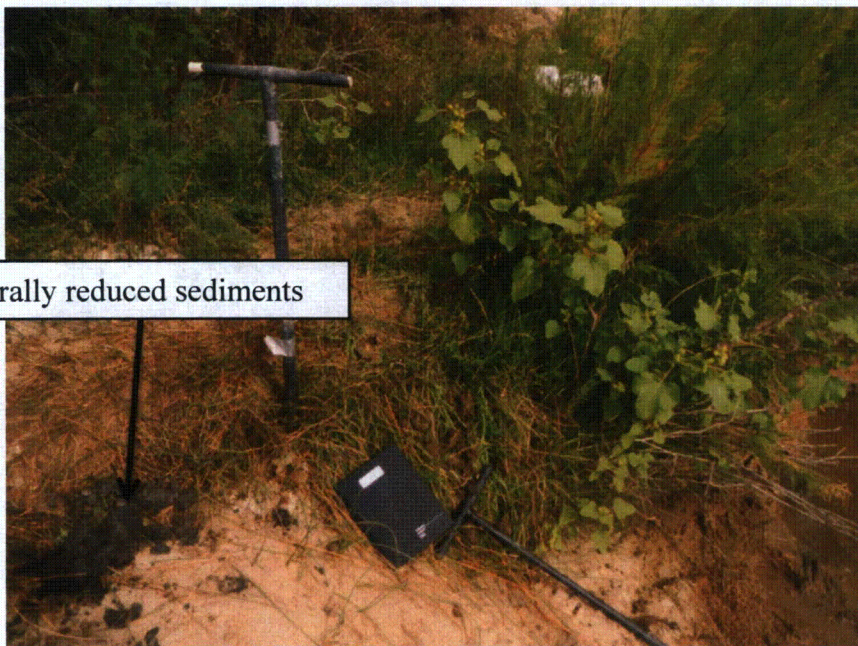


Figure 25. Naturally Reduced Sediments from Location HA-2



Figure 26. Sediment from Location HA-3-2

4.4 AWSS Monitoring

The AWSS was installed in 1998 by the Indian Health Service. DOE provided \$800,000 in funding, which included 25 percent of the cost of a new 1-million-gallon storage tank (Figure 27). As a component of ICs for the Riverton site, the AWSS is designed to supply drinking water to residents within the IC boundary so they don't have to drink groundwater that could potentially be impacted by the contaminated surficial aquifer. The AWSS is an addition to a pre-existing water supply system and consists of 8.5 miles of transmission pipeline running from the 1-million-gallon tank (Figure 28).

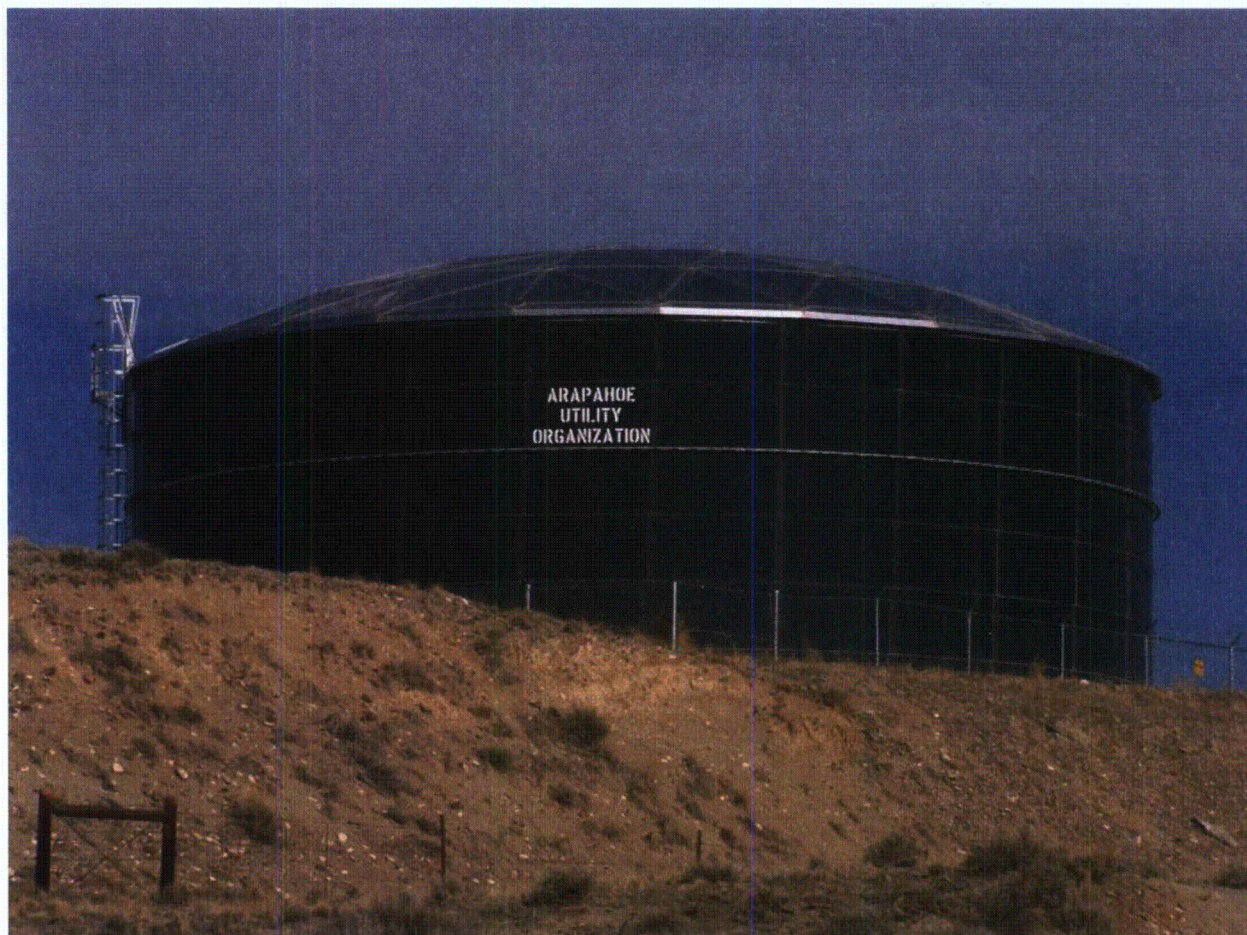


Figure 27. AWSS 1-Million-Gallon Tank

Babits (2003) identified elevated concentrations of radionuclides in the AWSS in 2002, and DOE confirmed these results in 2004 (DOE 2005). In response to these findings, DOE funded an independent analysis of the AWSS, and the analysis recommended implementation of a flushing program to determine if flushing would reduce the radionuclide concentrations to acceptable levels (ASCG 2005). Based on the recommendation of the independent analysis, DOE implemented a 2-year flushing study to determine if flushing would reduce radionuclide concentrations and control radionuclide buildup in the AWSS (DOE 2006). Results of the study indicated that a unidirectional flushing program should be implemented on a 6-month frequency (DOE 2008).

Flushing of the AWSS in 2014 consisted of two semiannual events in March and September. Northern Arapaho utilities and DOE jointly conducted each event. Sampling was conducted in accordance with the *Alternate Water Supply System Flushing Plan, Riverton, Wyoming* (DOE 2012). Eight hydrant locations on the AWSS were flushed and sampled, and four tap locations were sampled. Two samples were collected at each of seven hydrant locations—one sample 5 minutes into the flush and one sample at the end of the flush, as specified in the plan. Only end-of-flush samples were collected at hydrant locations 0834 and 0843 because of the short flushing time.

Monitoring of flow during each hydrant flush was necessary to ensure that the calculated water volume of each section of pipe was removed. Flow meters were installed at each hydrant during flushing to measure the volume of water flushed from the pipe. Volume measurements also were used to calculate the velocity of the water moving through the pipe. Velocity data were used to determine if water movement within the pipeline was sufficient to remove sediment and debris and to scour biofilm from the inside of the pipe. According to the independent analysis (ASCG 2005), flushing velocities of 2 to 3 feet per second (ft/s) are needed to remove sediment and loosely attached particles, while flushing velocities of greater than 5 ft/s are required to scour and remove buildup of biofilm and material adhering to the wall of the pipe. Table 5 and Table 6 show water volumes removed and velocities from each section.

Table 5. March 2014 Hydrant Flushing Summary

ID	Calculated Flushing Volume ^a	Section Volume Flushed (gallons)	Section Flush Time (minutes)	Section Average Flow Rate (gallons/minute)	Section Average Velocity (ft/second)
0829	20,477	22,180	27	807.7	5.2
0830	33,728	36,050	52	692.2	4.4
0818	20,259	23,330	40	576.5	6.5
0819	42,703	50,110	62	803.6	5.1
0843	2,644	2,820	7	396.6	4.5
0821	16,855	14,230	26	539.2	6.1
0820	4,803	5,040	8	603.6	6.9
0834	969	1,030	2	457.8	5.2
		Total 154,790	Total 224	Average 610	Average 5.50

^a Flushing volume in gallons calculated as $1.25 \times \text{pipe volume}$.

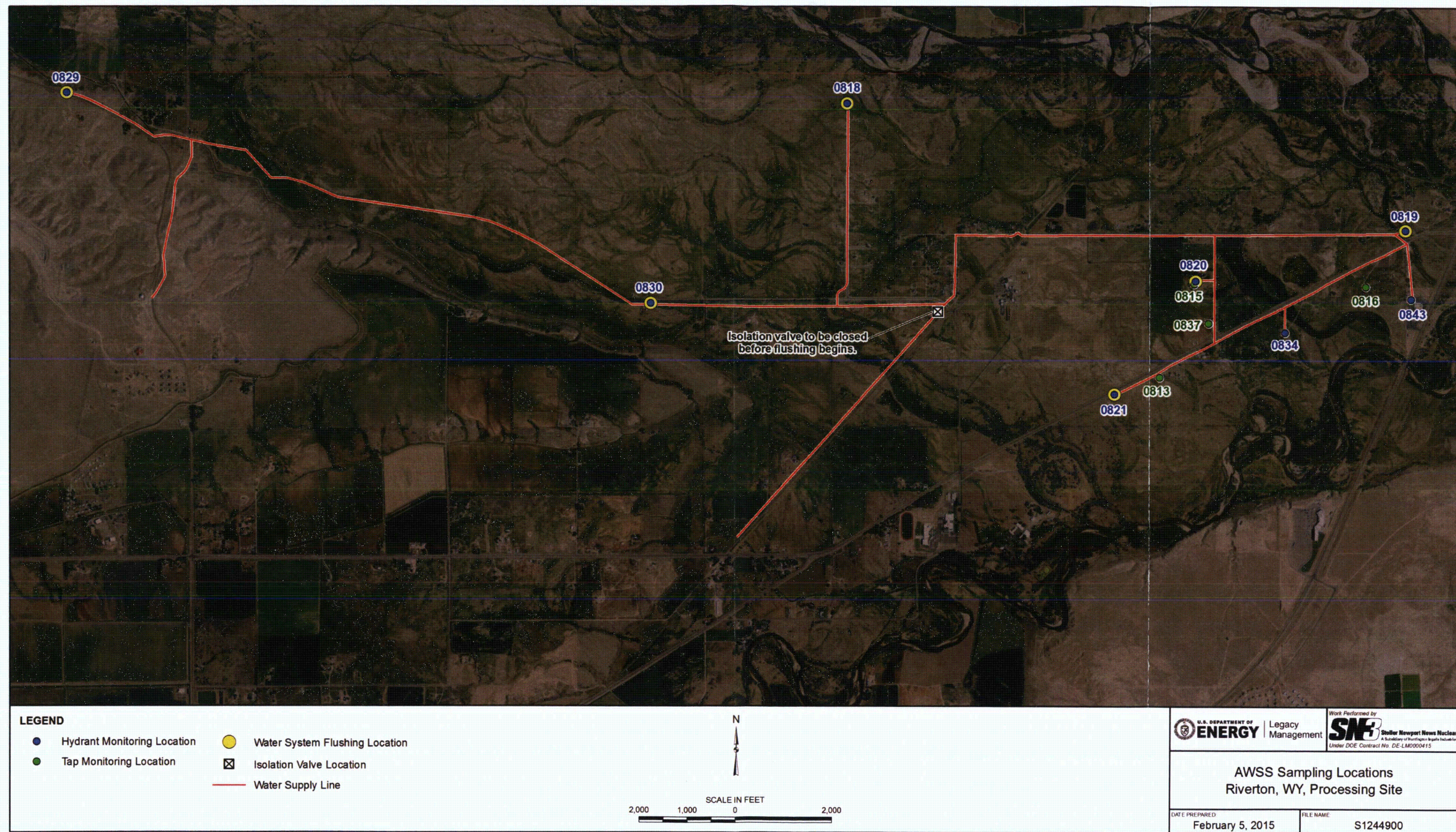


Figure 28. AWSS Sampling Locations

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Table 6. September 2014 Hydrant Flushing Summary

ID	Calculated Flushing Volume ^a	Section Volume Flushed (gallons)	Section Flush Time (minutes)	Section Average Flow Rate (gallons/minute)	Section Average Velocity (ft/second)
0829	20,477	21,880	27	815	5.2
0830	33,728	33,985	66	515	3.3
0818	20,259	14,225	23	630	7.1
0819	42,703	46,650	78	596	3.8
0843	2,644	2,665	8	327	3.7
0821	16,855	17,590	31	563	6.4
0820	4,803	5,085	13	389	4.4
0834	969	1,750	4	447	5.1
		Total 143,830	Total 250	Average 535	Average 4.88

^a Flushing volume calculated as $1.25 \times$ pipe volume.

Monitoring of hydrant and tap locations was conducted to determine the effectiveness of the flushing program in reducing radionuclide concentrations and maintaining them at acceptable levels. The flushing program is successful when the combined radium-226 and radium-228 concentrations are below the federal drinking water MCL of 5 pCi/L, and the uranium concentrations are below the federal drinking water MCL of 0.03 mg/L. Results from samples collected from AWSS hydrant and tap locations in March and September are summarized in Table 7 and provided in Appendix E. Only one sample exceeded an MCL—the 5-minute sample from location 0821 had a combined radium concentration of 5.45 pCi/L during the September event; however, elevated 5-minute sample concentrations are not unexpected as the high water velocities scour the pipe. The end-of-flush sample was reduced to 3.09 pCi/L, which indicates the effectiveness of the flushing activity. All other samples were below the radium and uranium MCLs.

Table 7. Monitoring Results from the 2014 AWSS Flushing Events

ID	Sample	Radium-226 +Radium-228 (pCi/L)		Radium-226 +Radium-228 MCL	Uranium (mg/L)		Uranium MCL (mg/L)
		March 2014	Sept. 2014		March 2014	Sept. 2014	
Hydrant Locations							
0818	5-minute	2.02	3.05	5 pCi/L	0.0001	0.00004	0.03 mg/L
	End of flush	1.21	3.40		0.00008	0.00004	
0819	5-minute	1.38	4.11		0.00011	0.00005	
	End of flush	1.25	3.14		0.00009	0.00003	
0820	5-minute	1.32	2.69		0.00008	0.00004	
	End of Flush	1.23	2.97		0.0001	0.00003	
0821	5-minute	1.02	5.45		0.00009	0.00006	
	End of flush	1.64	3.09		0.00009	0.00004	
0829	5-minute	1.10	3.89		0.00009	0.00005	
	End of flush	1.17	3.39		0.00009	0.00004	
0830	5-minute	1.21	3.69		0.0001	0.00004	
	End of flush	1.10	3.06		0.00009	0.00005	
0834	5-minute	1.074	3.10		0.00009	0.00003	
Tap Locations							
0813	After completion of flushing	1.40	2.555	5 pCi/L	0.00011	0.00005	0.03 mg/L
0815	After completion of flushing	1.17	2.35		0.0001	0.00004	
0816	After completion of flushing	NA	2.417		NA	0.00004	
0837	After completion of flushing	1.26	3.16		0.00009	0.00004	

Abbreviations:

NA = not applicable

5.0 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 1998a) in 1998. In previous years, 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 site conceptual model of gradually declining contaminant concentrations after surface remediation of source material on the former mill site. Prior to 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 site conceptual model 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 reveal that uranium concentrations spiked in monitoring well 0707 in 1991, 1995, and 2010, which followed floods of the Little Wind River.

Although the 2010 flood of the Little Wind River caused significant spikes in contaminant concentrations in the surficial aquifer, contaminant concentrations continue to decline and are near pre-flood levels, as shown in Table 8. Figure 29 shows the average uranium concentration in surficial aquifer wells with a long history that have always been above the MCL (0707, 0716, 0718, and 0722/0722R). As shown in this figure, the average uranium concentration in these wells increased slightly in 2014, but the average concentration is well below pre-flood levels. These data indicate that the effects of 2010 flood are relatively short-lived in context of the 100-year regulatory time frame.

Table 8. Comparison of Pre-Flood, 2010 Flood, and 2014 Results

Well	Molybdenum ^a			Uranium ^a			Sulfate ^a		
	Pre-Flood ^b	2010 Flood ^c	2014 ^d	Pre-Flood	2010 Flood	2014	Pre-Flood	2010 Flood	2014
0707	0.68	1.6	0.98	0.84	2.7	0.82	1,900	7,000	2,100
0788	0.024	0.023	0.021	0.034	0.1	0.043	630	4,500	1,400
0789	0.56	0.51	0.64	1.5	2.5	1.7	3,900	9,400	4,600
0826	0.023	0.046	0.022	0.041	0.08	0.042	580	2,400	1,400

^a Units are in mg/L.

^b Pre-flood results are from the November 2009 sampling event.

^c 2010 flood results from the June 2010 sampling event.

^d 2014 results are from the September 2014 sampling event.

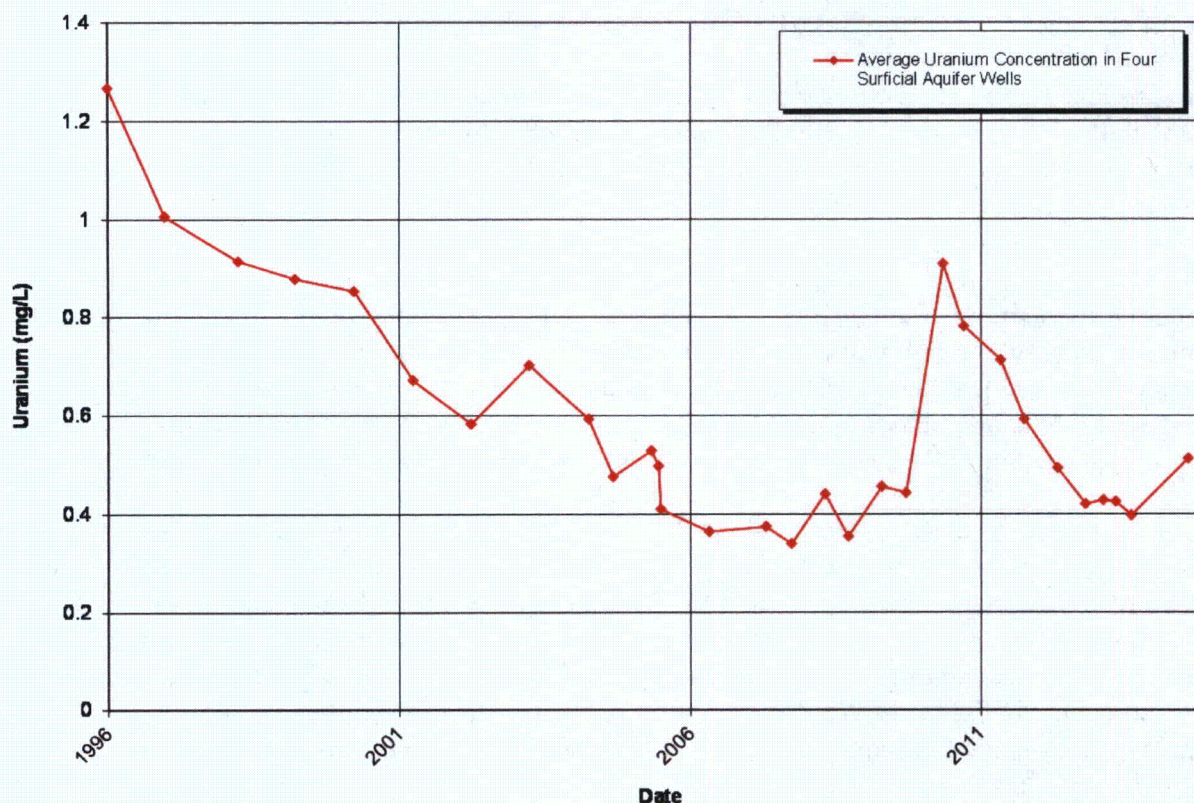


Figure 29. Average Uranium Concentrations in Four Selected Surficial Aquifer Wells

Overall, natural flushing (contaminant movement and removal via groundwater flow) in the surficial aquifer is occurring; however, the rate of flushing does not currently appear to be fast enough to restore the aquifer within the 100-year regulatory time requirement. Several lines of evidence indicate that the natural flushing compliance strategy may not meet the 2089 target date. These include:

- Current plume configurations and magnitude developed from the 2012 enhanced characterization.
 - A uranium concentration of 1.1 mg/L was measured on the former mill site in 2012, which indicates that contaminant plume movement is retarded by aquifer properties, influenced by additional source(s), or both.
 - Uranium concentrations in the center of the plume adjacent to the Little Wind River are greater than 1.5 mg/L, which is very high compared to 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 (Figures 30 and 31).
- Recently completed groundwater modeling indicates aquifer restoration will take longer than 100 years from the present (DOE 2013).

- At other Uranium Mill Tailings Radiation Control Act sites with similar geology and contaminants, concentrations of groundwater COCs are not attenuating as quickly as predicted by groundwater modeling.
- Graphs of time versus concentration for average concentrations and for individual wells at the Riverton site show that concentrations of contaminants are either declining more slowly than in the past or have leveled out.
- Future flooding of the Little Wind River 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.
- Additional contaminants in the saturated zone, unsaturated zone, or both may be acting as additional contaminant sources for elevated concentrations in groundwater.

Although the completion of natural flushing within the 100-year regulatory time frame is uncertain, additional information will be required to make a definitive decision on the natural flushing compliance strategy. A better understanding of the Riverton site, including aquifer properties, geochemistry, and potential additional contaminant sources, will be needed to support the natural flushing compliance strategy or to select a new compliance strategy.

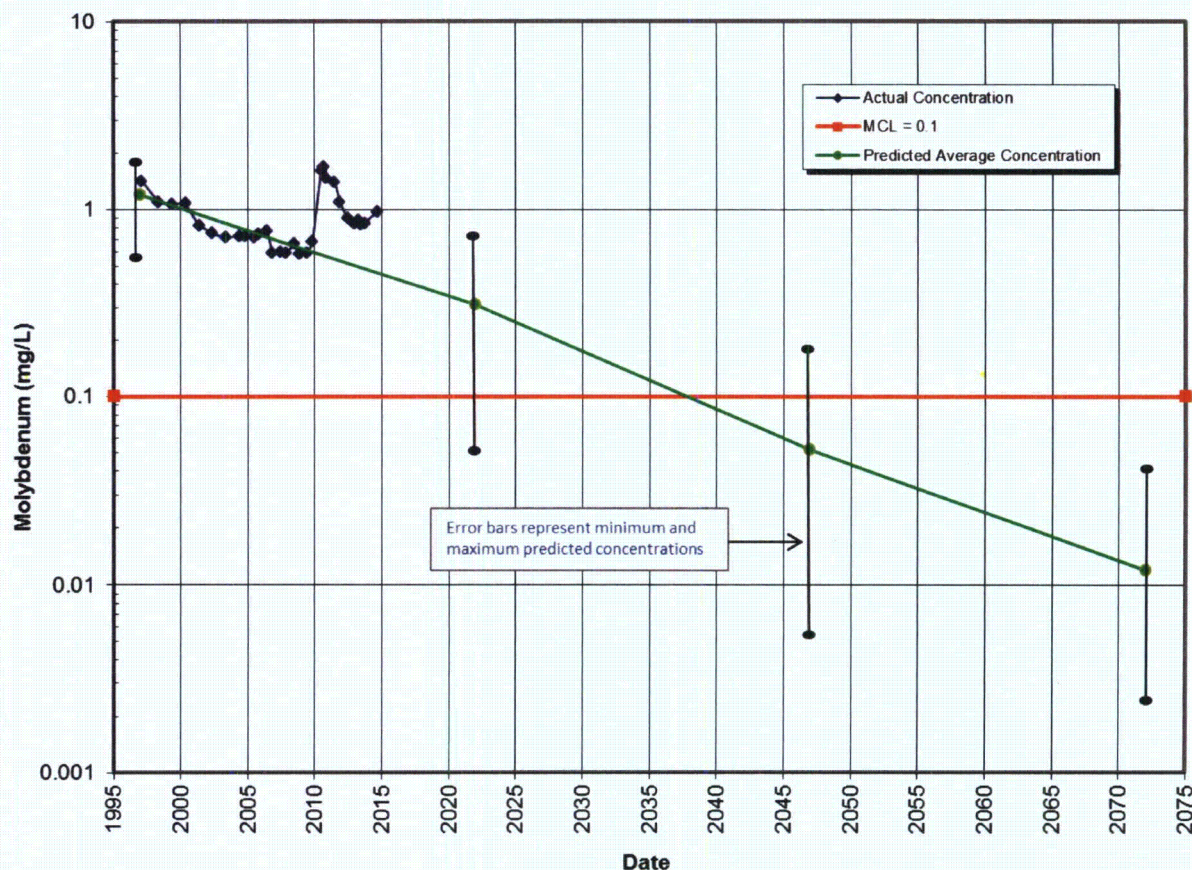


Figure 30. Predicted Versus Actual Molybdenum Concentrations in Well 0707

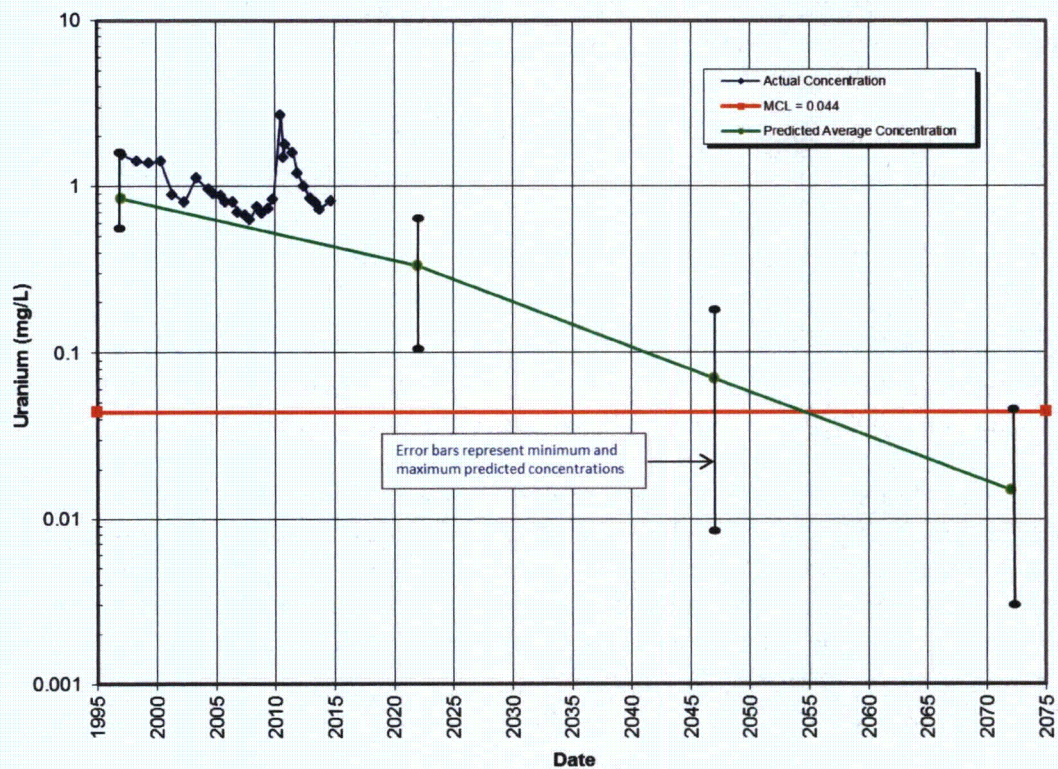


Figure 31. Predicated Versus Actual Uranium Concentrations in Well 0707

6.0 Summary and Recommendations

Verification monitoring results from 2014 verify that mill-related groundwater contamination continues to impact the surficial aquifer and oxbow lake, but institutional controls are in place and functioning as intended to protect human health and the environment from the groundwater contamination. In addition, verification monitoring results continue to verify that mill-related contamination has not impacted any potable domestic wells within the IC boundary, the semiconfined aquifer, the confined aquifer, the Little Wind River, gravel pit ponds, or the AWSS. Results from the AWSS flushing program provide evidence that the flushing program is effective in controlling the buildup of naturally occurring radionuclides found in the source wells for the system.

Additional investigations of soils at the Riverton site have determined there are site-related uranium-associated evaporative mineral deposits and naturally reduced sediments along the Little Wind River and at the oxbow lake. Results from the mineral deposit investigation indicate that the mineral deposits do not pose an unacceptable risk to human health and the environment.

Although still above their respective MCLs, molybdenum and uranium concentrations in the surficial aquifer groundwater have returned to their pre-flood levels after the increases that followed the 2010 flood of the Little Wind River. However, numerous lines of evidence, including updated groundwater modeling, indicate that the rate of natural flushing may not be rapid enough to meet the 100-year regulatory limit.

DOE continues to pursue better understanding of the site conceptual model, contaminant distributions, and properties of the unsaturated zone of the surficial aquifer at the Riverton site. Additional work is needed to further define the conceptual model, to better understand geochemical processes that control contaminant fate and transport, to identify additional sources of uranium that are liberated during flood events, and to understand why uranium concentrations decline relatively quickly after flood events. This additional information will assist in making decisions for a path-forward compliance strategy. Future work will be specified in a 2015 work plan that will include input from technical experts at DOE's National Laboratories and independent experts in the fields of geochemistry and hydrogeology.

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Appendix A
Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/14/2015 3:13 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0101	O	4946.58	09/11/2014	08:39	10.89	4935.69	
0110	O	4950.19	09/11/2014	08:37	13.89	4936.30	
0111	O	4946.87	09/11/2014	08:40	10.61	4936.26	
0700	U	4951.38	09/11/2014	09:20	6.82	4944.56	
0705	D	4930.80	09/10/2014	08:10	7.08	4923.72	
0707	D	4931.00	09/10/2014	08:40	6.19	4924.81	
0709	D	4930.70	09/10/2014	07:45	7.22	4923.48	
0710	U	4947.90	09/10/2014	13:50	6.67	4941.23	
0716	O	4939.12	09/10/2014	16:50	9.76	4929.36	
0717	O	4938.80	09/10/2014	17:25	9.28	4929.52	
0718	D	4937.60	09/11/2014	15:55	9.14	4928.46	
0719	D	4937.55	09/11/2014	15:35	8.73	4928.82	
0720	C	4940.46	09/11/2014	12:00	5.11	4935.35	
0721	C	4940.47	09/11/2014	11:45	8.64	4931.83	
0722R		4937.06	09/12/2014	09:50	9.89	4927.17	
0723	D	4936.01	09/12/2014	10:35	8.64	4927.37	
0724	U	4941.36	09/11/2014	09:06	7.89	4933.47	
0725	U	4941.66	09/11/2014	09:17	8.13	4933.53	
0726	U	4942.00	09/11/2014	09:18	8.18	4933.82	
0727	U	4951.69	09/11/2014	08:42	10.81	4940.88	
0728	U	4946.01	09/11/2014	09:01	9.08	4936.93	
0729	D	4932.75	09/12/2014	08:40	6.48	4926.27	
0730	D	4933.08	09/12/2014	08:55	7.15	4925.93	
0732	U	4945.07	09/10/2014	18:22	8.85	4936.22	
0733	U	4946.76	09/11/2014	10:02	5.09	4941.67	
0734	U	4946.08	09/11/2014	10:12	6.60	4939.48	
0736	U	4946.00	09/08/2014	18:51	7.95	4938.05	
0784	U	4945.45	09/10/2014	18:35	7.38	4938.07	
0788	C	4935.09	09/11/2014	15:00	9.62	4925.47	
0789	D	4933.66	09/10/2014	10:20	9.50	4924.16	

STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/14/2015 3:13 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0824		4928.27	09/11/2014	17:25	6.30	4921.97	
0826		4936.98	09/11/2014	14:00	8.64	4928.34	

RECORDS: SELECTED FROM USEE700 WHERE site_code='RVT01' AND location_code in('0101','0110','0111','0700','0702','0705','0707','0709','0710','0716','0717','0718','0719','0720','0721','0722R','0723','0724','0725','0726','0727','0728','0729','0730','0732','0733','0734','0736','0784','0788','0789','0818','0819','0820','0821','0824','0826','0829','0830') AND LOG_DATE between #1/1/2014# and #12/31/2014#

FLOW CODES: C CROSS GRADIENT D DOWN GRADIENT O ON-SITE
U UPGRADIENT

WATER LEVEL FLAGS:

Appendix B
Domestic Well Data

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CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0405	WL	09/11/2014	N001	NR	N	58	#	-	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	166	#	-	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	154	#	-	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	160	#	-	-
	mg/L	0828	WL	09/11/2014	N001		O	147	#	-	-
	mg/L	0841	WL	09/10/2014	N001			183	#	-	-
	mg/L	0842	WL	09/10/2014	N001			160	#	-	-
Calcium	mg/L	0405	WL	09/11/2014	N001	NR	N	7.600	#	0.012	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	4.000	#	0.012	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	3.800	#	0.012	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	3.300	#	0.012	-
	mg/L	0828	WL	09/11/2014	N001		O	4.000	#	0.012	-
	mg/L	0841	WL	09/10/2014	N001			75.000	#	0.012	-
	mg/L	0842	WL	09/10/2014	N001			60.000	#	0.012	-
Chloride	mg/L	0405	WL	09/11/2014	N001	NR	N	28	#	2	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	9.7	#	1	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	15	#	2	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	11	#	1	-
	mg/L	0828	WL	09/11/2014	N001		O	14	#	2	-
	mg/L	0841	WL	09/10/2014	N001			18	#	1	-
	mg/L	0842	WL	09/10/2014	N001			14	#	1	-
Dissolved Oxygen	mg/L	0405	WL	09/11/2014	N001	NR	N	3.12	#	-	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	2.11	#	-	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	1.83	#	-	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	1.36	#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Dissolved Oxygen	mg/L	0828	WL	09/11/2014	N001		O	1.30			#	-	-
	mg/L	0841	WL	09/10/2014	N001			1.13			#	-	-
	mg/L	0842	WL	09/10/2014	N001			4.62			#	-	-
Magnesium	mg/L	0405	WL	09/11/2014	N001	NR	N	0.070	B		#	0.013	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	0.056	B		#	0.013	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	0.080	B		#	0.013	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	0.054	B		#	0.013	-
	mg/L	0828	WL	09/11/2014	N001		O	0.092	B		#	0.013	-
	mg/L	0841	WL	09/10/2014	N001			13.000			#	0.013	-
	mg/L	0842	WL	09/10/2014	N001			6.700			#	0.013	-
Manganese	mg/L	0405	WL	09/11/2014	N001	NR	N	0.0048	B		#	0.00011	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	0.0065			#	0.00011	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	0.0067			#	0.00011	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	0.0012	B	U	#	0.00011	-
	mg/L	0828	WL	09/11/2014	N001		O	0.0033	B	U	#	0.00011	-
	mg/L	0841	WL	09/10/2014	N001			0.084			#	0.00011	-
	mg/L	0842	WL	09/10/2014	N001			0.057			#	0.00011	-
Molybdenum	mg/L	0405	WL	09/11/2014	N001	NR	N	0.0049			#	0.00032	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	0.0023			#	0.00032	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	0.0031			#	0.00032	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	0.0032			#	0.00032	-
	mg/L	0828	WL	09/11/2014	N001		O	0.0029			#	0.00032	-
	mg/L	0841	WL	09/10/2014	N001			0.0035			#	0.00032	-
	mg/L	0842	WL	09/10/2014	N001			0.0024			#	0.00032	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY		
Oxidation Reduction Potential	mV	0405	WL	09/11/2014	N001	NR	N	4.4		#	-	-	
	mV	0430	WL	09/11/2014	N001	NR	N	-63.6		#	-	-	
	mV	0436	WL	09/11/2014	N001	NR	N	165		#	-	-	
	mV	0460	WL	09/11/2014	N001	NR	N	179		#	-	-	
	mV	0828	WL	09/11/2014	N001		O	134		#	-	-	
	mV	0841	WL	09/10/2014	N001			-48.5		#	-	-	
	mV	0842	WL	09/10/2014	N001			111.2		#	-	-	
pH	s.u.	0405	WL	09/11/2014	N001	NR	N	8.97		#	-	-	
	s.u.	0430	WL	09/11/2014	N001	NR	N	8.82		#	-	-	
	s.u.	0436	WL	09/11/2014	N001	NR	N	8.88		#	-	-	
	s.u.	0460	WL	09/11/2014	N001	NR	N	8.76		#	-	-	
	s.u.	0828	WL	09/11/2014	N001		O	8.88		#	-	-	
	s.u.	0841	WL	09/10/2014	N001			7.71		#	-	-	
	s.u.	0842	WL	09/10/2014	N001			7.61		#	-	-	
Potassium	mg/L	0405	WL	09/11/2014	N001	NR	N	0.510	B		#	0.11	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	0.510	B		#	0.11	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	0.560	B		#	0.11	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	0.480	B		#	0.11	-
	mg/L	0828	WL	09/11/2014	N001		O	0.620	B	U	#	0.11	-
	mg/L	0841	WL	09/10/2014	N001			2.900			#	0.11	-
	mg/L	0842	WL	09/10/2014	N001			0.840	B		#	0.11	-
Sodium	mg/L	0405	WL	09/11/2014	N001	NR	N	180.000			#	0.066	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	140.000			#	0.0066	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	170.000			#	0.066	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	130.000			#	0.0066	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sodium	mg/L	0828	WL	09/11/2014	N001		O	160.000	#	0.066	-
	mg/L	0841	WL	09/10/2014	N001			70.000	#	0.0066	-
	mg/L	0842	WL	09/10/2014	N001			70.000	#	0.0066	-
Specific Conductance	umhos/cm	0405	WL	09/11/2014	N001	NR	N	961	#	-	-
	umhos/cm	0430	WL	09/11/2014	N001	NR	N	728	#	-	-
	umhos/cm	0436	WL	09/11/2014	N001	NR	N	751	#	-	-
	umhos/cm	0460	WL	09/11/2014	N001	NR	N	819	#	-	-
	umhos/cm	0828	WL	09/11/2014	N001		O	792	#	-	-
	umhos/cm	0841	WL	09/10/2014	N001			673	#	-	-
	umhos/cm	0842	WL	09/10/2014	N001			552	#	-	-
Sulfate	mg/L	0405	WL	09/11/2014	N001	NR	N	350	#	5	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	180	#	2.5	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	210	#	5	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	160	#	2.5	-
	mg/L	0828	WL	09/11/2014	N001		O	200	#	5	-
	mg/L	0841	WL	09/10/2014	N001			180	#	2.5	-
	mg/L	0842	WL	09/10/2014	N001			140	#	2.5	-
Temperature	C	0405	WL	09/11/2014	N001	NR	N	9.93	#	-	-
	C	0430	WL	09/11/2014	N001	NR	N	11.73	#	-	-
	C	0436	WL	09/11/2014	N001	NR	N	18.12	#	-	-
	C	0460	WL	09/11/2014	N001	NR	N	14.89	#	-	-
	C	0828	WL	09/11/2014	N001		O	15.80	#	-	-
	C	0841	WL	09/10/2014	N001			23.85	#	-	-
	C	0842	WL	09/10/2014	N001			14.38	#	-	-
Turbidity	NTU	0405	WL	09/11/2014	N001	NR	N	2.54	#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Turbidity	NTU	0430	WL	09/11/2014	N001	NR	N	1.39	#	-	-
	NTU	0436	WL	09/11/2014	N001	NR	N	0.83	#	-	-
	NTU	0460	WL	09/11/2014	N001	NR	N	1.21	#	-	-
	NTU	0828	WL	09/11/2014	N001		O	0.87	#	-	-
	NTU	0841	WL	09/10/2014	N001			1.65	#	-	-
	NTU	0842	WL	09/10/2014	N001			2.16	#	-	-
Uranium	mg/L	0405	WL	09/11/2014	N001	NR	N	0.00003 B	#	2.9E-05	-
	mg/L	0430	WL	09/11/2014	N001	NR	N	0.00004 B	#	2.9E-05	-
	mg/L	0436	WL	09/11/2014	N001	NR	N	0.0001	#	2.9E-05	-
	mg/L	0460	WL	09/11/2014	N001	NR	N	0.00005 B	#	2.9E-05	-
	mg/L	0828	WL	09/11/2014	N001		O	0.0001	#	2.9E-05	-
	mg/L	0841	WL	09/10/2014	N001			0.0021	#	2.9E-05	-
	mg/L	0842	WL	09/10/2014	N001			0.00037	#	2.9E-05	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/14/2015 3:20 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site_code='RVT01' AND location_code in('0405','0422','0430','0436','0460','0828','0841','0842') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND cas in('ALKALINITY','07440-70-2','CHLORIDE','07782-44-7','07439-89-6','07439-95-4','07439-96-5','07439-98-7','ORP','PH','07440-09-7','07440-23-5','EC','SULFATE','TMP','TURBIDITY','07440-61-1') AND DATE_SAMPLED between #1/1/2014# and #12/31/2014#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: WL WELL

ZONES OF COMPLETION: a zone of completion with a "-" is cross-screened and, therefore, has two zones of completion (1st zone - 2nd zone).

NR NO RECOVERY OF DATA FOR CLASSIFYING

FLOW CODES: N UNKNOWN O ON-SITE

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
- 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 Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

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 Presumptive evidence that analyte is present. The analyte is "tentatively identified". | Q Qualitative result due to sampling technique |
| R Unusable result. | U Parameter analyzed for but was not detected. | X Location is undefined. |

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

Appendix C

Surface Water Quality Data

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SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:33 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0747	09/10/2014	0001	313		#	-
	mg/L	0749	09/10/2014	N001	106		#	-
	mg/L	0794	09/11/2014	0001	178		#	-
	mg/L	0796	09/12/2014	N001	186		#	-
	mg/L	0810	09/08/2014	N001	340		#	-
	mg/L	0811	09/10/2014	0001	178		#	-
	mg/L	0812	09/11/2014	0001	174		#	-
	mg/L	0822	09/11/2014	N001	218		#	-
	mg/L	0823	09/08/2014	0001	163		#	-
Calcium	mg/L	0747	09/10/2014	0001	120.000		#	0.012
	mg/L	0749	09/10/2014	N001	49.000		#	0.012
	mg/L	0794	09/11/2014	0001	80.000		#	0.012
	mg/L	0796	09/12/2014	N001	81.000		#	0.012
	mg/L	0810	09/08/2014	N001	23.000		#	0.012
	mg/L	0811	09/10/2014	0001	80.000		#	0.012
	mg/L	0812	09/11/2014	0001	78.000		#	0.012
	mg/L	0822	09/11/2014	N001	91.000		#	0.012
	mg/L	0823	09/08/2014	0001	170.000		#	0.012
Chloride	mg/L	0747	09/10/2014	0001	19		#	2
	mg/L	0749	09/10/2014	N001	16		#	2
	mg/L	0794	09/11/2014	0001	6		#	1
	mg/L	0796	09/12/2014	N001	6		#	1
	mg/L	0810	09/08/2014	N001	39		#	2
	mg/L	0811	09/10/2014	0001	5.9		#	1
	mg/L	0812	09/11/2014	0001	6.1		#	1
	mg/L	0822	09/11/2014	N001	9.5		#	2
	mg/L	0823	09/08/2014	0001	200		#	4
Dissolved Oxygen	mg/L	0747	09/10/2014	N001	8.48		#	-
	mg/L	0749	09/10/2014	N001	6.06		#	-
	mg/L	0794	09/11/2014	N001	8.41		#	-
	mg/L	0796	09/12/2014	N001	9.02		#	-
	mg/L	0810	09/08/2014	N001	10.64		#	-
	mg/L	0811	09/10/2014	N001	7.91		#	-
	mg/L	0812	09/11/2014	N001	9.36		#	-
	mg/L	0822	09/11/2014	N001	8.80		#	-
	mg/L	0823	09/08/2014	N001	9.03		#	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:33 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Magnesium	mg/L	0747	09/10/2014	0001	41.000		# 0.013	-
	mg/L	0749	09/10/2014	N001	0.360	B	# 0.013	-
	mg/L	0794	09/11/2014	0001	29.000		# 0.013	-
	mg/L	0796	09/12/2014	N001	29.000		# 0.013	-
	mg/L	0810	09/08/2014	N001	92.000		# 0.013	-
	mg/L	0811	09/10/2014	0001	29.000		# 0.013	-
	mg/L	0812	09/11/2014	0001	28.000		# 0.013	-
	mg/L	0822	09/11/2014	N001	16.000		# 0.013	-
	mg/L	0823	09/08/2014	0001	88.000		# 0.013	-
Manganese	mg/L	0747	09/10/2014	0001	0.800		# 0.00011	-
	mg/L	0749	09/10/2014	N001	0.011		# 0.00011	-
	mg/L	0794	09/11/2014	0001	0.019		# 0.00011	-
	mg/L	0796	09/12/2014	N001	0.034		# 0.00011	-
	mg/L	0810	09/08/2014	N001	0.077		# 0.00011	-
	mg/L	0811	09/10/2014	0001	0.016		# 0.00011	-
	mg/L	0812	09/11/2014	0001	0.023		# 0.00011	-
	mg/L	0822	09/11/2014	N001	0.046		# 0.00011	-
	mg/L	0823	09/08/2014	0001	0.290		# 0.00011	-
Molybdenum	mg/L	0747	09/10/2014	0001	0.020		# 0.0016	-
	mg/L	0749	09/10/2014	N001	0.041		# 0.00032	-
	mg/L	0794	09/11/2014	0001	0.0014	J	# 0.00032	-
	mg/L	0796	09/12/2014	N001	0.0013	J	# 0.00032	-
	mg/L	0810	09/08/2014	N001	0.0016	J	# 0.00032	-
	mg/L	0811	09/10/2014	0001	0.0015	J	# 0.00032	-
	mg/L	0812	09/11/2014	0001	0.0013	J	# 0.00032	-
	mg/L	0822	09/11/2014	N001	0.012		# 0.00032	-
	mg/L	0823	09/08/2014	0001	0.0027	J	# 0.00032	-
Oxidation Reduction Potential	mV	0747	09/10/2014	N001	-3		# -	-
	mV	0749	09/10/2014	N001	-41		# -	-
	mV	0794	09/11/2014	N001	135		# -	-
	mV	0796	09/12/2014	N001	224		# -	-
	mV	0810	09/08/2014	N001	121		# -	-
	mV	0811	09/10/2014	N001	9.7		# -	-
	mV	0812	09/11/2014	N001	-48		# -	-
	mV	0822	09/11/2014	N001	53.3		# -	-
	mV	0823	09/08/2014	N001	131.5		# -	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:33 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE:		RESULT	QUALIFIERS:			DETECTION LIMIT	UN- CERTAINTY
			DATE	ID		LAB	DATA	QA		
pH	s.u.	0747	09/10/2014	N001	7.77				#	-
	s.u.	0749	09/10/2014	N001	7.83				#	-
	s.u.	0794	09/11/2014	N001	8.19				#	-
	s.u.	0796	09/12/2014	N001	8.13				#	-
	s.u.	0810	09/08/2014	N001	9.12				#	-
	s.u.	0811	09/10/2014	N001	8.37				#	-
	s.u.	0812	09/11/2014	N001	8.43				#	-
	s.u.	0822	09/11/2014	N001	8.01				#	-
	s.u.	0823	09/08/2014	N001	8.29				#	-
Potassium	mg/L	0747	09/10/2014	0001	9.600				#	0.11
	mg/L	0749	09/10/2014	N001	1.800				#	0.11
	mg/L	0794	09/11/2014	0001	2.800				#	0.11
	mg/L	0796	09/12/2014	N001	2.900				#	0.11
	mg/L	0810	09/08/2014	N001	18.000				#	0.11
	mg/L	0811	09/10/2014	0001	2.700				#	0.11
	mg/L	0812	09/11/2014	0001	2.700				#	0.11
	mg/L	0822	09/11/2014	N001	3.800				#	0.11
	mg/L	0823	09/08/2014	0001	17.000				#	0.11
Sodium	mg/L	0747	09/10/2014	0001	120.000				#	0.0066
	mg/L	0749	09/10/2014	N001	280.000				#	0.066
	mg/L	0794	09/11/2014	0001	43.000				#	0.0066
	mg/L	0796	09/12/2014	N001	41.000				#	0.0066
	mg/L	0810	09/08/2014	N001	220.000				#	0.066
	mg/L	0811	09/10/2014	0001	40.000				#	0.0066
	mg/L	0812	09/11/2014	0001	41.000				#	0.0066
	mg/L	0822	09/11/2014	N001	130.000				#	0.0066
	mg/L	0823	09/08/2014	0001	320.000				#	0.066
Specific Conductance	umhos/cm	0747	09/10/2014	N001	1231				#	-
	umhos/cm	0749	09/10/2014	N001	1125				#	-
	umhos/cm	0794	09/11/2014	N001	709				#	-
	umhos/cm	0796	09/12/2014	N001	659				#	-
	umhos/cm	0810	09/08/2014	N001	1585				#	-
	umhos/cm	0811	09/10/2014	N001	690				#	-
	umhos/cm	0812	09/11/2014	N001	740				#	-
	umhos/cm	0822	09/11/2014	N001	1060				#	-
	umhos/cm	0823	09/08/2014	N001	2611				#	-
Sulfate	mg/L	0747	09/10/2014	0001	400				#	5

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:33 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Sulfate	mg/L	0749	09/10/2014	N001	630		# 5	-
	mg/L	0794	09/11/2014	0001	210		# 2.5	-
	mg/L	0796	09/12/2014	N001	200		# 2.5	-
	mg/L	0810	09/08/2014	N001	480		# 5	-
	mg/L	0811	09/10/2014	0001	210		# 2.5	-
	mg/L	0812	09/11/2014	0001	210		# 2.5	-
	mg/L	0822	09/11/2014	N001	340		# 5	-
	mg/L	0823	09/08/2014	0001	1100		# 10	-
Temperature	C	0747	09/10/2014	N001	18.05		# -	-
	C	0749	09/10/2014	N001	24.36		# -	-
	C	0794	09/11/2014	N001	10.52		# -	-
	C	0796	09/12/2014	N001	6.50		# -	-
	C	0810	09/08/2014	N001	21.26		# -	-
	C	0811	09/10/2014	N001	17.17		# -	-
	C	0812	09/11/2014	N001	10.46		# -	-
	C	0822	09/11/2014	N001	10.06		# -	-
	C	0823	09/08/2014	N001	19.15		# -	-
Turbidity	NTU	0747	09/10/2014	N001	162		# -	-
	NTU	0749	09/10/2014	N001	2.83		# -	-
	NTU	0794	09/11/2014	N001	16.1		# -	-
	NTU	0796	09/12/2014	N001	8.54		# -	-
	NTU	0810	09/08/2014	N001	7.08		# -	-
	NTU	0811	09/10/2014	N001	17.9		# -	-
	NTU	0812	09/11/2014	N001	17.3		# -	-
	NTU	0822	09/11/2014	N001	2.84		# -	-
	NTU	0823	09/08/2014	N001	22.1		# -	-
Uranium	mg/L	0747	09/10/2014	0001	0.170		# 0.00015	-
	mg/L	0749	09/10/2014	N001	0.0003		# 2.9E-05	-
	mg/L	0794	09/11/2014	0001	0.0064 E	J	# 2.9E-05	-
	mg/L	0796	09/12/2014	N001	0.0053	J	# 2.9E-05	-
	mg/L	0810	09/08/2014	N001	0.0056	J	# 2.9E-05	-
	mg/L	0811	09/10/2014	0001	0.0049	J	# 2.9E-05	-
	mg/L	0812	09/11/2014	0001	0.0059	J	# 2.9E-05	-
	mg/L	0822	09/11/2014	N001	0.0042	J	# 2.9E-05	-
	mg/L	0823	09/08/2014	0001	0.0072		# 2.9E-05	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:33 pm

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE800 WHERE site_code='RVT01' AND location_code in('0747','0749','0794','0796','0810','0811','0812','0822','0823') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND cas in('ALKALINITY','07440-70-2','CHLORIDE','07782-44-7','07439-89-6','07439-95-4','07439-96-5','07439-98-7','ORP','PH','07440-09-7','RA-226','RA-228','07440-23-5','EC','SULFATE','TMP','TURBIDITY','07440-61-1') AND DATE_SAMPLED between #1/1/2014# and #12/31/2014#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

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
- 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 Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

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 Presumptive evidence that analyte is present. The analyte is "tentatively identified". | Q Qualitative result due to sampling technique |
| R Unusable result. | U Parameter analyzed for but was not detected. |
| X Location is undefined. | |

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

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Appendix D
Monitoring Well Data

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CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0705	WL	09/10/2014	N001	SE	D	61	FQ #	-	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	352	F #	-	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	187	F #	-	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	288	F #	-	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	195	F #	-	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	292	F #	-	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	91	FQ #	-	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	219	F #	-	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	95	F #	-	-
	mg/L	0722R	WL	09/12/2014	N001	SF		273	F #	-	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	309	F #	-	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	250	F #	-	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	314	FQ #	-	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	176	F #	-	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	398	F #	-	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	447	F #	-	-
	mg/L	0824	WL	09/11/2014	N001	SF		349	F #	-	-
	mg/L	0826	WL	09/11/2014	N001	SF		352	F #	-	-
Calcium	mg/L	0705	WL	09/10/2014	N001	SE	D	29.000	FQ #	0.012	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	370.000	F #	0.012	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	56.000	F #	0.012	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	130.000	F #	0.012	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	96.000	F #	0.012	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	360.000	F #	0.012	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	82.000	FQ #	0.012	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	74.000	F #	0.012	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	0721	WL	09/11/2014	N001	SE	C	8.800	F #	0.012	-
	mg/L	0722R	WL	09/12/2014	N001	SF		410.000	F #	0.012	-
	mg/L	0722R	WL	09/12/2014	N002	SF		420.000	F #	0.012	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	280.000	F #	0.012	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	71.000	F #	0.012	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	78.000	FQ #	0.012	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	510.000	F #	0.12	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	280.000	F #	0.012	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	400.000	F #	0.012	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	420.000	F #	0.012	-
	mg/L	0824	WL	09/11/2014	N001	SF		110.000	F #	0.012	-
	mg/L	0826	WL	09/11/2014	N001	SF		240.000	F #	0.012	-
Chloride	mg/L	0705	WL	09/10/2014	N001	SE	D	54	FQ #	2	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	70	F #	10	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	7.2	F #	0.2	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	38	F #	2	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	49	F #	4	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	110	F #	10	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	40	FQ #	2	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	3.9	F #	1	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	24	F #	2	-
	mg/L	0722R	WL	09/12/2014	N001	SF		37	F #	4	-
	mg/L	0722R	WL	09/12/2014	N002	SF		37	F #	4	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	54	F #	10	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	2.3	F #	0.2	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	6.2	FQ #	2	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0784	WL	09/10/2014	N001	SF	U	16	F #	5	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	43	F #	5	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	190	F #	20	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	190	F #	20	-
	mg/L	0824	WL	09/11/2014	N001	SF		6.2	F #	2	-
	mg/L	0826	WL	09/11/2014	N001	SF		36	F #	5	-
Dissolved Oxygen	mg/L	0705	WL	09/10/2014	N001	SE	D	1.05	FQ #	-	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	0.33	F #	-	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	0.06	F #	-	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	0.39	F #	-	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	0.21	F #	-	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	0.18	F #	-	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	0.57	FQ #	-	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	2.60	F #	-	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	0.20	F #	-	-
	mg/L	0722R	WL	09/12/2014	N001	SF		0.51	F #	-	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	0.18	F #	-	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	0.19	F #	-	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	0.40	FQ #	-	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	0.31	F #	-	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	0.25	F #	-	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	0.13	F #	-	-
	mg/L	0824	WL	09/11/2014	N001	SF		0.31	F #	-	-
	mg/L	0826	WL	09/11/2014	N001	SF		0.30	F #	-	-
Magnesium	mg/L	0705	WL	09/10/2014	N001	SE	D	0.520	B FQ #	0.013	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	0707	WL	09/10/2014	N001	SF	D	110.000	F #	0.013	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	13.000	F #	0.013	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	31.000	F #	0.013	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	6.500	F #	0.013	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	93.000	F #	0.013	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	3.500	FQ #	0.013	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	19.000	F #	0.013	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	0.100	B F #	0.013	-
	mg/L	0722R	WL	09/12/2014	N001	SF		38.000	F #	0.013	-
	mg/L	0722R	WL	09/12/2014	N002	SF		38.000	F #	0.013	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	10.000	F #	0.013	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	18.000	F #	0.013	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	14.000	FQ #	0.013	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	18.000	F #	0.013	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	74.000	F #	0.013	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	240.000	F #	0.013	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	240.000	F #	0.013	-
	mg/L	0824	WL	09/11/2014	N001	SF		28.000	F #	0.013	-
	mg/L	0826	WL	09/11/2014	N001	SF		65.000	F #	0.013	-
Manganese	mg/L	0705	WL	09/10/2014	N001	SE	D	0.0054	FQ #	0.00011	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	0.930	F #	0.00011	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	0.031	F #	0.00011	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	0.340	F #	0.00011	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	0.180	F #	0.00011	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	0.440	F #	0.00011	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	0.160	FQ #	0.00011	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Manganese	mg/L	0720	WL	09/11/2014	N001	SF	C	0.00035	B UF #	0.00011	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	0.0029	B F #	0.00011	-
	mg/L	0722R	WL	09/12/2014	N001	SF		0.024	F #	0.00011	-
	mg/L	0722R	WL	09/12/2014	N002	SF		0.024	F #	0.00011	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	0.340	F #	0.00011	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	0.0052	F #	0.00011	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	0.048	FQ #	0.00011	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	1.300	F #	0.00011	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	0.200	F #	0.00011	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	0.790	F #	0.00011	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	0.790	F #	0.00011	-
	mg/L	0824	WL	09/11/2014	N001	SF		0.043	F #	0.00011	-
	mg/L	0826	WL	09/11/2014	N001	SF		2.100	F #	0.00011	-
Molybdenum	mg/L	0705	WL	09/10/2014	N001	SE	D	0.0031	FQ #	0.00032	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	0.980	F #	0.0016	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	0.0026	F #	0.00032	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	0.130	F #	0.0016	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	0.008	F #	0.00032	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	0.076	F #	0.0016	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	0.012	FQ #	0.00032	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	0.0015	F #	0.00032	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	0.0025	F #	0.00032	-
	mg/L	0722R	WL	09/12/2014	N001	SF		0.140	F #	0.0016	-
	mg/L	0722R	WL	09/12/2014	N002	SF		0.130	F #	0.00032	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	0.00032	U F #	0.00032	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	0.0035	F #	0.00032	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	0730	WL	09/12/2014	N001	SE	D	0.0038	FQ #	0.00032	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	0.012	F #	0.00032	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	0.021	F #	0.00032	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	0.640	F #	0.0032	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	0.630	F #	0.00032	-
	mg/L	0824	WL	09/11/2014	N001	SF		0.0036	F #	0.00032	-
	mg/L	0826	WL	09/11/2014	N001	SF		0.022	F #	0.00032	-
Oxidation Reduction Potential	mV	0705	WL	09/10/2014	N001	SE	D	190	FQ #	-	-
	mV	0707	WL	09/10/2014	N001	SF	D	144.9	F #	-	-
	mV	0710	WL	09/10/2014	N001	SF	U	43.3	F #	-	-
	mV	0716	WL	09/10/2014	N001	SF	O	-22.4	F #	-	-
	mV	0717	WL	09/10/2014	N001	SE	O	-35.8	F #	-	-
	mV	0718	WL	09/11/2014	N001	SF	D	-19.8	F #	-	-
	mV	0719	WL	09/11/2014	N001	SE	D	-70.1	FQ #	-	-
	mV	0720	WL	09/11/2014	N001	SF	C	33.3	F #	-	-
	mV	0721	WL	09/11/2014	N001	SE	C	53.2	F #	-	-
	mV	0722R	WL	09/12/2014	N001	SF		140.3	F #	-	-
	mV	0723	WL	09/12/2014	N001	SE	D	-3.4	F #	-	-
	mV	0729	WL	09/12/2014	N001	SF	D	120.6	F #	-	-
	mV	0730	WL	09/12/2014	N001	SE	D	111.0	FQ #	-	-
	mV	0784	WL	09/10/2014	N001	SF	U	-29.5	F #	-	-
	mV	0788	WL	09/11/2014	N001	SF	C	-22.4	F #	-	-
	mV	0789	WL	09/10/2014	N001	SF	D	117.8	F #	-	-
	mV	0824	WL	09/11/2014	N001	SF		-10.8	F #	-	-
	mV	0826	WL	09/11/2014	N001	SF		90.6	F #	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0705	WL	09/10/2014	N001	SE	D	8.14	FQ #	-	-
	s.u.	0707	WL	09/10/2014	N001	SF	D	6.97	F #	-	-
	s.u.	0710	WL	09/10/2014	N001	SF	U	7.37	F #	-	-
	s.u.	0716	WL	09/10/2014	N001	SF	O	7.04	F #	-	-
	s.u.	0717	WL	09/10/2014	N001	SE	O	7.70	F #	-	-
	s.u.	0718	WL	09/11/2014	N001	SF	D	7.09	F #	-	-
	s.u.	0719	WL	09/11/2014	N001	SE	D	7.65	FQ #	-	-
	s.u.	0720	WL	09/11/2014	N001	SF	C	7.29	F #	-	-
	s.u.	0721	WL	09/11/2014	N001	SE	C	8.86	F #	-	-
	s.u.	0722R	WL	09/12/2014	N001	SF		6.40	F #	-	-
	s.u.	0723	WL	09/12/2014	N001	SE	D	5.84	F #	-	-
	s.u.	0729	WL	09/12/2014	N001	SF	D	7.25	F #	-	-
	s.u.	0730	WL	09/12/2014	N001	SE	D	7.42	FQ #	-	-
	s.u.	0784	WL	09/10/2014	N001	SF	U	7.20	F #	-	-
	s.u.	0788	WL	09/11/2014	N001	SF	C	7.18	F #	-	-
	s.u.	0789	WL	09/10/2014	N001	SF	D	7.08	F #	-	-
	s.u.	0824	WL	09/11/2014	N001	SF		7.07	F #	-	-
	s.u.	0826	WL	09/11/2014	N001	SF		7.15	F #	-	-
Potassium	mg/L	0705	WL	09/10/2014	N001	SE	D	0.910	B FQ #	0.11	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	20.000	F #	0.11	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	1.700	F #	0.11	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	6.700	F #	0.11	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	1.600	F #	0.11	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	22.000	F #	0.11	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	1.700	FQ #	0.11	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	2.600	F #	0.11	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Potassium	mg/L	0721	WL	09/11/2014	N001	SE	C	0.520	B	F	#	0.11	-
	mg/L	0722R	WL	09/12/2014	N001	SF		13.000		F	#	0.11	-
	mg/L	0722R	WL	09/12/2014	N002	SF		12.000		F	#	0.11	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	3.000		F	#	0.11	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	7.000		F	#	0.11	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	2.600		FQ	#	0.11	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	11.000		F	#	0.11	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	12.000		F	#	0.11	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	31.000		F	#	0.11	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	30.000		F	#	0.11	-
	mg/L	0824	WL	09/11/2014	N001	SF		7.100		F	#	0.11	-
	mg/L	0826	WL	09/11/2014	N001	SF		11.000		F	#	0.11	-
Sodium	mg/L	0705	WL	09/10/2014	N001	SE	D	220.000		FQ	#	0.066	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	530.000		F	#	0.066	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	35.000		F	#	0.0066	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	140.000		F	#	0.0066	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	310.000		F	#	0.066	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	680.000		F	#	0.066	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	180.000		FQ	#	0.066	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	28.000		F	#	0.0066	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	170.000		F	#	0.066	-
	mg/L	0722R	WL	09/12/2014	N001	SF		150.000		F	#	0.0066	-
	mg/L	0722R	WL	09/12/2014	N002	SF		150.000		F	#	0.0066	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	570.000		F	#	0.066	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	20.000		F	#	0.0066	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	89.000		FQ	#	0.0066	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sodium	mg/L	0784	WL	09/10/2014	N001	SF	U	380.000	F #	0.066	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	440.000	F #	0.066	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	1400.000	F #	0.066	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	1400.000	F #	0.066	-
	mg/L	0824	WL	09/11/2014	N001	SF		51.000	F #	0.0066	-
	mg/L	0826	WL	09/11/2014	N001	SF		400.000	F #	0.066	-
Specific Conductance	umhos/cm	0705	WL	09/10/2014	N001	SE	D	1197	FQ #	-	-
	umhos/cm	0707	WL	09/10/2014	N001	SF	D	3713	F #	-	-
	umhos/cm	0710	WL	09/10/2014	N001	SF	U	456	F #	-	-
	umhos/cm	0716	WL	09/10/2014	N001	SF	O	1313	F #	-	-
	umhos/cm	0717	WL	09/10/2014	N001	SE	O	1716	F #	-	-
	umhos/cm	0718	WL	09/11/2014	N001	SF	D	4393	F #	-	-
	umhos/cm	0719	WL	09/11/2014	N001	SE	D	1203	FQ #	-	-
	umhos/cm	0720	WL	09/11/2014	N001	SF	C	587	F #	-	-
	umhos/cm	0721	WL	09/11/2014	N001	SE	C	856	F #	-	-
	umhos/cm	0722R	WL	09/12/2014	N001	SF		2123	F #	-	-
	umhos/cm	0723	WL	09/12/2014	N001	SE	D	3240	F #	-	-
	umhos/cm	0729	WL	09/12/2014	N001	SF	D	514	F #	-	-
	umhos/cm	0730	WL	09/12/2014	N001	SE	D	791	FQ #	-	-
	umhos/cm	0784	WL	09/10/2014	N001	SF	U	2150	F #	-	-
	umhos/cm	0788	WL	09/11/2014	N001	SF	C	3032	F #	-	-
	umhos/cm	0789	WL	09/10/2014	N001	SF	D	7579	F #	-	-
	umhos/cm	0824	WL	09/11/2014	N001	SF		828	F #	-	-
	umhos/cm	0826	WL	09/11/2014	N001	SF		2883	F #	-	-
Sulfate	mg/L	0705	WL	09/10/2014	N001	SE	D	420	FQ #	5	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0707	WL	09/10/2014	N001	SF	D	2100	F #	25	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	91	F #	0.5	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	420	F #	5	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	700	F #	10	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	2300	F #	25	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	460	FQ #	5	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	89	F #	2.5	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	270	F #	5	-
	mg/L	0722R	WL	09/12/2014	N001	SF		1100	F #	10	-
	mg/L	0722R	WL	09/12/2014	N002	SF		1100	F #	10	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	1700	F #	25	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	34	F #	0.5	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	110	FQ #	5	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	2000	F #	12	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	1400	F #	12	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	4600	F #	50	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	4600	F #	50	-
	mg/L	0824	WL	09/11/2014	N001	SF		100	F #	5	-
	mg/L	0826	WL	09/11/2014	N001	SF		1400	F #	12	-
Temperature	C	0705	WL	09/10/2014	N001	SE	D	8.91	FQ #	-	-
	C	0707	WL	09/10/2014	N001	SF	D	11.09	F #	-	-
	C	0710	WL	09/10/2014	N001	SF	U	12.60	F #	-	-
	C	0716	WL	09/10/2014	N001	SF	O	14.99	F #	-	-
	C	0717	WL	09/10/2014	N001	SE	O	12.01	F #	-	-
	C	0718	WL	09/11/2014	N001	SF	D	12.31	F #	-	-
	C	0719	WL	09/11/2014	N001	SE	D	10.01	FQ #	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0720	WL	09/11/2014	N001	SF	C	11.34	F #	-	-
	C	0721	WL	09/11/2014	N001	SE	C	9.43	F #	-	-
	C	0722R	WL	09/12/2014	N001	SF		13.84	F #	-	-
	C	0723	WL	09/12/2014	N001	SE	D	11.86	F #	-	-
	C	0729	WL	09/12/2014	N001	SF	D	15.81	F #	-	-
	C	0730	WL	09/12/2014	N001	SE	D	12.51	FQ #	-	-
	C	0784	WL	09/10/2014	N001	SF	U	16.60	F #	-	-
	C	0788	WL	09/11/2014	N001	SF	C	9.83	F #	-	-
	C	0789	WL	09/10/2014	N001	SF	D	11.59	F #	-	-
	C	0824	WL	09/11/2014	N001	SF		12.81	F #	-	-
	C	0826	WL	09/11/2014	N001	SF		9.85	F #	-	-
Turbidity	NTU	0705	WL	09/10/2014	N001	SE	D	8.71	FQ #	-	-
	NTU	0707	WL	09/10/2014	N001	SF	D	0.78	F #	-	-
	NTU	0710	WL	09/10/2014	N001	SF	U	1.06	F #	-	-
	NTU	0716	WL	09/10/2014	N001	SF	O	3.53	F #	-	-
	NTU	0717	WL	09/10/2014	N001	SE	O	0.91	F #	-	-
	NTU	0718	WL	09/11/2014	N001	SF	D	0.79	F #	-	-
	NTU	0719	WL	09/11/2014	N001	SE	D	1.97	FQ #	-	-
	NTU	0720	WL	09/11/2014	N001	SF	C	1.44	F #	-	-
	NTU	0721	WL	09/11/2014	N001	SE	C	1.51	F #	-	-
	NTU	0722R	WL	09/12/2014	N001	SF		0.39	F #	-	-
	NTU	0723	WL	09/12/2014	N001	SE	D	0.95	F #	-	-
	NTU	0729	WL	09/12/2014	N001	SF	D	5.79	F #	-	-
	NTU	0730	WL	09/12/2014	N001	SE	D	2.25	FQ #	-	-
	NTU	0784	WL	09/10/2014	N001	SF	U	1.28	F #	-	-
	NTU	0788	WL	09/11/2014	N001	SF	C	0.79	F #	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0789	WL	09/10/2014	N001	SF	D	0.88	F #	-	-
	NTU	0824	WL	09/11/2014	N001	SF		3.96	F #	-	-
	NTU	0826	WL	09/11/2014	N001	SF		2.70	F #	-	-
Uranium	mg/L	0705	WL	09/10/2014	N001	SE	D	0.00022	FQ #	2.9E-05	-
	mg/L	0707	WL	09/10/2014	N001	SF	D	0.820	F #	0.00015	-
	mg/L	0710	WL	09/10/2014	N001	SF	U	0.003	F #	2.9E-05	-
	mg/L	0716	WL	09/10/2014	N001	SF	O	0.220	F #	0.00015	-
	mg/L	0717	WL	09/10/2014	N001	SE	O	0.00003 B	F #	2.9E-05	-
	mg/L	0718	WL	09/11/2014	N001	SF	D	0.099	F #	0.00015	-
	mg/L	0719	WL	09/11/2014	N001	SE	D	0.00038	FQ #	2.9E-05	-
	mg/L	0720	WL	09/11/2014	N001	SF	C	0.0046	F #	2.9E-05	-
	mg/L	0721	WL	09/11/2014	N001	SE	C	0.0001	F #	2.9E-05	-
	mg/L	0722R	WL	09/12/2014	N001	SF		0.910	F #	0.00015	-
	mg/L	0722R	WL	09/12/2014	N002	SF		0.850	F #	2.9E-05	-
	mg/L	0723	WL	09/12/2014	N001	SE	D	0.00004 B	F #	2.9E-05	-
	mg/L	0729	WL	09/12/2014	N001	SF	D	0.0036	F #	2.9E-05	-
	mg/L	0730	WL	09/12/2014	N001	SE	D	0.0049	FQ #	2.9E-05	-
	mg/L	0784	WL	09/10/2014	N001	SF	U	0.0017	F #	2.9E-05	-
	mg/L	0788	WL	09/11/2014	N001	SF	C	0.043	F #	2.9E-05	-
	mg/L	0789	WL	09/10/2014	N001	SF	D	1.700	F #	0.00029	-
	mg/L	0789	WL	09/10/2014	N002	SF	D	1.600	F #	2.9E-05	-
	mg/L	0824	WL	09/11/2014	N001	SF		0.012	F #	2.9E-05	-
	mg/L	0826	WL	09/11/2014	N001	SF		0.042	F #	2.9E-05	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 3:49 pm

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site_code='RVT01' AND location_code in('0705','0707','0710','0716','0717','0718','0719','0720','0721','0722R','0723','0729','0730','0784','0788','0789','0824','0826') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND cas in('ALKALINITY','07440-70-2','CHLORIDE','07782-44-7','07439-89-6','07439-95-4','07439-96-5','07439-98-7','ORP','PH','07440-09-7','RA-226','RA-228','07440-23-5','EC','SULFATE','TMP','TURBIDITY','07440-61-1') AND DATE_SAMPLED between #1/1/2014# and #12/31/2014#

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: WL WELL

ZONES OF COMPLETION: a zone of completion with a "-" is cross-screened and, therefore, has two zones of completion (1st zone - 2nd zone).

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FLOW CODES: C CROSS GRADIENT D DOWN GRADIENT O ON-SITE U UPGRADIENT

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
- 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 Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

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 Presumptive evidence that analyte is present. The analyte is "tentatively identified". | Q Qualitative result due to sampling technique |
| R Unusable result. | U Parameter analyzed for but was not detected. | X Location is undefined. |

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

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Appendix E

AWSS Data

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GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Dissolved Oxygen	mg/L	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	5.33	#	-	-
	mg/L	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.72	#	-	-
	mg/L	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	4.34	#	-	-
	mg/L	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	2.20	#	-	-
	mg/L	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	4.59	#	-	-
	mg/L	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	3.45	#	-	-
	mg/L	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	5.10	#	-	-
	mg/L	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.78	#	-	-
	mg/L	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.90	#	-	-
	mg/L	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	2.98	#	-	-
	mg/L	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	3.83	#	-	-
	mg/L	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.67	#	-	-
	mg/L	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	2.20	#	-	-
	mg/L	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	4.15	#	-	-
	mg/L	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	4.84	#	-	-
	mg/L	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.08	#	-	-
	mg/L	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.98	#	-	-
	mg/L	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	4.04	#	-	-
	mg/L	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	4.35	#	-	-
	mg/L	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.57	#	-	-
	mg/L	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.75	#	-	-
	mg/L	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.44	#	-	-
	mg/L	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	4.85	#	-	-
	mg/L	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.71	#	-	-
	mg/L	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.99	#	-	-
	mg/L	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	4.67	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Dissolved Oxygen	mg/L	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	3.73	#	-	-
	mg/L	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.33	#	-	-
	mg/L	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.15	#	-	-
	mg/L	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	3.75	#	-	-
	mg/L	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.50	#	-	-
	mg/L	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	4.32	#	-	-
	mg/L	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	2.39	#	-	-
Oxidation Reduction Potential	mV	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	262.0	#	-	-
	mV	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	107.7	#	-	-
	mV	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	290.7	#	-	-
	mV	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	79.7	#	-	-
	mV	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	63.7	#	-	-
	mV	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	459.4	#	-	-
	mV	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	488.5	#	-	-
	mV	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	35.6	#	-	-
	mV	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	52.2	#	-	-
	mV	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	520	#	-	-
	mV	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	486.3	#	-	-
	mV	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	44.7	#	-	-
	mV	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	43.6	#	-	-
	mV	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	546.4	#	-	-
	mV	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	550.6	#	-	-
	mV	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	75.2	#	-	-
	mV	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	85.5	#	-	-
	mV	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	510.1	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Oxidation Reduction Potential	mV	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	531.4	#	-	-
	mV	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	35.3	#	-	-
	mV	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	76.4	#	-	-
	mV	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	289.0	#	-	-
	mV	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	92.5	#	-	-
	mV	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	169.4	#	-	-
	mV	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	147.3	#	-	-
	mV	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	327.6	#	-	-
	mV	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	403.5	#	-	-
	mV	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	120.9	#	-	-
	mV	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	38.6	#	-	-
	mV	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	565.2	#	-	-
	mV	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	101.8	#	-	-
	mV	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	556.7	#	-	-
	mV	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	100.7	#	-	-
pH	s.u.	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	8.64	#	-	-
	s.u.	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	7.87	#	-	-
	s.u.	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	8.71	#	-	-
	s.u.	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	7.94	#	-	-
	s.u.	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	7.90	#	-	-
	s.u.	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.61	#	-	-
	s.u.	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.67	#	-	-
	s.u.	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	7.96	#	-	-
	s.u.	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	7.98	#	-	-
	s.u.	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.63	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.67	#	-	-
	s.u.	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	8.03	#	-	-
	s.u.	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	8.01	#	-	-
	s.u.	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.69	#	-	-
	s.u.	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.69	#	-	-
	s.u.	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	7.86	#	-	-
	s.u.	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	7.91	#	-	-
	s.u.	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.70	#	-	-
	s.u.	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.69	#	-	-
	s.u.	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	7.96	#	-	-
	s.u.	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	7.92	#	-	-
	s.u.	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	7.51	#	-	-
	s.u.	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.47	#	-	-
	s.u.	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	7.79	#	-	-
	s.u.	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	7.95	#	-	-
	s.u.	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.64	#	-	-
	s.u.	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.67	#	-	-
	s.u.	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	7.96	#	-	-
	s.u.	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	7.99	#	-	-
	s.u.	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	8.67	#	-	-
	s.u.	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	8.00	#	-	-
	s.u.	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	8.70	#	-	-
	s.u.	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	7.74	#	-	-
Radium-226	pCi/L	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.825	#	0.17	± 0.34
	pCi/L	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.635	#	0.18	± 0.29
	pCi/L	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.531	J #	0.18	± 0.26

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Radium-226	pCi/L	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.06		#	0.19 ± 0.40
	pCi/L	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.667		#	0.17 ± 0.29
	pCi/L	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	1.05		#	0.19 ± 0.40
	pCi/L	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.65		#	0.17 ± 0.29
	pCi/L	0818	DS, HDRT	03/11/2014	N003	0.00 - 0.00	0.573		#	0.18 ± 0.27
	pCi/L	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.33		#	0.17 ± 0.47
	pCi/L	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.14		#	0.17 ± 0.42
	pCi/L	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.7		#	0.19 ± 0.31
	pCi/L	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.587	J	#	0.2 ± 0.28
	pCi/L	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.772		#	0.19 ± 0.32
	pCi/L	0819	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.01		#	0.17 ± 0.38
	pCi/L	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	1.71		#	0.18 ± 0.57
	pCi/L	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.804		#	0.17 ± 0.33
	pCi/L	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.616		#	0.19 ± 0.29
	pCi/L	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.692		#	0.17 ± 0.30
	pCi/L	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.797		#	0.17 ± 0.33
	pCi/L	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.35	J	#	0.17 ± 0.20
	pCi/L	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.643		#	0.18 ± 0.29
	pCi/L	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.41		#	0.18 ± 0.75
	pCi/L	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.11		#	0.18 ± 0.41
	pCi/L	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.599		#	0.19 ± 0.28
	pCi/L	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.619		#	0.16 ± 0.28
	pCi/L	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.04		#	0.18 ± 0.39
	pCi/L	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.22		#	0.17 ± 0.44
	pCi/L	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.635		#	0.19 ± 0.29
	pCi/L	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.45	J	#	0.19 ± 0.24

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Radium-226	pCi/L	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.09		#	0.18 ± 0.41
	pCi/L	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.812		#	0.19 ± 0.34
	pCi/L	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.424	J	#	0.17 ± 0.23
	pCi/L	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.09		#	0.18 ± 0.41
	pCi/L	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.678		#	0.18 ± 0.29
	pCi/L	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.11		#	0.19 ± 0.42
Radium-228	pCi/L	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.58	U	#	0.58 ± 0.38
	pCi/L	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.92		#	0.43 ± 0.56
	pCi/L	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.639	J	#	0.57 ± 0.40
	pCi/L	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.29		#	0.38 ± 0.41
	pCi/L	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	1.75		#	0.46 ± 0.54
	pCi/L	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.968	J	#	0.64 ± 0.48
	pCi/L	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.56	U	#	0.56 ± 0.36
	pCi/L	0818	DS, HDRT	03/11/2014	N003	0.00 - 0.00	0.718	J	#	0.55 ± 0.40
	pCi/L	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.72		#	0.39 ± 0.51
	pCi/L	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.26		#	0.33 ± 0.61
	pCi/L	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.682	J	#	0.51 ± 0.37
	pCi/L	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.663	J	#	0.52 ± 0.38
	pCi/L	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.37		#	0.37 ± 0.64
	pCi/L	0819	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.31		#	0.33 ± 0.62
	pCi/L	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	2.4		#	0.36 ± 0.65
	pCi/L	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.52	U	#	0.52 ± 0.35
	pCi/L	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.612	J	#	0.52 ± 0.37
	pCi/L	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2		#	0.35 ± 0.56
	pCi/L	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.17		#	0.39 ± 0.60
	pCi/L	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.67	J	#	0.51 ± 0.37

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Radium-228	pCi/L	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	1	J #	0.49	± 0.41
	pCi/L	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	3.04	#	0.38	± 0.79
	pCi/L	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.98	#	0.38	± 0.56
	pCi/L	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.50	U #	0.5	± 0.33
	pCi/L	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.55	U #	0.55	± 0.37
	pCi/L	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.85	#	0.38	± 0.75
	pCi/L	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.17	#	0.37	± 0.60
	pCi/L	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.575	J #	0.49	± 0.35
	pCi/L	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.649	J #	0.53	± 0.38
	pCi/L	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.6	#	0.38	± 0.69
	pCi/L	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.25	#	0.39	± 0.62
	pCi/L	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.65	U #	0.65	± 0.41
	pCi/L	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.01	#	0.36	± 0.56
	pCi/L	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.581	U #	0.57	± 0.39
	pCi/L	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	2.05	#	0.32	± 0.56
Specific Conductance	umhos/cm	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	747	#	-	-
	umhos/cm	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	387	#	-	-
	umhos/cm	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	664	#	-	-
	umhos/cm	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	363	#	-	-
	umhos/cm	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	409	#	-	-
	umhos/cm	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	659	#	-	-
	umhos/cm	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	657	#	-	-
	umhos/cm	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	593	#	-	-
	umhos/cm	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	589	#	-	-
	umhos/cm	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	658	#	-	-
	umhos/cm	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	650	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	589	#	-	-
	umhos/cm	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	587	#	-	-
	umhos/cm	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	653	#	-	-
	umhos/cm	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	654	#	-	-
	umhos/cm	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	441	#	-	-
	umhos/cm	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	437	#	-	-
	umhos/cm	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	660	#	-	-
	umhos/cm	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	654	#	-	-
	umhos/cm	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	508	#	-	-
	umhos/cm	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	467	#	-	-
	umhos/cm	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	720	#	-	-
	umhos/cm	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	679	#	-	-
	umhos/cm	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	620	#	-	-
	umhos/cm	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	605	#	-	-
	umhos/cm	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	661	#	-	-
	umhos/cm	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	655	#	-	-
	umhos/cm	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	593	#	-	-
	umhos/cm	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	589	#	-	-
	umhos/cm	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	655	#	-	-
	umhos/cm	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	339	#	-	-
	umhos/cm	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	661	#	-	-
	umhos/cm	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	452	#	-	-
Temperature	C	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	5.66	#	-	-
	C	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	16.31	#	-	-
	C	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	5.96	#	-	-
	C	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	15.77	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Temperature	C	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	14.27	#	-	-
	C	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	4.93	#	-	-
	C	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	7.72	#	-	-
	C	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	16.86	#	-	-
	C	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	16.36	#	-	-
	C	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	4.67	#	-	-
	C	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	7.41	#	-	-
	C	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	16.33	#	-	-
	C	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	15.54	#	-	-
	C	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	7.82	#	-	-
	C	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	7.38	#	-	-
	C	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	16.35	#	-	-
	C	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	15.90	#	-	-
	C	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	5.39	#	-	-
	C	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	6.22	#	-	-
	C	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	15.49	#	-	-
	C	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	16.74	#	-	-
	C	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	5.28	#	-	-
	C	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.13	#	-	-
	C	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	16.32	#	-	-
	C	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	15.91	#	-	-
	C	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	6.61	#	-	-
	C	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	8.88	#	-	-
	C	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	15.62	#	-	-
	C	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	16.15	#	-	-
	C	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	6.55	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Temperature	C	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	16.17	#	-	-
	C	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	6.57	#	-	-
	C	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	15.14	#	-	-
Turbidity	NTU	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.79	#	-	-
	NTU	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.80	#	-	-
	NTU	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	1.69	#	-	-
	NTU	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.60	#	-	-
	NTU	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.54	#	-	-
	NTU	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	2.03	#	-	-
	NTU	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	1.19	#	-	-
	NTU	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.39	#	-	-
	NTU	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	2.19	#	-	-
	NTU	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	2.76	#	-	-
	NTU	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	1.73	#	-	-
	NTU	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	2.03	#	-	-
	NTU	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	2.03	#	-	-
	NTU	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.73	#	-	-
	NTU	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.79	#	-	-
	NTU	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.75	#	-	-
	NTU	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.67	#	-	-
	NTU	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	1.27	#	-	-
	NTU	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.75	#	-	-
	NTU	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	3.11	#	-	-
	NTU	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.75	#	-	-
	NTU	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	2.67	#	-	-
	NTU	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	1.69	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site

REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	5.76	#	-	-
	NTU	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.58	#	-	-
	NTU	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	2.19	#	-	-
	NTU	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	1.32	#	-	-
	NTU	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	1.87	#	-	-
	NTU	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	1.22	#	-	-
	NTU	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.76	#	-	-
	NTU	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.62	#	-	-
	NTU	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	1.53	#	-	-
	NTU	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.78	#	-	-
Uranium	mg/L	0813	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.00011	J #	2.9E-05	-
	mg/L	0813	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.00005 B	#	2.9E-05	-
	mg/L	0815	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.0001	J #	2.9E-05	-
	mg/L	0815	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0816	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0818	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.0001	J #	2.9E-05	-
	mg/L	0818	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.00008 B	J #	2.9E-05	-
	mg/L	0818	DS, HDRT	03/11/2014	N003	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0818	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0818	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0819	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.00011	J #	2.9E-05	-
	mg/L	0819	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0819	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00003 B	#	2.9E-05	-
	mg/L	0819	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00073	#	2.9E-05	-
	mg/L	0819	DS, HDRT	09/09/2014	N003	0.00 - 0.00	0.00005 B	#	2.9E-05	-
	mg/L	0820	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.00008 B	J #	2.9E-05	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0820	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.0001	J #	2.9E-05	-
	mg/L	0820	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0820	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00003 B	#	2.9E-05	-
	mg/L	0821	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0821	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0821	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00006 B	#	2.9E-05	-
	mg/L	0821	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0829	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0829	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0829	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00005 B	#	2.9E-05	-
	mg/L	0829	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0830	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.0001	J #	2.9E-05	-
	mg/L	0830	DS, HDRT	03/11/2014	N002	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0830	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-
	mg/L	0830	DS, HDRT	09/09/2014	N002	0.00 - 0.00	0.00005 B	#	2.9E-05	-
	mg/L	0834	DS, HDRT	03/11/2014	N001	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0834	DS, HDRT	09/09/2014	N001	0.00 - 0.00	0.00003 B	#	2.9E-05	-
	mg/L	0837	DS, TAP	03/11/2014	N001	0.00 - 0.00	0.00009 B	J #	2.9E-05	-
	mg/L	0837	DS, TAP	09/09/2014	N001	0.00 - 0.00	0.00004 B	#	2.9E-05	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE RVT01, Riverton Processing Site
 REPORT DATE: 1/15/2015 4:01 pm

PARAMETER	UNITS	LOCATION CODE	LOC TYPE, SUBTYPE	SAMPLE: DATE ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
RECORDS: SELECTED FROM USEE200 WHERE site_code='RVT01' AND location_code in('0813','0815','0816','0818','0819','0820','0821','0829','0830','0834','0837') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND cas in('ALKALINITY','CL','07782-44-7','ORP','PH','RA-226','RA-228','EC','TMP','TURBIDITY','07440-61-1') AND DATE_SAMPLED between #1/1/2014# and #12/31/2014#									

SAMPLE ID CODES: 000X = Filtered sample. N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: DS DOMESTIC SUPPLY

LOCATION SUBTYPES: HDRT Hydrant TAP Tap in Domestic Supply Syste

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
- 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 Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

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 Presumptive evidence that analyte is present. The analyte is "tentatively identified". | Q Qualitative result due to sampling technique |
| R Unusable result. | U Parameter analyzed for but was not detected. | X Location is undefined. |

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

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