LMS/GUP/S13073

2015 Verification Monitoring Report for the Gunnison, Colorado, Processing Site

June 2016

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Abbreviations

CDPHE	Colorado Department of Public Health and Environment
CFR	*Code of Federal Regulations*
COPC	contaminant of potential concern
CSM	conceptual site model
DOE	U.S. Department of Energy
DWEL	Drinking Water Equivalent Level
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
ft msl	feet above mean sea level
GCAP	Groundwater Compliance Action Plan
IC	institutional control
LM	Office of Legacy Management
MCL	maximum concentration limit
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
NRC	U.S. Nuclear Regulatory Commission
RRM	residual radioactive material
SOWP	Site Observational Work Plan
VMR	Verification Monitoring Report

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1.0 Overview

The Gunnison, Colorado, Processing Site (Gunnison site) is located in Gunnison County, Colorado, approximately 0.5 mile southwest of the city of Gunnison (Figure 1). The Gunnison site includes the area inside the institutional control boundary, which includes the former mill site and the area downgradient of the former mill site.

The purpose of this Verification Monitoring Report (VMR) is to provide an annual update of the compliance strategy for groundwater cleanup at the Gunnison site, which is natural flushing in conjunction with continued groundwater and surface water monitoring and institutional controls (ICs). In 2015 the U.S. Nuclear Regulatory Commission (NRC) concurred with the Groundwater Compliance Action Plan (GCAP; DOE 2010a), which documented the selection of the natural flushing compliance strategy. Site characterization details are available in the Final Site Observational Work Plan (SOWP) (DOE 2001).

Uranium and manganese are the two contaminants of potential concern (COPCs) in the alluvial aquifer. Concentrations of uranium in groundwater are assessed against the U.S. Environmental Protection Agency (EPA) Title 40 *Code of Federal Regulations* Part 192 (40 CFR 192) maximum concentration limit (MCL) of 0.044 milligram per liter (mg/L). Because there is no 40 CFR 192 MCL for manganese, the EPA Drinking Water Equivalent Level (DWEL) of 1.6 mg/L is used as a benchmark to assess manganese concentrations in groundwater (EPA 2012). DWELs are not legally enforceable and do not carry any legal authority under the Safe Drinking Water Act. The DWEL is a lifetime-exposure concentration protective of adverse, noncancer health effects that assumes all of the exposure to a contaminant is from drinking water. Uranium remained above the MCL, and manganese remained above the DWEL in monitoring wells at the Gunnison site. Concentrations of COPCs in samples collected from domestic wells, which are used as a drinking water source, and from the Gunnison River showed no indication of site impacts.

Detailed information for the Gunnison site and water quality data through 1999 are available in the SOWP. Site information and water quality data from recent years are available in VMRs (DOE 2007, DOE 2008, DOE 2009, DOE 2010b, DOE 2011, DOE 2012, DOE 2013, DOE 2014) located on the U.S. Department of Energy (DOE) Office of Legacy Management (LM) website at http://www.lm.doe.gov/Gunnison/Processing/Documents.aspx. Water quality data for 2015 are provided in Appendixes A–C of this report. All water quality data for the Gunnison site are archived in the SEEPro (Site Environmental Evaluation for Projects) 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/#.

ICs at the Gunnison site include a quitclaim deed that specifies restrictions on and approvals needed from the Colorado Department of Public Health and Environment (CDPHE) and DOE for excavation, groundwater use, and construction of habitable structures on the former mill site. In 2015 DOE and CDPHE conditionally approved design plans submitted by Gunnison County for a Frito Lay warehouse, following the requirements of the quitclaim deed. In addition, DOE, CDPHE, and Gunnison County have been working cooperatively to develop protocol to streamline the review process, to convey guidance to Gunnison County for planning construction activities at the former mill site, and to clarify the procedures for CDPHE and LM for reviewing proposed construction activities.

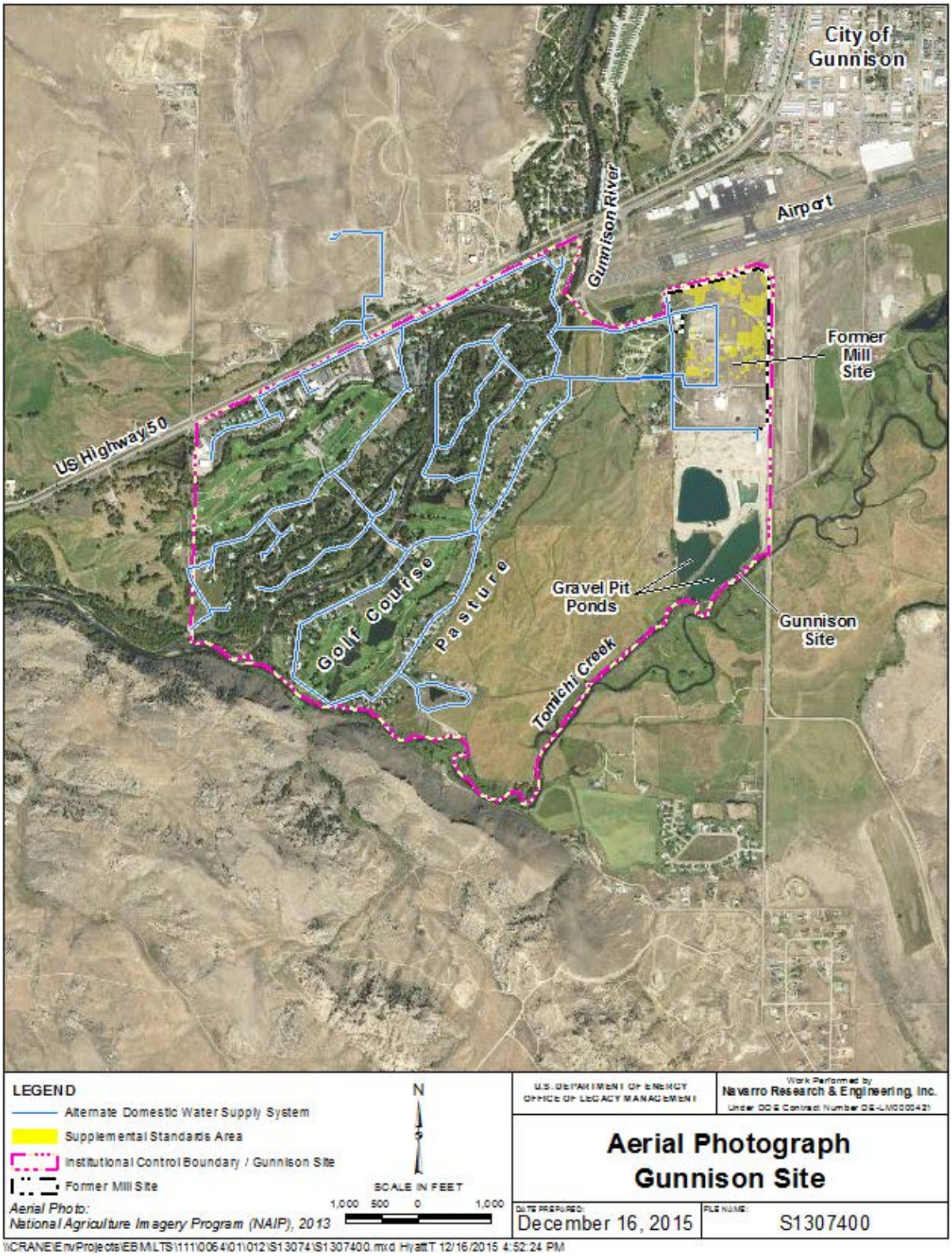

Figure 1. Aerial Photograph of the Gunnison Site

Groundwater modeling predicts that natural flushing of the alluvial aquifer beneath and downgradient of the site will be completed within the 100-year time frame specified in Subpart B of 40 CFR 192. Although there is evidence of natural flushing processes occurring in the alluvial aquifer, natural flushing of the alluvial aquifer is not likely to be completed within 100 years. Accordingly, DOE is currently assessing alternative compliance strategies for the Gunnison site.

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2.0 Site Conditions

2.1 Surface Remediation Activities

Uranium mill tailings and other residual radioactive material (RRM) were removed from the former mill site from 1992 through 1995 and stabilized in a disposal cell 6 miles east of the city of Gunnison. RRM beneath the site was cleaned up to just below the water table, with some contaminated material left in place, requiring the application of supplemental standards for thorium-230. The site was backfilled with clean fill and revegetated after RRM removal. An investigation of subpile soils was conducted during field activities associated with the SOWP. Results indicated that uranium contamination remained in soils beneath the remediated tailings pile with uranium concentrations up to 86.2 milligrams per kilogram (mg/kg); background concentrations were 0.020 and 0.023 mg/kg. Column experiments on the subpile soils suggest that uranium in these soils is contributing to groundwater contamination (DOE 2001).

2.2 Conceptual Site Model

The conceptual site model (CSM) of the Gunnison site was developed primarily through field investigations and groundwater modeling conducted from 1999 to 2001. The CSM was documented in the SOWP and is summarized in this section (DOE 2001).

Groundwater occurs in unconfined conditions in the alluvial aquifer beneath the Gunnison site. Depth to groundwater ranges from 2 to 11 feet (ft), and groundwater elevations generally peak in the spring and summer months and may fluctuate more than 10 ft over the course of a year. The alluvium is composed of poorly sorted sediments ranging from clay-sized material to gravel, with cobbles and a few boulders. It ranges in thickness from 70 to 130 ft. Alluvial groundwater generally flows to the southwest with an average gradient of 0.005 ft/ft. Hydraulic conductivity ranges from 100 to 170 ft/day. On the basis of the gradient and an estimated effective porosity of 0.27, the average linear groundwater velocity ranges from 1.9 to 3.2 ft/day.

Groundwater in the alluvial aquifer system is recharged by groundwater underflow, adjacent streams, precipitation, flood irrigation of the pasture downgradient of the site, and irrigation of the golf course and residential areas southwest of the site. Groundwater loss is through evapotranspiration and natural discharge to adjacent streams. Groundwater loss is also through dewatering activities at the adjacent sand-and-gravel company located south of the former mill site.

Groundwater in the alluvial aquifer beneath the former mill site was contaminated by uranium-ore processing activities, and natural groundwater flow caused contamination to migrate downgradient through the alluvial aquifer. A variety of tailings-related contaminants in the subsurface and groundwater at the site were evaluated following the cessation of uranium-ore processing, and the potential risks to human health and the environment were assessed in the SOWP. Only uranium and manganese were identified as COPCs because uranium exceeded a groundwater standard and manganese exceeded a risk-based benchmark.

Vertical gradients in the alluvial aquifer are generally downward and are caused by flood irrigation of the pasture just southwest of the former mill site. The vertical gradient causes uranium to migrate downward through the alluvial aquifer as it progresses downgradient.

Concentrations of uranium above background but below the MCL are found approximately 7,000 ft downgradient of the former mill site, indicating that uranium has migrated beneath the Gunnison River.

The Gunnison River and Tomichi Creek influence the alluvial aquifer. There is good correlation between groundwater elevations and Gunnison River and Tomichi Creek stream flows. As a general rule, wells located adjacent to the Gunnison River respond more quickly to river stage than those farther away (DOE 2001). Pits that remain from gravel-mining operations adjacent to the former mill site fill with groundwater, leaving behind gravel-pit ponds.

A groundwater flow and transport model was developed to evaluate if natural flushing processes would reduce uranium concentrations to below the MCL within 100 years (DOE 2001). Since uranium is the primary indicator of site-related contamination, it was used as the contaminant in the transport model. Two versions of the groundwater model were developed: an initial steady-state flow and transport model was used as the basis for a stochastic version of the model, which was used to quantify the uncertainty in flow and transport parameters. A multilayer model was used for both groundwater models—layers corresponded approximately to the zones defined by the shallow, intermediate, and deep monitoring wells. Residual source from subpile soil contamination was simulated in the groundwater models using a recharge concentration from a recharge zone. Sensitivity analysis of the model indicated that the distribution coefficient was the most sensitive parameter and that pumping and dewatering activities from gravel-mining operations had little effect on the maximum uranium concentration remaining after 100 years. The distribution coefficient used in the Gunnison groundwater models was derived from laboratory testing of samples from the alluvial aquifer. The steady-state model predicted that the maximum uranium concentration in the alluvial aquifer would decrease to below the MCL within the 100-year time frame; the stochastic model also predicted the maximum uranium concentration would be below the MCL but that there is a moderate probability (41 percent) that the maximum concentration will be greater than the MCL over a small portion (approximately 40 acres) of the alluvial aquifer after 100 years.

2.3 Institutional Controls

ICs in effect in the vicinity of the Gunnison site were finalized in 2004. They consist of government ownership and deed restrictions on the original mill site property (specified in a quitclaim deed transferring the property from the State of Colorado to Gunnison County), a Gunnison County Resolution (Gunnison County 2004) establishing the New Domestic Well Constraint Area, and construction of a domestic water supply system. The quitclaim deed specifies restrictions on and approvals needed from CDPHE and DOE for excavation, groundwater use, and construction of habitable structures. If part or all of the mill site property is transferred to another owner, the deed restrictions will remain in effect. It is expected that the site will continue to be developed as a light industrial park by the owner, Gunnison County. Representatives from DOE, CDPHE, and Gunnison County have discussed the need to keep any disturbance of supplemental standards areas, due to excavation and construction, minimized to the maximum extent practicable. In calendar year 2015, DOE and CDPHE conditionally approved design plans submitted by Gunnison County for a Frito Lay warehouse, following the requirements of the quitclaim deed.

In 2015, DOE conducted activities to streamline the process of approving future construction projects on the former mill site as Gunnison County continues to develop the site as a light industrial park. An updated base map of the site was produced by overlaying the supplemental standards areas on an aerial survey that was conducted in 2014 (Figure 2). The new base map will facilitate timely and accurate assessment of impacts to supplemental standards areas when new construction drawings are overlain on the base map. In addition, DOE, CDPHE, and Gunnison County have been working cooperatively to develop protocol to streamline the review process, to convey guidance to Gunnison County for planning construction activities at the former mill site, and to clarify the procedures for CDPHE and LM for reviewing proposed construction activities.

A Gunnison County resolution established the New Domestic Well Constraint Area, which is delineated by the IC boundary (Figure 1). The Gunnison County resolution specifies that no new domestic wells can be constructed within the constraint area. A domestic water supply system was installed in 1994 to provide safe water to local residents in areas potentially impacted by contaminated groundwater. In 2004, DOE entered into a cooperative agreement with Gunnison County, approved by NRC (DOE 2004), in which DOE (along with CDPHE) agreed to fund extensions of the domestic water supply system to accommodate projected future growth within the IC boundary (Figure 1). A major extension was constructed in 2005 and 2006.

Smaller extensions were constructed in 2008 to supply water to the former mill site and several parcels of land south and west of the former mill site. Most domestic wells that are used as a drinking water source within the IC boundary (where the residence is not connected to the water system) are monitored to verify that concentrations of uranium and manganese remain low and below the MCL and DWEL, respectively. One domestic well is not monitored because the owner has not granted permission to sample.

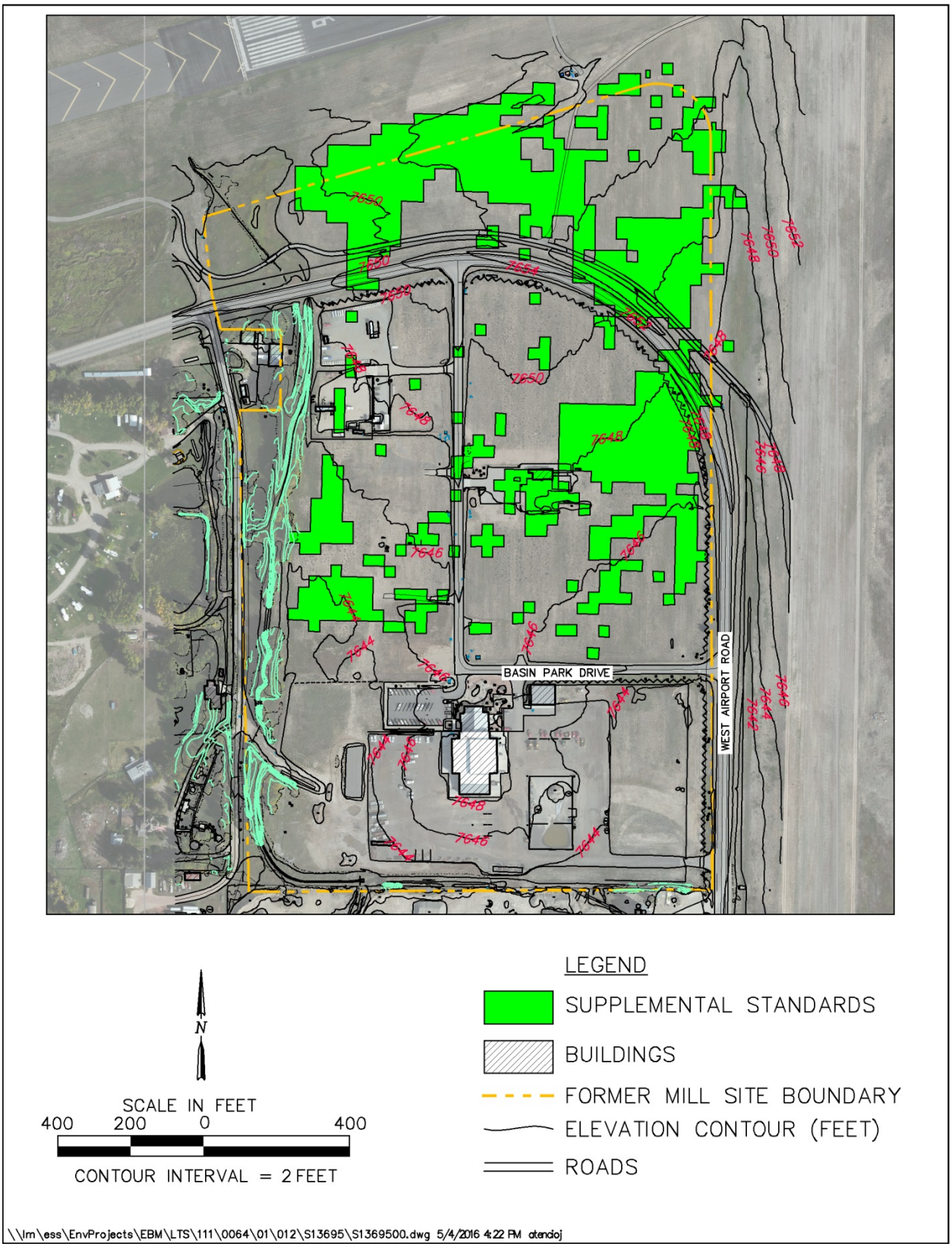

Figure 2. Updated Base Map of the Former Gunnison Mill Site Area

3.0 Monitoring Program

NRC concurred with the GCAP (DOE 2010a) in 2015, which specifies the natural flushing compliance strategy, the current monitoring program, and the requirement for this VMR. However, DOE is currently working on a revised GCAP to present a new compliance strategy based on alternate concentration limits. The current monitoring program will continue until NRC concurs with the new compliance strategy and DOE receives approval of the revised GCAP.

During 2015, the monitoring network included sampling of 28 DOE monitoring wells, 6 surface water locations, and 5 domestic wells (Figure 3 and Table 1). Two of those domestic wells (0476 and 0477) were not sampled during the April sampling event because the homeowners could not be contacted. These wells were subsequently sampled in July after contact was made with the homeowners. Samples collected from all monitoring locations were analyzed for uranium and manganese. Field measurements of oxidation–reduction potential, pH, specific conductance, temperature, and turbidity were made at each location.

Maintenance work was conducted at monitoring wells 0135 and 0136, which are located in a low area that often holds ponded water. Road-base material was placed around the wells to stabilize the protective casing and to provide a dry area for sampling equipment.

Table 1. Groundwater and Surface Water Monitoring at the Gunnison Site

Monitoring Well[a]	Screened Interval (ft)	Rationale (Uranium)
Groundwater		
0002	10–15	Upgradient—background
0102	42–47	Upgradient—background
0005	10–15	Origin of plume
0105	42–47	Origin of plume
0006	10–15	Origin of plume
0106	34–39	Origin of plume
0012R	6–16	Origin of plume
0112	40–45	Monitor plume migration
0013	11–16	Monitor plume migration
0113	41–46	Monitor plume migration
0125	18–23	Monitor plume migration
0126	54–59	Monitor plume migration
0127	94–99	Monitor plume migration
0135	18–23	Monitor plume migration
0136	53–58	Monitor plume migration
0064	87–97	Monitor plume migration
0062	48–58	Monitor plume migration
0063	88–98	Monitor plume migration
0181	18–23	Monitor plume migration
0183	93–98	Monitor plume migration
0065	50–60	Monitor plume migration
0066	40–50	Monitor plume migration
0186	53–58	Monitor plume migration
0187	93–98	Monitor plume migration
0188	53–58	Monitor plume migration
0189	93–98	Monitor plume migration
0160	51–56	Adjacent to IC boundary
0161	93–98	Adjacent to IC boundary
Surface Water		
0248	NA	Downstream of gravel-pit pond
0250	NA	Potential aquifer discharge
0251	NA	Upstream of IC boundary—background
0777	NA	Potential aquifer discharge
0780	NA	Gravel pit—aquifer discharge to pond
0795	NA	Potential aquifer discharge
Domestic Wells		
0476	NA	Verify low COPC concentrations
0477	NA	Verify low COPC concentrations
0478	NA	Verify low COPC concentrations
0667	NA	Verify low COPC concentrations
0683	NA	Verify low COPC concentrations

Notes:
[a] Monitoring wells listed in the same table cell are co-located.

Abbreviations:
NA = not applicable

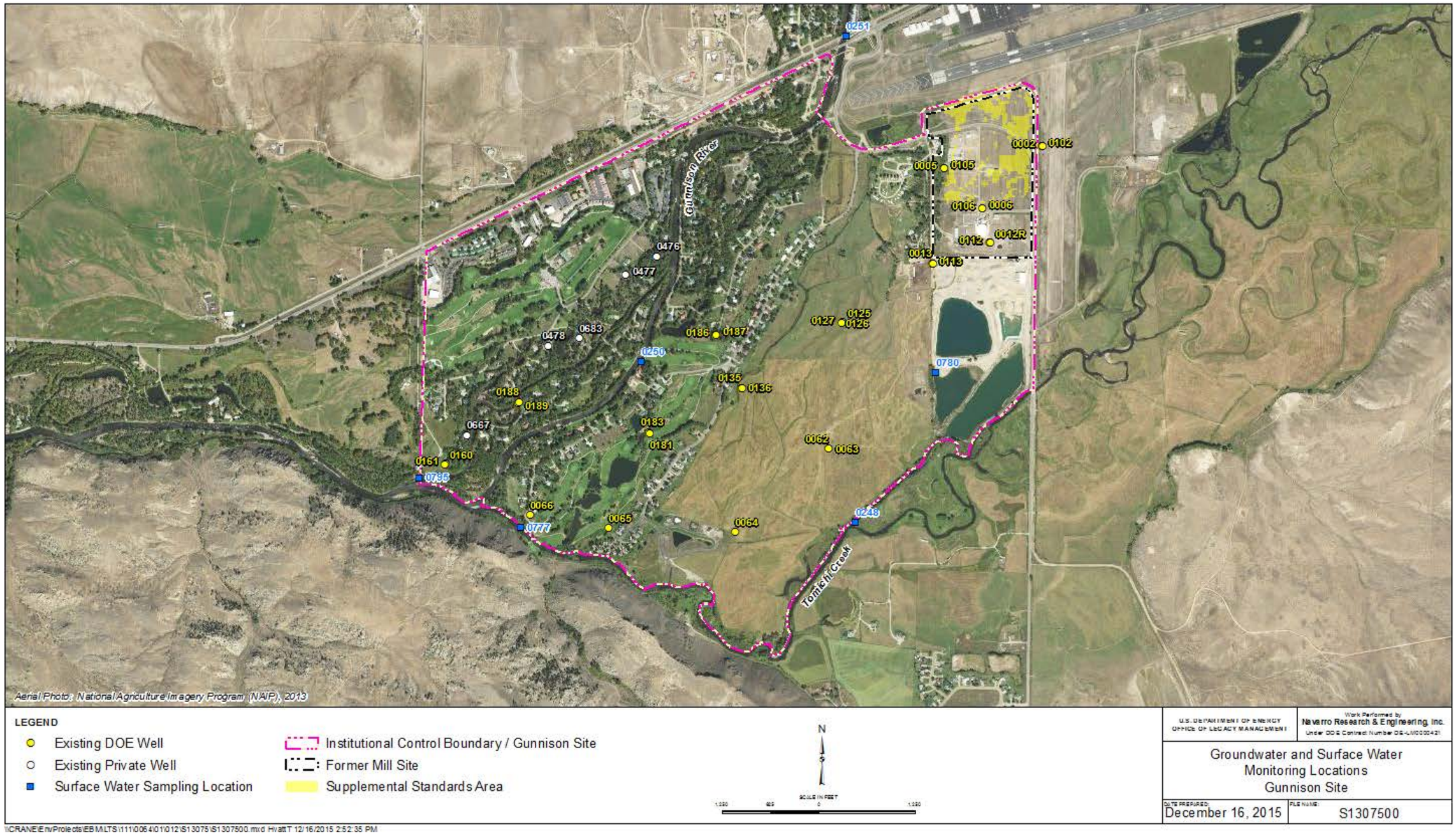

Figure 3. Groundwater and Surface Water Monitoring Locations at the Gunnison Site

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4.0 Results of 2015 Monitoring

4.1 Groundwater

4.1.1 Groundwater Flow

Water levels were measured at all wells (except domestic wells) in the monitoring network (Figure 3) in April to verify groundwater flow direction and to assess vertical gradients at the Gunnison site. Water level data are included in Appendix D.

Assessment of the horizontal groundwater flow direction in the alluvial aquifer is necessary to confirm that flow direction is consistent with historical flow direction. The current monitoring network and IC boundary are adequate for assessing contaminant plume movement. As shown in Figure 4, groundwater elevation contours for the alluvial aquifer indicated a general flow direction to the southwest, which is consistent with the CSM.

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. Vertical gradients are calculated from monitoring wells screened in an upper zone of the alluvial aquifer and lower zone of the alluvial aquifer using the following formula: (GE1 − GE2)/(SE1 − SE2), where GE = groundwater elevation in the upper zone (GE1) and lower zone (GE2), and SE = screen elevation at the midpoint of the screen. Table 2 shows vertical gradients calculated from grouped monitoring wells. Even though groundwater levels were measured prior to the irrigation season, numerous downward gradients were observed.

4.1.2 Groundwater Quality

Analytical data for uranium and manganese, along with field measurements from DOE monitoring wells, domestic wells, and surface water for 2015, are provided in Appendixes A–C. The horizontal distributions of uranium and manganese in groundwater in the alluvial aquifer, based on the 2015 sampling event, are shown in Figure 5 and Figure 6, respectively. The distributions are displayed in these figures by using the monitoring well with the highest concentration in areas where several monitoring wells are clustered together. Time–concentration plots for uranium and manganese in DOE monitoring wells, domestic wells, and surface water from 1997 (post-remedial action) through 2015 are presented in Figure 7 through Figure 18 at the end of this section.

Uranium is the primary COPC in groundwater. Historical concentrations ranged up to 1.5 mg/L beneath the former mill site, which is the main area of groundwater contamination in the shallow groundwater. Currently, uranium concentrations exceed the MCL of 0.044 mg/L for groundwater in several monitoring wells on and adjacent to the former mill site and in one monitoring well (0183) more than 4,000 ft downgradient of the site boundary. Concentrations of uranium that are less than the MCL but above background extend approximately 7,000 ft downgradient of the former mill site in monitoring wells 0160 and 0161. Uranium concentrations in these well also exhibit upward trends (Table 4 in Section 5.0), indicating that site-related uranium contamination has migrated beneath the Gunnison River just beyond the confluence with Tomichi Creek.

Table 2. Vertical Gradients at the Gunnison Site

Well ID	Zone	Groundwater Elevation (ft msl)	Screen Midpoint Elevation (ft msl)	Vertical Gradient[a]
0002	Shallow	7641.29	7634.43	0.0057
0102	Intermediate	7641.11	7602.75	
0005	Shallow	7638.41	7631.9	0.0188
0105	Intermediate	7637.81	7600.06	
0006	Shallow	7636.05	7632.6	0.0054
0106	Intermediate	7635.92	7608.68	
0012R	Shallow	7634.33	7632.335	0.0307
0112	Intermediate	7633.36	7600.71	
0013	Shallow	7631.67	7628.2	0.0003
0113	Intermediate	7631.66	7598.41	
0062	Intermediate	7623.9	7575.3	0.0339
0063	Deep	7622.55	7535.47	
0125	Shallow	7626.86	7611.05	−0.0218[b]
0126	Intermediate	7627.65	7574.86	0.0340[c]
0127	Deep	7626.29	7534.84	0.0075[d]
0135	Shallow	7622.54	7603.1	−0.0003
0136	Intermediate	7622.55	7567.86	
0160	Intermediate	7599.19	7550.24	0.0059
0161	Deep	7598.94	7508.14	
0181	Shallow	7614.23	7596.36	0.0271
0183	Deep	7612.19	7521.16	
0186	Intermediate	7621.62	7569.84	0.0233
0187	Deep	7620.69	7529.9	
0188	Intermediate	7607.87	7556.11	0.0143
0189	Deep	7607.3	7516.38	

Notes:
[a] A negative value indicates an upward vertical gradient, and a positive value indicates a downward vertical gradient.
[b] Vertical gradient between the shallow and intermediate zone wells.
[c] Vertical gradient between the intermediate and deep zone wells.
[d] Vertical gradient between the shallow and deep zone wells.

Abbreviations: ft msl = feet above mean sea level

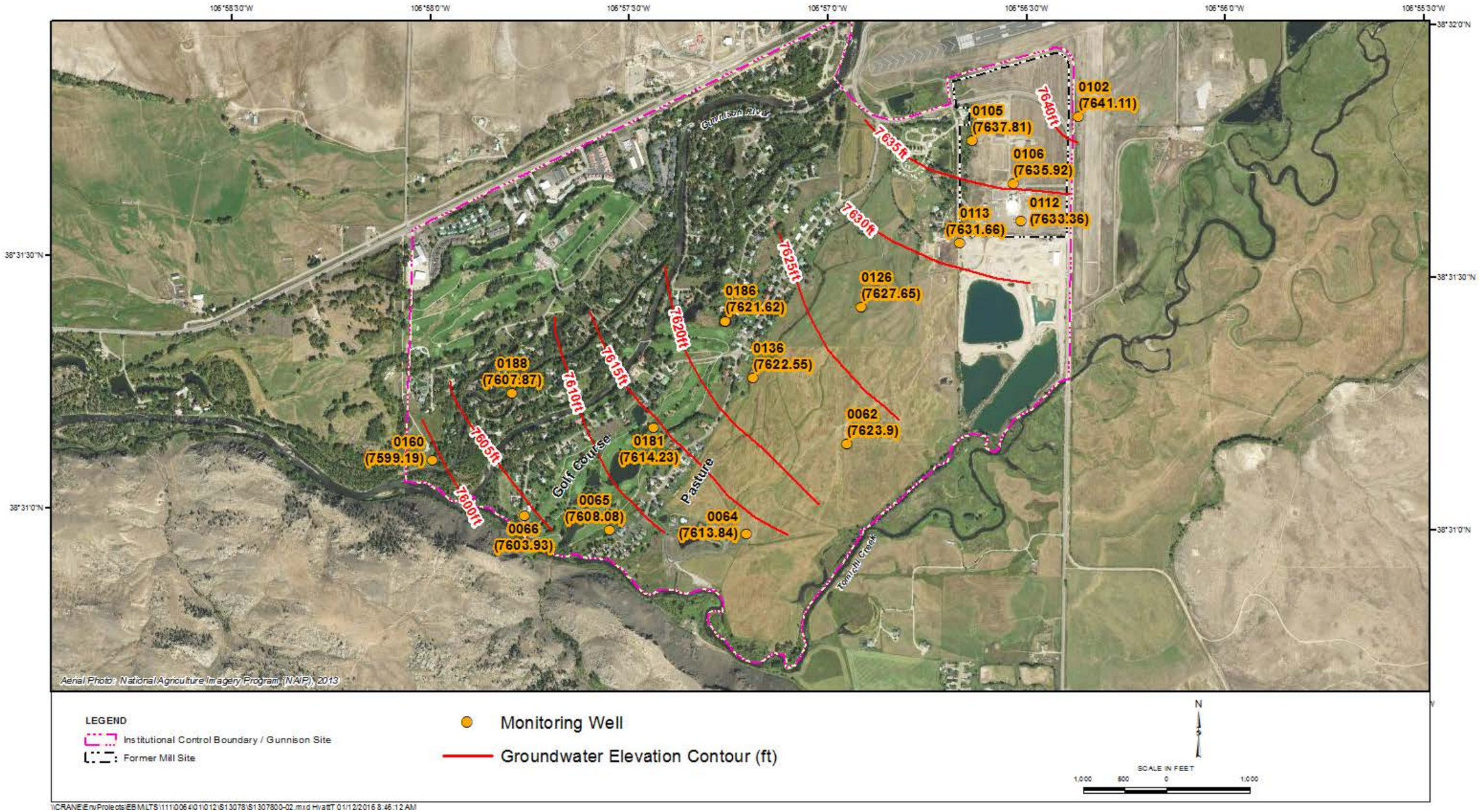

Figure 4. Groundwater Elevations in the Surficial Aquifer

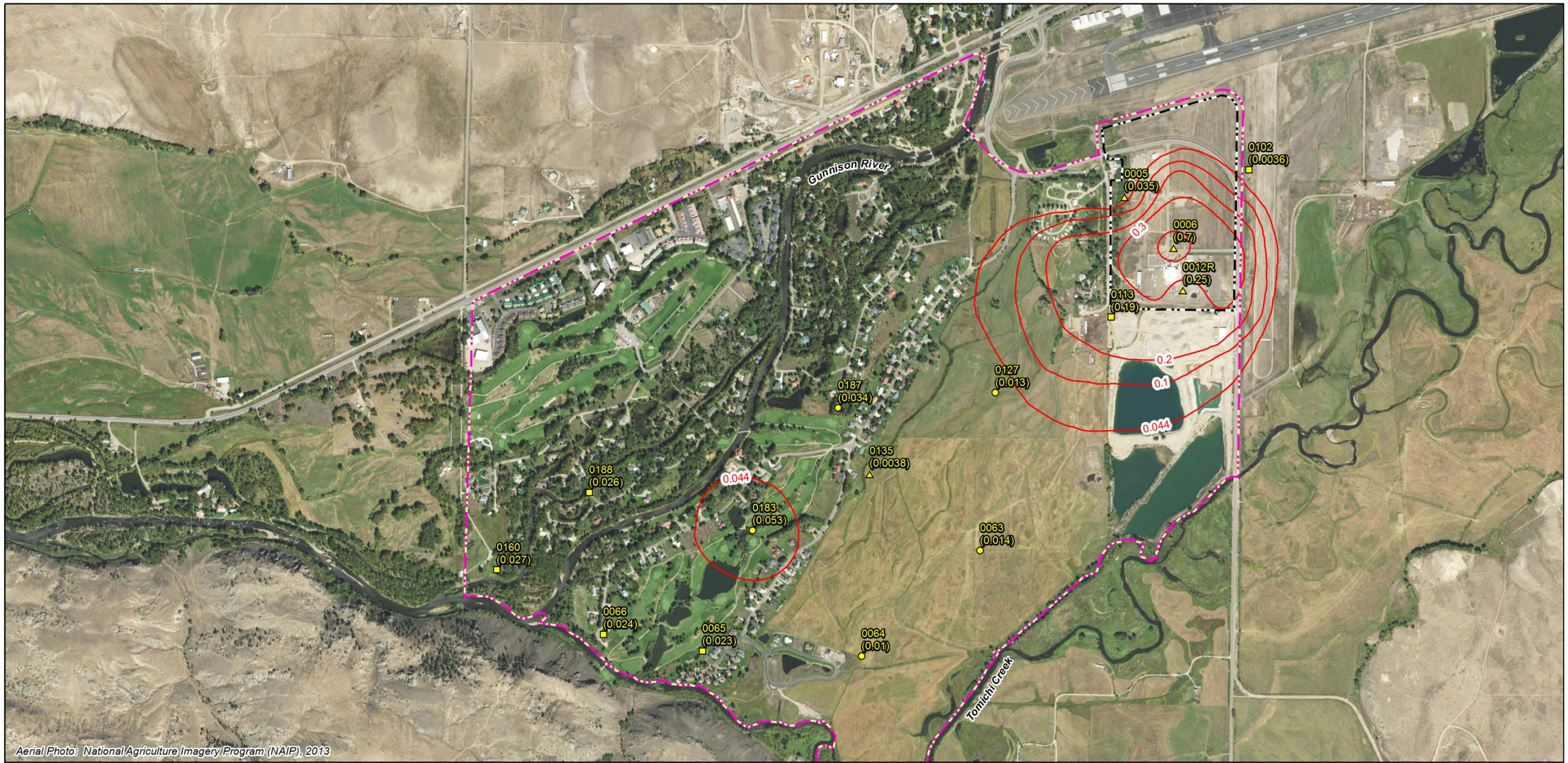

Figure 5. Horizontal Distribution of Uranium from April 2015 Sampling at the Gunnison Site

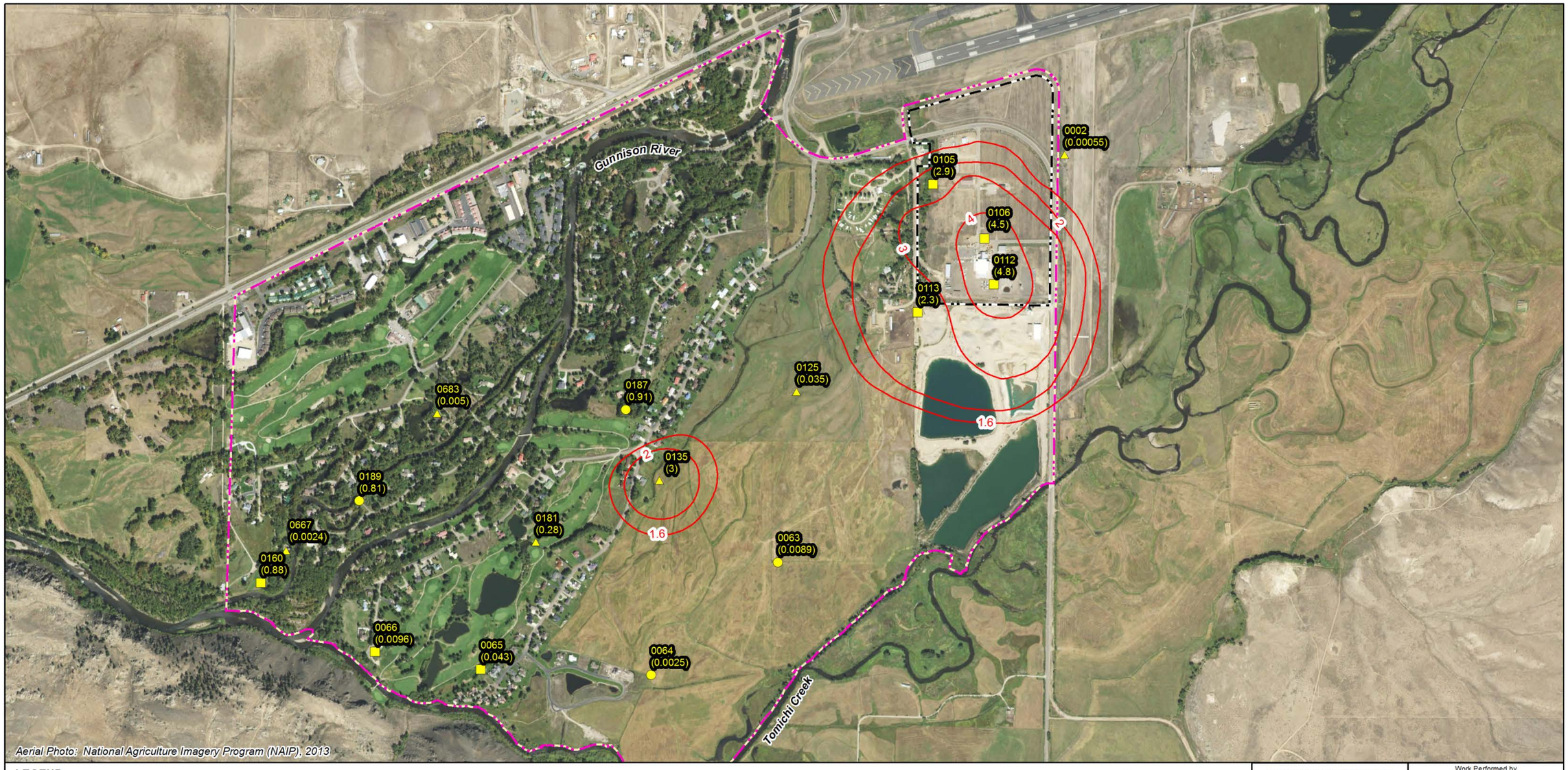

Figure 6. Horizontal Distribution of Manganese from April 2015 Sampling at the Gunnison Site

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Manganese is also a COPC in groundwater, with historical concentrations that measured up to 77 mg/L beneath the site. In 2015, concentrations of manganese remain above the DWEL in the intermediate-zone monitoring wells on the site (0105, 0106, and 0112) and in downgradient monitoring wells 0113, 0135, and 0136. Manganese does not appear to be widespread farther downgradient in the alluvial aquifer (Figure 6).

Though not separated lithologically, the alluvial aquifer (up to 130 ft thick) was divided into three approximate depth zones to develop the CSM, to construct the groundwater models, and to facilitate monitoring (wells are screened to monitor these zones separately). These zones include (1) a shallow zone from 6 to 23 ft, (2) an intermediate zone from 34 to 60 ft, and (3) a deep zone from 87 to 98 ft. Time–concentration plots for uranium and manganese in DOE monitoring wells have been grouped by monitoring wells onsite and in three downgradient sectors (pasture, golf course, and west of the Gunnison River) with the zone indicated in the caption of each figure to show the relationship between distance downgradient of the site and depth in the aquifer.

As shown in the time–concentration graphs and in Table 3, results from the 2015 sampling event indicate that uranium in groundwater is migrating deeper in the alluvial sequence while progressing downgradient from the former mill site, which is consistent with historical data and the CSM. Concentrations of uranium in groundwater in the shallow zone exceeded the MCL of 0.044 mg/L in two of the three wells on the former mill site (Figure 7) and in one well immediately downgradient of the site (0013) (Figure 8). Concentrations exceeded the MCL in one intermediate-zone well on the former mill site (0112) and in one intermediate-zone well (0113) immediately downgradient of the site but did not exceed the MCL in any other intermediate-zone well (Figure 7 and Figure 8). Uranium exceeded the MCL in one deep-zone well (0183) approximately 4,400 ft downgradient of the site (Figure 9). In wells farthest downgradient, uranium concentrations exceeded background levels (upper limit of background range is 0.009 mg/L) but did not exceed the MCL (Figure 10). Table 3 also shows this progression: the highest uranium concentrations on the former mill site are in the shallow-zone wells; the highest uranium concentrations in the pasture sector are in the deep zone; the highest uranium concentrations in the golf course sector are in the deep zone where the MCL is exceeded (monitoring well 0183); and uranium concentrations west of the Gunnison River are above background, indicating uranium migration.

4.2 Domestic Wells

DOE, in conjunction with CDPHE, has set an action level for uranium (no action level for manganese) in domestic wells at the Gunnison site that, if exceeded, requires DOE notification to CDPHE and additional action to be determined. The area west of the Gunnison River is referred to as the "buffer zone" and has an action level for uranium of 0.02 mg/L for domestic wells located in the buffer zone (DOE 1996). All domestic wells in the monitoring program are located west of the Gunnison River in the buffer zone (Figure 13 and Figure 14). Uranium concentrations in all domestic wells in the monitoring program are below the Safe Drinking Water Act primary drinking water standard of 0.03 mg/L and below DOE's action level of 0.020 mg/L (Figure 15). Concentrations of manganese in the domestic wells are below the DWEL of 1.6 mg/L (Figure 16).

Table 3. Summary of 2015 Uranium Distribution in Groundwater at the Gunnison Site

Area	Zone	Wells	Uranium Concentration[a] (mg/L)
Upgradient	Shallow	0002	0.0026
	Intermediate	0102	0.0036
Onsite and just off the former mill site	Shallow	0005, 0006, 0012R, 0013	0.259
	Intermediate	0105, 0106, 0112, 0113	0.073
Downgradient (pasture)	Shallow	0125, 0135	0.007
	Intermediate	0062, 0126, 0136	0.007
	Deep	0063, 0064, 0127	0.012
Downgradient (golf course)	Shallow	0181	0.008
	Intermediate	0065, 0066, 0186	0.021
	Deep	0183, 0187	0.044
Downgradient (west of Gunnison River)	Intermediate	0160, 0188	0.025
	Deep	0161, 0189	0.018

Notes:
[a] Where more than one well is listed, the concentration is the 2015 mean value.

4.3 Surface Water

Concentrations of uranium in surface water in the Gunnison River during 2015 ranged from 0.0007 to 0.0008 mg/L and were consistent with historical results (Figure 17). Downstream uranium concentrations (locations 0250 and 0795) were within 0.0001 mg/L of the upstream (location 0251) concentrations, indicating that discharge of alluvial groundwater has no impact on river water quality. The concentration of uranium (0.042 mg/L) in surface water in the gravel-pit pond (0780) continued to be an order of magnitude above background groundwater (0.0026 to 0.0036 mg/L) and 2 orders of magnitude above Gunnison River surface water. The elevated uranium concentrations in the gravel-pit pond compared to background provides evidence that the gravel-pit pond receives discharge of alluvial groundwater (Figure 17).

Surface water sampling location 0248, located approximately 1,500 ft downstream of the gravel-pit pond discharge point, is on an abandoned portion of Tomichi Creek. In 2006, the private landowner adjacent to the gravel operation rerouted Tomichi Creek downstream of the gravel pond. A diversion structure was installed to divert water to its original meandering channel in order to establish a conservation area. The water in the abandoned channel is typically composed of discharge from the gravel-pit pond, flow through the diversion structure, and groundwater discharge. CDPHE has raised concerns that low flows in the abandoned channel could concentrate uranium by evaporation and groundwater discharge (DOE 2008). In 2015, the concentration of uranium in the sample collected from location 0248 (0.027 mg/L) was elevated compared to background, indicating discharge from the gravel-pit pond. The concentration of uranium in the sample collected farther downstream on Tomichi Creek at location 0777 was lower (0.0034 mg/L) because of dilution as the rerouted creek merges back into a single channel.

Concentrations of manganese in samples collected from all surface water locations were below the DWEL of 1.6 mg/L (Figure 18).

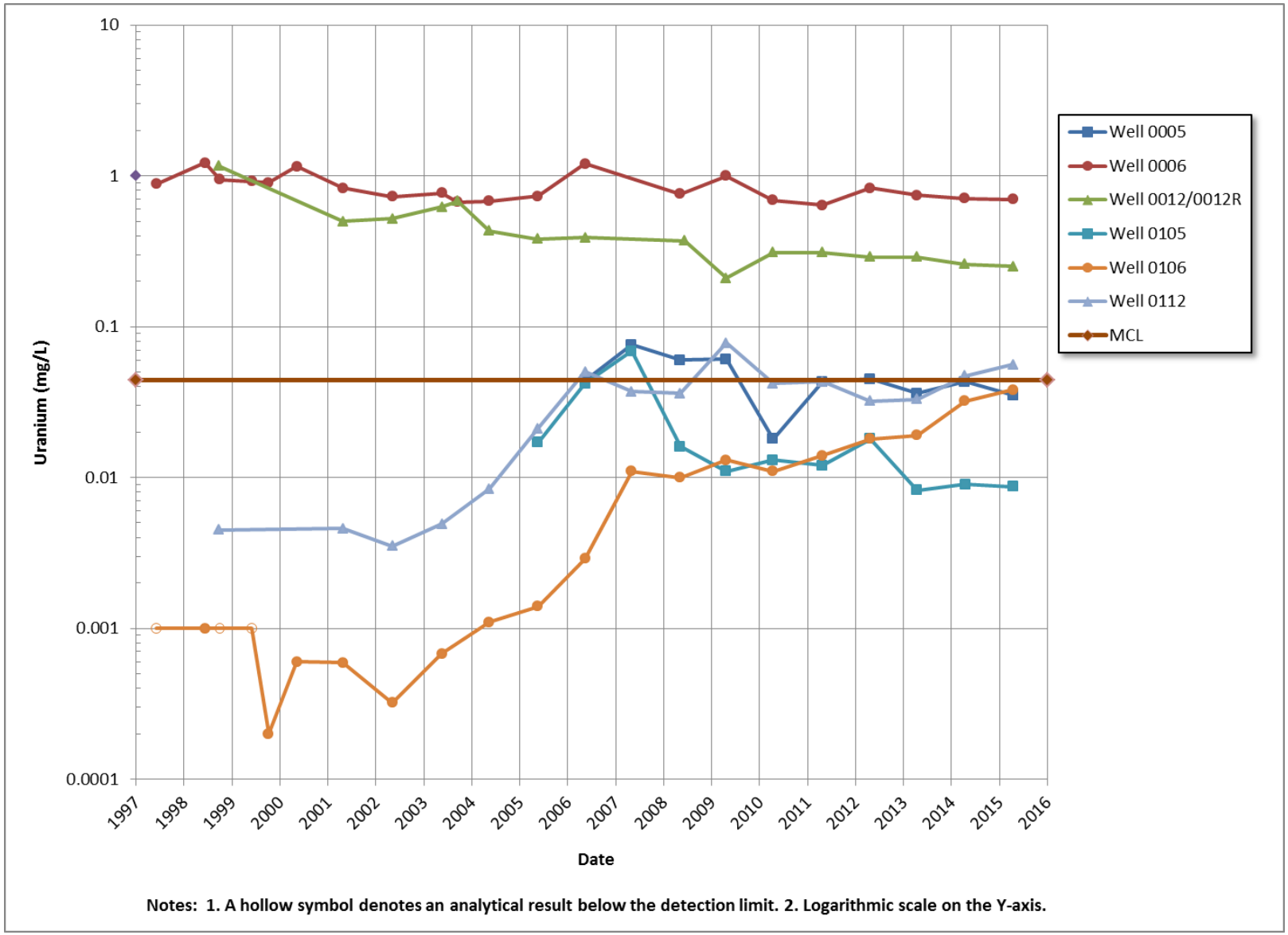

Figure 7. Uranium Concentrations in Groundwater: Onsite DOE Monitoring Wells at the Gunnison Site

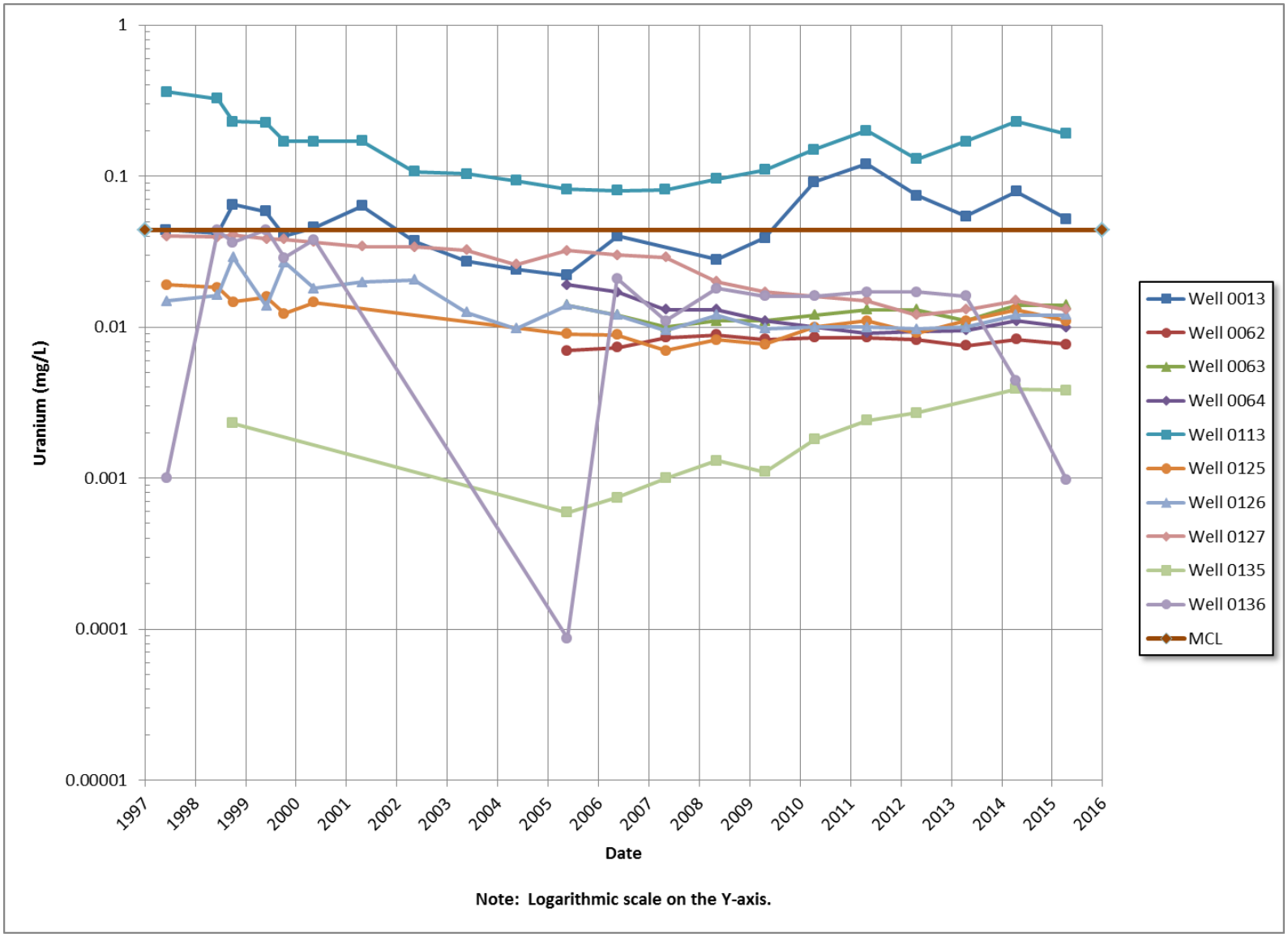

Figure 8. Uranium Concentrations in Groundwater: Downgradient DOE Monitoring Wells—Pasture, near the Gunnison Site

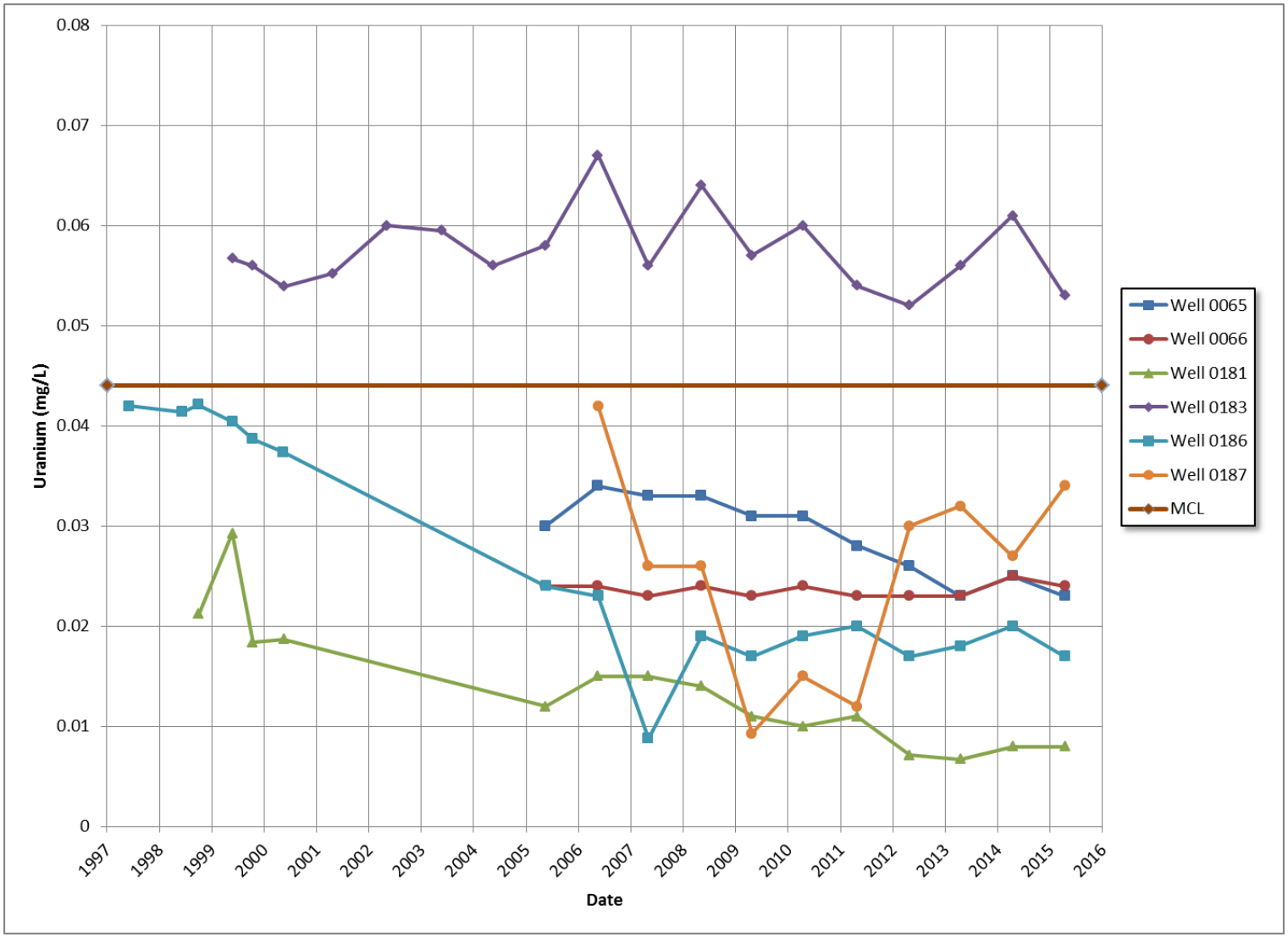

Figure 9. Uranium Concentrations in Groundwater: Downgradient DOE Monitoring Wells—Golf Course and Residential, near the Gunnison Site

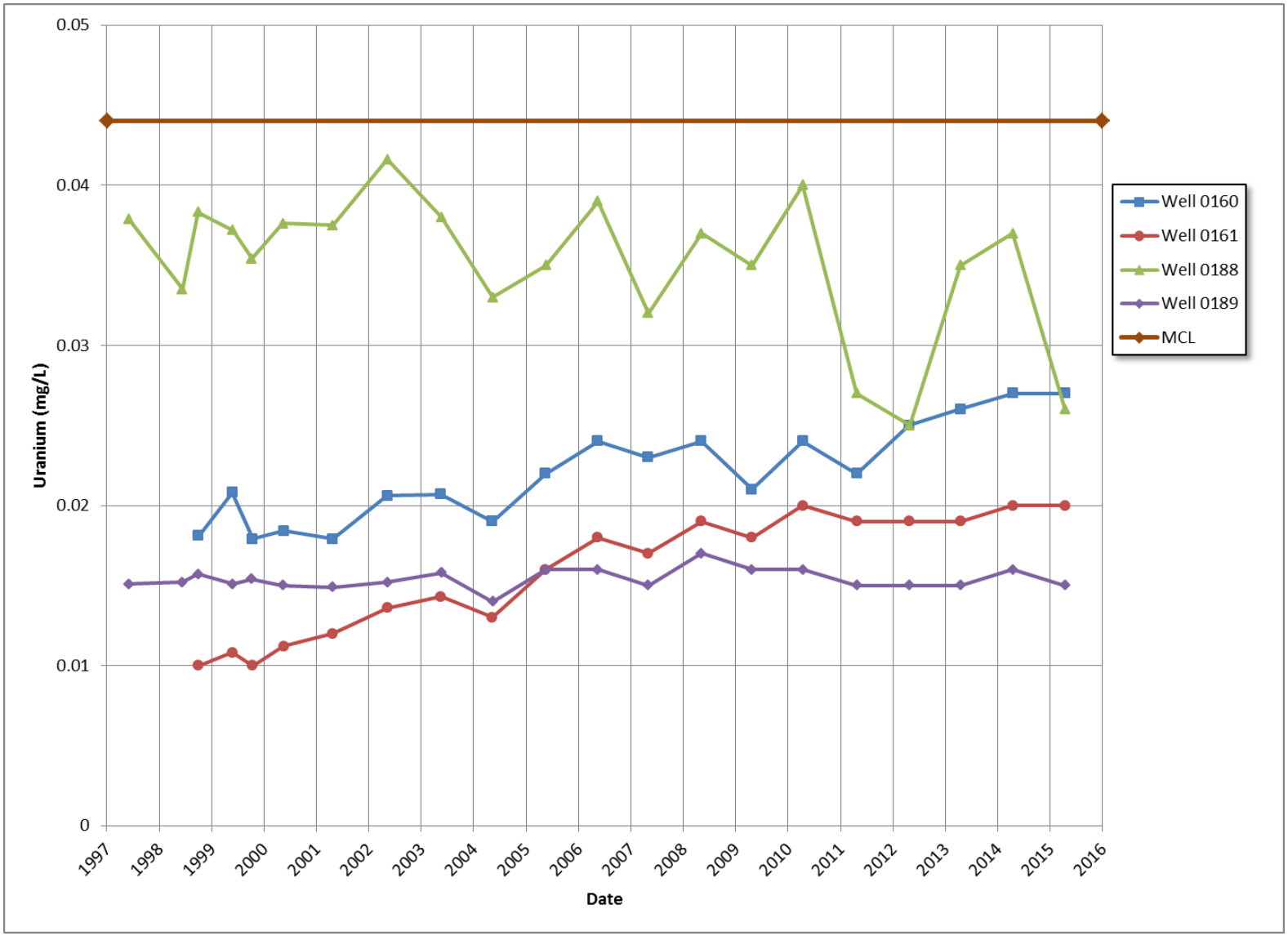

Figure 10. Uranium Concentrations in Groundwater: Downgradient DOE Monitoring Wells—West of the Gunnison River, near the Gunnison Site

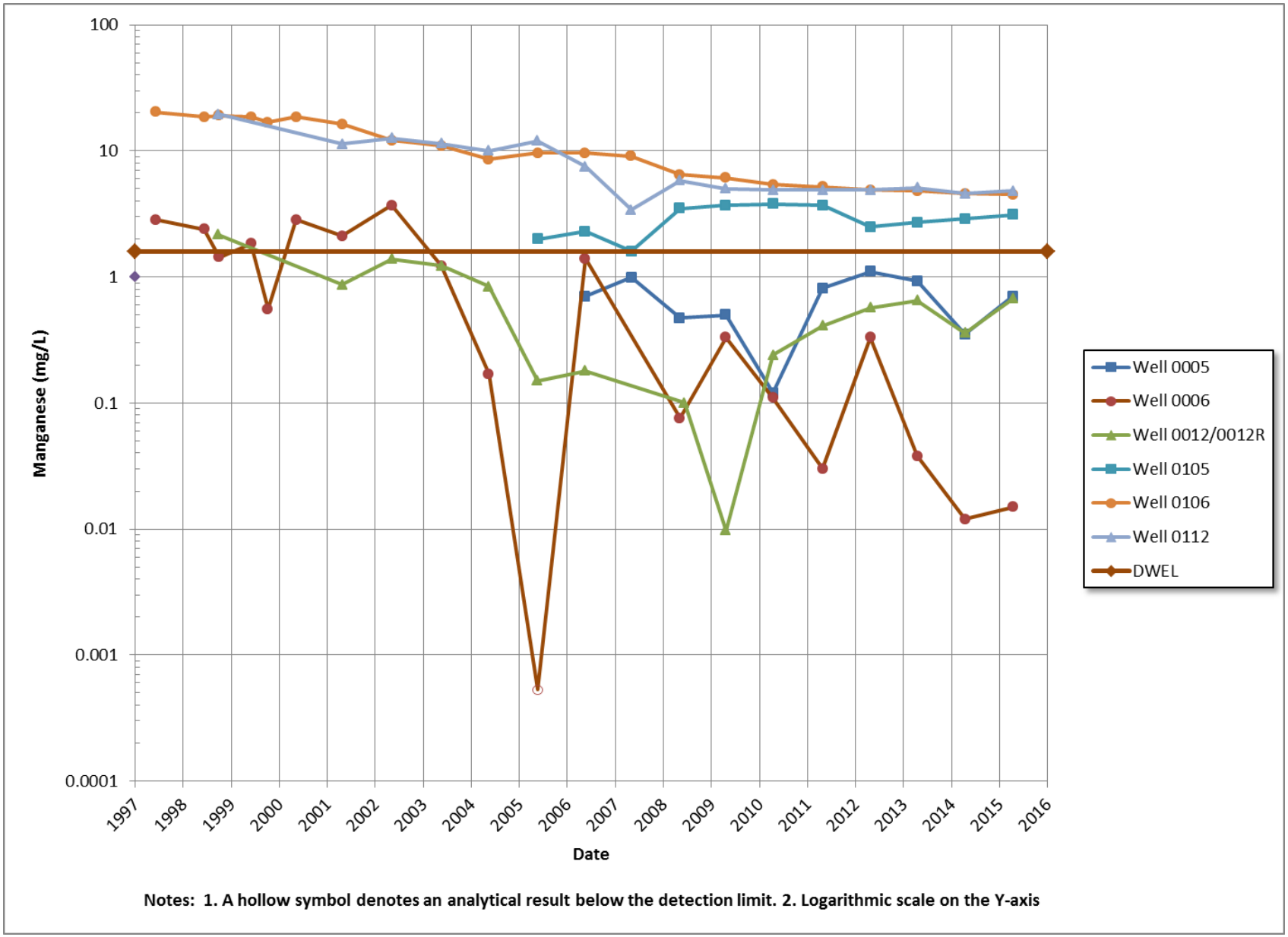

Figure 11. Manganese Concentrations in Groundwater: Onsite DOE Monitoring Wells at the Gunnison Site

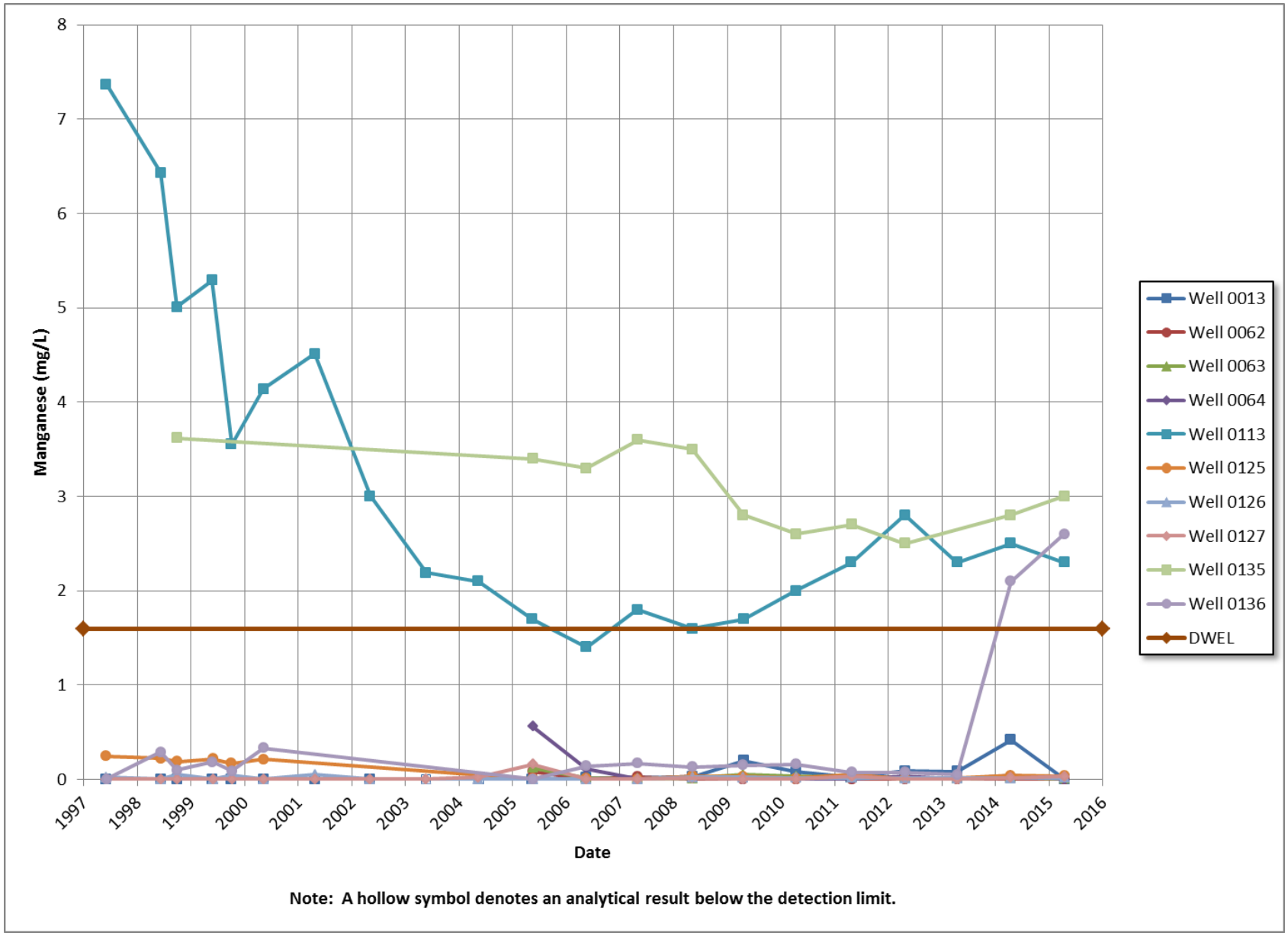

Figure 12. Manganese Concentrations in Groundwater: Downgradient DOE Monitoring Wells—Pasture, near the Gunnison Site

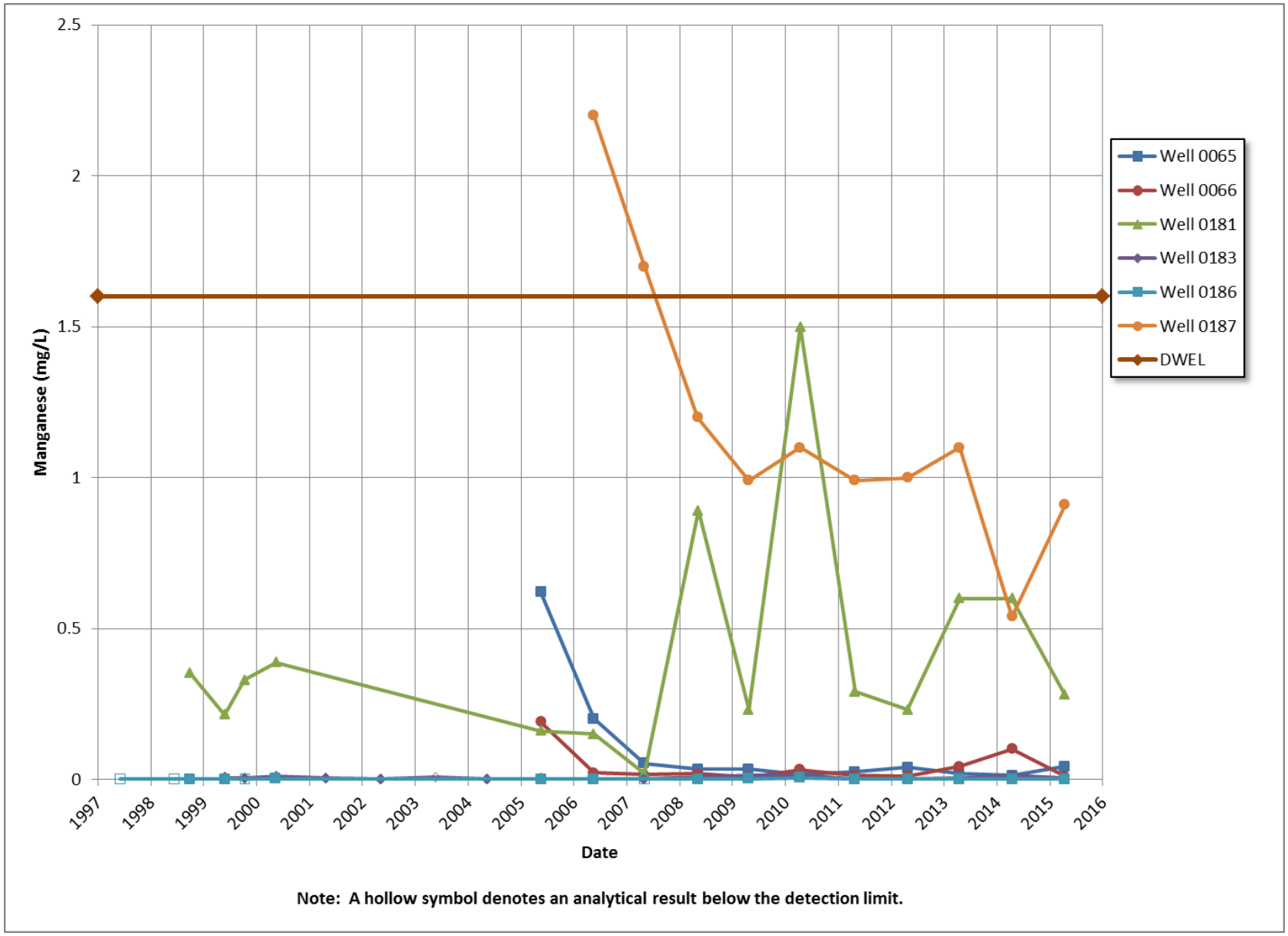

Figure 13. Manganese Concentrations in Groundwater: Downgradient DOE Monitoring Wells—Golf Course and Residential, near the Gunnison Site

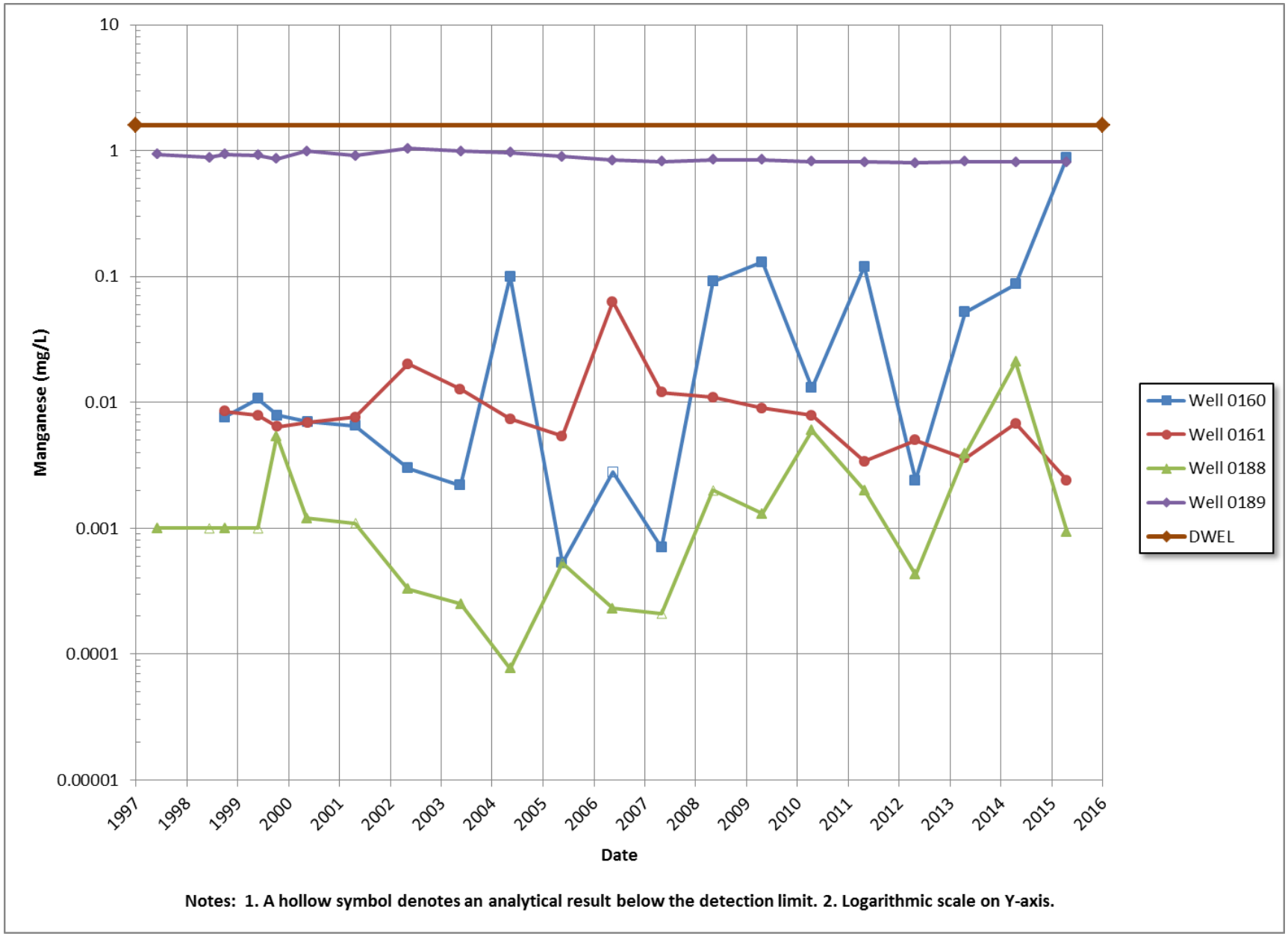

Figure 14. Manganese Concentrations in Groundwater: Downgradient DOE Monitoring Wells—West of the Gunnison River, near the Gunnison Site

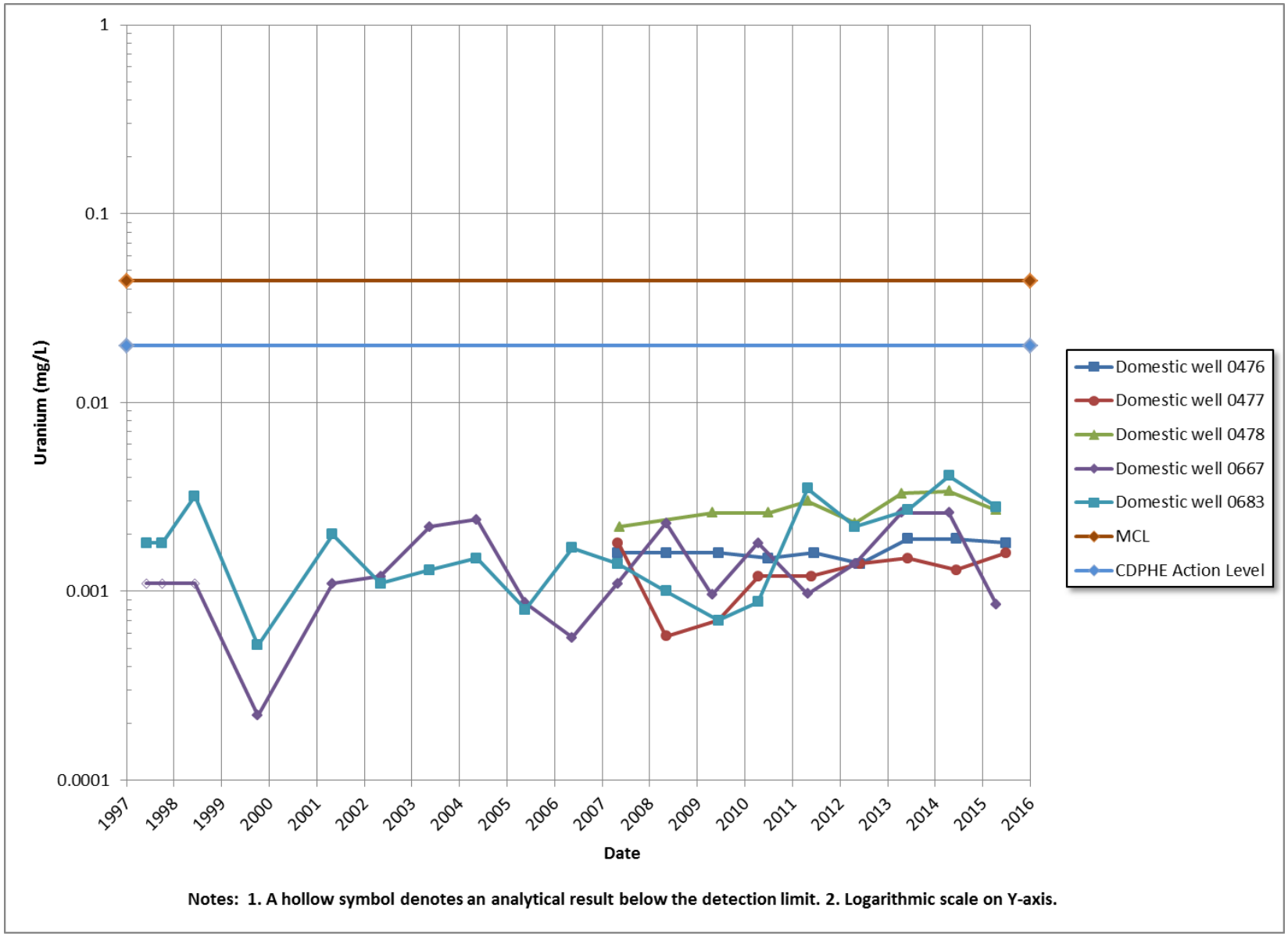

Figure 15. Uranium Concentrations in Groundwater: Domestic Wells Downgradient from the Gunnison Site

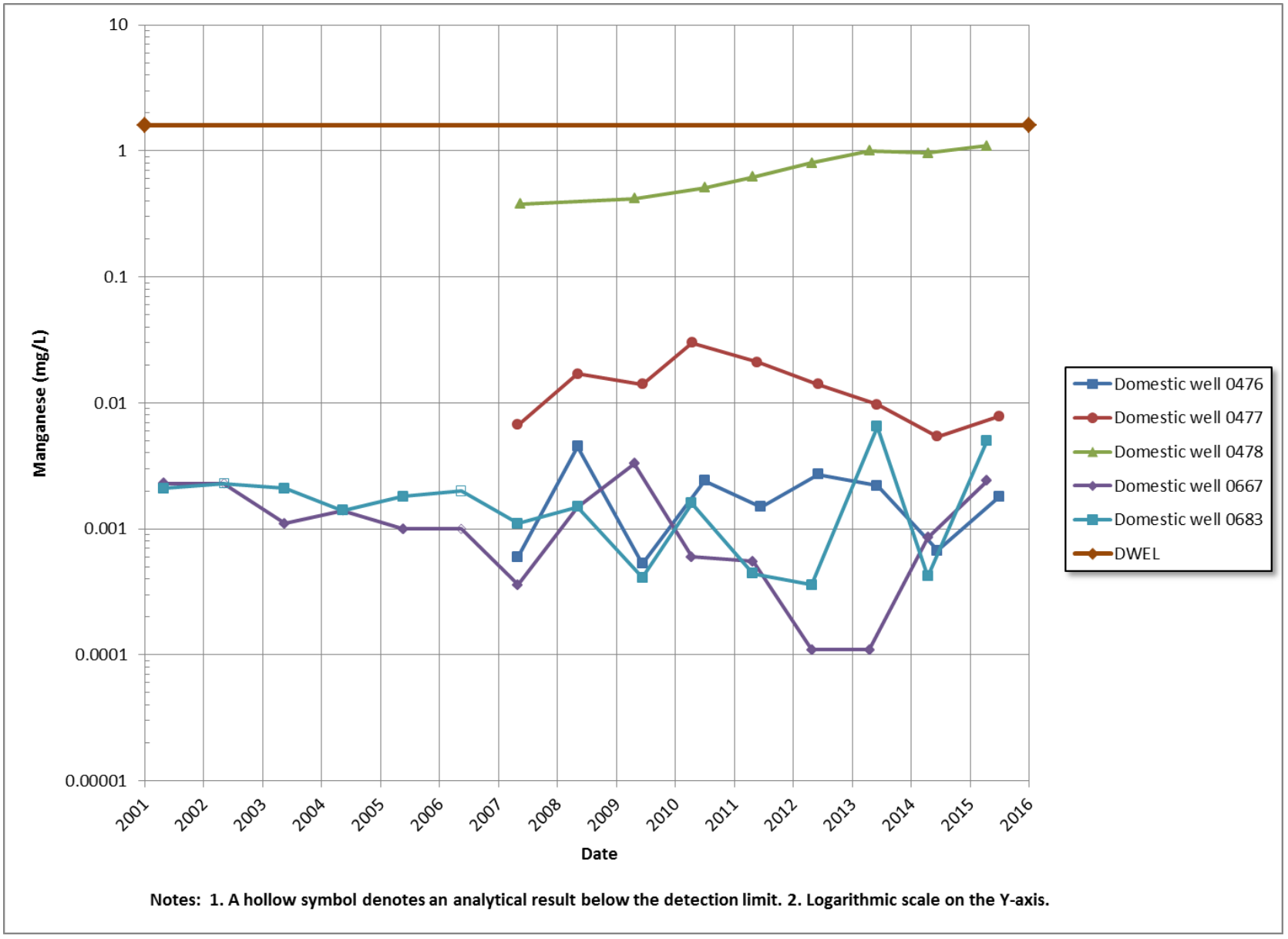

Figure 16. Manganese Concentrations in Groundwater: Domestic Wells Downgradient from the Gunnison Site

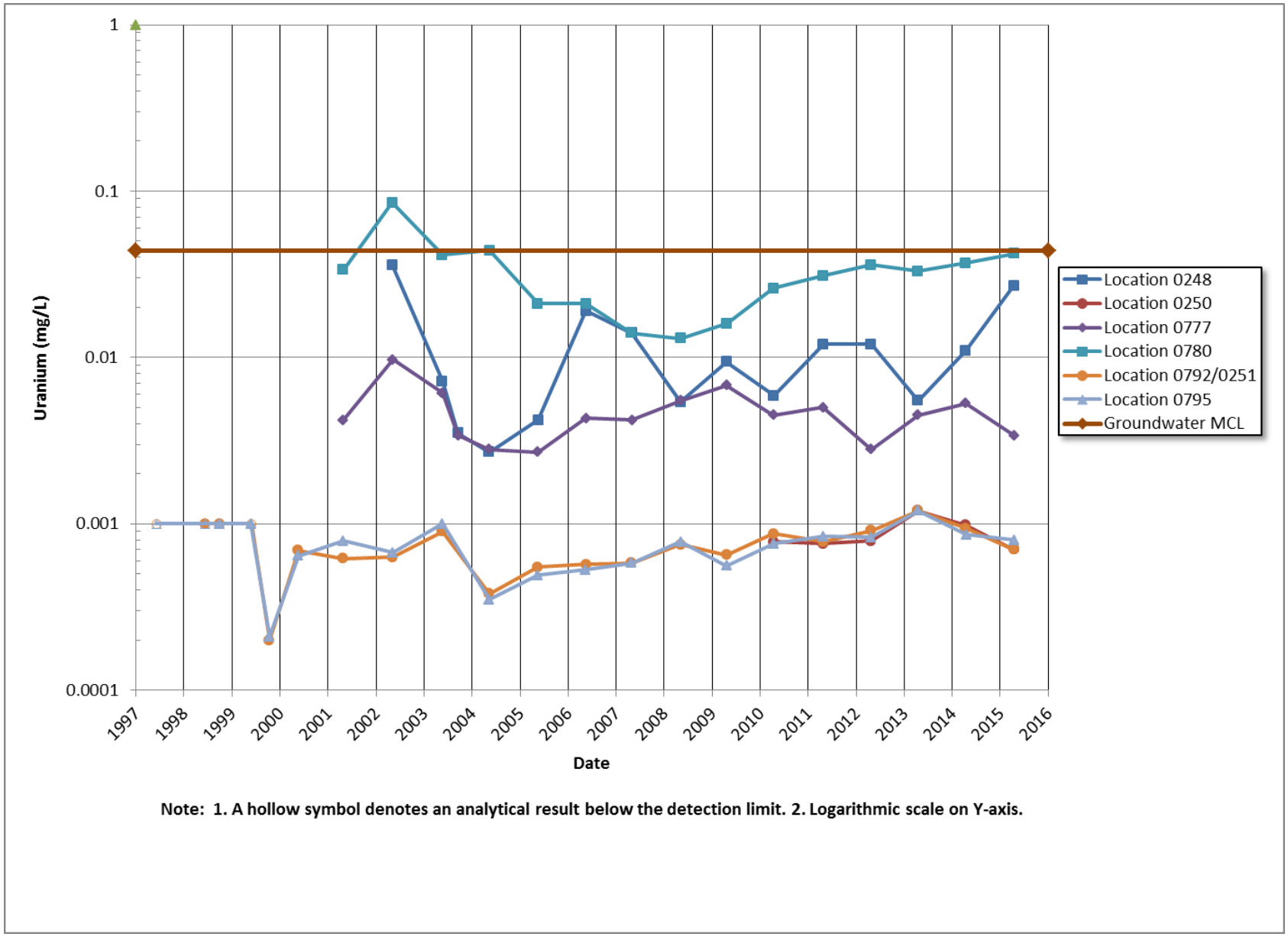

Figure 17. Uranium Concentrations in Surface Water near the Gunnison Site

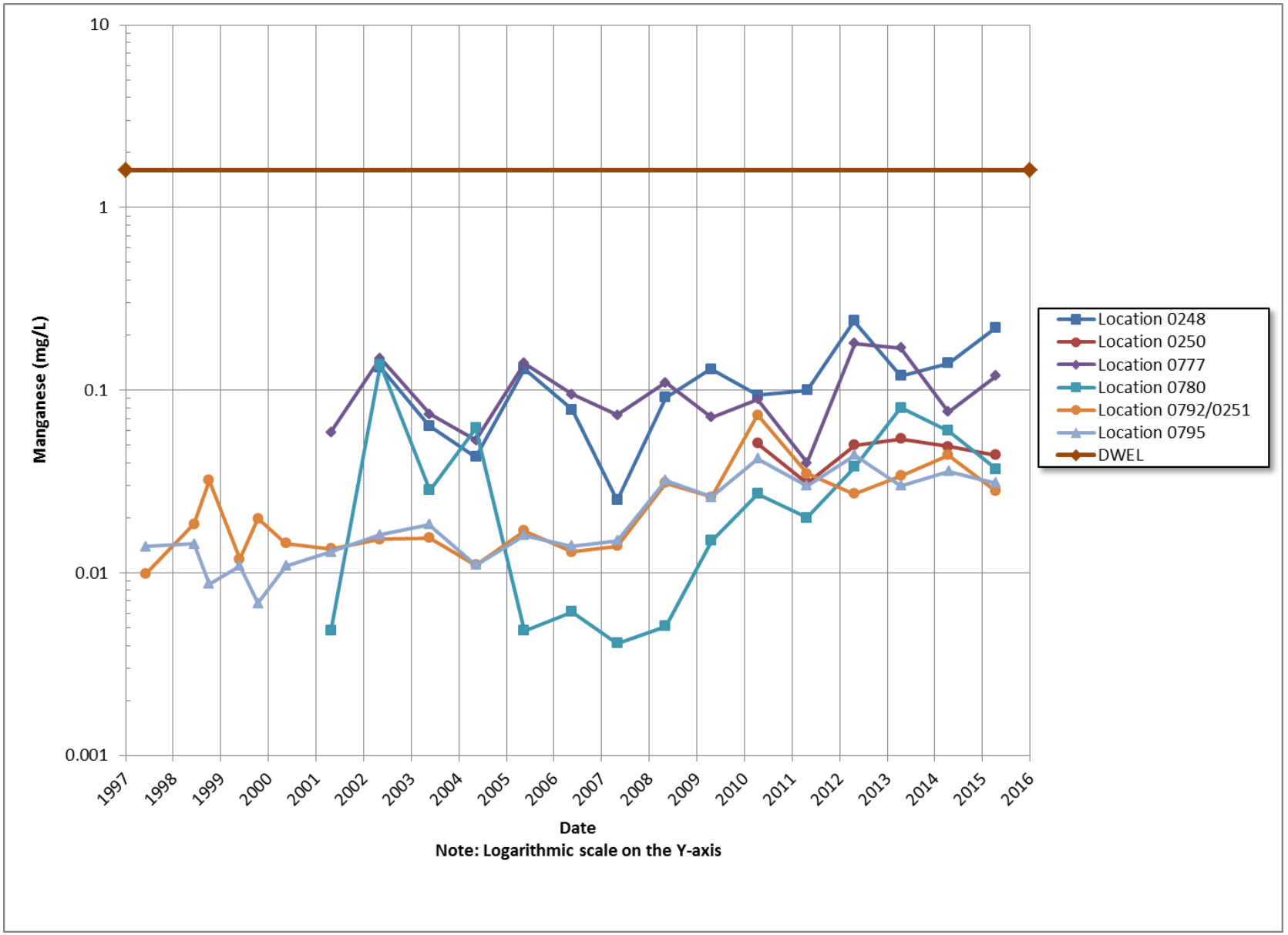

Figure 18. Manganese Concentrations in Surface Water near the Gunnison Site

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5.0 Natural Flushing Assessment

Groundwater flow and transport modeling predicted that uranium concentrations in alluvial groundwater will decrease to levels below EPA's 40 CFR 192 groundwater standard within 100 years. To assess the progress of natural flushing, a trend analysis using the Mann-Kendall test (Gilbert 1987) was performed to assess the temporal behavior of uranium concentrations. This test determines if an upward trend, a downward trend, or no trend exists at a specified level of significance. For purposes of evaluating trends at the Gunnison site, a 95 percent level of significance ($\alpha = 0.05$) was used. Table 4 shows the trend analysis, which includes 1997–2015 uranium sampling data, *p* values denoting the strength (statistical significance) of the trend (generally, the closer to 0, the stronger the trend), and lists 2015 uranium concentrations. Trends from the Mann-Kendall tests in conjunction with current uranium concentrations were used to assess the progress of natural flushing. In Table 4, the last column indicates if natural flushing is progressing, neutral, or regressing based on the following criteria:

- **Progressing:** current uranium concentrations are below the MCL with a downward or no trend, or uranium concentrations are above the MCL but less than 0.2 mg/L with a downward trend.
- **Neutral:** current uranium concentrations are greater than 0.2 mg/L with a downward trend, or current uranium concentrations are below the MCL with an upward trend.
- **Regressing:** Current uranium concentrations are above the standard with an upward or no trend.

Another method of assessing the progress of natural flushing is to compare uranium concentrations predicted by groundwater flow and transport modeling to measured uranium concentrations. Figure 19 shows the comparison of predicted concentrations to actual concentrations measured in samples from intermediate-zone monitoring well 0113 (DOE 2001). This intermediate-zone well was selected as an indicator of natural flushing progress because of its depth and location adjacent to and immediately downgradient of the mill site, which is in an area of the aquifer that should be the first to flush as the plume migrates off the former mill site. Data from this monitoring well are also used to assess potential aquifer-wide groundwater impacts from the subpile soil contamination remaining on the former mill site. As shown in Figure 19, uranium concentrations tracked closely with concentrations predicted by the groundwater model from 1999 through 2009. Since 2010, uranium concentrations have been increasing and deviating from model predictions.

Table 4. Assessment of Uranium Concentration Trends at the Gunnison Site

Location	Number of Samples	Trend[a]	*p* Value	2015 Result (mg/L)	MCL[b] Exceeded in 2015?(Yes/No)	Natural Flushing Progress
0005	10	Downward[c]	0.036	0.035	No	
0006	21	Downward	0.006	0.700	Yes	
0012/0012R	16	Downward	0.000	0.250	Yes	
0013	20	No Trend	0.258	0.052	Yes	
0062	11	No Trend	0.500	0.0077	No	
0063	11	No Trend	0.100	0.014	No	
0064	11	Downward	0.007	0.010	No	
0065	11	Downward	0.001	0.023	No	
0066	11	No Trend	0.500	0.024	No	
0105	11	Downward	0.010	0.0087	No	
0106	21	Upward	0.000	0.038	No	
0112	16	Upward	0.001	0.056	Yes	
0113	21	No Trend	0.113	0.190	Yes	
0125	17	Downward	0.035	0.011	No	
0126	21	Downward	0.001	0.012	No	
0127	21	Downward	0.000	0.013	No	
0135	11	Upward	0.002	0.0038	No	
0136	17	Downward	0.011	0.00097	No	
0160	19	Upward	0.000	0.027	No	
0161	19	Upward	0.000	0.020	No	
0181	15	Downward	0.000	0.008	No	
0183	18	No Trend	0.424	0.053	Yes	
0186	17	Downward	0.000	0.017	No	
0187	10	No Trend	0.242	0.034	No	
0188	21	Downward	0.032	0.026	No	
0189	21	No Trend	0.379	0.015	No	

Notes:
[a] Data from 1997 to 2015.
[b] The value of 0.044 mg/L is from 40 CFR 192.
[c] **Blue** = downward trend; **red** = upward trend or standard was exceeded in 2015.

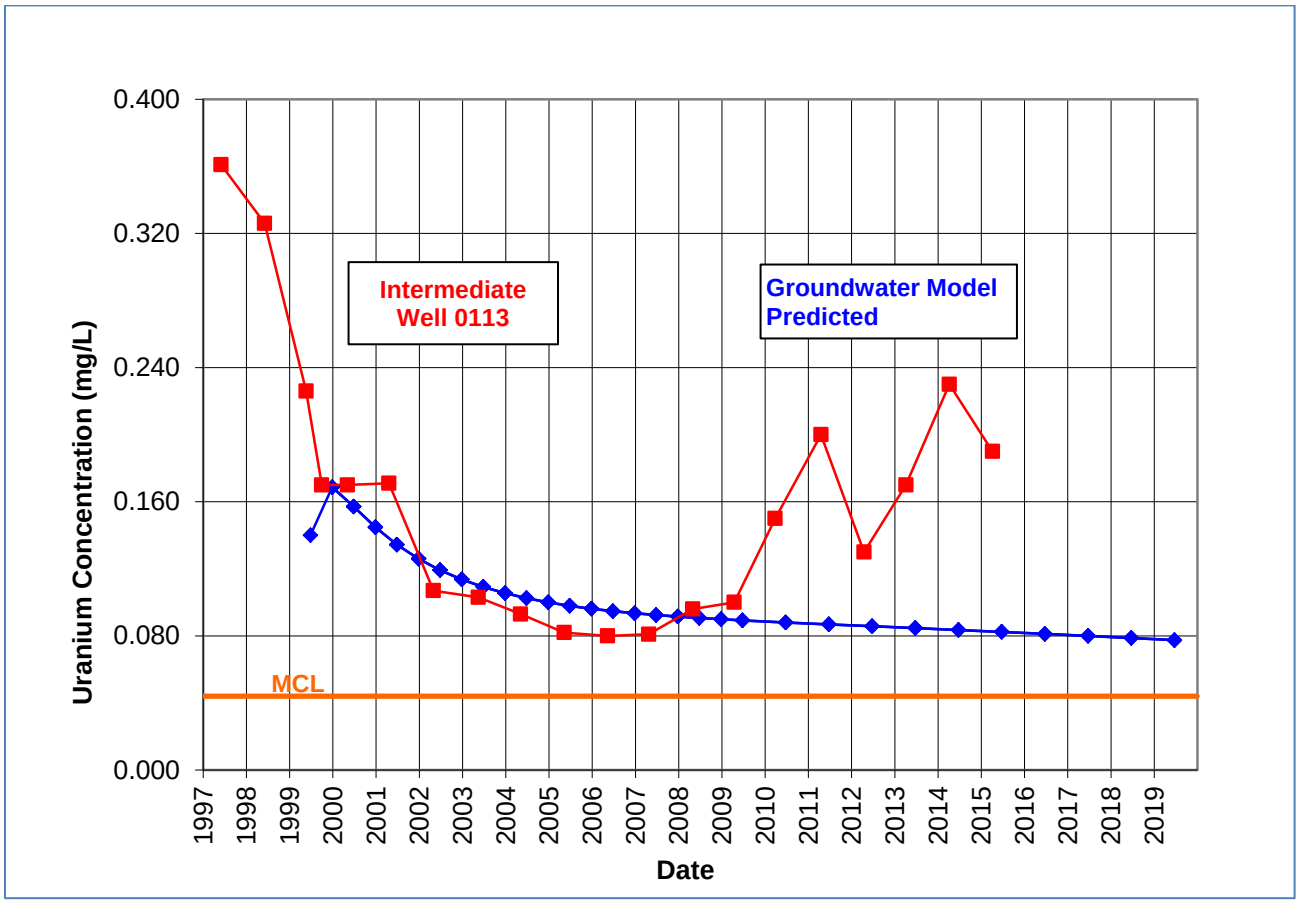

Figure 19. Uranium Concentration—Predicted (Blue) and Actual (Red)—in DOE Monitoring Well 0113 at the Gunnison Site

Construction activities in 2008 on the former mill site may have had an impact on uranium mobility. In 2008, Gunnison County excavated a north-south-trending utility trench approximately 7 ft deep across the site to install sewer and water infrastructure. The excavation removed fine-grained fill and provided a conduit for increased infiltration of precipitation and snow melt to mobilize uranium in the subpile soils. In 2009, uranium concentrations in monitoring well 0006 increased to 1.0 mg/L, which was an increase from the pretrenching concentration of 0.76 mg/L in 2008. In 2009, concentrations in monitoring wells 0013 and 0113 downgradient of the former mill site started to increase (Figure 8 and Figure 19). Long-term monitoring of well 0113 will determine if recent increases in uranium concentrations are temporary due to construction activities at the former mill site or are more permanent due to the influence of RRM in subpile soils. In either case, recent uranium concentrations indicate that short-term assessment against model predictions varies, and the viability of the natural flushing compliance strategy is in question.

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6.0 Conclusions

Concentrations of uranium in the alluvial groundwater beneath the former mill site are above the MCL. The uranium concentration in monitoring well 0006, which is completed in the shallow zone, remains high but has a downward trend using the Mann–Kendall test. Continued elevated uranium concentrations in this monitoring well indicate that residual soil contamination has a localized effect. Construction activities on the former mill site may be mobilizing uranium in soils and contributing to elevated concentrations in groundwater. In addition, several monitoring wells have uranium concentrations that exceed the MCL and have either an upward trend or no trend (Table 4), which indicates natural flushing is not progressing. On the basis of current uranium concentrations and trends, the 99-year natural flushing time predicted by groundwater modeling and compliance with the 100-year regulatory time frame for natural flushing is unlikely. Accordingly, DOE is currently pursuing an alternate compliance strategy based on alternate concentration limits for the Gunnison site.

Concentrations of uranium in the alluvial groundwater immediately downgradient of the former mill site are generally decreasing with time except at monitoring well 0113, which has no trend and is deviating from groundwater model predictions. Concentrations of uranium in groundwater farther downgradient of the site and deeper in the alluvial aquifer are elevated and increasing in some areas, as expected, as the plume migrates downgradient. Contaminant distribution continues to confirm the CSM of uranium migrating deeper in the alluvial aquifer with distance from the mill site.

Geochemical conditions in the alluvial aquifer tend to minimize concentrations and limit the mobility of manganese (DOE 2001). Samples from six monitoring wells in the monitoring network exceed the DWEL, and maximum concentrations were less than 5 mg/L.

Uranium concentrations in the domestic wells sampled at the Gunnison site were all below the MCL and the CDPHE action level. Manganese concentrations in these wells were all below the DWEL.

The uranium concentrations in the Gunnison River locations indicate that discharge of alluvial groundwater is being diluted by river water and has no measurable impact on river water quality. The uranium concentration at the gravel-pit pond (0780) is elevated compared to background concentrations in groundwater and surface water, which indicates that the gravel-pit pond is an expression of contaminated alluvial groundwater.

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7.0 References

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Appendix A

Groundwater Quality Data by Parameter for DOE Monitoring Wells

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CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

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	0002	WL	04/14/2015	N001	AL	U	0.00055	J	UF	#	0.00011	-
	mg/L	0005	WL	04/15/2015	N001	AL	O	0.700		F	#	0.00011	-
	mg/L	0006	WL	04/15/2015	N001	AL	O	0.015		F	#	0.00011	-
	mg/L	0012R	WL	04/16/2015	N001	AL	O	0.670		F	#	0.00011	-
	mg/L	0013	WL	04/15/2015	N001	AL	D	0.0012	J	UF	#	0.00011	-
	mg/L	0062	WL	04/14/2015	N001	AL	O	0.002	J	F	#	0.00011	-
	mg/L	0063	WL	04/14/2015	N001	AL	O	0.0089		F	#	0.00011	-
	mg/L	0064	WL	04/14/2015	N001	AL	O	0.0025	J	F	#	0.00011	-
	mg/L	0065	WL	04/16/2015	N001	AL	O	0.043		F	#	0.00011	-
	mg/L	0066	WL	04/13/2015	N001	AL	O	0.0096		F	#	0.00011	-
	mg/L	0102	WL	04/14/2015	N001	AL	U	0.00047	J	UF	#	0.00011	-
	mg/L	0105	WL	04/15/2015	N001	AL	O	3.100		F	#	0.00011	-
	mg/L	0106	WL	04/15/2015	N001	AL	O	4.500		F	#	0.00011	-
	mg/L	0112	WL	04/16/2015	N001	AL	O	4.800		F	#	0.00011	-
	mg/L	0113	WL	04/15/2015	N001	AL	D	2.300		F	#	0.00011	-
	mg/L	0113	WL	04/15/2015	N002	AL	D	2.300		F	#	0.00011	-
	mg/L	0125	WL	04/14/2015	N001	AL	D	0.035		F	#	0.00011	-
	mg/L	0126	WL	04/14/2015	N001	AL	D	0.016		F	#	0.00011	-
	mg/L	0127	WL	04/14/2015	N001	AL	D	0.032		F	#	0.00011	-
	mg/L	0135	WL	04/14/2015	N001	AL	D	3.000			#	0.00011	-
	mg/L	0136	WL	04/14/2015	N001	AL	D	2.600			#	0.00011	-
	mg/L	0160	WL	04/14/2015	N001	AL	D	0.880			#	0.00011	-
	mg/L	0161	WL	04/14/2015	N001	AL	D	0.0024	J		#	0.00011	-
	mg/L	0181	WL	04/15/2015	N001	AL	D	0.280			#	0.00011	-
	mg/L	0183	WL	04/15/2015	N001	AL	D	0.0053			#	0.00011	-
	mg/L	0186	WL	04/13/2015	N001	AL	D	0.0007	J	U	#	0.00011	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

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	0187	WL	04/13/2015	N001	AL	D	0.910			#	0.00011	-
	mg/L	0188	WL	04/16/2015	N001	AL	D	0.00094	J	U	#	0.00011	-
	mg/L	0189	WL	04/16/2015	N001	AL	D	0.810			#	0.00011	-
Oxidation Reduction Potential	mV	0002	WL	04/14/2015	N001	AL	U	14.4		F	#	-	-
	mV	0005	WL	04/15/2015	N001	AL	O	-76.6		F	#	-	-
	mV	0006	WL	04/15/2015	N001	AL	O	32.4		F	#	-	-
	mV	0012R	WL	04/16/2015	N001	AL	O	158.7		F	#	-	-
	mV	0013	WL	04/15/2015	N001	AL	D	156.4		F	#	-	-
	mV	0062	WL	04/14/2015	N001	AL	O	-12.0		F	#	-	-
	mV	0063	WL	04/14/2015	N001	AL	O	-55.9		F	#	-	-
	mV	0064	WL	04/14/2015	N001	AL	O	-18.2		F	#	-	-
	mV	0065	WL	04/16/2015	N001	AL	O	-4.3		F	#	-	-
	mV	0066	WL	04/13/2015	N001	AL	O	91.0		F	#	-	-
	mV	0102	WL	04/14/2015	N001	AL	U	24.7		F	#	-	-
	mV	0105	WL	04/15/2015	N001	AL	O	-82.6		F	#	-	-
	mV	0106	WL	04/15/2015	N001	AL	O	10.4		F	#	-	-
	mV	0112	WL	04/16/2015	N001	AL	O	-54.1		F	#	-	-
	mV	0113	WL	04/15/2015	N001	AL	D	-71.2		F	#	-	-
	mV	0125	WL	04/14/2015	N001	AL	D	-17.9		F	#	-	-
	mV	0126	WL	04/14/2015	N001	AL	D	-51.3		F	#	-	-
	mV	0127	WL	04/14/2015	N001	AL	D	-175.0		F	#	-	-
	mV	0135	WL	04/14/2015	N001	AL	D	-93.7			#	-	-
	mV	0136	WL	04/14/2015	N001	AL	D	-143.0			#	-	-
	mV	0160	WL	04/14/2015	N001	AL	D	-11.9			#	-	-
	mV	0161	WL	04/14/2015	N001	AL	D	20.6			#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

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	0181	WL	04/15/2015	N001	AL	D	-11.4			#	-	-
	mV	0183	WL	04/15/2015	N001	AL	D	-56.6			#	-	-
	mV	0186	WL	04/13/2015	N001	AL	D	77.8			#	-	-
	mV	0187	WL	04/13/2015	N001	AL	D	25.9			#	-	-
	mV	0188	WL	04/16/2015	N001	AL	D	46.8			#	-	-
	mV	0189	WL	04/16/2015	N001	AL	D	-75.7			#	-	-
pH	s.u.	0002	WL	04/14/2015	N001	AL	U	7.39		F	#	-	-
	s.u.	0005	WL	04/15/2015	N001	AL	O	7.36		F	#	-	-
	s.u.	0006	WL	04/15/2015	N001	AL	O	7.10		F	#	-	-
	s.u.	0012R	WL	04/16/2015	N001	AL	O	7.03		F	#	-	-
	s.u.	0013	WL	04/15/2015	N001	AL	D	7.35		F	#	-	-
	s.u.	0062	WL	04/14/2015	N001	AL	O	7.56		F	#	-	-
	s.u.	0063	WL	04/14/2015	N001	AL	O	7.56		F	#	-	-
	s.u.	0064	WL	04/14/2015	N001	AL	O	7.43		F	#	-	-
	s.u.	0065	WL	04/16/2015	N001	AL	O	7.45		F	#	-	-
	s.u.	0066	WL	04/13/2015	N001	AL	O	7.35		F	#	-	-
	s.u.	0102	WL	04/14/2015	N001	AL	U	7.50		F	#	-	-
	s.u.	0105	WL	04/15/2015	N001	AL	O	6.89		F	#	-	-
	s.u.	0106	WL	04/15/2015	N001	AL	O	6.08		F	#	-	-
	s.u.	0112	WL	04/16/2015	N001	AL	O	6.34		F	#	-	-
	s.u.	0113	WL	04/15/2015	N001	AL	D	7.10		F	#	-	-
	s.u.	0125	WL	04/14/2015	N001	AL	D	7.32		F	#	-	-
	s.u.	0126	WL	04/14/2015	N001	AL	D	7.33		F	#	-	-
	s.u.	0127	WL	04/14/2015	N001	AL	D	7.64		F	#	-	-
	s.u.	0135	WL	04/14/2015	N001	AL	D	6.99			#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

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.	0136	WL	04/14/2015	N001	AL	D	6.99			#	-	-
	s.u.	0160	WL	04/14/2015	N001	AL	D	6.85			#	-	-
	s.u.	0161	WL	04/14/2015	N001	AL	D	6.84			#	-	-
	s.u.	0181	WL	04/15/2015	N001	AL	D	7.03			#	-	-
	s.u.	0183	WL	04/15/2015	N001	AL	D	6.87			#	-	-
	s.u.	0186	WL	04/13/2015	N001	AL	D	7.70			#	-	-
	s.u.	0187	WL	04/13/2015	N001	AL	D	6.59			#	-	-
	s.u.	0188	WL	04/16/2015	N001	AL	D	7.33			#	-	-
	s.u.	0189	WL	04/16/2015	N001	AL	D	6.48			#	-	-
Specific Conductance	umhos/cm	0002	WL	04/14/2015	N001	AL	U	542		F	#	-	-
	umhos/cm	0005	WL	04/15/2015	N001	AL	O	501		F	#	-	-
	umhos/cm	0006	WL	04/15/2015	N001	AL	O	2054		F	#	-	-
	umhos/cm	0012R	WL	04/16/2015	N001	AL	O	1019		F	#	-	-
	umhos/cm	0013	WL	04/15/2015	N001	AL	D	716		F	#	-	-
	umhos/cm	0062	WL	04/14/2015	N001	AL	O	525		F	#	-	-
	umhos/cm	0063	WL	04/14/2015	N001	AL	O	538		F	#	-	-
	umhos/cm	0064	WL	04/14/2015	N001	AL	O	491		F	#	-	-
	umhos/cm	0065	WL	04/16/2015	N001	AL	O	660		F	#	-	-
	umhos/cm	0066	WL	04/13/2015	N001	AL	O	676		F	#	-	-
	umhos/cm	0102	WL	04/14/2015	N001	AL	U	526		F	#	-	-
	umhos/cm	0105	WL	04/15/2015	N001	AL	O	498		F	#	-	-
	umhos/cm	0106	WL	04/15/2015	N001	AL	O	1806		F	#	-	-
	umhos/cm	0112	WL	04/16/2015	N001	AL	O	989		F	#	-	-
	umhos/cm	0113	WL	04/15/2015	N001	AL	D	799		F	#	-	-
	umhos/cm	0125	WL	04/14/2015	N001	AL	D	539		F	#	-	-
	umhos/cm	0126	WL	04/14/2015	N001	AL	D	716		F	#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0127	WL	04/14/2015	N001	AL	D	724		F	#	-	-
	umhos/cm	0135	WL	04/14/2015	N001	AL	D	512			#	-	-
	umhos/cm	0136	WL	04/14/2015	N001	AL	D	590			#	-	-
	umhos/cm	0160	WL	04/14/2015	N001	AL	D	860			#	-	-
	umhos/cm	0161	WL	04/14/2015	N001	AL	D	887			#	-	-
	umhos/cm	0181	WL	04/15/2015	N001	AL	D	511			#	-	-
	umhos/cm	0183	WL	04/15/2015	N001	AL	D	1095			#	-	-
	umhos/cm	0186	WL	04/13/2015	N001	AL	D	699			#	-	-
	umhos/cm	0187	WL	04/13/2015	N001	AL	D	1192			#	-	-
	umhos/cm	0188	WL	04/16/2015	N001	AL	D	717			#	-	-
	umhos/cm	0189	WL	04/16/2015	N001	AL	D	2143			#	-	-
Temperature	C	0002	WL	04/14/2015	N001	AL	U	9.30		F	#	-	-
	C	0005	WL	04/15/2015	N001	AL	O	6.38		F	#	-	-
	C	0006	WL	04/15/2015	N001	AL	O	7.16		F	#	-	-
	C	0012R	WL	04/16/2015	N001	AL	O	7.49		F	#	-	-
	C	0013	WL	04/15/2015	N001	AL	D	7.21		F	#	-	-
	C	0062	WL	04/14/2015	N001	AL	O	8.78		F	#	-	-
	C	0063	WL	04/14/2015	N001	AL	O	9.67		F	#	-	-
	C	0064	WL	04/14/2015	N001	AL	O	8.04		F	#	-	-
	C	0065	WL	04/16/2015	N001	AL	O	7.37		F	#	-	-
	C	0066	WL	04/13/2015	N001	AL	O	8.49		F	#	-	-
	C	0102	WL	04/14/2015	N001	AL	U	10.74		F	#	-	-
	C	0105	WL	04/15/2015	N001	AL	O	9.14		F	#	-	-
	C	0106	WL	04/15/2015	N001	AL	O	9.37		F	#	-	-
	C	0112	WL	04/16/2015	N001	AL	O	9.19		F	#	-	-
	C	0113	WL	04/15/2015	N001	AL	D	9.01		F	#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0125	WL	04/14/2015	N001	AL	D	8.96		F	#	-	-
	C	0126	WL	04/14/2015	N001	AL	D	10.44		F	#	-	-
	C	0127	WL	04/14/2015	N001	AL	D	9.79		F	#	-	-
	C	0135	WL	04/14/2015	N001	AL	D	5.65			#	-	-
	C	0136	WL	04/14/2015	N001	AL	D	7.52			#	-	-
	C	0160	WL	04/14/2015	N001	AL	D	8.57			#	-	-
	C	0161	WL	04/14/2015	N001	AL	D	8.78			#	-	-
	C	0181	WL	04/15/2015	N001	AL	D	6.77			#	-	-
	C	0183	WL	04/15/2015	N001	AL	D	8.04			#	-	-
	C	0186	WL	04/13/2015	N001	AL	D	8.47			#	-	-
	C	0187	WL	04/13/2015	N001	AL	D	8.34			#	-	-
	C	0188	WL	04/16/2015	N001	AL	D	5.77			#	-	-
	C	0189	WL	04/16/2015	N001	AL	D	4.01			#	-	-
Turbidity	NTU	0002	WL	04/14/2015	N001	AL	U	1.75		F	#	-	-
	NTU	0005	WL	04/15/2015	N001	AL	O	9.41		F	#	-	-
	NTU	0006	WL	04/15/2015	N001	AL	O	3.85		F	#	-	-
	NTU	0012R	WL	04/16/2015	N001	AL	O	9.73		F	#	-	-
	NTU	0013	WL	04/15/2015	N001	AL	D	0.65		F	#	-	-
	NTU	0062	WL	04/14/2015	N001	AL	O	1.85		F	#	-	-
	NTU	0063	WL	04/14/2015	N001	AL	O	1.58		F	#	-	-
	NTU	0064	WL	04/14/2015	N001	AL	O	1.29		F	#	-	-
	NTU	0065	WL	04/16/2015	N001	AL	O	9.30		F	#	-	-
	NTU	0066	WL	04/13/2015	N001	AL	O	1.56		F	#	-	-
	NTU	0102	WL	04/14/2015	N001	AL	U	0.25		F	#	-	-
	NTU	0105	WL	04/15/2015	N001	AL	O	1.53		F	#	-	-
	NTU	0106	WL	04/15/2015	N001	AL	O	1.36		F	#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0112	WL	04/16/2015	N001	AL	O	0.58		F	#	-	-
	NTU	0113	WL	04/15/2015	N001	AL	D	3.33		F	#	-	-
	NTU	0125	WL	04/14/2015	N001	AL	D	1.61		F	#	-	-
	NTU	0126	WL	04/14/2015	N001	AL	D	5.57		F	#	-	-
	NTU	0127	WL	04/14/2015	N001	AL	D	4.74		F	#	-	-
	NTU	0135	WL	04/14/2015	N001	AL	D	1.22			#	-	-
	NTU	0136	WL	04/14/2015	N001	AL	D	4.58			#	-	-
	NTU	0160	WL	04/14/2015	N001	AL	D	8.41			#	-	-
	NTU	0161	WL	04/14/2015	N001	AL	D	0.80			#	-	-
	NTU	0181	WL	04/15/2015	N001	AL	D	0.76			#	-	-
	NTU	0183	WL	04/15/2015	N001	AL	D	3.55			#	-	-
	NTU	0186	WL	04/13/2015	N001	AL	D	1.06			#	-	-
	NTU	0187	WL	04/13/2015	N001	AL	D	7.38			#	-	-
	NTU	0188	WL	04/16/2015	N001	AL	D	0.65			#	-	-
	NTU	0189	WL	04/16/2015	N001	AL	D	1.75			#	-	-
Uranium	mg/L	0002	WL	04/14/2015	N001	AL	U	0.0026		F	#	2.9E-05	-
	mg/L	0005	WL	04/15/2015	N001	AL	O	0.035		F	#	2.9E-05	-
	mg/L	0006	WL	04/15/2015	N001	AL	O	0.700		F	#	0.00029	-
	mg/L	0012R	WL	04/16/2015	N001	AL	O	0.250		F	#	0.00029	-
	mg/L	0013	WL	04/15/2015	N001	AL	D	0.052		F	#	0.00015	-
	mg/L	0062	WL	04/14/2015	N001	AL	O	0.0077		F	#	2.9E-05	-
	mg/L	0063	WL	04/14/2015	N001	AL	O	0.014		F	#	2.9E-05	-
	mg/L	0064	WL	04/14/2015	N001	AL	O	0.010		F	#	2.9E-05	-
	mg/L	0065	WL	04/16/2015	N001	AL	O	0.023		F	#	2.9E-05	-
	mg/L	0066	WL	04/13/2015	N001	AL	O	0.024		F	#	2.9E-05	-
	mg/L	0102	WL	04/14/2015	N001	AL	U	0.0036		F	#	2.9E-05	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0105	WL	04/15/2015	N001	AL	O	0.0087		F	#	2.9E-05	-
	mg/L	0106	WL	04/15/2015	N001	AL	O	0.038		F	#	2.9E-05	-
	mg/L	0112	WL	04/16/2015	N001	AL	O	0.056		F	#	2.9E-05	-
	mg/L	0113	WL	04/15/2015	N001	AL	D	0.190		F	#	0.00015	-
	mg/L	0113	WL	04/15/2015	N002	AL	D	0.190		F	#	0.00015	-
	mg/L	0125	WL	04/14/2015	N001	AL	D	0.011		F	#	2.9E-05	-
	mg/L	0126	WL	04/14/2015	N001	AL	D	0.012		F	#	2.9E-05	-
	mg/L	0127	WL	04/14/2015	N001	AL	D	0.013		F	#	2.9E-05	-
	mg/L	0135	WL	04/14/2015	N001	AL	D	0.0038			#	2.9E-05	-
	mg/L	0136	WL	04/14/2015	N001	AL	D	0.00097			#	2.9E-05	-
	mg/L	0160	WL	04/14/2015	N001	AL	D	0.027			#	2.9E-05	-
	mg/L	0161	WL	04/14/2015	N001	AL	D	0.020			#	2.9E-05	-
	mg/L	0181	WL	04/15/2015	N001	AL	D	0.008			#	2.9E-05	-
	mg/L	0183	WL	04/15/2015	N001	AL	D	0.053			#	2.9E-05	-
	mg/L	0186	WL	04/13/2015	N001	AL	D	0.017			#	2.9E-05	-
	mg/L	0187	WL	04/13/2015	N001	AL	D	0.034			#	2.9E-05	-
	mg/L	0188	WL	04/16/2015	N001	AL	D	0.026			#	2.9E-05	-
	mg/L	0189	WL	04/16/2015	N001	AL	D	0.015			#	2.9E-05	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:07 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='GUN01' AND location_code in('0002','0005','0006','0012R','0013','0062','0063','0064','0065','0066','0102','0105','0106','0112','0113','0125','0126','0127','0135','0136','0160','0161','0181','0183','0186','0187','0188','0189') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #4/1/2015# and #4/30/2015#

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).

AL ALLUVIUM

FLOW CODES: 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 compund (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 B

Groundwater Quality Data by Parameter for Domestic Wells

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CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:11 am

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	0476	WL	07/01/2015	N001			0.0018	J	U	#	0.00024	-
	mg/L	0477	WL	07/01/2015	N001			0.0078			#	0.00024	-
	mg/L	0477	WL	07/01/2015	N002			0.009			#	0.00024	-
	mg/L	0478	WL	04/15/2015	N001			1.100			#	0.00011	-
	mg/L	0667	WL	04/15/2015	N001	AL	N	0.0024	J		#	0.00011	-
	mg/L	0683	WL	04/15/2015	N001	AL	N	0.005	J		#	0.00011	-
Oxidation Reduction Potential	mV	0476	WL	07/01/2015	N001			193.3			#	-	-
	mV	0477	WL	07/01/2015	N001			122.9			#	-	-
	mV	0478	WL	04/15/2015	N001			-61.5			#	-	-
	mV	0667	WL	04/15/2015	N001	AL	N	106.3			#	-	-
	mV	0683	WL	04/15/2015	N001	AL	N	-39.9			#	-	-
pH	s.u.	0476	WL	07/01/2015	N001			6.80			#	-	-
	s.u.	0477	WL	07/01/2015	N001			6.86			#	-	-
	s.u.	0478	WL	04/15/2015	N001			7.52			#	-	-
	s.u.	0667	WL	04/15/2015	N001	AL	N	7.66			#	-	-
	s.u.	0683	WL	04/15/2015	N001	AL	N	7.73			#	-	-
Specific Conductance	umhos/cm	0476	WL	07/01/2015	N001			246			#	-	-
	umhos/cm	0477	WL	07/01/2015	N001			250			#	-	-
	umhos/cm	0478	WL	04/15/2015	N001			276			#	-	-
	umhos/cm	0667	WL	04/15/2015	N001	AL	N	221			#	-	-
	umhos/cm	0683	WL	04/15/2015	N001	AL	N	308			#	-	-
Temperature	C	0476	WL	07/01/2015	N001			12.43			#	-	-
	C	0477	WL	07/01/2015	N001			11.23			#	-	-
	C	0478	WL	04/15/2015	N001			14.57			#	-	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:11 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0667	WL	04/15/2015	N001	AL	N	9.41			#	-	-
	C	0683	WL	04/15/2015	N001	AL	N	12.67			#	-	-
Turbidity	NTU	0476	WL	07/01/2015	N001			2.34			#	-	-
	NTU	0477	WL	07/01/2015	N001			2.58			#	-	-
	NTU	0478	WL	04/15/2015	N001			0.42			#	-	-
	NTU	0667	WL	04/15/2015	N001	AL	N	4.5			#	-	-
	NTU	0683	WL	04/15/2015	N001	AL	N	2.55			#	-	-
Uranium	mg/L	0476	WL	07/01/2015	N001			0.0018			#	2.9E-05	-
	mg/L	0477	WL	07/01/2015	N001			0.0016			#	2.9E-05	-
	mg/L	0477	WL	07/01/2015	N002			0.0014			#	2.9E-05	-
	mg/L	0478	WL	04/15/2015	N001			0.0027			#	2.9E-05	-
	mg/L	0667	WL	04/15/2015	N001	AL	N	0.00085			#	2.9E-05	-
	mg/L	0683	WL	04/15/2015	N001	AL	N	0.0028			#	2.9E-05	-

CLASSIC GROUNDWATER QUALITY DATA BY PARAMETER WITH ZONE (USEE201) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:11 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='GUN01' AND location_code in('0476','0477','0478','0667','0683') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #4/1/2015# and #7/15/2015#

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).

AL ALLUVIUM

FLOW CODES: N UNKNOWN

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 compund (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 C

Surface Water Quality Data by Parameter

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SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:17 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	0248	04/14/2015	N001	0.220			#	0.00011	-
	mg/L	0248	04/14/2015	N002	0.220			#	0.00011	-
	mg/L	0250	04/16/2015	N001	0.044			#	0.00011	-
	mg/L	0251	04/13/2015	N001	0.028			#	0.00011	-
	mg/L	0777	04/13/2015	N001	0.120			#	0.00011	-
	mg/L	0780	04/15/2015	N001	0.037			#	0.00011	-
	mg/L	0795	04/14/2015	N001	0.031			#	0.00011	-
Oxidation Reduction Potential	mV	0248	04/14/2015	N001	-42.2			#	-	-
	mV	0250	04/16/2015	N001	20.1			#	-	-
	mV	0251	04/13/2015	N001	139.3			#	-	-
	mV	0777	04/13/2015	N001	90.8			#	-	-
	mV	0780	04/15/2015	N001	-13.5			#	-	-
	mV	0795	04/14/2015	N001	-38.0			#	-	-
pH	s.u.	0248	04/14/2015	N001	7.84			#	-	-
	s.u.	0250	04/16/2015	N001	8.26			#	-	-
	s.u.	0251	04/13/2015	N001	8.66			#	-	-
	s.u.	0777	04/13/2015	N001	8.35			#	-	-
	s.u.	0780	04/15/2015	N001	8.46			#	-	-
	s.u.	0795	04/14/2015	N001	8.70			#	-	-
Specific Conductance	umhos/cm	0248	04/14/2015	N001	507			#	-	-
	umhos/cm	0250	04/16/2015	N001	208			#	-	-
	umhos/cm	0251	04/13/2015	N001	204			#	-	-
	umhos/cm	0777	04/13/2015	N001	261			#	-	-
	umhos/cm	0780	04/15/2015	N001	574			#	-	-
	umhos/cm	0795	04/14/2015	N001	202			#	-	-
Temperature	C	0248	04/14/2015	N001	9.09			#	-	-
	C	0250	04/16/2015	N001	2.18			#	-	-
	C	0251	04/13/2015	N001	11.67			#	-	-
	C	0777	04/13/2015	N001	14.49			#	-	-
	C	0780	04/15/2015	N001	10.40			#	-	-
	C	0795	04/14/2015	N001	12.72			#	-	-
Turbidity	NTU	0248	04/14/2015	N001	3.62			#	-	-
	NTU	0250	04/16/2015	N001	8.04			#	-	-
	NTU	0251	04/13/2015	N001	4.78			#	-	-
	NTU	0777	04/13/2015	N001	7.25			#	-	-
	NTU	0780	04/15/2015	N001	4.75			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 9:17 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0795	04/14/2015	N001	4.42			#	-	-
Uranium	mg/L	0248	04/14/2015	N001	0.027			#	2.9E-05	-
	mg/L	0248	04/14/2015	N002	0.027			#	2.9E-05	-
	mg/L	0250	04/16/2015	N001	0.0007		J	#	2.9E-05	-
	mg/L	0251	04/13/2015	N001	0.0007		J	#	2.9E-05	-
	mg/L	0777	04/13/2015	N001	0.0034			#	2.9E-05	-
	mg/L	0780	04/15/2015	N001	0.042			#	2.9E-05	-
	mg/L	0795	04/14/2015	N001	0.0008		J	#	2.9E-05	-

RECORDS: SELECTED FROM USEE800 WHERE site_code='GUN01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #4/1/2015# and #4/30/2015#

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 compund (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.
J	Estimated value.
N	Presumptive evidence that analyte is present. The analyte is "tentatively identified".
R	Unusable result.
X	Location is undefined.
G	Possible grout contamination, pH > 9.
L	Less than 3 bore volumes purged prior to sampling.
Q	Qualitative result due to sampling technique
U	Parameter analyzed for but was not detected.

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

Appendix D

Water-Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 11:00 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0002	U	7646.75	04/14/2015	13:30	5.46	7641.29	
0005	O	7644.66	04/15/2015	14:20	6.25	7638.41	
0006	O	7647.23	04/15/2015	14:45	11.18	7636.05	
0012R	O	7645.95	04/16/2015	09:00	11.62	7634.33	
0013	D	7643.75	04/15/2015	08:35	12.08	7631.67	
0062	O	7630.61	04/14/2015	10:15	6.71	7623.90	
0063	O	7630.34	04/14/2015	10:35	7.79	7622.55	
0064	O	7620.76	04/14/2015	09:35	6.92	7613.84	
0065	O	7610.27	04/16/2015	10:00	2.19	7608.08	
0066	O	7606.22	04/13/2015	16:55	2.29	7603.93	
0102	U	7647.30	04/14/2015	13:50	6.19	7641.11	
0105	O	7646.11	04/15/2015	13:50	8.30	7637.81	
0106	O	7647.22	04/15/2015	15:05	11.30	7635.92	
0112	O	7645.74	04/16/2015	09:25	12.38	7633.36	
0113	D	7643.83	04/15/2015	08:55	12.17	7631.66	
0125	D	7633.52	04/14/2015	14:25	6.66	7626.86	
0126	D	7634.14	04/14/2015	14:45	6.49	7627.65	
0127	D	7634.64	04/14/2015	15:15	8.35	7626.29	
0135	D	7627.03	04/14/2015	08:35	4.49	7622.54	
0136	D	7626.24	04/14/2015	08:55	3.69	7622.55	
0160	D	7604.39	04/14/2015	16:45	5.20	7599.19	
0161	D	7605.63	04/14/2015	17:05	6.69	7598.94	
0181	D	7616.38	04/15/2015	16:00	2.15	7614.23	
0183	D	7616.27	04/15/2015	15:45	4.08	7612.19	
0186	D	7627.21	04/13/2015	17:55	5.59	7621.62	
0187	D	7625.91	04/13/2015	18:20	5.22	7620.69	
0188	D	7613.65	04/16/2015	11:15	5.78	7607.87	
0189	D	7613.56	04/16/2015	11:50	6.26	7607.30	

STATIC WATER LEVELS (USEE700) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 7/30/2015 11:00 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT DATE	MEASUREMENT TIME	DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG

RECORDS: SELECTED FROM USEE700 WHERE site_code='GUN01' AND LOG_DATE between #4/1/2015# and #4/30/2015#

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

WATER LEVEL FLAGS: