LMS/RFO-RFN/S11940

2014 Verification Monitoring Report for the Old and New Rifle, Colorado, Processing Sites

September 2014

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Abbreviations

CDPHE	Colorado Department of Public Health and Environment
CFR	*Code of Federal Regulations*
COC	contaminant of concern
CY	calendar year
DOE	U.S. Department of Energy
ft	feet
FY	fiscal year
GCAP	Ground Water Compliance Action Plan
IC	institutional control
IFRC	Integrated Field Research Challenge
MCL	maximum concentration limit
mg/L	milligrams per liter
NRC	U.S. Nuclear Regulatory Commission
SOWP	Site Observational Work Plan
UMTRCA	Uranium Mill Tailings Radiation Control Act
VMR	Verification Monitoring Report
VSP	Visual Sample Plan

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Executive Summary

Verification monitoring in 2013 at the Old and New Rifle, Colorado, Processing Sites involved routine semi-annual sampling of groundwater and surface water and monitoring of institutional controls. Sampling results indicate that milling-related contamination persists at the sites. Overall concentrations for most constituents continue to attenuate consistent with the natural flushing compliance strategies previously selected for the sites. However, attenuation rates are not as rapid as predicted by groundwater models, particularly for uranium at the Old Rifle site. Concentrations of constituents do not exceed alternate concentration limits (ACL) set with the current compliance strategy of no remediation with the application of ACLs for six constituents.

The only complete exposure pathway to site-related contamination at the Old Rifle site occurs where groundwater discharges to the Colorado River. River flows are sufficiently high, even during low river stages, that contaminated water rapidly mixes with river water and concentrations are indistinguishable from background. This phenomenon also occurs at the New Rifle site, and groundwater discharging to the river causes no detectable impact to Colorado River water quality. Sampling of the river in 2013 confirmed that neither of the Rifle sites has affected water quality of the Colorado River.

Past operation of a gravel mine downgradient of the New Rifle site has resulted in the surface expression of groundwater in the former gravel pits. Groundwater also discharges to wetland areas onsite that are adjacent to the river. Because of evaporation effects, contaminant concentrations in these surface water areas are commonly higher than in groundwater from adjacent monitoring wells, particularly in the eastern gravel pit and the wetland area. Highest contaminant concentrations observed in 2013 were in these surface water areas, consistent with past results.

Multiple institutional controls are in place to prevent domestic use of groundwater at the Old and New Rifle sites. Because contaminant concentrations in water in the former gravel pits downgradient of the New Rifle site exceed agricultural standards, institutional controls are also in place to prevent the use of those ponds for livestock watering. Visual inspections of the sites during monitoring events and in conjunction with the inspection of the Rifle Processing Sites indicate that institutional controls continue to be effective and no inappropriate use of groundwater or surface water has taken place.

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1.0 Introduction

This Verification Monitoring Report (VMR) presents and interprets groundwater monitoring data collected at the U.S. Department of Energy (DOE) Office of Legacy Management Old and New Rifle, Colorado, Title I Uranium Mill Tailings Radiation Control Act (UMTRCA) sites (Figure 1 and Figure 2). These sites are located near the city of Rifle in Garfield County of western Colorado. Detailed information for the Old and New Rifle sites and water quality data through 1998 and 1999 are in the Site Observational Work Plans (SOWPs) (DOE 1999a and 1999b). DOE has conducted groundwater monitoring semiannually at the Old Rifle site since 1998 and annually or semiannually at the New Rifle site since 1998. This VMR presents data collected during June and November of 2013.

1.1 Compliance Strategies

The Old Rifle SOWP (DOE 1999a) and Ground Water Compliance Action Plan (GCAP) (DOE 2001) are complete; the GCAP received concurrence from the U.S. Nuclear Regulatory Commission (NRC) and the Colorado Department of Public Health and Environment (CDPHE). The conditions of the natural flushing compliance strategy are to maintain institutional controls (ICs) over the site and conduct a monitoring program until concentrations of contaminants of concern (COCs) decrease to acceptable levels. Because the natural flushing compliance strategy has not been performing as expected, the GCAP was revised based on new characterization information. The new compliance strategy—no remediation with the application of alternate concentration limits—was proposed (DOE 2013b). The revised GCAP has been submitted to NRC and CDPHE for comment.

The New Rifle SOWP (DOE 1999b) was prepared by DOE and submitted to CDPHE and NRC. Modeling indicated that most COCs at the site would naturally flush to maximum concentration limits (MCLs) established in Title 40 *Code of Federal Regulations* (CFR) Part 192 for groundwater within 100 years. A draft GCAP supporting this natural flushing compliance strategy (DOE 2003) was submitted to regulators and has been the basis for continued monitoring and annual reporting at the site. As at the Old Rifle site, measurements of COCs at the New Rifle site for the past decade do not indicate that concentrations will decrease to acceptable levels within 100 years, and a new compliance strategy was proposed. A draft GCAP containing the new strategy—no remediation and application of alternate concentration limits (ACLs)—was recently submitted to regulators (DOE 2013a).

According to the historical compliance strategies of natural flushing at both sites, a VMR is required, and this report will therefore be generated again this year. Both the current natural flushing compliance strategies and proposed compliance strategies of no remediation with the application of ACLs require continued groundwater and surface water monitoring along with implementation of ICs that restrict access to contaminated groundwater. This VMR presents the monitoring data in the context of both the current and proposed groundwater compliance strategies.

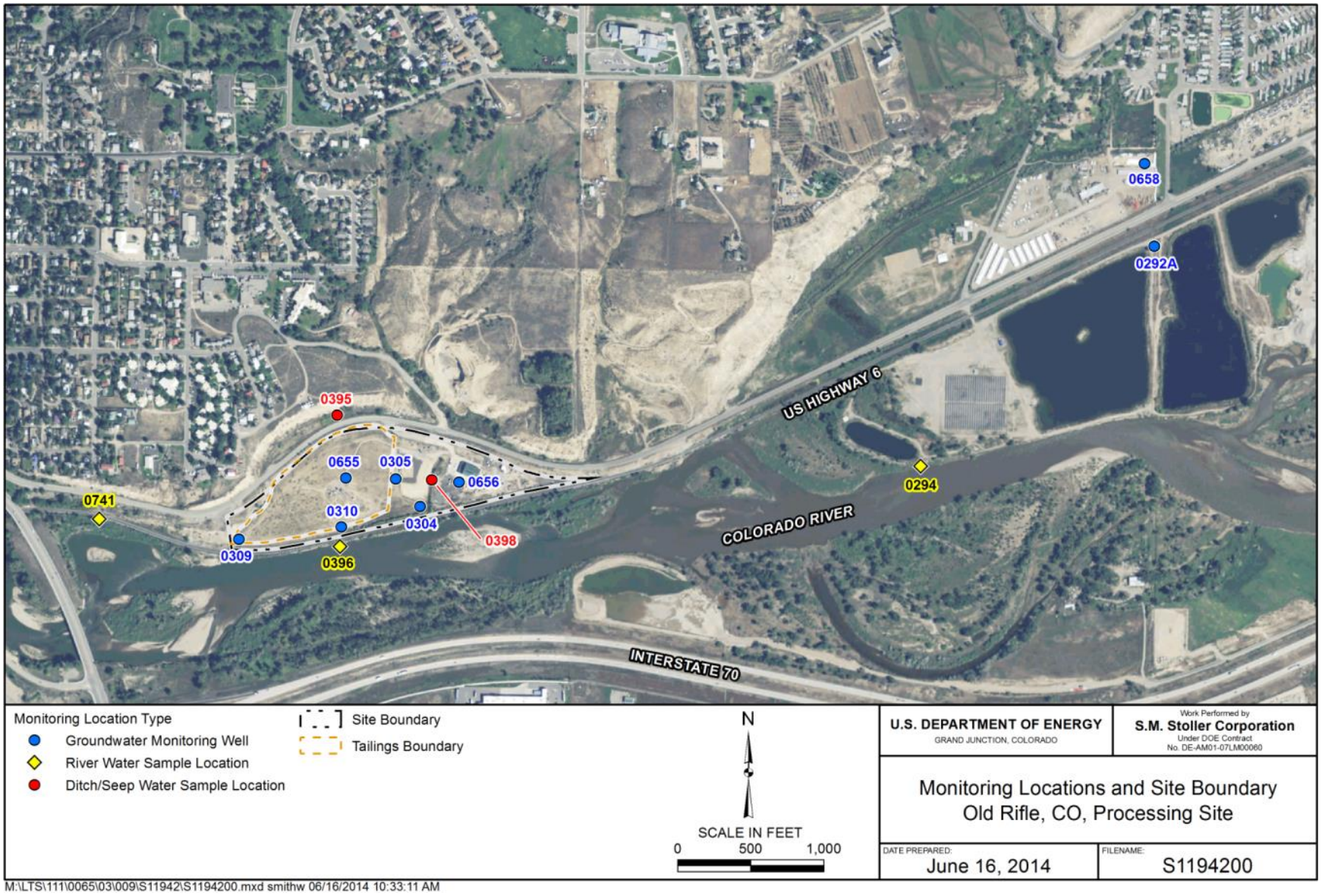

Figure 1. Monitoring Locations and Site Boundary, Old Rifle, Colorado, Processing Site

Figure 2. Monitoring Locations and Site Boundary, New Rifle, Colorado, Processing Site

1.2 Site Status

The City of Rifle owns the land on which the former Old and New Rifle uranium-ore-processing facilities were located. The area immediately downgradient of the New Rifle site is owned by Umetco, now Dow Chemical. Sampling occurred twice last year at both sites at locations shown in Figure 1 and Figure 2. A requirement of the natural flushing compliance strategies is to maintain ICs over the sites and affected downgradient areas until concentrations of COCs decrease to acceptable levels.

1.3 Land Use, Water Use, and ICs

The City of Rifle acquired the Old Rifle processing site property from the State of Colorado in 2000. The City uses the site for an operations and maintenance facility. The site has also been established as an Integrated Field Research Challenge (IFRC) site through DOE's Office of Science. Experiments have been conducted at the Old Rifle site since 2003 to better understand the behavior of uranium in the alluvial aquifer.

Because of the geomorphology and hydrology of the Old Rifle site, contamination is contained onsite until it flushes into the Colorado River along the south side. The three ICs for the Old Rifle site—the quitclaim deed, an environmental covenant, and the Ordinance #9 Zone District—are all contained and overlap within the site boundary (Figure 3).

The New Rifle processing site property was transferred from the State of Colorado to the City of Rifle in 2004. The site currently contains the City's wastewater treatment plant, a defunct composting facility, and the Colorado State University experimental station for producing biofuels. The City recently constructed roads and streetlights along the northern and western corridors of the site. Dow Chemical (which acquired Umetco Minerals Corporation) owns the adjacent downgradient property (Figure 3). Other private parties own parcels farther downgradient of the site.

Historically, domestic wells downgradient of the New Rifle site were used for drinking water. However, these wells are no longer in use, and the City supplies drinking water for these locations via an alternate water supply system funded by DOE and the State. The Roaring Fork gravel pit (now owned by Dow Chemical) ceased operation in 2003, and the ponds have since filled with groundwater and equilibrated with the local water table. The banks of the ponds have been contoured and seeded. No immediate plans are in place for this property, although the City would like to acquire it for future development.

ICs prevent improper use of the groundwater while natural attenuation is in progress. Aside from City government ownership of the former mill site properties, the quitclaim deeds for the properties state "Grantee covenants (ii) not to use groundwater from the site for any purpose, and not to construct wells or any means of exposing groundwater to the surface unless prior written approval for such use is given by the Grantor and the DOE." This restriction was recorded with the deeds, will be binding upon future landowners, and is enforceable by the State. Figure 3 shows the combined and overlapping IC areas for the New Rifle site.

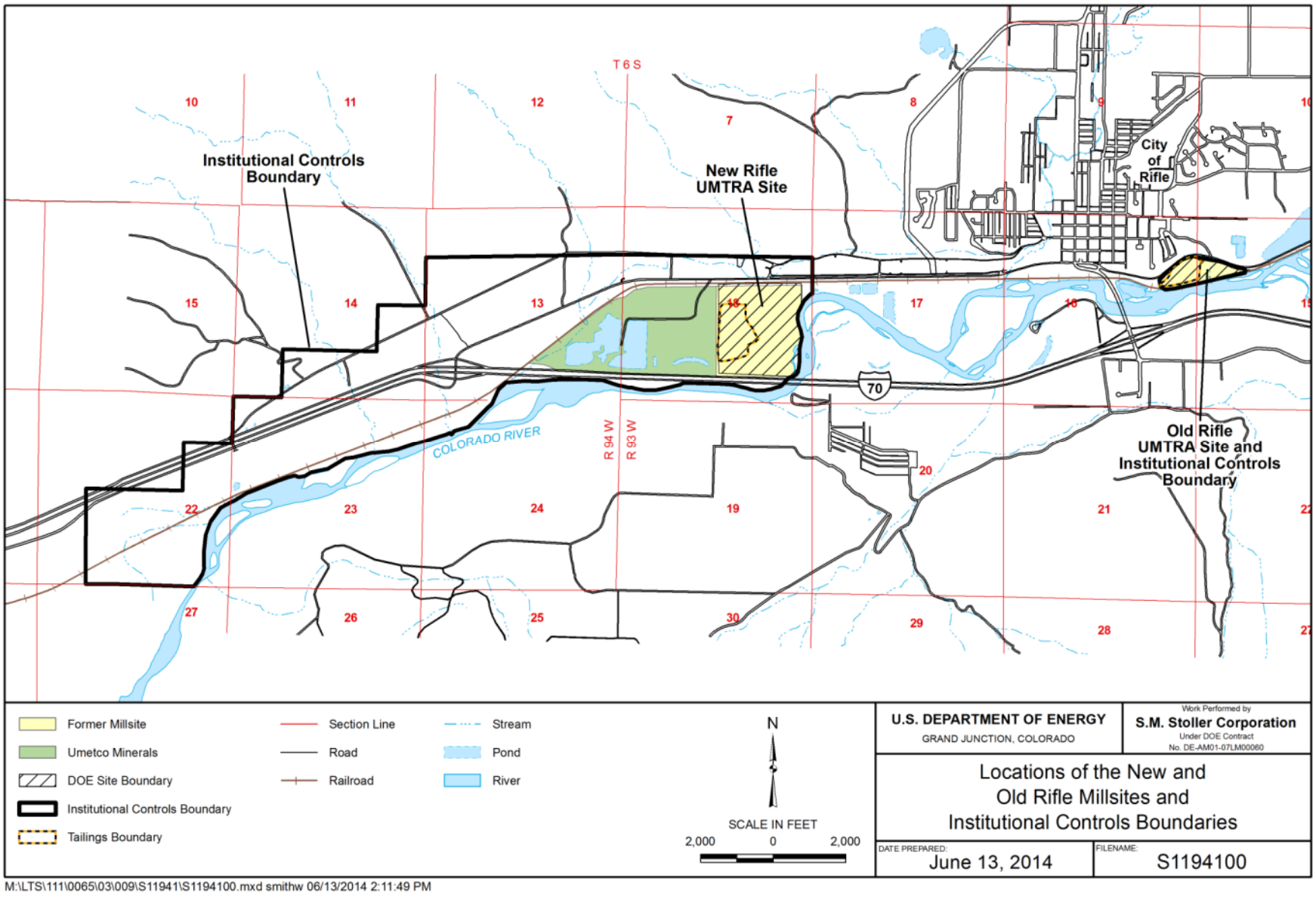

Figure 3. Location of the New and Old Rifle Mill Sites and Institutional Controls Boundaries

In 2001, the State of Colorado passed into law Senate Bill 01-145 (effective July 1, 2001), which creates enforceable covenants that can be used to place environmental restrictions on properties. These covenants run with the land until a request is made to modify or terminate the covenants. Covenant ID HMCOV00001 was placed on the New Rifle site on October 8, 2001, and prevents potable use of groundwater. Covenant ID HMCOV00006 was placed on the Old Rifle property on October 29, 2002, and prohibits drilling of alluvial aquifer wells and earthmoving activities without CDPHE approval (http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251616815821). It also requires the use of radon vent systems for any habitable structures.

In 2008, the City of Rifle passed special zoning Ordinance 9, which sets forth procedures and restrictions governing development of these City-owned properties. The ordinance codified restrictions already outlined in the quitclaim deed and environmental covenants, as well as requirements for both soil and groundwater materials handling plans.

In 2009, covenant ID HMCOV00073 between CDPHE and Umetco Minerals Corporation (and parent company Dow Chemical) was signed for the parcel of land that is downgradient of the mill site and that contains the large Roaring Fork gravel ponds. It prohibits any wells from being drilled on the property, prohibits livestock from using the ponds, disallows interference with DOE monitoring wells, and grants DOE access to these wells.

The City ordinance for the New Rifle site extends downgradient from the site to the city limit and requires that property owners obtain their potable water from the municipal water supply system. A Garfield County zoning ordinance extends from the Rifle city limit to the downgradient extent of the IC area shown in Figure 3. It gives property owners the option of obtaining potable water from the municipal water supply system or using an alternative, approved domestic water supply. In the past, DOE supplied reverse-osmosis units to residents with domestic wells completed in the alluvial aquifer. Since that time, those wells were replaced with City water taps. No private domestic wells are in use or being sampled at this time.

2.0 Site Conditions

2.1 Hydrogeology

The Old Rifle processing site is 0.3 mile southeast of the city of Rifle, in a floodplain on the north side of the Colorado River (Figure 1). Groundwater is unconfined in the uppermost aquifer, which consists of river alluvium and the upper weathered surface of the Tertiary Wasatch Formation. The uppermost aquifer is 5 to 25 feet (ft) thick; saturation occurs from 5 to 10 ft below ground surface. The uppermost aquifer is composed of poorly sorted sediments that range from clay-sized material to cobbles and occasional boulders. Groundwater in the alluvial aquifer flows to the west-southwest. Hydraulic conductivity estimates for the alluvial aquifer range from 100 to 125 ft per day (DOE 1999a); estimates for the weathered Wasatch are about 0.02 ft per day (DOE 1999a).

Recharge to the alluvial aquifer is from an unlined irrigation return ditch that flows across the middle of the site, subsurface inflow from north of Highways 6&24, and precipitation. The Colorado River and the alluvial aquifer probably interact, but the monitoring network is insufficient to fully characterize the interaction. Groundwater discharge is mainly to the Colorado River. At the Old Rifle site, alluvium pinches out against bedrock outcrops at the downgradient end of the site. The alluvial aquifer at the Old Rifle site has no hydraulic connection to the alluvial aquifer at the New Rifle site.
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The Old Rifle SOWP (DOE 1999a) provides additional data regarding the hydrogeology of the Old Rifle site and the site conceptual model. Results of subsequent IFRC studies have shown that the current conceptual model for the site is much more complex than the model developed from data available at the time the SOWP was completed. A recent report (DOE 2011) summarizes the results of the IFRC studies and presents a revised conceptual model for the site. A revised GCAP (DOE 2013b) also stresses the importance of groundwater inputs from north of the site.

The New Rifle former processing site is about 1.5 miles west of the city of Rifle and is also situated on the north floodplain of the Colorado River (Figure 2). As with the Old Rifle site, the uppermost aquifer consists of poorly sorted river alluvium and the weathered surface of the Wasatch Formation. Hydraulic conductivities for the alluvial aquifer range from 53 to 275 ft per day with an average of 114 ft per day (DOE 1999b). Alluvium is thickest along the western and southern portions of the site and is continuous for at least 4 miles downgradient of the site. Recharge is from ephemeral streams from the north, precipitation, and inflow from the Colorado River along the east side of the site (DOE 1999b). Groundwater discharge is primarily to the Colorado River; groundwater also discharges to other surface water features (wetland area, gravel ponds).

At one time, Roaring Fork Resources operated a gravel mine on the property adjacent to and downgradient of the New Rifle site. Water was pumped from an active onsite mining pit, where excavation was occurring, to another onsite pit for storage and infiltration. (These pits have been referred to previously as the "Roaring Fork ponds.") During Roaring Fork Resources' period of operation, the pumping affected groundwater flow downgradient of the New Rifle site, creating both a cone of depression in and a groundwater mound on the alluvial aquifer water table (DOE 1999b). Operation of the gravel mine ceased in early 2003, and natural alluvial

groundwater flow conditions have reestablished, though the effects of the ponds on contaminant distribution persist today. Over time, and with the progression of natural flushing, these effects have become less pronounced. The revised GCAP (DOE 2013a) discusses the importance of flow from the north, especially toward the western stretches of the IC boundary.

2.2 Groundwater Quality

Alluvial groundwater in background locations near the Rifle sites has concentrations of selenium and uranium that are above MCLs (DOE 1995b). Sulfate levels in background locations have also been relatively high, far exceeding the secondary drinking water standard of 250 milligrams per liter (mg/L) (non-enforceable; based on aesthetic considerations). However, previous studies have demonstrated that historical milling operations contributed to contamination of the groundwater in the uppermost aquifer beneath the Old Rifle site and beneath and downgradient of the New Rifle site.

Table 1 presents historical data for COCs in groundwater at both sites before surface remediation was completed. A comparison of historical data with benchmarks indicates that concentrations of several COCs exceeded criteria. The New Rifle site had a greater number of contaminants and much higher contaminant concentrations than the Old Rifle site.

Table 1. Historical Groundwater Chemistry for Old and New Rifle Site COCs

COC (all units mg/L)	Benchmark	Old Rifle Site		New Rifle Site	
		Historical Range[a] Aug. 1990–Aug. 1994	Median[a]	Historical Range[a] Aug. 1990–Aug. 1994	Median[a]
Ammonia as NH_4[b]	NA	NA	NA	506–1,750	1,030
Arsenic	0.05[c]	NA	NA	0.97–1.3	1.1
Molybdenum	0.10[c]	NA	NA	2.3–3.7	2.9
Nitrate + Nitrite as Nitrogen	10[c]	NA	NA	124–251	177
Selenium	0.041[d]	0.007–0.085	0.072	<0.002–0.3	<0.05
Uranium	0.067[d]	1.6–2.1	1.8	0.24–0.37	0.29
Vanadium	NA	0.5–0.75	0.55	0.59–2.8	1.3

[a] Ranges and median values are from the Baseline Risk Assessment (DOE 1995a), Table 3.1 (pre-remedial action).
[b] No longer considered a COC; included to understand nitrate behavior.
[c] U.S. Environmental Protection Agency groundwater standards (40 CFR 192) for UMTRCA sites.
[d] Maximum background value, cleanup goal.
NA = not applicable

Mill tailings and other milling-related materials were removed during surface remediation at the Rifle sites. Surface remediation was completed by 1996, and tailings were stabilized in an engineered repository about 6 miles north of Rifle. Residual radioactive materials were removed down to and, in some cases, just below the groundwater surface. The excavations were backfilled with clean gravel and soil, and the surface was given 6 inches of topsoil and sown with seed mixtures.

Subsequent characterization completed at the New Rifle site as part of a pilot study for the removal of vanadium from the groundwater (DOE 2000) indicated that some residual soil contamination remains at that site below the water table. Analyses showed elevated

concentrations of vanadium; several samples also showed residual concentrations of molybdenum, uranium, and arsenic. Most of these soils are associated with the location of a former disposal pond and, to a lesser extent, a former tailings pile. From 2008 through 2010, the City of Rifle conducted activities within and to the east of these known contaminated soils during construction of the wastewater treatment facility. The water table was lowered by 5 to 8 ft in places. During that time, groundwater in several wells near the dewatering site had increased concentrations of vanadium, arsenic, molybdenum, and selenium, but concentrations largely returned to pre-dewatering levels within a year.

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3.0 Monitoring Program

3.1 Monitoring Network

Table 2 lists the sampling locations for wells and surface water locations that constitute the routine monitoring network at the Old Rifle processing site. The network consists of nine monitoring wells (six onsite wells and three background wells) and five surface water locations (Figure 1).

Table 2. Summary of GCAP Monitoring Requirements for the Old Rifle Site

Location	Monitoring Purpose	Analytes	Frequency
RFO-0305, RFO-0655	Center of plume[a]; west side of ditch	Selenium, uranium, vanadium	Semiannually
RFO-0656	Center of plume; east side of ditch	Selenium, uranium, vanadium	Semiannually
RFO-0304, RFO-0309, RFO-0310	Farthest downgradient location; leading edge of plume	Selenium, uranium, vanadium	Semiannually
RFO-0292A, RFO-0658, RFN-0169	Background groundwater quality; upgradient monitoring well	Selenium, uranium, vanadium	Semiannually
RFO-0395, RFO-0398	Monitor surface water recharging aquifer; seep and onsite ditch	Selenium, uranium, vanadium	Semiannually
RFO-0294 (to replace RFO-0598), RFO-0396, RFO-0741	Monitor effects of site on river; surface water; upgradient of, adjacent to, and downgradient of site on Colorado River	Selenium, uranium, vanadium	Semiannually

[a] Based on uranium.

Table 3 lists the current monitoring requirements for the New Rifle site. The monitoring network currently consists of 17 monitoring wells at various locations and seven surface water sampling sites, including two river locations (Figure 2). The two Old Rifle background wells (RFO-0658 and RFO-0292A) and well RFN-0169 serve as background wells for the New Rifle site. Monitoring was conducted twice for the New Rifle site during calendar year (CY) 2013.

Table 3. Summary of GCAP Monitoring Requirements for the New Rifle Site

Location	Monitoring Purpose	Analytes	Frequency
RFN-0170, RFN-0172, RFN-0620	Monitor middle and leading edge of molybdenum, uranium, and nitrate plumes	Molybdenum, uranium, nitrate	Semiannually
RFN-0195, RFN-0201, RFN-0215, RFN-0216, RFN-0217, RFN-0590, RFN-0635, RFN-0658, RFN-0659, RFN-0664, RFN-0669, RFN-0670, RFN-0855	Monitor flushing in main body of plumes	Molybdenum, nitrate, uranium	
RFN-0169, along with RFO-292A and RFO-658	Monitor background	Molybdenum, nitrate, uranium	
RFN-0320, RFN-0322, RFN-0323, RFN-0324, RFN-0452, RFN-0453, RFN-0575	Monitor surface water to determine impact of groundwater discharge to surface water and ecological receptors	Molybdenum, nitrate, uranium, vanadium	
RFN-0215, RFN-0216, RFN-0217, RFN-0590, RFN-0658, RFN-0659, RFN-0664, RFN-0669, RFN-0670, RFN-0855	Monitor flushing in main body of plumes	Vanadium	

3.2 Results of the Monitoring Program

3.2.1 Old Rifle Site

3.2.1.1 Surface Water

Results of CY 2013 surface water monitoring in the Colorado River (locations RFO-0294, RFO-0396, and RFO-0741) indicate that the water quality of the river adjacent to and downgradient of the Old Rifle site is indistinguishable from background water quality. This confirms the calculations included in the SOWP (DOE 1999a) demonstrating that groundwater discharged to the river would undergo rapid mixing with river water. The two sampling events of the site ditch at RFO-0398 showed uranium levels of 0.014 mg/L and 0.016 mg/L; seep RFO-0395, which represents groundwater as a source of recharge to the alluvial aquifer, had measurable amounts of uranium of 0.024 mg/L and 0.021 mg/L. Appendix C includes surface water results for this VMR monitoring period.

3.2.1.2 Groundwater

Appendix C includes groundwater monitoring results for CY 2013. Figure 4 through Figure 9 present spot plots showing the distribution of COCs in groundwater at the Old Rifle site. Appendix A presents time-concentration graphs for wells sampled at both the Old and New Rifle sites. Table 4 lists the benchmarks for natural flushing and proposed ACLs for the Old Rifle site. It also presents ranges and means for monitoring results for the Old Rifle site for two periods—(1) 1998 and 1999, shortly after the completion of surface remediation, and (2) the most recent monitoring results, from June and November 2013. A comparison of these two groups of data shows that significant natural attenuation has occurred for selenium and vanadium after the surface cleanup ended, but little if any attenuation has occurred for uranium.

Table 4. Post-Surface-Remediation Groundwater Monitoring Results for the Old Rifle Site

Contaminant (all units mg/L)	Benchmark	ACL Proposed in 2013	Range 1998–1999	Mean 1998–1999	Range 2013	Mean 2013
Selenium	0.05[a]	12.3	<0.0001–0.122	0.023	0.0001–0.022	0.0065
Uranium	0.044[b]	44.4	0.0268–0.270	0.0997	0.018–0.19	0.092
Vanadium	0.33[c]	126	<0.0006–0.799	0.2337	0.0002–0.38	0.112

Data are for wells RFO-0304, RFO-0305, RFO-0309, RFO-0310, RFO-0655, and RFO-0656.
[a] U.S. Environmental Protection Agency Safe Drinking Water Act standard and approved ACL; more recently, a maximum background concentration of 0.041 mg/L has been used as a benchmark, but the 2001 GCAP that received NRC concurrence cited 0.05 mg/L.
[b] U.S. Environmental Protection Agency UMTRCA groundwater standard (40 CFR 192).
[c] Risk-based concentration.

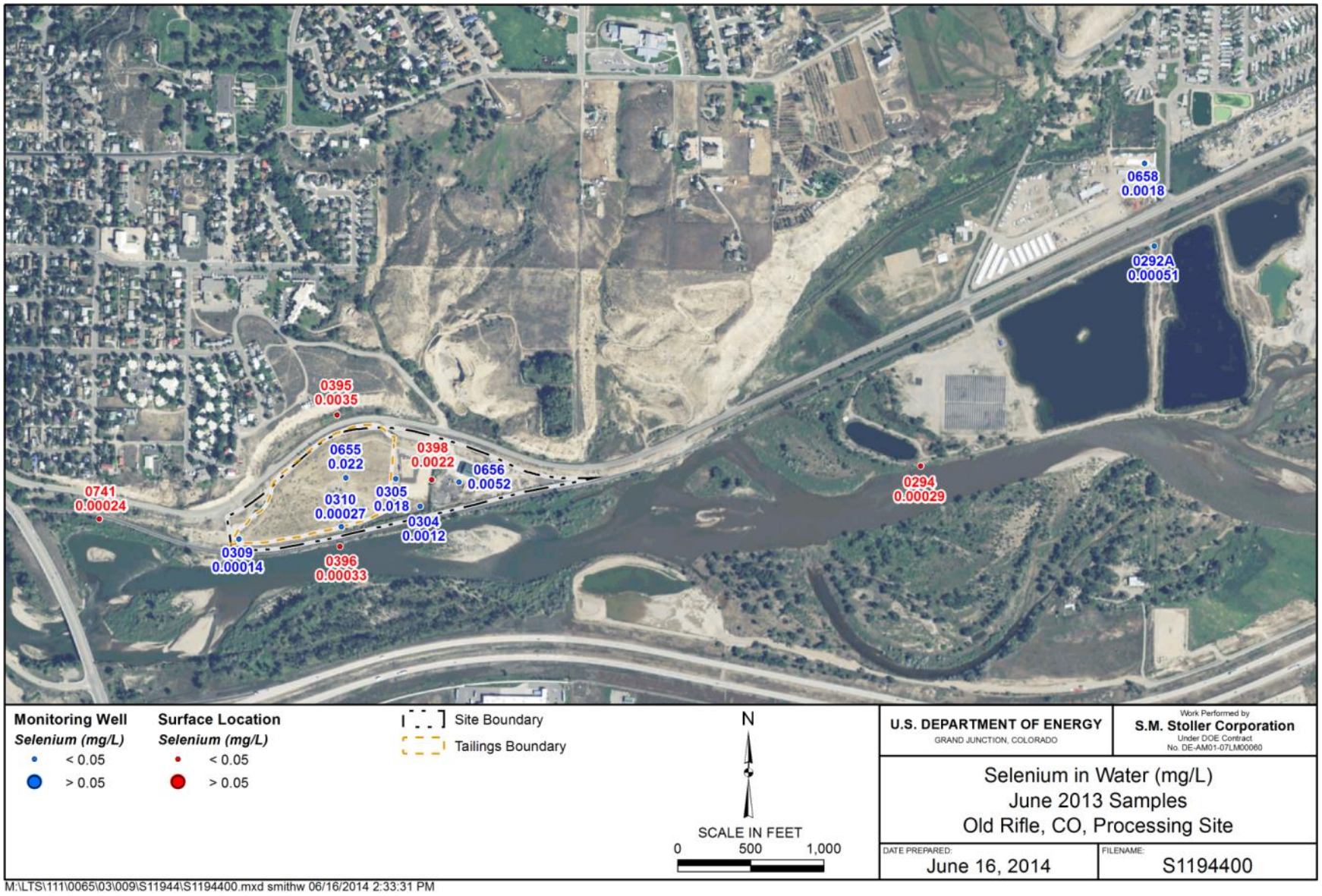

Figure 4. Selenium in Water, June 2013 Samples, Old Rifle, Colorado, Processing Site

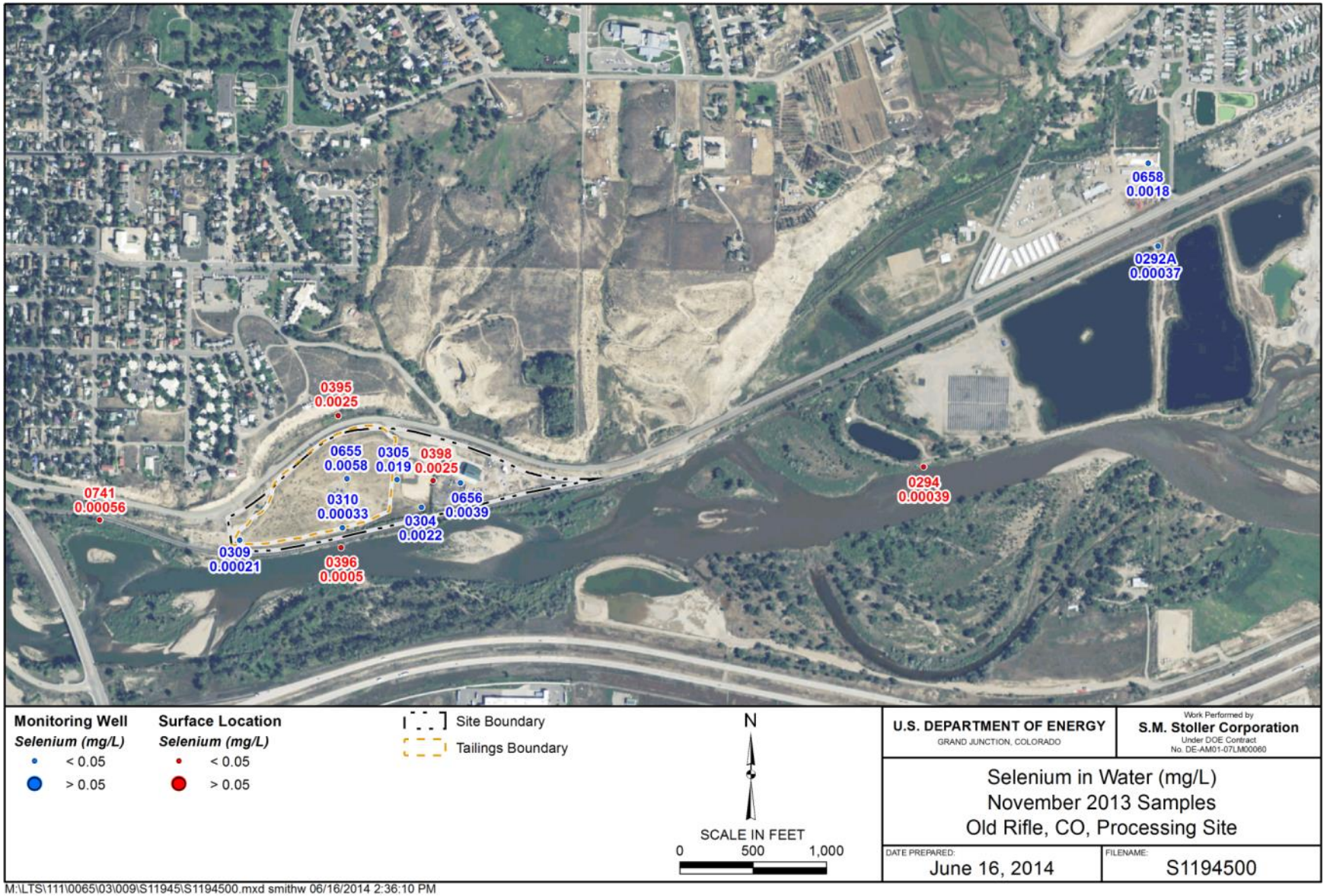

Figure 5. Selenium in Water, November 2013 Samples, Old Rifle, Colorado, Processing Site

Figure 6. Uranium in Water, June 2013 Samples, Old Rifle, Colorado, Processing Site

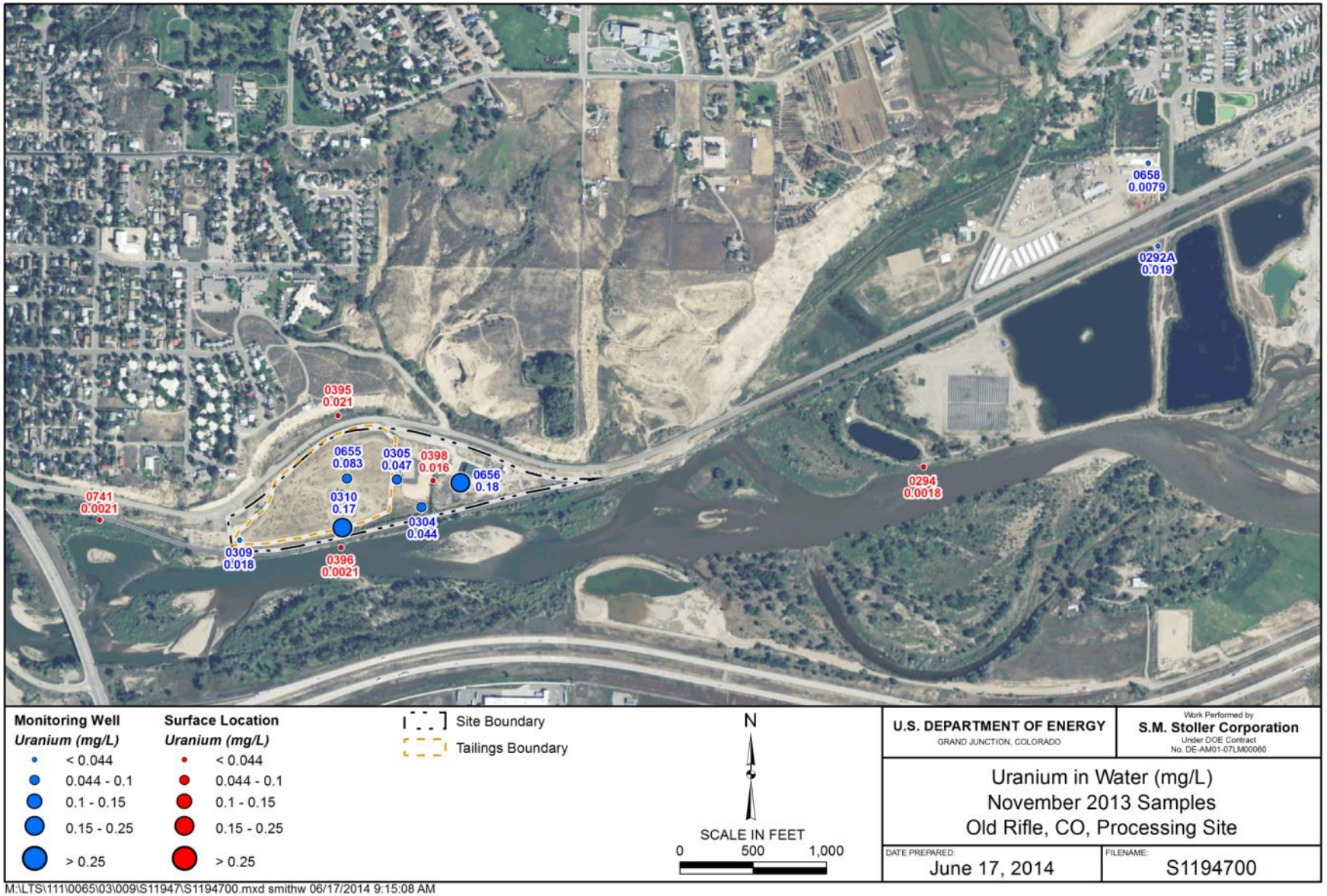

Figure 7. Uranium in Water, November 2013 Samples, Old Rifle, Colorado, Processing Site

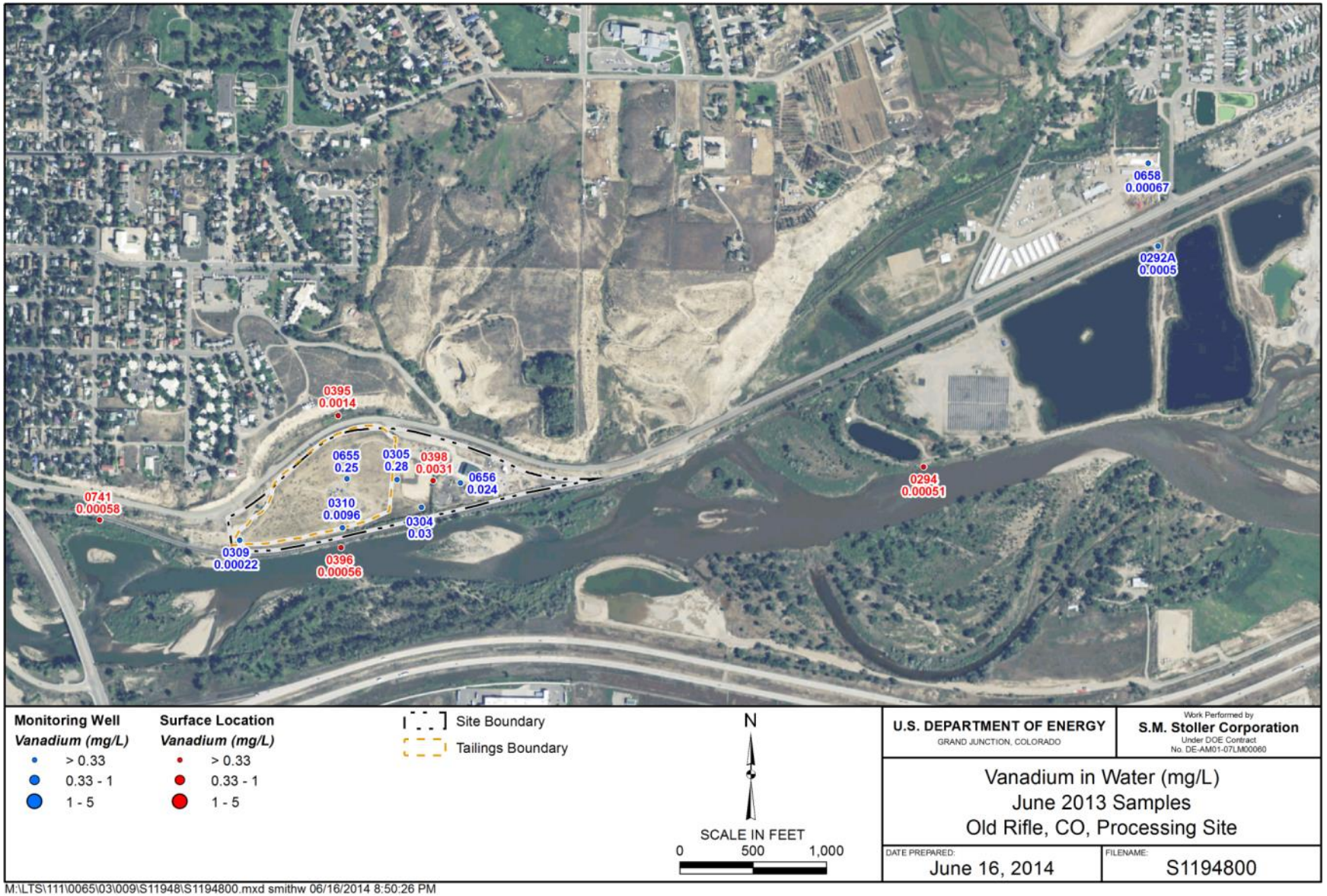

Figure 8. Vanadium in Water, June 2013 Samples, Old Rifle, Colorado, Processing Site

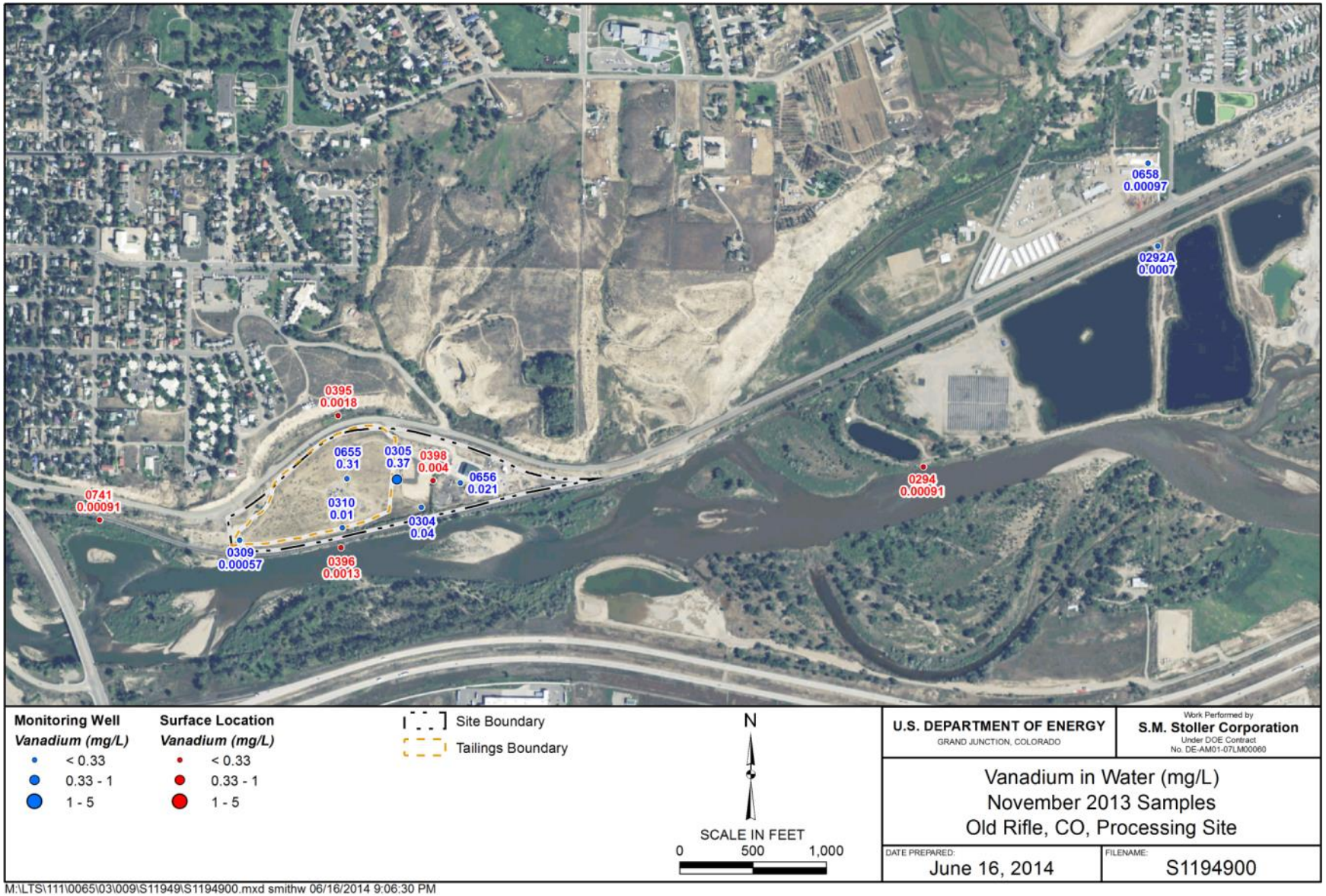

Figure 9. Vanadium in Water, November 2013 Samples, Old Rifle, Colorado, Processing Site

Spot plots shown in Figure 4 through Figure 9 indicate that elevated uranium concentrations persist across the site, while selenium and vanadium distributions are somewhat more localized. The more limited distribution of and greater decreases in concentrations of vanadium and selenium, when compared to uranium, can likely be attributed to adsorption onto or precipitation within aquifer solids. Attenuation through immobilization rather than true flushing of the aquifer is probably the cause for decreases in concentrations of these COCs.

By contrast, uranium tends to be a highly mobile constituent and was expected to easily be flushed from site groundwater in solution. The model in the SOWP predicted that flushing of uranium would achieve MCLs within a 10-year period (DOE 1999b). The fact that uranium concentrations have not decreased significantly at the site may indicate that the inventory of uranium in the aquifer system was underestimated, that groundwater is not moving through the subsurface as rapidly as previously thought, or that the behavior of uranium in aquifer materials is more complicated than expected. The 2013 GCAP (DOE 2013b) revision addressed these and other questions.

Selenium

In 2008 and 2009, the selenium concentrations for all wells were below the old maximum background level observed at the time (0.036 mg/L). In June 2010, the concentration in well RFO-0655 increased to 0.064 mg/L, nearly double the background level, and in June 2011, it increased further to 0.076 mg/L. By November 2011, the concentration had decreased to 0.012 mg/L. The most recent results were 0.022 mg/L in June 2013 and 0.0058 in November 2013. Overall, the average concentration of 0.0065 mg/L for wells is below the more recent maximum background concentration of 0.041 mg/L (observed in April 2010). Selenium concentrations in all wells are well below the proposed ACL.

Uranium

Uranium persists at the site. Uranium concentrations at most sampling locations continued to exceed the uranium MCL during CY 2013. The current average concentration of uranium is slightly lower than it was shortly after completion of surface remediation (Table 4). Time-concentration plots are ambiguous with respect to the attenuation of uranium. Portions of plots for some wells show increases, while others show decreases; plots for other wells appear to fluctuate around almost level concentrations.

Concentrations in well RFO-656 on the east side of the site, which have increased since 2003, stayed fairly stable in 2013 with concentrations of 0.019 and 0.018 mg/L in June and November, respectively. The reason for the increase is not clear. One suggestion is interaction of groundwater with concrete used for the construction of the City Maintenance facility. Alkalinity as total calcium carbonate in RFO-656 increased from 217 mg/L in November 2003 to 413 mg/L in November 2012. This may have mobilized uranium. Recent data suggest that concentrations at this location may have stabilized. Uranium concentrations at all locations were well below the proposed ACL.

Vanadium

Table 4 indicates that the average concentration of vanadium in alluvial groundwater at the Old Rifle site is currently below a previously established risk-based benchmark value of 0.33 mg/L. Only location RFO-0305 had a vanadium concentration that exceeded this value for the November 2013 event. Vanadium levels in samples from well RFO-0305 have fluctuated around the benchmark after a sharp decline to below the benchmark value in June 2010. Vanadium concentrations in all wells are below the maximum values detected from 1999 and are well below the proposed ACL.

3.2.1.3 Institutional Controls Monitoring

The effectiveness of the ICs discussed in Section 1.3 is monitored in conjunction with groundwater monitoring. Changes in land use are noted during regular groundwater sampling events and are recorded in trip reports. Scientists are present at the Old Rifle site for much of the year because of the ongoing IFRC studies, especially from May until November. No new construction was noted at the Old Rifle site in 2013. DOE and CDPHE indicated that radon abatement should be implemented in a small building at the radio control car park that was enclosed during the year. This was completed. Ordinance 9, Uranium Mill Tailings Remedial Action Overlay Zone District, Series 2008, paragraph c, No. 8, requires the City manager to inform City managers about standard operating procedures, deed restrictions, and environmental covenants contained in the ordinance. The Rifle site lead received a written confirmation from the Rifle City manager on this requirement.

3.2.2 New Rifle Site

3.2.2.1 Surface Water

Appendix C includes surface water monitoring results for CY 2013. Two surface water locations at the New Rifle site (locations RFN-0322 and RFN-0324) represent Colorado River water. At the other five surface locations, three samples were collected from the wetland area ponds, and two samples were collected from the former Roaring Fork gravel ponds. These can be seen in the spot plots (Figure 10 through Figure 19) and in time-concentration graphs in Appendix A-2. Concentrations of molybdenum, nitrate, and uranium are above MCLs or background concentrations for some locations. Multiple ICs at the site ensure that there are no exposures that could result in unacceptable human health risks. Although ammonia is not a COC because concentrations dropped below values of concern for human health (calculated as 155 mg/L NH_3 as N for inhalation in a closed structure; DOE 1999b), it was kept as an analyte for comparison with nitrate. Ammonia levels remain above those acceptable for aquatic life. For a representative surface water pH of about 8, the acute ambient water quality criteria for ammonia (salmonids absent) is 8.4 mg/L as N (EPA 1999).

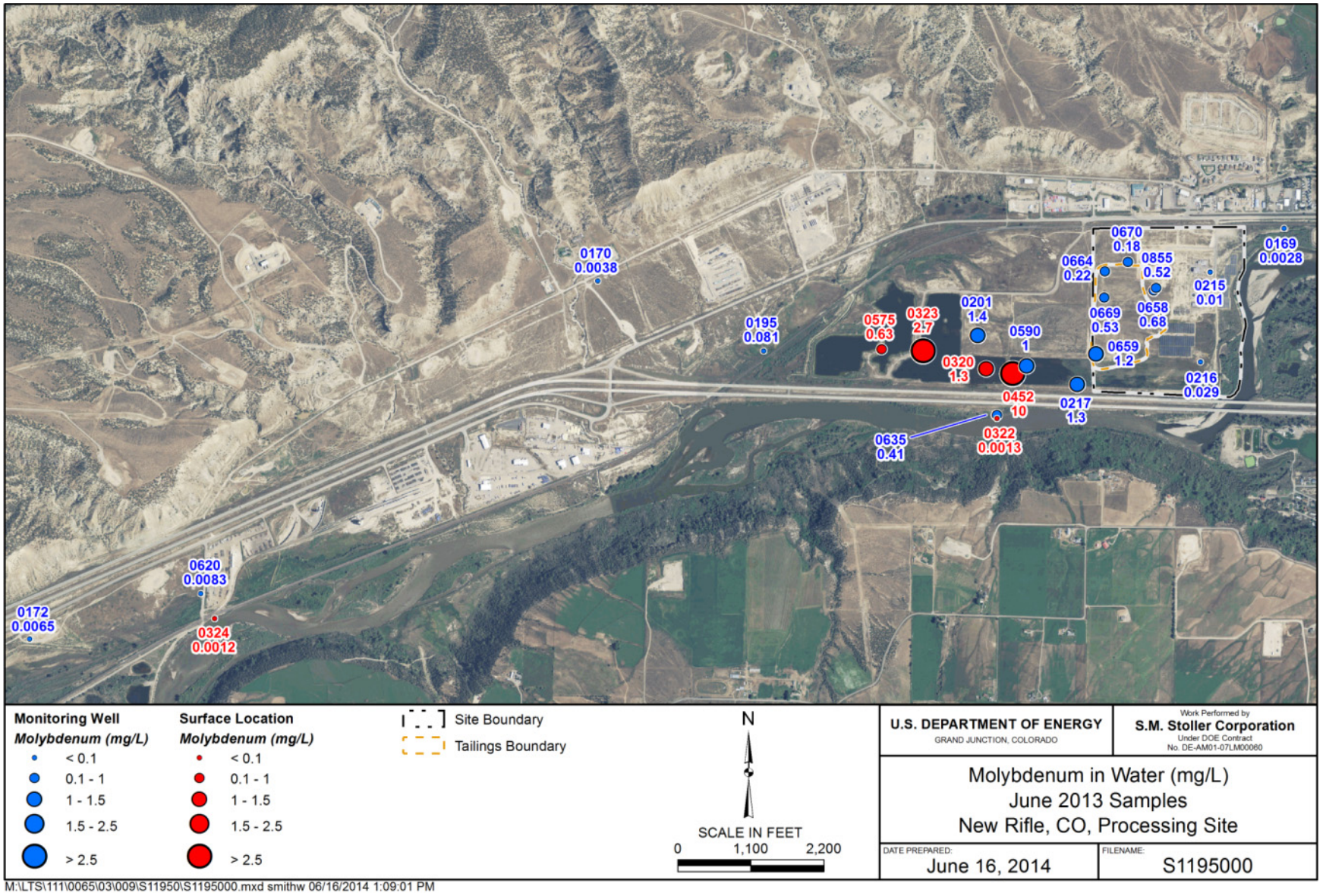

Figure 10. Molybdenum in Water, June 2013 Samples, New Rifle, Colorado, Processing Site

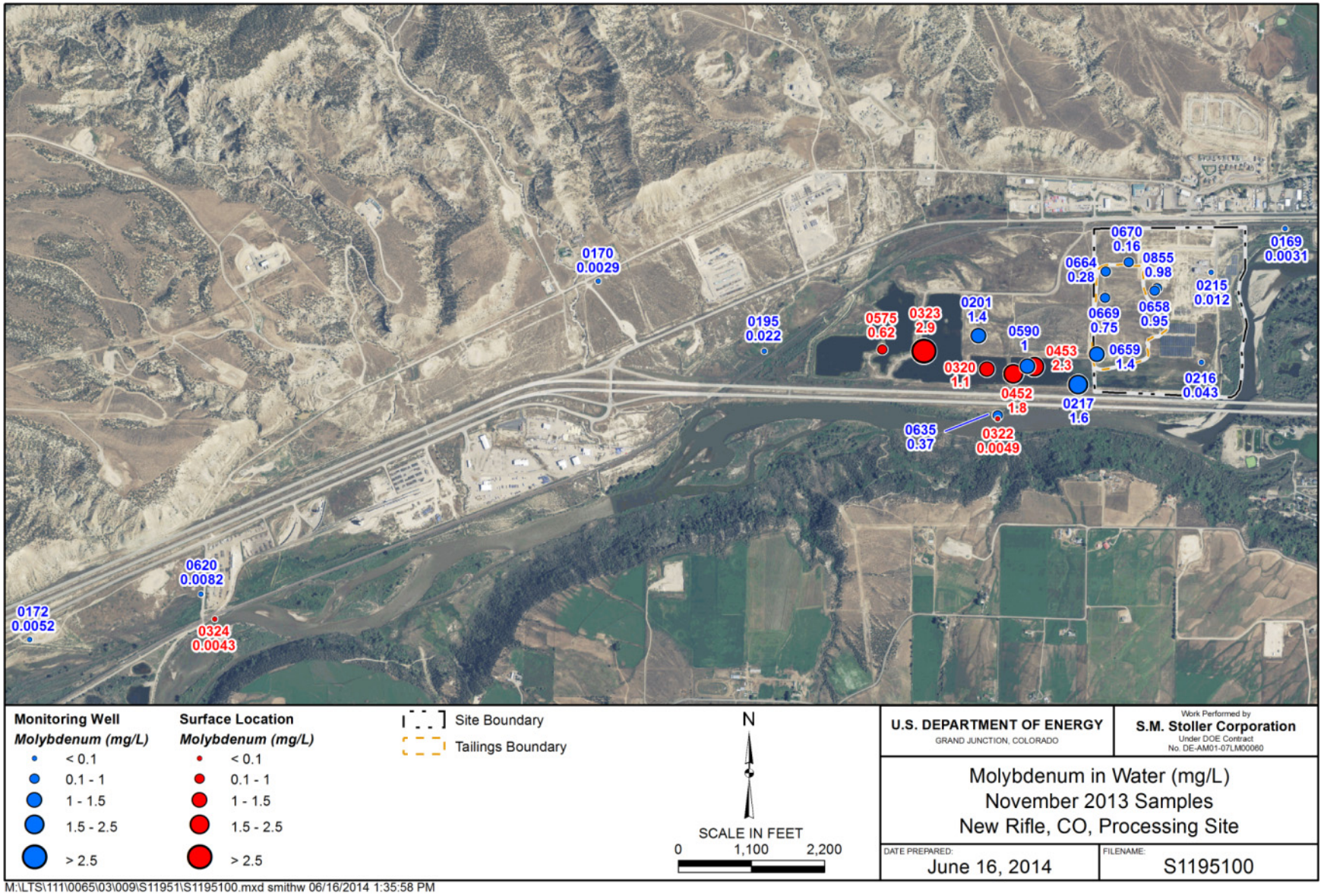

Figure 11. Molybdenum in Water, November 2013 Samples, New Rifle, Colorado, Processing Site

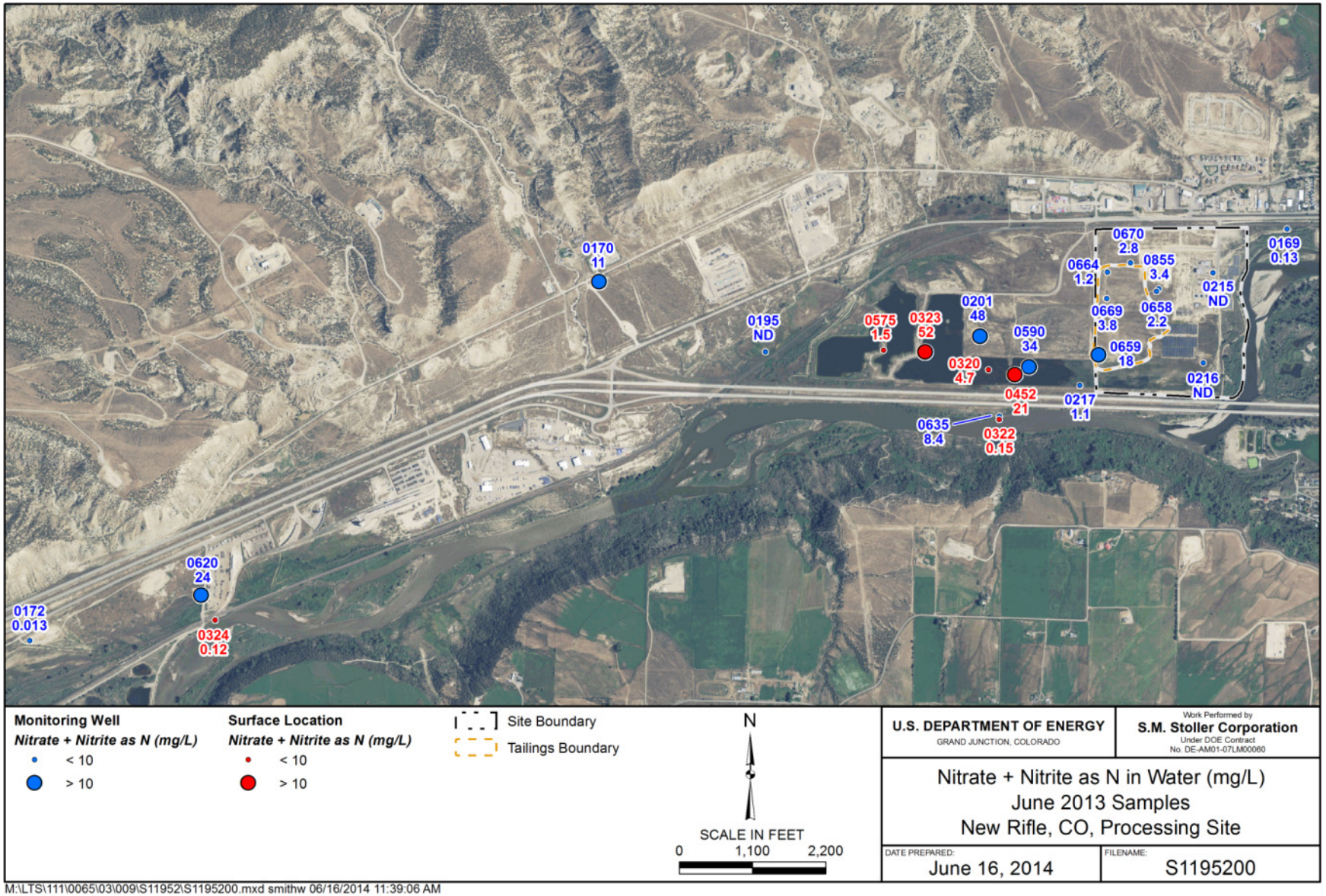

Figure 12. Nitrate + Nitrite as N in Water, June 2013 Samples, New Rifle, Colorado, Processing Site

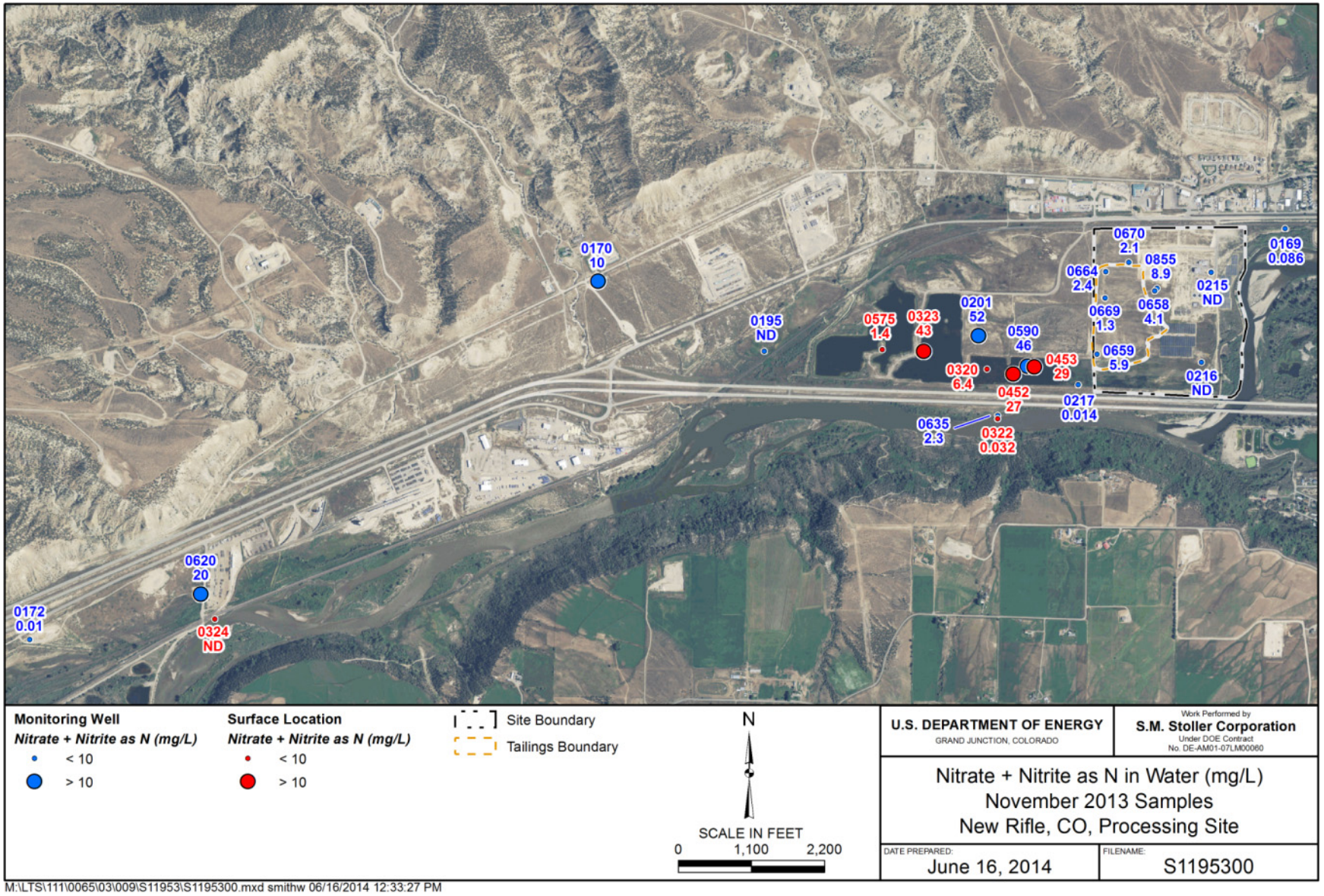

Figure 13. Nitrate + Nitrite as N in Water, November 2013 Samples, New Rifle, Colorado, Processing Site

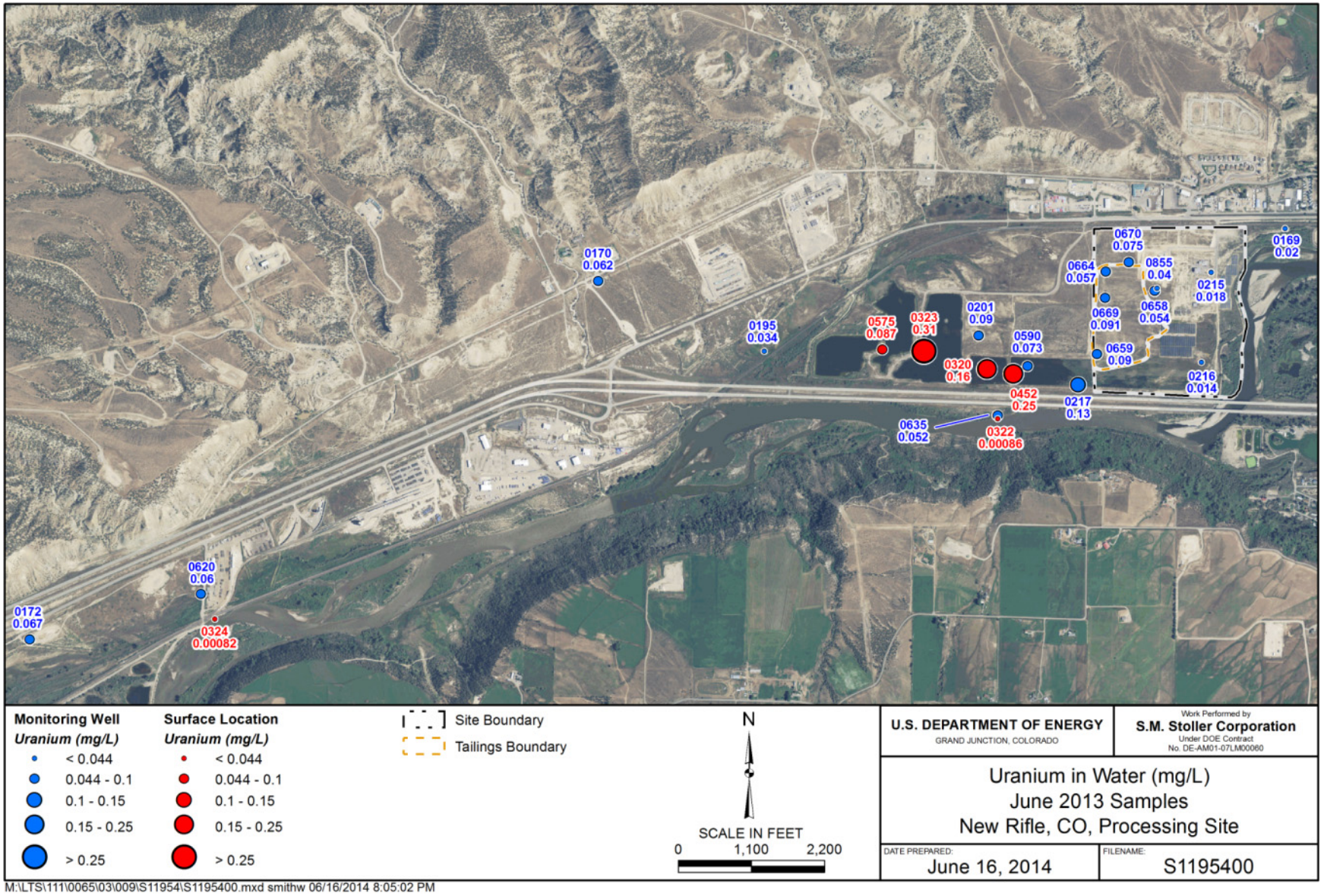

Figure 14. Uranium in Water, June 2013 Samples, New Rifle, Colorado, Processing Site

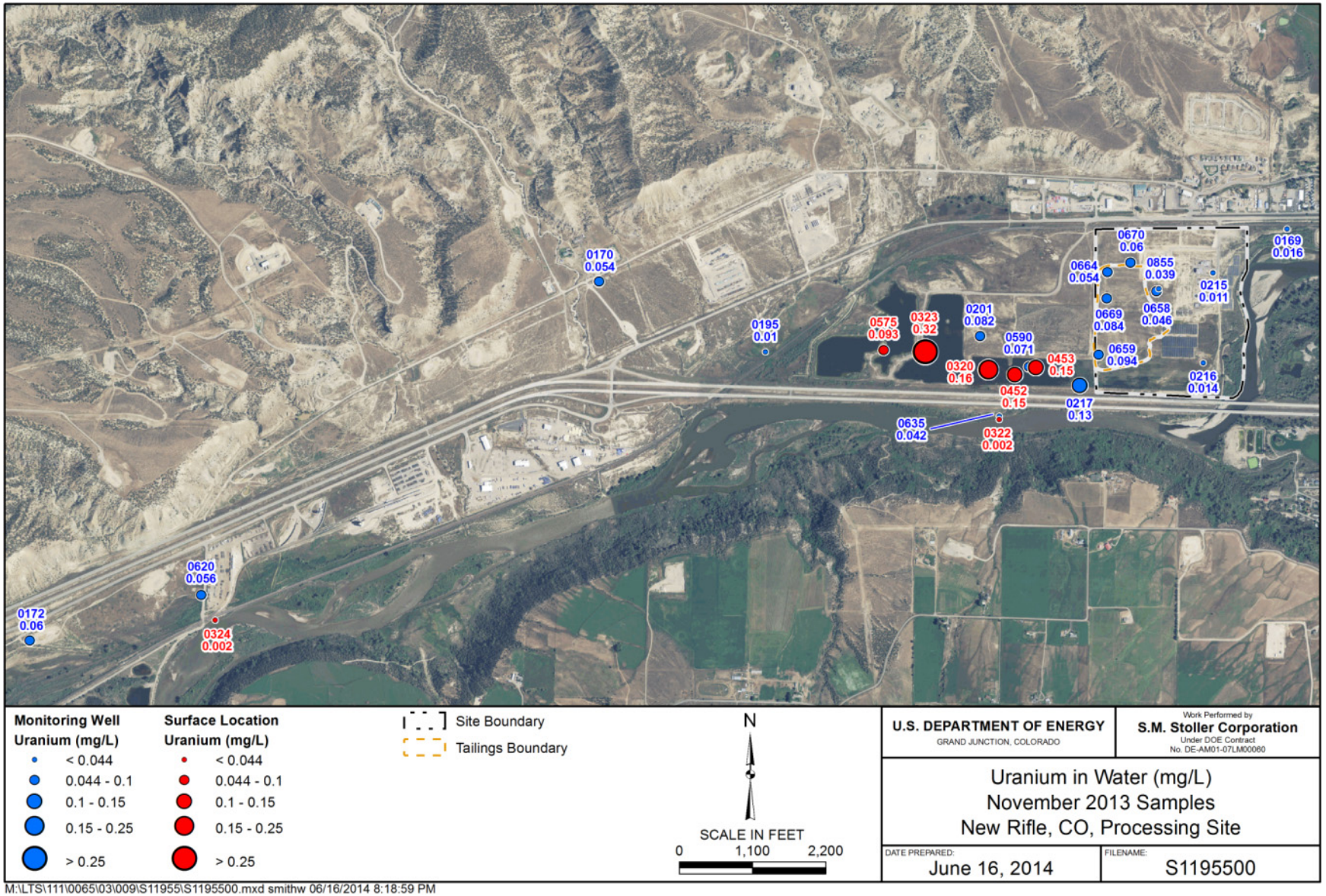

Figure 15. Uranium in Water, November 2013 Samples, New Rifle, Colorado, Processing Site

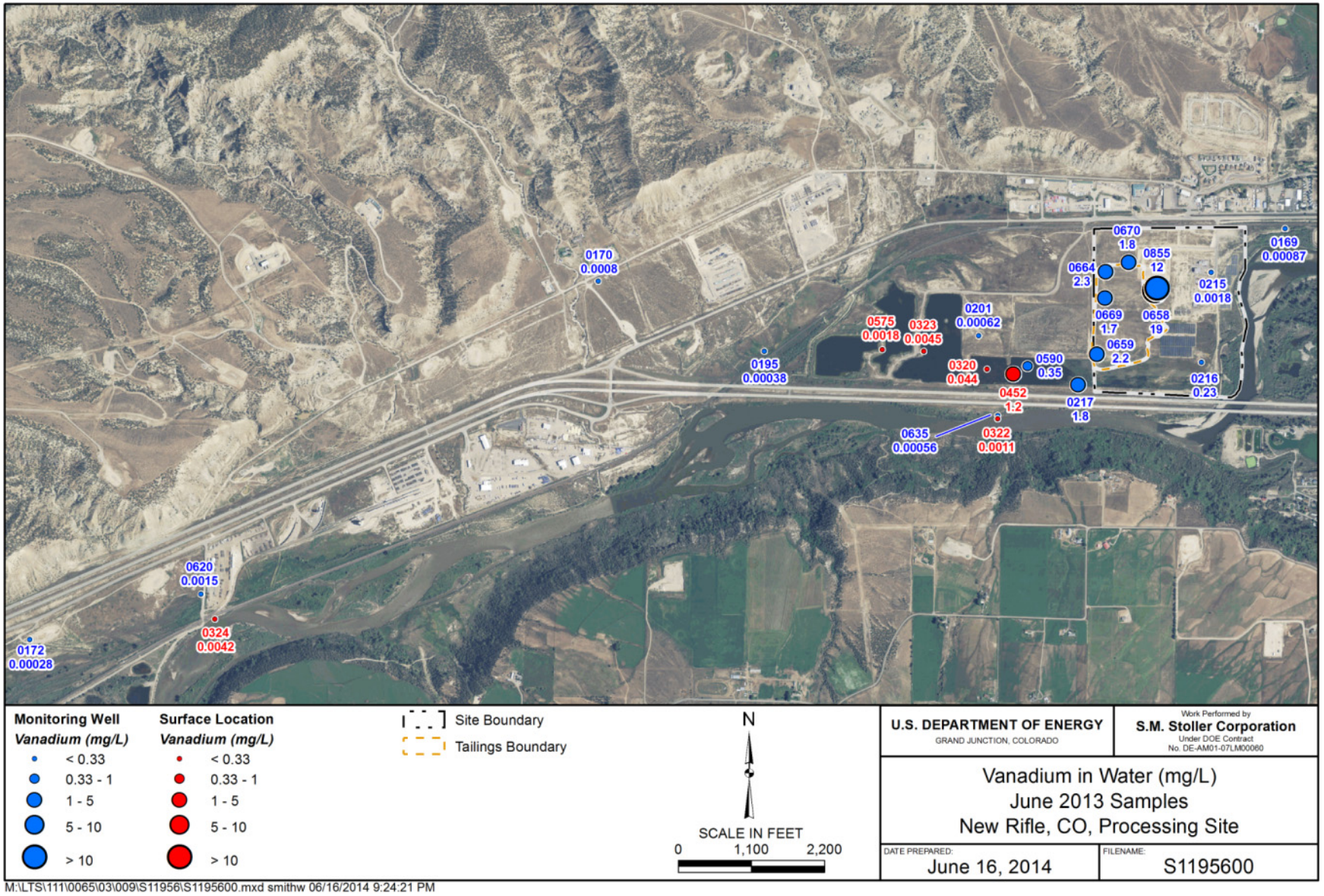

Figure 16. Vanadium in Water, June 2013 Samples, New Rifle, Colorado, Processing Site

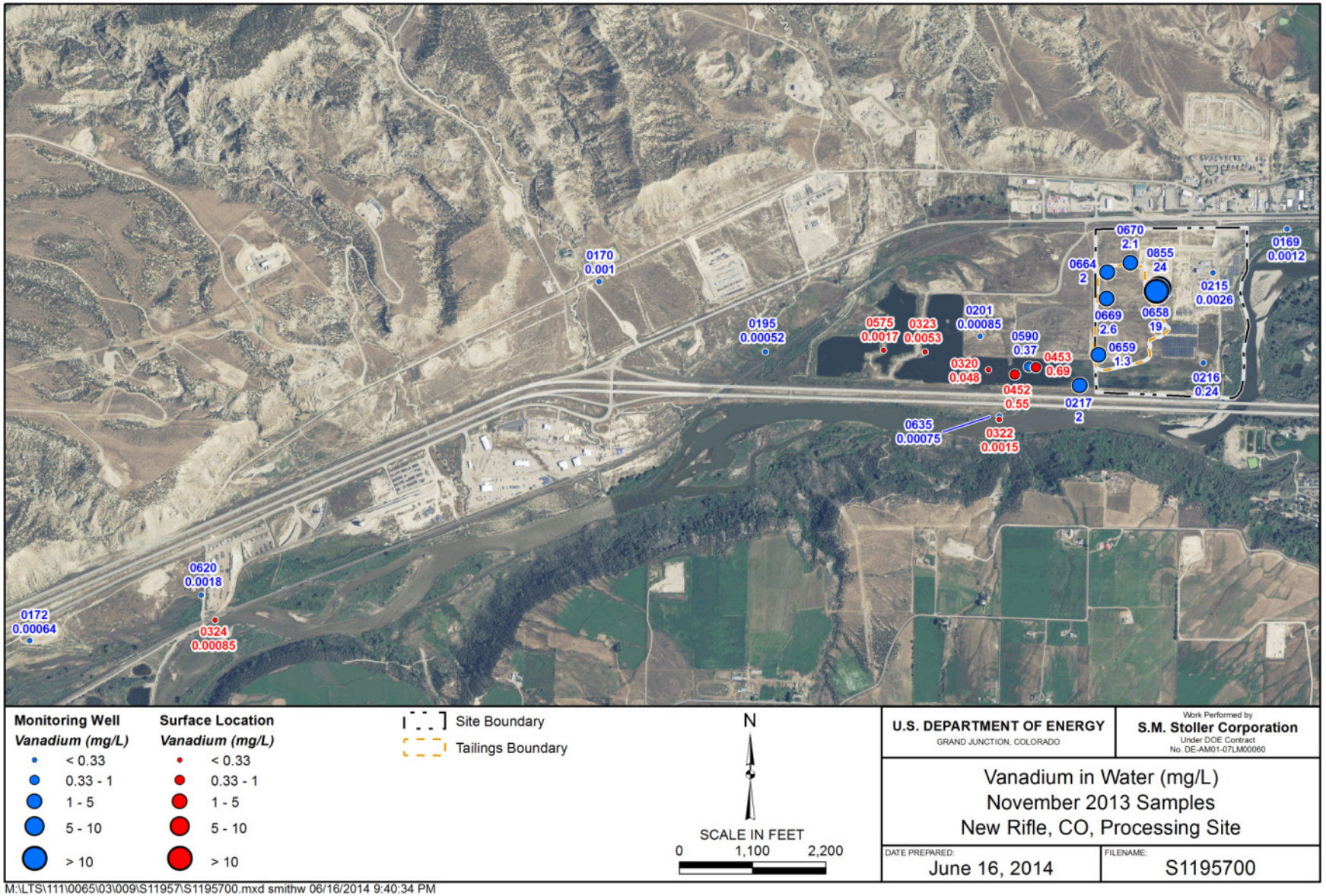

Figure 17. Vanadium in Water, November 2013 Samples, New Rifle, Colorado, Processing Site

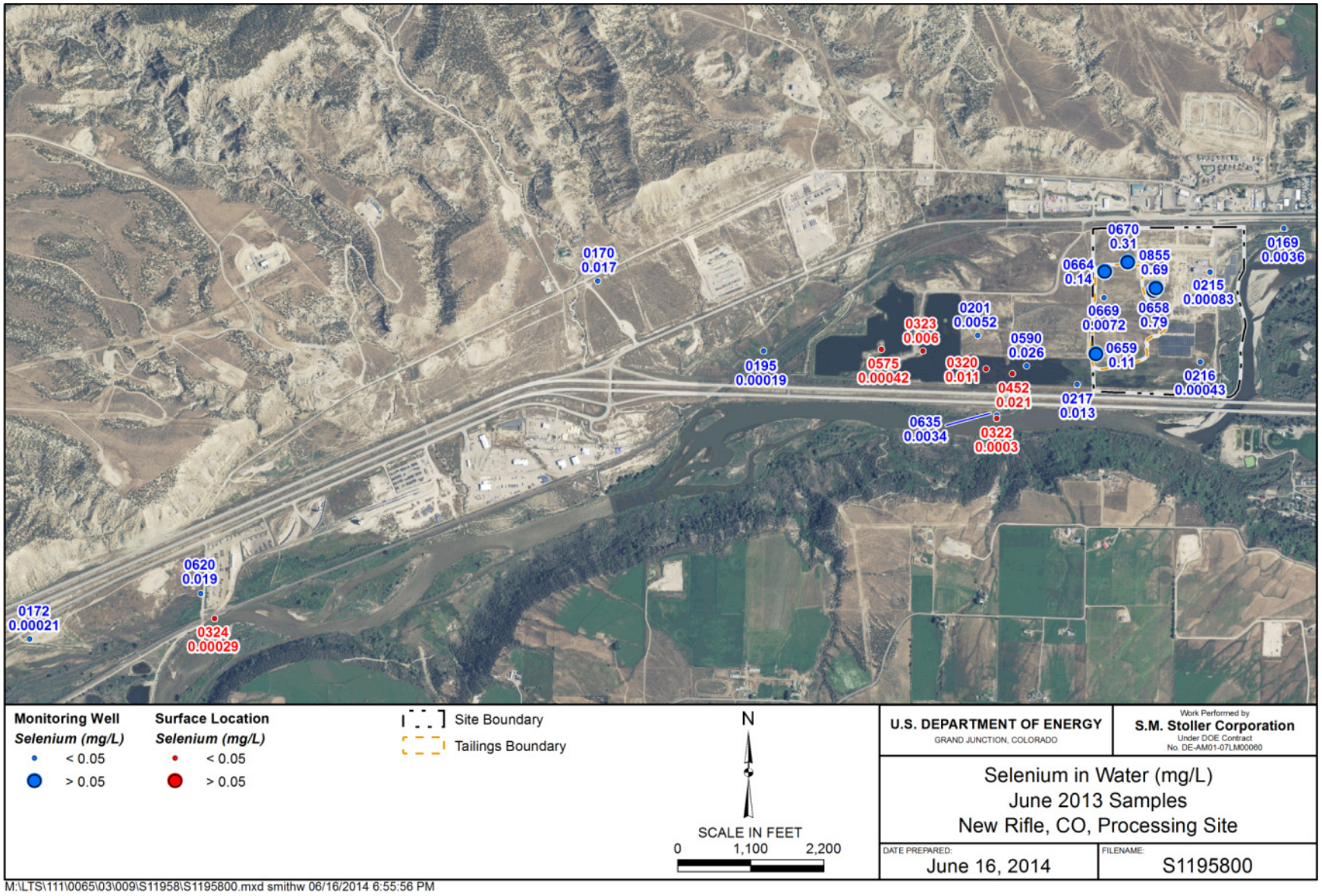

Figure 18. Selenium in Water, June 2013 Samples, New Rifle, Colorado, Processing Site

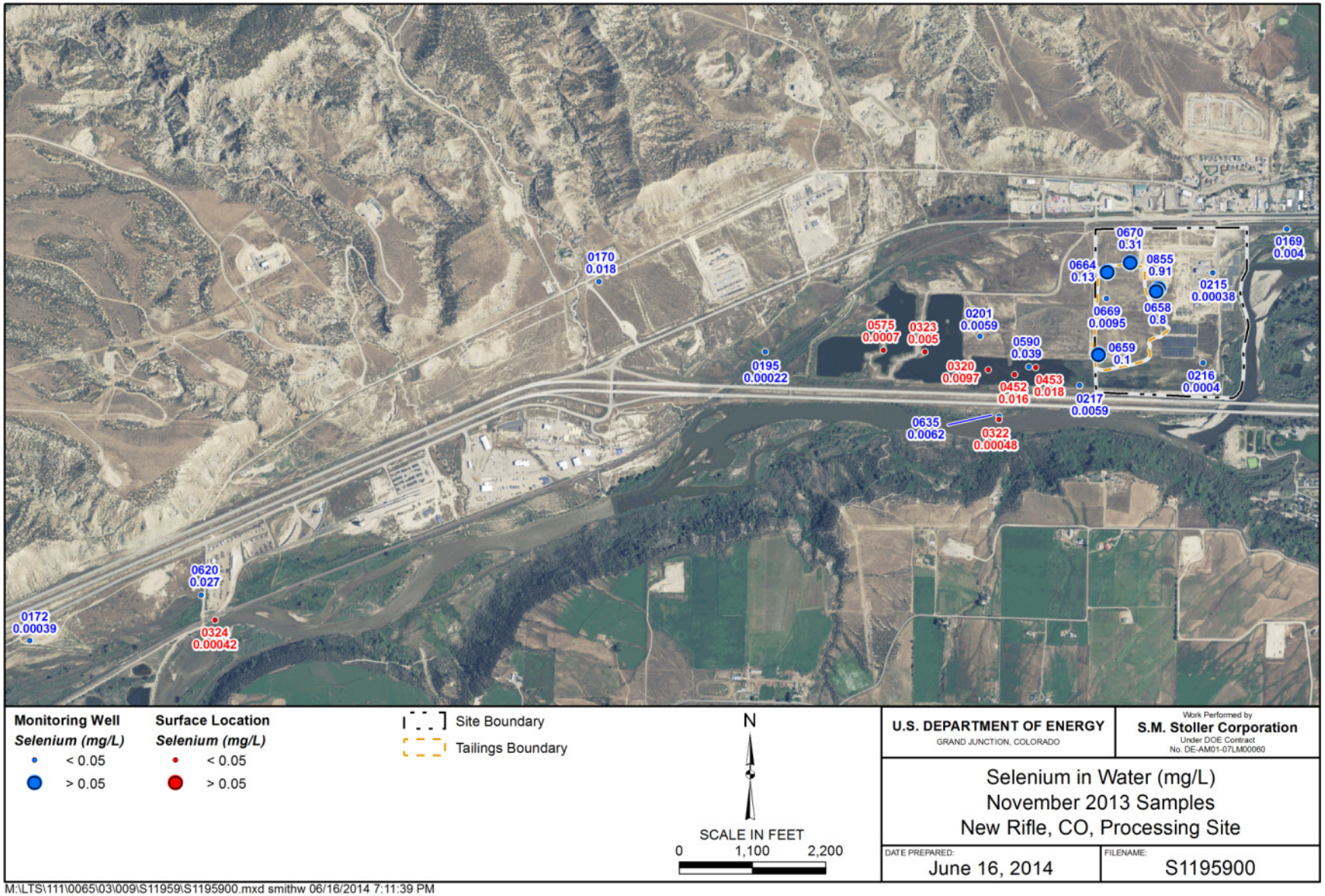

Figure 19. Selenium in Water, November 2013 Samples, New Rifle, Colorado, Processing Site

The ecological risks for ammonia, molybdenum, nitrate, and uranium in ponds located in the wetland area (sample locations RFN-0320, RFN-0452, and RFN-0453) are not considered unacceptable because the ponds evaporate periodically and are therefore available for only occasional exposures. Location RFN-453 is often dry (as it was in June 2013), and results may show high concentrations of COCs when water is present, as occurred in the November 2013 sample round. This is probably due to evaporation, which concentrated the dissolved solids in the pond. The large gravel ponds represented by locations RFN-0323 and RFN-0575 are essentially permanent features (though the eastern pond may lose a significant volume of water during dry periods). The eastern pond contains COCs and ammonia in excess of MCLs or ecological risk concentrations, respectively, but concentrations in the western pond are generally acceptable, with the exception of molybdenum, which has exceeded the State of Colorado agricultural standard of 0.3 mg/L in recent years.

With the exception of those for nitrate and ammonia, which display consistent downward trends, time-concentration plots for most constituents in pond waters do not show any pronounced trends. It therefore appears that natural attenuation is unlikely to reduce the concentrations appreciably in the near future. The lack of attenuation in pond waters is likely caused, in part, by evaporation of pond waters, which tends to concentrate the dissolved constituents. This is evidenced by the fact that some pond water concentrations are higher than the same constituents in groundwater from nearby wells, as shown on the spot plots (e.g., uranium in Figure 15).

Molybdenum

The highest concentrations of molybdenum were detected in surface water location RFN-0452 in the wetland area, where the concentration was 10 mg/L in June 2013; the highest concentration in November 2013 was 2.9 mg/L at location RFN-0323 in the easternmost gravel pond. Concentrations in the westernmost gravel pond at location RFN-0575 were significantly lower—0.63 mg/L in June and 0.62 mg/L in November. These still exceed the agricultural standard of 0.3 mg/L. Concentrations at surface water locations RFN-0320 and RFN-0453 in the wetland area were also high. Concentrations at locations RFN-0322 and RFN-0324, in the Colorado River, were indistinguishable from background.

Nitrate

The highest concentrations of nitrate (reported as N) were detected in surface water location RFN-0323, the easternmost gravel pond. The June 2013 value was 52 mg/L, and the November 2013 concentration was 43 mg/L. These concentrations have been generally decreasing since 2003 with some occasional perturbations. Location RFO-453 shows the greatest variability; it is frequently dry or contains little water. Concentrations in river water samples were indistinguishable from background.

Uranium

All surface pond and wetland sample concentrations exceeded the MCL or maximum background concentration. The highest concentrations were in RFN-0323 at 0.31 mg/L in June 2013 and 0.32 mg/L in November 2013; concentrations at this location appear to be trending upward. Concentrations at location RFN-0575 showed a declining trend from the late 1990s until 2011. Concentrations had been below background since 2005. However, this location appears to show an increasing trend since 2011 and had concentrations above background for

both 2013 sampling events. Concentrations in river water samples were indistinguishable from background.

Vanadium

The highest vanadium concentrations in surface water occurred in the most easterly wetland pond location RNF-0452 at 1.2 mg/L in June 2013. Vanadium concentrations in the large gravel pond locations farther west were in the 0.0017 mg/L to 0.0053 mg/L range. Concentrations in river water samples were indistinguishable from background.

3.2.2.2 Groundwater

Groundwater beneath the New Rifle site was contaminated by former vanadium- and uranium-ore-processing operations that were ongoing from 1958 through 1972, from lignite ash processing from 1964 to 1967, and from vanadium processing (which did not produce tailings but may have sent milling solutions to settling ponds) from 1973 to 1984. Site field investigations have shown that the alluvial aquifer is the only aquifer affected by the former milling operations.

COCs previously identified in the alluvial aquifer at concentrations that exceed the 40 CFR 192 groundwater standards are arsenic, molybdenum, nitrate, selenium, and uranium. Fluoride levels have exceeded the Safe Drinking Water Act standard of 4 mg/L. Concentrations of ammonia, manganese, and vanadium have exceeded risk-based concentrations deemed acceptable for groundwater that is used for domestic purposes in a residential setting (DOE 1999b). Based on discussions with CDPHE, fluoride and manganese are of little concern at the site and were eliminated from the monitoring program. Concentrations of ammonia, arsenic, and selenium have declined below levels of concern for the most part, though analysis for these constituents has continued to a limited degree. Elevated concentrations of these constituents persist mainly in the vicinity of the former raffinate ponds (near wells RFN-0855 and RFN-0658) where contaminated soil is known to exist.

The following discussion focuses on the more widespread or persistent COCs—molybdenum, nitrate, uranium, and vanadium. Appendix C includes groundwater monitoring results for CY 2013. The most conspicuous feature in time-concentration plots of groundwater monitoring data for the last several years is a pronounced spike in concentrations of molybdenum, selenium, and vanadium in samples collected from well RFN-0855 (see graphs in Appendix A-2). Concentrations of vanadium in samples from this well were more than an order of magnitude higher than in samples from other wells. This difference was attributed to mobilization of contaminants due to dewatering and excavation activities being conducted by the City of Rifle in association with construction of the City's wastewater treatment facility. Since that spike, concentrations of molybdenum and vanadium in wells RFN-0855 and RFN-658 have decreased significantly; molybdenum concentrations are below pre-construction values, but vanadium concentrations remain elevated above pre-construction values.

Other onsite wells displayed increases of certain constituents (e.g., uranium in RFN-0216 and RFN-0670; molybdenum in well RFN-0216). While some plots appear to show an overall declining trend (e.g., molybdenum and uranium for RFN-0195, RFN-0658; uranium for

RFN-0669; nitrate for RFN-0590), uranium in well RFN-0217 shows a slightly increasing trend. Most importantly, COCs in most wells showed no particular trend.

From the spot plots, some COCs such as vanadium and selenium in New Rifle alluvial groundwater and surface water show less mobility and are restricted to areas near or slightly downgradient from the former mill site. Plumes for constituents that are more mobile, such as nitrate, molybdenum, and uranium, are more extensive. To evaluate this natural attenuation at the New Rifle site, past evaluations have assigned monitoring wells to one of three groupings—onsite, adjacent to site, or downgradient—for the purpose of computing statistics for analytical results. This VMR will maintain that convention.

Onsite wells are those within the site boundary. As noted, residual soil contamination does exist at the New Rifle site below the water table. This contamination is most likely to affect groundwater in direct contact with those soils (i.e., onsite wells) by serving as a persistent source of contamination to groundwater. Although onsite wells are all grouped together for the purpose of computing groundwater statistics and comparing the results to historical trends, three subgroups of onsite wells were recognized in previous VMRs based on patterns of time-concentration plots for the wells (Appendix A includes time-concentration plots). These patterns were interpreted as being related to the well locations and proximity to former source areas as discussed below.

Wells RFN-0169, RFN-0215, and RFN-216 are adjacent to the Colorado River and upgradient of the main source of site groundwater contamination—the former raffinate ponds and tailings pile. Concentrations of most COCs in these wells are low and have had limited variability over the past 10 years. A notable exception is well RFN-216, which in 2008 showed spikes in molybdenum, uranium, and vanadium concentrations (after dewatering occurred that area) that remained elevated in 2009 but subsequently declined. Groundwater concentrations in this area were likely influenced by the groundwater pumping that the City of Rifle conducted during the construction of infrastructure for the wastewater treatment plant.

Locations RFN-0658, RFN-0659, and RFN-0855 are in the footprint of the former raffinate ponds and tailings pile. Soil sampling conducted during the pilot study for vanadium at the site indicated that residual contamination exists in these areas and may have local influence on groundwater quality (DOE 2002). These locations are characterized by time-concentration plots with the highest concentrations of most COCs and the greatest degree of variability over time. For the most part, COCs in these wells exhibit no clear trends, except that concentrations decrease after the groundwater returns to normal elevations. Adsorption/desorption reactions between groundwater and soils probably occur in this area, and groundwater concentrations are likely sensitive to fluctuations in the water table. As noted, due to the City's activities, concentrations for a number of COCs in well RFN-0855 increased sharply (for example, vanadium increased from 14 mg/L in 2007, before dewatering began, to 1,600 mg/L in 2009) but declined again in 2010 to levels below that of well RFN-0658, a trend that continued in 2012. It appears that these contaminant spikes affect groundwater only locally. To date, downgradient wells have shown no sign of contaminant increases.

The remaining onsite wells—RFN-0664, RFN-0669, and RFN-0670—are outside of the residual contamination area and do not show any apparent relationship to variations in groundwater elevations. Trends shown in time-concentration plots for these locations are more similar to those for offsite locations. They show some variability but overall gradually decrease in concentrations. A north-south line of wells downgradient of the raffinate pond footprint was proposed as point-of-compliance monitoring locations in the revised GCAP (DOE 2013a). These wells are onsite wells RFN-0664, RFN-0669, and RFN-0659 along with adjacent offsite well RFN-0217. These are the locations where ACLs would be met.

Contamination in offsite wells is attributed solely to the downgradient migration of dissolved contaminants in groundwater and not from direct contact with a primary residual source. The wells downgradient of the New Rifle site were split into two groups according to their location relative to the Roaring Fork gravel ponds. As described previously, the pumping operations at the gravel ponds affected groundwater flow direction, thus hydraulically separating those two groups of wells to some extent. Additionally, activities associated with wetland construction were more likely to influence the water quality of the wells adjacent to the site than that of the wells farther downgradient. These differences have lessened over time. Table 5 and Table 6 provide metrics for the three main groups of wells. Table 5 provides water quality benchmarks and proposed ACLs for comparison. The historical data provided in Table 1 are based on the combined results of data from wells on and adjacent to the site. Appendix A includes time-concentration plots for molybdenum, nitrate, uranium, and vanadium in the New Rifle wells.

Table 5. Mean Concentrations in Groundwater—1998–1999: Combined June 2013 and November 2013 for the New Rifle Site

Contaminant (all units mg/L)	Benchmark	Proposed ACL[f]	Onsite[a]		Adjacent to Site[b]		Downgradient[c]	
			1998–1999 mean	2013 mean	1998–1999 mean	2013 mean	1998–1999 mean	2013 mean
Molybdenum	0.1[d]	96	2.50	0.50	1.928	1.06	0.037	0.015
Nitrate + Nitrite as Nitrogen	10[d]	30,200	13.8	3.51	51.9	24.0	16.6	8.13
Uranium	0.067[e]	59	0.101	0.053	0.097	0.084	0.0744	0.053
Vanadium	NA	17	5.68	5.65	0.037	0.57	<0.0001	0.0009

[a] Includes wells RFN-0215, RFN-216, RFN-0658, RFN-0659, RFN-0664, RFN-0669, RFN-0670, and RFN-0855 (not all wells were sampled for all analytes).
[b] Includes wells RFN-0201, RFN-0217, RFN-0590, and RFN-0635 (only wells RFN-0217 and RFN-0590 were sampled for vanadium).
[c] Includes wells RFN-0170, RFN-0172, RFN-0195, and RFN-620.
[d] U.S. Environmental Protection Agency groundwater standard (40 CFR 192) for UMTRCA sites.
[e] Maximum background value, cleanup goal.
[f] Applies at proposed point-of-compliance wells RFN-0664, RFN-0669, RFN-0659, and RFN-0217.
NA = not applicable

Table 6. Range of Concentrations in Groundwater—1998–1999: Combined June 2013 and November 2013 for the New Rifle Site

Contaminant (all units mg/L)	Onsite[a]		Adjacent to Site[b]		Downgradient[c]	
	1998–1999 range	2013 range	1998–1999 range	2013 range	1998–1999 range	2013 range
Molybdenum	0.0237–6.84	0.01–1.4	0.61–3.15	0.37–1.6	0.0041–0.231	0.0029–0.081
Nitrate + Nitrite as Nitrogen	<0.003–83.1	<0.01–18	0.089–188	0.014–52	0.012–85.2	<0.01–24
Uranium	0.0103–0.284	0.011–0.094	0.0837–0.120	0.042–0.13	0.050–0.177	0.010–0.067
Vanadium	<0.001–25.3	0.0018–24.0	<0.001–2.69	0.0006–2.0	0.00065–0.0018	0.00028–0.0018

[a] Includes wells RFN-0215, RFN-0216, RFN-0658, RFN-0659, RFN-0664, RFN-0669, RFN-0670, and RFN-0855 (not all wells were sampled for all analytes).
[b] Includes wells RFN-0201, RFN-0217, RFN-0590, and RFN-0635.
[c] Includes wells RFN-0170, RFN-0172, RFN-0195, and RFN-0620.
NA = not applicable

It is unclear whether site-related contamination is or has ever been present at well locations RFN-0170, RFN-0620, or RFN-0172. These locations have been included as part of the downgradient "plume" solely on the basis that uranium values have exceeded the groundwater standard in 40 CFR 192. However, the uranium concentrations observed at those locations have been in the same range as those reported in background (maximum observed at 0.067 mg/L, Table 5). Uranium in those wells does not display any clear increasing or decreasing trends (unlike location RFN-0195, which shows a steady decline in uranium concentrations). Well RFN-0195 has shown a definite influence from site contamination (e.g., with elevated levels of molybdenum and nitrate). No other site-related constituents have been elevated in these downgradient wells except nitrate in well RFN-0620, which spiked in June 2012 to 72.5 mg/L and returned to the normal value around 28 mg/L afterward. The apparent decreases over time in mean concentrations and ranges for the downgradient wells reported in Table 5 and Table 6, respectively, are due exclusively to significant decreases in concentrations at location RFN-0195.

Molybdenum

Molybdenum has been one of the most widespread COCs due to its high mobility. It remains elevated in onsite and downgradient wells. Values in well RFN-0855 reached an all-time high of 18 mg/L in 2009, but the concentration decreased significantly in June 2010 to 1.8 mg/L and further decreased in June 2013 to about 0.52 mg/L (in November the concentration increased to 0.98 mg/L). Mean concentrations for all groups of wells have declined over time. Molybdenum in the portion of the plume downgradient of the former gravel ponds appears to have dissipated. However, the relatively high concentrations recently observed onsite suggest that a pulse of molybdenum could move downgradient. Concentrations in all wells were below the proposed ACL.

Nitrate

The highest concentrations of nitrate are immediately downgradient of the site, though concentrations exceed the standard as far downgradient as location RFN-0620. The source of much of the nitrate is likely the degradation of ammonia. Trends (or lack thereof) probably

depend more on ammonia behavior than on natural flushing processes. Despite some increases of nitrate in individual wells 10 years ago, probably because of ammonia degradation, mean concentrations for all well groups have declined since then. With declines in ammonia to low levels, it appears that nitrate's trends have become less erratic, and concentrations are leveling out. Concentrations in all wells were below the proposed ACL.

Uranium

Uranium persists throughout the plume. The maximum background concentration of 0.067 mg/L has been exceeded slightly as far downgradient as well RFN-0172, though concentrations in all downgradient wells were at or below background for 2013. It is likely that uranium in these downgradient areas is not site-related and represents background conditions. Time-concentration plots for these downgradient wells show no clear trend except for RFN-0195, where concentrations have decreased continuously and significantly since 2005. Time-concentration plots for a number of the wells upgradient of the former gravel ponds show no well-defined trend (e.g., RFN-0659, RFN-0590, RFN-0664, and RFN-0670) but fluctuate over a fairly narrow concentration range. Mean concentrations in wells adjacent to the site are the same as they were more than 10 years ago. This distribution may reflect the disturbance caused by operation of the gravel ponds. Concentrations in all wells were below the proposed ACL.

Vanadium

In 2009, vanadium spiked to the highest concentration ever observed in well RFN-0855 (1,600 mg/L) in association with the City of Rifle's construction work and especially the dewatering of the area around RFN-0855. The concentration in RFN-0855 dropped back to 41 mg/L in November 2010 and, most recently, to 12 mg/L in June 2013 and 24 mg/L in November 2013. The vanadium concentration in adjacent well RFN-0658 (a shallow well only 5.4 ft deep) was 52 mg/L for a high in 2010 and has since fallen to 19 mg/L in June and November 2013. Elevated concentrations are observed only onsite and immediately downgradient of the site, as has been the case in past years. Though vanadium in wells 0855 and 0658 exceeded the proposed ACL, concentrations in all other wells, including the proposed point-of-compliance wells, were below this value.

3.2.2.3 Institutional Controls Monitoring

During regular groundwater sampling events, changes in land use at and downgradient of the New Rifle site were observed and recorded in trip reports. During CY 2013, DOE was in communication with property owners and various users of City-owned property regarding, among other topics, potential construction. In 2012, these discussions included meetings with the City of Rifle about infrastructure improvements along the northern and western side of the property; Williams Exploration and Production; the Western Colorado Research Center; and Cacaloco, a composting operation. The discussions covered the impacts that the parties' activities may have on the site groundwater geochemistry. Currently, the City has terminated the Cacaloco land use permit and is still reprocessing any remaining composting material. Little activity occurred in 2013 with the switch grass plot being grown by the Western Colorado Research Center, and the other parties have ceased to express interest in other developments.

DOE noted activities at the New Rifle processing site during the annual inspection of the disposal cell in June 2013 and during other visits to the processing sites. The City completed

installation of a water line and other infrastructures along the northern and western side of the property and paved an access road along part of this corridor. A high-speed fiber optic line was installed from Highway 24 to the wastewater treatment facility. This infrastructure supports planned business development in this area. The City manager is required in Ordinance 9 Series 2008 (the Uranium Mill Tailings Remedial Action Overlay Zone District), paragraph c, no. 8, to inform City officials about standard operating procedures, deed restrictions, and environmental covenants contained in the ordinance. The Rifle site lead received a written confirmation from the Rifle City manager on this requirement.

3.2.3 Mann-Kendall Test for Trend for New Rifle

Another method of data evaluation is the nonparametric Mann-Kendall test for trend (Gilbert 1987). See Appendix B of this document for this evaluation. The test does not require any particular data distribution and will accommodate missing values and data reported as less than the detection limit. Essentially, it analyzes a series of data by subtracting the values of data collected earlier from those of later data. The method results in a test statistic that is a positive or negative (indicating an increasing or decreasing trend) and is used to estimate the probability that the trend is real.

As a preliminary analysis, several wells from the New Rifle site were selected for application of the Mann-Kendall test based on their locations with respect to the uranium and molybdenum plumes. The test was applied to uranium and molybdenum concentrations because these COCs are the most widespread and the most mobile. Additionally, they are not affected by geochemical transformation processes, as are ammonia and nitrate. Wells RFN-0664 and RFN-0669 are from two onsite locations near the original plume source areas (raffinate ponds and tailings piles). Well RFN-0201 is immediately downgradient of the site and upgradient of the Roaring Fork ponds; well RFN-0195 is immediately downgradient of the ponds.

Onsite wells RFN-0664 and RFN-0669 show strongly decreasing trends (at the 95 percent confidence level) for both uranium and molybdenum. Downgradient wells RFN-0201 and RFN-0195 show strongly decreasing trends for uranium and molybdenum (at the 95 percent confidence level). These results suggest that natural attenuation for these two COCs is progressing at these locations and that the main portions of the uranium and molybdenum plumes are moving offsite into the adjacent downgradient area.

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4.0 Results and Conclusions

Concentrations of vanadium at the Old Rifle site appear to be stable. Wells with the highest concentrations continue to fluctuate above and below the risk-based natural flushing benchmark. Uranium concentrations continue to display no consistent trends and have not declined on average since 1998. Although the modeling results from 1998 indicated that uranium would meet its groundwater standard across the site within 10 years, this has not been achieved. Concentrations in all wells except RFO-0309 exceeded the uranium MCL of 0.044 mg/L or the maximum background concentration of 0.067 mg/L within CY 2013. Vanadium concentration currently exceeds the benchmark of 0.33 mg/L at one well; selenium levels are currently below the benchmark of 0.05 mg/L in all wells. Selenium and vanadium compliance goals have been met based on the sitewide averages. Time-concentrations plots in Appendix A-1 indicate that uranium and vanadium have been relatively stable in Old Rifle wells for the last few years of monitoring.

Concentrations of several COCs in contaminant plumes associated with the New Rifle site have been decreasing in general and moving downgradient. The only significant COCs in terms of concentration and distribution are molybdenum, nitrate, uranium, and vanadium. The highest concentrations over the last few years for nitrate and uranium were detected downgradient of the site. Overall, nitrate concentrations, which had been increasing in response to ammonia degradation, have been declining since 2007. Uranium concentrations have exceeded the standard over the entire extent of the alluvial aquifer, although it is not clear whether all contamination is site-related in the far-downgradient wells. Concentrations appear to be nearly constant for most downgradient wells; an exception is RFN-0195, in which uranium has decreased steadily from 0.17 mg/L in 2005 to a mean of 0.022 in 2013. The highest concentrations of molybdenum were detected downgradient, especially in the ponds; the highest vanadium concentrations remain onsite. Onsite wells previously affected by the City of Rifle's dewatering activities appear to be stabilizing with the cessation of these activities.

With the number of variables that can affect the distribution of contaminants in the alluvial aquifer at New Rifle, it may be too early to determine the effectiveness of natural attenuation at the site. Data collected to date indicate that concentrations of some COCs are trending downward, but concentrations of others are not. Some individual wells may have increasing concentrations of certain COCs as a result of the plume centers migrating downgradient from the site. On the basis of combined spatial and temporal data, plume centers for nitrate and uranium appear to have already moved offsite, but they remain within the IC boundary and continue to dissipate downgradient. Highest concentrations of molybdenum were both onsite and offsite in the gravel ponds. Portions of the molybdenum and uranium plumes downgradient of the gravel ponds seem to have dissipated; however, elevated upgradient concentrations could eventually recontaminate these areas as they move downgradient. Arsenic and selenium have little mobility under current aquifer conditions and will probably remain in site groundwater. Vanadium, also relatively immobile, has migrated offsite but only to a very limited degree.

Surface water quality of the Colorado River remains unaffected by groundwater discharge from either site. ICs are effectively preventing inappropriate use of groundwater. Presently, the selected compliance strategies at both sites appear to be adequately protective. However, because the natural attenuation of uranium in groundwater at the Old Rifle site is not decreasing as predicted, DOE, in consultation with CDPHE, has prepared a revised GCAP (DOE 2013b).

Additionally, because concentrations of COCs at the New Rifle site consistently exceed MCLs in downgradient gravel ponds and are not trending downward as predicted, the GCAP for New Rifle was also revised in 2013 (DOE 2013a).

Verification of ICs at the New and Old Rifle Processing sites indicates no new construction is occurring except a trench for a water line along the northern side of the New Rifle Processing site and trenches at both sites to receive a high speed fiber optic cable. This information was received in writing from the Rifle City Manager and verified by DOE, CDPHE, and Contractor staff.

5.0 References

40 CFR 192. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings," *Code of Federal Regulations*.

DOE (U.S. Department of Energy), 1995a. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site near Rifle, Colorado*, DOE/AL/62350-179, Rev. 1, prepared by Jacobs Engineering Group Inc. for the DOE Uranium Mill Tailings Remedial Action Project Office, Albuquerque, New Mexico, August.

DOE (U.S. Department of Energy), 1995b. *Private Well/Spring Position Paper, Rifle, Colorado Sites*, DOE/AL/62350-190, Rev. 0, prepared by Jacobs Engineering Group Inc. for the DOE Uranium Mill Tailings Remedial Action Project Office, Albuquerque, New Mexico, May.

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DOE (U.S. Department of Energy), 2000. *Draft Work Plan for Vanadium Pilot Study, New Rifle UMTRA Site, Rifle, Colorado*, GWRFL10.6.4, Grand Junction Office, Grand Junction, Colorado, July.

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Appendix A-1

Time-Concentration Plots for Wells at the Old Rifle Site

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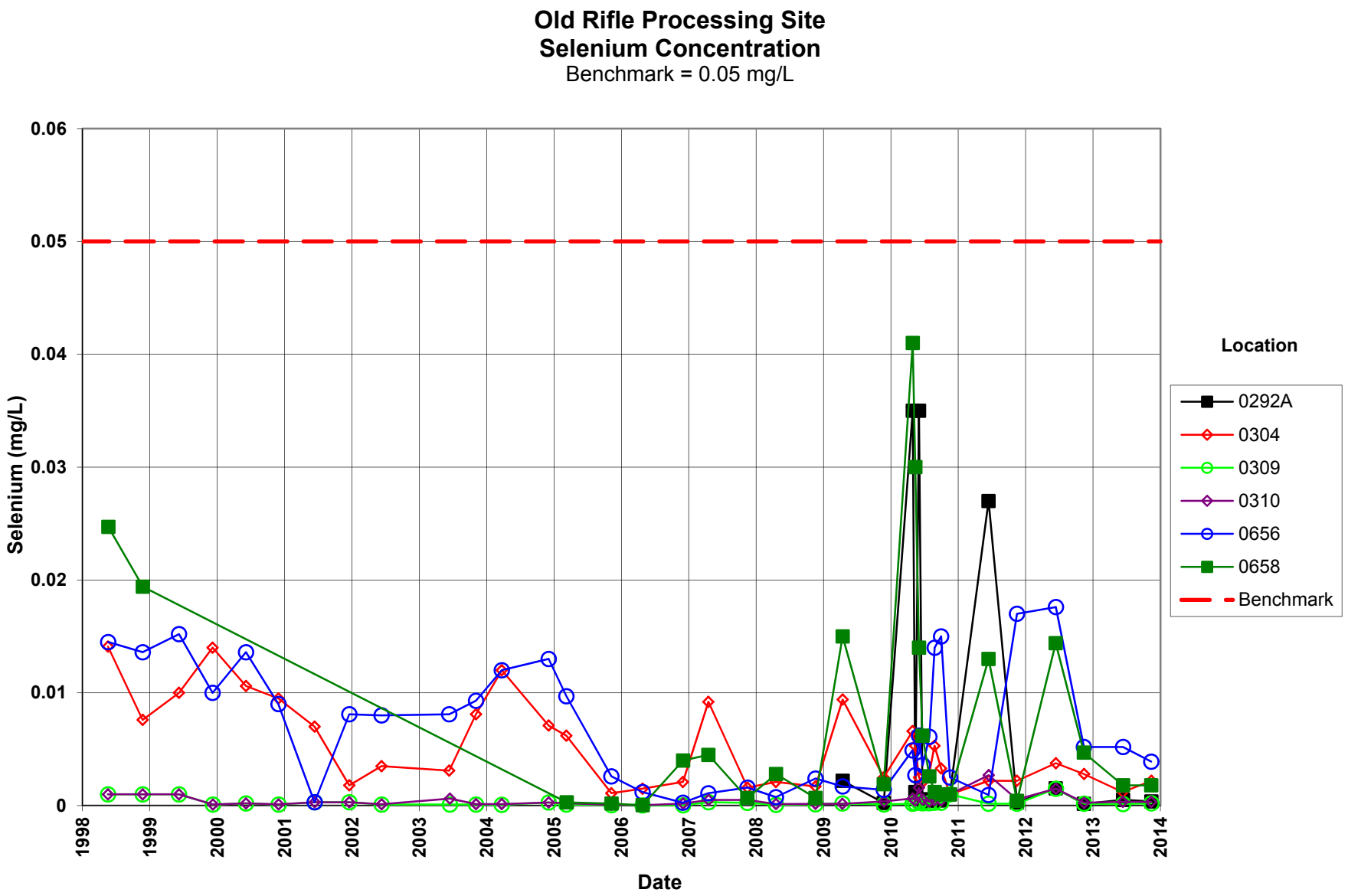
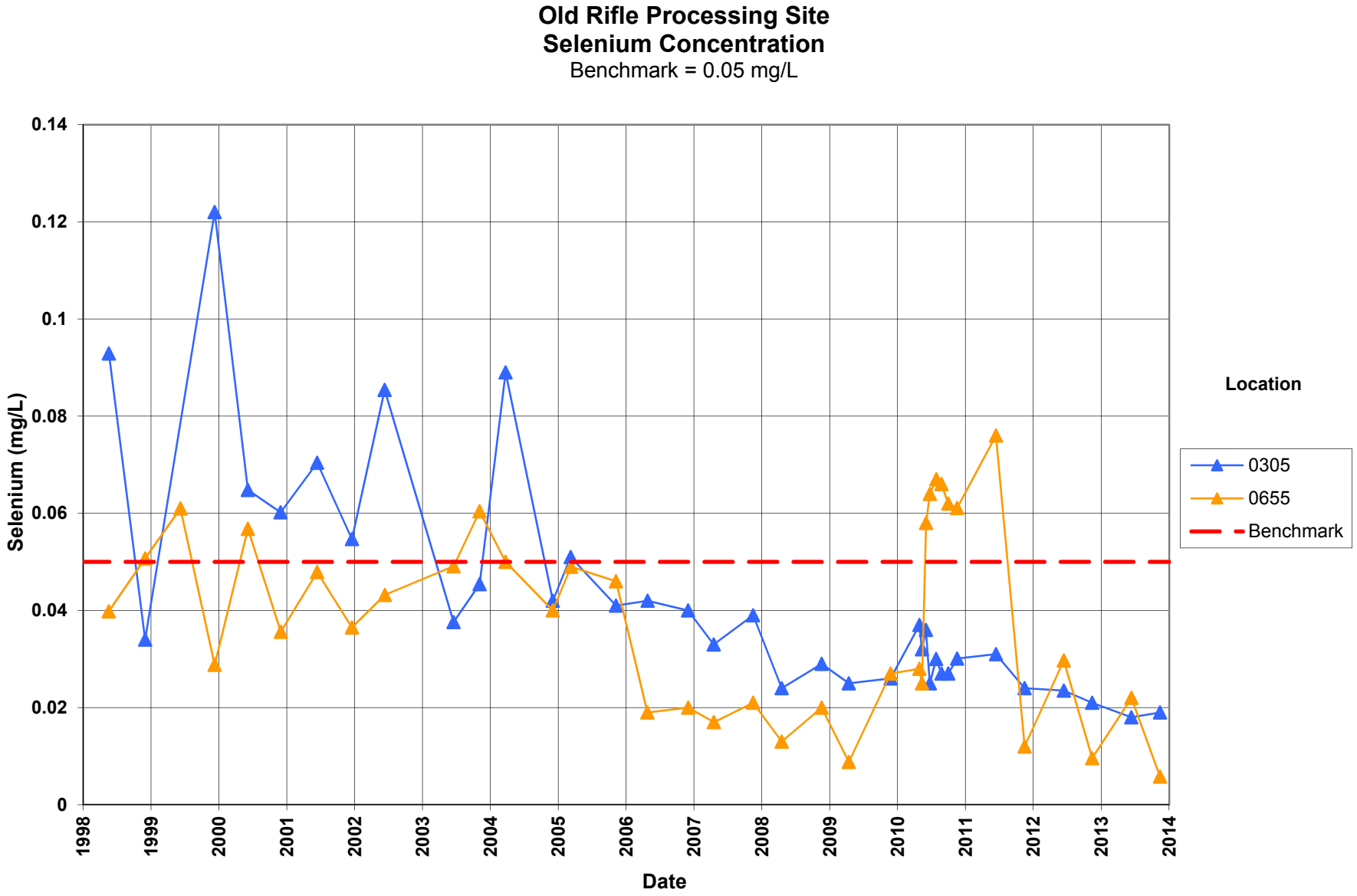
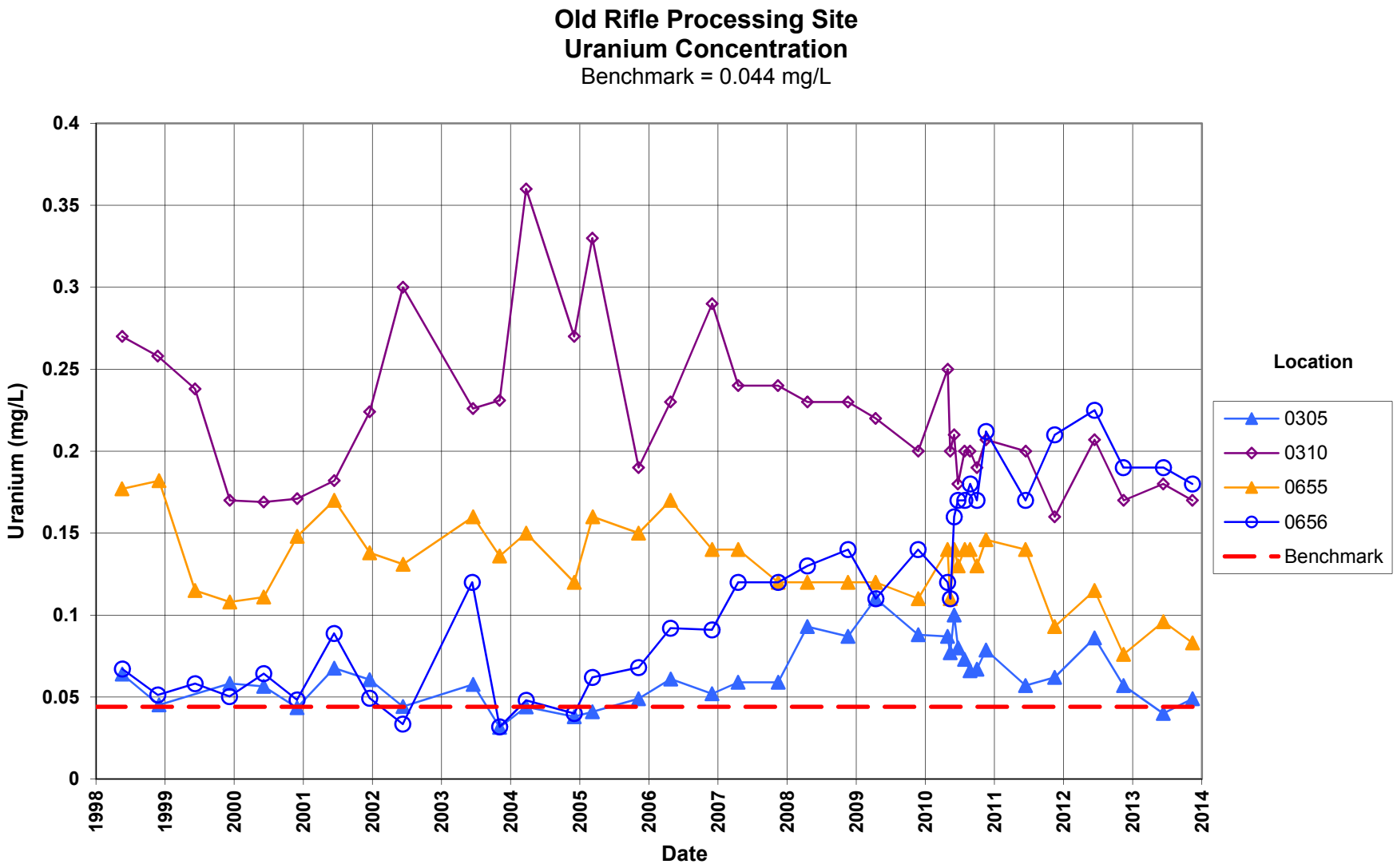
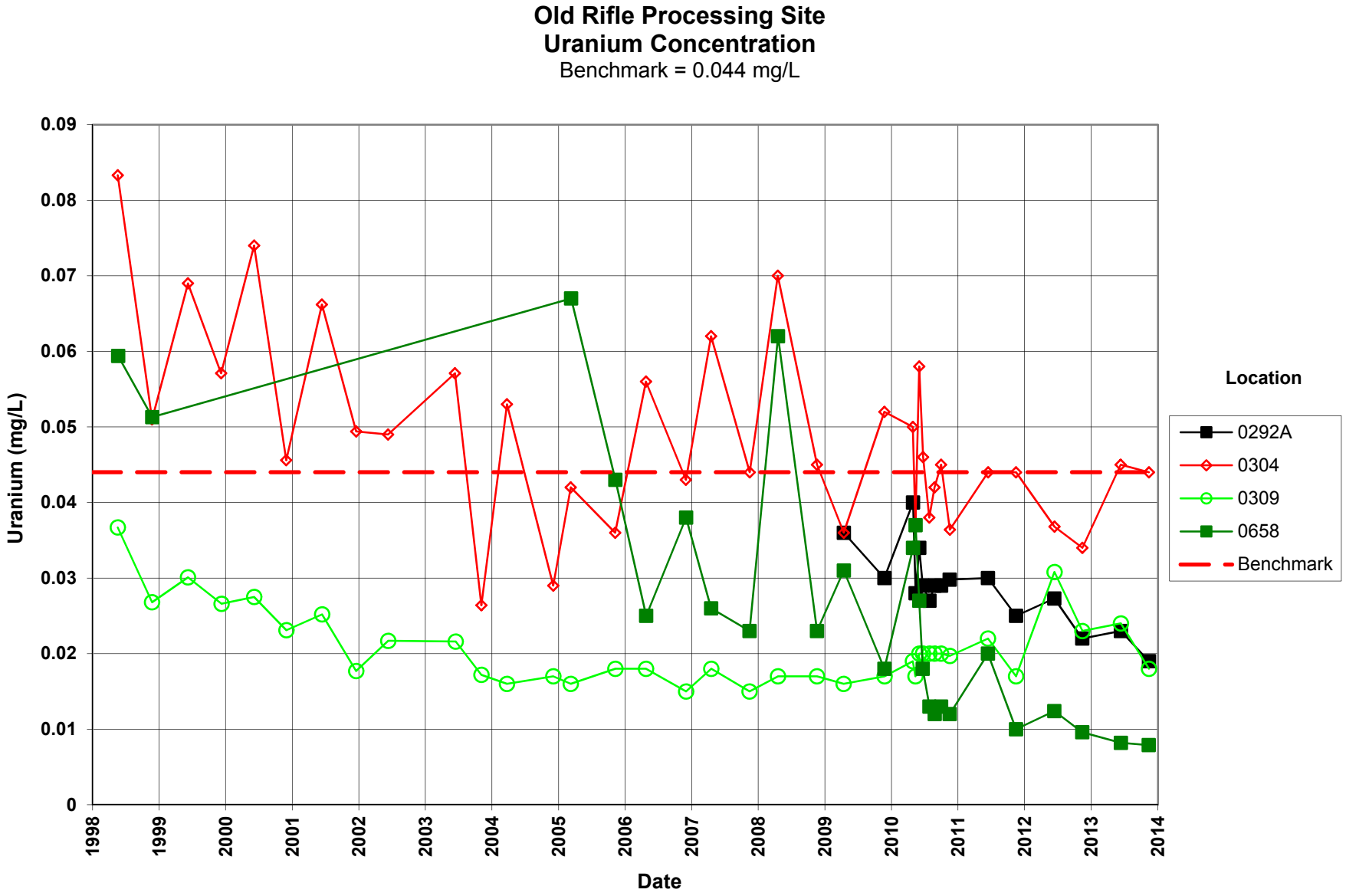
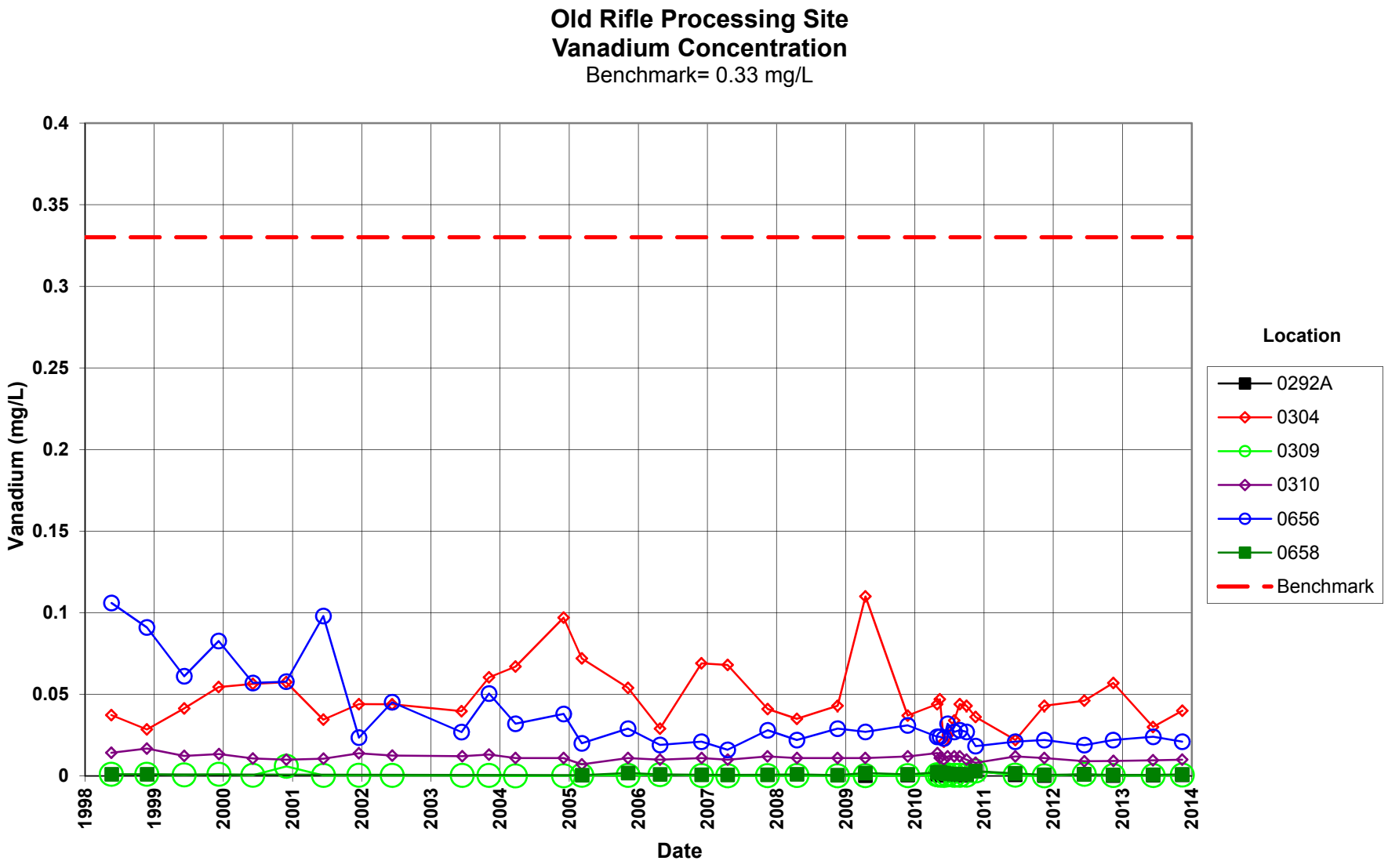
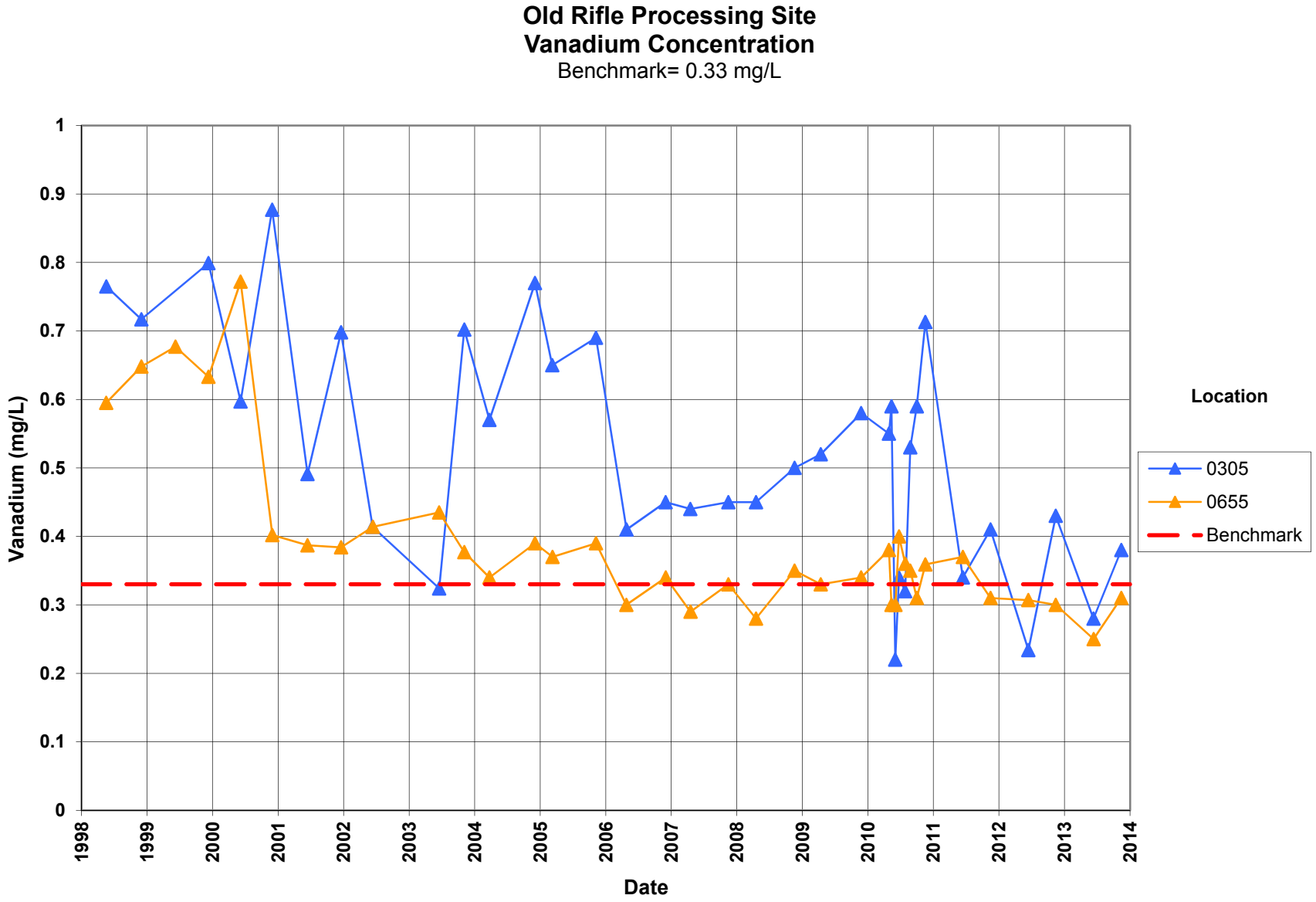

Old Rifle Processing Site
Selenium Concentration
Benchmark = 0.05 mg/L
Selenium (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0292A
0304
0309
0310
0656
0658
Benchmark


Old Rifle Processing Site
Selenium Concentration
Benchmark = 0.05 mg/L
Selenium (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0305
0655
Benchmark


Old Rifle Processing Site
Uranium Concentration
Benchmark = 0.044 mg/L
Uranium (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0305
0310
0655
0656
Benchmark


Old Rifle Processing Site
Uranium Concentration
Benchmark = 0.044 mg/L
Uranium (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0292A
0304
0309
0658
Benchmark


Old Rifle Processing Site
Vanadium Concentration
Benchmark= 0.33 mg/L
Vanadium (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0292A
0304
0309
0310
0656
0658
Benchmark


Old Rifle Processing Site
Vanadium Concentration
Benchmark= 0.33 mg/L
Vanadium (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0305
0655
Benchmark

Appendix A-2

Time-Concentration Plots for Wells at the New Rifle Site

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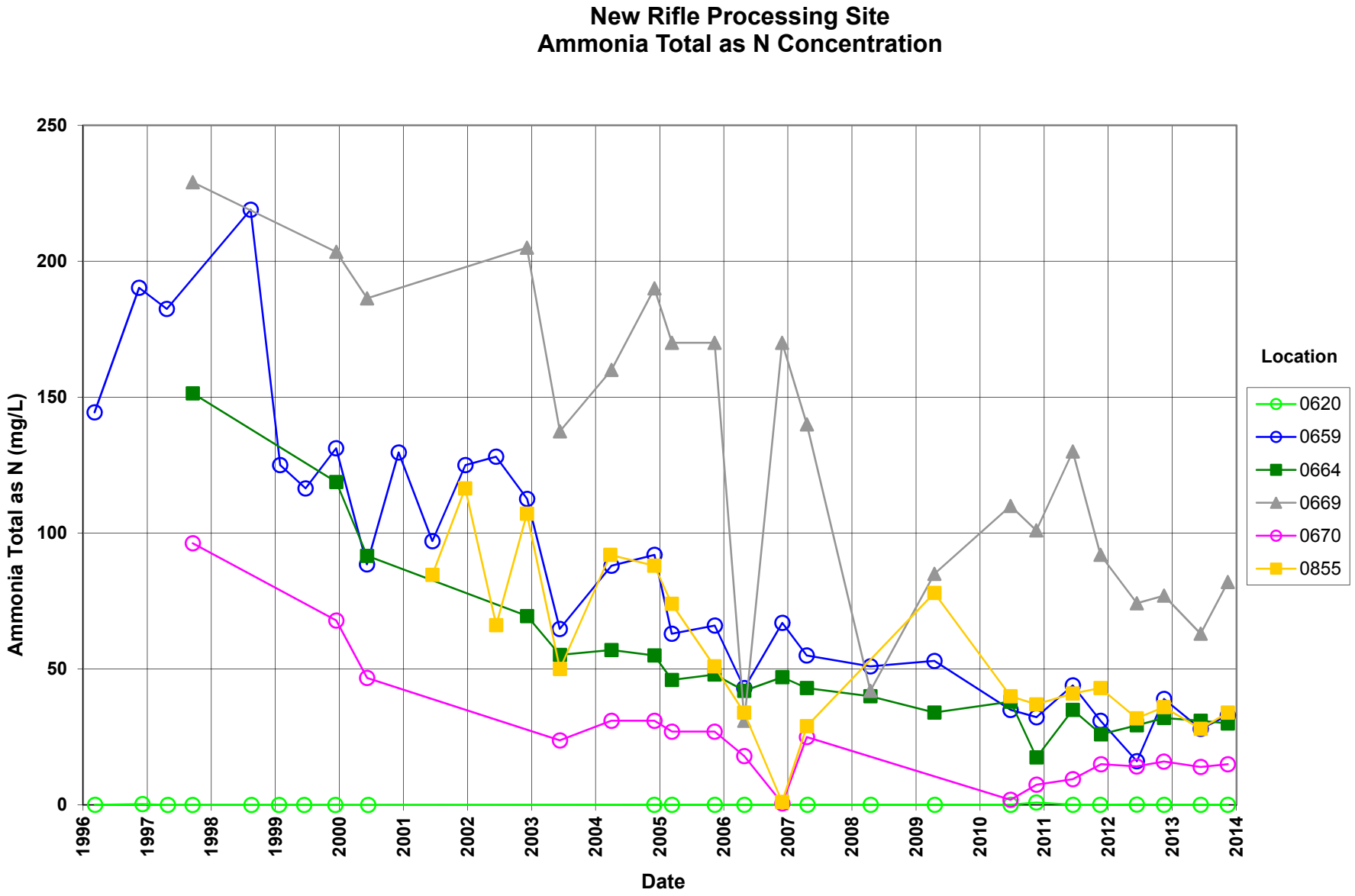
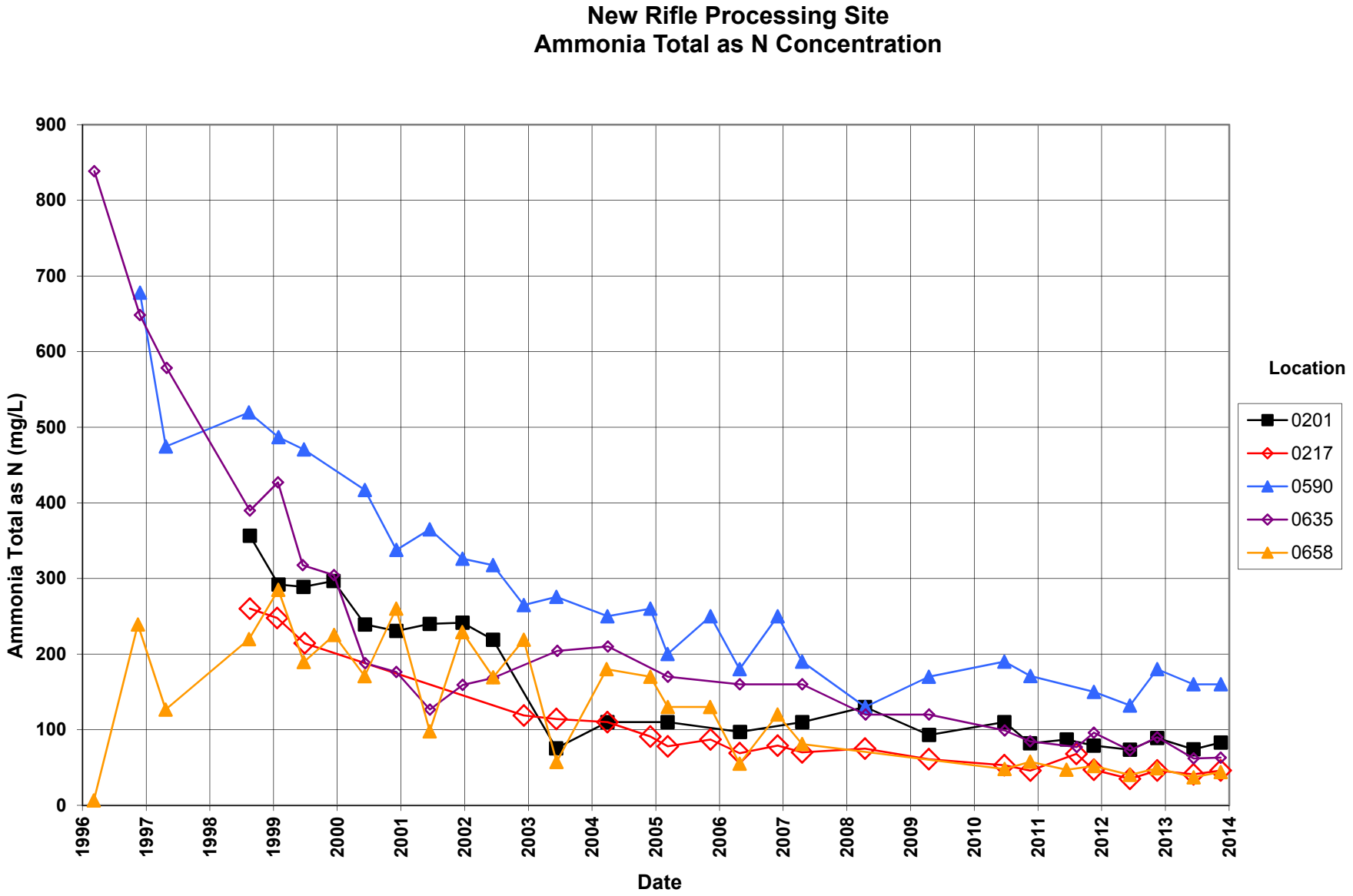
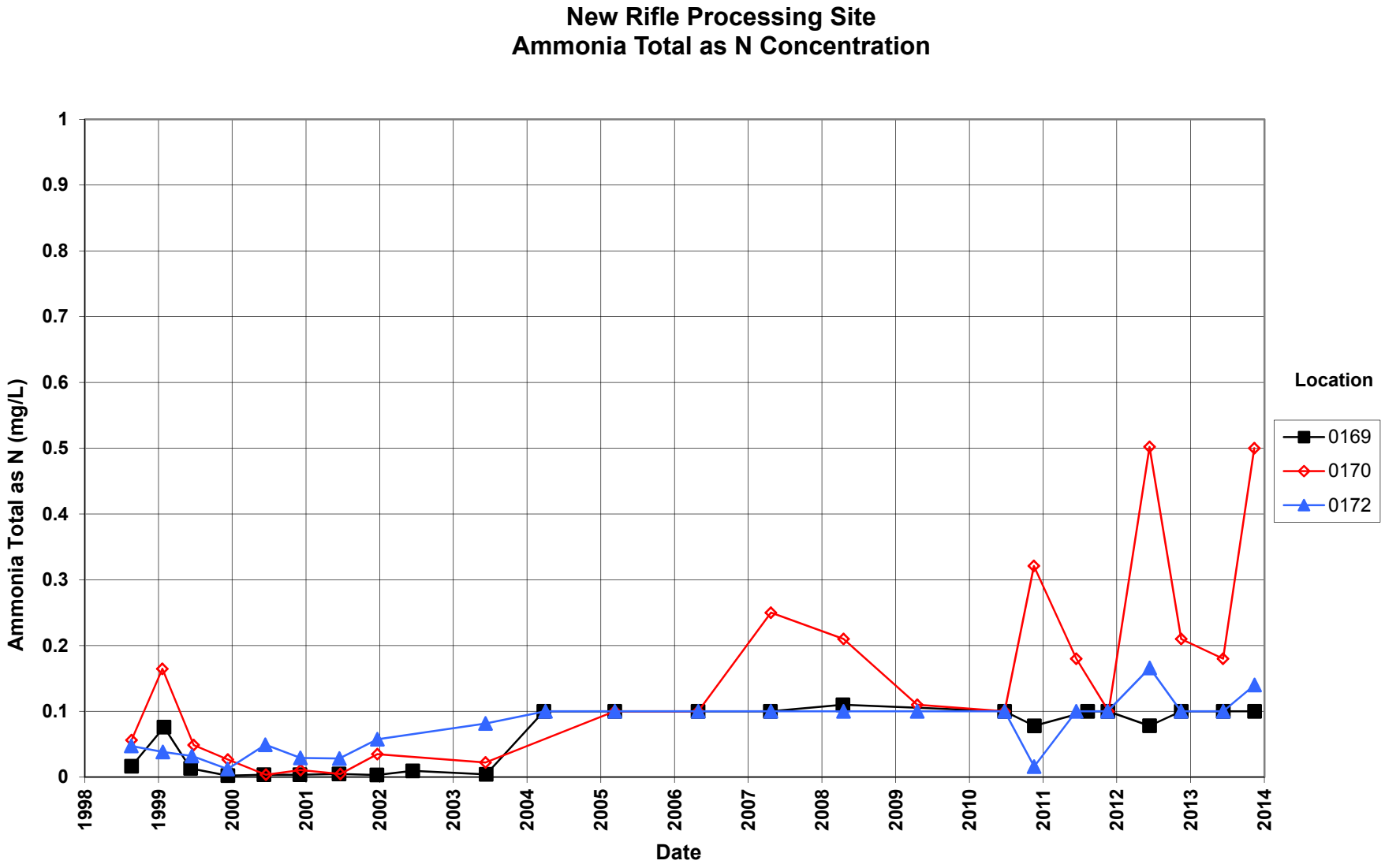
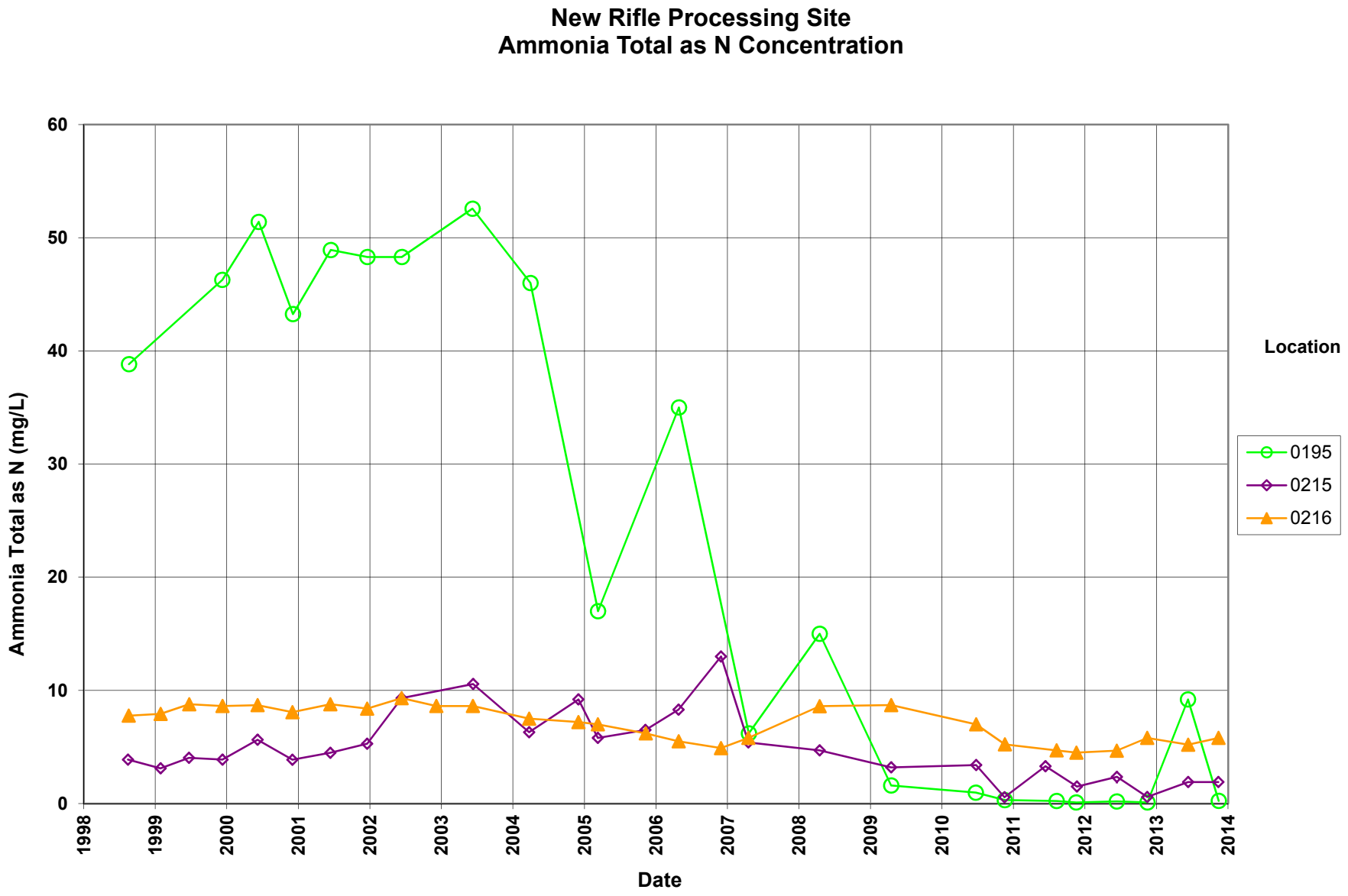
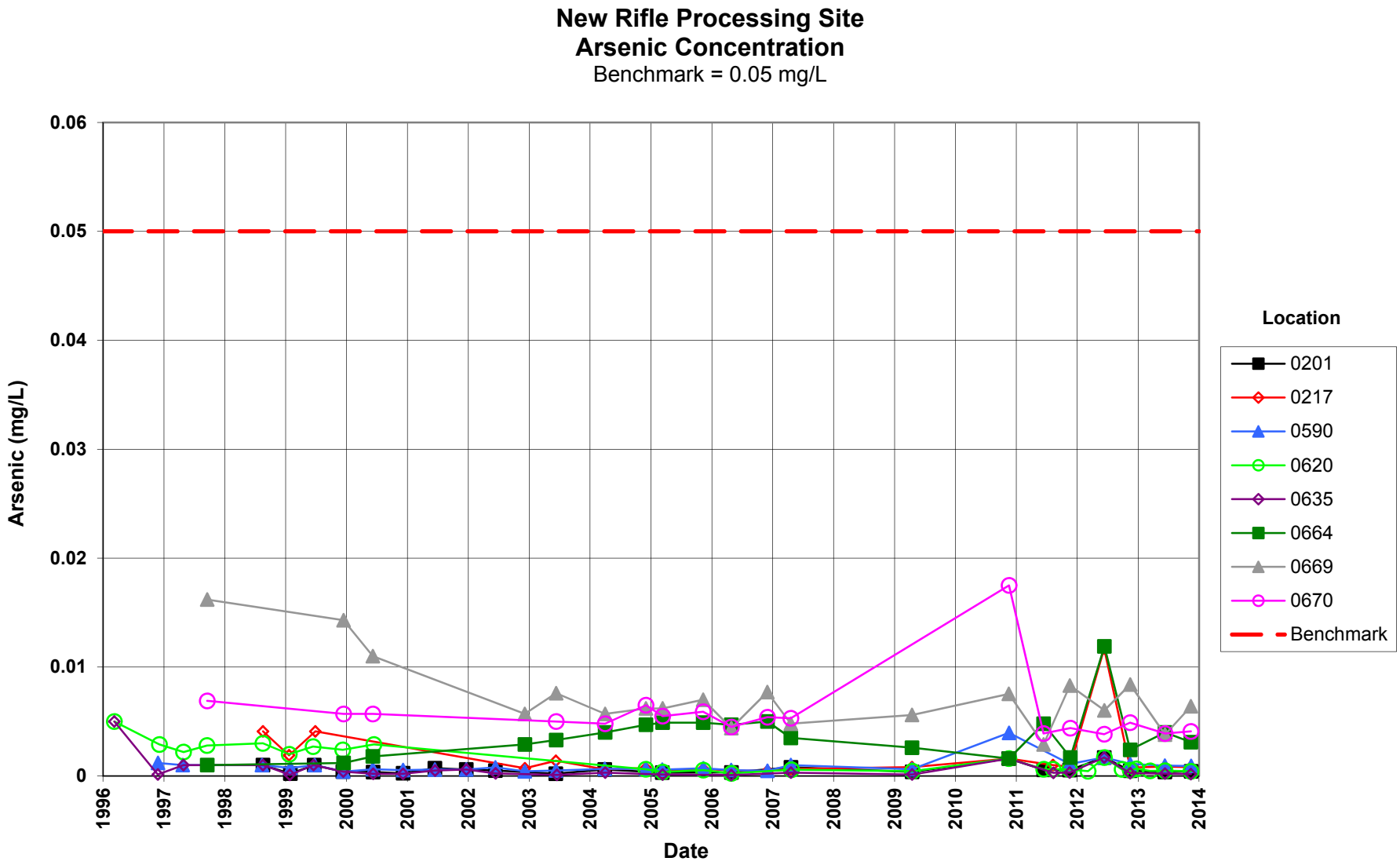
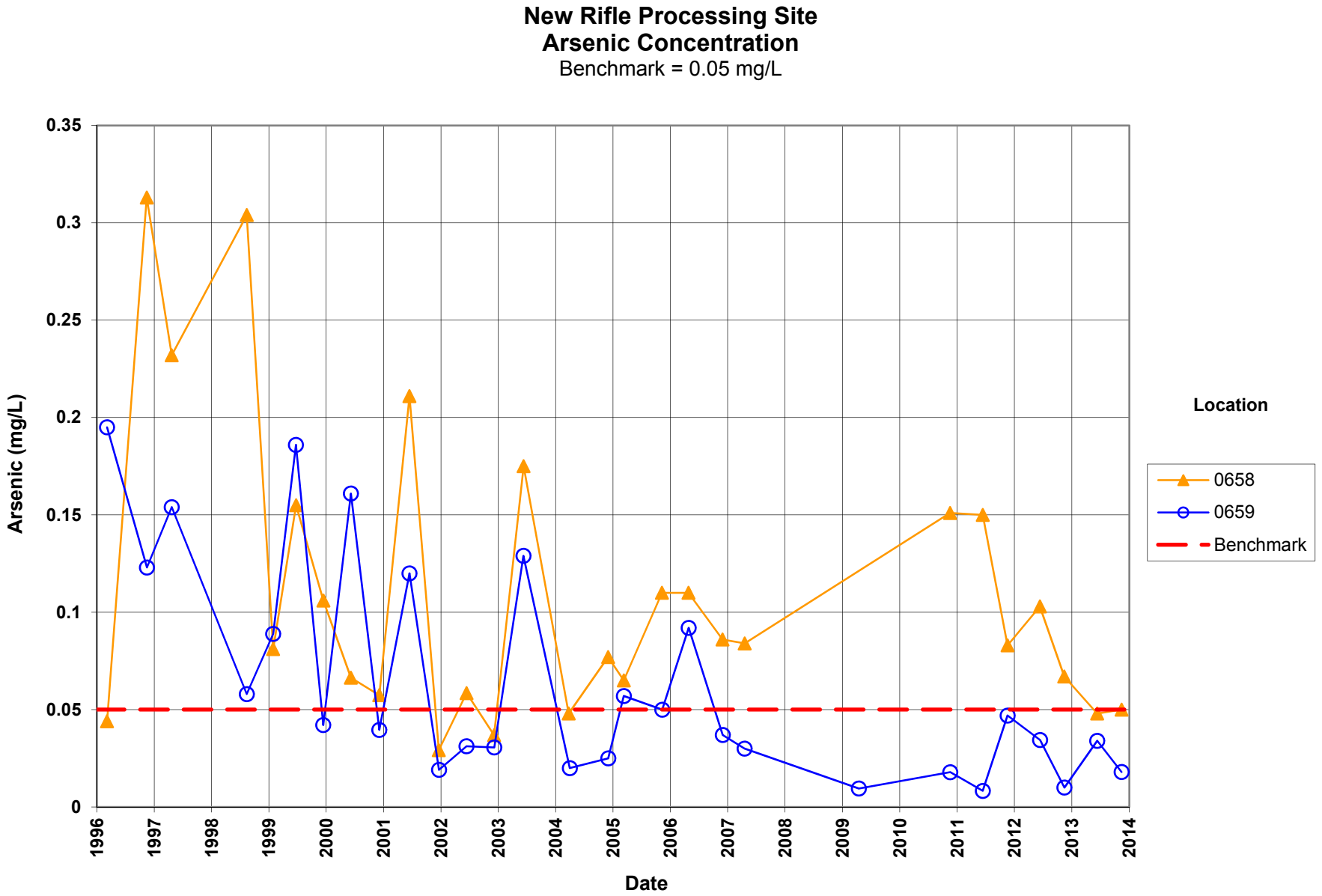

New Rifle Processing Site
Ammonia Total as N Concentration
Ammonia Total as N (mg/L)
250
200
150
100
50
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0620
0659
0664
0669
0670
0855

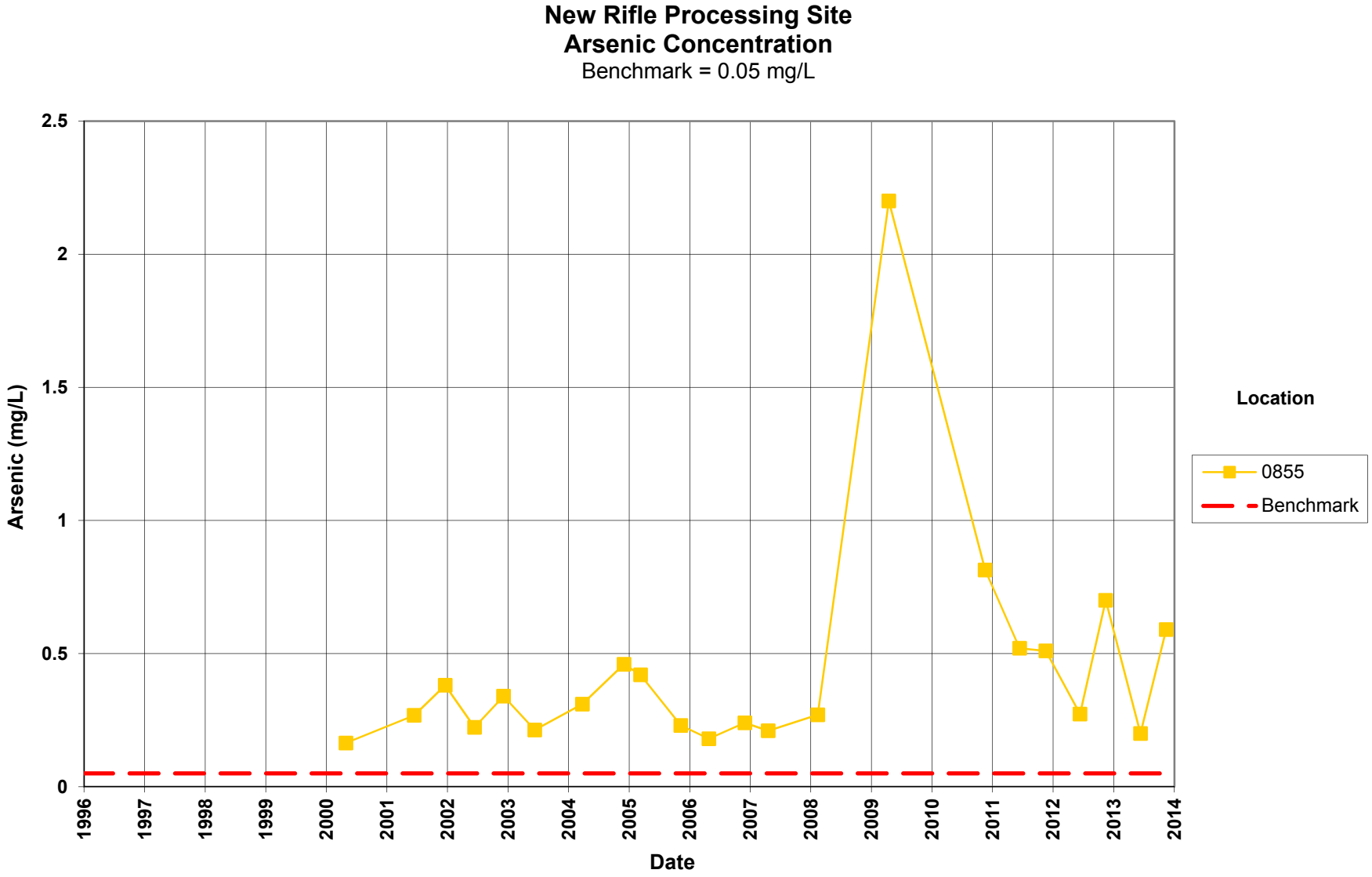

New Rifle Processing Site
Ammonia Total as N Concentration
Ammonia Total as N (mg/L)
900
800
700
600
500
400
300
200
100
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0201
0217
0590
0635
0658

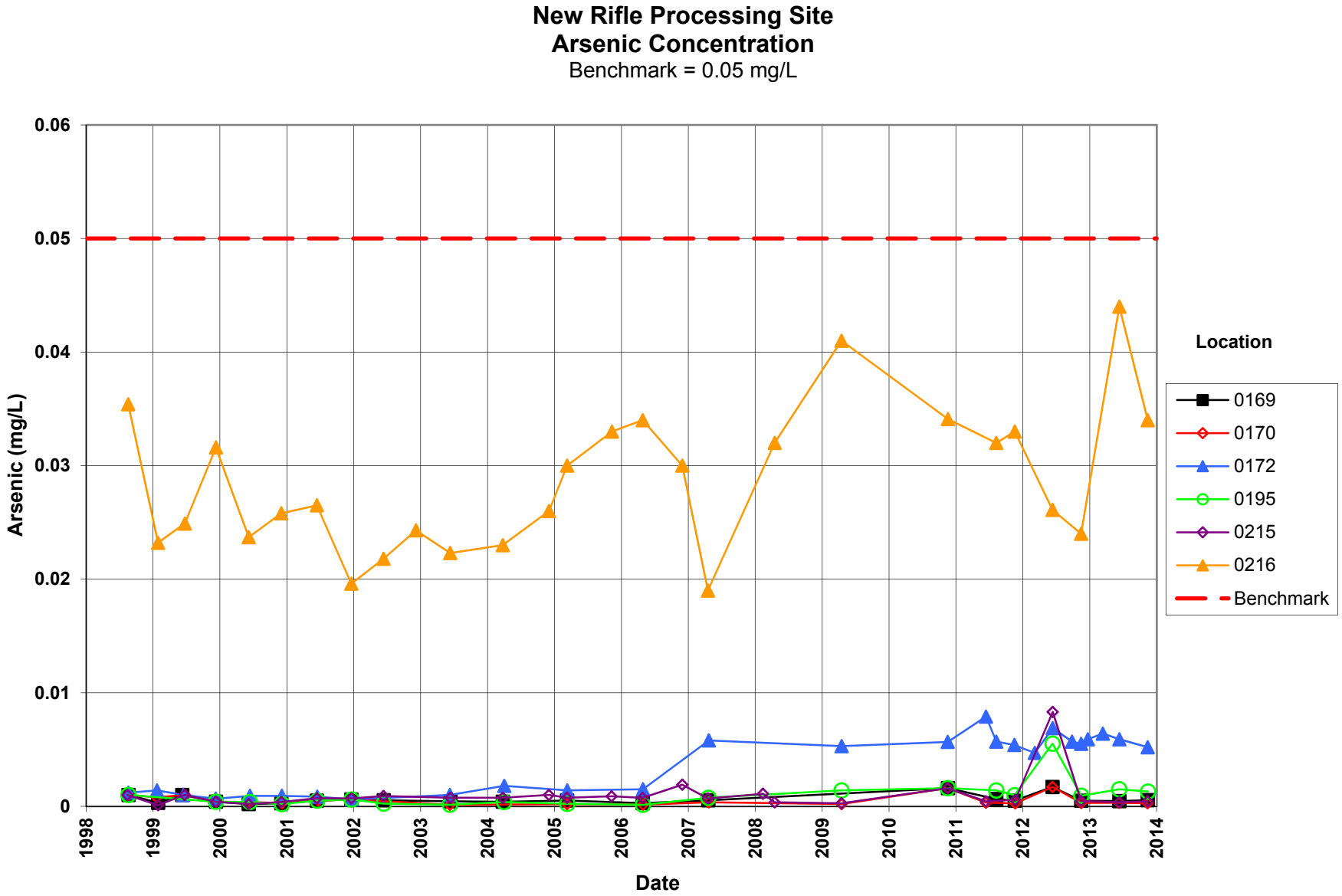

New Rifle Processing Site
Ammonia Total as N Concentration
Ammonia Total as N (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172

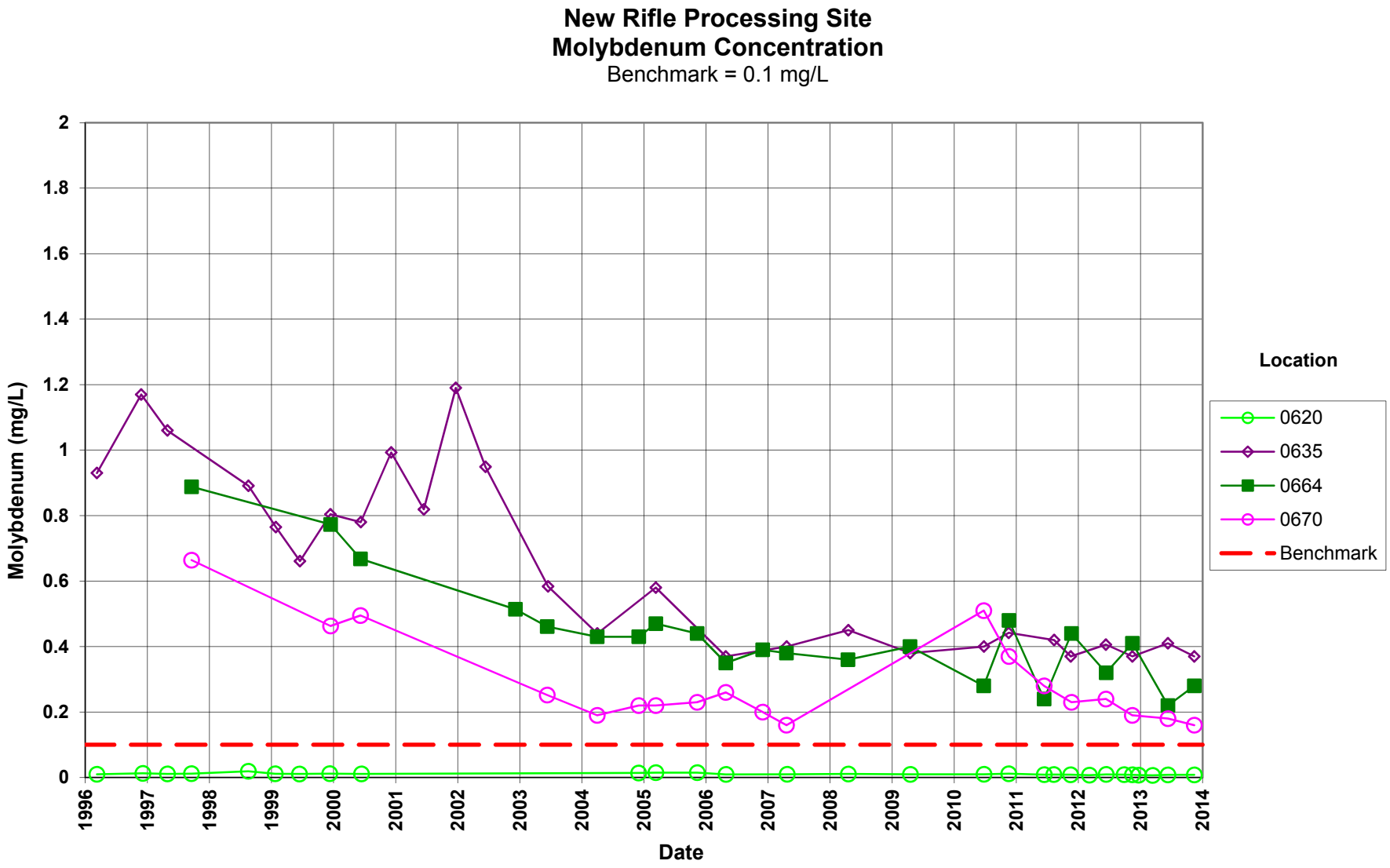

New Rifle Processing Site
Ammonia Total as N Concentration
Ammonia Total as N (mg/L)
60
50
40
30
20
10
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0195
0215
0216

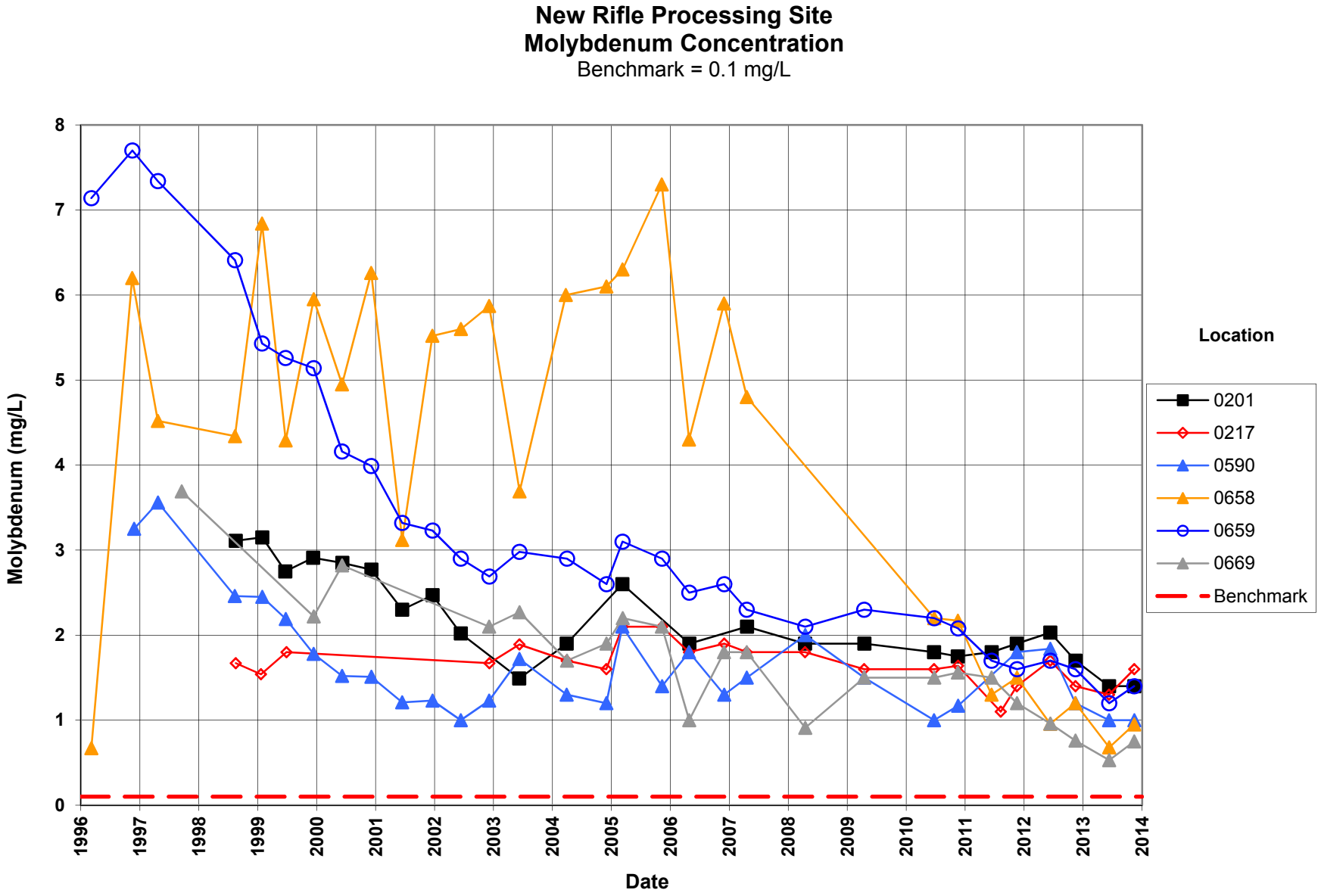

New Rifle Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L
Arsenic (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0201
0217
0590
0620
0635
0664
0669
0670
Benchmark

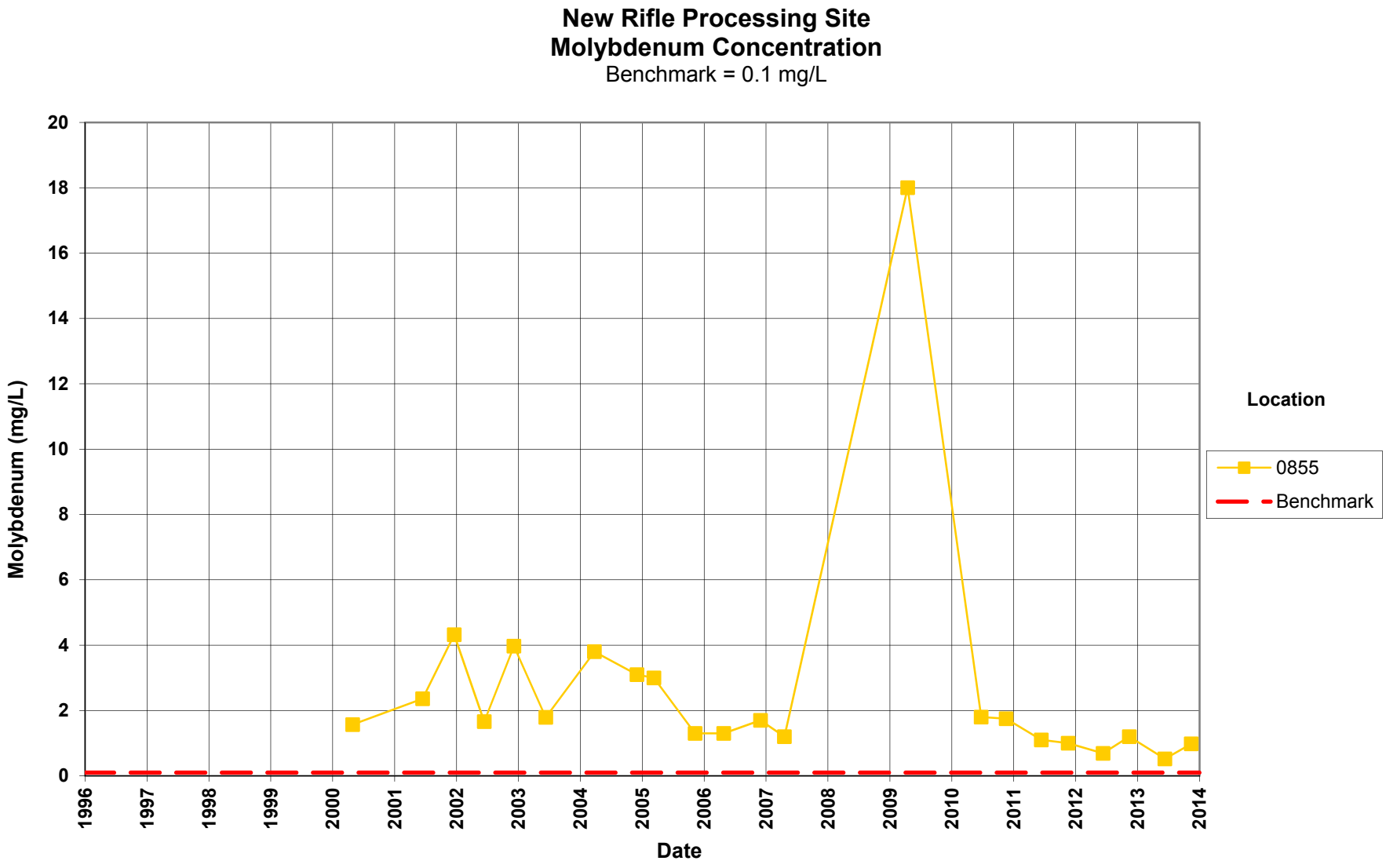

New Rifle Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L
Arsenic (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0658
0659
Benchmark

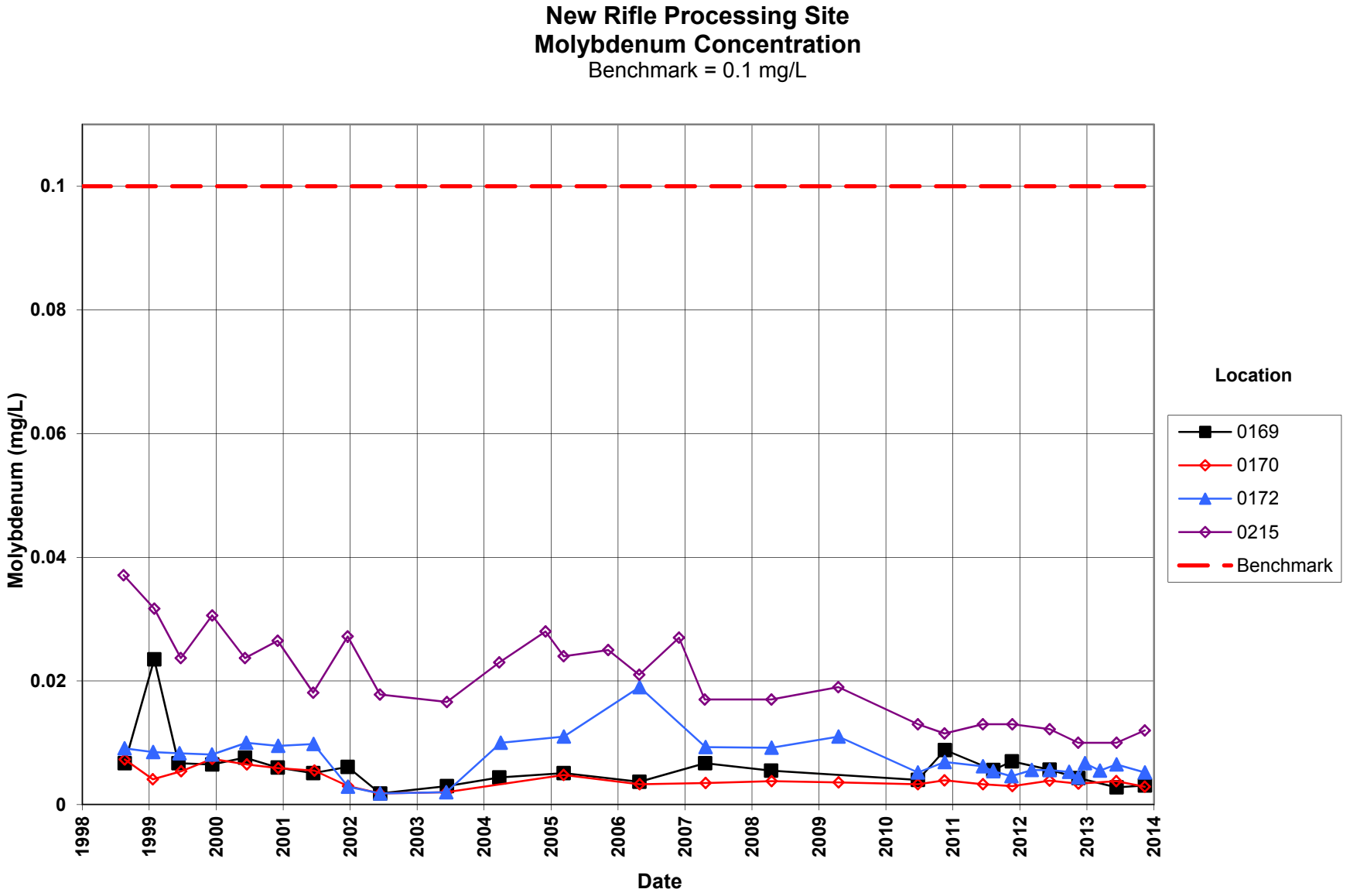

New Rifle Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L
Arsenic (mg/L)
2.5
2
1.5
1
0.5
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0855
Benchmark

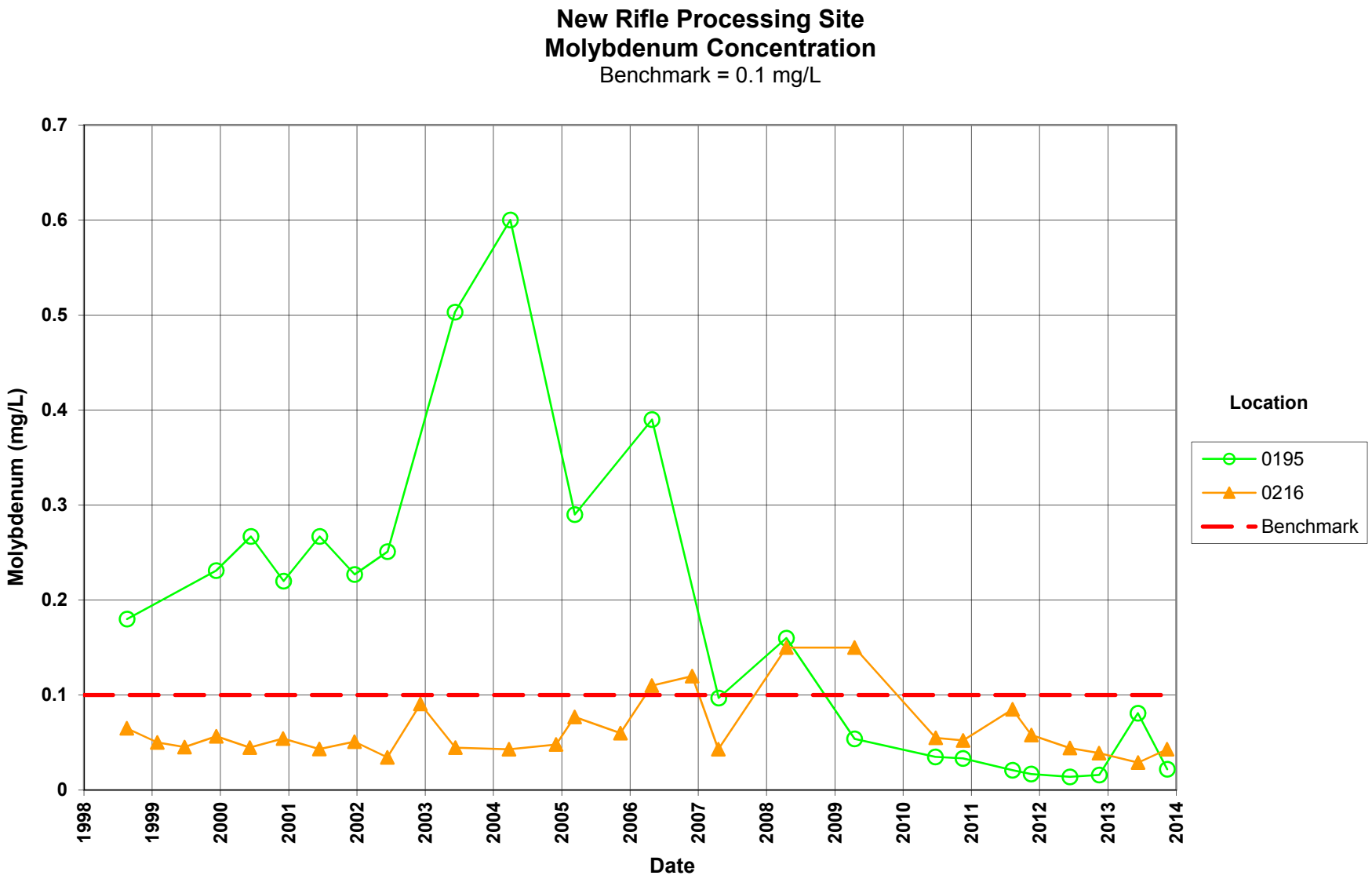

New Rifle Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L
Arsenic (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172
0195
0215
0216
Benchmark

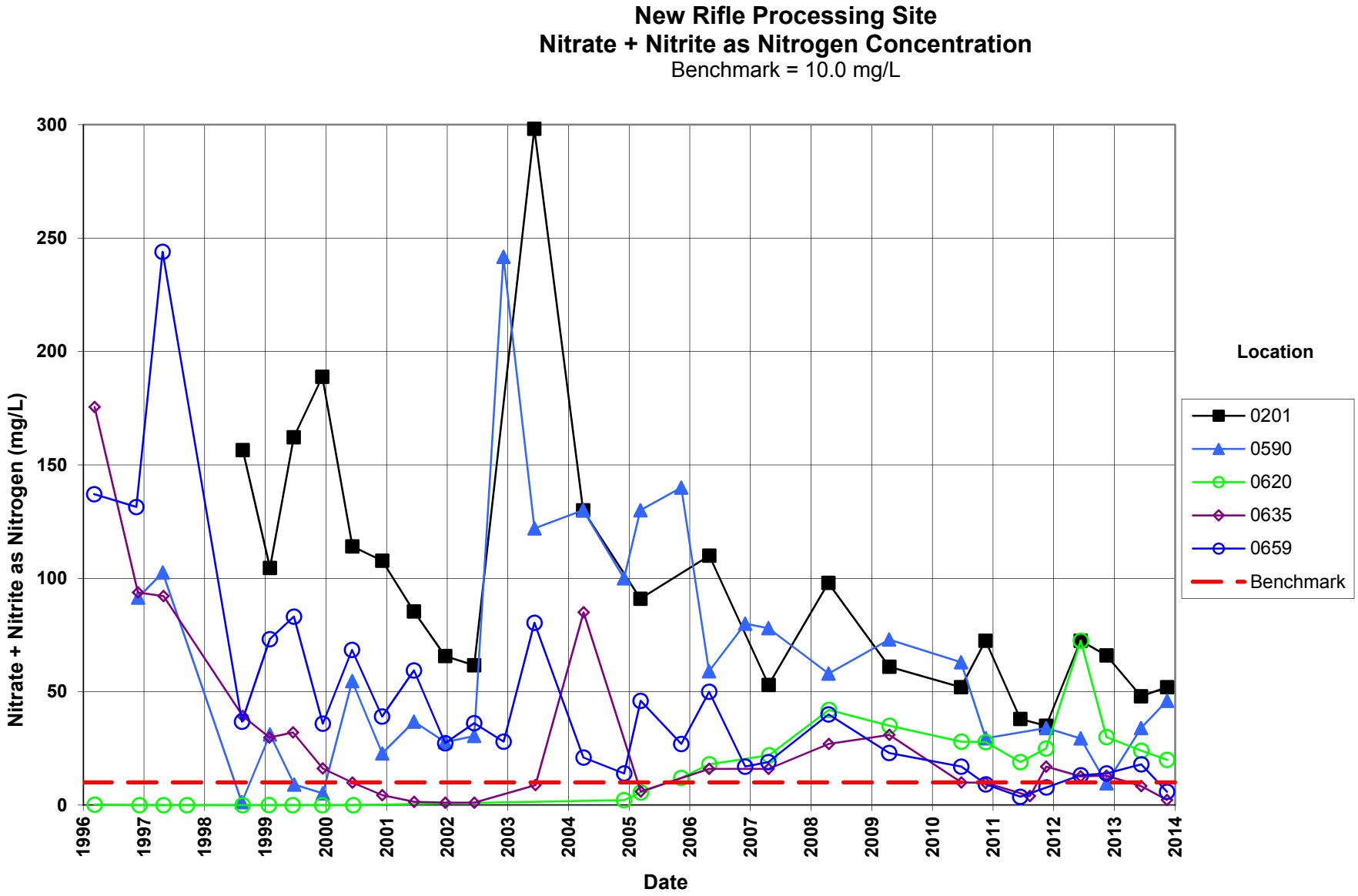

New Rifle Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L
Molybdenum (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0620
0635
0664
0670
Benchmark

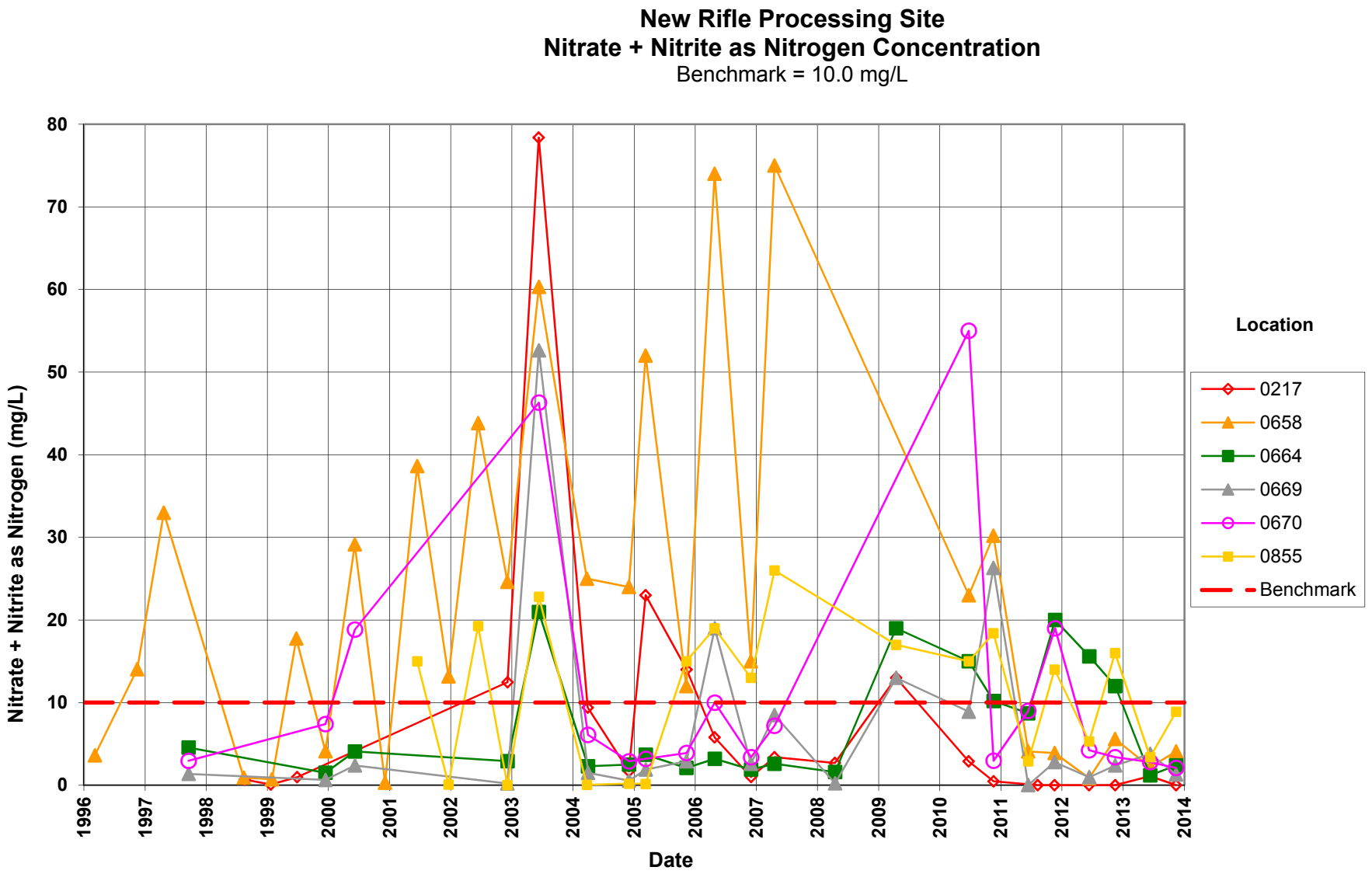

New Rifle Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L
Molybdenum (mg/L)
Date
Location
0201
0217
0590
0658
0659
0669
Benchmark
0
1
2
3
4
5
6
7
8
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014

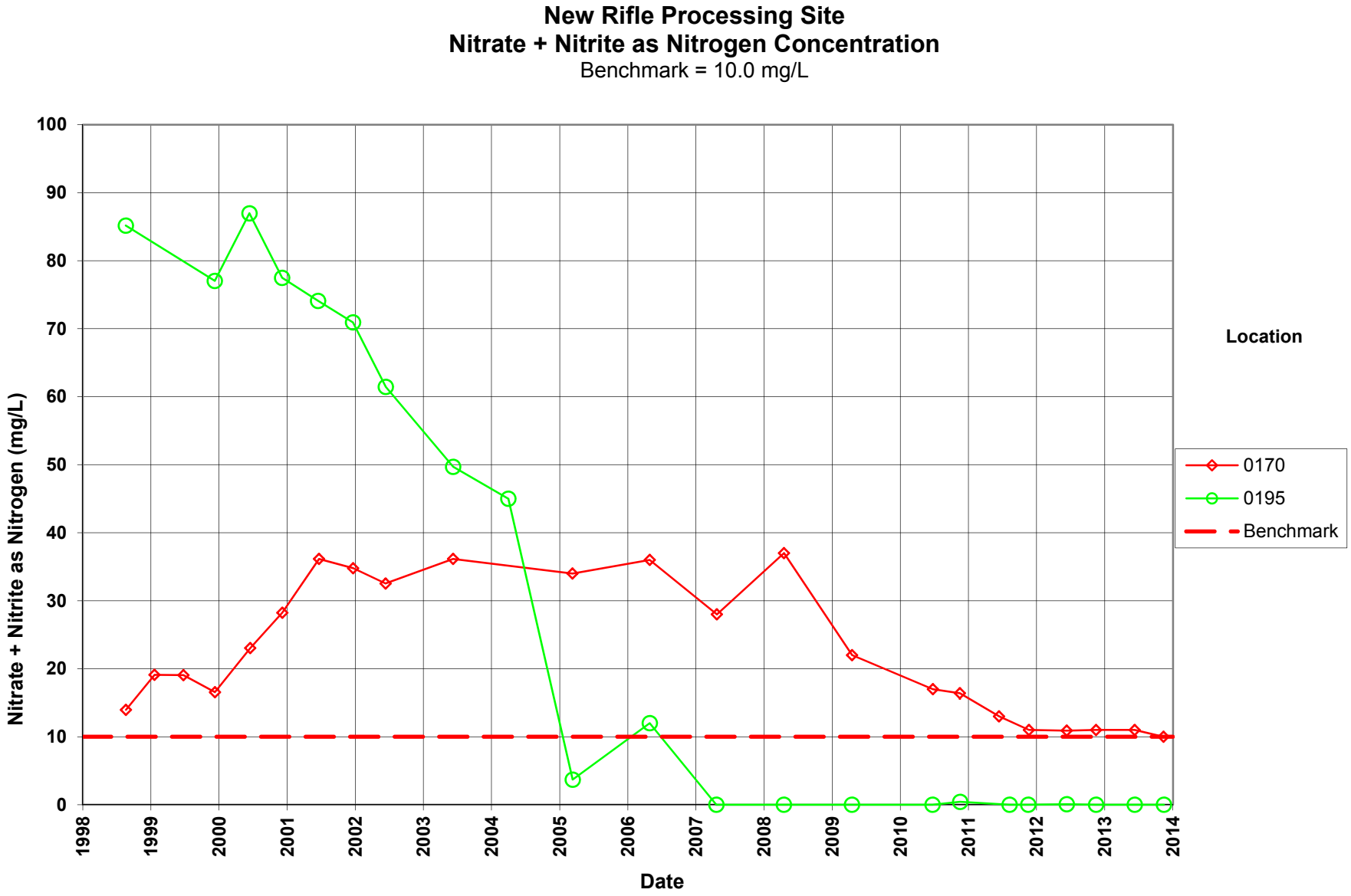

New Rifle Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L
Molybdenum (mg/L)
20
18
16
14
12
10
8
6
4
2
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0855
Benchmark

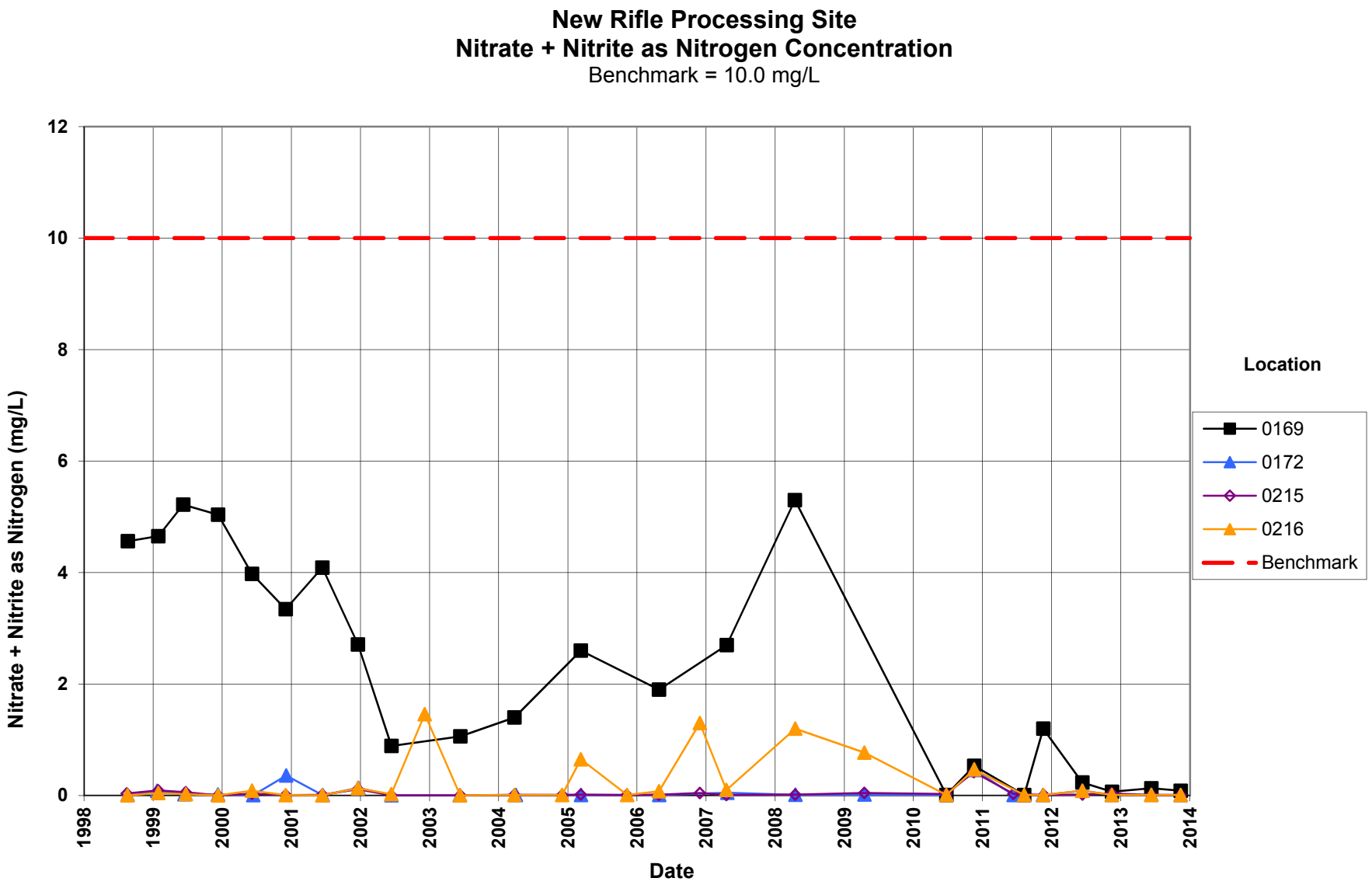

New Rifle Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L
Molybdenum (mg/L)
0.1
0.08
0.06
0.04
0.02
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172
0215
Benchmark

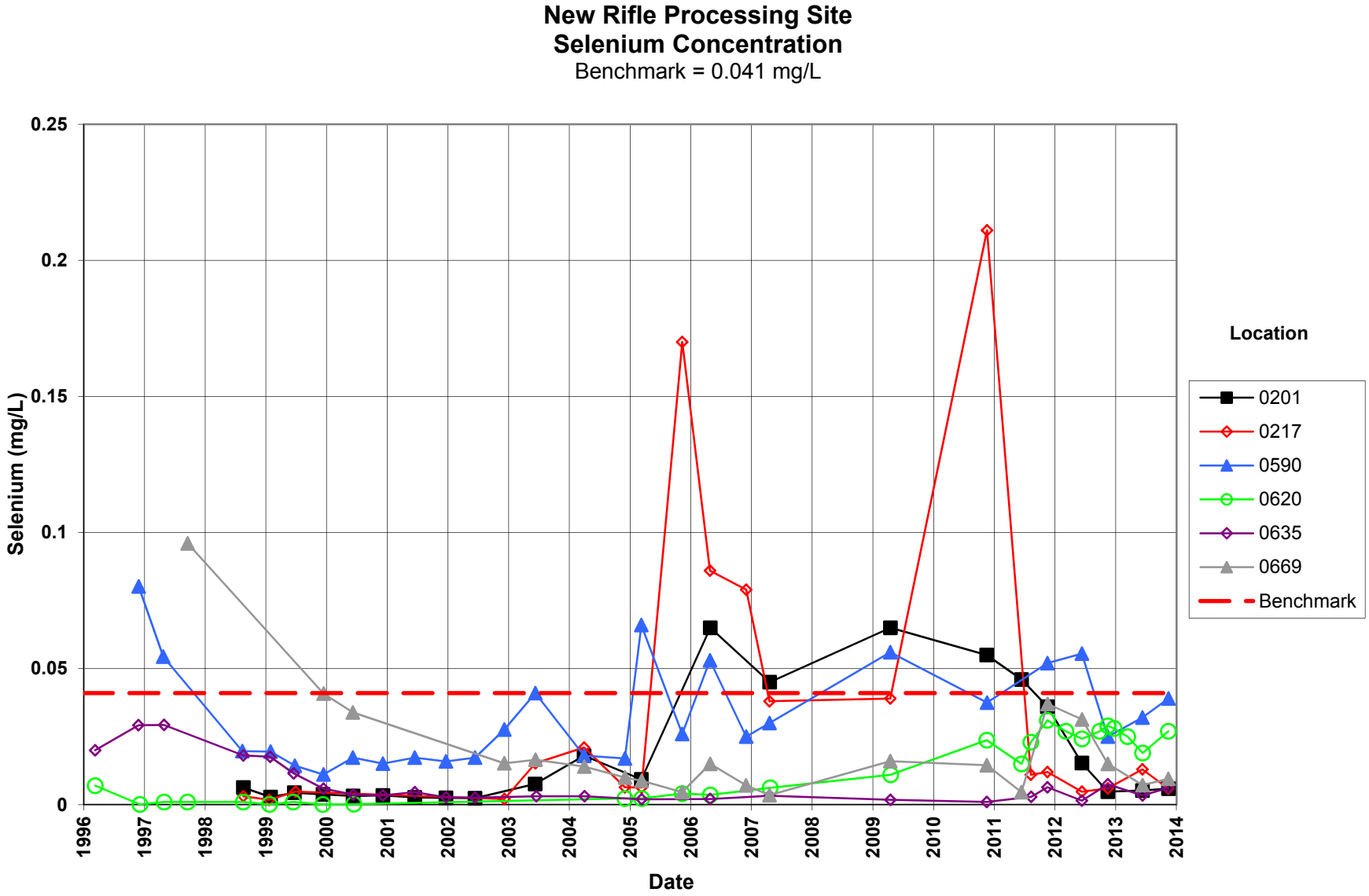

New Rifle Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L
Molybdenum (mg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0195
0216
Benchmark

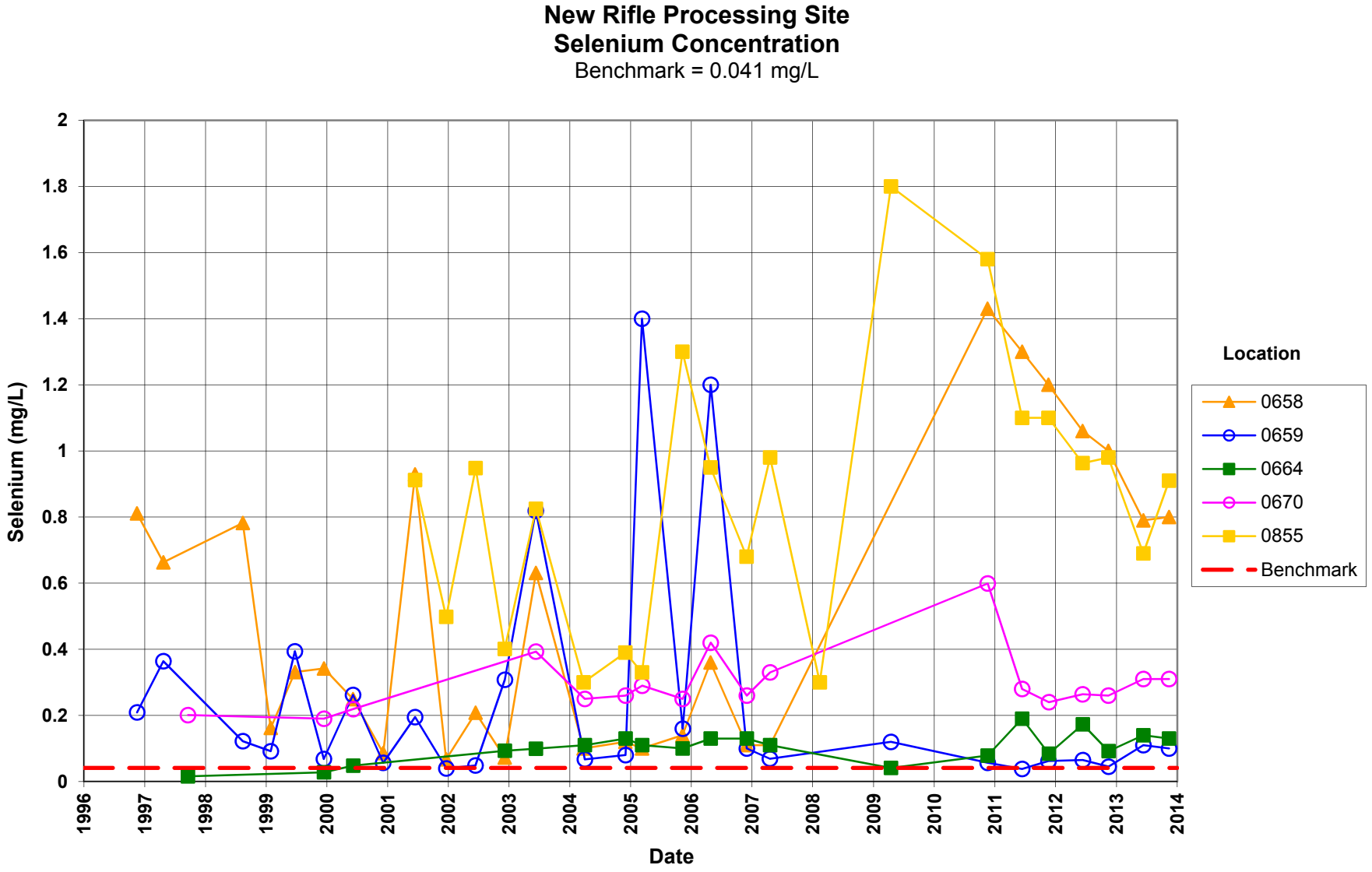

New Rifle Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Benchmark = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
300
250
200
150
100
50
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0201
0590
0620
0635
0659
Benchmark

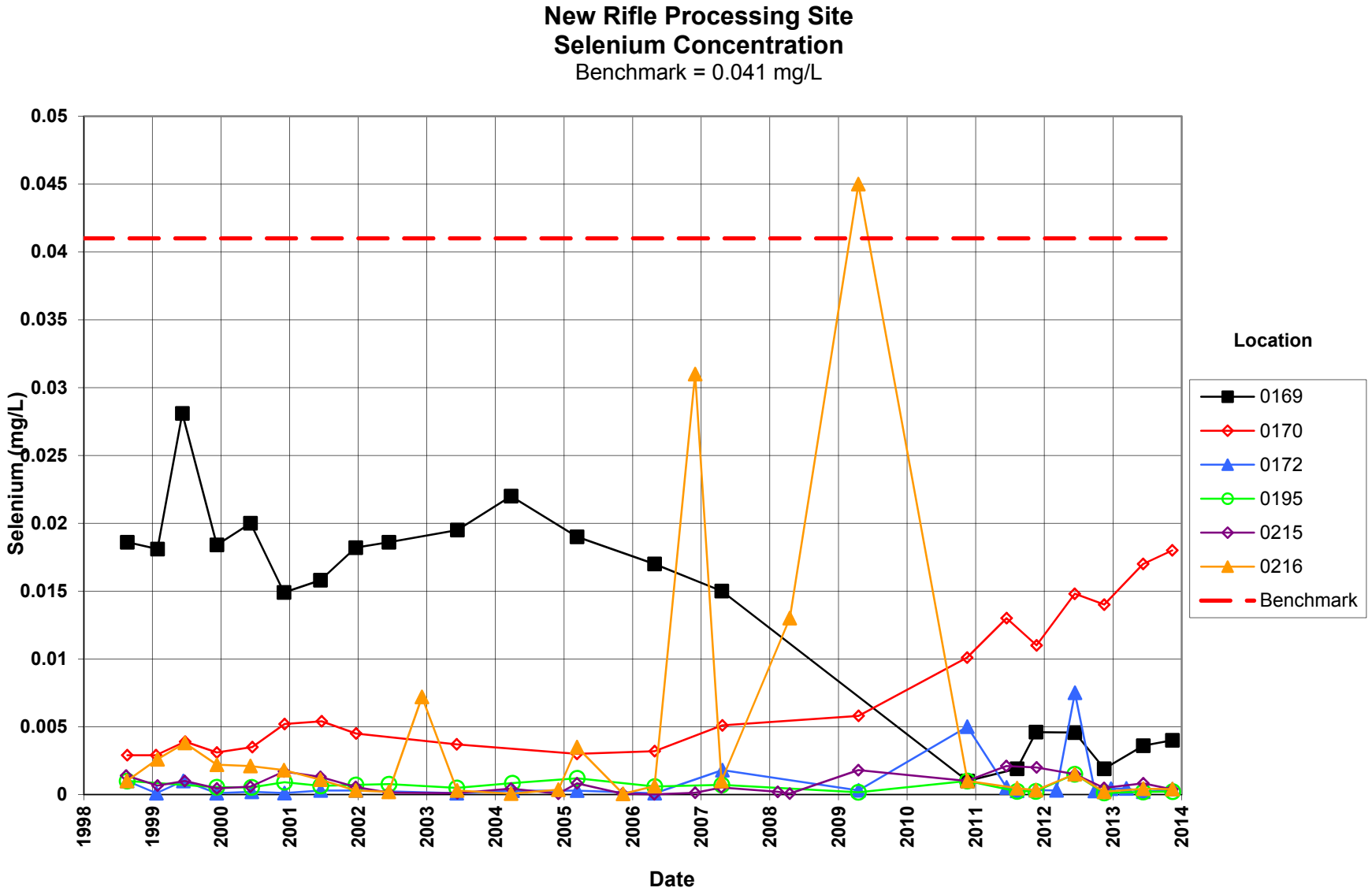

New Rifle Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Benchmark = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
0
10
20
30
40
50
60
70
80
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0217
0658
0664
0669
0670
0855
Benchmark

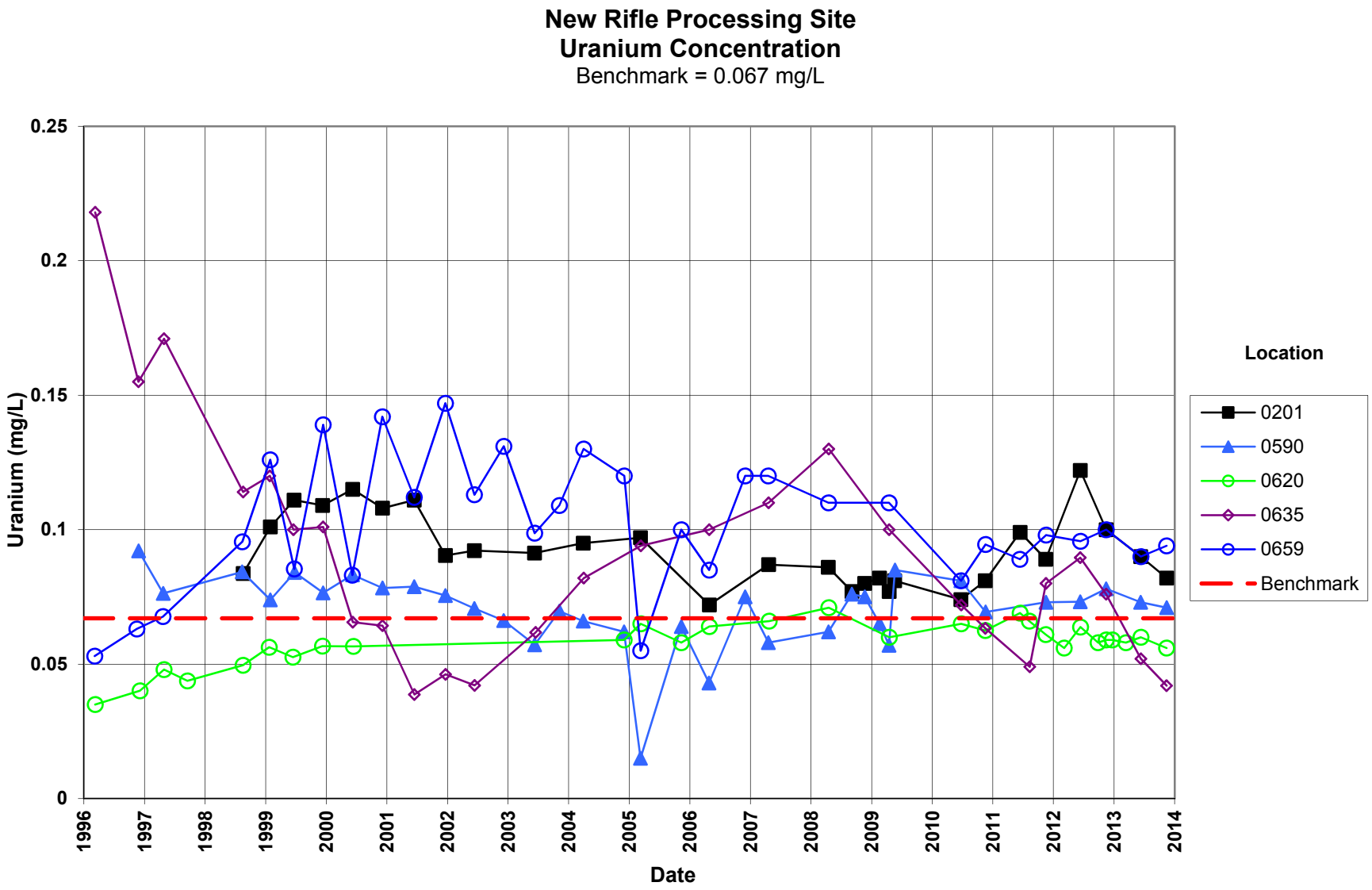

New Rifle Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Benchmark = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
100
90
80
70
60
50
40
30
20
10
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0170
0195
Benchmark

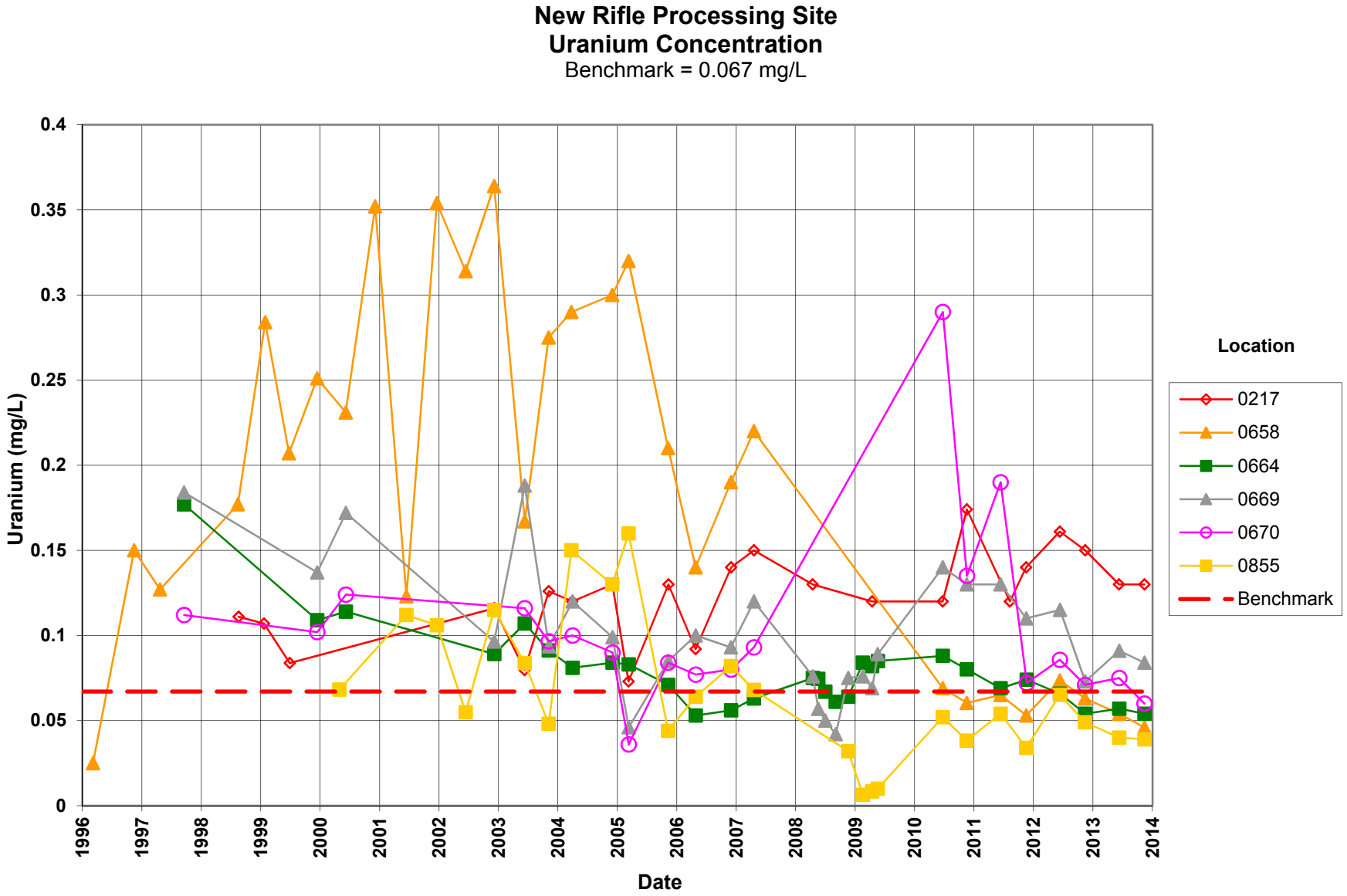

New Rifle Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Benchmark = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
12
10
8
6
4
2
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0172
0215
0216
Benchmark

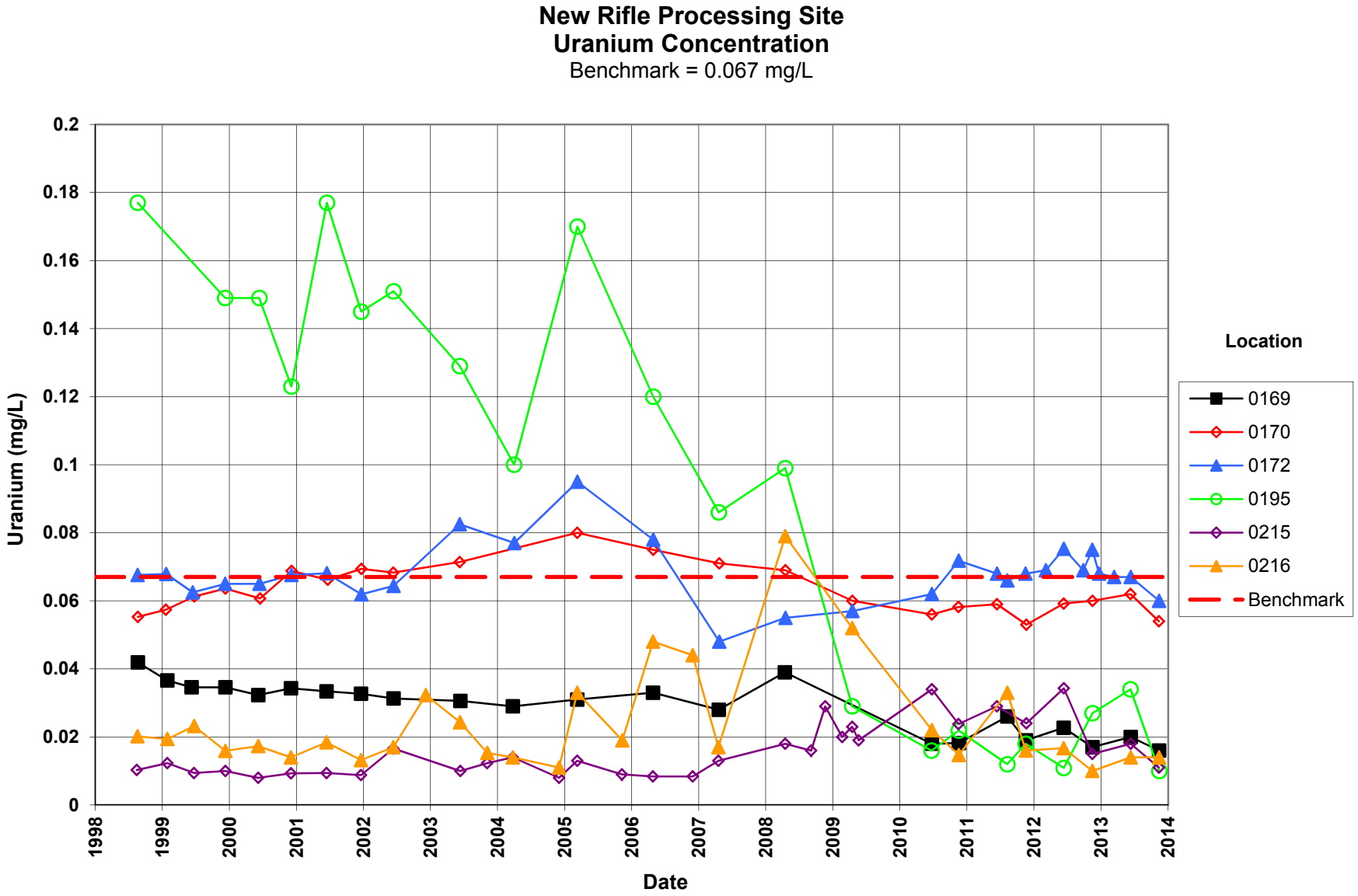

New Rifle Processing Site
Selenium Concentration
Benchmark = 0.041 mg/L
Selenium (mg/L)
0.25
0.2
0.15
0.1
0.05
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0201
0217
0590
0620
0635
0669
Benchmark

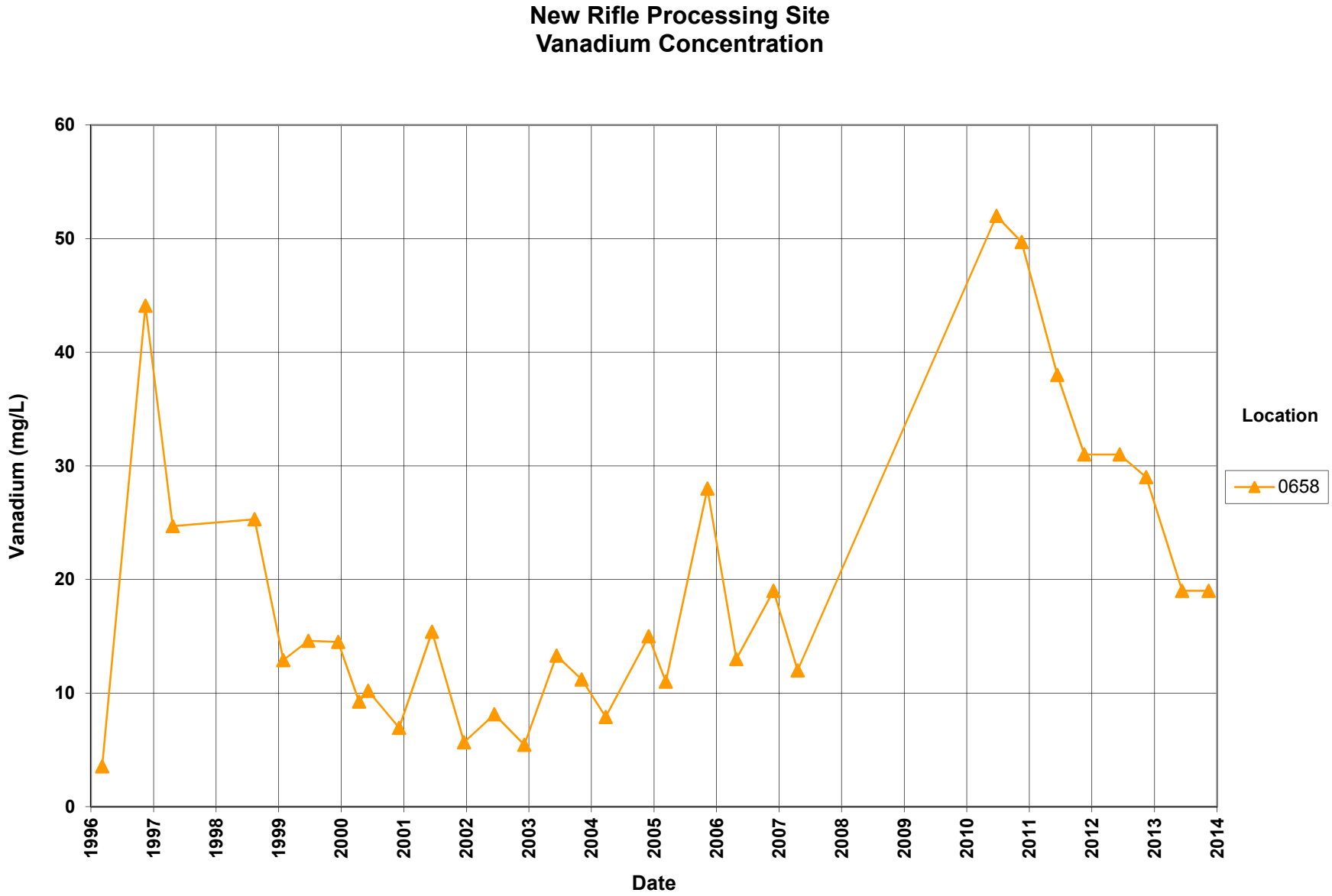

New Rifle Processing Site
Selenium Concentration
Benchmark = 0.041 mg/L
Selenium (mg/L)
Date
Location
0658
0659
0664
0670
0855
Benchmark
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014


New Rifle Processing Site
Selenium Concentration
Benchmark = 0.041 mg/L
Selenium (mg/L)
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172
0195
0215
0216
Benchmark

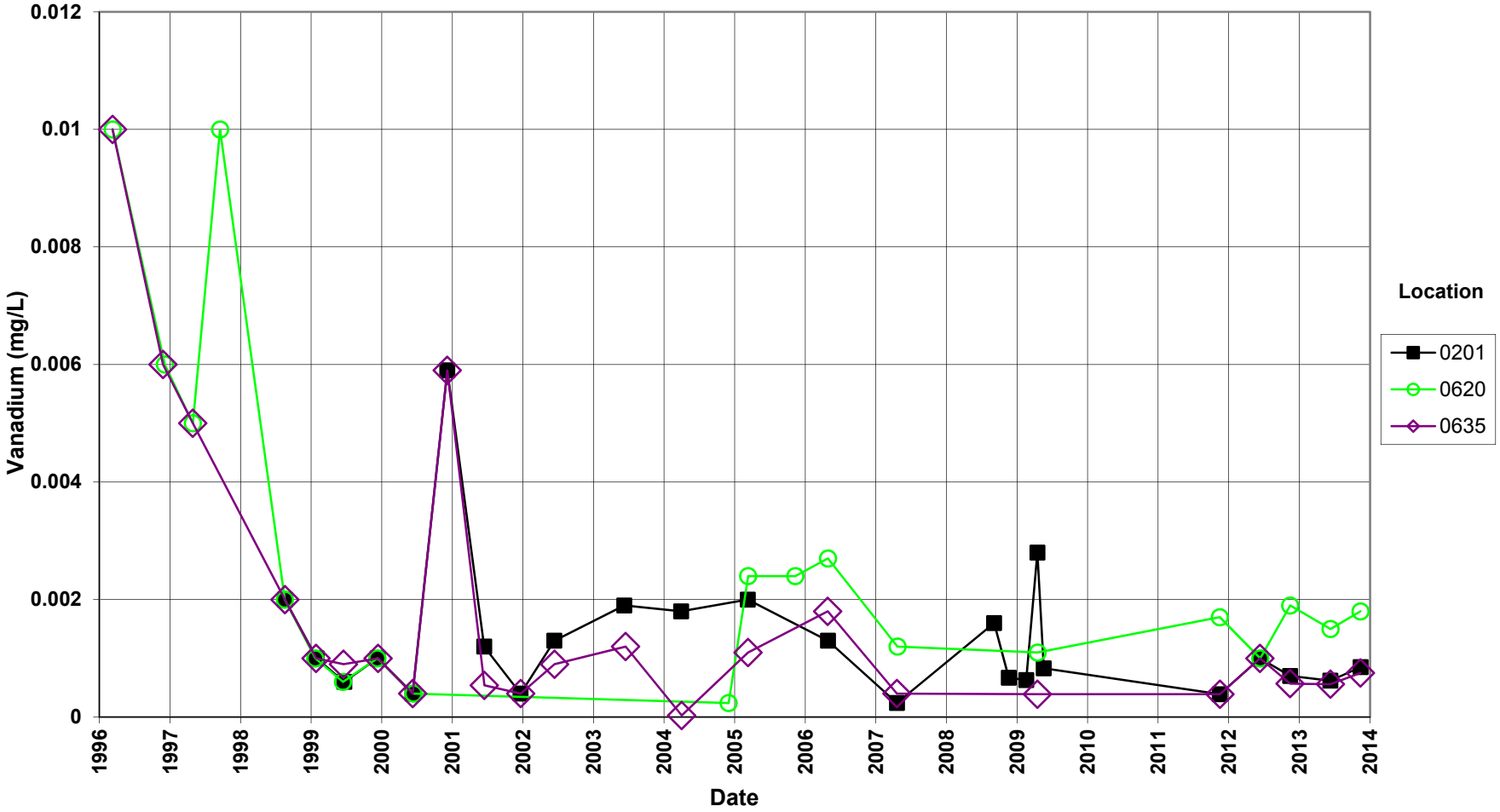

New Rifle Processing Site
Uranium Concentration
Benchmark = 0.067 mg/L
Uranium (mg/L)
0.25
0.2
0.15
0.1
0.05
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0201
0590
0620
0635
0659
Benchmark

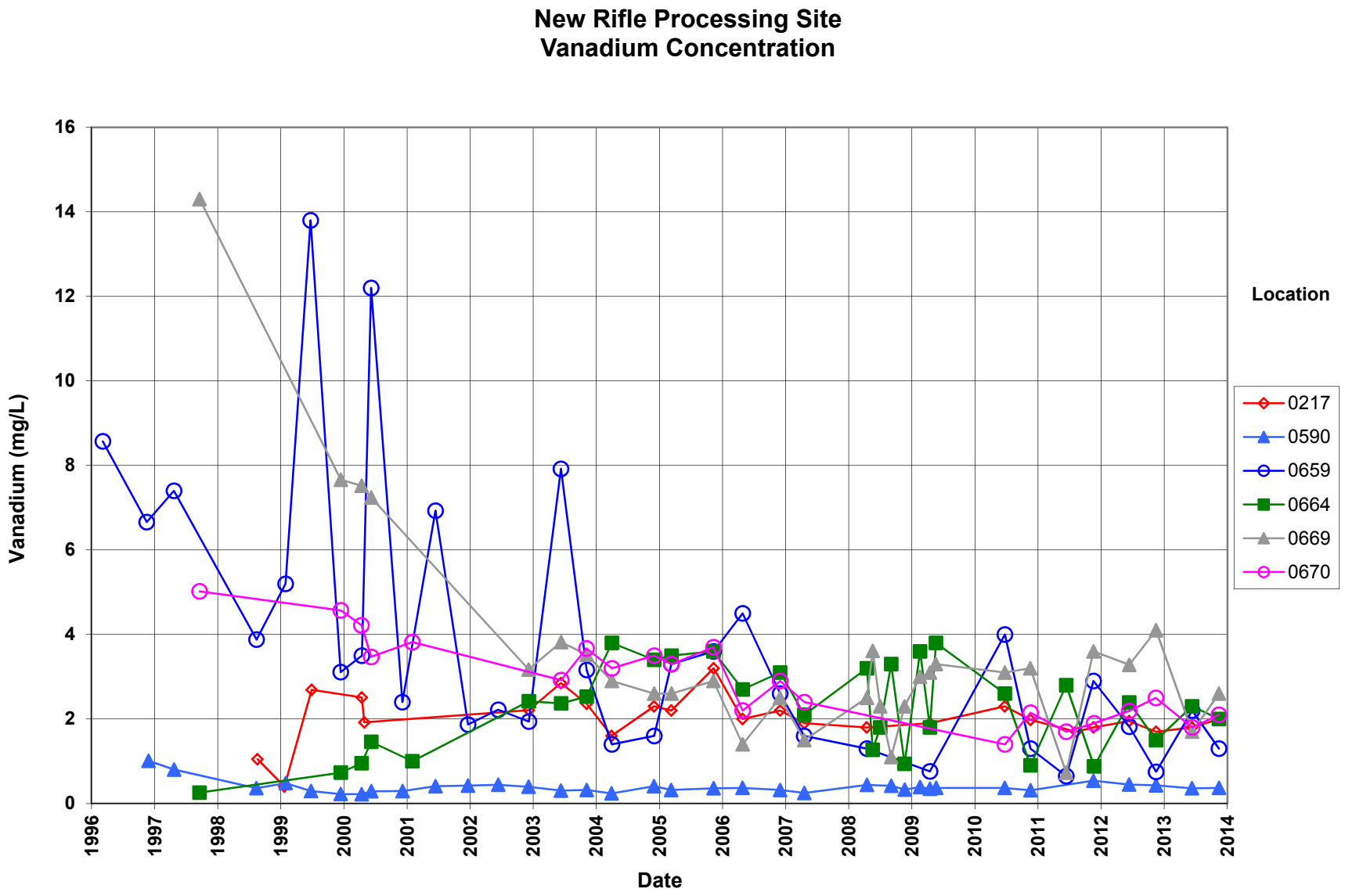

New Rifle Processing Site
Uranium Concentration
Benchmark = 0.067 mg/L
Uranium (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0217
0658
0664
0669
0670
0855
Benchmark

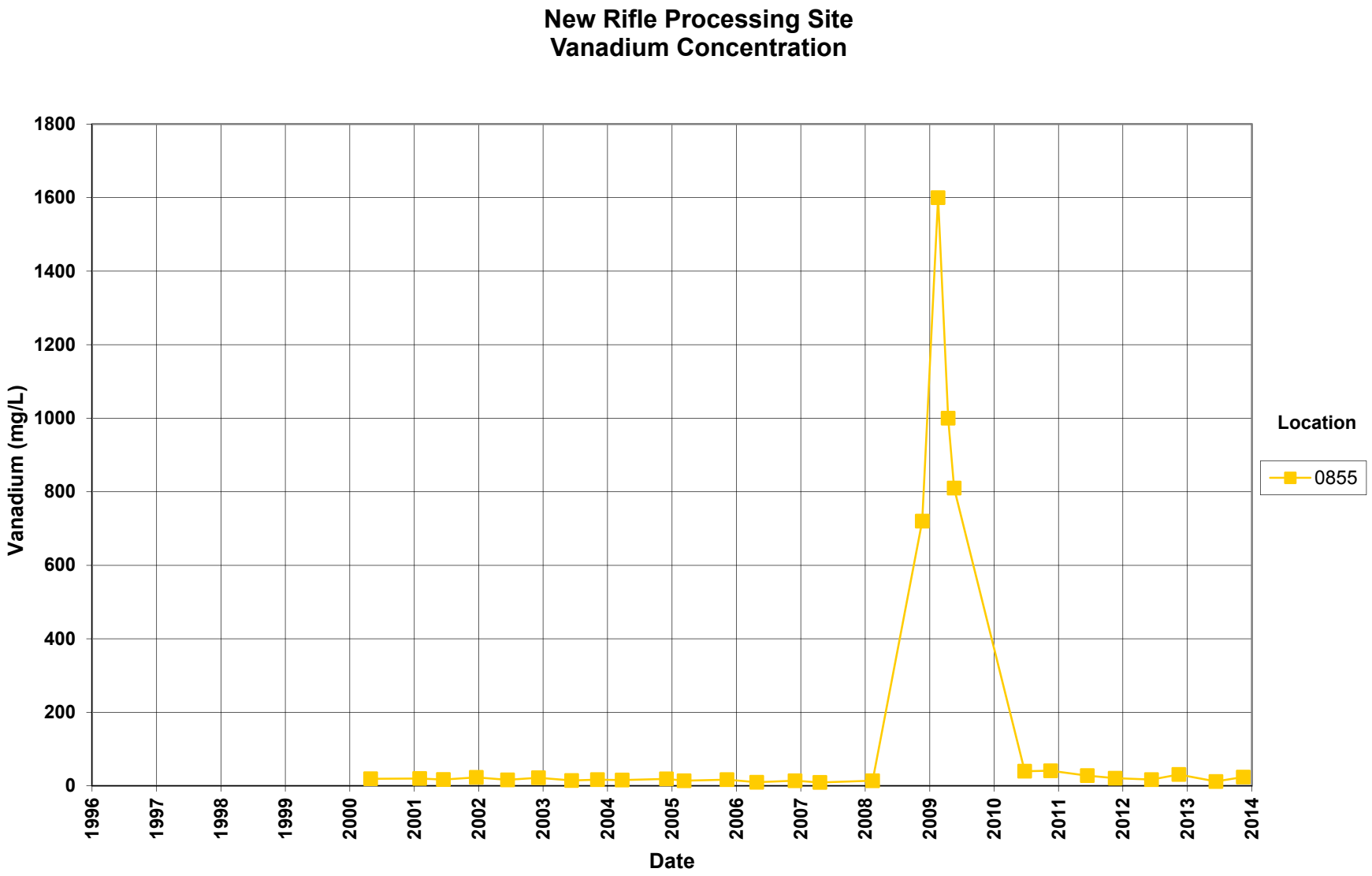

New Rifle Processing Site
Uranium Concentration
Benchmark = 0.067 mg/L
Uranium (mg/L)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172
0195
0215
0216
Benchmark

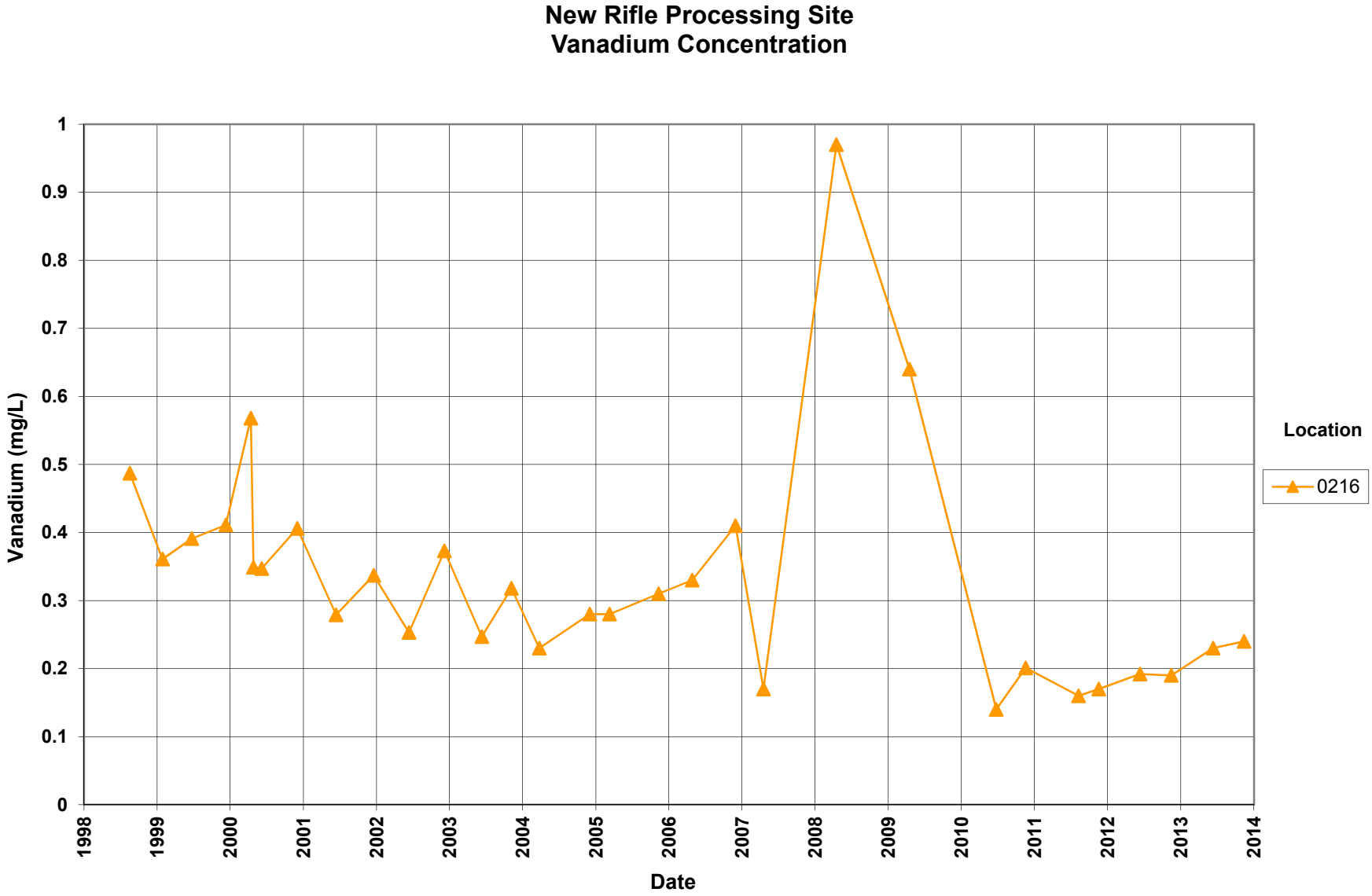

New Rifle Processing Site
Vanadium Concentration
Vanadium (mg/L)
60
50
40
30
20
10
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0658

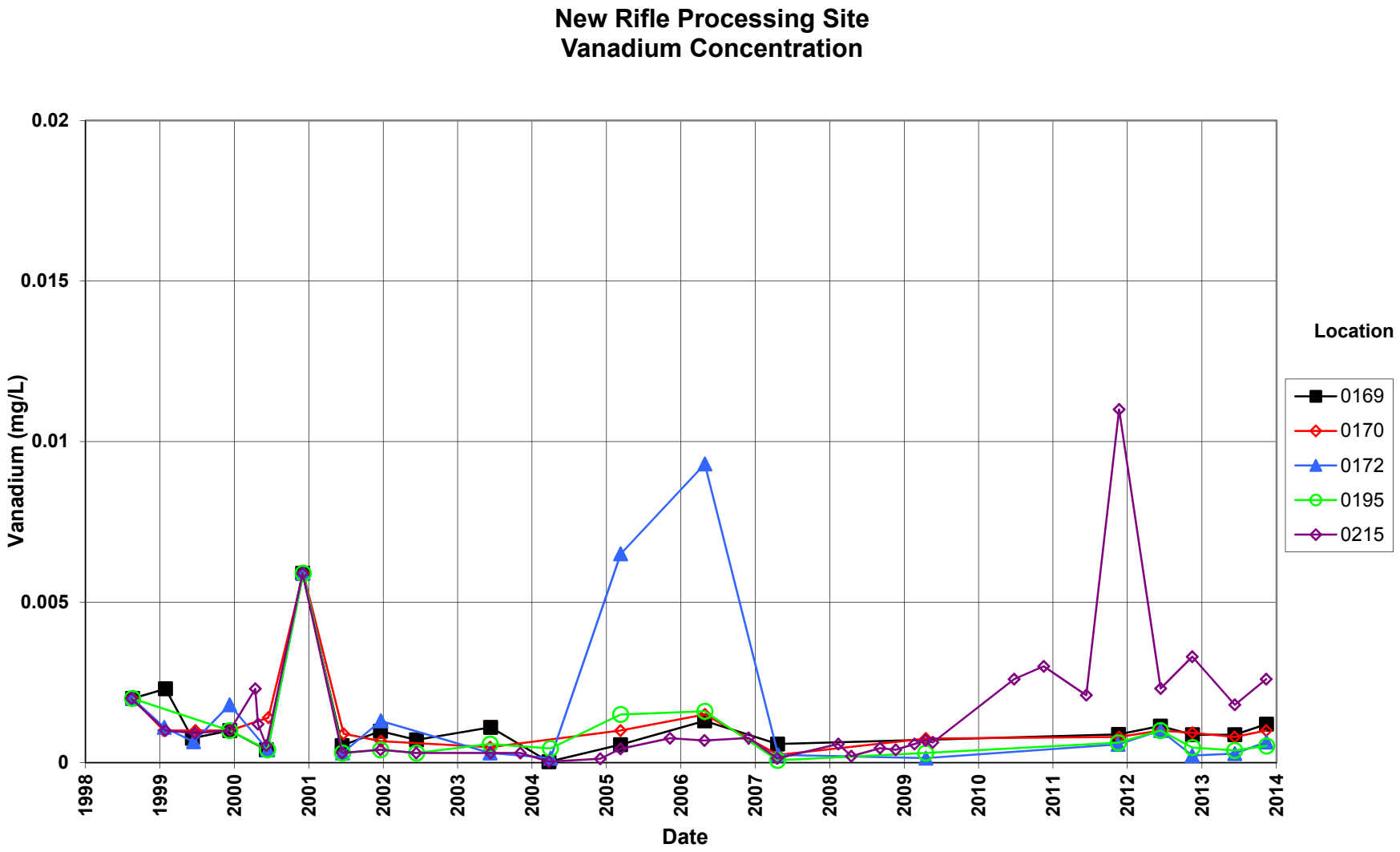
New Rifle Processing Site
Vanadium Concentration




New Rifle Processing Site
Vanadium Concentration
Vanadium (mg/L)
Date
Location
0217
0590
0659
0664
0669
0670
0
2
4
6
8
10
12
14
16
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014


New Rifle Processing Site
Vanadium Concentration
Vanadium (mg/L)
1800
1600
1400
1200
1000
800
600
400
200
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0855


New Rifle Processing Site
Vanadium Concentration
Vanadium (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0216


New Rifle Processing Site
Vanadium Concentration
Vanadium (mg/L)
0.02
0.015
0.01
0.005
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0169
0170
0172
0195
0215

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Appendix A-3

New Rifle Ponds

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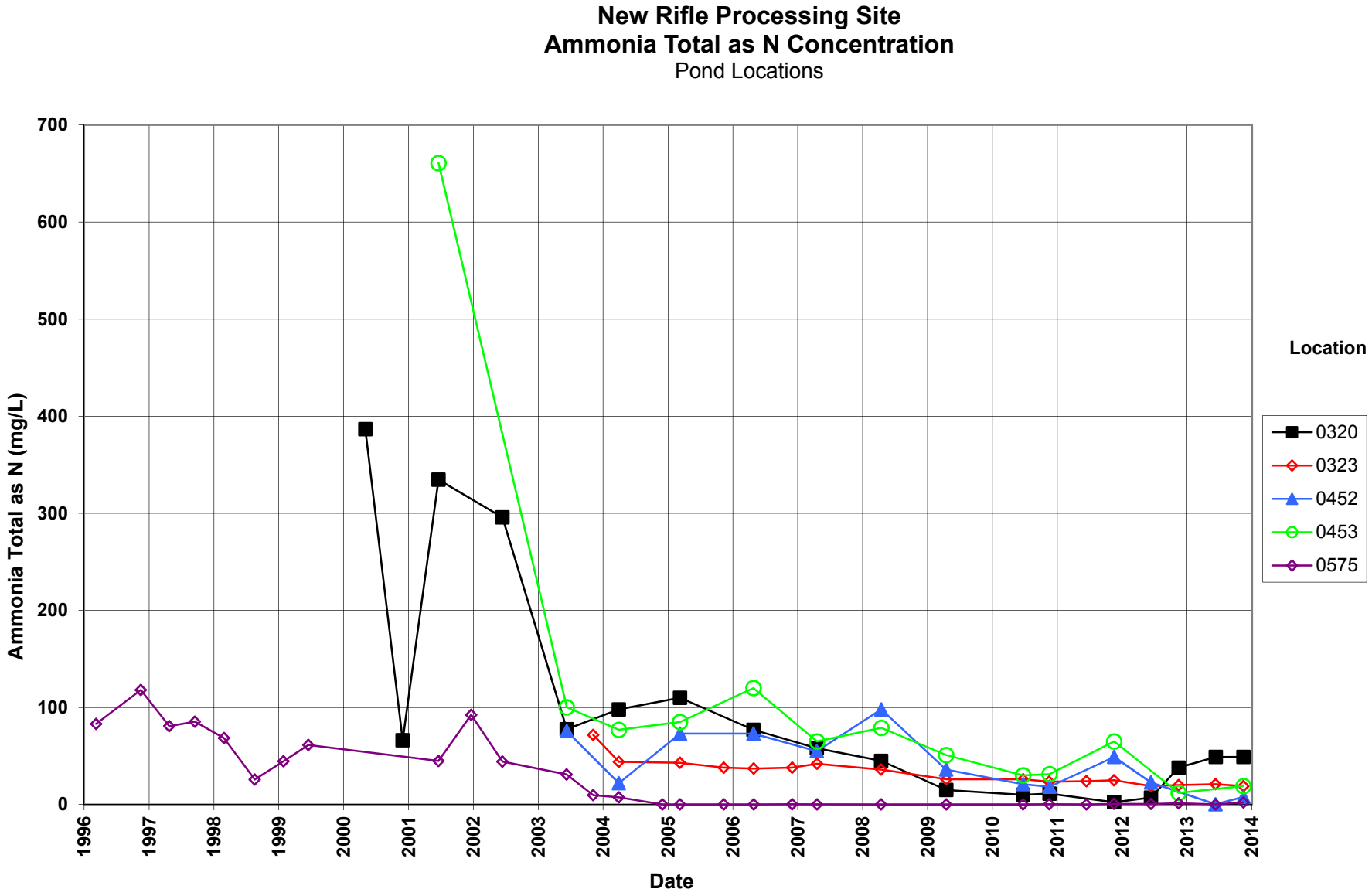
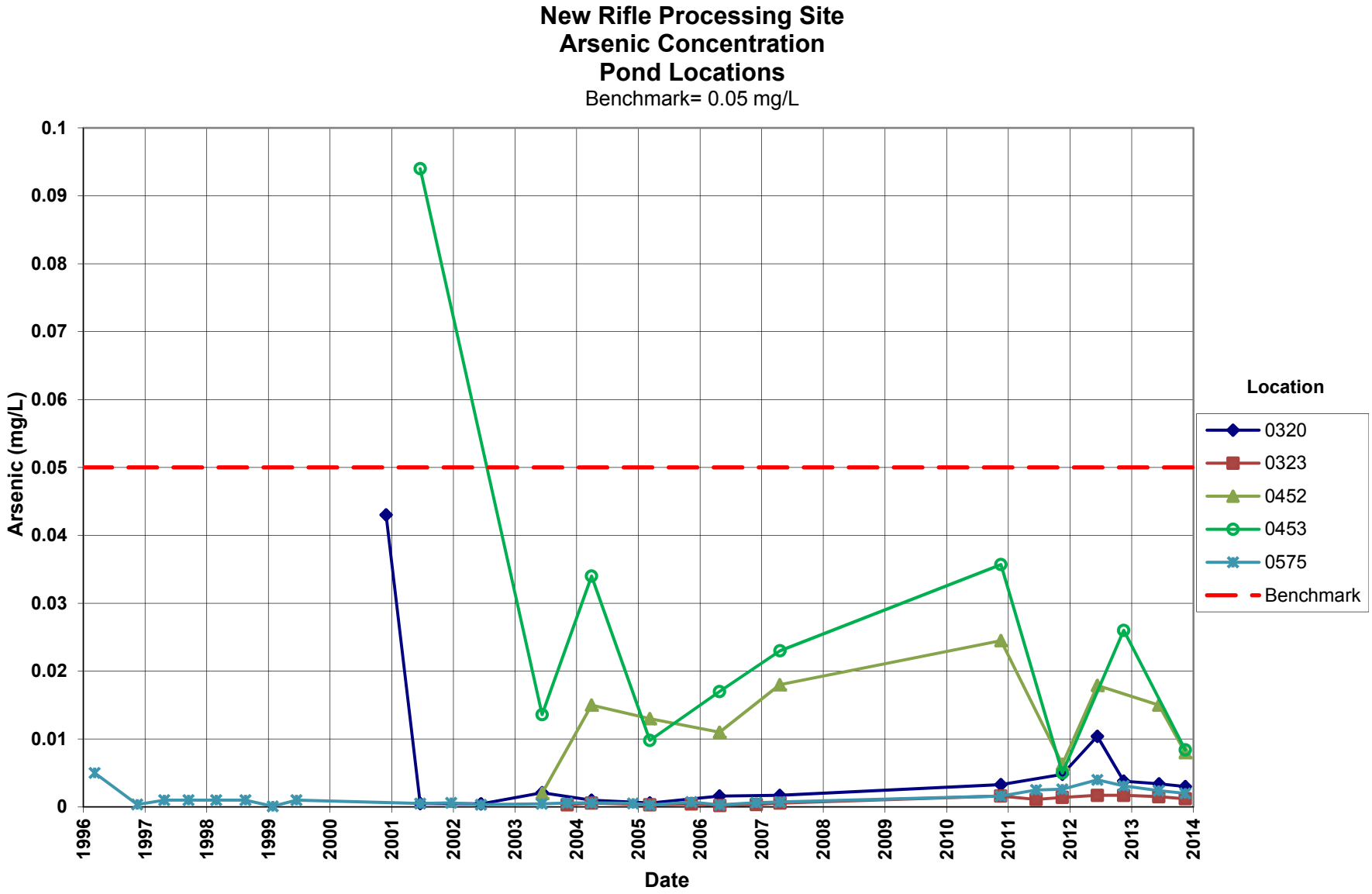
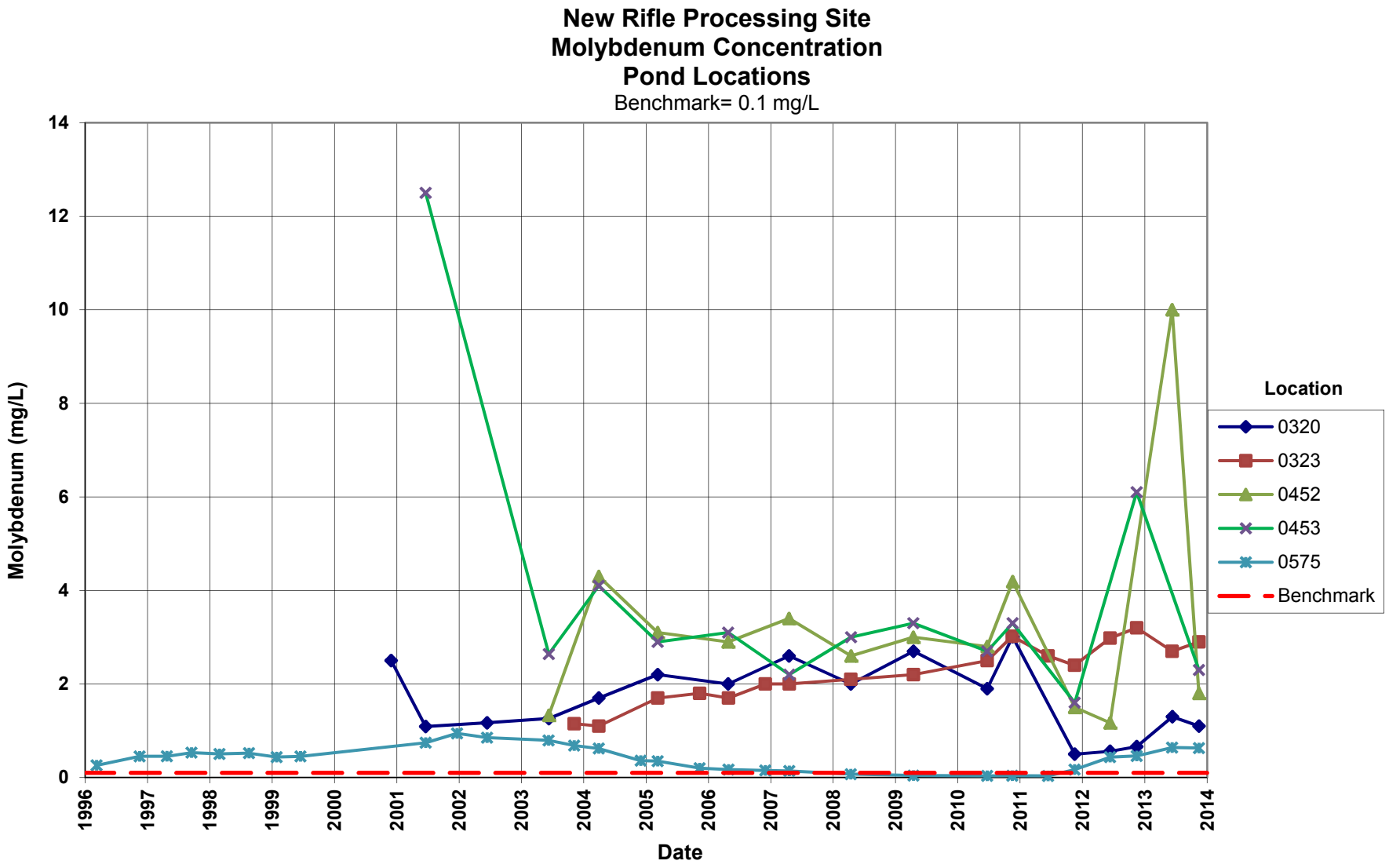
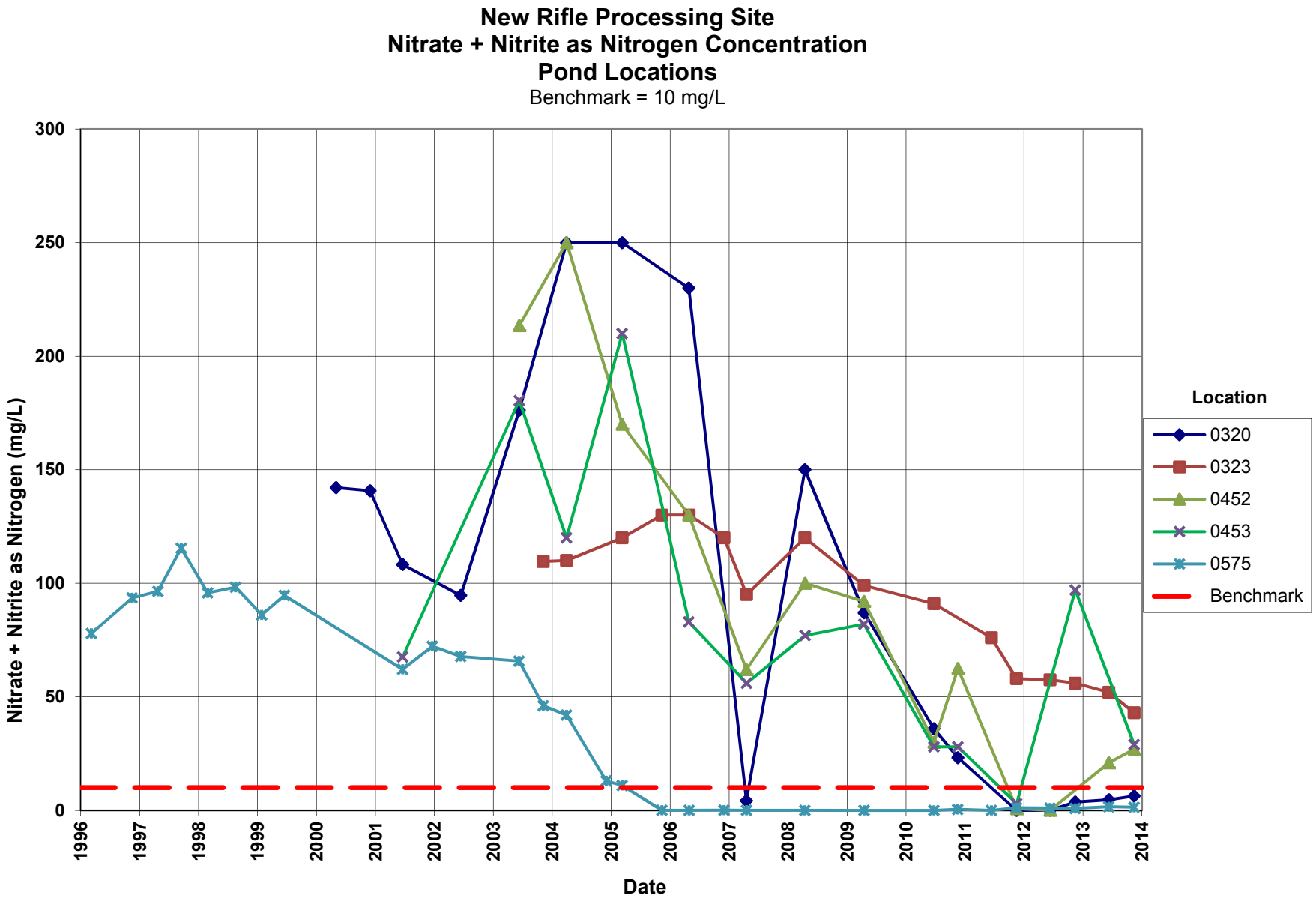
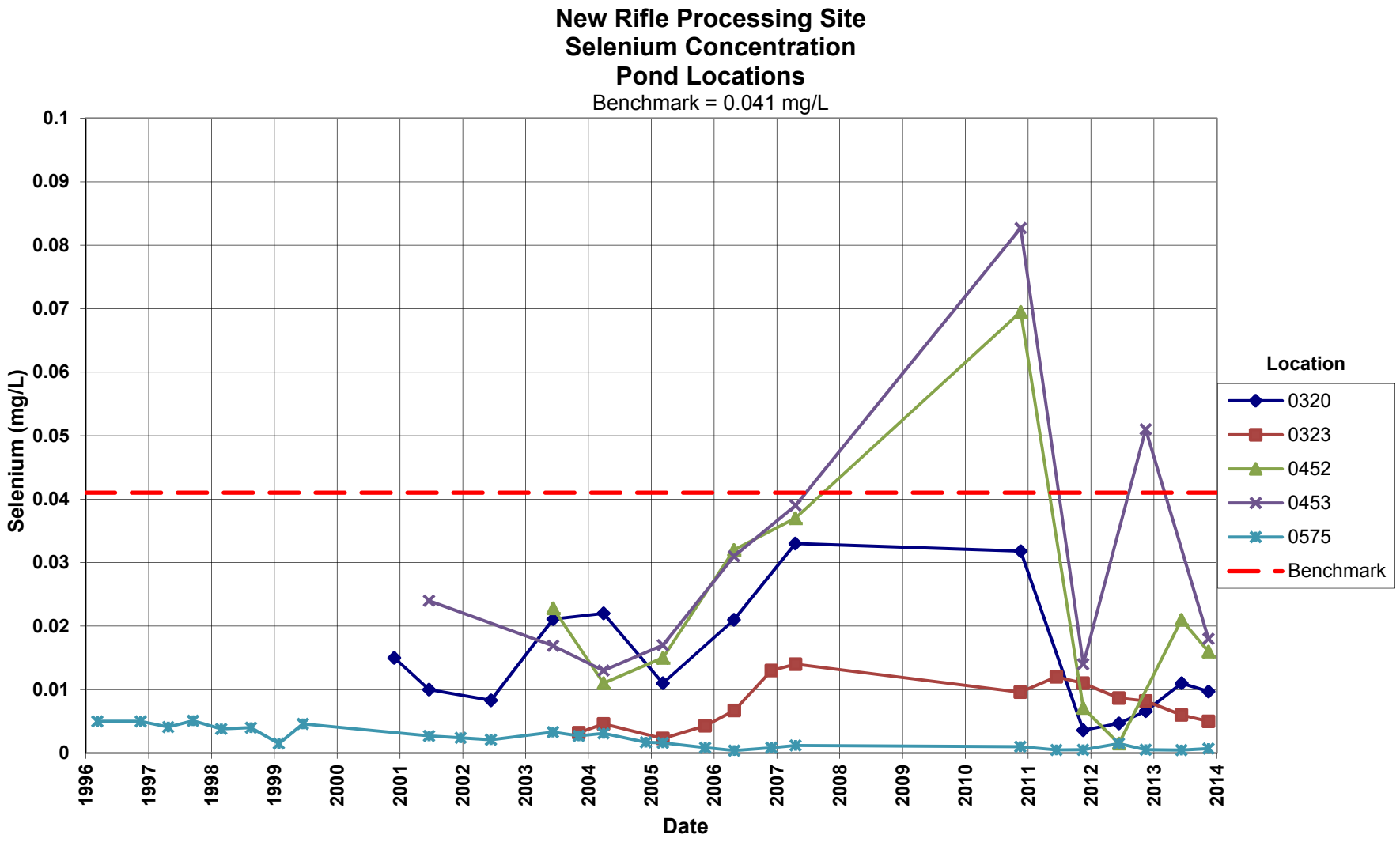
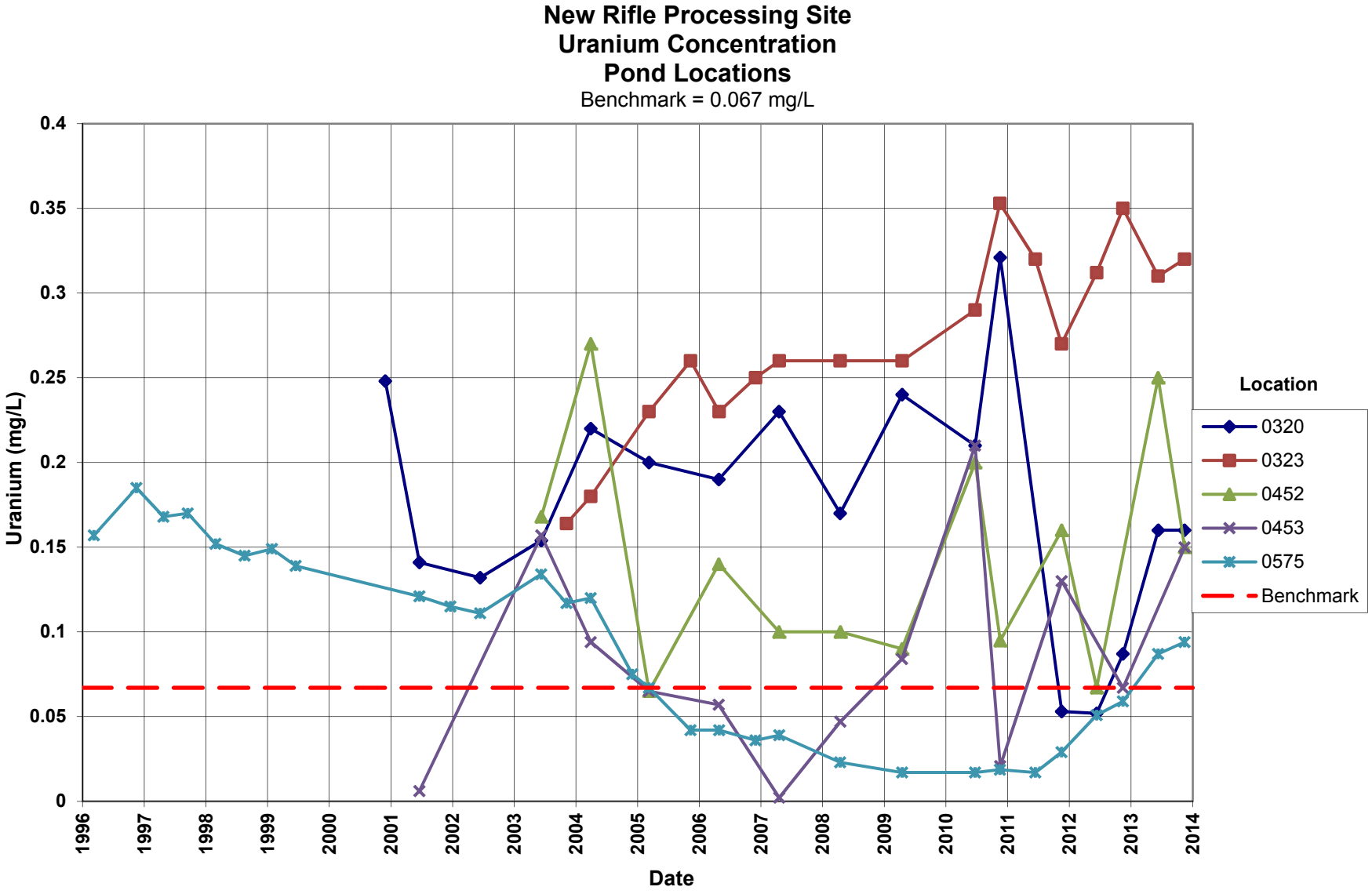

New Rifle Processing Site
Ammonia Total as N Concentration
Pond Locations
Ammonia Total as N (mg/L)
700
600
500
400
300
200
100
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575

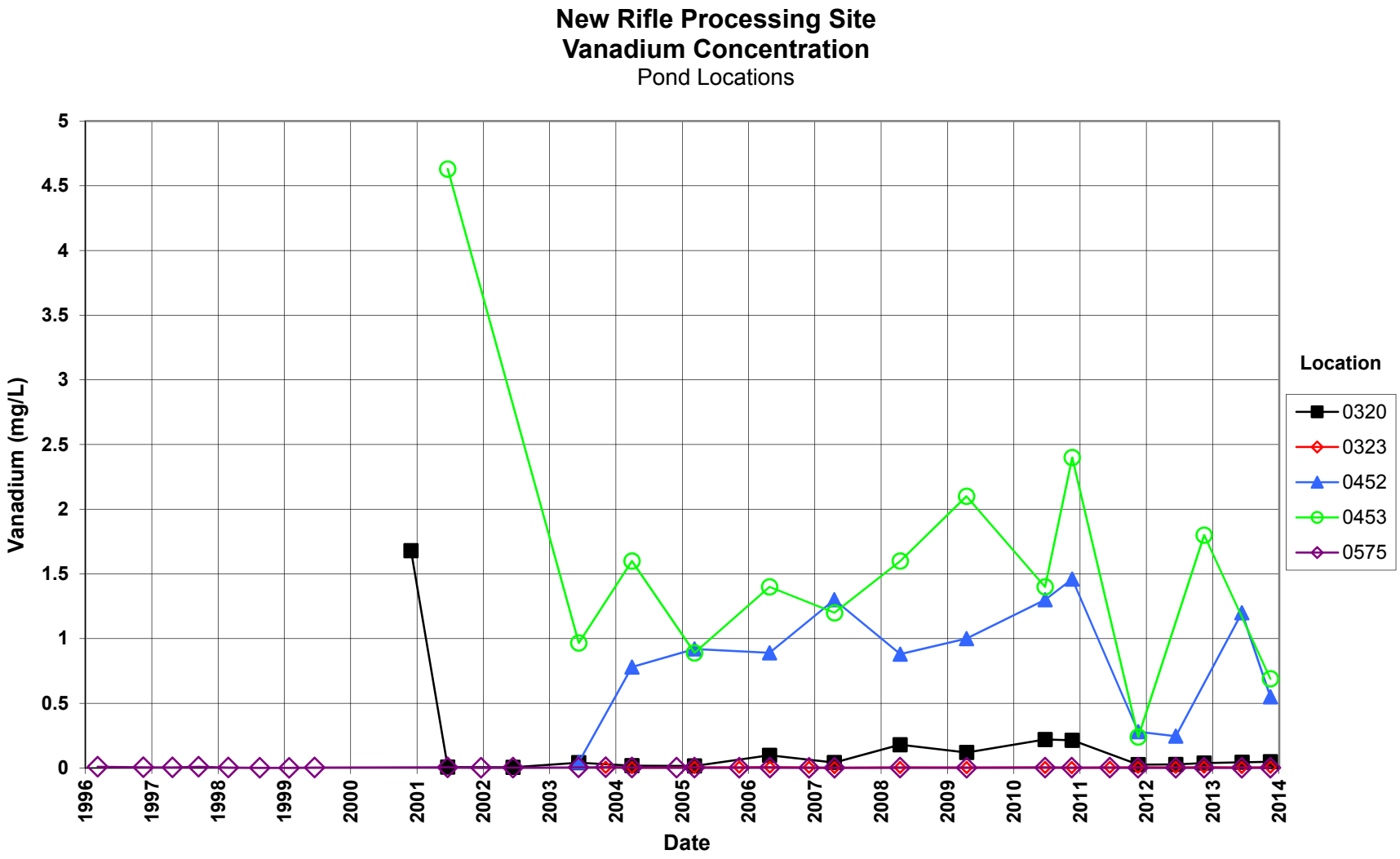

New Rifle Processing Site
Arsenic Concentration
Pond Locations
Benchmark= 0.05 mg/L
Arsenic (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575
Benchmark


New Rifle Processing Site
Molybdenum Concentration
Pond Locations
Benchmark= 0.1 mg/L
Molybdenum (mg/L)
Date
Location
0320
0323
0452
0453
0575
Benchmark
0
2
4
6
8
10
12
14
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014


New Rifle Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Pond Locations
Benchmark = 10 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
300
250
200
150
100
50
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575
Benchmark


New Rifle Processing Site
Selenium Concentration
Pond Locations
Benchmark = 0.041 mg/L
Selenium (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575
Benchmark


New Rifle Processing Site
Uranium Concentration
Pond Locations
Benchmark = 0.067 mg/L
Uranium (mg/L)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575
Benchmark


New Rifle Processing Site
Vanadium Concentration
Pond Locations
Vanadium (mg/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0320
0323
0452
0453
0575

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Appendix B

Application of the Mann-Kendall Test to New Rifle Monitoring Data

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The Visual Sample Plan (VSP) computer module used for the trend analysis is the nonparametric Mann-Kendall test for trend (Gilbert 1987). In this procedure, missing values are allowed, and the data need not conform to any particular distribution. In this Mann-Kendall test, only the relative magnitudes of the data, rather than the measured values, are used.

A one-tailed test is used because it is desired to test the null hypothesis, H_O, of no trend against the alternative hypothesis, H_A, of a downward trend. If no trend is detected, then it is desired to test the null hypothesis, H_O, of no trend against the alternative hypothesis, H_A, of an upward trend.

Alpha (α) is often called the level of significance. It is also referred to as a Type I error. For α = .05, this would be a 5 percent probability of rejecting the null hypothesis when the null hypothesis is true (i.e., there is a 5 percent probability of concluding there is a trend when no trend is present). In table format, the Type I and Type II errors can be expressed as shown in Table B-1.

Table B-1. Type I and Type II Errors

	Hypothesis is Correct	**Hypothesis is Incorrect**
Hypothesis is accepted	Correct decision	Type II error (β)
Hypothesis is rejected	Type I error (α)	Correct decision

Table A18 (Gilbert 1987) gives probability values only for *n* less than or equal to 10. An extension of this table up to *n* = 40 is given in Table A.21 in Hollander and Wolfe (1973) and has been incorporated into the VSP.

The VSP module was used to analyze monitoring data collected from four wells at the New Rifle site. Results are based on data collected since surface remediation was completed in 1998. Data for both uranium and molybdenum were used in the analysis. Table B-2 summarizes the results. All trends are down at the 5% level of significance (alpha = 0.05).

Table B-2. Summary of Mann-Kendall Test Results for Selected Wells at the New Rifle Site

Location	**Uranium Trend**	**Alpha**	**Molybdenum Trend**	**Alpha**
RFN-0195	Down	5%	Down	5%
RFN-0201	Down	5%	Down	5%
RFN-0664	Down	5%	Down	5%
RFN-0669	Down	5%	Down	5%

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Appendix C

Groundwater and Surface Water Monitoring Results for CY 2013

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GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	450		F	#	-	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	467		F	#	-	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	494		F	#	-	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	562		F	#	-	-
	mg/L	0172	WL	03/13/2013	N001	6.98 - 31.98	750		F	#	-	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	787		F	#	-	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	790		F	#	-	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	384		F	#	-	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	338		F	#	-	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	242		F	#	-	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	277		F	#	-	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	254		F	#	-	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	232		F	#	-	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	154		F	#	-	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	185		F	#	-	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	194		F	#	-	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	225		F	#	-	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	240		F	#	-	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	268		F	#	-	-
	mg/L	0620	WL	03/13/2013	N001	6.70 - 10.70	474		F	#	-	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	484		F	#	-	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	544		F	#	-	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	286		F	#	-	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	278		F	#	-	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	268		F	#	-	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	270		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	193		F	#	-	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	210		F	#	-	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	397		F	#	-	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	411		F	#	-	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	378		FQ	#	-	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	356		F	#	-	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	382		FQ	#	-	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	396		F	#	-	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	281		F	#	-	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	260		F	#	-	-
Ammonia Total as N	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.1	UN	JF	#	0.1	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.1	U	F	#	0.1	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.18		F	#	0.1	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.5		F	#	0.1	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.1	U	F	#	0.1	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.14		F	#	0.1	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	9.2		F	#	0.5	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.24		F	#	0.1	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	74		F	#	5	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	83		F	#	5	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	1.9		F	#	0.1	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	1.9		F	#	0.1	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	5.2		F	#	0.2	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	5.8		F	#	0.2	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	41		F	#	2	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	46		F	#	2	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Ammonia Total as N	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	160		F	#	5	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	160		F	#	5	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	160		F	#	5	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.1	U	F	#	0.1	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.1	U	F	#	0.1	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	62		F	#	5	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	63		F	#	5	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	37		F	#	2	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	44		F	#	2	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	28		F	#	2	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	33		F	#	1	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	31		F	#	2	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	30		F	#	2	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	63		FQ	#	2	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	82		F	#	2	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	14		FQ	#	1	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	15		F	#	1	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	28		F	#	1	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	34		F	#	1	-
Arsenic	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.00046		JF	#	1.5E-05	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.00054		F	#	1.5E-05	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.00031		JF	#	1.5E-05	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.00027		F	#	1.5E-05	-
	mg/L	0172	WL	03/13/2013	N001	6.98 - 31.98	0.006	E	FJ	#	0.00003	-
	mg/L	0172	WL	03/13/2013	N002	6.98 - 31.98	0.0064		F	#	0.00003	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.0059		F	#	1.5E-05	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.0052		F	#	1.5E-05	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.0015		F	#	1.5E-05	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.0013		F	#	1.5E-05	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	0.00037		JF	#	1.5E-05	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	0.00043		F	#	1.5E-05	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.00036		JF	#	1.5E-05	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.00044		F	#	1.5E-05	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.044		F	#	0.00074	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.034		F	#	1.5E-05	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	0.00086		F	#	1.5E-05	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	0.00082		F	#	1.5E-05	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	0.00082		F	#	7.4E-05	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	0.00095		F	#	1.5E-05	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	0.00092		F	#	7.4E-05	-
	mg/L	0620	WL	03/13/2013	N001	6.70 - 10.70	0.00047		F	#	0.00003	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.00049		JF	#	1.5E-05	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.00043		F	#	1.5E-05	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	0.00022		JF	#	1.5E-05	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	0.00018		F	#	1.5E-05	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	0.048		F	#	0.0015	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	0.050		F	#	0.0015	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	0.034		F	#	0.00074	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	0.018		F	#	0.00074	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	0.004		F	#	7.4E-05	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	0.0031		F	#	7.4E-05	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	0.0038	B	FQ	#	0.00074	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	0.0064		F	#	0.00074	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	0.0039		FQ	#	0.00015	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	0.0041		F	#	0.00015	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	0.200		F	#	0.0015	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	0.590		F	#	0.0015	-
Calcium	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	170.000		F	#	0.012	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	150.000		F	#	0.06	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	450.000		F	#	0.12	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	80.000		F	#	0.012	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	580.000		F	#	0.06	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	71.000		F	#	0.012	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	87.000		F	#	0.012	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	640.000		F	#	0.024	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	550.000		F	#	0.06	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	380.000		F	#	0.12	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	260.000		F	#	0.06	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	480.000		F	#	0.024	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	660.000		F	#	0.024	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	170.000		F	#	0.024	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	340.000		F	#	0.024	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	140.000		F	#	0.024	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	390.000		F	#	0.024	-
Chloride	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	50		F	#	4	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	160		F	#	10	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	2200		F	#	40	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	39		F	#	2	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	150		F	#	10	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	130		F	#	2	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	150		F	#	2	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	240		F	#	10	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	340		F	#	10	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	1100		F	#	20	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	210		F	#	5	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	210		F	#	10	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	220		F	#	10	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	130		F	#	5	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	130		F	#	5	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	130		F	#	4	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	220		F	#	5	-
Magnesium	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	100.000		F	#	0.013	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	90.000		F	#	0.065	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	520.000		F	#	0.13	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	41.000		F	#	0.013	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	52.000		F	#	0.065	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	36.000		F	#	0.013	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	18.000		F	#	0.013	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	20.000		F	#	0.026	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	58.000		F	#	0.065	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	230.000		F	#	0.13	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	18.000		F	#	0.065	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	30.000		F	#	0.026	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	26.000		F	#	0.026	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	75.000		F	#	0.026	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	42.000		F	#	0.026	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	83.000		F	#	0.026	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	37.000		F	#	0.026	-
Molybdenum	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.0028		F	#	3.2E-05	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.0031		F	#	3.2E-05	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.0038		F	#	3.2E-05	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.0029		F	#	3.2E-05	-
	mg/L	0172	WL	03/13/2013	N001	6.98 - 31.98	0.0049		F	#	6.4E-05	-
	mg/L	0172	WL	03/13/2013	N002	6.98 - 31.98	0.0055		F	#	6.4E-05	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.0065		F	#	3.2E-05	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.0052		F	#	3.2E-05	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.081		F	#	3.2E-05	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.022		F	#	3.2E-05	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	1.400		F	#	0.0032	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	1.400		F	#	0.0032	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.010		F	#	3.2E-05	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.012		F	#	3.2E-05	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.029		F	#	0.0016	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.043		F	#	0.0016	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	1.300		F	#	0.0032	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	1.600		F	#	0.0032	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	1.000		F	#	0.00016	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	0.930		F	#	0.0032	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	1.000		F	#	0.00016	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	0620	WL	03/13/2013	N001	6.70 - 10.70	0.0068		F	#	6.4E-05	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.0083		F	#	3.2E-05	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.0082		F	#	3.2E-05	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	0.410		F	#	3.2E-05	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	0.370		F	#	3.2E-05	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	0.680		F	#	0.0032	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	0.950		F	#	0.0032	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	1.200		F	#	0.0016	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	1.400		F	#	0.0016	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	0.220		F	#	0.00016	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	0.280		F	#	0.00016	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	0.530		FQ	#	0.0016	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	0.750		F	#	0.0016	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	0.180		FQ	#	0.00032	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	0.160		F	#	0.00032	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	0.520		F	#	0.0032	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	0.980		F	#	0.0032	-
Nitrate + Nitrite as Nitrogen	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.13		F	#	0.01	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.086		F	#	0.01	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	11		F	#	0.1	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	10		F	#	0.1	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.013		F	#	0.01	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.01		F	#	0.01	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.01	U	F	#	0.01	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.01	U	F	#	0.01	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	48		F	#	0.5	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate + Nitrite as Nitrogen	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	52		F	#	0.5	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.01	U	F	#	0.01	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.01	U	F	#	0.01	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.01	U	F	#	0.01	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.01	U	F	#	0.01	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	1.1		F	#	0.01	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	0.014		F	#	0.01	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	34		F	#	0.5	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	34		F	#	0.5	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	46		F	#	0.5	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	24		F	#	0.2	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	20		F	#	0.2	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	8.4		F	#	0.1	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	2.3		F	#	0.1	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	2.2		F	#	0.05	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	4.1		F	#	0.05	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	18		F	#	0.1	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	5.9		F	#	0.1	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	1.2		F	#	0.05	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	2.4		F	#	0.05	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	3.8		FQ	#	0.05	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	1.3		F	#	0.05	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	2.8		FQ	#	0.05	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	2.1		F	#	0.05	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	3.4		F	#	0.1	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	8.9		F	#	0.1	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0169	WL	06/11/2013	N001	3.13 - 18.13	56.4		F	#	-	-
	mV	0169	WL	11/13/2013	N001	3.13 - 18.13	73.3		F	#	-	-
	mV	0170	WL	06/10/2013	N001	92.23 - 112.23	31.3		F	#	-	-
	mV	0170	WL	11/12/2013	N001	92.23 - 112.23	146.8		F	#	-	-
	mV	0172	WL	03/13/2013	N001	6.98 - 31.98	-98.8		F	#	-	-
	mV	0172	WL	06/11/2013	N001	6.98 - 31.98	-32.9		F	#	-	-
	mV	0172	WL	11/13/2013	N001	6.98 - 31.98	-94.4		F	#	-	-
	mV	0195	WL	06/10/2013	N001	5.29 - 25.29	-17.9		F	#	-	-
	mV	0195	WL	11/14/2013	N001	5.29 - 25.29	-46.8		F	#	-	-
	mV	0201	WL	06/10/2013	N001	7.35 - 22.35	209.8		F	#	-	-
	mV	0201	WL	11/14/2013	N001	7.35 - 22.35	78.4		F	#	-	-
	mV	0215	WL	06/11/2013	N001	6.84 - 21.84	68.8		F	#	-	-
	mV	0215	WL	11/12/2013	N001	6.84 - 21.84	61.1		F	#	-	-
	mV	0216	WL	06/11/2013	N001	5.50 - 20.50	89.9		F	#	-	-
	mV	0216	WL	11/13/2013	N001	5.50 - 20.50	18.9		F	#	-	-
	mV	0217	WL	06/10/2013	N001	7.40 - 22.40	193.3		F	#	-	-
	mV	0217	WL	11/13/2013	N001	7.40 - 22.40	84.8		F	#	-	-
	mV	0590	WL	06/10/2013	N001	5.21 - 19.21	220.9		F	#	-	-
	mV	0590	WL	11/14/2013	N001	5.21 - 19.21	110.7		F	#	-	-
	mV	0620	WL	03/13/2013	N001	6.70 - 10.70	39.2		F	#	-	-
	mV	0620	WL	06/11/2013	N001	6.70 - 10.70	9.9		F	#	-	-
	mV	0620	WL	11/13/2013	N001	6.70 - 10.70	24.1		F	#	-	-
	mV	0635	WL	06/11/2013	N001	12.00 - 17.00	180.5		F	#	-	-
	mV	0635	WL	11/13/2013	N001	12.00 - 17.00	96.6		F	#	-	-
	mV	0658	WL	06/11/2013	N001	0.50 - 5.50	169.0		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0658	WL	11/13/2013	N001	0.50 - 5.50	-23.3		F	#	-	-
	mV	0659	WL	06/11/2013	N001	0.50 - 10.50	166.0		F	#	-	-
	mV	0659	WL	11/13/2013	N001	0.50 - 10.50	33.6		F	#	-	-
	mV	0664	WL	06/11/2013	N001	7.70 - 14.70	164.3		F	#	-	-
	mV	0664	WL	11/13/2013	N001	7.70 - 14.70	62.9		F	#	-	-
	mV	0669	WL	06/11/2013	N001	4.00 - 10.60	176.5		FQ	#	-	-
	mV	0669	WL	11/13/2013	N001	4.00 - 10.60	-1.4		F	#	-	-
	mV	0670	WL	06/11/2013	N001	5.20 - 12.20	137.2		FQ	#	-	-
	mV	0670	WL	11/13/2013	N001	5.20 - 12.20	67.3		F	#	-	-
	mV	0855	WL	06/11/2013	N001	6.00 - 11.00	163.9		F	#	-	-
	mV	0855	WL	11/13/2013	N001	6.00 - 11.00	94.3		F	#	-	-
pH	s.u.	0169	WL	06/11/2013	N001	3.13 - 18.13	7.06		F	#	-	-
	s.u.	0169	WL	11/13/2013	N001	3.13 - 18.13	6.93		F	#	-	-
	s.u.	0170	WL	06/10/2013	N001	92.23 - 112.23	7.02		F	#	-	-
	s.u.	0170	WL	11/12/2013	N001	92.23 - 112.23	6.92		F	#	-	-
	s.u.	0172	WL	03/13/2013	N001	6.98 - 31.98	6.88		F	#	-	-
	s.u.	0172	WL	06/11/2013	N001	6.98 - 31.98	6.99		F	#	-	-
	s.u.	0172	WL	11/13/2013	N001	6.98 - 31.98	6.91		F	#	-	-
	s.u.	0195	WL	06/10/2013	N001	5.29 - 25.29	7.10		F	#	-	-
	s.u.	0195	WL	11/14/2013	N001	5.29 - 25.29	7.22		F	#	-	-
	s.u.	0201	WL	06/10/2013	N001	7.35 - 22.35	6.85		F	#	-	-
	s.u.	0201	WL	11/14/2013	N001	7.35 - 22.35	6.82		F	#	-	-
	s.u.	0215	WL	06/11/2013	N001	6.84 - 21.84	7.29		F	#	-	-
	s.u.	0215	WL	11/12/2013	N001	6.84 - 21.84	7.27		F	#	-	-
	s.u.	0216	WL	06/11/2013	N001	5.50 - 20.50	7.41		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0216	WL	11/13/2013	N001	5.50 - 20.50	7.33		F	#	-	-
	s.u.	0217	WL	06/10/2013	N001	7.40 - 22.40	6.69		F	#	-	-
	s.u.	0217	WL	11/13/2013	N001	7.40 - 22.40	6.91		F	#	-	-
	s.u.	0590	WL	06/10/2013	N001	5.21 - 19.21	6.74		F	#	-	-
	s.u.	0590	WL	11/14/2013	N001	5.21 - 19.21	6.80		F	#	-	-
	s.u.	0620	WL	03/13/2013	N001	6.70 - 10.70	7.05		F	#	-	-
	s.u.	0620	WL	06/11/2013	N001	6.70 - 10.70	7.05		F	#	-	-
	s.u.	0620	WL	11/13/2013	N001	6.70 - 10.70	7.14		F	#	-	-
	s.u.	0635	WL	06/11/2013	N001	12.00 - 17.00	6.95		F	#	-	-
	s.u.	0635	WL	11/13/2013	N001	12.00 - 17.00	7.00		F	#	-	-
	s.u.	0658	WL	06/11/2013	N001	0.50 - 5.50	6.92		F	#	-	-
	s.u.	0658	WL	11/13/2013	N001	0.50 - 5.50	6.77		F	#	-	-
	s.u.	0659	WL	06/11/2013	N001	0.50 - 10.50	7.02		F	#	-	-
	s.u.	0659	WL	11/13/2013	N001	0.50 - 10.50	6.92		F	#	-	-
	s.u.	0664	WL	06/11/2013	N001	7.70 - 14.70	7.02		F	#	-	-
	s.u.	0664	WL	11/13/2013	N001	7.70 - 14.70	6.86		F	#	-	-
	s.u.	0669	WL	06/11/2013	N001	4.00 - 10.60	6.93		FQ	#	-	-
	s.u.	0669	WL	11/13/2013	N001	4.00 - 10.60	6.87		F	#	-	-
	s.u.	0670	WL	06/11/2013	N001	5.20 - 12.20	6.99		FQ	#	-	-
	s.u.	0670	WL	11/13/2013	N001	5.20 - 12.20	6.93		F	#	-	-
	s.u.	0855	WL	06/11/2013	N001	6.00 - 11.00	6.92		F	#	-	-
	s.u.	0855	WL	11/13/2013	N001	6.00 - 11.00	6.62		F	#	-	-
Potassium	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	7.100		F	#	0.11	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	8.000		F	#	0.54	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	22.000		F	#	1.1	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	5.800		F	#	0.11	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Potassium	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	14.000		F	#	0.54	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	4.600		F	#	0.11	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	7.900		F	#	0.11	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	20.000		F	#	0.22	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	35.000		F	#	0.54	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	12.000		F	#	1.1	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	32.000		F	#	0.54	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	9.100		F	#	0.22	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	13.000		F	#	0.22	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	12.000		F	#	0.22	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	7.600		F	#	0.22	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	11.000		F	#	0.22	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	11.000		F	#	0.22	-
Selenium	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.0036		F	#	3.2E-05	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.004		F	#	3.2E-05	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.017		F	#	3.2E-05	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.018		F	#	3.2E-05	-
	mg/L	0172	WL	03/13/2013	N001	6.98 - 31.98	0.00024		FJ	#	6.5E-05	-
	mg/L	0172	WL	03/13/2013	N002	6.98 - 31.98	0.00045		FJ	#	6.5E-05	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.00021		JF	#	3.2E-05	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.00039		F	#	3.2E-05	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.00019		JF	#	3.2E-05	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.00022		F	#	3.2E-05	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	0.0052		F	#	3.2E-05	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	0.0059		F	#	3.2E-05	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.00083		F	#	3.2E-05	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.00038		F	#	3.2E-05	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.00043		JF	#	3.2E-05	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.0004		F	#	3.2E-05	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	0.013		F	#	3.2E-05	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	0.0059		F	#	3.2E-05	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	0.026		F	#	0.00016	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	0.032		F	#	3.2E-05	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	0.039		F	#	0.00016	-
	mg/L	0620	WL	03/13/2013	N001	6.70 - 10.70	0.025		F	#	6.5E-05	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.019		F	#	3.2E-05	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.027		F	#	3.2E-05	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	0.0034		F	#	3.2E-05	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	0.0062		F	#	3.2E-05	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	0.790		F	#	0.0032	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	0.800		F	#	0.0032	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	0.110		F	#	0.0016	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	0.100		F	#	0.0016	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	0.140		F	#	0.00016	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	0.130		F	#	0.00016	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	0.0072		FQ	#	0.0016	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	0.0095		F	#	0.0016	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	0.310		FQ	#	0.00032	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	0.310		F	#	0.00032	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	0.690		F	#	0.0032	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	0.910		F	#	0.0032	-
Sodium	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	160.000		F	#	0.033	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sodium	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	490.000		F	#	0.033	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	3400.000		F	#	0.33	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	74.000		F	#	0.0066	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	270.000		F	#	0.033	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	110.000		F	#	0.0066	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	88.000		F	#	0.0066	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	200.000		F	#	0.013	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	470.000		F	#	0.033	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	1100.000		F	#	0.066	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	190.000		F	#	0.033	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	170.000		F	#	0.013	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	190.000		F	#	0.013	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	210.000		F	#	0.013	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	200.000		F	#	0.013	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	210.000		F	#	0.013	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	190.000		F	#	0.013	-
Specific Conductance	umhos/cm	0169	WL	06/11/2013	N001	3.13 - 18.13	1926		F	#	-	-
	umhos/cm	0169	WL	11/13/2013	N001	3.13 - 18.13	1941		F	#	-	-
	umhos/cm	0170	WL	06/10/2013	N001	92.23 - 112.23	3100		F	#	-	-
	umhos/cm	0170	WL	11/12/2013	N001	92.23 - 112.23	3164		F	#	-	-
	umhos/cm	0172	WL	03/13/2013	N001	6.98 - 31.98	17603		F	#	-	-
	umhos/cm	0172	WL	06/11/2013	N001	6.98 - 31.98	16187		F	#	-	-
	umhos/cm	0172	WL	11/13/2013	N001	6.98 - 31.98	16773		F	#	-	-
	umhos/cm	0195	WL	06/10/2013	N001	5.29 - 25.29	1403		FJ	#	-	-
	umhos/cm	0195	WL	11/14/2013	N001	5.29 - 25.29	1025		F	#	-	-
	umhos/cm	0201	WL	06/10/2013	N001	7.35 - 22.35	3878		F	#	-	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0201	WL	11/14/2013	N001	7.35 - 22.35	4124		F	#	-	-
	umhos/cm	0215	WL	06/11/2013	N001	6.84 - 21.84	1497		F	#	-	-
	umhos/cm	0215	WL	11/12/2013	N001	6.84 - 21.84	1264		F	#	-	-
	umhos/cm	0216	WL	06/11/2013	N001	5.50 - 20.50	1109		F	#	-	-
	umhos/cm	0216	WL	11/13/2013	N001	5.50 - 20.50	1100		F	#	-	-
	umhos/cm	0217	WL	06/10/2013	N001	7.40 - 22.40	3390		F	#	-	-
	umhos/cm	0217	WL	11/13/2013	N001	7.40 - 22.40	3523		F	#	-	-
	umhos/cm	0590	WL	06/10/2013	N001	5.21 - 19.21	5320		F	#	-	-
	umhos/cm	0590	WL	11/14/2013	N001	5.21 - 19.21	5515		F	#	-	-
	umhos/cm	0620	WL	03/13/2013	N001	6.70 - 10.70	6800		F	#	-	-
	umhos/cm	0620	WL	06/11/2013	N001	6.70 - 10.70	6619		F	#	-	-
	umhos/cm	0620	WL	11/13/2013	N001	6.70 - 10.70	6985		F	#	-	-
	umhos/cm	0635	WL	06/11/2013	N001	12.00 - 17.00	2621		F	#	-	-
	umhos/cm	0635	WL	11/13/2013	N001	12.00 - 17.00	2593		F	#	-	-
	umhos/cm	0658	WL	06/11/2013	N001	0.50 - 5.50	2721		F	#	-	-
	umhos/cm	0658	WL	11/13/2013	N001	0.50 - 5.50	3050		F	#	-	-
	umhos/cm	0659	WL	06/11/2013	N001	0.50 - 10.50	3345		F	#	-	-
	umhos/cm	0659	WL	11/13/2013	N001	0.50 - 10.50	3542		F	#	-	-
	umhos/cm	0664	WL	06/11/2013	N001	7.70 - 14.70	2251		F	#	-	-
	umhos/cm	0664	WL	11/13/2013	N001	7.70 - 14.70	2361		F	#	-	-
	umhos/cm	0669	WL	06/11/2013	N001	4.00 - 10.60	2660		FQ	#	-	-
	umhos/cm	0669	WL	11/13/2013	N001	4.00 - 10.60	2874		F	#	-	-
	umhos/cm	0670	WL	06/11/2013	N001	5.20 - 12.20	2196		FQ	#	-	-
	umhos/cm	0670	WL	11/13/2013	N001	5.20 - 12.20	2197		F	#	-	-
	umhos/cm	0855	WL	06/11/2013	N001	6.00 - 11.00	2257		F	#	-	-
	umhos/cm	0855	WL	11/13/2013	N001	6.00 - 11.00	3003		JF	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	580		F	#	10	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	990		F	#	25	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	7000		F	#	100	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	160		F	#	5	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	1800		F	#	25	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	180		F	#	5	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	110		F	#	5	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	1600		F	#	25	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	2300		F	#	25	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	2100		F	#	25	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	780		F	#	12	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	1100		F	#	25	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	1600		F	#	25	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	690		F	#	12	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	1100		F	#	12	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	600		F	#	10	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	960		F	#	12	-
Temperature	C	0169	WL	06/11/2013	N001	3.13 - 18.13	15.26		F	#	-	-
	C	0169	WL	11/13/2013	N001	3.13 - 18.13	16.08		F	#	-	-
	C	0170	WL	06/10/2013	N001	92.23 - 112.23	17.40		F	#	-	-
	C	0170	WL	11/12/2013	N001	92.23 - 112.23	14.23		F	#	-	-
	C	0172	WL	03/13/2013	N001	6.98 - 31.98	12.66		F	#	-	-
	C	0172	WL	06/11/2013	N001	6.98 - 31.98	13.39		F	#	-	-
	C	0172	WL	11/13/2013	N001	6.98 - 31.98	13.84		F	#	-	-
	C	0195	WL	06/10/2013	N001	5.29 - 25.29	14.13		F	#	-	-
	C	0195	WL	11/14/2013	N001	5.29 - 25.29	13.10		F	#	-	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0201	WL	06/10/2013	N001	7.35 - 22.35	17.99		F	#	-	-
	C	0201	WL	11/14/2013	N001	7.35 - 22.35	14.22		F	#	-	-
	C	0215	WL	06/11/2013	N001	6.84 - 21.84	13.63		F	#	-	-
	C	0215	WL	11/12/2013	N001	6.84 - 21.84	15.59		F	#	-	-
	C	0216	WL	06/11/2013	N001	5.50 - 20.50	13.85		F	#	-	-
	C	0216	WL	11/13/2013	N001	5.50 - 20.50	13.94		F	#	-	-
	C	0217	WL	06/10/2013	N001	7.40 - 22.40	13.69		F	#	-	-
	C	0217	WL	11/13/2013	N001	7.40 - 22.40	10.24		F	#	-	-
	C	0590	WL	06/10/2013	N001	5.21 - 19.21	14.61		F	#	-	-
	C	0590	WL	11/14/2013	N001	5.21 - 19.21	11.53		F	#	-	-
	C	0620	WL	03/13/2013	N001	6.70 - 10.70	9.47		F	#	-	-
	C	0620	WL	06/11/2013	N001	6.70 - 10.70	13.71		F	#	-	-
	C	0620	WL	11/13/2013	N001	6.70 - 10.70	13.55		F	#	-	-
	C	0635	WL	06/11/2013	N001	12.00 - 17.00	14.13		F	#	-	-
	C	0635	WL	11/13/2013	N001	12.00 - 17.00	12.30		F	#	-	-
	C	0658	WL	06/11/2013	N001	0.50 - 5.50	14.21		F	#	-	-
	C	0658	WL	11/13/2013	N001	0.50 - 5.50	13.60		F	#	-	-
	C	0659	WL	06/11/2013	N001	0.50 - 10.50	17.52		F	#	-	-
	C	0659	WL	11/13/2013	N001	0.50 - 10.50	12.15		F	#	-	-
	C	0664	WL	06/11/2013	N001	7.70 - 14.70	13.39		F	#	-	-
	C	0664	WL	11/13/2013	N001	7.70 - 14.70	13.12		F	#	-	-
	C	0669	WL	06/11/2013	N001	4.00 - 10.60	15.22		FQ	#	-	-
	C	0669	WL	11/13/2013	N001	4.00 - 10.60	13.12		F	#	-	-
	C	0670	WL	06/11/2013	N001	5.20 - 12.20	14		FQ	#	-	-
	C	0670	WL	11/13/2013	N001	5.20 - 12.20	15.37		F	#	-	-
	C	0855	WL	06/11/2013	N001	6.00 - 11.00	16.56		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0855	WL	11/13/2013	N001	6.00 - 11.00	14.41		F	#	-	-
Turbidity	NTU	0169	WL	06/11/2013	N001	3.13 - 18.13	1.27		F	#	-	-
	NTU	0169	WL	11/13/2013	N001	3.13 - 18.13	2.89		F	#	-	-
	NTU	0170	WL	06/10/2013	N001	92.23 - 112.23	0.69		F	#	-	-
	NTU	0170	WL	11/12/2013	N001	92.23 - 112.23	0.86		F	#	-	-
	NTU	0172	WL	03/13/2013	N001	6.98 - 31.98	3.41		F	#	-	-
	NTU	0172	WL	06/11/2013	N001	6.98 - 31.98	1.16		F	#	-	-
	NTU	0172	WL	11/13/2013	N001	6.98 - 31.98	2.17		F	#	-	-
	NTU	0195	WL	06/10/2013	N001	5.29 - 25.29	2.20		F	#	-	-
	NTU	0195	WL	11/14/2013	N001	5.29 - 25.29	7.28		F	#	-	-
	NTU	0201	WL	06/10/2013	N001	7.35 - 22.35	2.59		F	#	-	-
	NTU	0201	WL	11/14/2013	N001	7.35 - 22.35	2.63		F	#	-	-
	NTU	0215	WL	06/11/2013	N001	6.84 - 21.84	1.39		F	#	-	-
	NTU	0215	WL	11/12/2013	N001	6.84 - 21.84	0.97		F	#	-	-
	NTU	0216	WL	06/11/2013	N001	5.50 - 20.50	6.83		F	#	-	-
	NTU	0216	WL	11/13/2013	N001	5.50 - 20.50	5.58		F	#	-	-
	NTU	0217	WL	06/10/2013	N001	7.40 - 22.40	3.06		F	#	-	-
	NTU	0217	WL	11/13/2013	N001	7.40 - 22.40	4.24		F	#	-	-
	NTU	0590	WL	06/10/2013	N001	5.21 - 19.21	3.65		F	#	-	-
	NTU	0590	WL	11/14/2013	N001	5.21 - 19.21	1.82		F	#	-	-
	NTU	0620	WL	03/13/2013	N001	6.70 - 10.70	1.76		F	#	-	-
	NTU	0620	WL	06/11/2013	N001	6.70 - 10.70	1.79		F	#	-	-
	NTU	0620	WL	11/13/2013	N001	6.70 - 10.70	2.3		F	#	-	-
	NTU	0635	WL	06/11/2013	N001	12.00 - 17.00	3.20		F	#	-	-
	NTU	0635	WL	11/13/2013	N001	12.00 - 17.00	1.97		F	#	-	-
	NTU	0658	WL	06/11/2013	N001	0.50 - 5.50	2.86		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0658	WL	11/13/2013	N001	0.50 - 5.50	9.29		F	#	-	-
	NTU	0659	WL	06/11/2013	N001	0.50 - 10.50	2.93		F	#	-	-
	NTU	0659	WL	11/13/2013	N001	0.50 - 10.50	45.9		F	#	-	-
	NTU	0664	WL	06/11/2013	N001	7.70 - 14.70	8.81		F	#	-	-
	NTU	0664	WL	11/13/2013	N001	7.70 - 14.70	2.77		F	#	-	-
	NTU	0669	WL	06/11/2013	N001	4.00 - 10.60	2.86		FQ	#	-	-
	NTU	0669	WL	11/13/2013	N001	4.00 - 10.60	2.80		F	#	-	-
	NTU	0670	WL	06/11/2013	N001	5.20 - 12.20	2.19		FQ	#	-	-
	NTU	0670	WL	11/13/2013	N001	5.20 - 12.20	5.75		F	#	-	-
	NTU	0855	WL	06/11/2013	N001	6.00 - 11.00	1.5		F	#	-	-
	NTU	0855	WL	11/13/2013	N001	6.00 - 11.00	3.75		F	#	-	-
Uranium	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.020		F	#	2.9E-06	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.016		F	#	2.9E-06	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.062		F	#	2.9E-06	-
	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.054		F	#	2.9E-06	-
	mg/L	0172	WL	03/13/2013	N001	6.98 - 31.98	0.067		F	#	5.8E-06	-
	mg/L	0172	WL	03/13/2013	N002	6.98 - 31.98	0.064		F	#	5.8E-06	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.067		F	#	2.9E-06	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.060		F	#	2.9E-06	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.034		F	#	2.9E-06	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.010		F	#	2.9E-06	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	0.090		F	#	0.00029	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	0.082		F	#	0.00029	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.018		F	#	2.9E-06	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.011		F	#	2.9E-06	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.014		F	#	0.00015	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.014		F	#	0.00015	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	0.130		F	#	0.00029	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	0.130		F	#	0.00029	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	0.073		F	#	1.5E-05	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	0.071		F	#	0.00029	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	0.071		F	#	1.5E-05	-
	mg/L	0620	WL	03/13/2013	N001	6.70 - 10.70	0.058		F	#	5.8E-06	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.060		F	#	2.9E-06	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.056		F	#	2.9E-06	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	0.052		F	#	2.9E-06	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	0.042		F	#	2.9E-06	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	0.054		F	#	0.00029	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	0.046		F	#	0.00029	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	0.090		F	#	0.00015	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	0.094		F	#	0.00015	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	0.057		F	#	1.5E-05	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	0.054		F	#	1.5E-05	-
	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	0.091		FQ	#	0.00015	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	0.084		F	#	0.00015	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	0.075		FQ	#	2.9E-05	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	0.060		F	#	2.9E-05	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	0.040		F	#	0.00029	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	0.039		F	#	0.00029	-
Vanadium	mg/L	0169	WL	06/11/2013	N001	3.13 - 18.13	0.00087	E	JF	#	1.5E-05	-
	mg/L	0169	WL	11/13/2013	N001	3.13 - 18.13	0.0012		F	#	1.5E-05	-
	mg/L	0170	WL	06/10/2013	N001	92.23 - 112.23	0.0008		F	#	1.5E-05	-

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	0170	WL	11/12/2013	N001	92.23 - 112.23	0.001		F	#	1.5E-05	-
	mg/L	0172	WL	06/11/2013	N001	6.98 - 31.98	0.00028	B	F	#	1.5E-05	-
	mg/L	0172	WL	11/13/2013	N001	6.98 - 31.98	0.00064		F	#	1.5E-05	-
	mg/L	0195	WL	06/10/2013	N001	5.29 - 25.29	0.00038		F	#	1.5E-05	-
	mg/L	0195	WL	11/14/2013	N001	5.29 - 25.29	0.00052		F	#	1.5E-05	-
	mg/L	0201	WL	06/10/2013	N001	7.35 - 22.35	0.00062		F	#	1.5E-05	-
	mg/L	0201	WL	11/14/2013	N001	7.35 - 22.35	0.00085		F	#	1.5E-05	-
	mg/L	0215	WL	06/11/2013	N001	6.84 - 21.84	0.0018		F	#	1.5E-05	-
	mg/L	0215	WL	11/12/2013	N001	6.84 - 21.84	0.0026		F	#	1.5E-05	-
	mg/L	0216	WL	06/11/2013	N001	5.50 - 20.50	0.230		F	#	0.00076	-
	mg/L	0216	WL	11/13/2013	N001	5.50 - 20.50	0.240		F	#	0.00076	-
	mg/L	0217	WL	06/10/2013	N001	7.40 - 22.40	1.800		F	#	0.0015	-
	mg/L	0217	WL	11/13/2013	N001	7.40 - 22.40	2.000		F	#	0.0015	-
	mg/L	0590	WL	06/10/2013	N001	5.21 - 19.21	0.350		F	#	7.6E-05	-
	mg/L	0590	WL	06/10/2013	N002	5.21 - 19.21	0.360		F	#	0.0015	-
	mg/L	0590	WL	11/14/2013	N001	5.21 - 19.21	0.370		F	#	7.6E-05	-
	mg/L	0620	WL	06/11/2013	N001	6.70 - 10.70	0.0015		F	#	1.5E-05	-
	mg/L	0620	WL	11/13/2013	N001	6.70 - 10.70	0.0018		F	#	1.5E-05	-
	mg/L	0635	WL	06/11/2013	N001	12.00 - 17.00	0.00056		F	#	1.5E-05	-
	mg/L	0635	WL	11/13/2013	N001	12.00 - 17.00	0.00075		F	#	1.5E-05	-
	mg/L	0658	WL	06/11/2013	N001	0.50 - 5.50	19.000		F	#	0.0015	-
	mg/L	0658	WL	11/13/2013	N001	0.50 - 5.50	19.000		F	#	0.0015	-
	mg/L	0659	WL	06/11/2013	N001	0.50 - 10.50	2.200		F	#	0.00076	-
	mg/L	0659	WL	11/13/2013	0001	0.50 - 10.50	1.300		F	#	0.00076	-
	mg/L	0664	WL	06/11/2013	N001	7.70 - 14.70	2.300		F	#	7.6E-05	-
	mg/L	0664	WL	11/13/2013	N001	7.70 - 14.70	2.000		F	#	7.6E-05	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	0669	WL	06/11/2013	N001	4.00 - 10.60	1.700		FQ	#	0.00076	-
	mg/L	0669	WL	11/13/2013	N001	4.00 - 10.60	2.600		F	#	0.00076	-
	mg/L	0670	WL	06/11/2013	N001	5.20 - 12.20	1.800		FQ	#	0.00015	-
	mg/L	0670	WL	11/13/2013	N001	5.20 - 12.20	2.100		F	#	0.00015	-
	mg/L	0855	WL	06/11/2013	N001	6.00 - 11.00	12.000		F	#	0.0015	-
	mg/L	0855	WL	11/13/2013	N001	6.00 - 11.00	24.000		F	#	0.0015	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:35 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='RFN01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #1/1/2013# and #12/31/2013#

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

LOCATION TYPES: WL WELL

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.

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0304	WL	06/11/2013	N001	13.20 - 18.20	268		F	#	-	-
	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	181		F	#	-	-
	mg/L	0305	WL	06/11/2013	N001	13.76 - 18.76	288		F	#	-	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	306		F	#	-	-
	mg/L	0309	WL	06/12/2013	N001	16.93 - 21.93	379		F	#	-	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	326		F	#	-	-
	mg/L	0310	WL	06/11/2013	N001	17.93 - 22.93	486		F	#	-	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	479		F	#	-	-
	mg/L	0655	WL	06/12/2013	N001	13.60 - 23.60	480		F	#	-	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	417		F	#	-	-
	mg/L	0656	WL	06/12/2013	N001	6.35 - 21.35	343		F	#	-	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	318		F	#	-	-
Calcium	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	170.000		F	#	0.024	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	140.000		F	#	0.024	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	140.000		F	#	0.024	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	180.000		F	#	0.024	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	210.000		F	#	0.024	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	190.000		F	#	0.024	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	150.000		F	#	0.024	-
Chloride	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	230		F	#	4	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	160		F	#	4	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	170		F	#	4	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	130		F	#	5	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	110		F	#	5	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	94		F	#	4	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	290		F	#	4	-
Magnesium	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	66.000		F	#	0.026	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	60.000		F	#	0.026	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	59.000		F	#	0.026	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	120.000		F	#	0.026	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	100.000		F	#	0.026	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	120.000		F	#	0.026	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	80.000		F	#	0.026	-
Nitrate + Nitrite as Nitrogen	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	0.015		F	#	0.01	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	0.015		F	#	0.01	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	0.01	U	F	#	0.01	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	0.01	U	F	#	0.01	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	0.01	U	F	#	0.01	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	0.01	U	F	#	0.01	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	0.32		F	#	0.01	-
Oxidation Reduction Potential	mV	0304	WL	06/11/2013	N001	13.20 - 18.20	-20.7		F	#	-	-
	mV	0304	WL	11/13/2013	N001	13.20 - 18.20	47.3		F	#	-	-
	mV	0305	WL	06/11/2013	N001	13.76 - 18.76	20.1		F	#	-	-
	mV	0305	WL	11/13/2013	N001	13.76 - 18.76	32.4		F	#	-	-
	mV	0309	WL	06/12/2013	N001	16.93 - 21.93	-7.7		F	#	-	-
	mV	0309	WL	11/13/2013	N001	16.93 - 21.93	-43.9		F	#	-	-
	mV	0310	WL	06/11/2013	N001	17.93 - 22.93	-14.9		F	#	-	-
	mV	0310	WL	11/12/2013	N001	17.93 - 22.93	-46.2		F	#	-	-
	mV	0655	WL	06/12/2013	N001	13.60 - 23.60	50.7		F	#	-	-
	mV	0655	WL	11/13/2013	N001	13.60 - 23.60	-76.1		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0656	WL	06/12/2013	N001	6.35 - 21.35	88.1		F	#	-	-
	mV	0656	WL	11/12/2013	N001	6.35 - 21.35	-33.7		F	#	-	-
pH	s.u.	0304	WL	06/11/2013	N001	13.20 - 18.20	7.22		F	#	-	-
	s.u.	0304	WL	11/13/2013	N001	13.20 - 18.20	7.19		F	#	-	-
	s.u.	0305	WL	06/11/2013	N001	13.76 - 18.76	7.31		F	#	-	-
	s.u.	0305	WL	11/13/2013	N001	13.76 - 18.76	7.32		F	#	-	-
	s.u.	0309	WL	06/12/2013	N001	16.93 - 21.93	7.15		F	#	-	-
	s.u.	0309	WL	11/13/2013	N001	16.93 - 21.93	7.22		F	#	-	-
	s.u.	0310	WL	06/11/2013	N001	17.93 - 22.93	7.04		F	#	-	-
	s.u.	0310	WL	11/12/2013	N001	17.93 - 22.93	7.11		F	#	-	-
	s.u.	0655	WL	06/12/2013	N001	13.60 - 23.60	7.12		F	#	-	-
	s.u.	0655	WL	11/13/2013	N001	13.60 - 23.60	7.06		F	#	-	-
	s.u.	0656	WL	06/12/2013	N001	6.35 - 21.35	7.13		F	#	-	-
	s.u.	0656	WL	11/12/2013	N001	6.35 - 21.35	6.97		F	#	-	-
Potassium	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	6.400		F	#	0.22	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	7.600		F	#	0.22	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	7.500		F	#	0.22	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	8.400		F	#	0.22	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	9.700		F	#	0.22	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	8.200		F	#	0.22	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	9.300		F	#	0.22	-
Selenium	mg/L	0304	WL	06/11/2013	N001	13.20 - 18.20	0.0012		F	#	3.2E-05	-
	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	0.0022		F	#	3.2E-05	-
	mg/L	0305	WL	06/11/2013	N001	13.76 - 18.76	0.018		F	#	0.00016	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	0.019		F	#	0.00016	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	0.018		F	#	0.00032	-
	mg/L	0309	WL	06/12/2013	N001	16.93 - 21.93	0.00014		JF	#	3.2E-05	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	0.00021		F	#	3.2E-05	-
	mg/L	0310	WL	06/11/2013	N001	17.93 - 22.93	0.00027		JF	#	3.2E-05	-
	mg/L	0310	WL	06/11/2013	N002	17.93 - 22.93	0.00034		JF	#	3.2E-05	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	0.00033		F	#	3.2E-05	-
	mg/L	0655	WL	06/12/2013	N001	13.60 - 23.60	0.022		F	#	0.00016	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	0.0058		F	#	0.00016	-
	mg/L	0656	WL	06/12/2013	N001	6.35 - 21.35	0.0052		F	#	0.00016	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	0.0039		F	#	3.2E-05	-
Sodium	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	150.000		F	#	0.013	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	140.000		F	#	0.013	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	140.000		F	#	0.013	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	200.000		F	#	0.013	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	200.000		F	#	0.013	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	140.000		F	#	0.013	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	170.000		F	#	0.013	-
Specific Conductance	umhos/cm	0304	WL	06/11/2013	N001	13.20 - 18.20	1913		F	#	-	-
	umhos/cm	0304	WL	11/13/2013	N001	13.20 - 18.20	1900		F	#	-	-
	umhos/cm	0305	WL	06/11/2013	N001	13.76 - 18.76	1877		F	#	-	-
	umhos/cm	0305	WL	11/13/2013	N001	13.76 - 18.76	1734		F	#	-	-
	umhos/cm	0309	WL	06/12/2013	N001	16.93 - 21.93	2238		F	#	-	-
	umhos/cm	0309	WL	11/13/2013	N001	16.93 - 21.93	2355		F	#	-	-
	umhos/cm	0310	WL	06/11/2013	N001	17.93 - 22.93	2194		F	#	-	-
	umhos/cm	0310	WL	11/12/2013	N001	17.93 - 22.93	2284		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0655	WL	06/12/2013	N001	13.60 - 23.60	2151		F	#	-	-
	umhos/cm	0655	WL	11/13/2013	N001	13.60 - 23.60	2125		F	#	-	-
	umhos/cm	0656	WL	06/12/2013	N001	6.35 - 21.35	2008		F	#	-	-
	umhos/cm	0656	WL	11/12/2013	N001	6.35 - 21.35	2123		F	#	-	-
Sulfate	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	360		F	#	10	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	340		F	#	10	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	350		F	#	10	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	820		F	#	12	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	690		F	#	12	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	650		F	#	10	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	370		F	#	10	-
Temperature	C	0304	WL	06/11/2013	N001	13.20 - 18.20	13.13		F	#	-	-
	C	0304	WL	11/13/2013	N001	13.20 - 18.20	14.53		F	#	-	-
	C	0305	WL	06/11/2013	N001	13.76 - 18.76	13.22		F	#	-	-
	C	0305	WL	11/13/2013	N001	13.76 - 18.76	15.25		F	#	-	-
	C	0309	WL	06/12/2013	N001	16.93 - 21.93	13.29		F	#	-	-
	C	0309	WL	11/13/2013	N001	16.93 - 21.93	14.84		F	#	-	-
	C	0310	WL	06/11/2013	N001	17.93 - 22.93	13.28		F	#	-	-
	C	0310	WL	11/12/2013	N001	17.93 - 22.93	14.74		F	#	-	-
	C	0655	WL	06/12/2013	N001	13.60 - 23.60	12.76		F	#	-	-
	C	0655	WL	11/13/2013	N001	13.60 - 23.60	14.72		F	#	-	-
	C	0656	WL	06/12/2013	N001	6.35 - 21.35	15.21		F	#	-	-
	C	0656	WL	11/12/2013	N001	6.35 - 21.35	17.08		F	#	-	-
Turbidity	NTU	0304	WL	06/11/2013	N001	13.20 - 18.20	8.37		F	#	-	-
	NTU	0304	WL	11/13/2013	N001	13.20 - 18.20	2.11		F	#	-	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0305	WL	06/11/2013	N001	13.76 - 18.76	1.31		F	#	-	-
	NTU	0305	WL	11/13/2013	N001	13.76 - 18.76	1.96		F	#	-	-
	NTU	0309	WL	06/12/2013	N001	16.93 - 21.93	3.23		F	#	-	-
	NTU	0309	WL	11/13/2013	N001	16.93 - 21.93	1.16		F	#	-	-
	NTU	0310	WL	06/11/2013	N001	17.93 - 22.93	2.62		F	#	-	-
	NTU	0310	WL	11/12/2013	N001	17.93 - 22.93	2.54		F	#	-	-
	NTU	0655	WL	06/12/2013	N001	13.60 - 23.60	1.22		F	#	-	-
	NTU	0655	WL	11/13/2013	N001	13.60 - 23.60	0.95		F	#	-	-
	NTU	0656	WL	06/12/2013	N001	6.35 - 21.35	3.28		F	#	-	-
	NTU	0656	WL	11/12/2013	N001	6.35 - 21.35	4.02		F	#	-	-
Uranium	mg/L	0304	WL	06/11/2013	N001	13.20 - 18.20	0.045		F	#	2.9E-06	-
	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	0.044		F	#	2.9E-06	-
	mg/L	0305	WL	06/11/2013	N001	13.76 - 18.76	0.040		F	#	1.5E-05	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	0.047		F	#	1.5E-05	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	0.049		F	#	2.9E-05	-
	mg/L	0309	WL	06/12/2013	N001	16.93 - 21.93	0.024		F	#	2.9E-06	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	0.018		F	#	2.9E-06	-
	mg/L	0310	WL	06/11/2013	N001	17.93 - 22.93	0.170		F	#	0.00015	-
	mg/L	0310	WL	06/11/2013	N002	17.93 - 22.93	0.180		F	#	1.5E-05	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	0.170		F	#	0.00015	-
	mg/L	0655	WL	06/12/2013	N001	13.60 - 23.60	0.096		F	#	1.5E-05	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	0.083		F	#	1.5E-05	-
	mg/L	0656	WL	06/12/2013	N001	6.35 - 21.35	0.190		F	#	1.5E-05	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	0.180		F	#	1.5E-05	-
Vanadium	mg/L	0304	WL	06/11/2013	N001	13.20 - 18.20	0.030		F	#	1.5E-05	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	0304	WL	11/13/2013	N001	13.20 - 18.20	0.040		F	#	1.5E-05	-
	mg/L	0305	WL	06/11/2013	N001	13.76 - 18.76	0.280		F	#	7.6E-05	-
	mg/L	0305	WL	11/13/2013	N001	13.76 - 18.76	0.370		F	#	7.6E-05	-
	mg/L	0305	WL	11/13/2013	N002	13.76 - 18.76	0.380		F	#	0.00015	-
	mg/L	0309	WL	06/12/2013	N001	16.93 - 21.93	0.00022	B	F	#	1.5E-05	-
	mg/L	0309	WL	11/13/2013	N001	16.93 - 21.93	0.00057		F	#	1.5E-05	-
	mg/L	0310	WL	06/11/2013	N001	17.93 - 22.93	0.0096		F	#	1.5E-05	-
	mg/L	0310	WL	06/11/2013	N002	17.93 - 22.93	0.0082		F	#	7.6E-05	-
	mg/L	0310	WL	11/12/2013	N001	17.93 - 22.93	0.010		F	#	1.5E-05	-
	mg/L	0655	WL	06/12/2013	N001	13.60 - 23.60	0.250		F	#	7.6E-05	-
	mg/L	0655	WL	11/13/2013	N001	13.60 - 23.60	0.310		F	#	7.6E-05	-
	mg/L	0656	WL	06/12/2013	N001	6.35 - 21.35	0.024		F	#	7.6E-05	-
	mg/L	0656	WL	11/12/2013	N001	6.35 - 21.35	0.021		F	#	7.6E-05	-

GROUNDWATER QUALITY DATA BY PARAMETER WITH DEPTH (USEE200) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/18/2014 11:05 am

PARAMETER	UNITS	LOCATION CODE	LOCATION TYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='RFO01' AND location_code in('0304','0305','0309','0310','0655','0656') AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #1/1/2013# and #12/31/2013#

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

LOCATION TYPES: WL WELL

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.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0320	06/11/2013	N001	174				#	-	-
	mg/L	0320	11/14/2013	N001	157				#	-	-
	mg/L	0322	06/11/2013	N001	75				#	-	-
	mg/L	0322	11/13/2013	N001	115				#	-	-
	mg/L	0323	11/14/2013	N001	154				#	-	-
	mg/L	0324	06/11/2013	N001	61				#	-	-
	mg/L	0324	11/13/2013	N001	113				#	-	-
	mg/L	0452	06/10/2013	N001	108				#	-	-
	mg/L	0452	11/14/2013	N001	151				#	-	-
	mg/L	0453	11/14/2013	N001	147				#	-	-
	mg/L	0575	06/10/2013	N001	73				#	-	-
	mg/L	0575	11/14/2013	N001	117				#	-	-
Ammonia Total as N	mg/L	0320	06/11/2013	N001	49				#	1	-
	mg/L	0320	11/14/2013	N001	49				#	1	-
	mg/L	0322	06/11/2013	0001	0.1	U			#	0.1	-
	mg/L	0322	11/13/2013	N001	0.1	U			#	0.1	-
	mg/L	0323	06/10/2013	N001	21				#	1	-
	mg/L	0323	11/14/2013	N001	19				#	1	-
	mg/L	0323	11/14/2013	N002	18				#	1	-
	mg/L	0324	06/11/2013	0001	0.1	U			#	0.1	-
	mg/L	0324	11/13/2013	N001	0.1	U			#	0.1	-
	mg/L	0452	06/10/2013	N001	0.24				#	0.1	-
	mg/L	0452	11/14/2013	N001	7.8				#	0.5	-
	mg/L	0453	11/14/2013	N001	19				#	1	-
	mg/L	0575	06/10/2013	N001	0.11				#	0.1	-
	mg/L	0575	06/10/2013	N002	0.13				#	0.1	-
	mg/L	0575	11/14/2013	N001	1.9				#	0.1	-
	mg/L	0575	11/14/2013	N002	2.1				#	0.1	-
Arsenic	mg/L	0320	06/11/2013	N001	0.0034				#	7.4E-05	-
	mg/L	0320	11/14/2013	N001	0.003				#	7.4E-05	-
	mg/L	0322	06/11/2013	0001	0.0003			J	#	1.5E-05	-
	mg/L	0322	11/13/2013	N001	0.0003				#	1.5E-05	-
	mg/L	0323	06/10/2013	N001	0.0015				#	0.00015	-
	mg/L	0323	11/14/2013	N001	0.0012				#	0.00015	-
	mg/L	0323	11/14/2013	N002	0.001				#	0.00015	-
	mg/L	0324	06/11/2013	0001	0.0003			J	#	1.5E-05	-
	mg/L	0324	11/13/2013	N001	0.0003				#	1.5E-05	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Arsenic	mg/L	0452	06/10/2013	N001	0.015			#	7.4E-05		-
	mg/L	0452	11/14/2013	N001	0.008			#	7.4E-05		-
	mg/L	0453	11/14/2013	N001	0.0084			#	0.00015		-
	mg/L	0575	06/10/2013	N001	0.0024			#	1.5E-05		-
	mg/L	0575	06/10/2013	N002	0.0024			#	1.5E-05		-
	mg/L	0575	11/14/2013	N001	0.0019			#	1.5E-05		-
	mg/L	0575	11/14/2013	N002	0.002			#	1.5E-05		-
Calcium	mg/L	0320	11/14/2013	N001	640.000			#	0.12		-
	mg/L	0322	11/13/2013	N001	65.000			#	0.012		-
	mg/L	0323	11/14/2013	N001	600.000			#	0.12		-
	mg/L	0323	11/14/2013	N002	580.000			#	0.12		-
	mg/L	0324	11/13/2013	N001	63.000			#	0.012		-
	mg/L	0452	11/14/2013	N001	530.000			#	0.06		-
	mg/L	0453	11/14/2013	N001	590.000			#	0.06		-
	mg/L	0575	11/14/2013	N001	330.000			#	0.06		-
	mg/L	0575	11/14/2013	N002	330.000			#	0.12		-
Chloride	mg/L	0320	11/14/2013	N001	600			#	20		-
	mg/L	0322	11/13/2013	N001	170			#	2		-
	mg/L	0323	11/14/2013	N001	590			#	20		-
	mg/L	0323	11/14/2013	N002	580			#	20		-
	mg/L	0324	11/13/2013	N001	170			#	2		-
	mg/L	0452	11/14/2013	N001	280			#	10		-
	mg/L	0453	11/14/2013	N001	320			#	10		-
	mg/L	0575	11/14/2013	N001	490			#	10		-
	mg/L	0575	11/14/2013	N002	490			#	20		-
Magnesium	mg/L	0320	11/14/2013	N001	140.000			#	0.13		-
	mg/L	0322	11/13/2013	N001	13.000			#	0.013		-
	mg/L	0323	11/14/2013	N001	190.000			#	0.13		-
	mg/L	0323	11/14/2013	N002	180.000			#	0.13		-
	mg/L	0324	11/13/2013	N001	13.000			#	0.013		-
	mg/L	0452	11/14/2013	N001	52.000			#	0.065		-
	mg/L	0453	11/14/2013	N001	51.000			#	0.065		-
	mg/L	0575	11/14/2013	N001	260.000			#	0.065		-
	mg/L	0575	11/14/2013	N002	250.000			#	0.13		-
Molybdenum	mg/L	0320	06/11/2013	N001	1.300			#	0.00016		-
	mg/L	0320	11/14/2013	N001	1.100			#	0.00016		-
	mg/L	0322	06/11/2013	0001	0.0013		J	#	3.2E-05		-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA		DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	0322	11/13/2013	N001	0.0049				#	3.2E-05	-
	mg/L	0323	06/10/2013	N001	2.700				#	0.00032	-
	mg/L	0323	11/14/2013	N001	2.900				#	0.00032	-
	mg/L	0323	11/14/2013	N002	2.900				#	0.00032	-
	mg/L	0324	06/11/2013	0001	0.0012		J		#	3.2E-05	-
	mg/L	0324	11/13/2013	N001	0.0043				#	3.2E-05	-
	mg/L	0452	06/10/2013	N001	10.000				#	0.00016	-
	mg/L	0452	11/14/2013	N001	1.800				#	0.00016	-
	mg/L	0453	11/14/2013	N001	2.300				#	0.00032	-
	mg/L	0575	06/10/2013	N001	0.630				#	3.2E-05	-
	mg/L	0575	06/10/2013	N002	0.640				#	3.2E-05	-
	mg/L	0575	11/14/2013	N001	0.620				#	3.2E-05	-
	mg/L	0575	11/14/2013	N002	0.630				#	0.00032	-
Nitrate + Nitrite as Nitrogen	mg/L	0320	06/11/2013	N001	4.7				#	0.05	-
	mg/L	0320	11/14/2013	N001	6.4				#	0.1	-
	mg/L	0322	06/11/2013	0001	0.15				#	0.01	-
	mg/L	0322	11/13/2013	N001	0.032				#	0.01	-
	mg/L	0323	06/10/2013	N001	52				#	0.5	-
	mg/L	0323	11/14/2013	N001	43				#	0.5	-
	mg/L	0323	11/14/2013	N002	41				#	0.5	-
	mg/L	0324	06/11/2013	0001	0.12				#	0.01	-
	mg/L	0324	11/13/2013	N001	0.01	U			#	0.01	-
	mg/L	0452	06/10/2013	N001	21				#	0.2	-
	mg/L	0452	11/14/2013	N001	27				#	0.2	-
	mg/L	0453	11/14/2013	N001	29				#	0.5	-
	mg/L	0575	06/10/2013	N001	1.5				#	0.01	-
	mg/L	0575	06/10/2013	N002	1.6				#	0.02	-
	mg/L	0575	11/14/2013	N001	1.4				#	0.01	-
	mg/L	0575	11/14/2013	N002	1.3				#	0.05	-
Oxidation Reduction Potential	mV	0320	06/11/2013	N001	157.3				#	-	-
	mV	0320	11/14/2013	N001	216.2				#	-	-
	mV	0322	06/11/2013	N001	102.2				#	-	-
	mV	0322	11/13/2013	N001	46.8				#	-	-
	mV	0323	06/10/2013	N001	106.4				#	-	-
	mV	0323	11/14/2013	N001	226.3				#	-	-
	mV	0324	06/11/2013	N001	-42.8				#	-	-
	mV	0324	11/13/2013	N001	37.7				#	-	-

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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Oxidation Reduction Potential	mV	0452	06/10/2013	N001	104.3			#	-		-
	mV	0452	11/14/2013	N001	46.6			#	-		-
	mV	0453	11/14/2013	N001	60.3			#	-		-
	mV	0575	06/10/2013	N001	60.0			#	-		-
	mV	0575	11/14/2013	N001	231.4			#	-		-
pH	s.u.	0320	06/11/2013	N001	8.05			#	-		-
	s.u.	0320	11/14/2013	N001	7.76			#	-		-
	s.u.	0322	06/11/2013	N001	7.87			#	-		-
	s.u.	0322	11/13/2013	N001	8.86			#	-		-
	s.u.	0323	06/10/2013	N001	8.06			#	-		-
	s.u.	0323	11/14/2013	N001	7.66			#	-		-
	s.u.	0324	06/11/2013	N001	8.16			#	-		-
	s.u.	0324	11/13/2013	N001	8.13			#	-		-
	s.u.	0452	06/10/2013	N001	8.29			#	-		-
	s.u.	0452	11/14/2013	N001	7.81			#	-		-
	s.u.	0453	11/14/2013	N001	7.33			#	-		-
	s.u.	0575	06/10/2013	N001	9.32			#	-		-
	s.u.	0575	11/14/2013	N001	6.78			#	-		-
Potassium	mg/L	0320	11/14/2013	N001	88.000			#	1.1		-
	mg/L	0322	11/13/2013	N001	4.000			#	0.11		-
	mg/L	0323	11/14/2013	N001	100.000			#	1.1		-
	mg/L	0323	11/14/2013	N002	97.000			#	1.1		-
	mg/L	0324	11/13/2013	N001	3.800			#	0.11		-
	mg/L	0452	11/14/2013	N001	35.000			#	0.54		-
	mg/L	0453	11/14/2013	N001	30.000			#	0.54		-
	mg/L	0575	11/14/2013	N001	72.000			#	0.54		-
	mg/L	0575	11/14/2013	N002	66.000			#	1.1		-
Selenium	mg/L	0320	06/11/2013	N001	0.011			#	0.00016		-
	mg/L	0320	11/14/2013	N001	0.0097			#	0.00016		-
	mg/L	0322	06/11/2013	0001	0.0003		J	#	3.2E-05		-
	mg/L	0322	11/13/2013	N001	0.0004			#	3.2E-05		-
	mg/L	0323	06/10/2013	N001	0.006			#	0.00032		-
	mg/L	0323	11/14/2013	N001	0.005			#	0.00032		-
	mg/L	0323	11/14/2013	N002	0.0049			#	0.00032		-
	mg/L	0324	06/11/2013	0001	0.0002		J	#	3.2E-05		-
	mg/L	0324	11/13/2013	N001	0.0004			#	3.2E-05		-
	mg/L	0452	06/10/2013	N001	0.021			#	0.00016		-

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA		DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	0452	11/14/2013	N001	0.016				#	0.00016	-
	mg/L	0453	11/14/2013	N001	0.018				#	0.00032	-
	mg/L	0575	06/10/2013	N001	0.0004		J		#	3.2E-05	-
	mg/L	0575	06/10/2013	N002	0.0004		J		#	3.2E-05	-
	mg/L	0575	11/14/2013	N001	0.0007				#	3.2E-05	-
	mg/L	0575	11/14/2013	N002	0.0006				#	3.2E-05	-
Sodium	mg/L	0320	11/14/2013	N001	960.000				#	0.066	-
	mg/L	0322	11/13/2013	N001	110.000				#	0.0066	-
	mg/L	0323	11/14/2013	N001	1200.000				#	0.066	-
	mg/L	0323	11/14/2013	N002	1200.000				#	0.066	-
	mg/L	0324	11/13/2013	N001	100.000				#	0.0066	-
	mg/L	0452	11/14/2013	N001	340.000				#	0.033	-
	mg/L	0453	11/14/2013	N001	360.000				#	0.033	-
	mg/L	0575	11/14/2013	N001	1000.000				#	0.33	-
	mg/L	0575	11/14/2013	N002	1000.000				#	0.066	-
Specific Conductance	umhos/cm	0320	06/11/2013	N001	6794				#	-	-
	umhos/cm	0320	11/14/2013	N001	7330				#	-	-
	umhos/cm	0322	06/11/2013	N001	327				#	-	-
	umhos/cm	0322	11/13/2013	N001	1013				#	-	-
	umhos/cm	0323	06/10/2013	N001	7656				#	-	-
	umhos/cm	0323	11/14/2013	N001	8256				#	-	-
	umhos/cm	0324	06/11/2013	N001	417				#	-	-
	umhos/cm	0324	11/13/2013	N001	1217				#	-	-
	umhos/cm	0452	06/10/2013	N001	10905				#	-	-
	umhos/cm	0452	11/14/2013	N001	3790				#	-	-
	umhos/cm	0453	11/14/2013	N001	4205				#	-	-
	umhos/cm	0575	06/10/2013	N001	5416				#	-	-
	umhos/cm	0575	11/14/2013	N001	6931				#	-	-
Sulfate	mg/L	0320	11/14/2013	N001	3500				#	50	-
	mg/L	0322	11/13/2013	N001	100				#	5	-
	mg/L	0323	11/14/2013	N001	4100				#	50	-
	mg/L	0323	11/14/2013	N002	4100				#	50	-
	mg/L	0324	11/13/2013	N001	100				#	5	-
	mg/L	0452	11/14/2013	N001	1600				#	25	-
	mg/L	0453	11/14/2013	N001	1800				#	25	-
	mg/L	0575	11/14/2013	N001	3500				#	25	-
	mg/L	0575	11/14/2013	N002	3500				#	50	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Temperature	C	0320	06/11/2013	N001	25.09				#	-	-
	C	0320	11/14/2013	N001	9.59				#	-	-
	C	0322	06/11/2013	N001	18.11				#	-	-
	C	0322	11/13/2013	N001	5.31				#	-	-
	C	0323	06/10/2013	N001	23.24				#	-	-
	C	0323	11/14/2013	N001	8.55				#	-	-
	C	0324	06/11/2013	N001	16.14				#	-	-
	C	0324	11/13/2013	N001	5.64				#	-	-
	C	0452	06/10/2013	N001	28.55				#	-	-
	C	0452	11/14/2013	N001	7.86				#	-	-
	C	0453	11/14/2013	N001	9.65				#	-	-
	C	0575	06/10/2013	N001	25.35				#	-	-
	C	0575	11/14/2013	N001	9.20				#	-	-
Turbidity	NTU	0320	06/11/2013	N001	6.69				#	-	-
	NTU	0320	11/14/2013	N001	3.30				#	-	-
	NTU	0322	06/11/2013	N001	157				#	-	-
	NTU	0322	11/13/2013	N001	8.81				#	-	-
	NTU	0323	06/10/2013	N001	2.61				#	-	-
	NTU	0323	11/14/2013	N001	3.02				#	-	-
	NTU	0324	06/11/2013	N001	51.1				#	-	-
	NTU	0324	11/13/2013	N001	7.95				#	-	-
	NTU	0452	06/10/2013	N001	4.84				#	-	-
	NTU	0452	11/14/2013	N001	6.96				#	-	-
	NTU	0453	11/14/2013	N001	3.20				#	-	-
	NTU	0575	06/10/2013	N001	8.31				#	-	-
	NTU	0575	11/14/2013	N001	2.63				#	-	-
Uranium	mg/L	0320	06/11/2013	N001	0.160				#	1.5E-05	-
	mg/L	0320	11/14/2013	N001	0.160				#	1.5E-05	-
	mg/L	0322	06/11/2013	0001	0.0008				#	2.9E-06	-
	mg/L	0322	11/13/2013	N001	0.002				#	2.9E-06	-
	mg/L	0323	06/10/2013	N001	0.310				#	2.9E-05	-
	mg/L	0323	11/14/2013	N001	0.320				#	2.9E-05	-
	mg/L	0323	11/14/2013	N002	0.320				#	2.9E-05	-
	mg/L	0324	06/11/2013	0001	0.0008				#	2.9E-06	-
	mg/L	0324	11/13/2013	N001	0.002				#	2.9E-06	-
	mg/L	0452	06/10/2013	N001	0.250				#	1.5E-05	-
	mg/L	0452	11/14/2013	N001	0.150				#	1.5E-05	-
	mg/L	0453	11/14/2013	N001	0.150				#	2.9E-05	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
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PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA		DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0575	06/10/2013	N001	0.087				#	2.9E-06	-
	mg/L	0575	06/10/2013	N002	0.086				#	2.9E-06	-
	mg/L	0575	11/14/2013	N001	0.093				#	2.9E-06	-
	mg/L	0575	11/14/2013	N002	0.094				#	2.9E-05	-
Vanadium	mg/L	0320	06/11/2013	N001	0.044				#	7.6E-05	-
	mg/L	0320	11/14/2013	N001	0.048				#	7.6E-05	-
	mg/L	0322	06/11/2013	0001	0.0011		J		#	1.5E-05	-
	mg/L	0322	11/13/2013	N001	0.0015				#	1.5E-05	-
	mg/L	0323	06/10/2013	N001	0.0045		J		#	0.00015	-
	mg/L	0323	11/14/2013	N001	0.0053				#	0.00015	-
	mg/L	0323	11/14/2013	N002	0.0056				#	0.00015	-
	mg/L	0324	06/11/2013	0001	0.0042		J		#	1.5E-05	-
	mg/L	0324	11/13/2013	N001	0.0008				#	1.5E-05	-
	mg/L	0452	06/10/2013	N001	1.200				#	7.6E-05	-
	mg/L	0452	11/14/2013	N001	0.550				#	7.6E-05	-
	mg/L	0453	11/14/2013	N001	0.690				#	0.00015	-
	mg/L	0575	06/10/2013	N001	0.0018		J		#	1.5E-05	-
	mg/L	0575	06/10/2013	N002	0.0018				#	1.5E-05	-
	mg/L	0575	11/14/2013	N001	0.0017				#	1.5E-05	-
	mg/L	0575	11/14/2013	N002	0.0017				#	1.5E-05	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 6/16/2014 10:37 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE800 WHERE site_code='RFN01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #1/1/2013# and #12/31/2013#

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.	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.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/16/2014 10:40 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0294	06/12/2013	N001	62			#	-	-
	mg/L	0294	11/13/2013	N001	118			#	-	-
	mg/L	0395	06/12/2013	N001	312			#	-	-
	mg/L	0395	11/13/2013	N001	308			#	-	-
	mg/L	0396	06/12/2013	N001	60			#	-	-
	mg/L	0396	11/13/2013	N001	121			#	-	-
	mg/L	0398	06/12/2013	N001	256			#	-	-
	mg/L	0398	11/13/2013	N001	212			#	-	-
	mg/L	0741	06/12/2013	N001	60			#	-	-
	mg/L	0741	11/13/2013	N001	118			#	-	-
Calcium	mg/L	0294	11/13/2013	N001	63.000			#	0.012	-
	mg/L	0395	11/13/2013	N001	87.000			#	0.012	-
	mg/L	0396	11/13/2013	N001	66.000			#	0.012	-
	mg/L	0398	11/13/2013	N001	130.000			#	0.012	-
	mg/L	0741	11/13/2013	N001	66.000			#	0.012	-
Chloride	mg/L	0294	11/13/2013	N001	180			#	10	-
	mg/L	0395	11/13/2013	N001	22			#	2	-
	mg/L	0396	11/13/2013	N001	170			#	2	-
	mg/L	0398	11/13/2013	N001	150			#	4	-
	mg/L	0741	11/13/2013	N001	170			#	2	-
Magnesium	mg/L	0294	11/13/2013	N001	13.000			#	0.013	-
	mg/L	0395	11/13/2013	N001	60.000			#	0.013	-
	mg/L	0396	11/13/2013	N001	14.000			#	0.013	-
	mg/L	0398	11/13/2013	N001	49.000			#	0.013	-
	mg/L	0741	11/13/2013	N001	13.000			#	0.013	-
Nitrate + Nitrite as Nitrogen	mg/L	0294	11/13/2013	N001	0.01	U		#	0.01	-
	mg/L	0395	11/13/2013	N001	0.08			#	0.01	-
	mg/L	0396	11/13/2013	N001	0.01	U		#	0.01	-
	mg/L	0398	11/13/2013	N001	0.41			#	0.02	-
	mg/L	0741	11/13/2013	N001	0.01	U		#	0.01	-
Oxidation Reduction Potential	mV	0294	06/12/2013	N001	20.7			#	-	-
	mV	0294	11/13/2013	N001	138.3			#	-	-
	mV	0395	06/12/2013	N001	63.6			#	-	-
	mV	0395	11/13/2013	N001	-25.4			#	-	-
	mV	0396	06/12/2013	N001	-4.1			#	-	-
	mV	0396	11/13/2013	N001	123.3			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/16/2014 10:40 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0398	06/12/2013	N001	70.6			#	-	-
	mV	0398	11/13/2013	N001	177.4			#	-	-
	mV	0741	06/12/2013	N001	-50.1			#	-	-
	mV	0741	11/13/2013	N001	-46.4			#	-	-
pH	s.u.	0294	06/12/2013	N001	8.09			#	-	-
	s.u.	0294	11/13/2013	N001	8.86			#	-	-
	s.u.	0395	06/12/2013	N001	7.65			#	-	-
	s.u.	0395	11/13/2013	N001	7.91			#	-	-
	s.u.	0396	06/12/2013	N001	8.07			#	-	-
	s.u.	0396	11/13/2013	N001	8.27			#	-	-
	s.u.	0398	06/12/2013	N001	8.19			#	-	-
	s.u.	0398	11/13/2013	N001	8.33			#	-	-
	s.u.	0741	06/12/2013	N001	8.07			#	-	-
	s.u.	0741	11/13/2013	N001	7.83			#	-	-
Potassium	mg/L	0294	11/13/2013	N001	3.900		J	#	0.11	-
	mg/L	0395	11/13/2013	N001	2.600			#	0.11	-
	mg/L	0396	11/13/2013	N001	3.900		J	#	0.11	-
	mg/L	0398	11/13/2013	N001	4.100			#	0.11	-
	mg/L	0741	11/13/2013	N001	3.900			#	0.11	-
Selenium	mg/L	0294	06/12/2013	0001	0.0002		J	#	3.2E-05	-
	mg/L	0294	11/13/2013	N001	0.0003			#	3.2E-05	-
	mg/L	0395	06/12/2013	0001	0.0035			#	3.2E-05	-
	mg/L	0395	11/13/2013	N001	0.0025			#	3.2E-05	-
	mg/L	0396	06/12/2013	0001	0.0003		J	#	3.2E-05	-
	mg/L	0396	11/13/2013	N001	0.0005			#	3.2E-05	-
	mg/L	0398	06/12/2013	N001	0.0022			#	3.2E-05	-
	mg/L	0398	11/13/2013	N001	0.0025			#	3.2E-05	-
	mg/L	0741	06/12/2013	0001	0.0002		J	#	3.2E-05	-
	mg/L	0741	11/13/2013	N001	0.0005			#	3.2E-05	-
Sodium	mg/L	0294	11/13/2013	N001	110.000			#	0.0066	-
	mg/L	0395	11/13/2013	N001	62.000			#	0.0066	-
	mg/L	0396	11/13/2013	N001	110.000			#	0.0066	-
	mg/L	0398	11/13/2013	N001	140.000			#	0.0066	-
	mg/L	0741	11/13/2013	N001	110.000			#	0.0066	-
Specific Conductance	umhos/cm	0294	06/12/2013	N001	328			#	-	-
	umhos/cm	0294	11/13/2013	N001	1034			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/16/2014 10:40 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT		UN-CERTAINTY
Specific Conductance	umhos/cm	0395	06/12/2013	N001	1240				#	-	-
	umhos/cm	0395	11/13/2013	N001	1089				#	-	-
	umhos/cm	0396	06/12/2013	N001	333				#	-	-
	umhos/cm	0396	11/13/2013	N001	993				#	-	-
	umhos/cm	0398	06/12/2013	N001	1746				#	-	-
	umhos/cm	0398	11/13/2013	N001	1532				#	-	-
	umhos/cm	0741	06/12/2013	N001	350				#	-	-
	umhos/cm	0741	11/13/2013	N001	1063				#	-	-
Sulfate	mg/L	0395	11/13/2013	N001	290				#	5	-
	mg/L	0396	11/13/2013	N001	99				#	5	-
	mg/L	0398	11/13/2013	N001	330				#	10	-
	mg/L	0741	11/13/2013	N001	97				#	5	-
Temperature	C	0294	06/12/2013	N001	15.37				#	-	-
	C	0294	11/13/2013	N001	6.62				#	-	-
	C	0395	06/12/2013	N001	14.69				#	-	-
	C	0395	11/13/2013	N001	12.53				#	-	-
	C	0396	06/12/2013	N001	17.02				#	-	-
	C	0396	11/13/2013	N001	7.60				#	-	-
	C	0398	06/12/2013	N001	12.99				#	-	-
	C	0398	11/13/2013	N001	9.93				#	-	-
	C	0741	06/12/2013	N001	17.25				#	-	-
	C	0741	11/13/2013	N001	5.97				#	-	-
Turbidity	NTU	0294	06/12/2013	N001	43.7				#	-	-
	NTU	0294	11/13/2013	N001	6.20				#	-	-
	NTU	0395	06/12/2013	N001	28.7				#	-	-
	NTU	0395	11/13/2013	N001	2.14				#	-	-
	NTU	0396	06/12/2013	N001	43.5				#	-	-
	NTU	0396	11/13/2013	N001	7.96				#	-	-
	NTU	0398	06/12/2013	N001	2.90				#	-	-
	NTU	0398	11/13/2013	N001	2.08				#	-	-
	NTU	0741	06/12/2013	N001	34.6				#	-	-
	NTU	0741	11/13/2013	N001	6.11				#	-	-
Uranium	mg/L	0294	06/12/2013	0001	0.0008				#	2.9E-06	-
	mg/L	0294	11/13/2013	N001	0.0018				#	2.9E-06	-
	mg/L	0395	06/12/2013	0001	0.024				#	2.9E-06	-
	mg/L	0395	11/13/2013	N001	0.021				#	2.9E-06	-
	mg/L	0396	06/12/2013	0001	0.0008				#	2.9E-06	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 6/16/2014 10:40 am

PARAMETER	UNITS	LOCATION CODE	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0396	11/13/2013	N001	0.0021			#	2.9E-06	-
	mg/L	0398	06/12/2013	N001	0.014			#	2.9E-06	-
	mg/L	0398	11/13/2013	N001	0.016			#	2.9E-06	-
	mg/L	0741	06/12/2013	0001	0.0008			#	2.9E-06	-
	mg/L	0741	11/13/2013	N001	0.0021			#	2.9E-06	-
Vanadium	mg/L	0294	06/12/2013	0001	0.0005		J	#	1.5E-05	-
	mg/L	0294	11/13/2013	N001	0.0009			#	1.5E-05	-
	mg/L	0395	06/12/2013	0001	0.0014		J	#	1.5E-05	-
	mg/L	0395	11/13/2013	N001	0.0018			#	1.5E-05	-
	mg/L	0396	06/12/2013	0001	0.0005		J	#	1.5E-05	-
	mg/L	0396	11/13/2013	N001	0.0013			#	1.5E-05	-
	mg/L	0398	06/12/2013	N001	0.0031			#	1.5E-05	-
	mg/L	0398	11/13/2013	N001	0.004			#	1.5E-05	-
	mg/L	0741	06/12/2013	0001	0.0005		J	#	1.5E-05	-
	mg/L	0741	11/13/2013	N001	0.0009			#	1.5E-05	-

RECORDS: SELECTED FROM USEE800 WHERE site_code='RFO01' AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #1/1/2013# and #12/31/2013#

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.
- 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.