

Data Validation Package

June 2013
Groundwater and Surface Water
Sampling at the Old and New Rifle,
Colorado, Processing Sites

August 2013



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

FSMEZO

**Data Validation Package for the
Old and New Rifle, Colorado, Processing Sites,
June 2013**

The U.S. Department of Energy (DOE) has prepared a Data Validation Package containing the groundwater and surface water monitoring data generated from the June 2013 sampling event at the Old and New Rifle, Colorado, Processing Sites. This package includes worksheets and reports that document the sampling activities and validation procedures conducted. **At your request, you are receiving a hard copy of the report.**

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



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Sampling Event Summary

Site: Old and New Rifle, Colorado, Processing Sites

Sampling Period: June 10-12, 2013

Forty-eight water samples were collected at New Rifle and Old Rifle, Colorado, Processing Sites. New Rifle surface water location 0453 was dry and could not be sampled. Old Rifle groundwater locations 0745, 0746, and 0747 were added to this sampling event. Duplicate samples were collected from New Rifle locations 0575 and 0590, and Old Rifle locations 0310 and 0743-3. One equipment blank was collected. Sampling and analyses were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated).

New Rifle Site

Samples were collected at the New Rifle site from 17 monitoring wells and 6 surface locations in compliance with the 2008 *Ground Water Compliance Action Plan for the New Rifle, Colorado, Processing Site*. Water levels were measured at each sampled well.

The contaminants of concern (COCs) at the New Rifle site are arsenic, molybdenum, nitrate + nitrite as nitrogen, selenium, uranium, and vanadium. The groundwater monitoring wells were sampled to monitor plume movement and natural flushing. Wells with contaminant concentrations that exceeded benchmarks are listed in Table 1.

Time-concentration graphs from the locations sampled are included with the analytical data. Concentrations of the COCs are stable or decreasing at most locations.

The surface water locations were sampled to monitor the impact of groundwater discharge. No large variations in the data were noted with contaminant concentrations at the two Colorado River surface water locations (0322 and 0324) remaining low, indicating no impact due to groundwater discharge.

Old Rifle Site

Samples were collected at the Old Rifle site from 8 monitoring wells and 5 surface locations in compliance with the 2001 *Ground Water Compliance Action Plan for the Old Rifle, Colorado, UMTRA Project Site*. Water levels were measured at each sampled well. Although not part of the routine site monitoring requirements, 12 additional wells were sampled:

- Three-port continuous multichannel tubing wells installed in November 2011 (RFO-0742, RFO-0743, and RFO-0744)
- Wells 0745, 0746, and 0747

The COCs at the Old Rifle site are selenium, uranium, and vanadium. Wells with contaminant concentrations that exceeded benchmarks are listed in Table 2.

Time-concentration graphs from the locations sampled are included with the analytical data and indicate that the concentrations of the COCs are decreasing at many locations.

Analytical results for surface locations 0396 and 0741 that are adjacent to and downgradient of the site along the Colorado River remain low, indicating no impact due to groundwater discharge.

Table 1. New Rifle Monitoring Wells with Contaminant Concentrations that Exceed Benchmarks

| Analyte | Benchmark (mg/L) | Location | Concentration (mg/L) |
|-------------------------------|--------------------|----------|----------------------|
| Arsenic | 0.05 ^a | 0855 | 0.20 |
| Molybdenum | 0.10 ^a | 0201 | 1.4 |
| | | 0217 | 1.3 |
| | | 0590 | 1.0 |
| | | 0635 | 0.41 |
| | | 0658 | 0.68 |
| | | 0659 | 1.2 |
| | | 0664 | 0.22 |
| | | 0669 | 0.53 |
| | | 0670 | 0.18 |
| | | 0855 | 0.52 |
| Nitrate + Nitrite as Nitrogen | 10 ^a | 0170 | 11 |
| | | 0201 | 48 |
| | | 0590 | 34 |
| | | 0620 | 24 |
| | | 0659 | 18 |
| Selenium | 0.041 ^b | 0658 | 0.79 |
| | | 0659 | 0.11 |
| | | 0664 | 0.14 |
| | | 0670 | 0.31 |
| | | 0855 | 0.69 |
| Uranium | 0.067 ^b | 0172 | 0.067 |
| | | 0201 | 0.090 |
| | | 0217 | 0.13 |
| | | 0590 | 0.073 |
| | | 0659 | 0.090 |
| | | 0669 | 0.091 |
| 0670 | 0.075 | | |
| Vanadium | Not Applicable | ---- | ---- |


^a U.S. Environmental Protection Agency groundwater standards (40 CFR 192)

^b Maximum background value, cleanup goal
mg/L = milligrams per liter

Table 2. Old Rifle Monitoring Wells with Contaminant Concentrations that Exceed Benchmarks

| Analyte | Benchmark (mg/L) | Location | Concentration (mg/L) |
|----------|--------------------|----------|----------------------|
| Selenium | 0.05 ^a | 0743-1 | 0.075 |
| | | 0743-2 | 0.081 |
| Uranium | 0.044 ^b | 0304 | 0.045 |
| | | 0310 | 0.17 |
| | | 0655 | 0.096 |
| | | 0656 | 0.19 |
| | | 0743-1 | 0.42 |
| | | 0743-2 | 0.21 |
| | | 0743-3 | 0.16 |
| | | 0744-1 | 0.071 |
| | | 0744-2 | 0.21 |
| | | 0744-3 | 0.13 |
| | | 0745 | 0.051 |
| | | 0746 | 0.31 |
| Vanadium | 0.33 ^c | 0742-2 | 0.39 |
| | | 0742-3 | 0.39 |
| | | 0743-2 | 2.7 |
| | | 0743-3 | 2.1 |

^a U.S. Environmental Protection Agency Safe Drinking Water Act standard and approved alternate concentration limit
^b U.S. Environmental Protection Agency groundwater standards (40 CFR 192)
^c Risk-based concentration
 mg/L = milligrams per liter


 Richard Dayvault
 Site Lead, S. M. Stoller Corporation

Date 9/2/2013

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Sample Location Map, New Rifle, Colorado, Processing Site



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Sample Location Map, Old Rifle, Colorado, Processing Site

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

| | | | |
|--------------------------------|--|----------------------------------|-------------------------|
| Project | <u>Old and New Rifle, Colorado, Processing Sites</u> | Date(s) of Water Sampling | <u>June 10-12, 2013</u> |
| Date(s) of Verification | <u>August 8, 2013</u> | Name of Verifier | <u>Gretchen Baer</u> |

| | Response (Yes, No, NA) | Comments |
|--|---------------------------|---|
| 1. Is the SAP the primary document directing field procedures? List any Program Directives or other documents, SOPs, instructions. | Yes | Work Order letter dated May 13, 2013. Surface water location RFN01 0453 was dry. RFN01 wells 0745, 0746, and 0747, which were not listed in the notification letter, were sampled. |
| 2. Were the sampling locations specified in the planning documents sampled? | No | |
| 3. Were calibrations conducted as specified in the above-named documents? | Yes | |
| 4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria? | Yes Yes | |
| 5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified? | No | An alkalinity and a turbidity measurement were inadvertently not recorded. |
| 6. Were wells categorized correctly? | No | A Cat I location was miscategorized as Cat II. (It was sampled correctly as CAT I.) |
| 7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling? Did the water level stabilize prior to sampling? Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling? Was the flow rate less than 500 mL/min? | Yes Yes No Yes | The specific conductivity did not stabilize at well 0195. Associated results have been qualified. |

Water Sampling Field Activities Verification Checklist (continued)

| | Response (Yes, No, NA) | Comments |
|--|---------------------------|---|
| 8. Were the following conditions met when purging a Category II well: | | |
| Was the flow rate less than 500 mL/min? | Yes | |
| Was one pump/tubing volume removed prior to sampling? | Yes | |
| 9. Were duplicates taken at a frequency of one per 20 samples? | Yes | |
| 10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment? | Yes | |
| 11. Were trip blanks prepared and included with each shipment of VOC samples? | NA | |
| 12. Were the true identities of the QC samples documented? | Yes | |
| 13. Were samples collected in the containers specified? | Yes | |
| 14. Were samples filtered and preserved as specified? | Yes | |
| 15. Were the number and types of samples collected as specified? | Yes | |
| 16. Were chain of custody records completed and was sample custody maintained? | Yes | |
| 17. Was all pertinent information documented on the field data sheets? | No | The measurement equipment was not listed. |
| 18. Was the presence or absence of ice in the cooler documented at every sample location? | No | The presence of ice was inadvertently not documented at a location. |
| 19. Were water levels measured at the locations specified in the planning documents? | Yes | Water levels were measured at each sampled monitoring well. |

Laboratory Performance Assessment

General Information

Report Number (RIN): 13065380
 Sample Event: June 10-12, 2013
 Site(s): Rifle Processing Sites, Colorado
 Laboratory: ALS Laboratory Group, Fort Collins, Colorado
 Work Order No.: 1306227
 Analysis: Metals and Wet Chemistry
 Validator: Gretchen Baer
 Review Date: August 8, 2013

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated), "Standard Practice for Validation of Environmental Data." The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 3.

Table 3. Analytes and Methods

| Analyte | Line Item Code | Prep Method | Analytical Method |
|--|----------------|--------------|-------------------|
| Ammonia as N | WCH-A-005 | EPA 350.2 | EPA 350.1 |
| Arsenic, Molybdenum, Selenium, Uranium, Vanadium | LMM-02 | SW-846 3005A | SW-846 6020 |
| Nitrate + Nitrite as N | WCH-A-022 | EPA 353.2 | EPA 353.2 |
| Uranium Isotopes | LMR-02 | SOP 776 | SOP 778 |

Data Qualifier Summary

Analytical results were qualified as listed in Table 4. Refer to the sections below for an explanation of the data qualifiers applied.

Table 4. Data Qualifier Summary

| Sample Number | Location | Analyte(s) | Flag | Reason |
|---------------|----------|----------------------|------|--|
| 1306227-1 | 0169 | Ammonia as N | J | Matrix spike has negative bias |
| 1306227-1 | 0169 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-1 | 0169 | Vanadium | J | Serial dilution has positive bias |
| 1306227-2 | 0170 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-3 | 0172 | Selenium | J | Reporting limit verification < 70% |
| 1306227-4 | 0195 | Selenium | J | Reporting limit verification < 70% |
| 1306227-4 | 0195 | Specific Conductance | J | Purge criteria not met during sampling |
| 1306227-5 | 0201 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-6 | 0215 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-7 | 0216 | Selenium | J | Reporting limit verification < 70% |

Table 4 (continued). Data Qualifier Summary

| Sample Number | Location | Analyte(s) | Flag | Reason |
|---------------|-----------------|------------|------|---------------------------------------|
| 1306227-10 | 0322 | Arsenic | J | Less than 5 times the equipment blank |
| 1306227-10 | 0322 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-10 | 0322 | Molybdenum | J | Less than 5 times the equipment blank |
| 1306227-10 | 0322 | Selenium | J | Reporting limit verification < 70% |
| 1306227-10 | 0322 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-11 | 0323 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-12 | 0324 | Arsenic | J | Less than 5 times the equipment blank |
| 1306227-12 | 0324 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-12 | 0324 | Molybdenum | J | Less than 5 times the equipment blank |
| 1306227-12 | 0324 | Selenium | J | Reporting limit verification < 70% |
| 1306227-12 | 0324 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-14 | 0575 | Selenium | J | Reporting limit verification < 70% |
| 1306227-14 | 0575 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-16 | 0620 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-17 | 0635 | Arsenic | J | Reporting limit verification > 130% |
| 1306227-24 | Equipment Blank | Arsenic | J | Reporting limit verification > 130% |
| 1306227-24 | Equipment Blank | Selenium | J | Reporting limit verification < 70% |
| 1306227-26 | 0575 Duplicate | Selenium | J | Reporting limit verification < 70% |
| 1306227-28 | 0294 | Selenium | J | Reporting limit verification < 70% |
| 1306227-28 | 0294 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-31 | 0309 | Selenium | J | Reporting limit verification < 70% |
| 1306227-32 | 0310 | Selenium | J | Reporting limit verification < 70% |
| 1306227-33 | 0395 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-34 | 0396 | Selenium | J | Reporting limit verification < 70% |
| 1306227-34 | 0396 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-39 | 0741 | Selenium | J | Reporting limit verification < 70% |
| 1306227-39 | 0741 | Vanadium | J | Less than 5 times the equipment blank |
| 1306227-48 | 0744-3 | Selenium | J | Reporting limit verification < 70% |
| 1306227-51 | 0747 | Selenium | J | Reporting limit verification < 70% |
| 1306227-52 | 0310 Duplicate | Selenium | J | Reporting limit verification < 70% |

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 53 water samples on June 14, 2013, accompanied a Chain of Custody form. The Chain of Custody form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The receiving documentation included copies of the air bills. The Chain of Custody form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 2.2 °C, which complies with requirements. All samples were received in the correct container types and

had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

The method detection limit (MDL) was reported for all analytes as required. The MDL, as defined in 40 CFR 136, is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The practical quantitation limit (PQL) for these analytes is the lowest concentration that can be reliably measured, and is defined as 5 times the MDL. The reported MDLs for all analytes demonstrate compliance with contractual requirements.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

Method EPA 350.1 Ammonia as N

Calibrations for ammonia as N were performed using six calibration standards on June 25, 2013. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

Method EPA 353.2 Nitrite + Nitrate as N

Calibrations for nitrate + nitrite as N were performed using seven calibration standards on June 27, 2013. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

Method SW-846 6020 Arsenic, Molybdenum, Selenium, Uranium, Vanadium

Calibrations were performed on June 24 and 26, 2013, using two calibration standards. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. All check results were within the acceptance range of 70 percent to 130 percent recovery with the exception of arsenic and selenium analyzed on June 26, 2013. This indicates a higher degree of uncertainty in measuring arsenic and selenium at low concentrations and the associated sample results less than 5 times the PQL are qualified with a "J" flag as estimated values. Mass calibration and resolution verifications were performed at the beginning of each analytical run in

accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs. In cases where a blank concentration exceeds the MDL, the associated sample results were greater than 5 times the blank concentration.

Inductively Coupled Plasma Interference Check Sample Analysis

Interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike results met the recovery and precision criteria for all analytes evaluated with the following exception. A spike recovery for ammonia as N was below the acceptance range with a negative bias of about 26 percent. There is no evidence of systematic matrix interference; the sample result associated with the failed spike results is qualified with a "J" flag as an estimated value.

Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The relative percent difference for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. All replicate results met these criteria, demonstrating acceptable precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with one exception. A serial dilution for vanadium did not meet the acceptance criteria with a positive bias of 16 percent. The associated result is qualified with a "J" flag as an estimated value.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Electronic Data Deliverable (EDD) File

The EDD file arrived on July 1, 2013. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM
General Data Validation Report

RIN: 13065380 Lab Code: PAR Validator: Gretchen Baer Validation Date: 8/5/2013
Project: Rifle Disposal/Processing Site (old/new) Analysis Type: Metals General Chem Rad Organics
of Samples: 53 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

- Holding Times
- Detection Limits
- Field/Trip Blanks
- Field Duplicates

All analyses were completed within the applicable holding times.

The reported detection limits are equal to or below contract requirements.

There was 1 trip/equipment blank evaluated.

There were 4 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

RIN: 13065380Lab Code: PARDate Due: 7/12/2013Matrix: WaterSite Code: RFL01Date Completed: 7/3/2013

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|------------|-------------|---------------|-------------|-----|-----|-----|--------------|--------|-------|--------|----------|----------|----------------|--------|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Arsenic | ICP/MS | 06/24/2013 | | | OK | OK | OK | 90.0 | 91.0 | 92.0 | 1.0 | 100.0 | | 106.0 |
| Arsenic | ICP/MS | 06/24/2013 | | | | | OK | 92.0 | | | | 100.0 | | |
| Arsenic | ICP/MS | 06/26/2013 | | | OK | OK | | | 103.0 | 108.0 | 4.0 | | | 160.0 |
| Molybdenum | ICP/MS | 06/24/2013 | | | OK | OK | OK | 94.0 | 110.0 | 112.0 | 0.0 | 90.0 | 4.0 | 96.0 |
| Molybdenum | ICP/MS | 06/24/2013 | | | | | OK | 90.0 | | | | 100.0 | 6.0 | |
| Molybdenum | ICP/MS | 06/26/2013 | | | OK | OK | | | 105.0 | 105.0 | 0.0 | | | 101.0 |
| Selenium | ICP/MS | 06/24/2013 | | | OK | OK | OK | 103.0 | 98.0 | 97.0 | 1.0 | 101.0 | 9.0 | 106.0 |
| Selenium | ICP/MS | 06/24/2013 | | | | | OK | 96.0 | 103.0 | 103.0 | 0.0 | 101.0 | | |
| Selenium | ICP/MS | 06/24/2013 | | | | | OK | 98.0 | | | | | 4.0 | |
| Selenium | ICP/MS | 06/26/2013 | | | OK | OK | | | 102.0 | 100.0 | 2.0 | | | 69.0 |
| Uranium | ICP/MS | 06/24/2013 | | | OK | OK | OK | 106.0 | 113.0 | 119.0 | 1.0 | 103.0 | 2.0 | 95.0 |
| Uranium | ICP/MS | 06/24/2013 | | | | | OK | 100.0 | 116.0 | 117.0 | 0.0 | 103.0 | 1.0 | |
| Uranium | ICP/MS | 06/24/2013 | | | | | OK | 103.0 | | | | | 2.0 | |
| Uranium | ICP/MS | 06/26/2013 | | | OK | OK | | | 102.0 | 98.0 | 1.0 | | | 100.0 |
| Vanadium | ICP/MS | 06/24/2013 | | | OK | OK | OK | 95.0 | 111.0 | 117.0 | 0.0 | 97.0 | 16.0 | 98.0 |
| Vanadium | ICP/MS | 06/24/2013 | | | | | OK | 89.0 | 102.0 | 105.0 | 1.0 | 103.0 | 1.0 | |
| Vanadium | ICP/MS | 06/24/2013 | | | | | OK | 90.0 | | | | | 0.0 | |

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 13065380

Lab Code: PAR

Date Due: 7/12/2013

Matrix: Water

Site Code: RFL01

Date Completed: 7/3/2013

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|----------|-------------|---------------|-------------|-----|-----|-----|--------------|--------|-------|--------|----------|----------|----------------|--------|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Vanadium | ICP/MS | 06/26/2013 | | | OK | OK | | 106.0 | 106.0 | 0.0 | | | 101.0 | |

SAMPLE MANAGEMENT SYSTEM
Wet Chemistry Data Validation Worksheet

RIN: 13065380

Lab Code: PARDate Due: 7/12/2013Matrix: WaterSite Code: RFL01Date Completed: 7/3/2013

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|----------------------|---------------|-------------|--------|-----|-----|-----------------|-----------|----------|-----------|------------|-------------------|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| AMMONIA AS N | 06/25/2013 | -0.010 | 0.9999 | OK | OK | OK | 94 | 76 | 74 | 3 | |
| AMMONIA AS N | 06/25/2013 | | | OK | OK | OK | 95 | 87 | 84 | 1 | |
| Nitrate+Nitrite as N | 06/27/2013 | 0.000 | 0.9998 | OK | OK | OK | 104 | 105 | 106 | 1 | |
| Nitrate+Nitrite as N | 06/27/2013 | | | OK | OK | OK | 103 | 101 | 100 | 1 | |

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Sample results for all monitoring wells were qualified with an “F” flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. All wells met the Category I criteria with the following exceptions: Wells RFN01-0669 and -0670 were classified as Category II. The sample results for these wells were qualified with a “Q” flag, indicating the data are qualitative because of the sampling technique.

The specific conductance criterion was not met for well 0195. The associated result from this well is qualified with a “J” flag (estimated) because the purging criteria were not met.

Equipment Blank Assessment

An equipment blank was collected after decontamination of the tubing reel used to collect some surface water samples. Arsenic, molybdenum, selenium, uranium, and vanadium were detected in this blank. Sample results that are less than 5 times the equipment blank concentration are qualified with a “J” flag (estimated).

Field Duplicate Analysis

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from locations RFO01-0310, RFN01-0590, RFN01-0575, and RFO01-0743-3. The relative percent difference (RPD) for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results (RPD is ‘NA’ on the Field Duplicates report), the range should be no greater than the PQL. With one exception, the duplicate results met the criteria, demonstrating acceptable overall precision. The selenium duplicate results at location 0590 were slightly above the criterion, with an RPD of 21 percent. During the review of the duplicate data, there were no analytical errors identified and sampling difficulties were not reported on the field data sheet. For this selenium result, the precision observed may be attributed to the complex sample matrix that required sample dilution prior to analysis for all analytes. The duplicate results are acceptable as qualified.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

RIN: 13065380 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 8/5/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-------|-------|
| Equipment Blank | 1306227-24 | SW6020 | Arsenic | 0.17 | | 0.015 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-10 | LHV 775 | 0322 | 0.37 | 1 | | J |
| 1306227-11 | LHV 750 | 0323 | 1.5 | 10 | | |
| 1306227-12 | LHV 751 | 0324 | 0.31 | 1 | | J |
| 1306227-13 | LHV 776 | 0452 | 15 | 5 | | |
| 1306227-14 | LHV 752 | 0575 | 2.4 | 1 | | |
| 1306227-9 | LHV 774 | 0320 | 3.4 | 5 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-------|-------|
| Equipment Blank | 1306227-24 | SW6020 | Molybdenum | 0.42 | | 0.032 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-10 | LHV 775 | 0322 | 1.3 | 1 | | J |
| 1306227-11 | LHV 750 | 0323 | 2700 | 10 | | |
| 1306227-12 | LHV 751 | 0324 | 1.2 | 1 | | J |
| 1306227-13 | LHV 776 | 0452 | 10000 | 5 | | |
| 1306227-14 | LHV 752 | 0575 | 630 | 1 | | |
| 1306227-9 | LHV 774 | 0320 | 1300 | 5 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-------|-------|
| Equipment Blank | 1306227-24 | SW6020 | Selenium | 0.042 | B | 0.032 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-10 | LHV 775 | 0322 | 0.3 | 1 | | |
| 1306227-11 | LHV 750 | 0323 | 6 | 10 | | |
| 1306227-12 | LHV 751 | 0324 | 0.29 | 1 | | |
| 1306227-13 | LHV 776 | 0452 | 21 | 5 | | |
| 1306227-14 | LHV 752 | 0575 | 0.42 | 1 | | |
| 1306227-28 | LHV 762 | 0294 | 0.29 | 1 | | |
| 1306227-33 | LHV 763 | 0395 | 3.5 | 1 | | |
| 1306227-34 | LHV 764 | 0396 | 0.33 | 1 | | |

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

RIN: 13065380 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 8/5/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1306227-24 | | Selenium | | | | |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-39 | LHV 766 | 0741 | 0.24 | 1 | | |
| 1306227-9 | LHV 774 | 0320 | 11 | 5 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|--------|-------|
| Equipment Blank | 1306227-24 | SW6020 | Uranium | 0.051 | | 0.0029 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-10 | LHV 775 | 0322 | 0.86 | 1 | | |
| 1306227-11 | LHV 750 | 0323 | 310 | 10 | | |
| 1306227-12 | LHV 751 | 0324 | 0.82 | 1 | | |
| 1306227-13 | LHV 776 | 0452 | 250 | 5 | | |
| 1306227-14 | LHV 752 | 0575 | 87 | 1 | | |
| 1306227-28 | LHV 762 | 0294 | 0.89 | 1 | | |
| 1306227-33 | LHV 763 | 0395 | 24 | 1 | | |
| 1306227-34 | LHV 764 | 0396 | 0.88 | 1 | | |
| 1306227-39 | LHV 766 | 0741 | 0.86 | 1 | | |
| 1306227-9 | LHV 774 | 0320 | 160 | 5 | | |

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-------|-------|
| Equipment Blank | 1306227-24 | SW6020 | Vanadium | 6.4 | | 0.015 | UG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-10 | LHV 775 | 0322 | 1.1 | 1 | | J |
| 1306227-11 | LHV 750 | 0323 | 4.5 | 10 | | J |
| 1306227-12 | LHV 751 | 0324 | 4.2 | 1 | | J |
| 1306227-13 | LHV 776 | 0452 | 1200 | 5 | | |
| 1306227-14 | LHV 752 | 0575 | 1.8 | 1 | | J |
| 1306227-28 | LHV 762 | 0294 | 0.51 | 1 | | J |
| 1306227-33 | LHV 763 | 0395 | 1.4 | 1 | | J |
| 1306227-34 | LHV 764 | 0396 | 0.56 | 1 | | J |

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

Page 3 of 3

RIN: 13065380 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 8/5/2013

Blank Data

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|-----------------|---------------|------------|--------------|--------|-----------|-----|-------|
| Equipment Blank | 1306227-24 | | Vanadium | | | | |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|------------|---------------|----------|--------|-----------------|---------------|----------------------|
| 1306227-39 | LHV 766 | 0741 | 0.58 | 1 | | J |
| 1306227-9 | LHV 774 | 0320 | 44 | 5 | | |

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

Page 1 of 1

RIN: 13065380 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 8/5/2013

Duplicate: 2237 Sample: 0310

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|----------|--------|------|-------|----------|-----------|------|-------|----------|-------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| Selenium | 0.27 | | | 1 | 0.34 | | | 1 | NA | | UG/L |
| Uranium | 170 | | | 50 | 180 | | | 5 | 5.71 | | UG/L |
| Vanadium | 9.6 | | | 1 | 8.2 | | | 5 | 15.73 | | UG/L |

Duplicate: 2505 Sample: 0743-3

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|----------|--------|------|-------|----------|-----------|------|-------|----------|------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| Selenium | 14 | | | 50 | 13 | | | 10 | 7.41 | | UG/L |
| Uranium | 160 | | | 50 | 170 | | | 10 | 6.06 | | UG/L |
| Vanadium | 2100 | | | 50 | 2200 | | | 10 | 4.65 | | UG/L |

Duplicate: 2948 Sample: 0590

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|----------------------|--------|------|-------|----------|-----------|------|-------|----------|-------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| AMMONIA AS N | 160 | | | 50 | 160 | | | 50 | 0 | | MG/L |
| Arsenic | 0.82 | | | 5 | 0.95 | | | 1 | 14.69 | | UG/L |
| Molybdenum | 1000 | | | 5 | 930 | | | 100 | 7.25 | | UG/L |
| Nitrate+Nitrite as N | 34 | | | 50 | 34 | | | 50 | 0 | | MG/L |
| Selenium | 26 | | | 5 | 32 | | | 1 | 20.69 | | UG/L |
| Uranium | 73 | | | 5 | 71 | | | 100 | 2.78 | | UG/L |
| Vanadium | 350 | | | 5 | 360 | | | 100 | 2.82 | | UG/L |

Duplicate: 2949 Sample: 0575

| Analyte | Sample | | | | Duplicate | | | | RPD | RER | Units |
|----------------------|--------|------|-------|----------|-----------|------|-------|----------|------|-----|-------|
| | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | | | |
| AMMONIA AS N | 0.11 | | | 1 | 0.13 | | | 1 | | | MG/L |
| Arsenic | 2.4 | | | 1 | 2.4 | | | 1 | 0 | | UG/L |
| Molybdenum | 630 | | | 1 | 640 | | | 1 | 1.57 | | UG/L |
| Nitrate+Nitrite as N | 1.5 | | | 1 | 1.6 | | | 2 | 6.45 | | MG/L |
| Selenium | 0.42 | | | 1 | 0.46 | | | 1 | 9.09 | | UG/L |
| Uranium | 87 | | | 1 | 86 | | | 1 | 1.16 | | UG/L |
| Vanadium | 1.8 | | | 1 | 1.8 | | | 1 | 0 | | UG/L |

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Stephen Donovan 8-27-2013
Stephen Donovan Date

Data Validation Lead: Gretchen Baer 8-27-2013
Gretchen Baer Date

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Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in the environmental database. The application compares the new data set (in standard environmental database units) with historical data and lists the new data that fall outside the historical data range. A determination is also made if the data are normally distributed using the Shapiro-Wilk Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition. The review should include an evaluation of any notable trends in the data that may indicate the outliers represent true extreme values.

One result was identified as potentially anomalous. The molybdenum result for location 0452 had a concentration higher than previously observed. The molybdenum analysis was performed concurrently with arsenic, selenium, uranium, and vanadium and none of those results were anomalous, which indicates that an analytical error is unlikely. The laboratory data for this RIN are acceptable as qualified.

There were no anomalies identified during data validation for the previous sampling event (November 2012).

Potential anomalies in the field parameters were also examined for patterns of repeated high or low bias, which suggest a systematic error due to instrument malfunction. No such patterns were found and all field data from this event are acceptable as qualified.

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Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 13065380

Report Date: 8/12/2013

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | | | Historical Maximum | | | Historical Minimum | | | Number of Data Points | | Statistical Outlier |
|-----------|---------------|-----------|-------------|-------------------------------|---------|------------|------|--------------------|------------|------|--------------------|------------|------|-----------------------|----------------|---------------------|
| | | | | | Result | Qualifiers | | Result | Qualifiers | | Result | Qualifiers | | N | N Below Detect | |
| | | | | | | Lab | Data | | Lab | Data | | Lab | Data | | | |
| RFN01 | 0170 | N001 | 06/10/2013 | Selenium | 0.017 | | F | 0.0148 | | F | 0.0029 | B | | 18 | 0 | NA |
| RFN01 | 0201 | N001 | 06/10/2013 | Molybdenum | 1.4 | | F | 3.15 | | | 1.49 | | F | 26 | 0 | No |
| RFN01 | 0216 | N001 | 06/11/2013 | Arsenic | 0.044 | | F | 0.041 | | F | 0.019 | | F | 25 | 0 | No |
| RFN01 | 0216 | N001 | 06/11/2013 | Molybdenum | 0.029 | | F | 0.15 | | F | 0.0345 | | F | 26 | 0 | NA |
| RFN01 | 0322 | 0001 | 06/11/2013 | Molybdenum | 0.0013 | | J | 0.01 | | | 0.002 | U | | 22 | 3 | No |
| RFN01 | 0322 | 0001 | 06/11/2013 | Uranium | 0.00086 | | | 0.003 | | | 0.00098 | | | 22 | 0 | No |
| RFN01 | 0323 | N001 | 06/10/2013 | Nitrate + Nitrite as Nitrogen | 52 | | | 130 | | | 56 | | | 15 | 0 | No |
| RFN01 | 0324 | 0001 | 06/11/2013 | Molybdenum | 0.0012 | | J | 0.0091 | | | 0.002 | | | 15 | 0 | No |
| RFN01 | 0324 | 0001 | 06/11/2013 | Vanadium | 0.0042 | | J | 0.003 | U | | 0.00006 | B | | 15 | 3 | NA |
| RFN01 | 0452 | N001 | 06/10/2013 | Ammonia Total as N | 0.24 | | | 98 | | | 16.9 | | | 11 | 0 | No |
| RFN01 | 0452 | N001 | 06/10/2013 | Molybdenum | 10 | | | 4.3 | | J | 1.17 | | | 12 | 0 | Yes |
| RFN01 | 0590 | N002 | 06/10/2013 | Molybdenum | 0.93 | | F | 3.59 | | | 1 | | F | 37 | 0 | NA |
| RFN01 | 0635 | N001 | 06/11/2013 | Ammonia Total as N | 62 | | F | 210 | | F | 72.5 | | F | 13 | 0 | No |
| RFN01 | 0658 | N001 | 06/11/2013 | Ammonia Total as N | 37 | | F | 180 | | F | 40.2 | | F | 13 | 0 | No |
| RFN01 | 0659 | N001 | 06/11/2013 | Molybdenum | 1.2 | | F | 7.7 | | | 1.6 | | F | 32 | 0 | NA |
| RFN01 | 0664 | N001 | 06/11/2013 | Molybdenum | 0.22 | | F | 0.888 | | | 0.24 | | F | 23 | 0 | No |
| RFN01 | 0664 | N001 | 06/11/2013 | Nitrate + Nitrite as Nitrogen | 1.2 | | F | 20 | | F | 1.6 | | F | 17 | 0 | NA |
| RFN01 | 0669 | N001 | 06/11/2013 | Molybdenum | 0.53 | | FQ | 3.69 | | | 0.76 | | FQ | 20 | 0 | No |
| RFN01 | 0670 | N001 | 06/11/2013 | Nitrate + Nitrite as Nitrogen | 2.8 | | FQ | 55 | | FQ | 2.9 | | LQ | 14 | 0 | NA |

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 13065380

Report Date: 8/12/2013

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | | | Historical Maximum | | | Historical Minimum | | | Number of | | Statistic |
|-----------|---------------|-----------|-------------|------------|---------|------------|------|--------------------|------------|------|--------------------|------------|------|-------------|--------------|-----------|
| | | | | | Result | Qualifiers | | Result | Qualifiers | | Result | Qualifiers | | Data Points | N | |
| | | | | | | Lab | Data | | Lab | Data | | Lab | Data | | Below Detect | Outlier |
| RFN01 | 0855 | N001 | 06/11/2013 | Molybdenum | 0.52 | | F | 18 | | FQ | 0.69 | | F | 21 | 0 | NA |
| RFO01 | 0305 | N001 | 06/11/2013 | Selenium | 0.018 | | F | 0.122 | | | 0.021 | | F | 36 | 0 | NA |
| RFO01 | 0395 | 0001 | 06/12/2013 | Uranium | 0.024 | | | 0.042 | | | 0.025 | | | 12 | 0 | No |
| RFO01 | 0655 | N001 | 06/12/2013 | Vanadium | 0.25 | | F | 0.772 | | | 0.28 | | F | 37 | 0 | NA |
| RFO01 | 0658 | N001 | 06/12/2013 | Uranium | 0.0082 | | F | 0.067 | | FJ | 0.0096 | | F | 27 | 0 | No |

STATISTICAL TESTS:

The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test

Outliers are identified using Dixon's Test when there are 25 or fewer data points.

Outliers are identified using Rosner's Test when there are 26 or more data points.

See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

NA: Data are not normally or lognormally distributed.

Attachment 2
Data Presentation

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**New Rifle
Groundwater Quality Data**

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Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0169 WELL

| Parameter | Units | Sample | | Depth Range | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------|---------|---------|------------|----|---|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | | Data | QA | | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 450 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.1 | UN | JF | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.00046 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.0028 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.13 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 3.13 | - 18.13 | 56.4 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 3.13 | - 18.13 | 7.06 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.0036 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 3.13 | - 18.13 | 1926 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 3.13 | - 18.13 | 15.26 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 3.13 | - 18.13 | 1.27 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.02 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 3.13 | - 18.13 | 0.00087 | E | JF | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0170 WELL Ground elevation was calculated as surveyed TOC elevation minus stick up height reported in the Borehole Summary

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Lab | Qualifiers | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|-----|------------|----|--------------------|-------------|
| | | Date | ID | | | | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 494 | | F | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.18 | | F | # | 0.1 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.00031 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.0038 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 11 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 92.23 - 112.23 | 31.3 | | F | # | | |
| pH | s.u. | 06/10/2013 | N001 | 92.23 - 112.23 | 7.02 | | F | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.017 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/10/2013 | N001 | 92.23 - 112.23 | 3100 | | F | # | | |
| Temperature | C | 06/10/2013 | N001 | 92.23 - 112.23 | 17.4 | | F | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 92.23 - 112.23 | 0.69 | | F | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.062 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 92.23 - 112.23 | 0.0008 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0172 WELL

| Parameter | Units | Sample | | Depth Range | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------|---------|---------|------------|----|---|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | | Data | QA | | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 787 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.0059 | | F | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.0065 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.013 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 6.98 | - 31.98 | -32.9 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 6.98 | - 31.98 | 6.99 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.00021 | | JF | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 6.98 | - 31.98 | 16187 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 6.98 | - 31.98 | 13.39 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 6.98 | - 31.98 | 1.16 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.067 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 6.98 | - 31.98 | 0.00028 | B | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0195 WELL Ground elevation was calculated as surveyed TOC elevation minus stick up height reported in the Borehole Summary

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 384 | | F | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 9.2 | | F | # | 0.5 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.0015 | | F | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.081 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 5.29 - 25.29 | -17.9 | | F | # | | |
| pH | s.u. | 06/10/2013 | N001 | 5.29 - 25.29 | 7.1 | | F | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.00019 | | JF | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/10/2013 | N001 | 5.29 - 25.29 | 1403 | | FJ | # | | |
| Temperature | C | 06/10/2013 | N001 | 5.29 - 25.29 | 14.13 | | F | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 5.29 - 25.29 | 2.2 | | F | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.034 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 5.29 - 25.29 | 0.00038 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0201 WELL Ground elevation was calculated as surveyed TOC elevation minus stick up height reported in the Borehole Summary

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 242 | | F | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 74 | | F | # | 5 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 0.00037 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 1.4 | | F | # | 0.0032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 48 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 7.35 - 22.35 | 209.8 | | F | # | | |
| pH | s.u. | 06/10/2013 | N001 | 7.35 - 22.35 | 6.85 | | F | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 0.0052 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/10/2013 | N001 | 7.35 - 22.35 | 3878 | | F | # | | |
| Temperature | C | 06/10/2013 | N001 | 7.35 - 22.35 | 17.99 | | F | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 7.35 - 22.35 | 2.59 | | F | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 0.09 | | F | # | 0.00029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 7.35 - 22.35 | 0.00062 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0215 WELL Ground elevation was calculated as surveyed TOC elevation minus stick up height reported in the Borehole Summary

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 254 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 1.9 | | F | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.00036 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.01 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 6.84 - 21.84 | 68.8 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 6.84 - 21.84 | 7.29 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.00083 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 6.84 - 21.84 | 1497 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 6.84 - 21.84 | 13.63 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 6.84 - 21.84 | 1.39 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.018 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 6.84 - 21.84 | 0.0018 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0216 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 154 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 5.2 | | F | # | 0.2 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.044 | | F | # | 0.00074 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.029 | | F | # | 0.0016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 5.5 - 20.5 | 89.9 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 5.5 - 20.5 | 7.41 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.00043 | | JF | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/11/2013 | N001 | 5.5 - 20.5 | 1109 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 5.5 - 20.5 | 13.85 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 5.5 - 20.5 | 6.83 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.014 | | F | # | 0.00015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 5.5 - 20.5 | 0.23 | | F | # | 0.00076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0217 WELL Ground elevation was calculated as surveyed TOC elevation minus stick up height reported in the Borehole Summary

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 194 | | F | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 41 | | F | # | 2 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 0.00086 | | F | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 1.3 | | F | # | 0.0032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 1.1 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 7.4 - 22.4 | 193.3 | | F | # | | |
| pH | s.u. | 06/10/2013 | N001 | 7.4 - 22.4 | 6.69 | | F | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 0.013 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/10/2013 | N001 | 7.4 - 22.4 | 3390 | | F | # | | |
| Temperature | C | 06/10/2013 | N001 | 7.4 - 22.4 | 13.69 | | F | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 7.4 - 22.4 | 3.06 | | F | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 0.13 | | F | # | 0.00029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 7.4 - 22.4 | 1.8 | | F | # | 0.0015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0590 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 240 | | F | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 160 | | F | # | 5 | |
| Ammonia Total as N | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 160 | | F | # | 5 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 0.00082 | | F | # | 0.000074 | |
| Arsenic | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 0.00095 | | F | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 1 | | F | # | 0.00016 | |
| Molybdenum | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 0.93 | | F | # | 0.0032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 34 | | F | # | 0.5 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 34 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 5.21 - 19.21 | 220.9 | | F | # | | |
| pH | s.u. | 06/10/2013 | N001 | 5.21 - 19.21 | 6.74 | | F | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 0.026 | | F | # | 0.00016 | |
| Selenium | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 0.032 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/10/2013 | N001 | 5.21 - 19.21 | 5320 | | F | # | | |
| Temperature | C | 06/10/2013 | N001 | 5.21 - 19.21 | 14.61 | | F | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 5.21 - 19.21 | 3.65 | | F | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 0.073 | | F | # | 0.000015 | |
| Uranium | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 0.071 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 5.21 - 19.21 | 0.35 | | F | # | 0.000076 | |
| Vanadium | mg/L | 06/10/2013 | N002 | 5.21 - 19.21 | 0.36 | | F | # | 0.0015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0620 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 484 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.00049 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.0083 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 24 | | F | # | 0.2 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 6.7 - 10.7 | 9.9 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 6.7 - 10.7 | 7.05 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.019 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 6.7 - 10.7 | 6619 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 6.7 - 10.7 | 13.71 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 6.7 - 10.7 | 1.79 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.06 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 6.7 - 10.7 | 0.0015 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0635 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 12 - 17 | 286 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 12 - 17 | 62 | | F | # | 5 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 12 - 17 | 0.00022 | | JF | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 12 - 17 | 0.41 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 12 - 17 | 8.4 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 12 - 17 | 180.5 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 12 - 17 | 6.95 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 12 - 17 | 0.0034 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/11/2013 | N001 | 12 - 17 | 2621 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 12 - 17 | 14.13 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 12 - 17 | 3.2 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 12 - 17 | 0.052 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 12 - 17 | 0.00056 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site
 REPORT DATE: 8/13/2013
 Location: 0658 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|---------|--------------------|-------------|
| | | Date | ID | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 268 | | F # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 37 | | F # | 2 | |
| Arsenic | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 0.048 | | F # | 0.0015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 0.68 | | F # | 0.0032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 2.2 | | F # | 0.05 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | .5 - 5.5 | 169 | | F # | | |
| pH | s.u. | 06/11/2013 | N001 | .5 - 5.5 | 6.92 | | F # | | |
| Selenium | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 0.79 | | F # | 0.0032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | .5 - 5.5 | 2721 | | F # | | |
| Temperature | C | 06/11/2013 | N001 | .5 - 5.5 | 14.21 | | F # | | |
| Turbidity | NTU | 06/11/2013 | N001 | .5 - 5.5 | 2.86 | | F # | | |
| Uranium | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 0.054 | | F # | 0.00029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | .5 - 5.5 | 19 | | F # | 0.0015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0659 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 193 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 28 | | F | # | 2 | |
| Arsenic | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 0.034 | | F | # | 0.00074 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 1.2 | | F | # | 0.0016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 18 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | .5 - 10.5 | 166 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | .5 - 10.5 | 7.02 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 0.11 | | F | # | 0.0016 | |
| Specific Conductance | umhos /cm | 06/11/2013 | N001 | .5 - 10.5 | 3345 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | .5 - 10.5 | 17.52 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | .5 - 10.5 | 2.93 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 0.09 | | F | # | 0.00015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | .5 - 10.5 | 2.2 | | F | # | 0.00076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site
 REPORT DATE: 8/13/2013
 Location: 0664 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 397 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 31 | | F | # | 2 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 0.004 | | F | # | 0.000074 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 0.22 | | F | # | 0.00016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 1.2 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 7.7 - 14.7 | 164.3 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 7.7 - 14.7 | 7.02 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 0.14 | | F | # | 0.00016 | |
| Specific Conductance | umhos /cm | 06/11/2013 | N001 | 7.7 - 14.7 | 2251 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 7.7 - 14.7 | 13.39 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 7.7 - 14.7 | 8.81 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 0.057 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 7.7 - 14.7 | 2.3 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0669 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 378 | | FQ | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 63 | | FQ | # | 2 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 0.0038 | B | FQ | # | 0.00074 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 0.53 | | FQ | # | 0.0016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 3.8 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 4 - 10.6 | 176.5 | | FQ | # | | |
| pH | s.u. | 06/11/2013 | N001 | 4 - 10.6 | 6.93 | | FQ | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 0.0072 | | FQ | # | 0.0016 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 4 - 10.6 | 2660 | | FQ | # | | |
| Temperature | C | 06/11/2013 | N001 | 4 - 10.6 | 15.22 | | FQ | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 4 - 10.6 | 2.86 | | FQ | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 0.091 | | FQ | # | 0.00015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 4 - 10.6 | 1.7 | | FQ | # | 0.00076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site
 REPORT DATE: 8/13/2013
 Location: 0670 WELL For Organics Study.

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|---------|--------------------|-------------|
| | | Date | ID | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 382 | | FQ # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 14 | | FQ # | 1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 0.0039 | | FQ # | 0.00015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 0.18 | | FQ # | 0.00032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 2.8 | | FQ # | 0.05 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 5.2 - 12.2 | 137.2 | | FQ # | | |
| pH | s.u. | 06/11/2013 | N001 | 5.2 - 12.2 | 6.99 | | FQ # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 0.31 | | FQ # | 0.00032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 5.2 - 12.2 | 2196 | | FQ # | | |
| Temperature | C | 06/11/2013 | N001 | 5.2 - 12.2 | 14 | | FQ # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 5.2 - 12.2 | 2.19 | | FQ # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 0.075 | | FQ # | 0.000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 5.2 - 12.2 | 1.8 | | FQ # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0855 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 6 - 11 | 281 | | F | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 6 - 11 | 28 | | F | # | 1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 6 - 11 | 0.2 | | F | # | 0.0015 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 6 - 11 | 0.52 | | F | # | 0.0032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 6 - 11 | 3.4 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 6 - 11 | 163.9 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 6 - 11 | 6.92 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 6 - 11 | 0.69 | | F | # | 0.0032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 6 - 11 | 2257 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 6 - 11 | 16.56 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 6 - 11 | 1.5 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 6 - 11 | 0.04 | | F | # | 0.00029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 6 - 11 | 12 | | F | # | 0.0015 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: 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
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined 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. | 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.

**Old Rifle
Groundwater Quality Data**

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Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0292A WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 10.5 - 20.5 | 466 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 10.5 - 20.5 | 43.9 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 10.5 - 20.5 | 7.16 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 10.5 - 20.5 | 0.00051 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 10.5 - 20.5 | 1794 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 10.5 - 20.5 | 12.64 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 10.5 - 20.5 | 5.1 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 10.5 - 20.5 | 0.023 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 10.5 - 20.5 | 0.0005 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0304 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 13.2 - 18.2 | 268 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 13.2 - 18.2 | -20.7 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 13.2 - 18.2 | 7.22 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 13.2 - 18.2 | 0.0012 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 13.2 - 18.2 | 1913 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 13.2 - 18.2 | 13.13 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 13.2 - 18.2 | 8.37 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 13.2 - 18.2 | 0.045 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 13.2 - 18.2 | 0.03 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0305 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 13.76 - 18.76 | 288 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 13.76 - 18.76 | 20.1 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 13.76 - 18.76 | 7.31 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 13.76 - 18.76 | 0.018 | | F | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 13.76 - 18.76 | 1877 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 13.76 - 18.76 | 13.22 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 13.76 - 18.76 | 1.31 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 13.76 - 18.76 | 0.04 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 13.76 - 18.76 | 0.28 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0309 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 16.93 - 21.93 | 379 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 16.93 - 21.93 | -7.7 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 16.93 - 21.93 | 7.15 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 16.93 - 21.93 | 0.00014 | | JF | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 16.93 - 21.93 | 2238 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 16.93 - 21.93 | 13.29 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 16.93 - 21.93 | 3.23 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 16.93 - 21.93 | 0.024 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 16.93 - 21.93 | 0.00022 | B | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0310 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 17.93 - 22.93 | 486 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 17.93 - 22.93 | -14.9 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | 17.93 - 22.93 | 7.04 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 17.93 - 22.93 | 0.00027 | | JF | # | 0.000032 | |
| Selenium | mg/L | 06/11/2013 | N002 | 17.93 - 22.93 | 0.00034 | | JF | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 17.93 - 22.93 | 2194 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | 17.93 - 22.93 | 13.28 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 17.93 - 22.93 | 2.62 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 17.93 - 22.93 | 0.17 | | F | # | 0.00015 | |
| Uranium | mg/L | 06/11/2013 | N002 | 17.93 - 22.93 | 0.18 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 17.93 - 22.93 | 0.0096 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/11/2013 | N002 | 17.93 - 22.93 | 0.0082 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0655 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 13.6 - 23.6 | 480 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 13.6 - 23.6 | 50.7 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 13.6 - 23.6 | 7.12 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 13.6 - 23.6 | 0.022 | | F | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 13.6 - 23.6 | 2151 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 13.6 - 23.6 | 12.76 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 13.6 - 23.6 | 1.22 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 13.6 - 23.6 | 0.096 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 13.6 - 23.6 | 0.25 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0656 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 6.35 - 21.35 | 343 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 6.35 - 21.35 | 88.1 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 6.35 - 21.35 | 7.13 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 6.35 - 21.35 | 0.0052 | | F | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 6.35 - 21.35 | 2008 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 6.35 - 21.35 | 15.21 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 6.35 - 21.35 | 3.28 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 6.35 - 21.35 | 0.19 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 6.35 - 21.35 | 0.024 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0658 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 2.3 - 17.3 | 268 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 2.3 - 17.3 | 29.1 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 2.3 - 17.3 | 7.2 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 2.3 - 17.3 | 0.0018 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 2.3 - 17.3 | 1293 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 2.3 - 17.3 | 10.94 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 2.3 - 17.3 | 4.97 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 2.3 - 17.3 | 0.0082 | | F | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 2.3 - 17.3 | 0.00067 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0742-1 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|---------|--------------------|-------------|
| | | Date | ID | | | Lab | Data QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 10.05 - 10.55 | 543 | | F # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 10.05 - 10.55 | 55.1 | | F # | | |
| pH | s.u. | 06/12/2013 | N001 | 10.05 - 10.55 | 7.05 | | F # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 10.05 - 10.55 | 0.00071 | | F # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 10.05 - 10.55 | 1869 | | F # | | |
| Temperature | C | 06/12/2013 | N001 | 10.05 - 10.55 | 15.96 | | F # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 10.05 - 10.55 | 4.97 | | F # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 10.05 - 10.55 | 0.015 | | F # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 10.05 - 10.55 | 0.1 | | F # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0742-2 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 14.05 - 14.55 | 277 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 14.05 - 14.55 | 68.5 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 14.05 - 14.55 | 7.25 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 14.05 - 14.55 | 0.014 | | F | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 14.05 - 14.55 | 1894 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 14.05 - 14.55 | 14.73 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 14.05 - 14.55 | 2.56 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 14.05 - 14.55 | 0.032 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 14.05 - 14.55 | 0.39 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0742-3 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 18.05 - 18.55 | 214 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 18.05 - 18.55 | 73.6 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 18.05 - 18.55 | 7.44 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 18.05 - 18.55 | 0.018 | | F | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 18.05 - 18.55 | 1659 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 18.05 - 18.55 | 13.07 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 18.05 - 18.55 | 3 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 18.05 - 18.55 | 0.025 | | F | # | 0.000015 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 18.05 - 18.55 | 0.39 | | F | # | 0.000076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0743-1 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 8.2 - 8.7 | 464 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 8.2 - 8.7 | -29.7 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 8.2 - 8.7 | 6.86 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 8.2 - 8.7 | 0.075 | | F | # | 0.00032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 8.2 - 8.7 | 2932 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 8.2 - 8.7 | 15.16 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 8.2 - 8.7 | 2.24 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 8.2 - 8.7 | 0.42 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 8.2 - 8.7 | 0.091 | | F | # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0743-2 WELL

| Parameter | Units | Sample | | Depth Range | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------|-----|--------|------------|----|---|-----------------|-------------|
| | | Date | ID | (Ft BLS) | Lab | | Data | QA | | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | 0.0016 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | 0.00015 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 12.2 | - | 12.7 | | F | # | 0.00076 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0743-3 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 16.2 - 16.7 | 428 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 16.2 - 16.7 | 5.8 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 16.2 - 16.7 | 7.15 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 16.2 - 16.7 | 0.014 | | F | # | 0.0016 | |
| Selenium | mg/L | 06/12/2013 | N002 | 16.2 - 16.7 | 0.013 | | F | # | 0.00032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 16.2 - 16.7 | 2765 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 16.2 - 16.7 | 13.89 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 16.2 - 16.7 | 3.39 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 16.2 - 16.7 | 0.16 | | F | # | 0.00015 | |
| Uranium | mg/L | 06/12/2013 | N002 | 16.2 - 16.7 | 0.17 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 16.2 - 16.7 | 2.1 | | F | # | 0.00076 | |
| Vanadium | mg/L | 06/12/2013 | N002 | 16.2 - 16.7 | 2.2 | | F | # | 0.00015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0744-1 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 11.2 - 11.7 | 565 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 11.2 - 11.7 | -94.1 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 11.2 - 11.7 | 6.91 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 11.2 - 11.7 | 0.00077 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 11.2 - 11.7 | 2701 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 11.2 - 11.7 | 14.06 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 11.2 - 11.7 | 1.03 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 11.2 - 11.7 | 0.071 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 11.2 - 11.7 | 0.0027 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0744-2 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 15.2 - 15.7 | 473 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 15.2 - 15.7 | -40.6 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 15.2 - 15.7 | 7.1 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 15.2 - 15.7 | 0.00056 | | F | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 15.2 - 15.7 | 1917 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 15.2 - 15.7 | 13.53 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 15.2 - 15.7 | 1.12 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 15.2 - 15.7 | 0.21 | | F | # | 0.00029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 15.2 - 15.7 | 0.14 | | F | # | 0.0015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0744-3 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 19.2 - 19.7 | 488 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 19.2 - 19.7 | -59.2 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | 19.2 - 19.7 | 7.19 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 19.2 - 19.7 | 0.00019 | | JF | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 19.2 - 19.7 | 1972 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | 19.2 - 19.7 | 13.88 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 19.2 - 19.7 | 1.55 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 19.2 - 19.7 | 0.13 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 19.2 - 19.7 | 0.0037 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0745 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | - | 296 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | - | 81.8 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | - | 7.15 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | - | 0.013 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/12/2013 | N001 | - | 1788 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | - | 13.47 | | F | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | - | 1.44 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | - | 0.051 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | - | 0.00058 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0746 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|--------------|------------|------|-------------------------|--------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | - | 494 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | - | 26.5 | | F | # | | |
| pH | s.u. | 06/11/2013 | N001 | - | 7.07 | | F | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | - | 0.017 | | F | # | 0.000032 | |
| Specific Conductance | umhos /cm | 06/11/2013 | N001 | - | 3285 | | F | # | | |
| Temperature | C | 06/11/2013 | N001 | - | 14.88 | | F | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | - | 2.35 | | F | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | - | 0.31 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/11/2013 | N001 | - | 0.0035 | | F | # | 0.000015 | |

Groundwater Quality Data by Location (USEE100) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0747 WELL

| Parameter | Units | Sample | | Depth Range (Ft BLS) | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|-------------------------|---------|------------|------|----|--------------------|-------------|
| | | Date | ID | | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | - | 317 | | F | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | - | 15.8 | | F | # | | |
| pH | s.u. | 06/12/2013 | N001 | - | 7.22 | | F | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | - | 0.00047 | | JF | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | - | 1655 | | F | # | | |
| Temperature | C | 06/12/2013 | N001 | - | 14.79 | | F | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | - | 0.042 | | F | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | - | 0.01 | | F | # | 0.000015 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: 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
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

#Validated according to quality assurance guidelines.

**New Rifle
Surface Water Quality Data**

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Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0320 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 174 | | | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | N001 | 49 | | | # | 1 | |
| Arsenic | mg/L | 06/11/2013 | N001 | 0.0034 | | | # | 0.000074 | |
| Molybdenum | mg/L | 06/11/2013 | N001 | 1.3 | | | # | 0.00016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | N001 | 4.7 | | | # | 0.05 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 157.3 | | | # | | |
| pH | s.u. | 06/11/2013 | N001 | 8.05 | | | # | | |
| Selenium | mg/L | 06/11/2013 | N001 | 0.011 | | | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 6794 | | | # | | |
| Temperature | C | 06/11/2013 | N001 | 25.09 | | | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 6.69 | | | # | | |
| Uranium | mg/L | 06/11/2013 | N001 | 0.16 | | | # | 0.000015 | |
| Vanadium | mg/L | 06/11/2013 | N001 | 0.044 | | | # | 0.000076 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0322 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 75 | | | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | 0001 | 0.1 | U | | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | 0001 | 0.00037 | | J | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | 0001 | 0.0013 | | J | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | 0001 | 0.15 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | 102.2 | | | # | | |
| pH | s.u. | 06/11/2013 | N001 | 7.87 | | | # | | |
| Selenium | mg/L | 06/11/2013 | 0001 | 0.0003 | | J | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 327 | | | # | | |
| Temperature | C | 06/11/2013 | N001 | 18.11 | | | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 157 | | | # | | |
| Uranium | mg/L | 06/11/2013 | 0001 | 0.00086 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | 0001 | 0.0011 | | J | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0323 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-------------------------------|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 21 | | | # | 1 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 0.0015 | | | # | 0.00015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 2.7 | | | # | 0.00032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 52 | | | # | 0.5 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 106.4 | | | # | | |
| pH | s.u. | 06/10/2013 | N001 | 8.06 | | | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 0.006 | | | # | 0.00032 | |
| Specific Conductance | umhos/cm | 06/10/2013 | N001 | 7656 | | | # | | |
| Temperature | C | 06/10/2013 | N001 | 23.24 | | | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 2.61 | | | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 0.31 | | | # | 0.000029 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 0.0045 | | J | # | 0.00015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site
 REPORT DATE: 8/13/2013
 Location: 0324 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/11/2013 | N001 | 61 | | | # | | |
| Ammonia Total as N | mg/L | 06/11/2013 | 0001 | 0.1 | U | | # | 0.1 | |
| Arsenic | mg/L | 06/11/2013 | 0001 | 0.00031 | | J | # | 0.000015 | |
| Molybdenum | mg/L | 06/11/2013 | 0001 | 0.0012 | | J | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/11/2013 | 0001 | 0.12 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 06/11/2013 | N001 | -42.8 | | | # | | |
| pH | s.u. | 06/11/2013 | N001 | 8.16 | | | # | | |
| Selenium | mg/L | 06/11/2013 | 0001 | 0.00029 | | J | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/11/2013 | N001 | 417 | | | # | | |
| Temperature | C | 06/11/2013 | N001 | 16.14 | | | # | | |
| Turbidity | NTU | 06/11/2013 | N001 | 51.1 | | | # | | |
| Uranium | mg/L | 06/11/2013 | 0001 | 0.00082 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/11/2013 | 0001 | 0.0042 | | J | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0452 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 108 | | | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 0.24 | | | # | 0.1 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 0.015 | | | # | 0.000074 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 10 | | | # | 0.00016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 21 | | | # | 0.2 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 104.3 | | | # | | |
| pH | s.u. | 06/10/2013 | N001 | 8.29 | | | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 0.021 | | | # | 0.00016 | |
| Specific Conductance | umhos/cm | 06/10/2013 | N001 | 10905 | | | # | | |
| Temperature | C | 06/10/2013 | N001 | 28.55 | | | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 4.84 | | | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 0.25 | | | # | 0.000015 | |
| Vanadium | mg/L | 06/10/2013 | N001 | 1.2 | | | # | 0.000076 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0575 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/10/2013 | N001 | 73 | | | # | | |
| Ammonia Total as N | mg/L | 06/10/2013 | N001 | 0.11 | | | # | 0.1 | |
| Ammonia Total as N | mg/L | 06/10/2013 | N002 | 0.13 | | | # | 0.1 | |
| Arsenic | mg/L | 06/10/2013 | N001 | 0.0024 | | | # | 0.000015 | |
| Arsenic | mg/L | 06/10/2013 | N002 | 0.0024 | | | # | 0.000015 | |
| Molybdenum | mg/L | 06/10/2013 | N001 | 0.63 | | | # | 0.000032 | |
| Molybdenum | mg/L | 06/10/2013 | N002 | 0.64 | | | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N001 | 1.5 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 06/10/2013 | N002 | 1.6 | | | # | 0.02 | |
| Oxidation Reduction Potential | mV | 06/10/2013 | N001 | 60 | | | # | | |
| pH | s.u. | 06/10/2013 | N001 | 9.32 | | | # | | |
| Selenium | mg/L | 06/10/2013 | N001 | 0.00042 | | J | # | 0.000032 | |
| Selenium | mg/L | 06/10/2013 | N002 | 0.00046 | | J | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/10/2013 | N001 | 5416 | | | # | | |
| Temperature | C | 06/10/2013 | N001 | 25.35 | | | # | | |
| Turbidity | NTU | 06/10/2013 | N001 | 8.31 | | | # | | |
| Uranium | mg/L | 06/10/2013 | N001 | 0.087 | | | # | 0.0000029 | |
| Uranium | mg/L | 06/10/2013 | N002 | 0.086 | | | # | 0.0000029 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFN01, Rifle New Processing Site

REPORT DATE: 8/13/2013

Location: 0575 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|-----------|-------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Vanadium | mg/L | 06/10/2013 | N001 | 0.0018 | | J | # | 0.000015 | |
| Vanadium | mg/L | 06/10/2013 | N002 | 0.0018 | | | # | 0.000015 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm), N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: 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
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

#Validated according to quality assurance guidelines.

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**Old Rifle
Surface Water Quality Data**

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Surface Water Quality Data by Location (USEE102) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0294 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 62 | | | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 20.7 | | | # | | |
| pH | s.u. | 06/12/2013 | N001 | 8.09 | | | # | | |
| Selenium | mg/L | 06/12/2013 | 0001 | 0.00029 | | J | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 328 | | | # | | |
| Temperature | C | 06/12/2013 | N001 | 15.37 | | | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 43.7 | | | # | | |
| Uranium | mg/L | 06/12/2013 | 0001 | 0.00089 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | 0001 | 0.00051 | | J | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0395 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 312 | | | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 63.6 | | | # | | |
| pH | s.u. | 06/12/2013 | N001 | 7.65 | | | # | | |
| Selenium | mg/L | 06/12/2013 | 0001 | 0.0035 | | | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 1240 | | | # | | |
| Temperature | C | 06/12/2013 | N001 | 14.69 | | | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 28.7 | | | # | | |
| Uranium | mg/L | 06/12/2013 | 0001 | 0.024 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | 0001 | 0.0014 | J | | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0396 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 60 | | | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | -4.1 | | | # | | |
| pH | s.u. | 06/12/2013 | N001 | 8.07 | | | # | | |
| Selenium | mg/L | 06/12/2013 | 0001 | 0.00033 | J | | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 333 | | | # | | |
| Temperature | C | 06/12/2013 | N001 | 17.02 | | | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 43.5 | | | # | | |
| Uranium | mg/L | 06/12/2013 | 0001 | 0.00088 | | | # | 0.000029 | |
| Vanadium | mg/L | 06/12/2013 | 0001 | 0.00056 | J | | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFO01, Rifle Old Processing Site
 REPORT DATE: 8/13/2013
 Location: 0398 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|--------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 256 | | | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | 70.6 | | | # | | |
| pH | s.u. | 06/12/2013 | N001 | 8.19 | | | # | | |
| Selenium | mg/L | 06/12/2013 | N001 | 0.0022 | | | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 1746 | | | # | | |
| Temperature | C | 06/12/2013 | N001 | 12.99 | | | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 2.9 | | | # | | |
| Uranium | mg/L | 06/12/2013 | N001 | 0.014 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | N001 | 0.0031 | | | # | 0.000015 | |

Surface Water Quality Data by Location (USEE102) FOR SITE RFO01, Rifle Old Processing Site

REPORT DATE: 8/13/2013

Location: 0741 SURFACE LOCATION

| Parameter | Units | Sample | | Result | Qualifiers | | | Detection Limit | Uncertainty |
|---|----------|------------|------|---------|------------|------|----|-----------------|-------------|
| | | Date | ID | | Lab | Data | QA | | |
| Alkalinity, Total (As CaCO ₃) | mg/L | 06/12/2013 | N001 | 60 | | | # | | |
| Oxidation Reduction Potential | mV | 06/12/2013 | N001 | -50.1 | | | # | | |
| pH | s.u. | 06/12/2013 | N001 | 8.07 | | | # | | |
| Selenium | mg/L | 06/12/2013 | 0001 | 0.00024 | | J | # | 0.000032 | |
| Specific Conductance | umhos/cm | 06/12/2013 | N001 | 350 | | | # | | |
| Temperature | C | 06/12/2013 | N001 | 17.25 | | | # | | |
| Turbidity | NTU | 06/12/2013 | N001 | 34.6 | | | # | | |
| Uranium | mg/L | 06/12/2013 | 0001 | 0.00086 | | | # | 0.0000029 | |
| Vanadium | mg/L | 06/12/2013 | 0001 | 0.00058 | | J | # | 0.000015 | |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: 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
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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Equipment Blank Data

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BLANKS REPORT

LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)

RIN: 13065380

Report Date: 8/13/2013

| Parameter | Site Code | Location ID | Sample | | Units | Result | Qualifiers | | Detection Limit | Uncertainty | Sample Type |
|-------------------------------|-----------|-------------|------------|------|-------|----------|------------|------|-----------------|-------------|-------------|
| | | | Date | ID | | | Lab | Data | | | |
| Ammonia Total as N | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.1 | U | | 0.1 | | E |
| Arsenic | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.00017 | | J | 0.000015 | | E |
| Molybdenum | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.00042 | | | 0.000032 | | E |
| Nitrate + Nitrite as Nitrogen | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.01 | U | | 0.01 | | E |
| Selenium | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.000042 | B | J | 0.000032 | | E |
| Uranium | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.000051 | | | 0.000029 | | E |
| Vanadium | RFN01 | 0999 | 06/11/2013 | N001 | mg/L | 0.0064 | | | 0.000015 | | E |

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: 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
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

SAMPLE TYPES:

- E Equipment Blank.

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Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 8/13/2013

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---------------|-----------|------------------------------|------------------|------------------|-------------------------------|----------------------|------------------|
| 0292A | | 5323.08 | 06/12/2013 | 12:00:00 | 10.09 | 5312.99 | |
| 0304 | O | 5310.63 | 06/11/2013 | 18:10:58 | 8.55 | 5302.08 | |
| 0305 | O | 5312.08 | 06/11/2013 | 18:25:34 | 10.20 | 5301.88 | |
| 0309 | O | 5313.37 | 06/12/2013 | 10:20:53 | 12.50 | 5300.87 | |
| 0310 | O | 5311.64 | 06/11/2013 | 17:05:33 | 10.14 | 5301.5 | |
| 0655 | O | 5312.87 | 06/12/2013 | 11:00:26 | 11.09 | 5301.78 | |
| 0656 | O | 5313.28 | 06/12/2013 | 09:35:13 | 10.95 | 5302.33 | |
| 0658 | U | 5323.07 | 06/12/2013 | 11:30:05 | 6.61 | 5316.46 | |
| 0742-1 | | 5313.28 | 06/12/2013 | 12:30:50 | 12.20 | 5301.08 | |
| 0742-2 | | 5313.28 | 06/12/2013 | 12:55:22 | 11.79 | 5301.49 | |
| 0742-3 | | 5313.28 | 06/12/2013 | 13:15:14 | 12.20 | 5301.08 | |
| 0743-1 | | 5310.43 | 06/12/2013 | 16:00:18 | 9.59 | 5300.84 | |
| 0743-2 | | 5310.43 | 06/12/2013 | 16:10:45 | 9.63 | 5300.8 | |
| 0743-3 | | 5310.43 | 06/12/2013 | 16:25:55 | 9.63 | 5300.8 | |
| 0744-1 | | 5309.25 | 06/12/2013 | 14:50:57 | 7.50 | 5301.75 | |
| 0744-2 | | 5309.25 | 06/12/2013 | 15:10:20 | 7.50 | 5301.75 | |
| 0744-3 | | 5309.25 | 06/12/2013 | 15:35:16 | 7.50 | 5301.75 | |
| 0745 | | | 06/12/2013 | 09:15:47 | 11.61 | | |
| 0746 | | | 06/11/2013 | 18:50:38 | 13.91 | | |
| 0747 | | | 06/12/2013 | 09:55:25 | 13.93 | | |

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

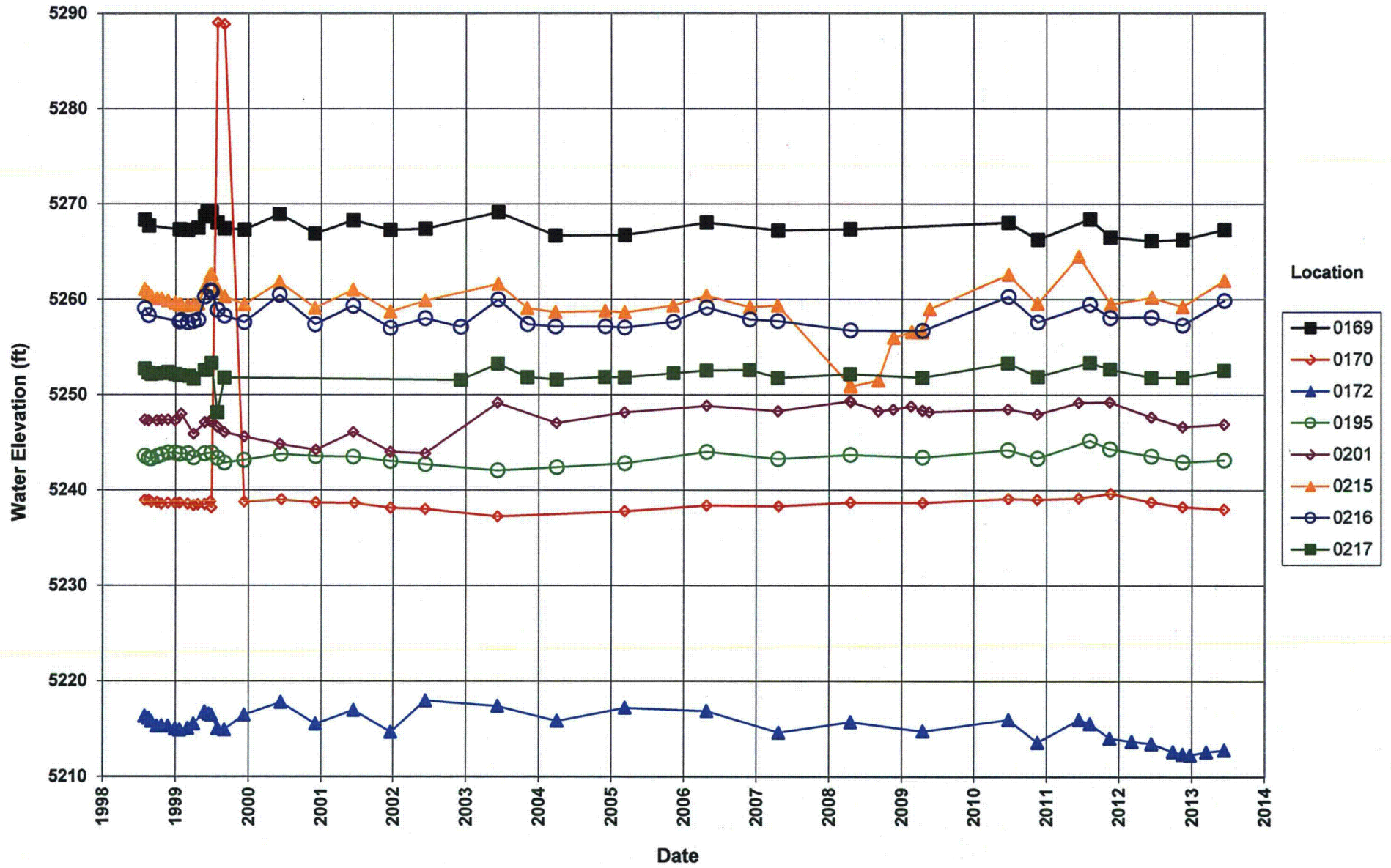
WATER LEVEL FLAGS: D Dry F Flowing B Below top of pump

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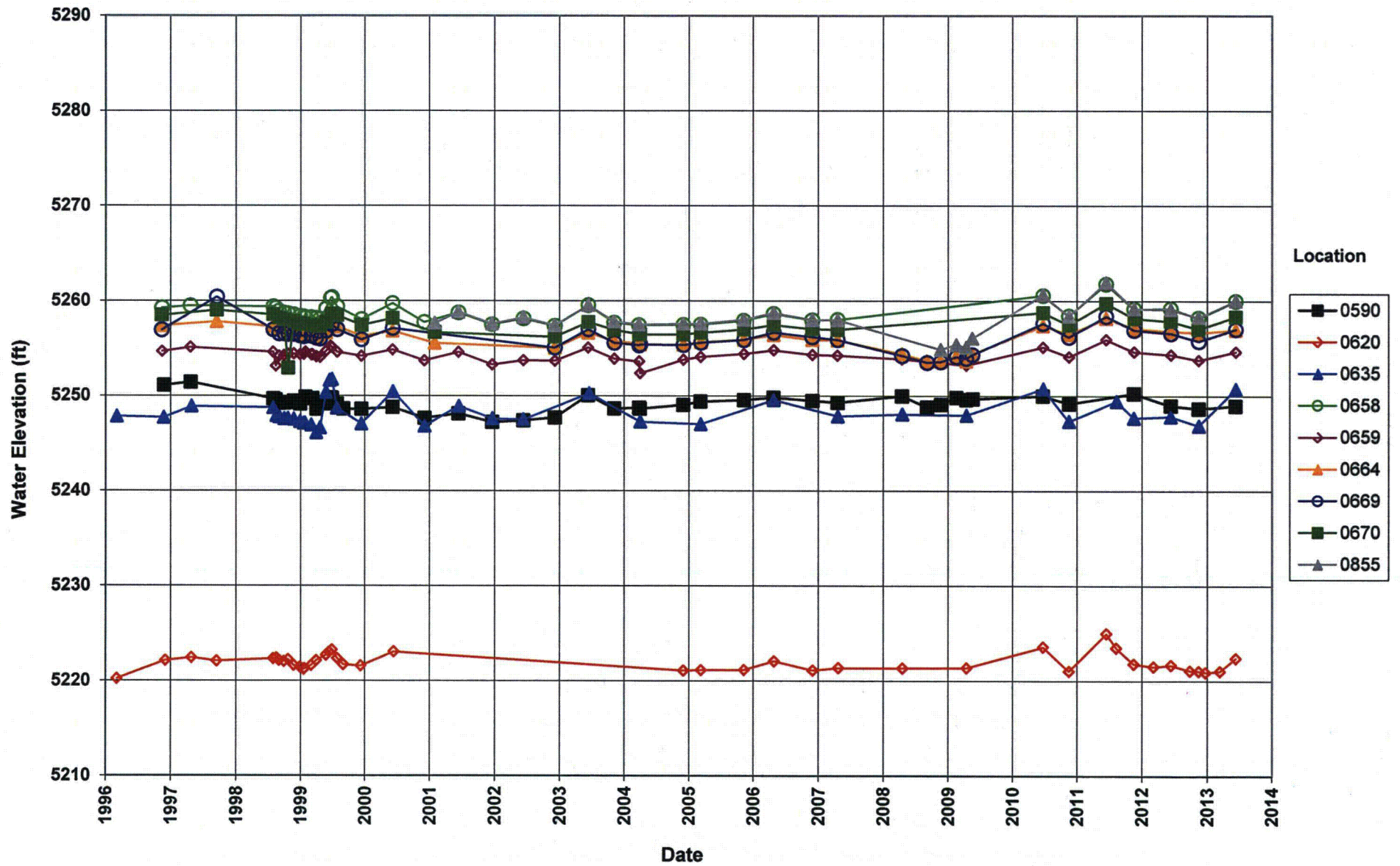
**New Rifle
Hydrographs**

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Rifle New Processing Site Hydrograph



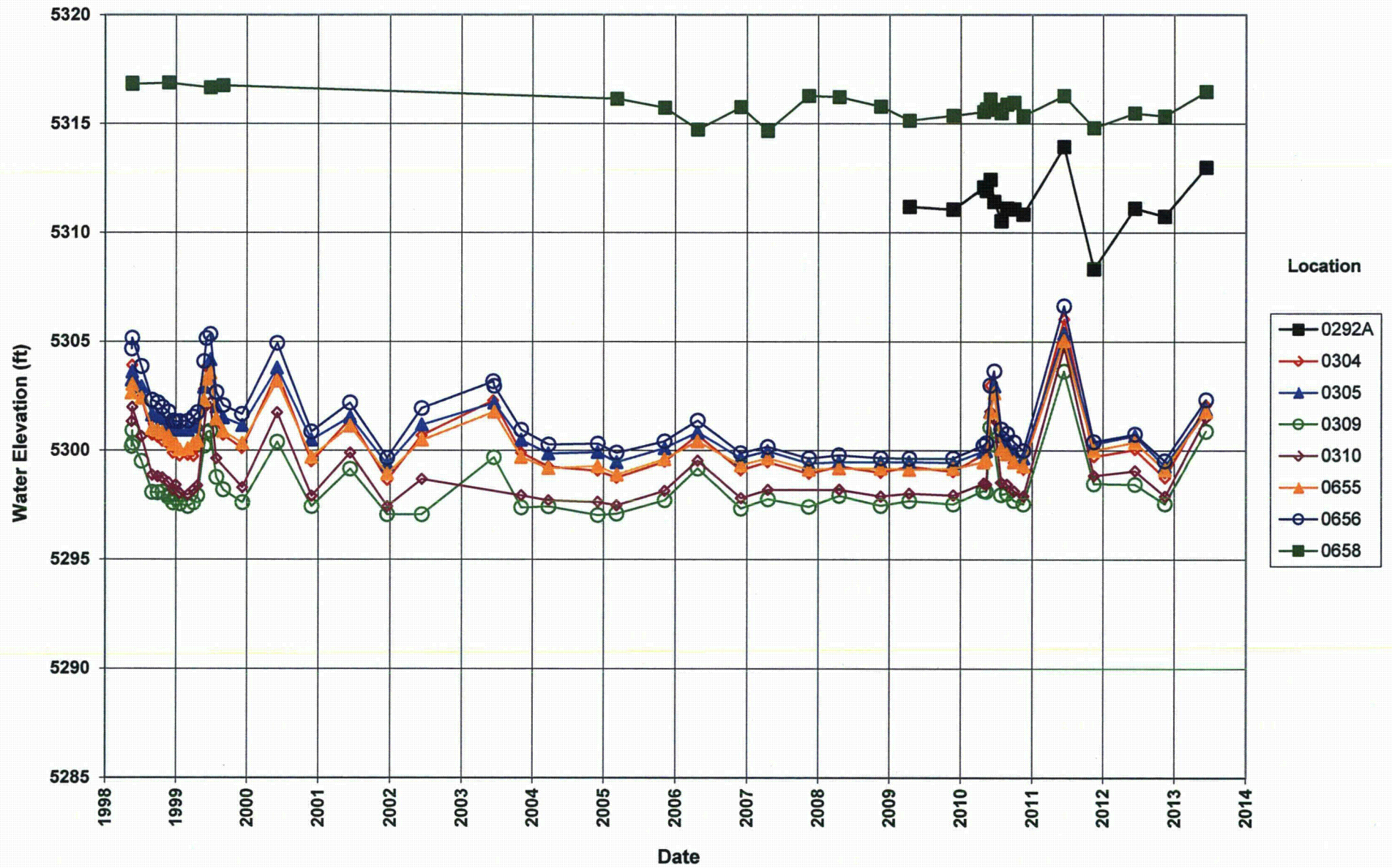
Rifle New Processing Site Hydrograph



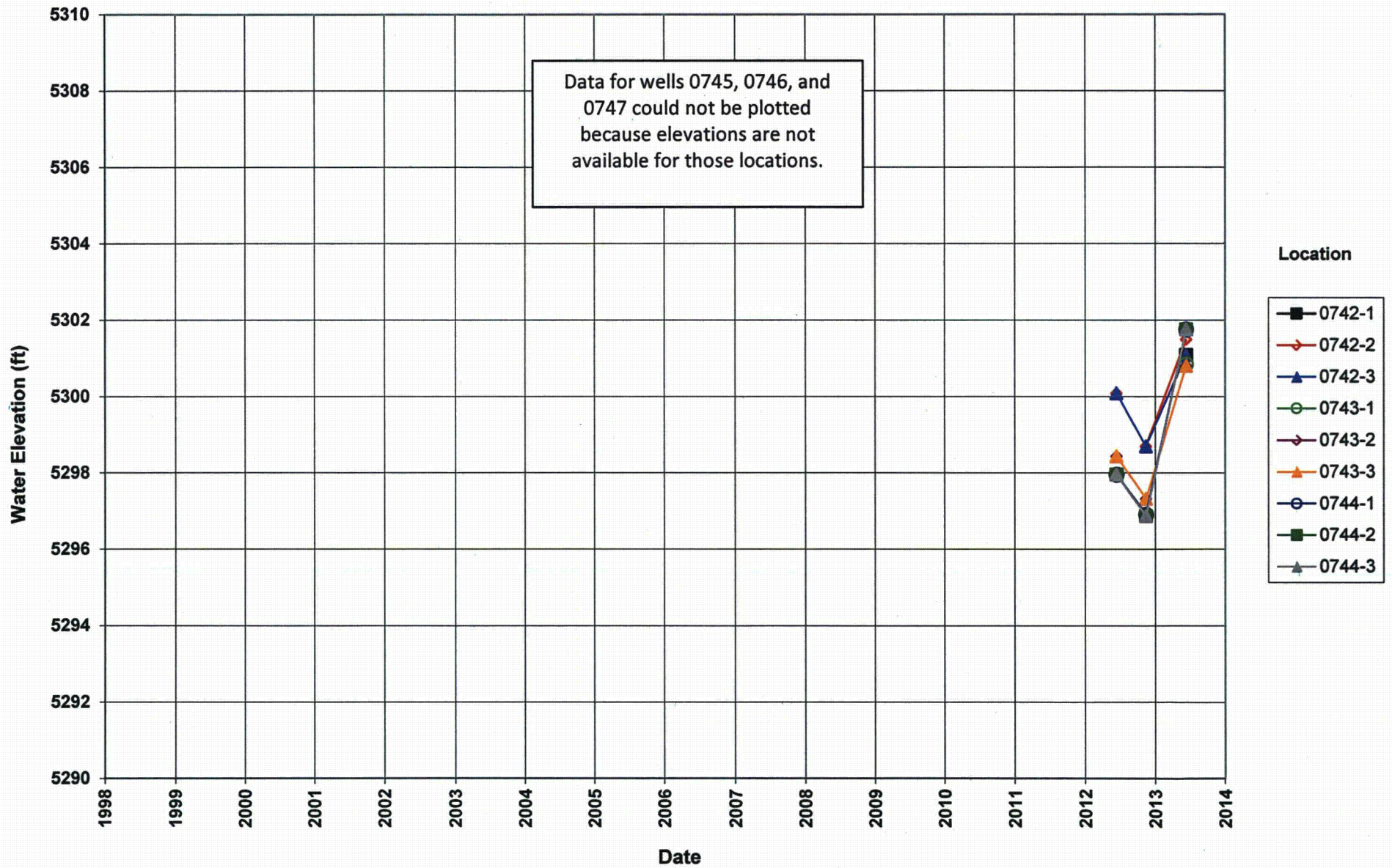
**Old Rifle
Hydrograph**

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Rifle Old Processing Site Hydrograph



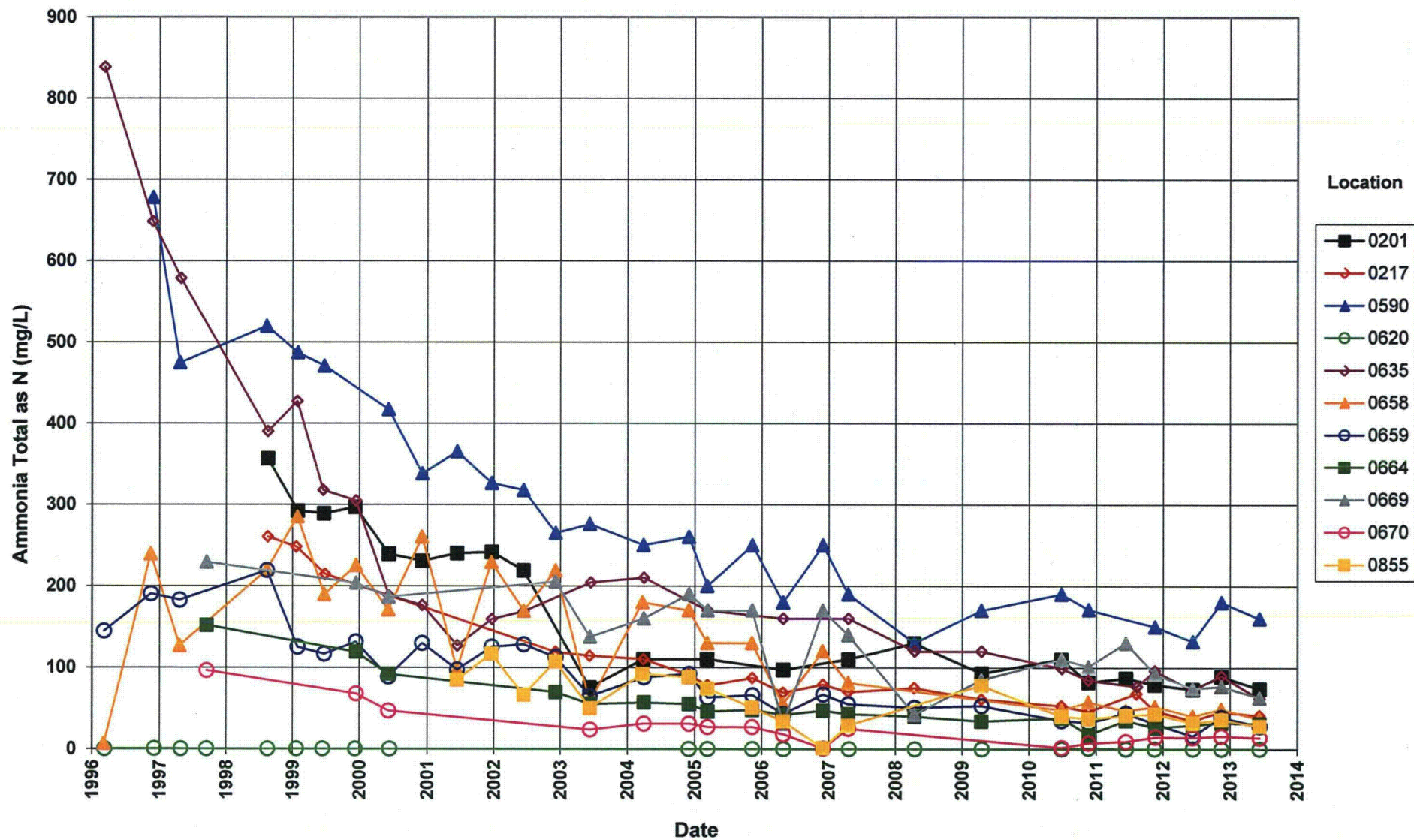
Rifle Old Processing Site Hydrograph



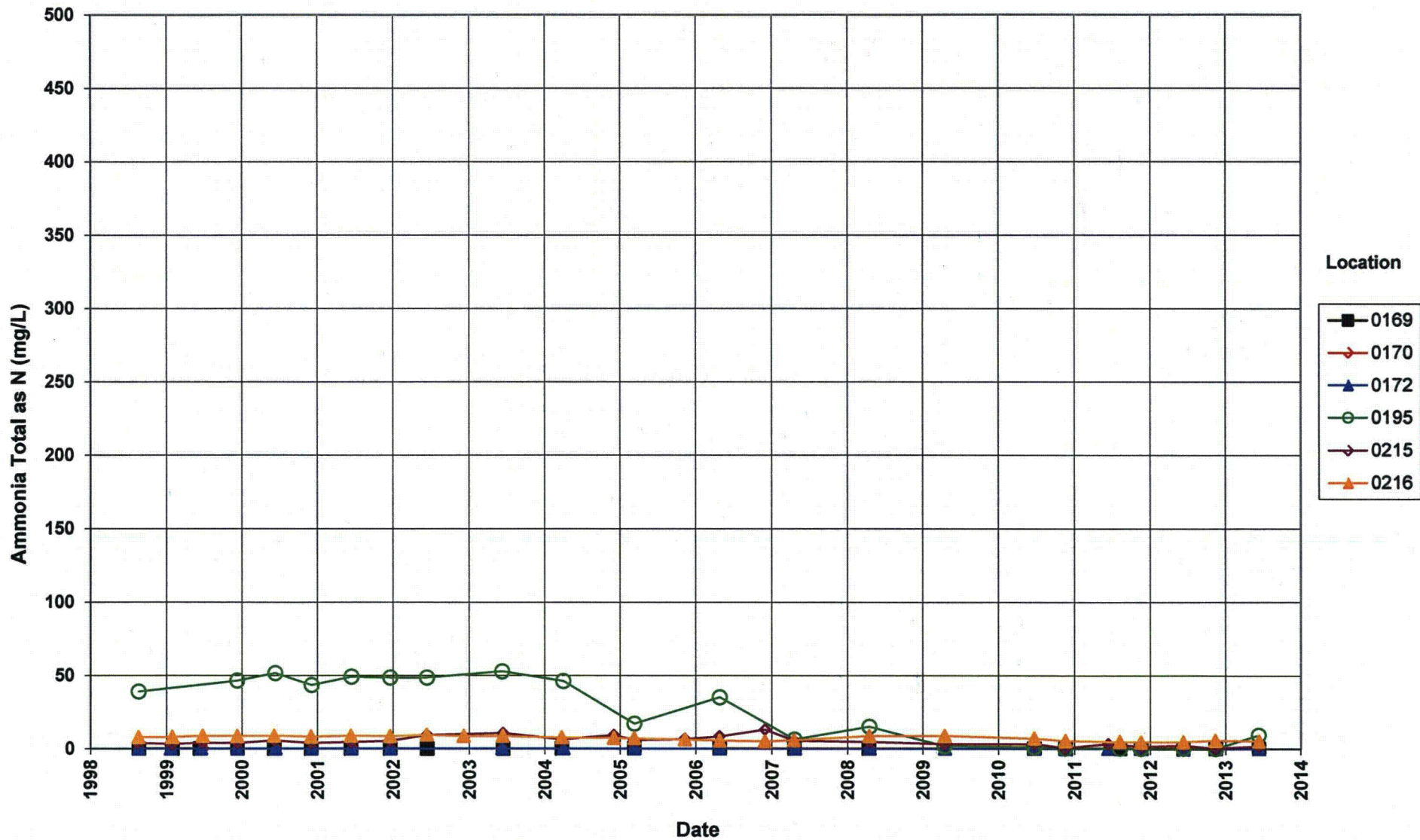
**New Rifle Groundwater
Time-Concentration Graphs**

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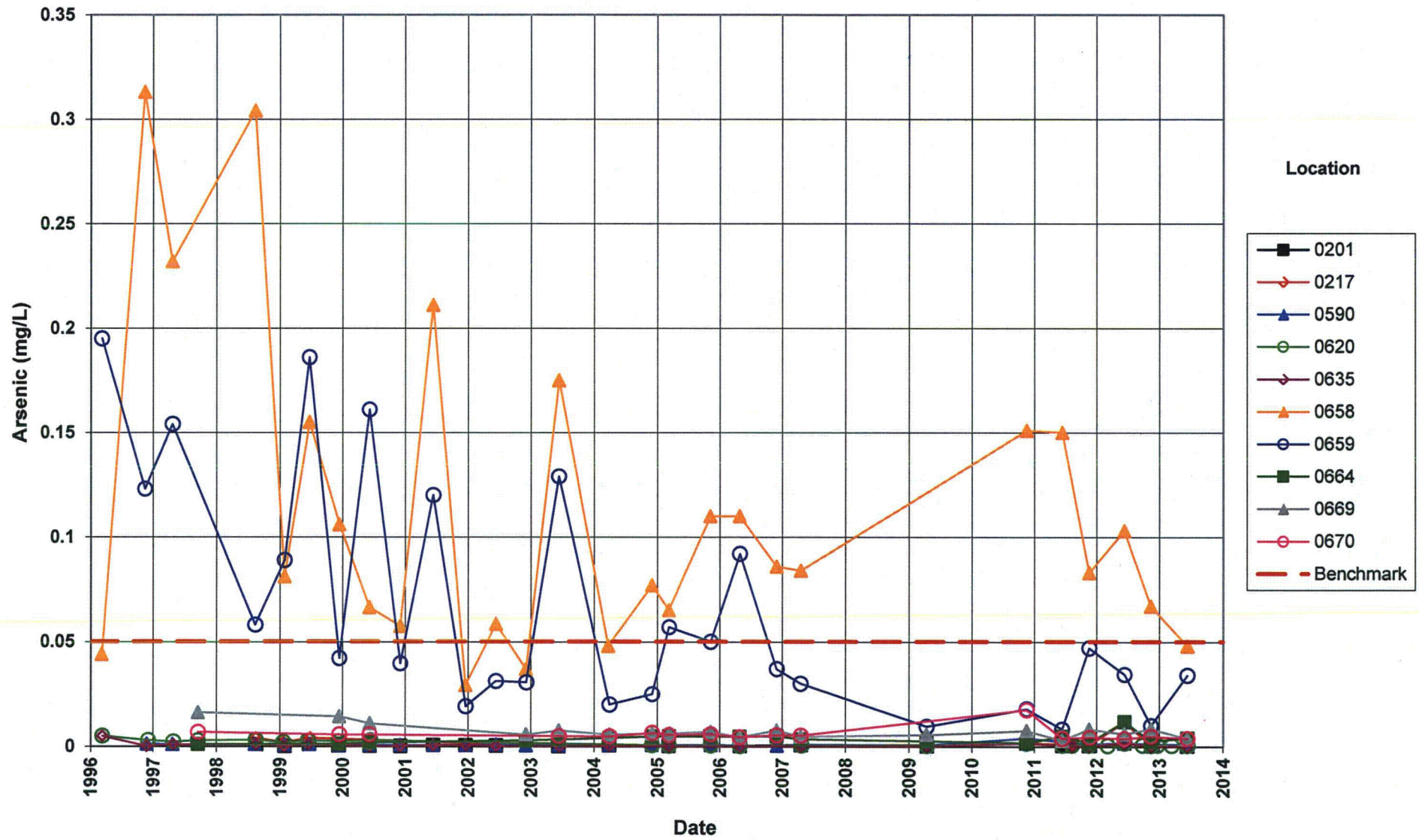
Rifle New Processing Site Ammonia Total as N Concentration



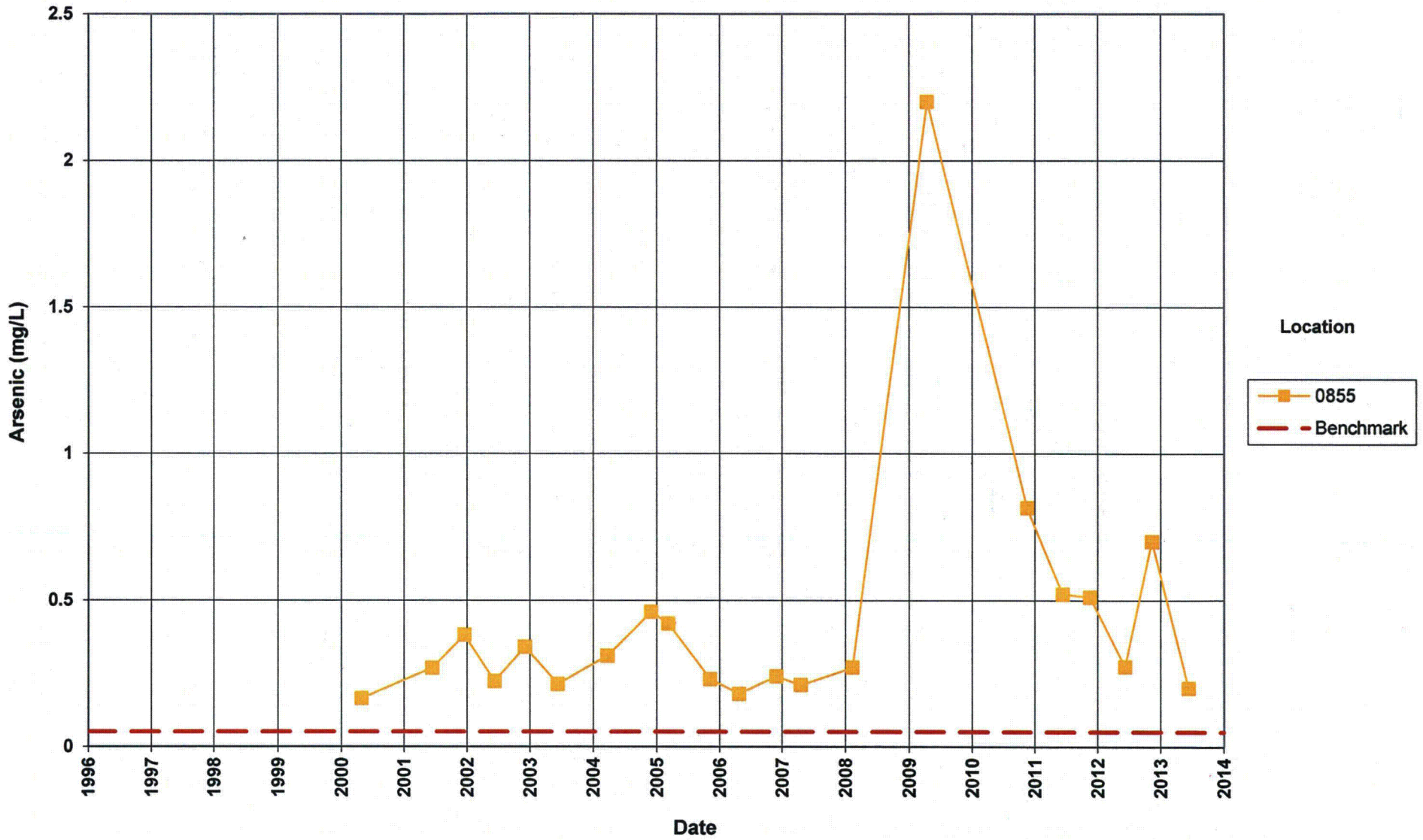
Rifle New Processing Site Ammonia Total as N Concentration



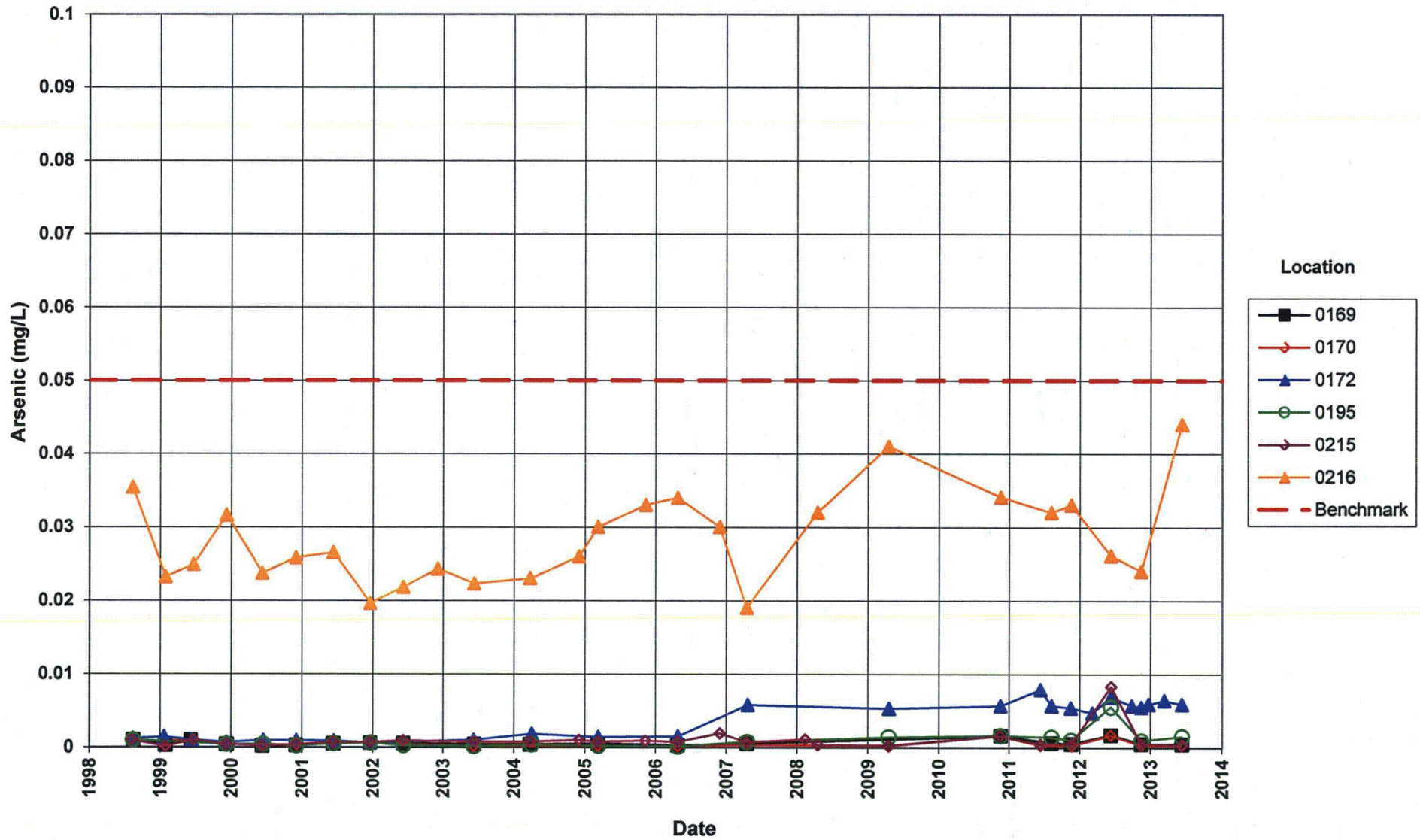
**Rifle New Processing Site
Arsenic Concentration**
Benchmark = 0.05 mg/L



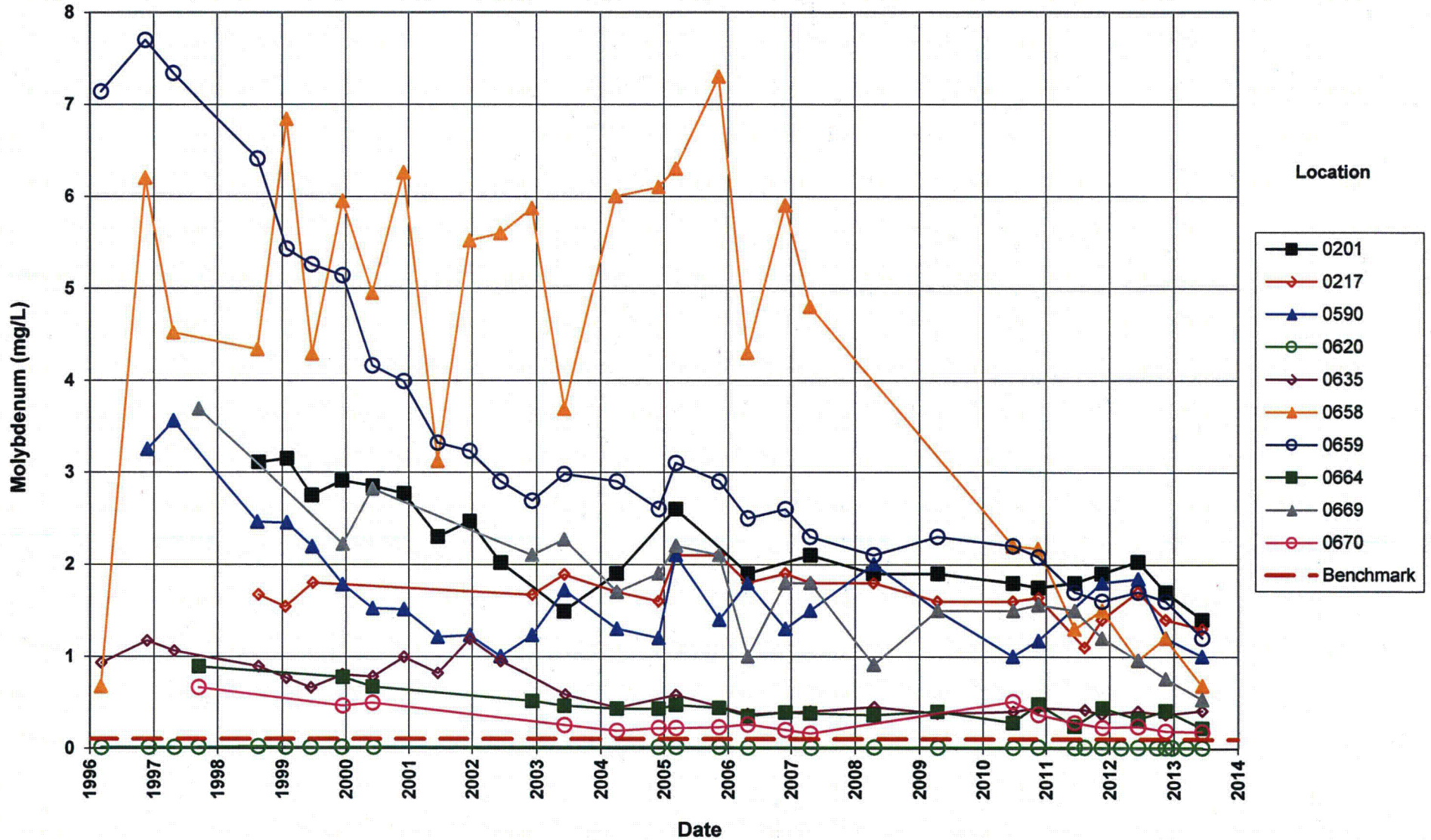
Rifle New Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L



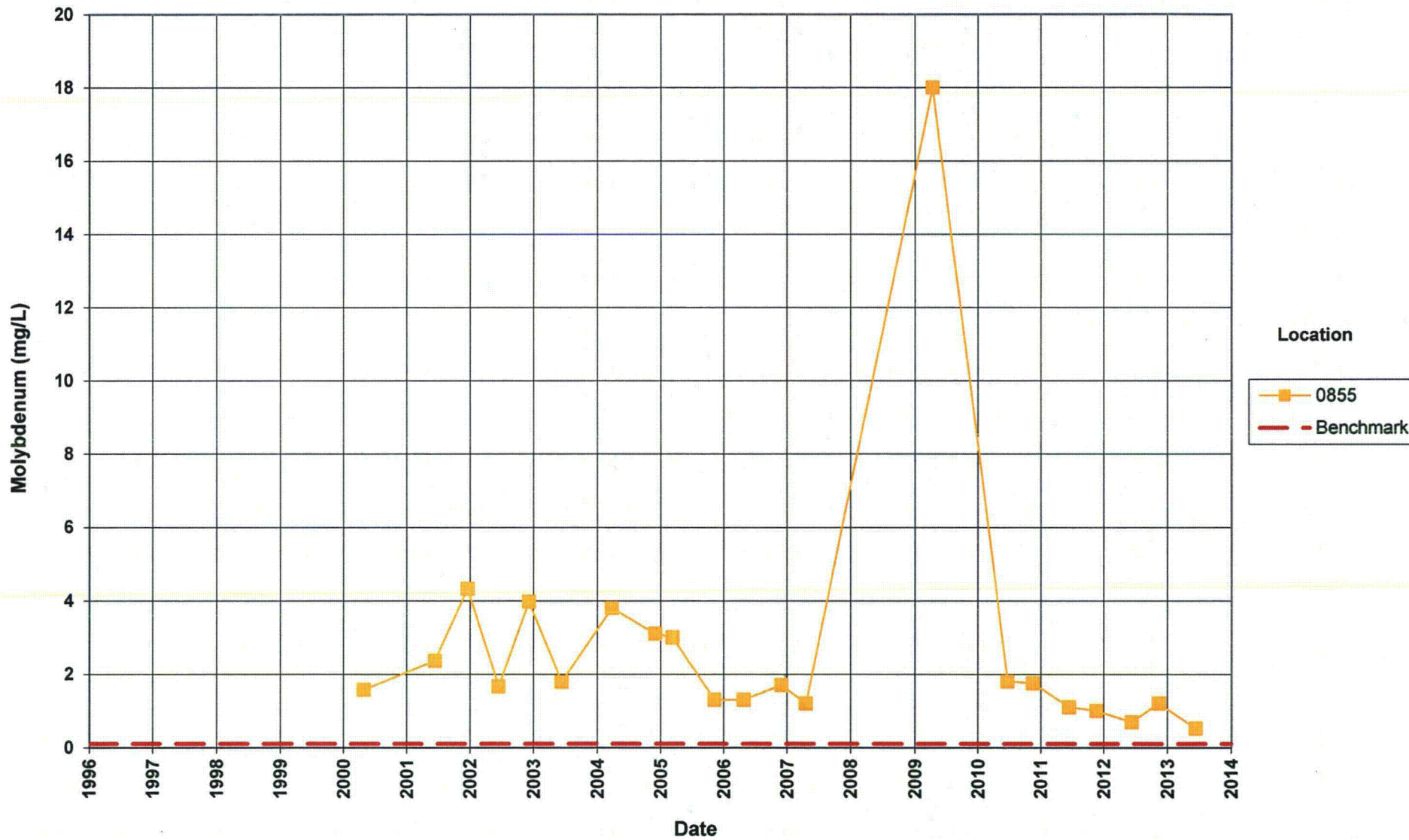
Rifle New Processing Site
Arsenic Concentration
Benchmark = 0.05 mg/L



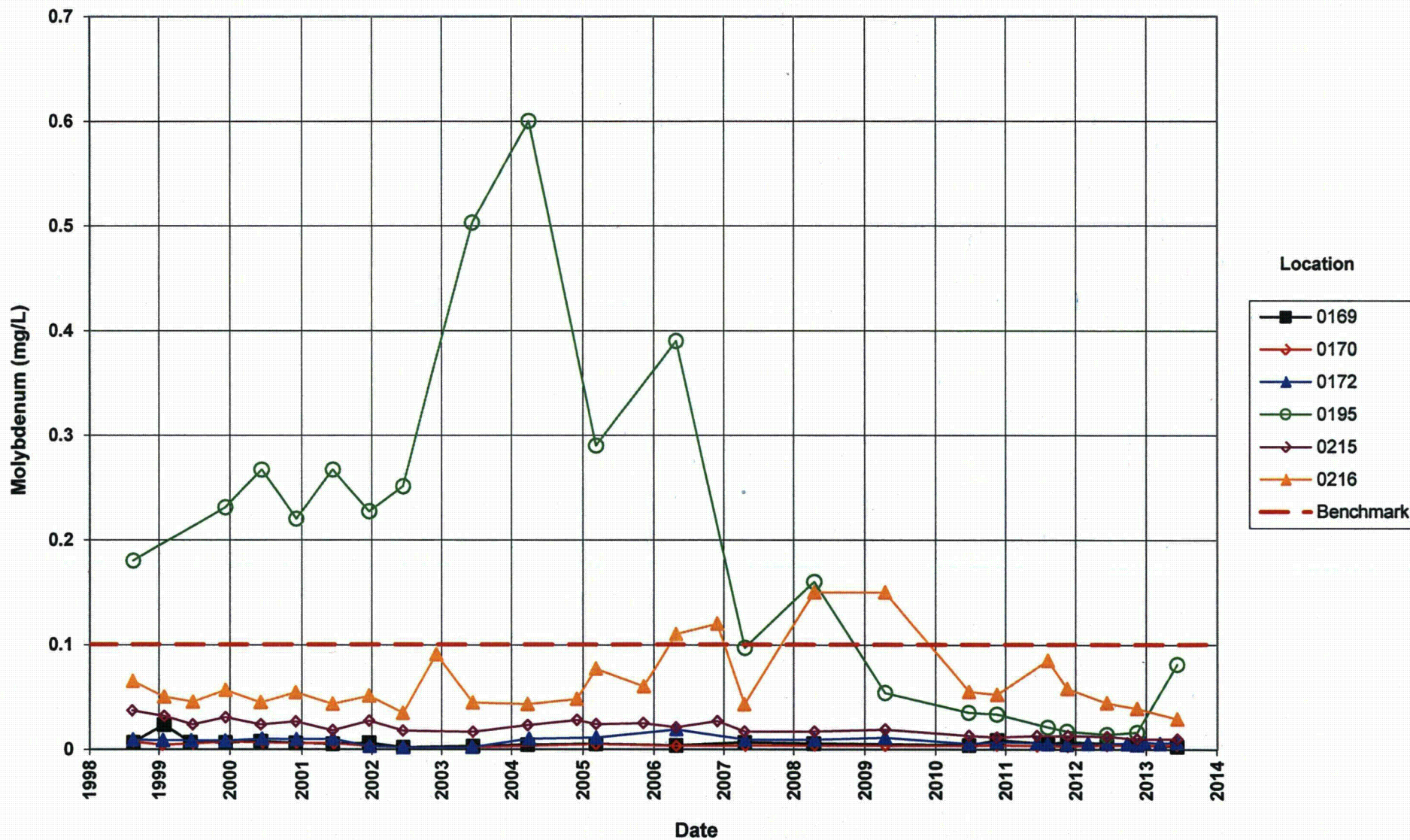
**Rifle New Processing Site
Molybdenum Concentration**
Benchmark = 0.1 mg/L



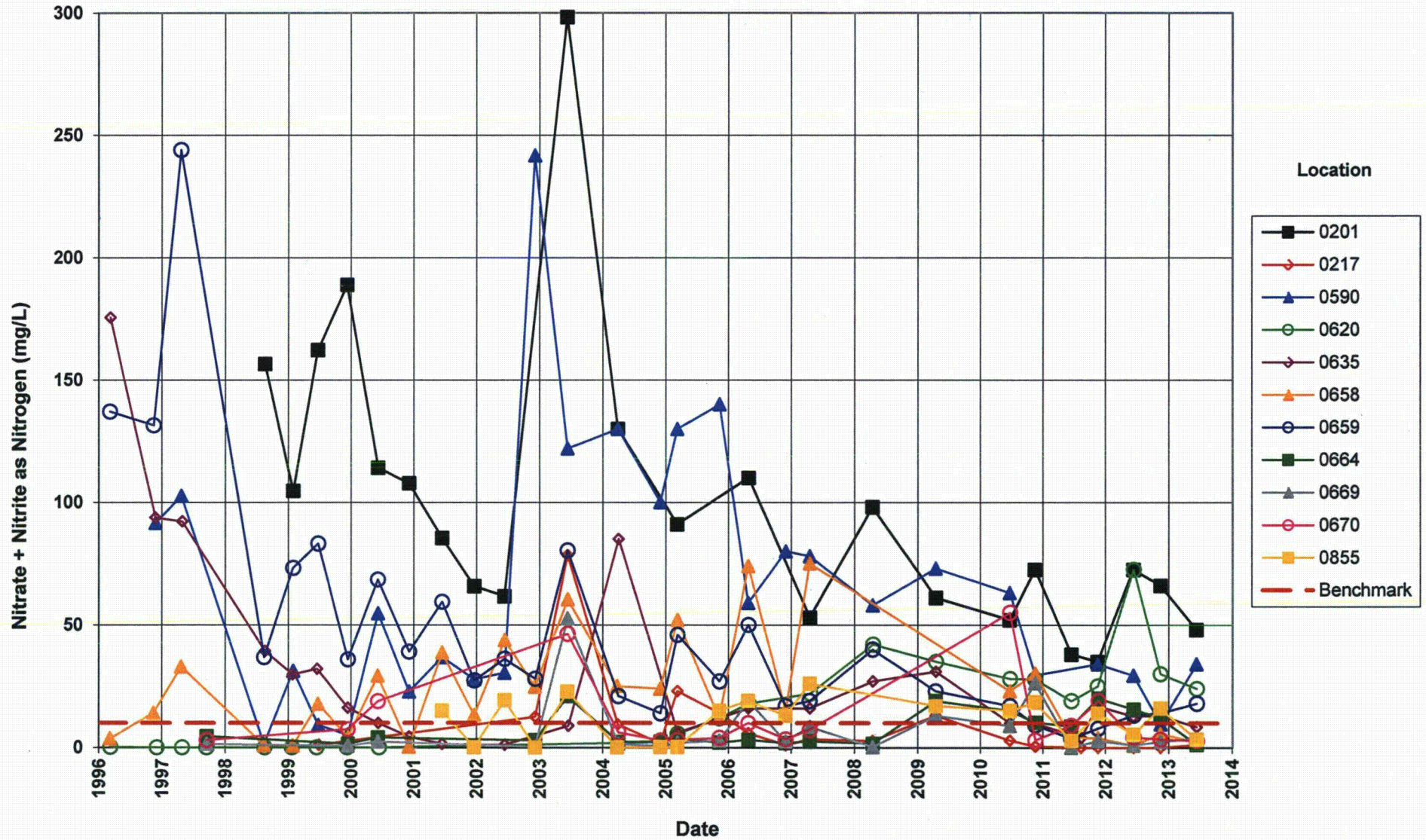
Rifle New Processing Site
Molybdenum Concentration
Benchmark = 0.1 mg/L



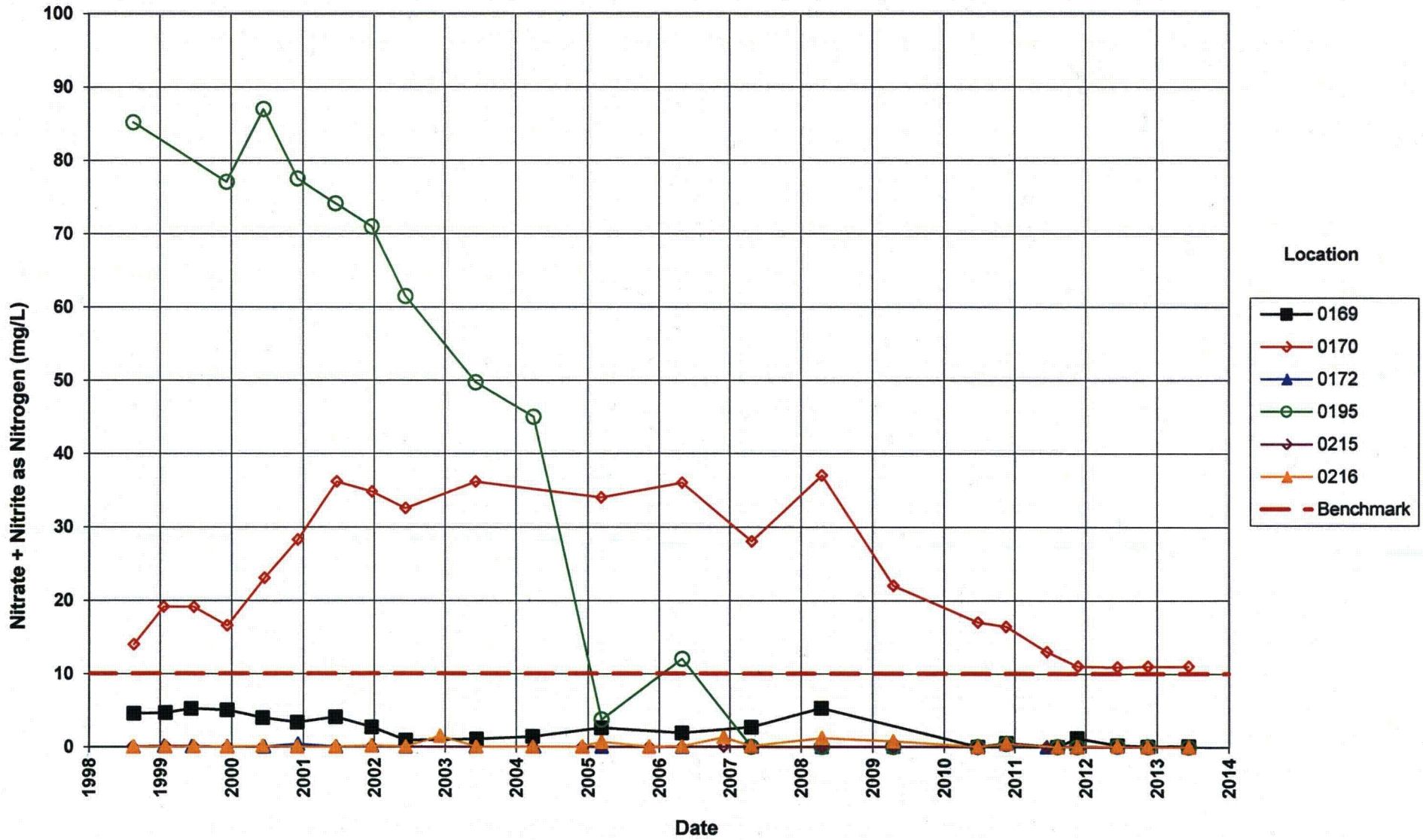
**Rifle New Processing Site
Molybdenum Concentration**
Benchmark = 0.1 mg/L



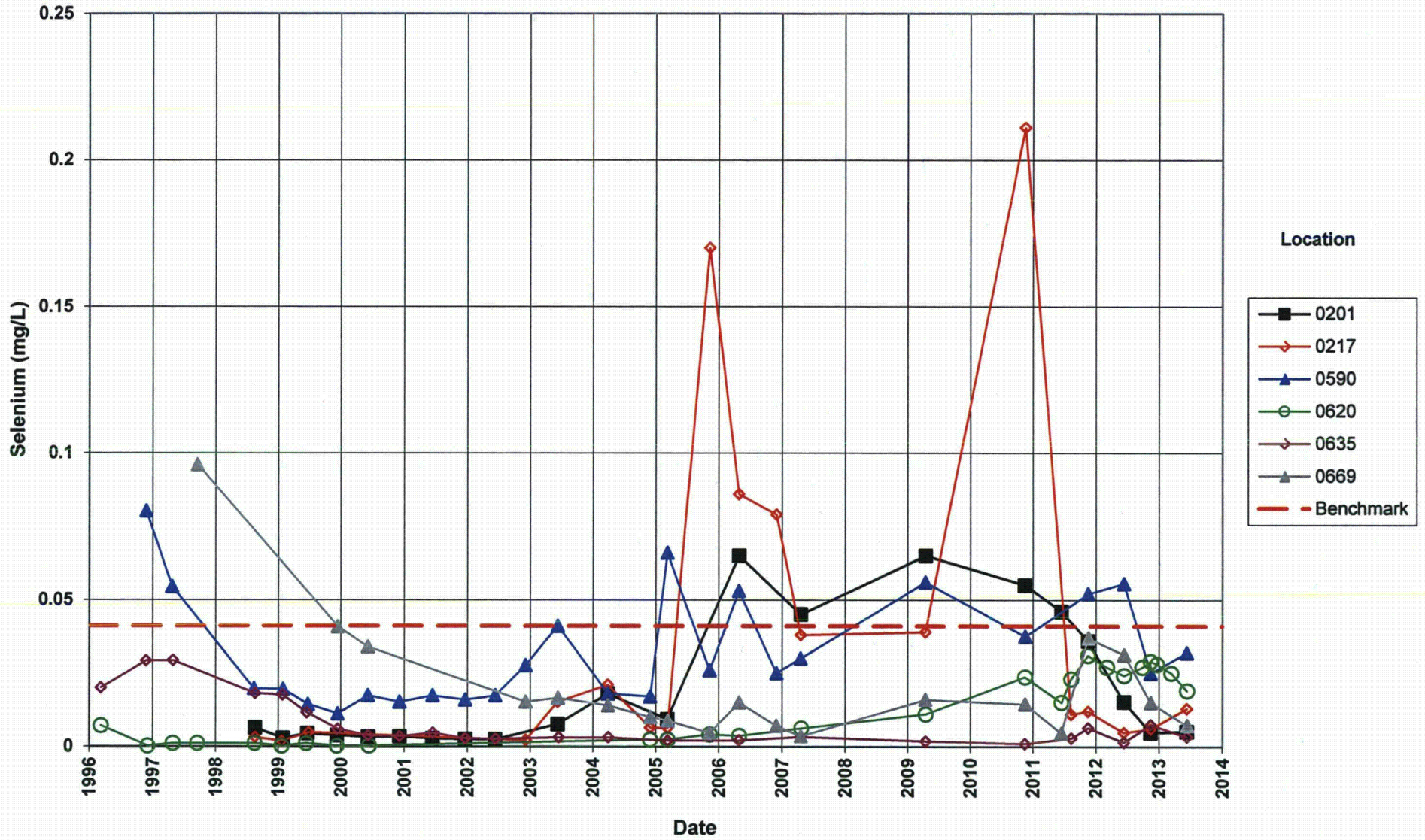
Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Benchmark = 10.0 mg/L



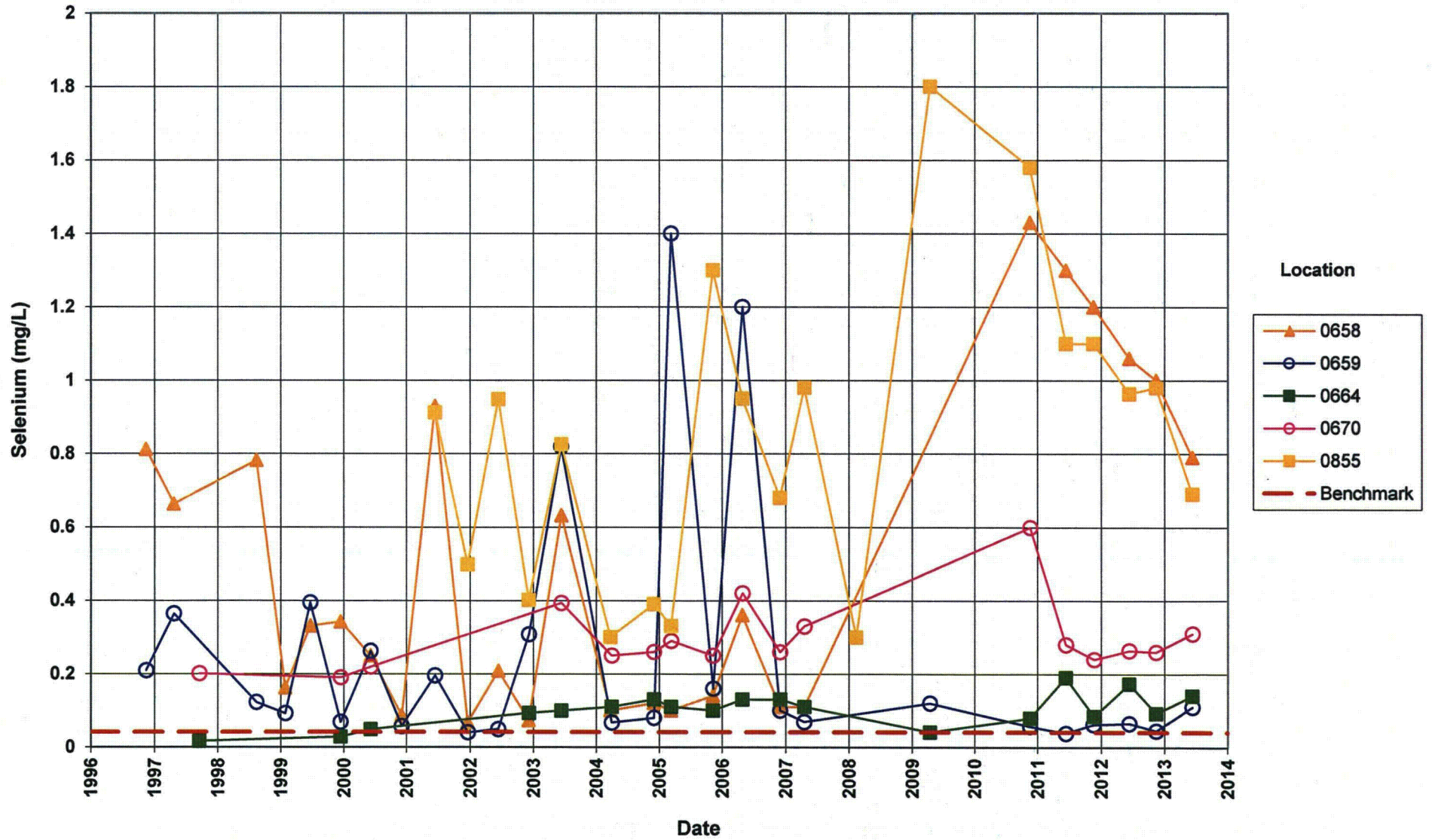
Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Benchmark = 10.0 mg/L



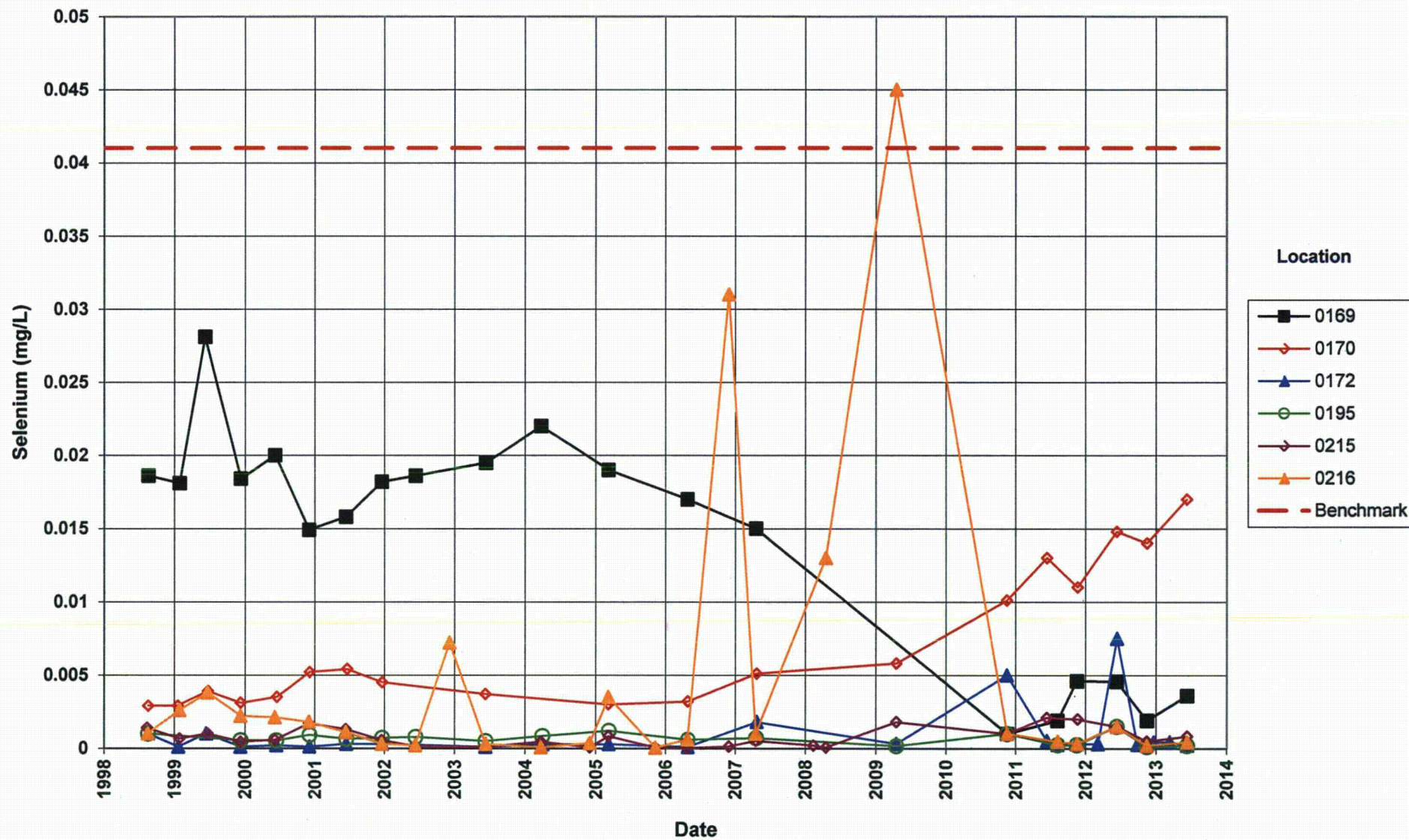
Rifle New Processing Site
Selenium Concentration
Benchmark = 0.041 mg/L



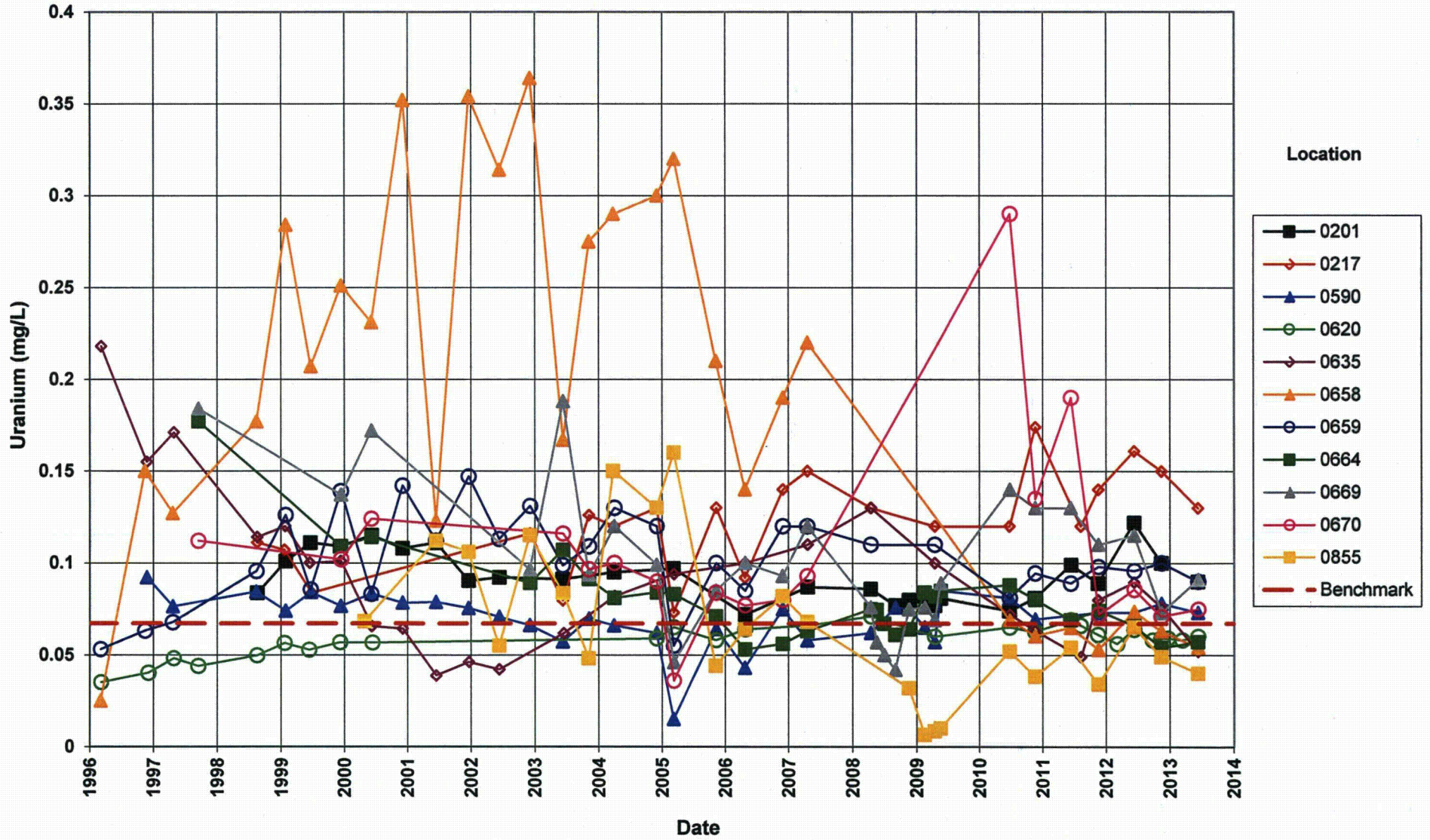
Rifle New Processing Site
Selenium Concentration
Benchmark = 0.041 mg/L



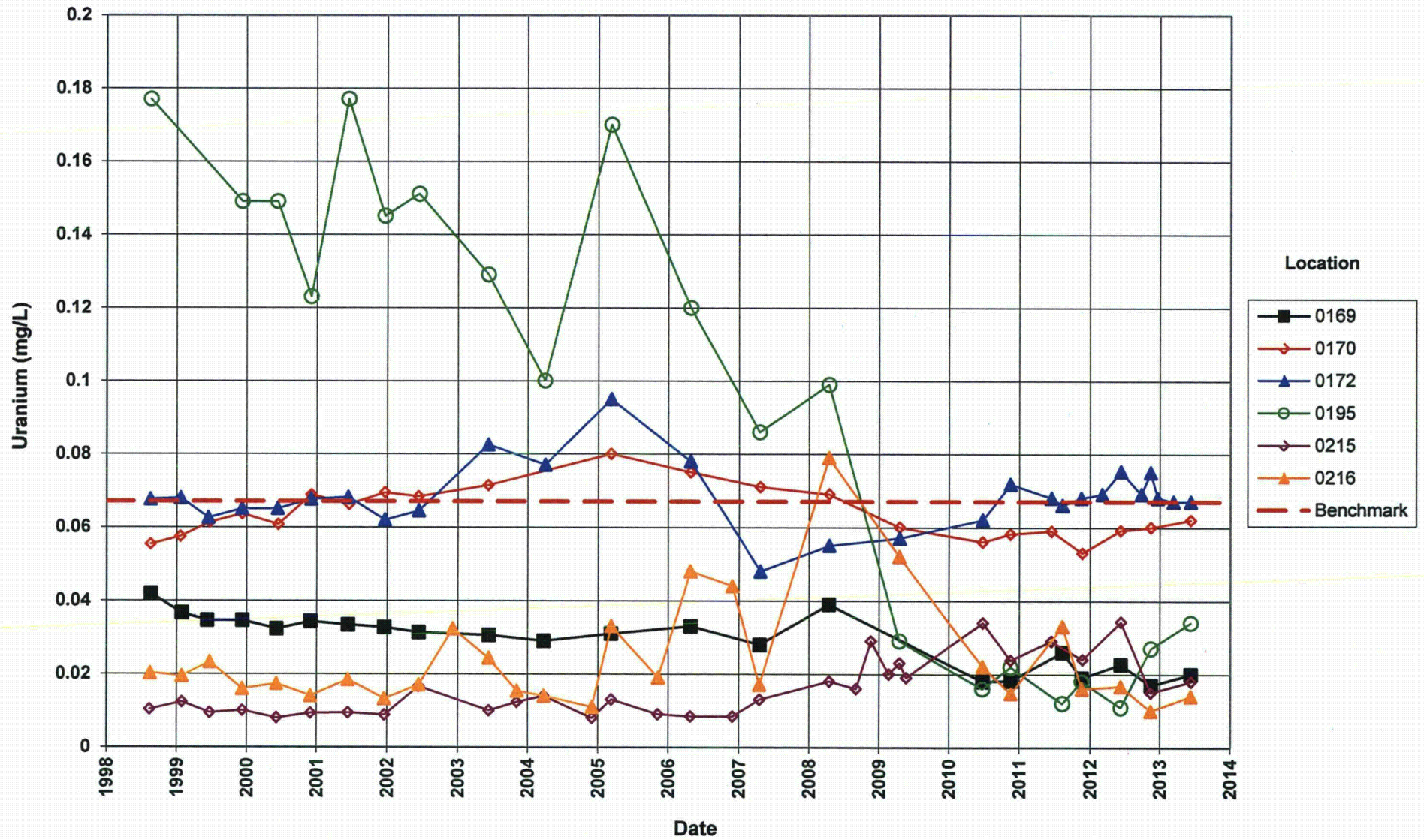
**Rifle New Processing Site
Selenium Concentration**
Benchmark = 0.041 mg/L



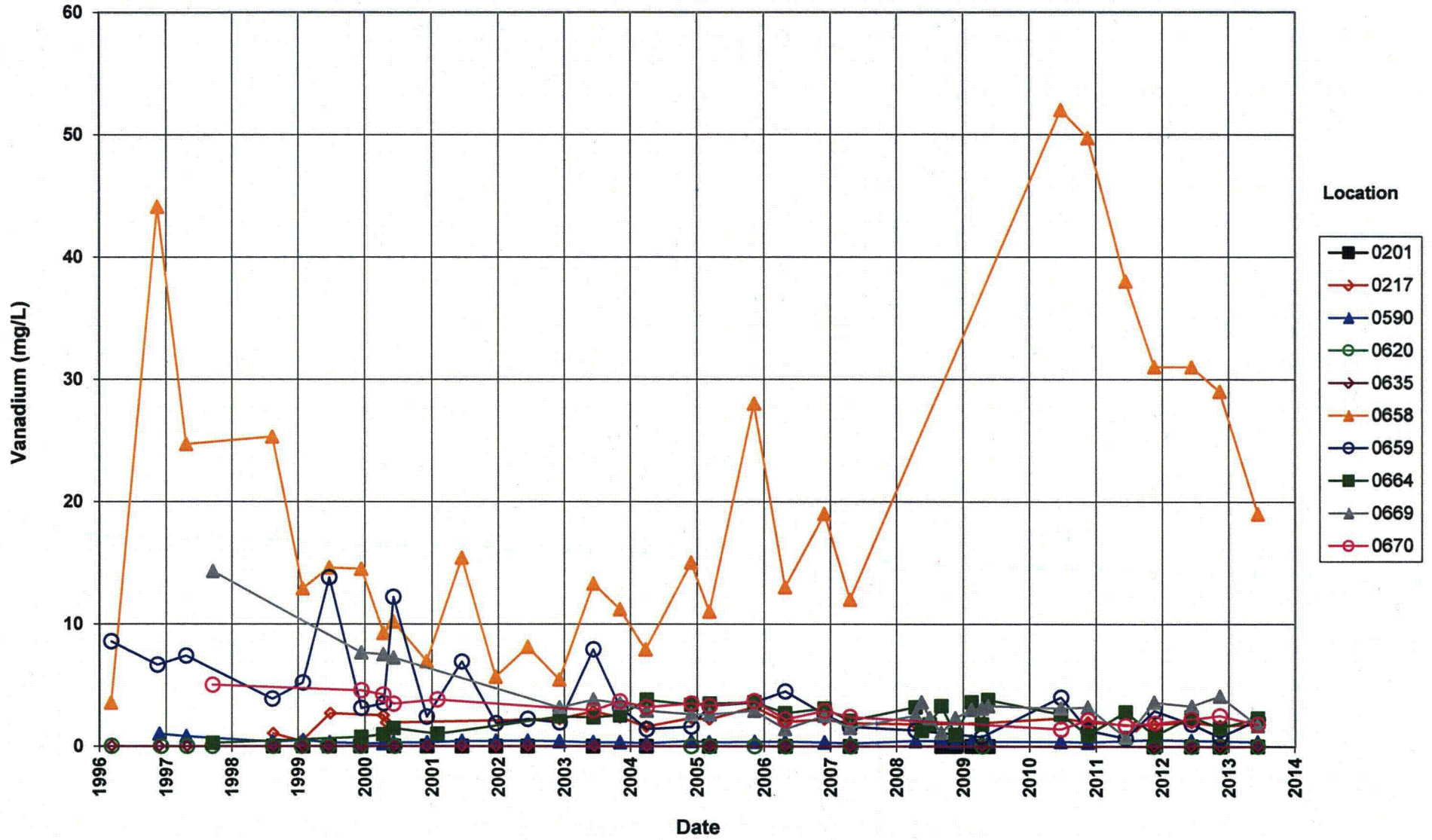
Rifle New Processing Site
Uranium Concentration
Benchmark = 0.067 mg/L



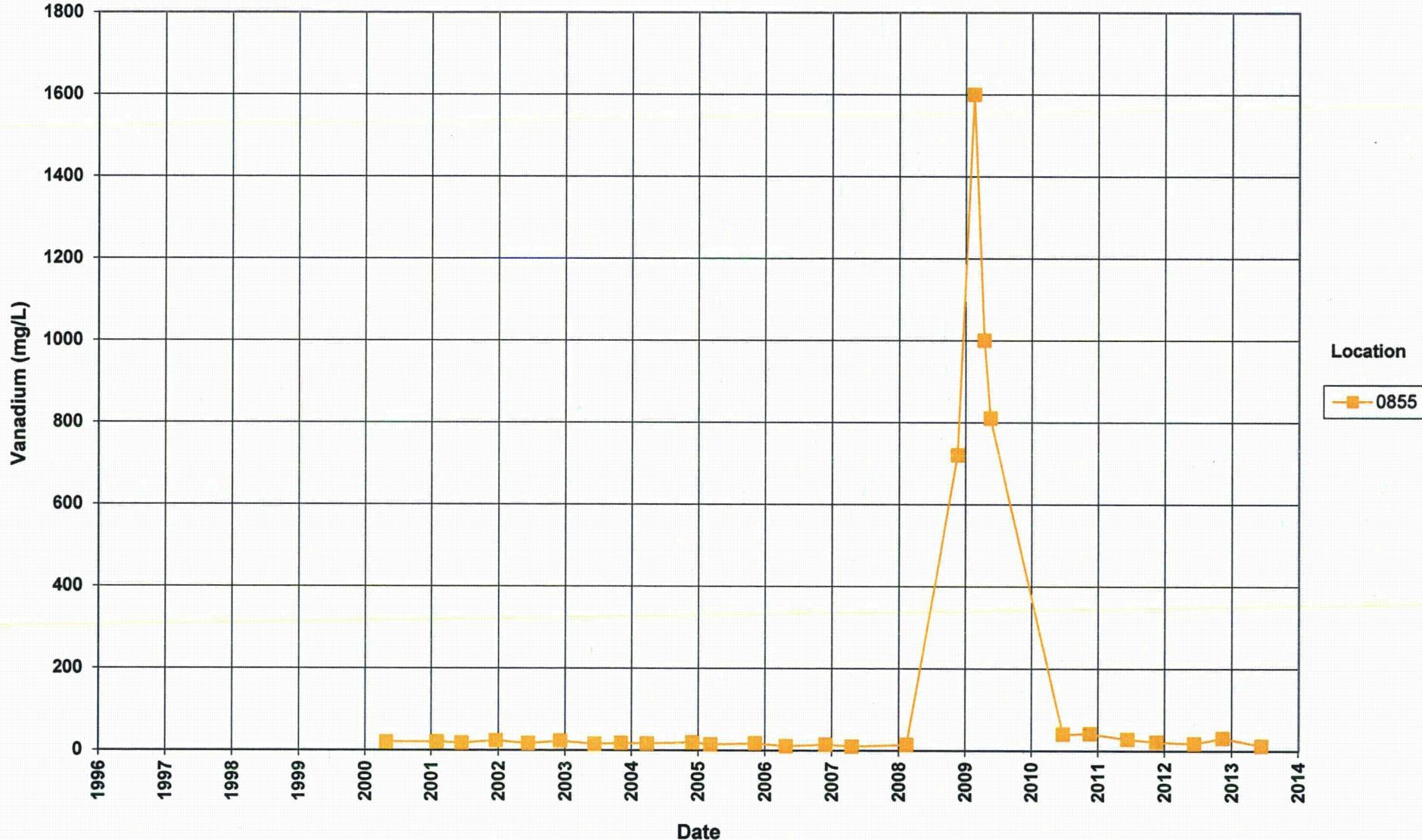
**Rifle New Processing Site
Uranium Concentration**
Benchmark = 0.067 mg/L



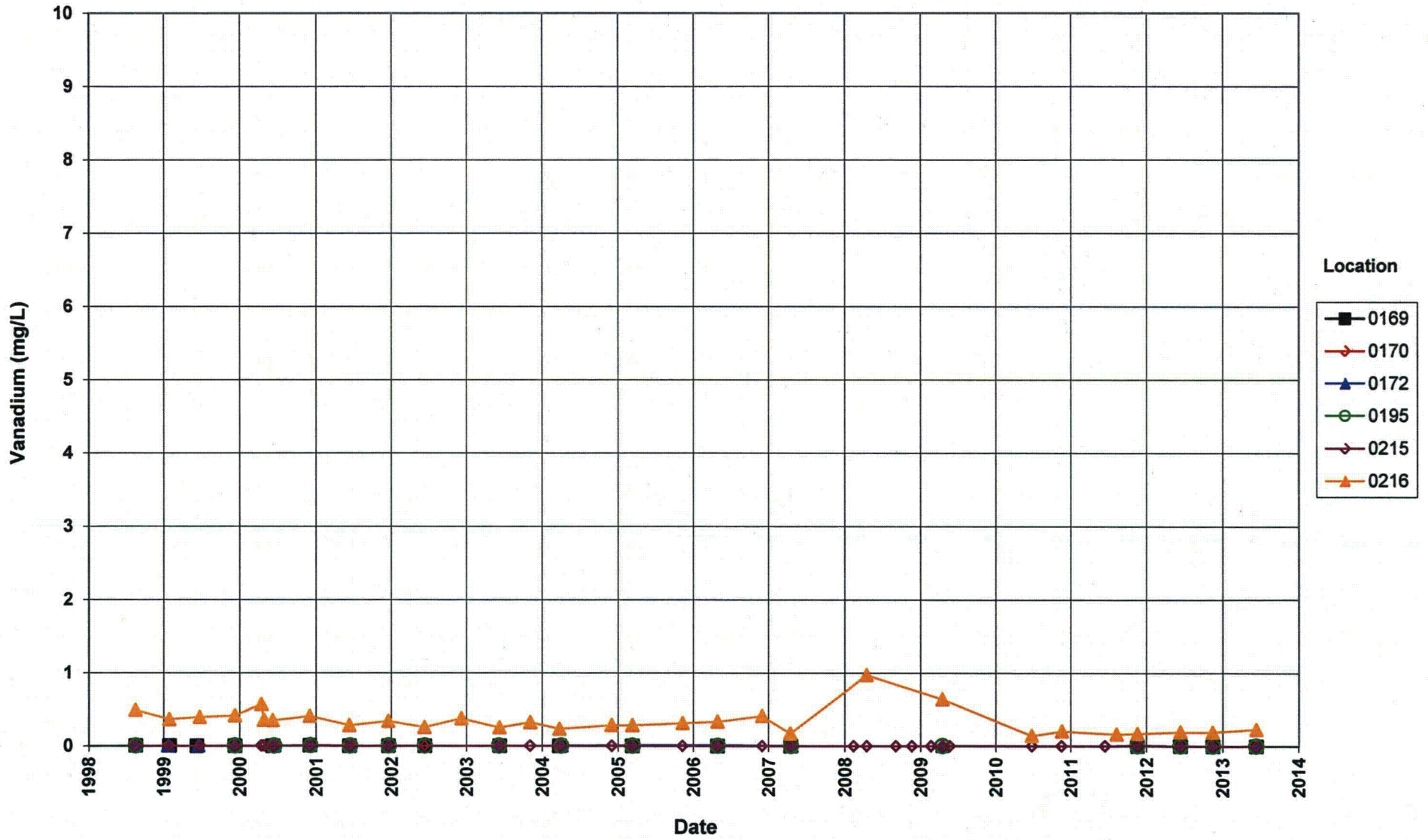
Rifle New Processing Site Vanadium Concentration



Rifle New Processing Site
Vanadium Concentration



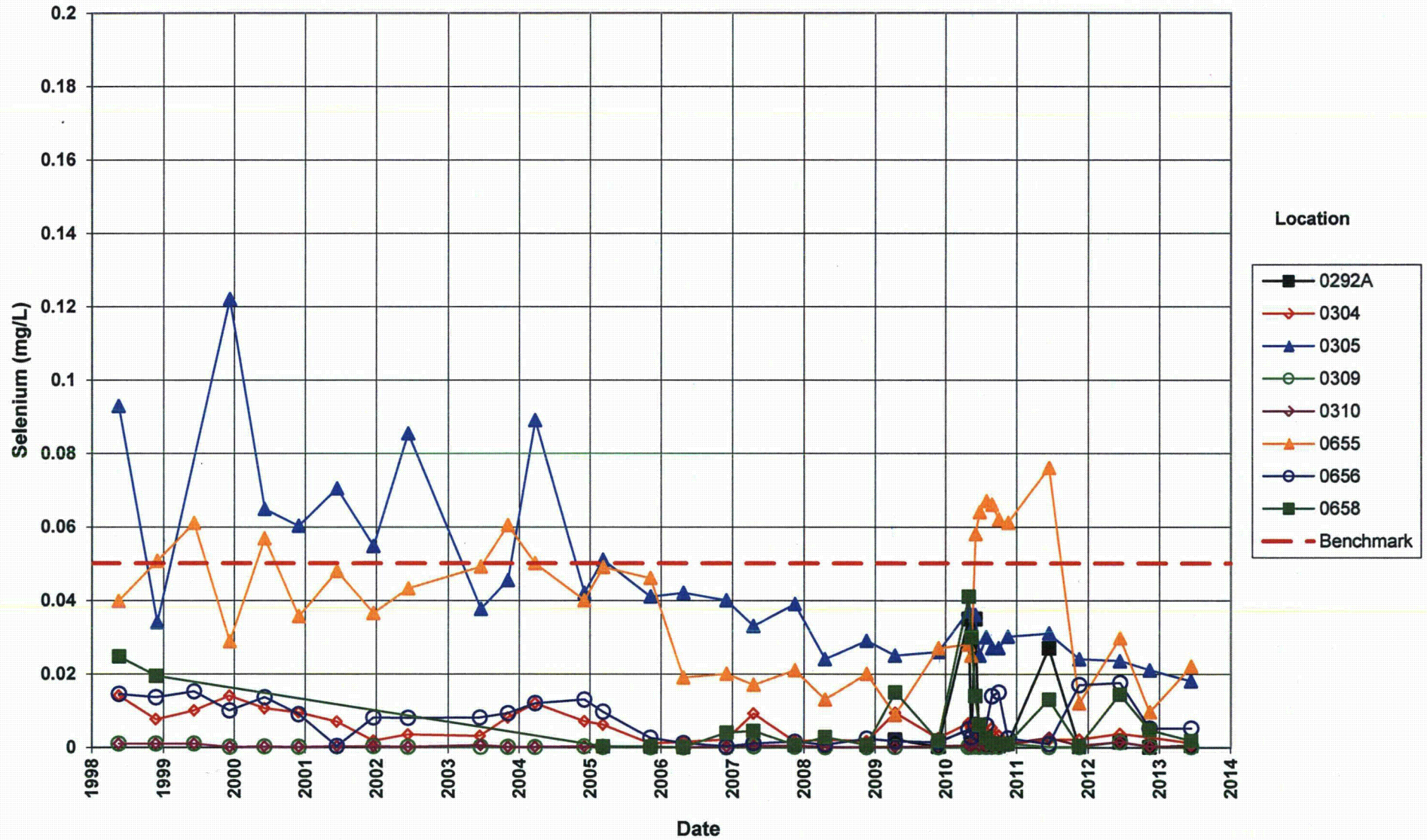
Rifle New Processing Site Vanadium Concentration



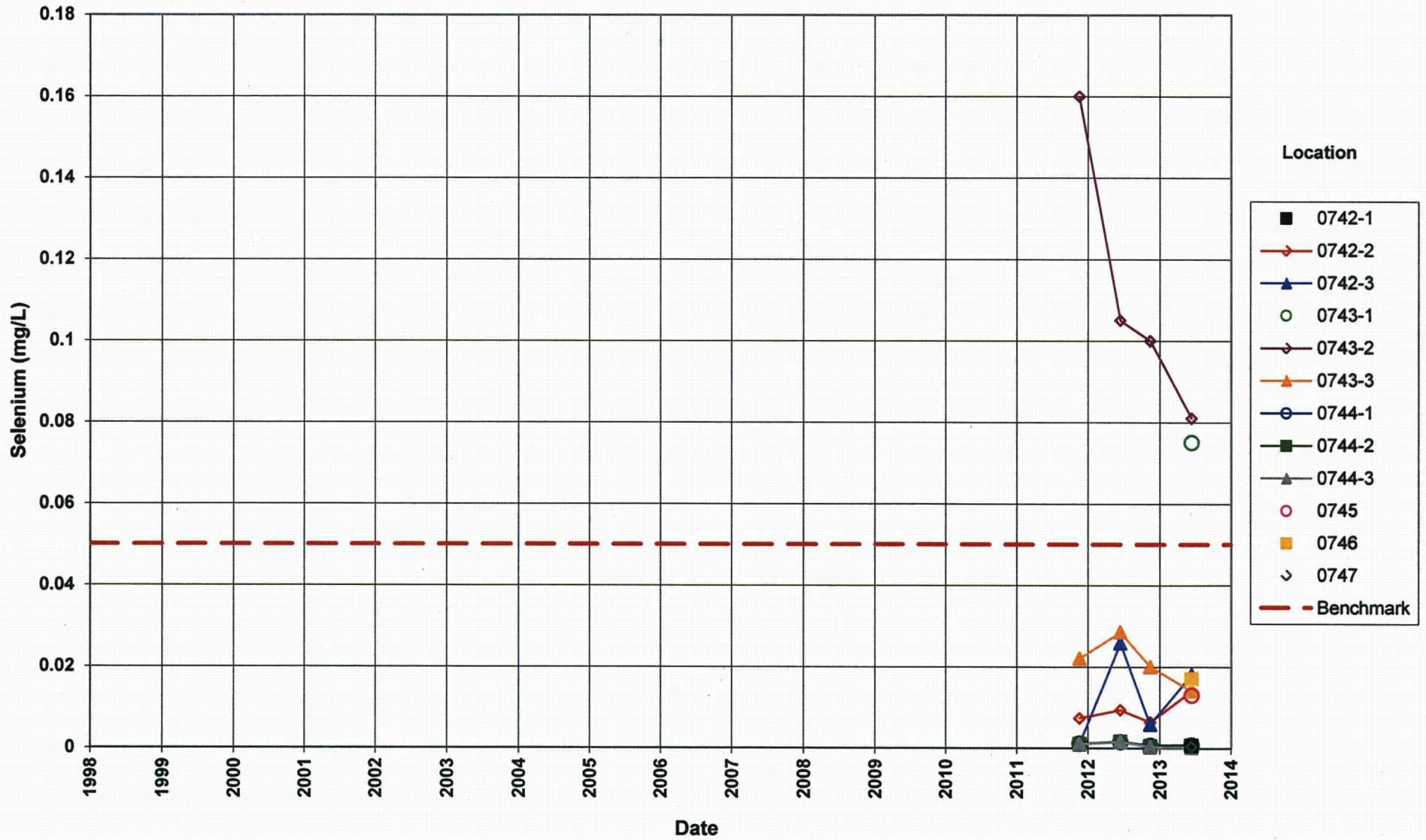
**Old Rifle Groundwater
Time-Concentration Graphs**

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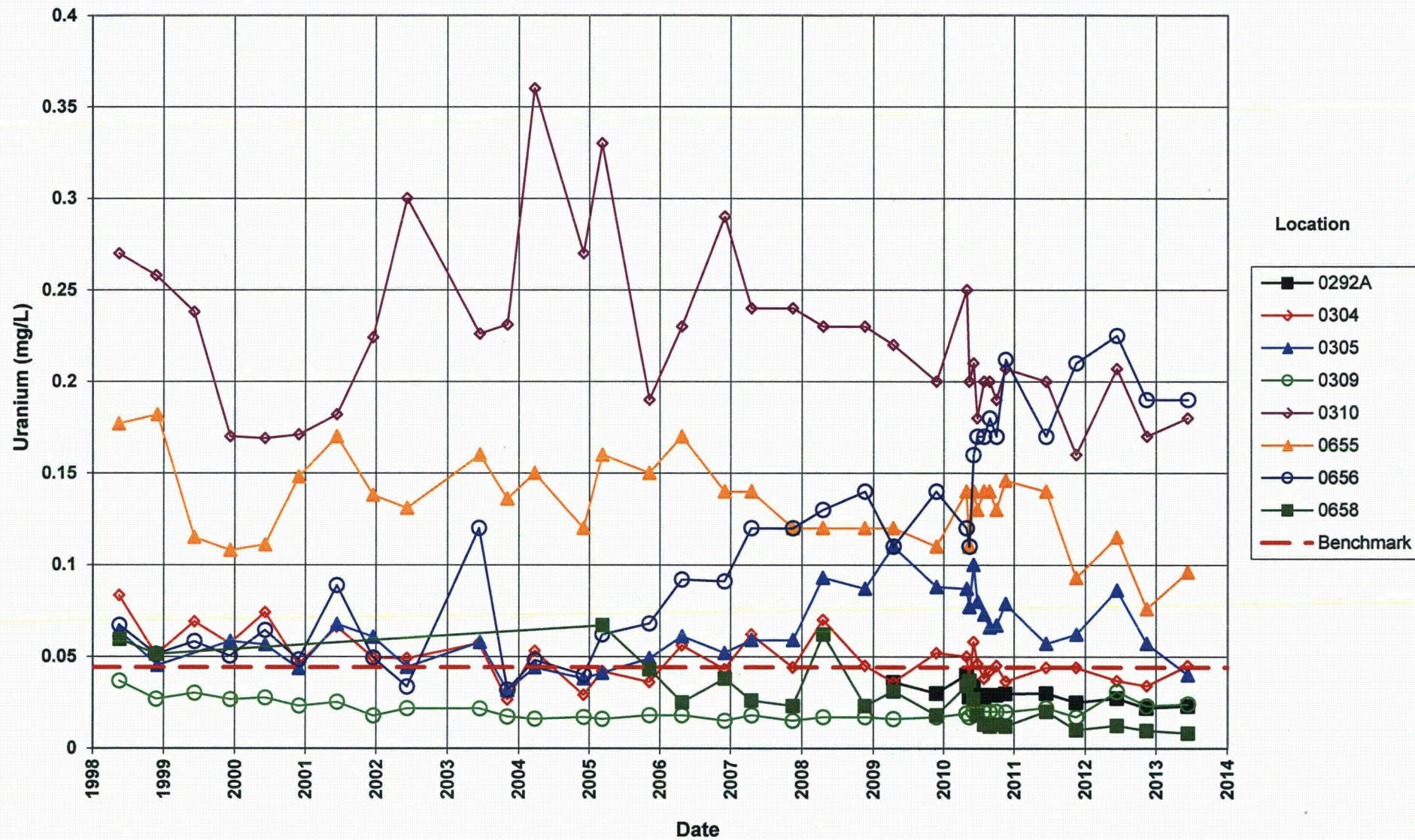
Rifle Old Processing Site
 Selenium Concentration
 Benchmark = 0.05 mg/L



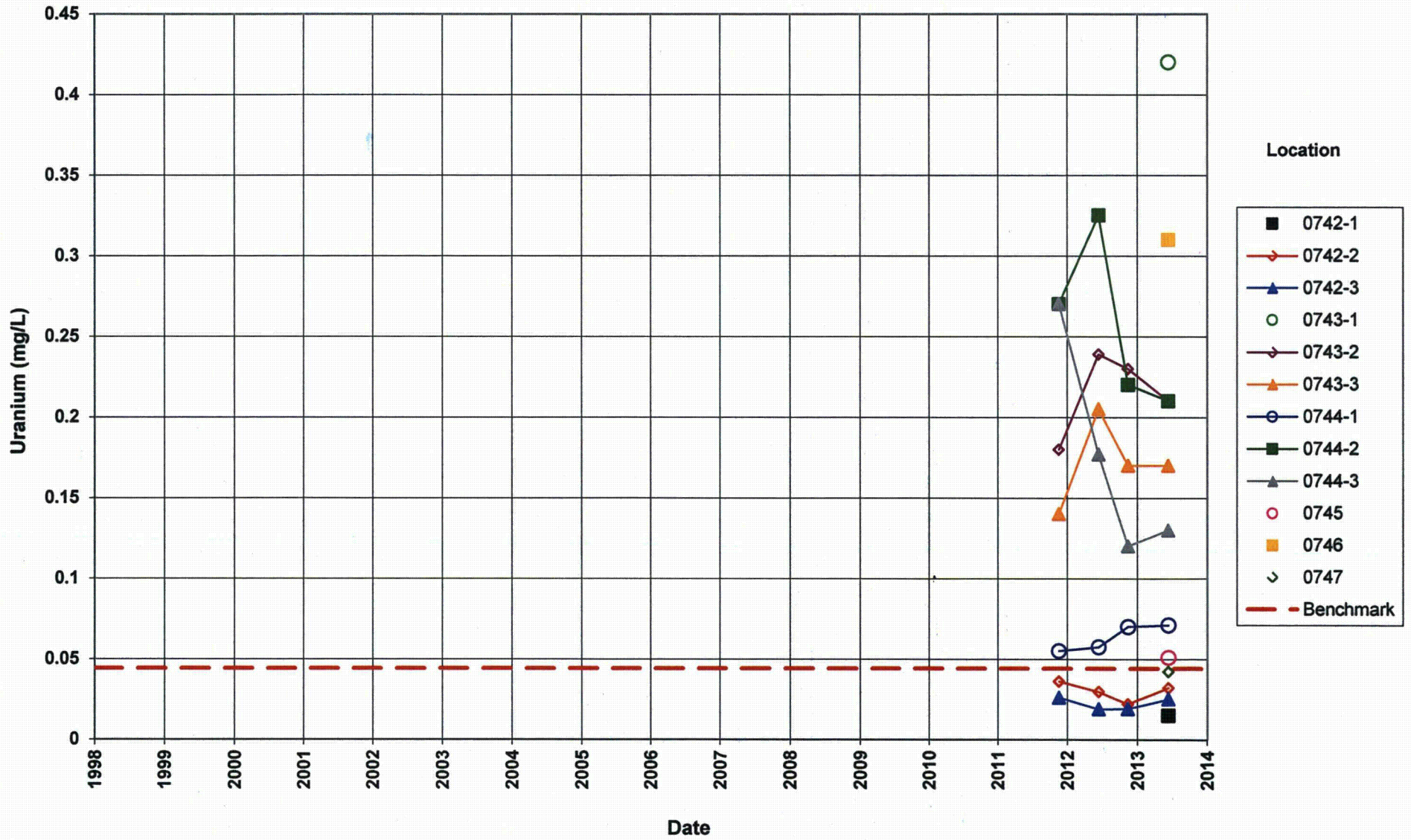
Rifle Old Processing Site
Selenium Concentration
Benchmark = 0.05 mg/L



**Rifle Old Processing Site
Uranium Concentration**
Benchmark = 0.044 mg/L

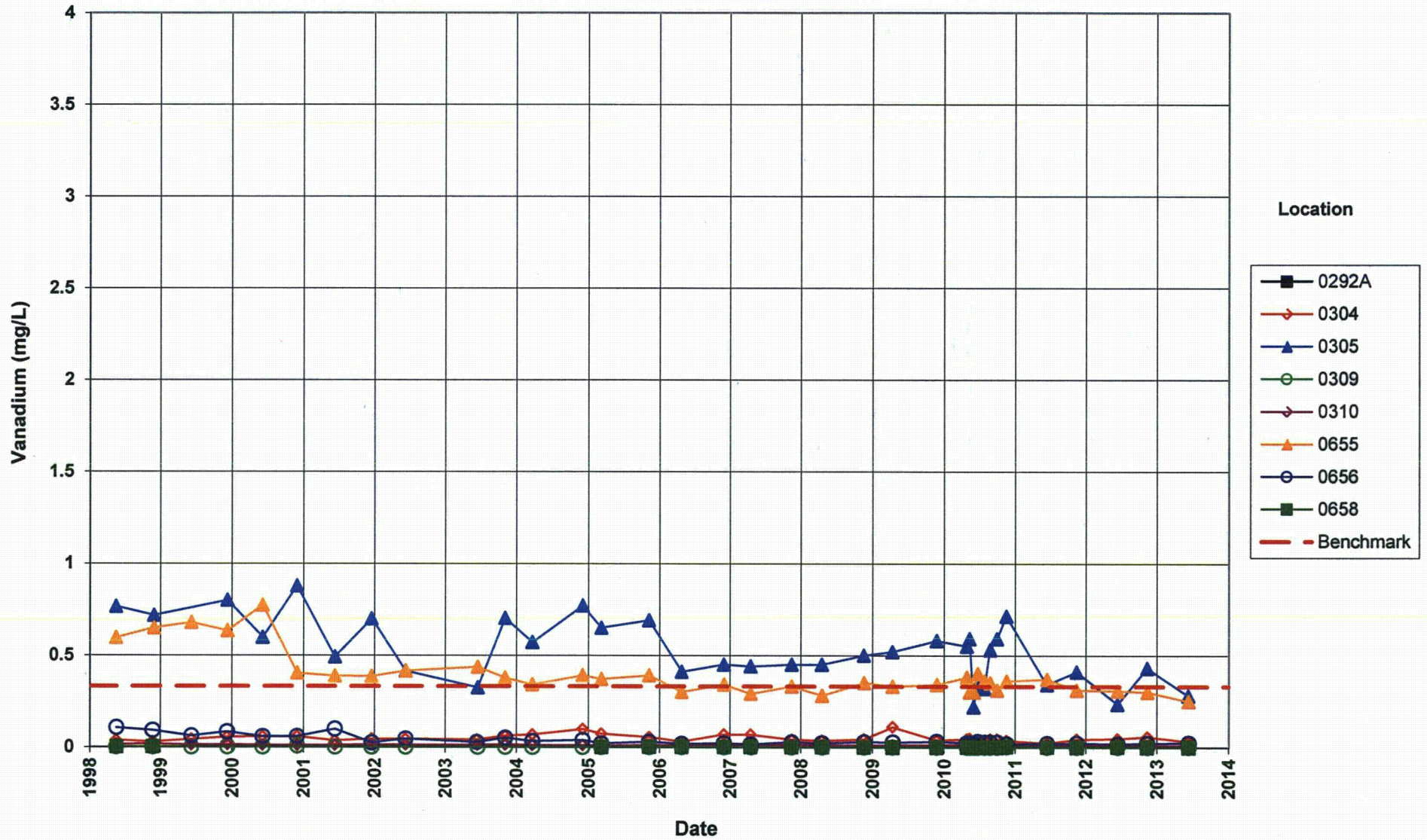


**Rifle Old Processing Site
Uranium Concentration**
Benchmark = 0.044 mg/L

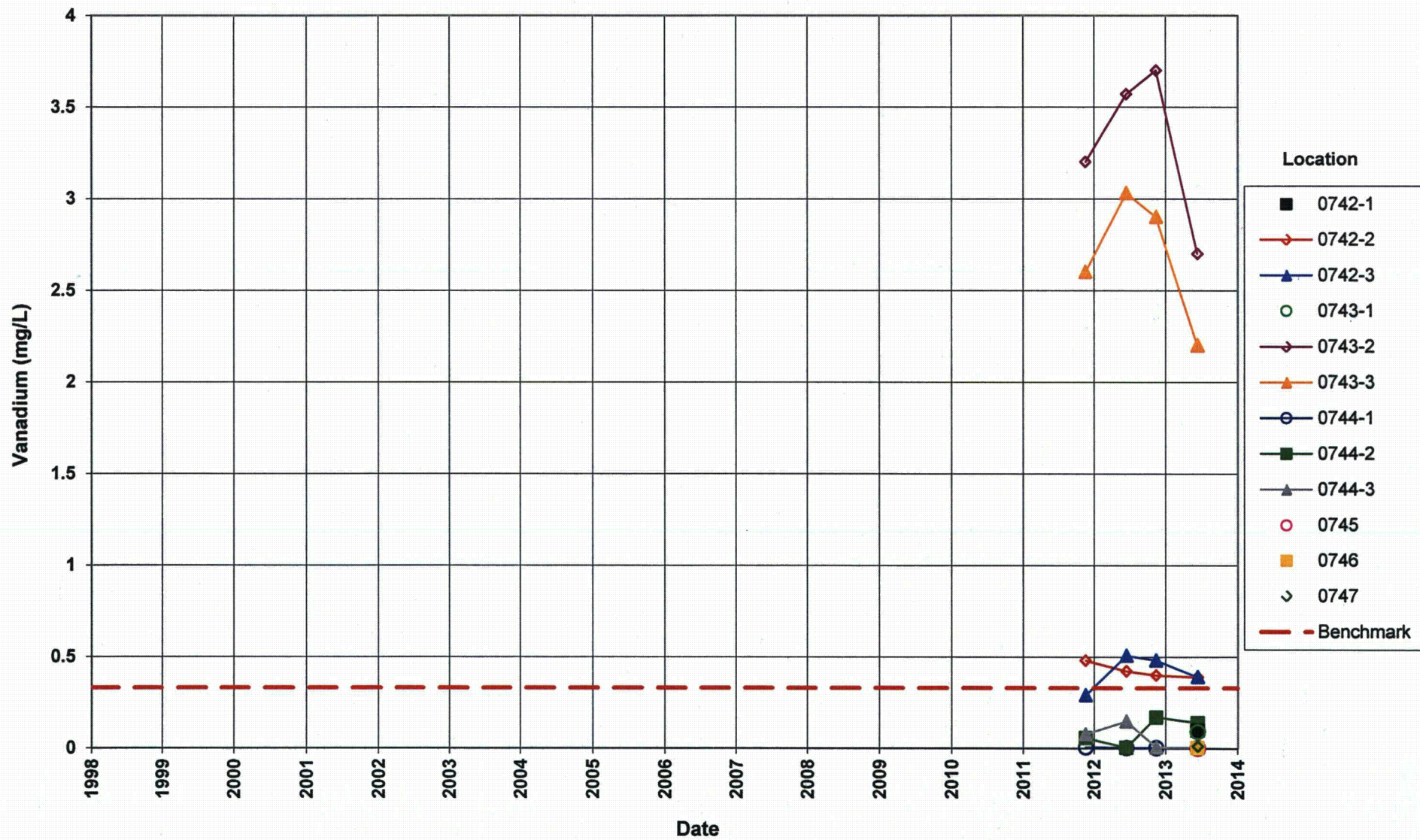


Rifle Old Processing Site Vanadium Concentration

Benchmark= 0.33 mg/L



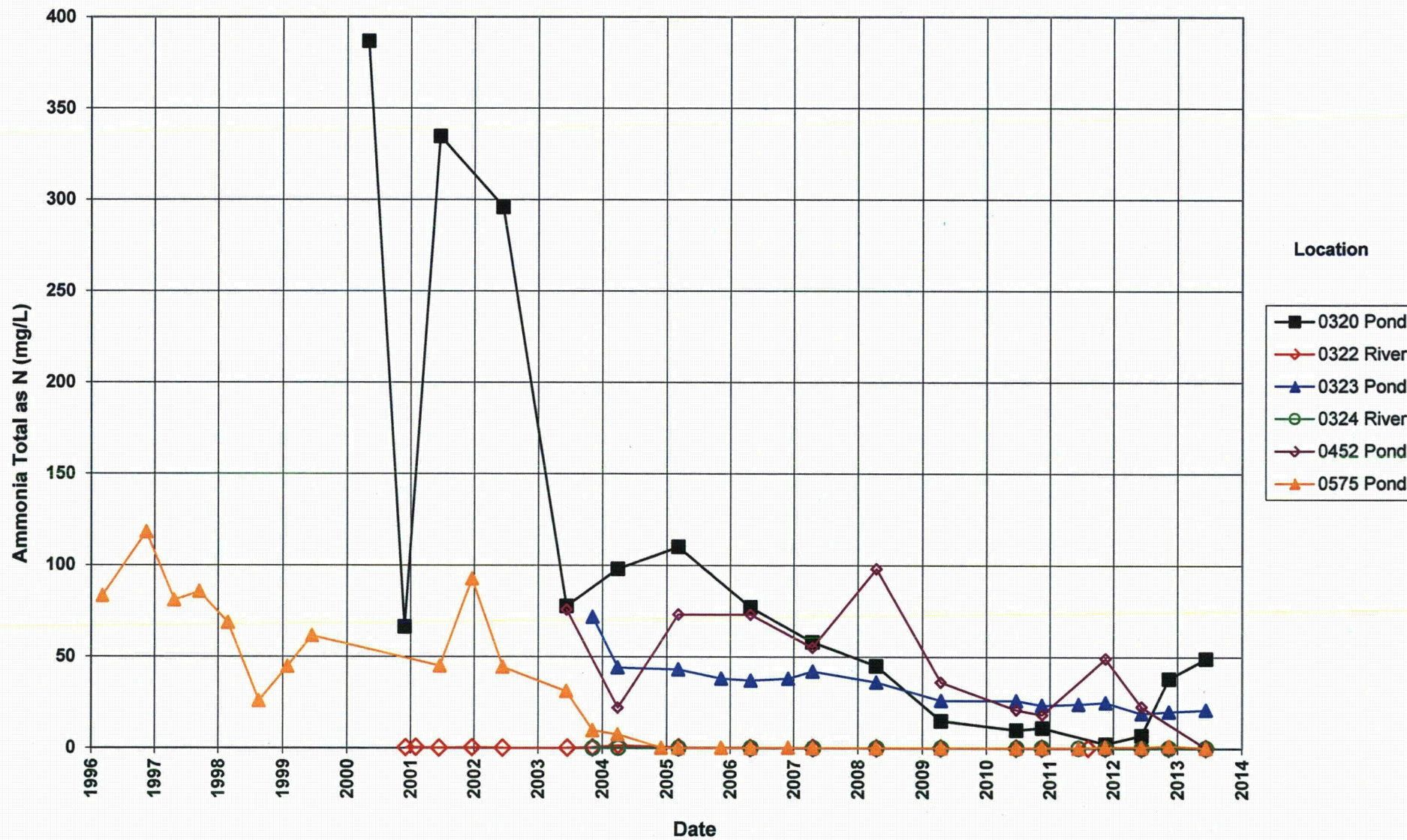
**Rifle Old Processing Site
Vanadium Concentration**
Benchmark= 0.33 mg/L



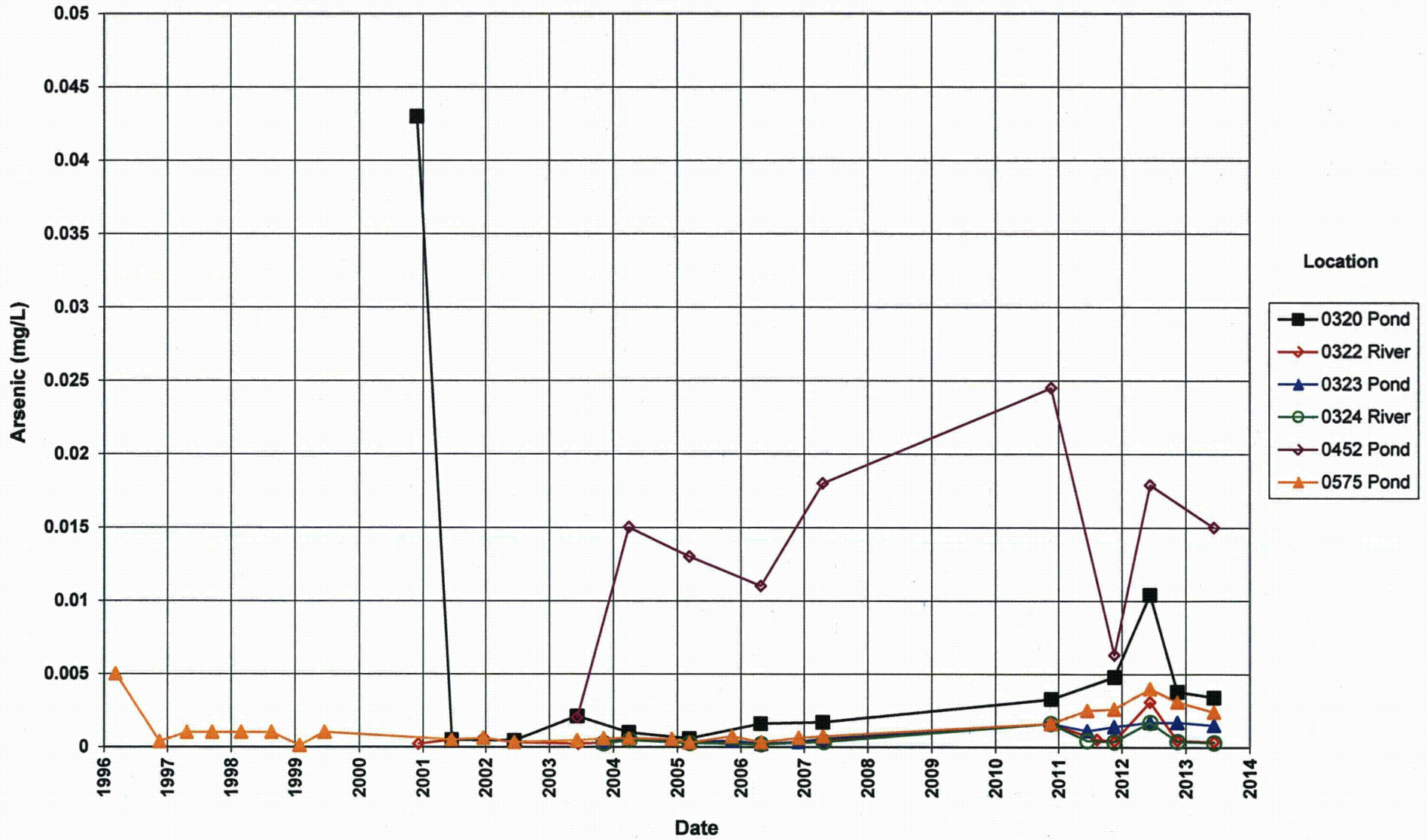
**New Rifle Surface Water
Time-Concentration Graphs**

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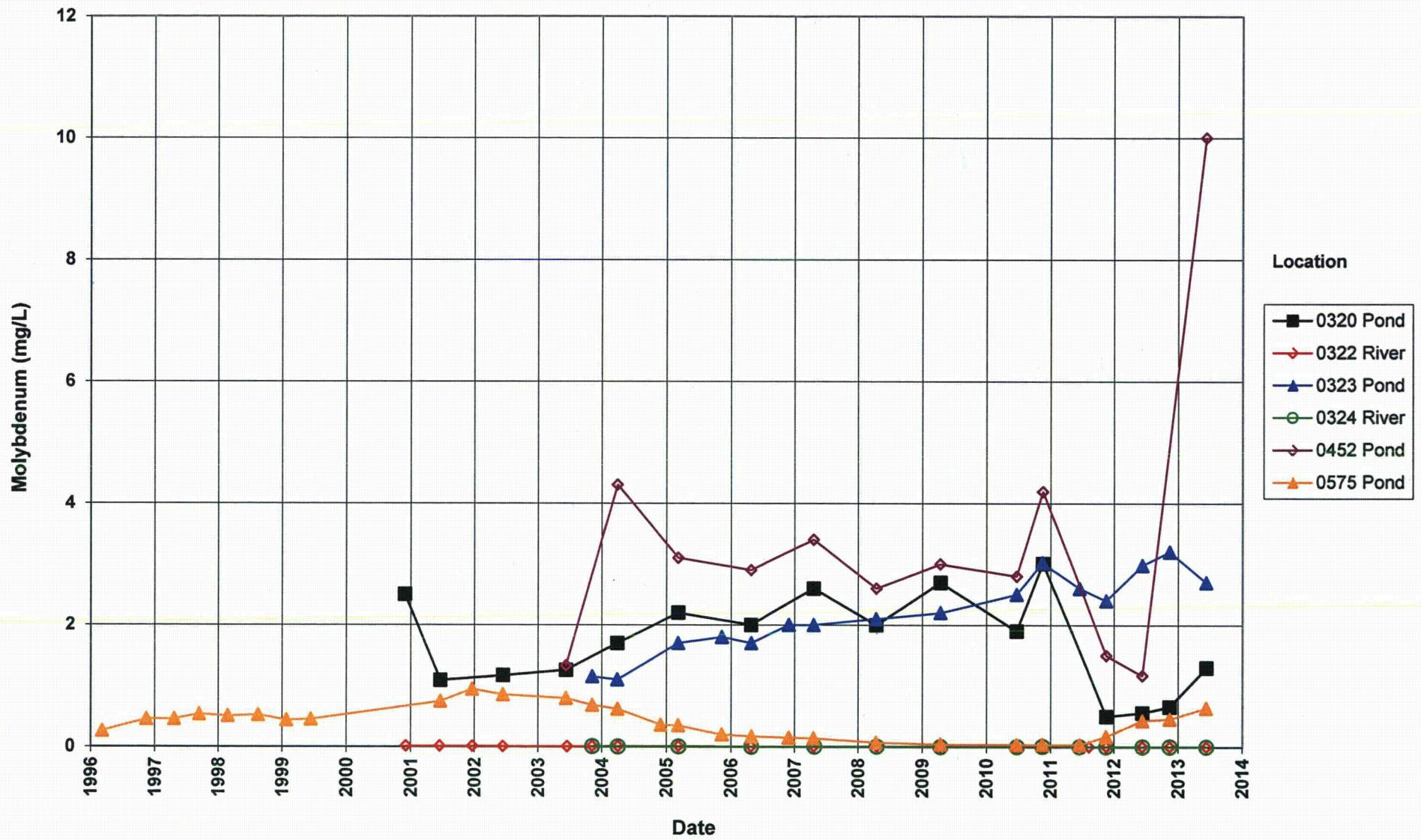
Rifle New Processing Site Ammonia Total as N Concentration



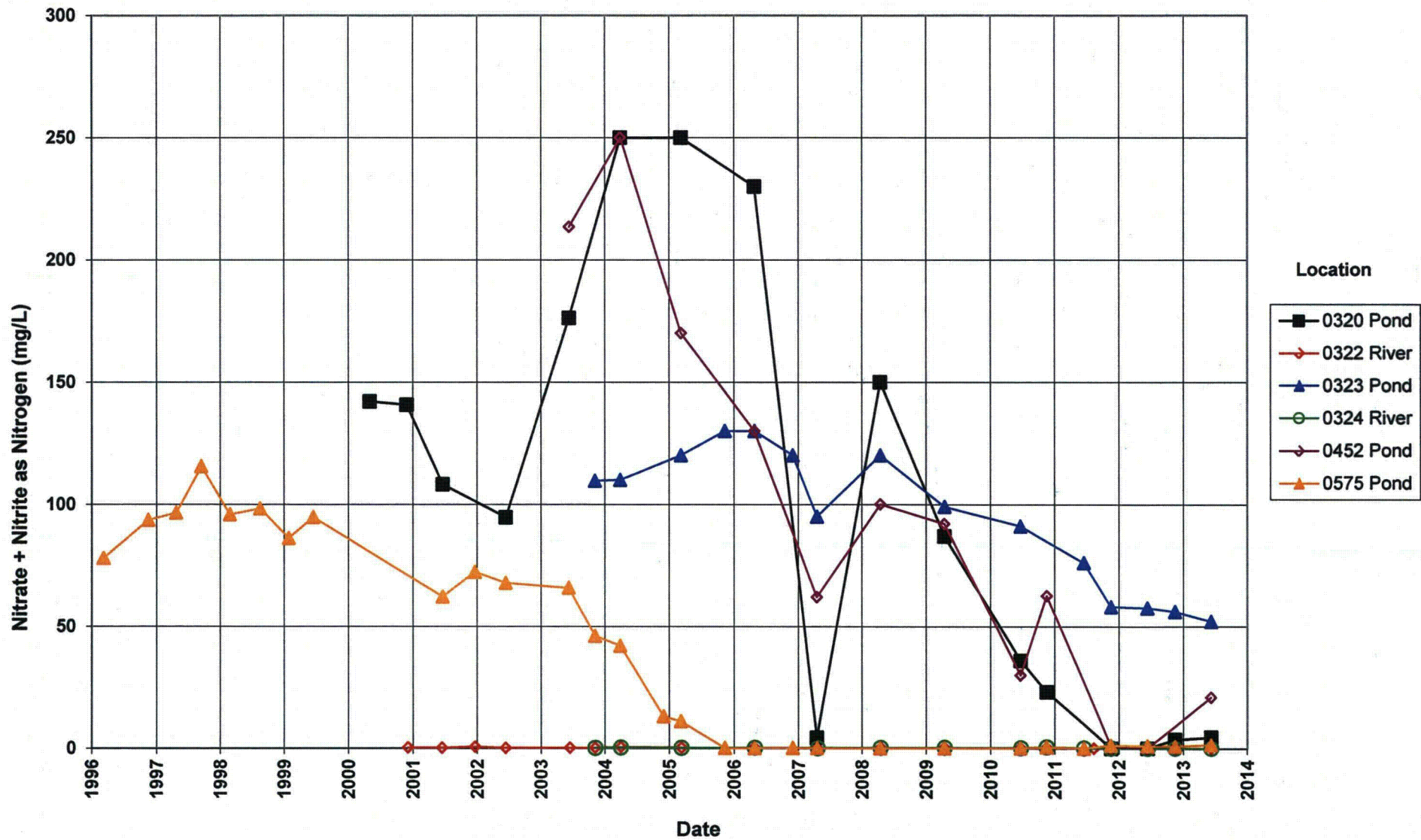
Rifle New Processing Site Arsenic Concentration



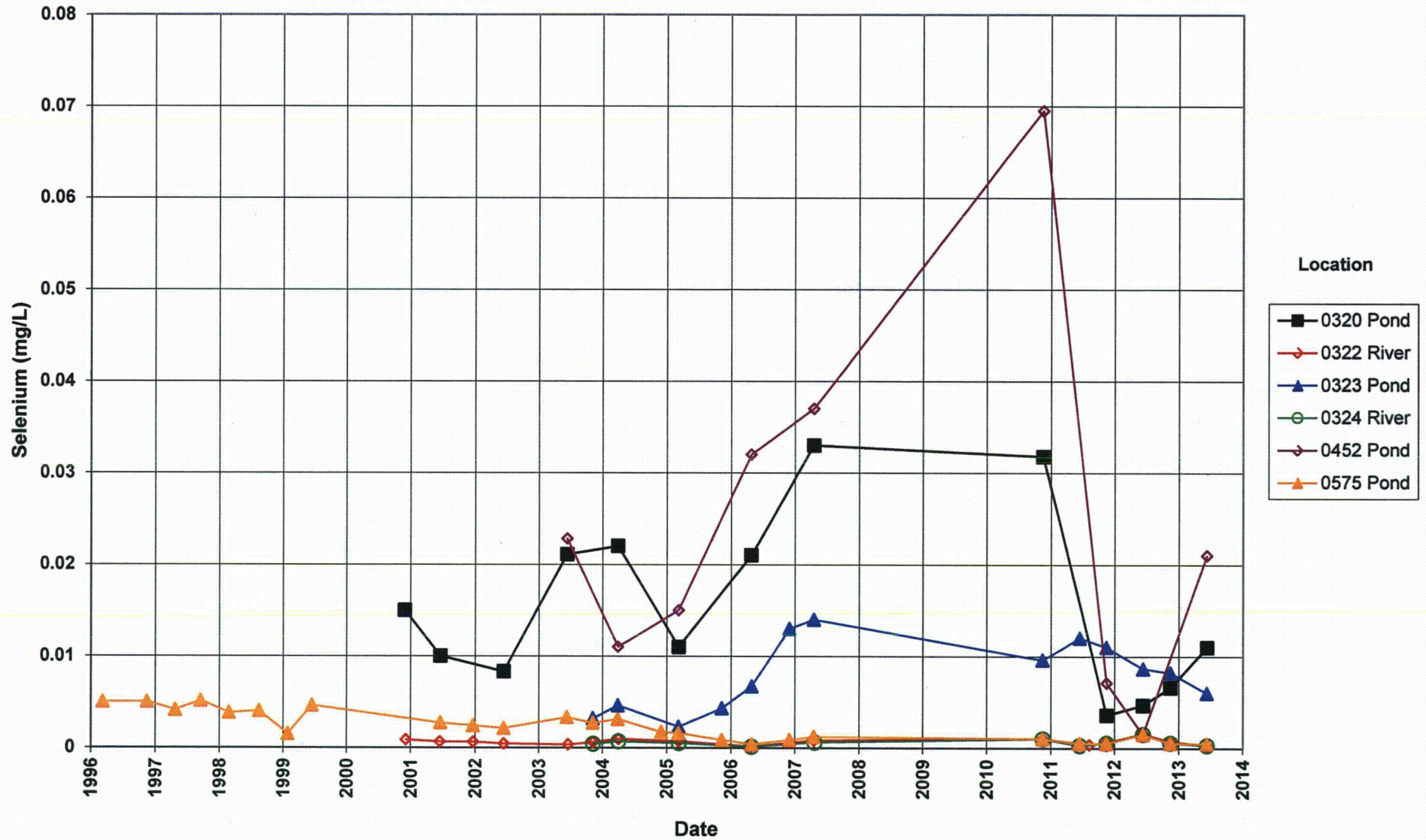
Rifle New Processing Site Molybdenum Concentration



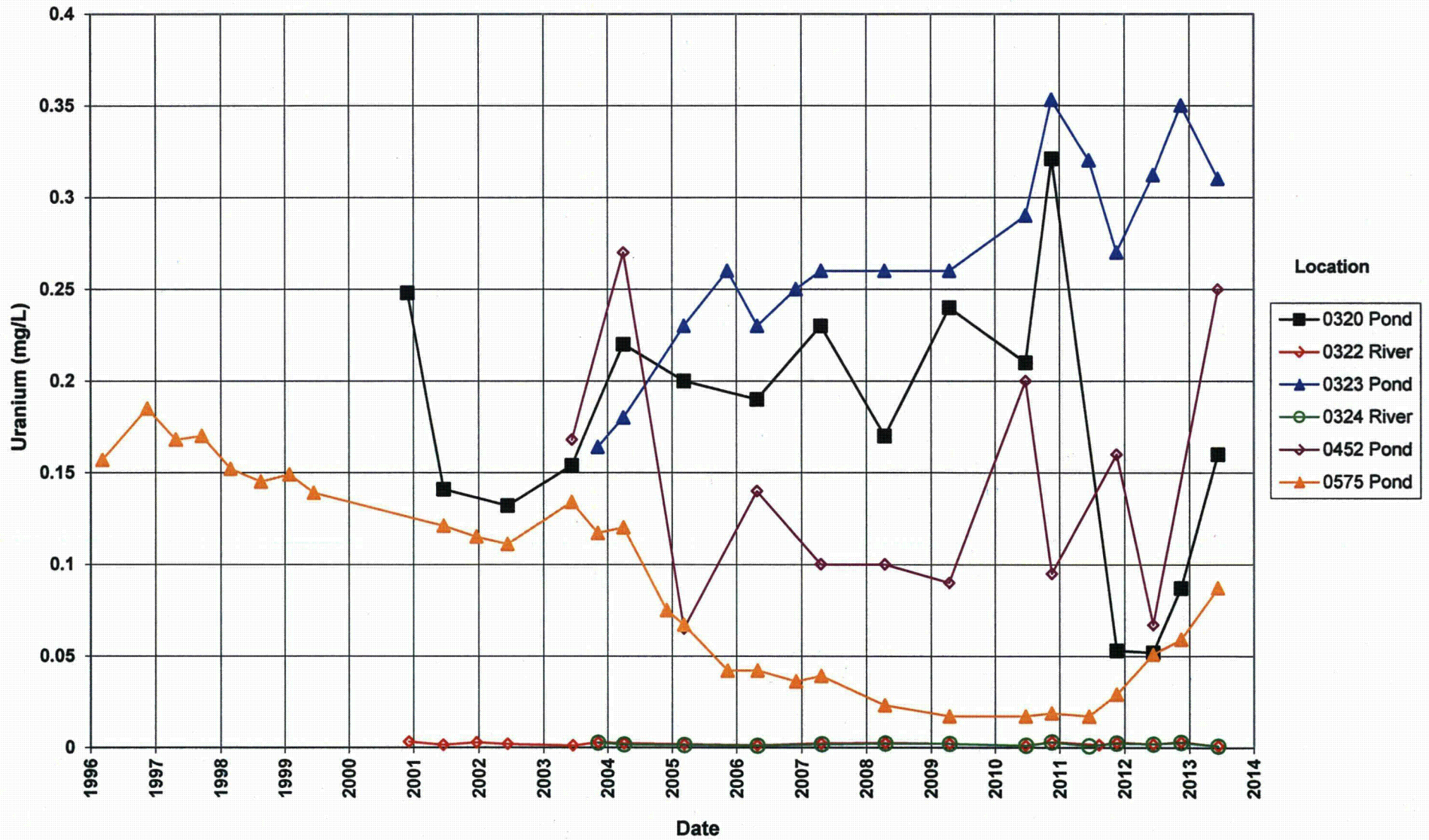
Rifle New Processing Site Nitrate + Nitrite as Nitrogen Concentration



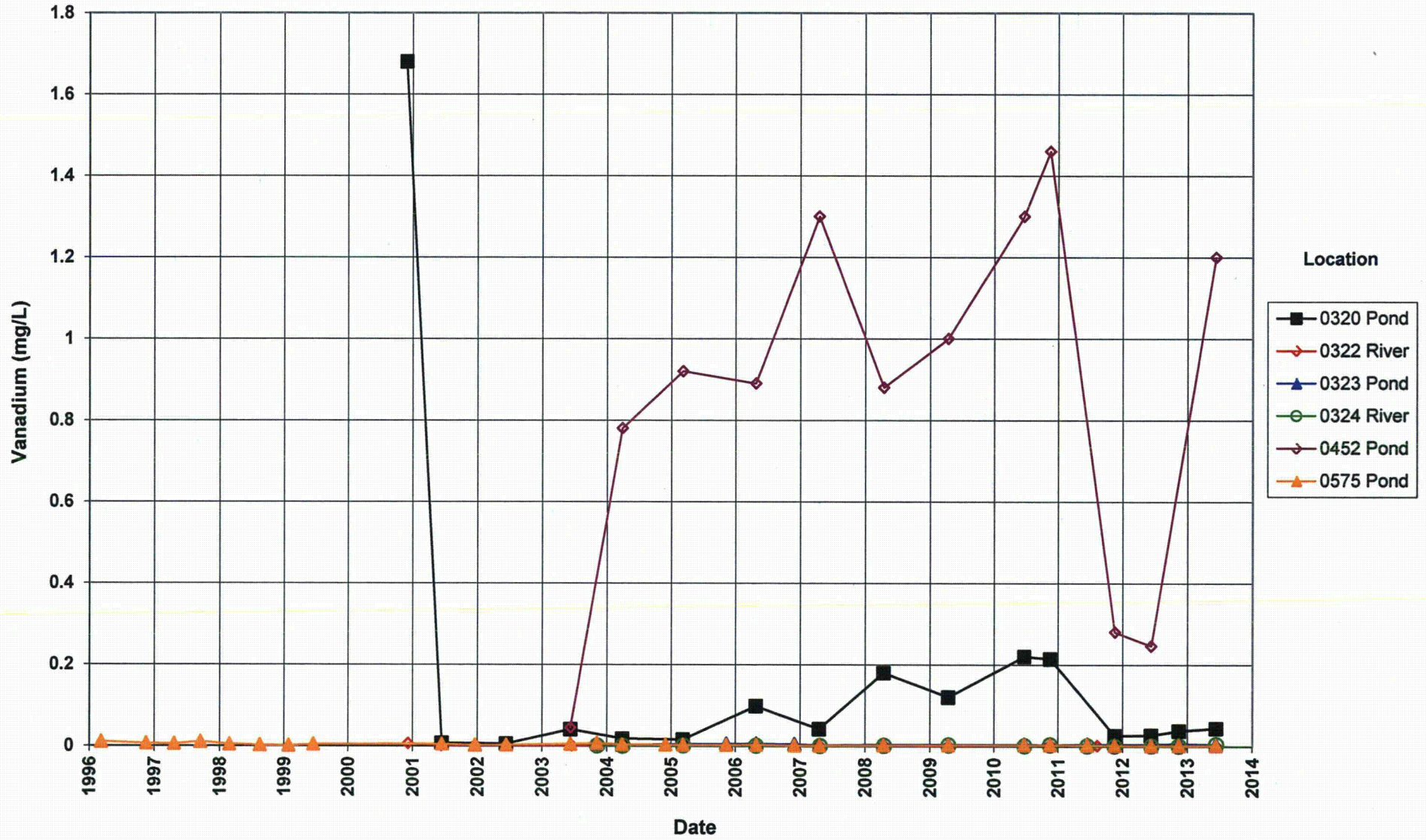
Rifle New Processing Site Selenium Concentration



Rifle New Processing Site Uranium Concentration



Rifle New Processing Site Vanadium Concentration

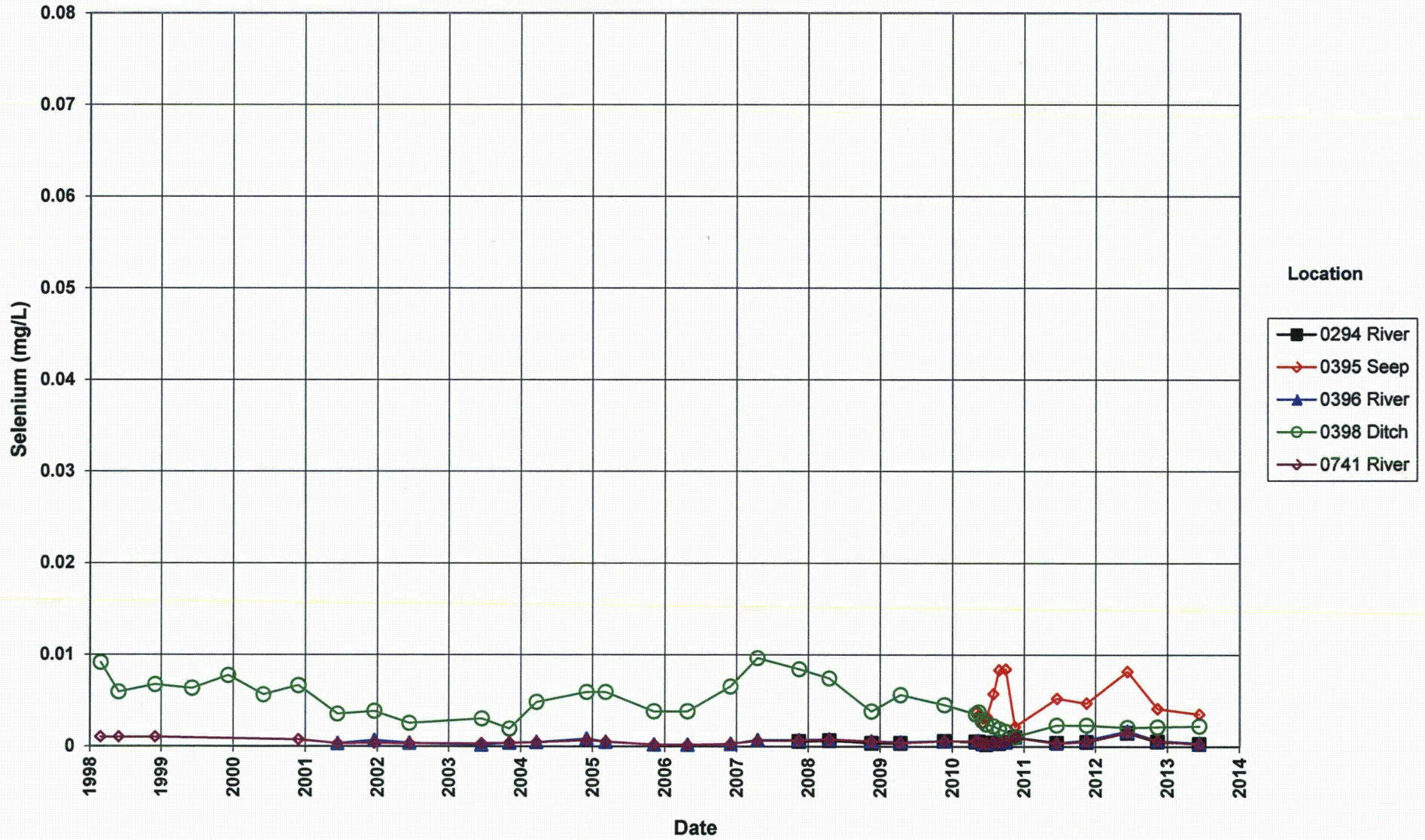


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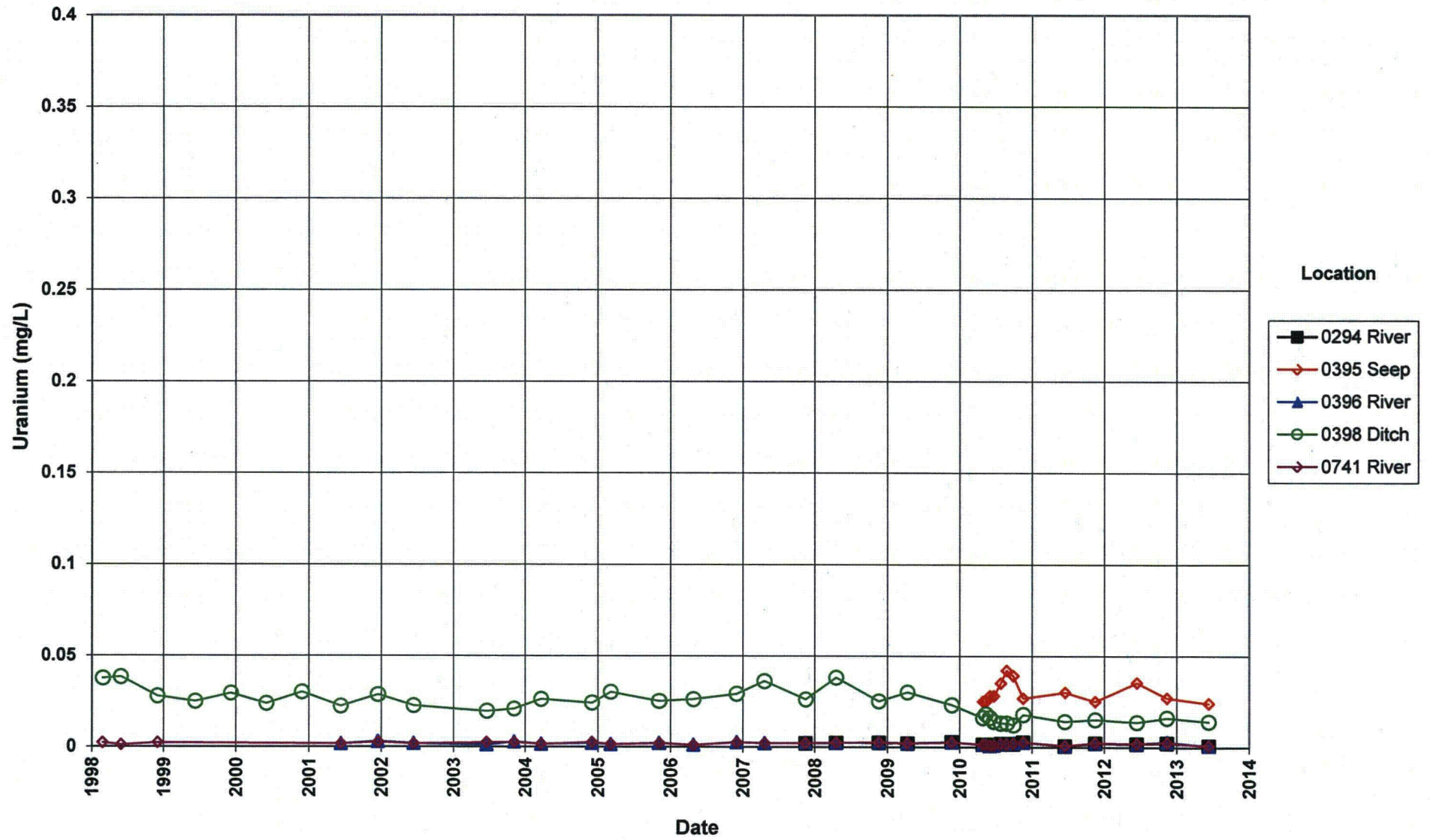
**Old Rifle Surface Water
Time-Concentration Graphs**

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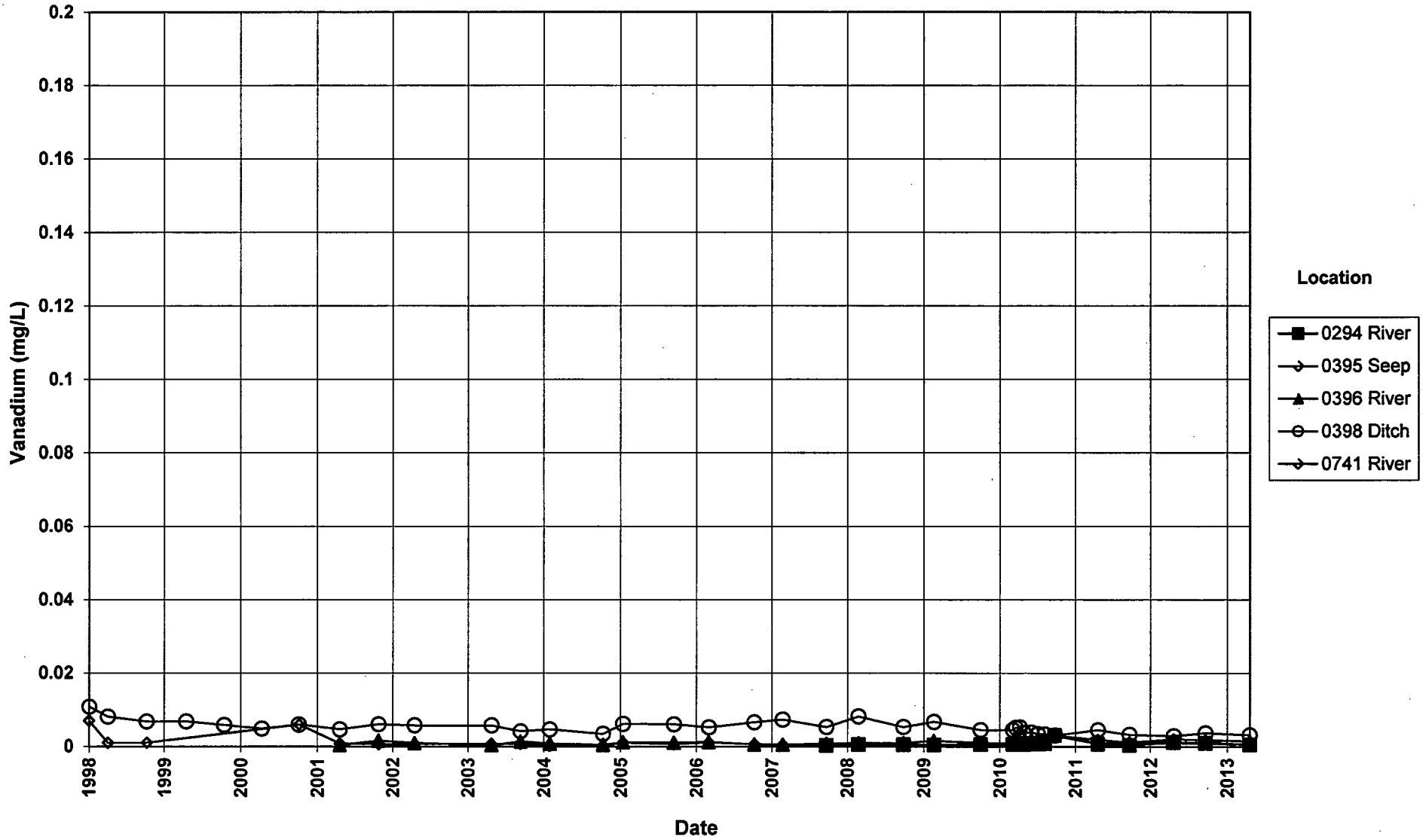
Rifle Old Processing Site Selenium Concentration



Rifle Old Processing Site Uranium Concentration



Rifle Old Processing Site Vanadium Concentration



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Attachment 3
Sampling and Analysis Work Order

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established 1959

Task Order LM-501
Control Number 13-0559

May 13, 2013

U.S. Department of Energy
Office of Legacy Management
ATTN: Richard Bush
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
June 2013 Environmental Sampling at Rifle, Colorado, Old and New,
Processing Sites

REFERENCE: Task Order LM00-501-02-116-402, Rifle, Colorado, Old and New,
Processing Sites

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Rifle, Colorado. Enclosed are the maps and tables specifying sample locations and analytes for monitoring at the Rifle, Old and New, sites. Water quality data will be collected from these sites as part of the environmental sampling currently scheduled to begin the week of June 10, 2013.

The following lists show the monitoring wells and surface water locations scheduled to be sampled during this event.

Monitoring Wells*

New Rifle

| | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|
| 169 AI | 195 AI | 216 AI | 620 AI | 658 AI | 664 AL | 670 AI |
| 170 AI | 201 AI | 217 AI | 635 AI | 659 AI | 669 AI | 855 AI |
| 172 AI | 215 AI | 590 AI | | | | |

Old Rifle

| | | | | | | |
|---------|--------|----------|----------|----------|----------|----------|
| 292A AI | 309 AI | 656 AI | 742-2 Nr | 743-1 Nr | 743-3 Nr | 744-2 Nr |
| 304 AI | 310 AI | 658 AI | 742-3 Nr | 743-2 Nr | 744-1 Nr | 744-3 Nr |
| 305 AI | 655 AI | 742-1 Nr | | | | |

*NOTE: AI = alluvium; Nr = no recovery of data for classifying

Surface Locations

New Rifle

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 320 | 322 | 323 | 324 | 452 | 453 | 575 |
|-----|-----|-----|-----|-----|-----|-----|

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

Richard Bush
Control Number 13-0559
Page 2

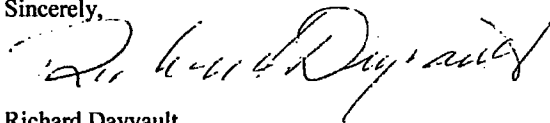
Old Rifle

294 395 396 398 741

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

Please contact me at (970) 248-6375 if you have any questions.

Sincerely,



Richard Dayvault
Site Lead

RD/lcg/lb

Enclosures (3)

cc: (electronic)

Karl Stoeckle, DOE
Richard Dayvault, Stoller
Steve Donovan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
EDD Delivery
rc-grand.junction
File: RFN 410.02(A)
File: RFO 410.02(A)

Constituent Sampling Breakdown

| Site | Rifle | | | | | Required Detection Limit (mg/L) | Analytical Method | Line Item Code |
|------------------------------------|-------------|---------------|----------|----------|----------|---------------------------------|-------------------|----------------|
| | Groundwater | Surface Water | | | | | | |
| Analyte | | | | | | | | |
| Approx. No. Samples/yr | 57 | 24 | | | | | | |
| Field Measurements | | | | | | | | |
| Alkalinity | X | | X | | | | | |
| Dissolved Oxygen | | | | | | | | |
| Redox Potential | X | | X | | | | | |
| pH | X | | X | | | | | |
| Specific Conductance | X | | X | | | | | |
| Turbidity | X | | | | | | | |
| Temperature | X | | X | | | | | |
| Laboratory Measurements | | | | | | | | |
| | *RFO | *RFN | RFO | RFN | RFL | | | |
| Aluminum | | | | | | | | |
| Ammonia as N (NH3-N) | | X | | X | | 0.1 | EPA 350.1 | WCH-A-005 |
| Arsenic | | X | | X | | 0.0001 | SW-846 6020 | LMM-02 |
| Calcium | | | | | | | | |
| Chloride | | | | | | | | |
| Chromium | | | | | | | | |
| Gross Alpha | | | | | | | | |
| Gross Beta | | | | | | | | |
| Iron | | | | | | | | |
| Lead | | | | | | | | |
| Magnesium | | | | | | | | |
| Manganese | | | | | | | | |
| Molybdenum | | X | | X | | 0.003 | SW-846 6020 | LMM-02 |
| Nickel | | | | | | | | |
| Nickel-63 | | | | | | | | |
| Nitrate + Nitrite as N (NO3+NO2)-N | | X | | X | | 0.05 | EPA 353.1 | WCH-A-022 |
| Potassium | | | | | | | | |
| Radium-226 | | | | | | | | |
| Radium-228 | | | | | | | | |
| Selenium | X | X | X | X | | 0.0001 | SW-846 6020 | LMM-02 |
| Silica | | | | | | | | |
| Sodium | | | | | | | | |
| Strontium | | | | | | | | |
| Sulfate | | | | | | | | |
| Sulfide | | | | | | | | |
| Total Dissolved Solids | | | | | | | | |
| Total Organic Carbon | | | | | | | | |
| Uranium | X | X | X | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Vanadium | X | X | X | X | X | 0.0003 | SW-846 6020 | LMM-02 |
| Zinc | | | | | | | | |
| Total No. of Analytes | 3 | 7 | 3 | 7 | 2 | | | |

*RFN = New Rifle; *RFO = Old Rifle

Note: All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

**Sampling Frequencies for Locations at
Rifle, Colorado**

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|-------------------------|-----------|--------------|----------|------------|-------------|-------------------|
| Monitoring Wells | | | | | | |
| New Rifle | | | | | | |
| 169 | | X | | | | |
| 170 | | X | | | | |
| 172 | | X | | | | |
| 195 | | X | | | | |
| 201 | | X | | | | Data logger |
| 215 | | X | | | | |
| 216 | | X | | | | |
| 217 | | X | | | | |
| 590 | | X | | | | Data logger |
| 620 | | X | | | | |
| 635 | | X | | | | |
| 658 | | X | | | | |
| 659 | | X | | | | |
| 664 | | X | | | | |
| 669 | | X | | | | |
| 670 | | X | | | | |
| 855 | | X | | | | |
| Old Rifle | | | | | | |
| 292A | | X | | | | GCAP; bkgd well |
| 304 | | X | | | | GCAP |
| 305 | | X | | | | GCAP |
| 309 | | X | | | | GCAP |
| 310 | | X | | | | GCAP; data logger |
| 655 | | X | | | | GCAP; data logger |
| 656 | | X | | | | GCAP |
| 658 | | X | | | | Background well |
| 742-1 | | X | | | | Background well |
| 742-2 | | X | | | | |
| 742-3 | | X | | | | |
| 743-1 | | X | | | | Background well |
| 743-2 | | X | | | | |
| 743-3 | | X | | | | |
| 744-1 | | X | | | | |
| 744-2 | | X | | | | |
| 744-3 | | X | | | | Background well |

**Sampling Frequencies for Locations at
Rifle, Colorado**

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|--------------------------|-----------|--------------|----------|------------|-------------|-----------------------------|
| Surface Locations | | | | | | |
| New Rifle | | | | | | |
| 320 | | X | | | | Wetland Pond |
| 322 | | X | | | | Colorado River |
| 323 | | X | | | | Gravel pit pond |
| 324 | | X | | | | Colorado River downgradient |
| 452 | | X | | | | Wetland Pond |
| 453 | | X | | | | Wetland Pond |
| 575 | | X | | | | Gravel pit pond |
| Old Rifle | | | | | | |
| 294 | | X | | | | River, upstream |
| 395 | | X | | | | Seep, upgradient |
| 396 | | X | | | | River |
| 398 | | X | | | | Ditch, onsite |
| 741 | | X | | | | River |

Semi-annual sampling conducted in June and November; annual sampling conducted for Rifle Disposal Cell in July

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Attachment 4
Trip Report

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Memorandum

DATE: June 19, 2013
 TO: Richard Dayvault
 FROM: Daniel Sellers
 SUBJECT: Trip Report

Site: New Rifle and Old Rifle, Colorado, Processing Sites

Dates of Sampling Event: June 10-12, 2013

Team Members: Joe Treviño and Dan Sellers

Number of Locations Sampled: Samples were collected as follows:

| Site ID | Site | Location Type | Locations That Were Sampled | Dry Locations | Planned Locations (Identified on the sampling notification letter) |
|---------|-----------|------------------|-----------------------------|---------------|--|
| RFN01 | New Rifle | Monitoring Wells | 17 | 0 | 17 |
| RFN01 | New Rifle | Surface Water | 6 | 1 | 7 |
| RFO01 | Old Rifle | Monitoring Wells | 20 | 0 | 20* |
| RFO01 | Old Rifle | Surface Water | 5 | 0 | 5 |

* Three of the RFO01 monitoring wells are 3-port Continuous Multichannel Tubing (CMT) wells.

Locations Not Sampled/Reason: Surface water location RFN01 0453 was dry.

Location Specific Information:

| Site ID | Location IDs | Comments |
|---------|-------------------------|--|
| RFN01 | 0172, 0620 | Sampled with Jess Vann (Olsson Associates Consulting personnel). He took co-samples. Location 0172 had no petroleum odor. Olsson personnel disposed of 0172 purge water in a nearby tank. |
| RFN01 | 0669 and 670 | Category II well. |
| RFO01 | 0395 | This surface water is a seep with fairly good flow but no puddles were found. Samples were collected as follows: Dug small hole. Allowed water to fill hole. Water would not clear to turbidity of <10 NTUs. Samples were collected by peristaltic pump and tubing with weight and filtered. |
| RFO01 | 0745, 0746, and 0747 | These wells are not CMT wells. Single cased wells. |
| RFO01 | *0742 *0743 *0744 | These locations are 3-port CMT wells. Dedicated tubing has been cut for all nine ports. This tubing was saved in labeled bags. These bags are stored in Building 32 in a labeled box near the tubing storage area. |

• *See Field Variance Section.

Quality Control Sample Cross Reference: The following are the false identifications assigned to the quality control samples.

| False ID | Ticket Number | True ID | Sample Type | Associated Matrix |
|----------|---------------|--|-----------------|-------------------|
| 2237 | LHV 778 | RFO01-0310 | Duplicate* | Groundwater |
| 2238 | LHV 785 | Associated with RFN01-0320, 0322, 0323 0324, 0452, 0575 & RFO01- 0294, 0395, 0396, and 0741 | Equipment Blank | Water |
| 2948 | LHV 753 | RFN01-0590 | Duplicate* | Groundwater |
| 2949 | LHV 754 | RFN01-0575 | Duplicate | Surface water |
| 2505 | LHV 788 | RFO01-0743-3 | Duplicate* | Groundwater |

*Duplicates were collected by filling all bottles labeled with the location number first, then filling all bottles labeled with the false ID second.

Report Identification Number (RIN) Assigned: 13065380. Field data sheets can be found in Crow\sms\13065380 in the Field Data folder.

Sample Shipment: Samples were shipped from Grand Junction to ALS Laboratory Group on June 13, 2013.

Water Level Measurements: Water levels were measured in all sampled wells.

Well Inspection Summary: No issues were identified.

Field Variance:

- CMT wells 0742, 0743, and 0744: WL stability cannot be verified in CMT wells because the ports are too narrow to accommodate a WL probe and sample tubing at the same time; Purging Criteria - the most volume (1 case volume) of water calculated, from any of the three ports for each well, was figured to be no more than 330ml (11ft *30ml/ft). Therefore, 500ml was purged prior to taking parameter readings. CAT I stability criteria was used prior to sampling.

Equipment: With the exceptions noted above, all equipment functioned properly. All wells were sampled using the low-flow procedure. Wells were sampled with a peristaltic pump and dedicated tubing or a dedicated bladder pump. Surface waters were sampled using a peristaltic pump and tubing reel, or by container immersion. An equipment blank was collected of the tubing reel used for sampling surface water. All other equipment was dedicated or disposable.

Regulatory: Nothing to note.

Institutional Controls:

Fences, Gates, and Locks: Nothing to note.

Signs: Nothing to note.

Trespassing/Site Disturbances: None observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: N/A

Vegetation/Noxious Weed Concerns: None observed.

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

Maintenance Requirements: None observed.

Safety Issues: None.

Access Issues:

- Vehicle access to RFN01 locations 0620 and 0324 is blocked by a locked gate owned by Williams Production. The combination to the lock has been provided by Bryan Hotard of Williams. *See the Field Notebook for the combination.*

Corrective Action Required: Need to write up a Program directive for future purging of CMT wells.

(DS/lg)

cc: (electronic)
Rich Bush, DOE
Dick Dayvault, Stoller
Steve Donovan, Stoller
EDD Delivery

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