

Data Validation Package

June 2012

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

October 2012

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Sampling Event Summary

Site: Old and New Rifle, Colorado, Processing Sites

Sampling Period: June 11–13, 2012

Forty-seven water samples were collected at New Rifle and Old Rifle, Colorado, Processing Sites. Old Rifle monitoring CMT well ports 0742-1 and 0743-1; and surface water locations RFN01 0453 and RFO01 Clough Creek were dry and could not be sampled. Duplicate samples were collected from New Rifle locations 0169 and 0172, and Old Rifle location 0292A. One equipment blank was collected. Sampling and analysis were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated).

New Rifle Site

Samples were collected at the New Rifle site from 19 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. Samples from wells 0689 and 0690 were collected during this event for the analysis of herbicides and pesticides. There were no herbicide or pesticide contaminants detected in the samples from either of these locations.

The contaminants of concern (COCs) at the New Rifle site are arsenic, molybdenum, nitrate + nitrite as nitrogen, selenium, uranium, and vanadium. All COCs except vanadium have a remedial action goal of the U.S. Environmental Protection Agency (EPA) groundwater standard or background concentration; an alternate concentration limit (ACL) of 50 milligrams per liter (mg/L) has been proposed for vanadium. The groundwater monitoring wells were sampled to monitor plume movement and natural flushing. Wells with contaminant concentrations that exceeded either the EPA groundwater standards or the maximum background concentration, whichever is greater, are listed in Table 1.

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

Analyte	Standard ^a	MBC ^b	Location	Concentration (mg/L)
Arsenic	0.05 mg/L	0.03 mg/L	0658	0.10
			0855	0.27
Molybdenum	0.10 mg/L	0.03 mg/L	0201	2.0
			0217	1.7
			0590	1.8
			0635	0.41
			0658	0.96
			0659	1.7
			0664	0.32
			0669	0.96
			0670	0.24
			0689	0.25
			0690	0.16
			0855	0.69

Table 1 (continued). New Rifle Monitoring Wells with Contaminant Concentrations that Exceed Standards

Analyte	Standard ^a	MBC ^b	Location	Concentration (mg/L)
Nitrate + Nitrite as Nitrogen	10 mg/L	5.22 mg/L	0170	11
			0201	73
			0590	29
			0620	73
			0635	13
			0659	13
			0664	16
			0689	29
Selenium	0.01 mg/L	0.041 mg/L	0590	0.056
			0658	1.1
			0659	0.065
			0664	0.17
			0670	0.26
			0689	0.81
			0690	0.071
			0855	0.96
Uranium	0.044 mg/L	0.067 mg/L	0172	0.072
			0201	0.12
			0217	0.16
			0590	0.073
			0635	0.090
			0658	0.074
			0659	0.096
			0669	0.12
Vanadium	Proposed ACL ^b = 50 mg/L		0670	0.086
			NA	NA

^a Standards are listed in 40 CFR 192.02 Table 1 to Subpart A.

^b Maximum background concentrations (MBCs) are from historical results at location RFO01 0658.

^c ACLs listed in *Ground Water Compliance Action Plan for the New Rifle, Colorado, Processing Site*.

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 concentrations of arsenic, molybdenum, selenium, and vanadium in well 0855 are trending downward after spiking in 2009.

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

Old Rifle Site

Samples were collected at the Old Rifle site from 17 monitoring wells and 5 surface locations in compliance with the 2001 *Ground Water Compliance Action Plan for the Old Rifle, Colorado, UMTRA Project Site*. The wells at locations 0742, 0743, and 0744 are 3-port CMT wells. Water levels were measured at each sampled well.

The COCs at the Old Rifle site are selenium, uranium, and vanadium. Locations with contaminant concentrations that exceeded EPA groundwater standards or ACLs are listed in Table 2.

Table 2. Old Rifle Locations with Contaminant Concentrations that Exceed Standards or ACLs

Analyte	Standard ^a	ACL or MBC	Location	Concentration (mg/L)
Selenium	0.01 mg/L	0.05 mg/L ^b	0305	0.024
			0655	0.030
			0656	0.018
			0658	0.014
			0742-3	0.026
			0743-2	0.11
			0743-3	0.029
Uranium	0.044 mg/L	0.067 mg/L ^c	0305	0.086
			0310	0.21
			0655	0.12
			0656	0.23
			0743-2	0.24
			0743-3	0.21
			0744-1	0.057
			0744-2	0.33
			0744-3	0.18
Vanadium	NA	POC: 1.0 mg/L ^b POE: 0.33 mg/L ^b	0743-3	3.0
			0743-2	3.6


^a Groundwater standards are listed in 40 CFR 192.02 Table 1 to Subpart A.

^b ACL proposed in *Ground Water Compliance Action Plan for the Old Rifle, Colorado, UMTRA Project Site*. A concentration of 1.0 mg/L is proposed as the ACL for vanadium at the point of compliance (POC) for any onsite DOE monitoring well. A concentration of 0.33 mg/L is proposed as the concentration limit for the point of exposure (POE), which is the Colorado River.

^c Maximum background concentrations (MBCs) are from historical results at location RFO01 0658.

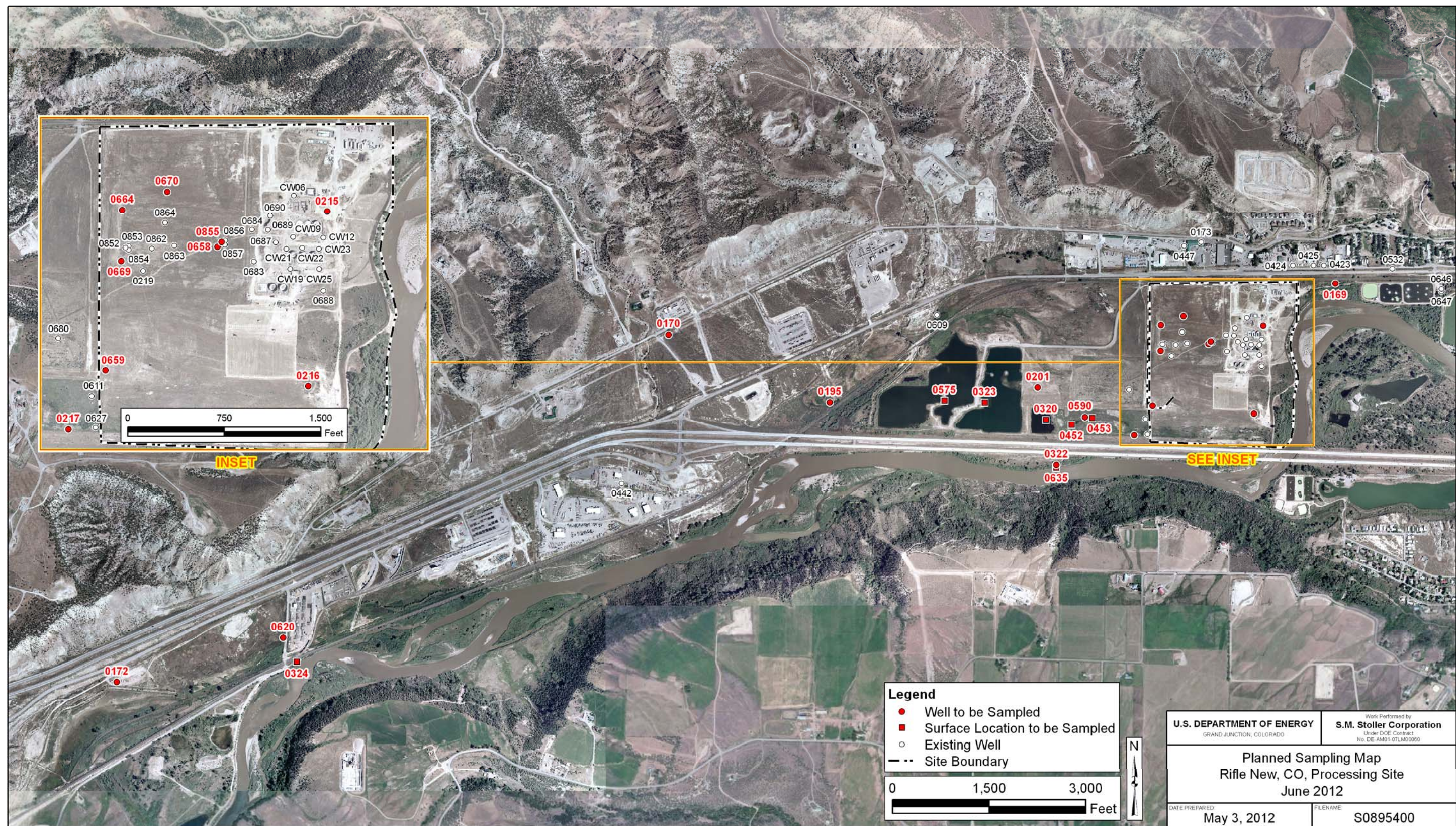
Time-concentration graphs from the locations sampled are included with the analytical data and indicate that the concentrations of the COCs are decreasing at many locations with the following notable exceptions. The uranium in well 0656 continues to show an upward trend, observed since 2005. The selenium concentration in well 0655 remains below the ACL after exceeding the ACL in 2010.

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.


 Richard Dayvault
 Site Lead, S. M. Stoller Corporation

10/10/12
 Date

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Sample Location Map for the New Rifle, Colorado, Processing Site



Sample Location Map for the Old Rifle, Colorado, Processing Site

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Rifle, Colorado	Date(s) of Water Sampling	June 11-13, 2012
Date(s) of Verification	September 10, 2012	Name of Verifier	Steve Donovan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	Yes	Work Order letter dated May 16, 2012.
2. Were the sampling locations specified in the planning documents sampled?	No	Old Rifle monitoring well locations 0742-1 and 0743-1; and surface water locations RFN01 0453 and RFO01 Clough Creek were dry and could not be sampled. Four locations were added after issuance of the Work Order letter.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibrations were performed on June 8 and 12, 2012.
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	No	ORP was not measured at location 0741 because of a suspected probe failure.
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	WL stability cannot be verified in CMT wells 0742, 0743, and 0744 because the ports are too narrow to accommodate a WL probe and sample tubing at the same time.
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	

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	Duplicate samples were collected from New Rifle locations 0169 and 0172, and Old Rifle location 0292A.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
13. Were samples collected in the containers specified?	Yes	The total carbon and total organic carbon analyses were performed using aliquots from the 500 mL HDPE bottle submitted for anion analyses.
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. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the "Date Signed" fields (FDCS)?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 12054589
Sample Event: June 11–13, 2012
Site(s): Rifle Processing Sites, Colorado
Laboratory: GEL Laboratories, Charleston, South Carolina
Work Order No.: 306160, 306163, 306170
Analysis: Metals, Organics, and Wet Chemistry
Validator: Steve Donovan
Review Date: September 6, 2012

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/PRO/S04325, continually updated) “Standard Practice for Validation of Laboratory Data.” The procedure was applied at Level 3, Data. 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	LMM-02	SW-846 3005A	SW-846 6020
Calcium, Magnesium, Potassium, Sodium, Vanadium	LMM-01	SW-846 3005A	SW-846 6010B
Chloride	MIS-A-045	EPA 300.0	EPA 300.0
Herbicides	HER-A-001	SW-846 8151A	SW-846 8151A
Nitrate + Nitrite as N	WCH-A-022	EPA 353.2	EPA 353.2
Pesticides	PEP-A-003	SW-846 3510C	SW-846 8081A
Sulfate	MIS-A-045	EPA 300.0	EPA 300.0
Total Carbon	LMW-01	SM 5310D	SM 5310D
Total Organic Carbon	MIS-A-021	SM 5310D	SM 5310D

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
306160001	0169	Molybdenum	J	Poor duplicate precision
306163008	0169 duplicate	Molybdenum	J	Poor duplicate precision
306163006	0690	Pesticides	J	Missed holding time
306163010	Equipment Blank	Molybdenum	U	Less than 5 times the equipment blank
306163011	0292A	Total Carbon	J	Missed holding time
306163012	0294	Total Carbon	J	Less than 5 times the equipment blank
306163012	0294	Total Organic Carbon	J	Less than 5 times the equipment blank
306163022	0658	Total Carbon	J	Missed holding time
306170007	0744-2	Selenium	U	Less than 5 times the calibration blank
306170009	0292A duplicate	Selenium	U	Less than 5 times the calibration blank
306170009	0292A duplicate	Total Carbon	J	Missed holding time
306170010	Clough Well 1	Selenium	U	Less than 5 times the calibration blank
306170011	Clough Well 2	Selenium	U	Less than 5 times the calibration blank

Sample Shipping/Receiving

GEL Laboratories in Charleston, South Carolina, received 51 water samples on June 15, 2012, accompanied by 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 shipments were received intact with the temperature inside the iced coolers at 2 °C and 4 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with one exception. The total carbon and total organic carbon analyses were performed using aliquots from the 500 mL HDPE bottle submitted for anion analyses. All samples were analyzed within the applicable holding times. The pesticide analysis for sample 0690 was performed outside the holding time. Samples 0292A, 0292A duplicate, 0294, and 0658 were initially analyzed within holding times; however, the holding times had expired prior to reanalysis of diluted samples. The results for these analyses are qualified with a “J” flag (estimated). All other sample analyses were performed 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 arsenic, selenium, and vanadium

laboratory MDLs are greater than the MDLs specified in the applicable line item codes but were accepted for this RIN. 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 300.0 Cl, SO₄

Calibrations for chloride and sulfate were performed using seven calibration standards on April 13, 2012. 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, resulting in seven verification checks. All calibration check results were within the acceptance criteria.

Method EPA 350.1 Ammonia as N

Calibrations for ammonia as N were performed using five calibration standards on June 27, 2012. 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, resulting in seven verification checks. 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 five calibration standards on June 21, 2012. 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, resulting in eight verification checks. All calibration check results were within the acceptance criteria.

Method SM 5310D Total Carbon, Total Organic Carbon

Calibrations for total carbon were performed on July 10–11, 2012, and for total organic carbon on July 9–10, 2012, using five calibration standards. 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, resulting in 12 verification checks. All calibration check results were within the acceptance criteria.

Method SW-846 6010B Ca, Mg, Na, K, V

Calibrations were performed on June 30, 2012, and July 3–11, 2012, using four calibration standards. 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, resulting in 28 verification checks. 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, and all results were within the acceptance range.

Method SW-846 6020 As, Mo, Se, U

Calibrations were performed on July 7–12, 2011, using two calibration standards. Initial and continuing calibration verification checks were made at the required frequency, resulting in nine verification checks. 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, and all results were within the acceptance range. 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 SW-846 8081A Pesticides

Initial calibrations for pesticides were performed July 9, 2012, using five calibration standards. The average response factor and associated relative standard deviation met the acceptance criteria for the analyte of interest where the averaged response factor approach was used. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria. All target compounds had percent drift values less than 15 percent. All surrogate recoveries were within the acceptance ranges.

Method SW-846 8151A Herbicides

Initial calibrations for herbicides were performed June 21, 2012, using seven calibration standards. The average response factor and associated relative standard deviation met the acceptance criteria for the analyte of interest where the averaged response factor approach was used. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria. All target compounds had percent drift values less than 15 percent. All surrogate recoveries were within the acceptance 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 in which a blank concentration exceeds the MDL, the associated sample results are qualified with a “U” flag (not detected) if the sample result is greater than the MDL but less 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. The herbicide MS/MSD pair displayed relative percent difference (RPD) values outside of the acceptance limits. There were no herbicides detected in the associated sample, and the failed RPD value had no adverse impact on the data.

Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The RPD 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. The replicate results met these criteria, demonstrating acceptable laboratory 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.

Completeness

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

The laboratory used both of the 1 liter amber glass containers for the herbicide analysis of sample 0689 and was unable to perform the pesticide analysis.

Electronic Data Deliverable (EDD) File

The EDD file arrived on August 30, 2012. 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 that 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: 12054589 Lab Code: GEN Validator: Steve Donovan Validation Date: 9/6/2012
Project: Rifle Disposal/Processing Site (old/new) Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☒ Organics
of Samples: 51 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

There are 4 holding time failures.

There are 130 detection limit failures.

There was 1 trip/equipment blank evaluated.

There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

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RIN: 12054589 Lab Code: GEN

Non-Compliance Report: Holding Times

Project: Rifle Disposal/Processing Site (old/new)

Validation Date: 9/6/2012

Ticket	Location	Lab Sample ID	Method Code	Holding Times			Criteria			Reported Dates		
				Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
KGU 472	0292A	306163011	LMW-01			29			28	06/12/2012	07/11/2012	07/11/2012
KGU 495	0658	306163022	LMW-01			29			28	06/12/2012	07/11/2012	07/11/2012
KGU 496	0294	306163012	LMW-01			29			28	06/12/2012	07/11/2012	07/11/2012
KGU 512	2237	306170009	LMW-01			29			28	06/12/2012	07/11/2012	07/11/2012

SAMPLE MANAGEMENT SYSTEM

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Metals Data Validation Worksheet

RIN: 12054589

Lab Code: GEN

Date Due: 7/13/2012

Matrix: Water

Site Code: RFL

Date Completed: 7/13/2012

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	ICV	CCV	ICB	CCB								
Arsenic	ICP/MS	07/07/2012			OK	OK	OK	OK	OK	101.0	104.0			106.0		99.0
Arsenic	ICP/MS	07/12/2012			OK	OK	OK	OK	OK	102.0	104.0		4.0	110.0		108.0
Calcium	ICP/ES	06/30/2012			OK	OK	OK	OK	OK	106.0			2.0	103.0	0.6	103.0
Calcium	ICP/ES	07/03/2012			OK	OK	OK	OK	OK	105.0	76.0		1.0	96.0	0.2	105.0
Magnesium	ICP/ES	06/30/2012			OK	OK	OK	OK	OK	101.0	90.0		3.0	103.0	2.4	114.0
Magnesium	ICP/ES	07/03/2012			OK	OK	OK	OK	OK	105.0	94.9		1.0	95.0	3.4	106.0
Molybdenum	ICP/MS	07/11/2012			OK	OK	OK	OK	OK	106.0	115.0		3.0	102.0	9.9	106.0
Molybdenum	ICP/MS	07/12/2012			OK	OK	OK	OK	OK	105.0			2.0	103.0	2.4	102.0
Potassium	ICP/ES	07/03/2012			OK	OK	OK	OK	OK	100.0	103.0		2.0	109.0	0.9	100.0
Potassium	ICP/ES	07/03/2012								101.0	92.6		1.0	109.0	1.0	111.0
Selenium	ICP/MS	07/07/2012			OK	OK	OK	OK	OK	101.0	103.0			104.0	5.4	107.0
Selenium	ICP/MS	07/11/2012			OK	OK	OK	OK	OK	112.0	104.0			98.0		120.0
Selenium	ICP/MS	07/11/2012								97.1				107.0		110.0
Selenium	ICP/MS	07/12/2012			OK	OK	OK	OK	OK		115.0		0.0	97.0		111.0
Sodium	ICP/ES	07/03/2012			OK	OK	OK	OK	OK	100.0			2.0	108.0	0.2	102.0
Sodium	ICP/ES	07/03/2012								105.0			0.0	108.0	1.8	102.0
Uranium	ICP/MS	07/07/2012			OK	OK	OK	OK	OK	100.0	100.0		4.0	107.0	3.8	108.0
Uranium	ICP/MS	07/11/2012			OK	OK	OK	OK	OK	108.0	97.0		0.0	100.0	8.9	106.0

SAMPLE MANAGEMENT SYSTEM

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Metals Data Validation Worksheet

RIN: 12054589

Lab Code: GEN

Date Due: 7/13/2012

Matrix: Water

Site Code: RFL

Date Completed: 7/13/2012

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	ICV	CCV	ICB	CCB								
Uranium	ICP/MS	07/11/2012								107.0	107.0		1.0	104.0	2.3	109.0
Vanadium	ICP/ES	06/30/2012			OK	OK	OK	OK	OK	103.0	103.0		2.0	109.0	0.2	109.0
Vanadium	ICP/ES	06/30/2012								102.0	98.4			109.0		111.0
Vanadium	ICP/ES	07/03/2012			OK	OK	OK	OK	OK	104.0	102.0			107.0		90.0

SAMPLE MANAGEMENT SYSTEM

Organics Data Validation Summary

RIN: 12054589

Project: Rifle Disposal/Processing Site **Lab Code:** GEN

Validation Date: 9/6/2012

LCS Recovery: All LCS recoveries were within the laboratory acceptance limits.

Method Blank(s): All method blanks results were below the method detection limit.

MS/MSD Recovery: There were 2 MS/MSD failures.

Surrogate Recovery: All surrogate recoveries were within the laboratory acceptance limits.

SAMPLE MANAGEMENT SYSTEM
Non-Compliance Report: MS/MSD Performance

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RIN: 12054589 Lab Code: GEN

Project: Rifle Disposal/Processing Site (old/new)

Validation Date: 9/6/2012

MS/MSD	Date Analyzed	Method	Analyte	Recovery MS	Recovery MSD	Lower Limit	Upper Limit	MSD RPD	RPD Limit
KGU 572	06/23/2012	EPA 8151A	2,4-DB	101.0	66.0	44.0	129.0	42.00	20.0
KGU 572	06/23/2012	EPA 8151A	DCP	90.4	72.6	43.0	132.0	22.00	20.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 12054589

Lab Code: GENDate Due: 7/13/2012Matrix: WaterSite Code: RFLDate Completed: 7/13/2012

Analyte	Date Analyzed	CALIBRATION							Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB	Blank						
Chloride	06/27/2012	0.000	0.9982	OK	OK	OK	OK	OK	101.00	113.0			0	
Chloride	06/27/2012									115.0			0	
Chloride	06/28/2012								102.00	117.0			0	
Chloride	06/28/2012									99.6				
NH3 as N	06/27/2012	0.000	0.9985	OK	OK	OK	OK	OK	99.20	97.4	92.4	4.00		
NH3 as N	06/27/2012							OK	104.00	92.1	96.1	4.00		
NH3 as N	06/27/2012									100.0			3.00	
NO2+NO3 as N	06/21/2012	0.000	0.9996	OK	OK	OK	OK	OK	99.90	102.0		1.00		
NO2+NO3 as N	06/21/2012							OK	103.00	105.0		1.00		
NO2+NO3 as N	06/21/2012									104.0				
Sulfate	06/27/2012	0.000	0.9990	OK	OK	OK	OK	OK	103.00	104.0		1.00		
Sulfate	06/27/2012									121.0			0	
Sulfate	06/28/2012								104.00	121.0			0	
Sulfate	06/28/2012									102.0				
Total Carbon Average	07/10/2012	0.000	0.9990	OK	OK	OK	OK	OK	96.10					
Total Carbon Average	07/10/2012								97.30				1.20	

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 12054589

Lab Code: GENDate Due: 7/13/2012Matrix: WaterSite Code: RFLDate Completed: 7/13/2012

Analyte	Date Analyzed	CALIBRATION							Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB	Blank						
Total Carbon Average	07/10/2012									95.90				
Total Organic Carbon	07/09/2012	0.000	1.0000	OK	OK	OK	OK	OK		107.00				
Total Organic Carbon	07/09/2012									102.00			4.00	
Total Organic Carbon	07/10/2012	0.000	0.9996	OK	OK	OK	OK	OK		104.00				

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: Well RFN01 0669 was classified as Category II; RFN01 0689 and RFN01 0690 were classified as Category III. The sample results for these wells were qualified with a “Q” flag, indicating the data are qualitative because of the sampling technique.

Equipment Blank Assessment

An equipment blank (field ID 2249) was collected after decontamination of the tubing reel used to collect some surface water samples. Total carbon and total organic carbon were detected in this blank. Sample results that are less than 5 times the equipment blank concentration are qualified with a “J” flag (estimated). The equipment blank results indicate adequate decontamination of the sampling equipment.

Field Duplicate Assessment

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. The RPD for duplicate 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 between the sample and duplicate result should be no greater than the PQL. Duplicate samples were collected at locations RFO01 0292A, RFN01 0169, and RFN01 0172. All duplicate results met the acceptance criteria, demonstrating acceptable overall precision with one exception. The molybdenum duplicate results from location 0169 did not meet the acceptance criteria. The sample and duplicate molybdenum results for this location are qualified with a “J” flag (estimated).

SAMPLE MANAGEMENT SYSTEM

Page 1 of 2

Validation Report: Equipment/Trip Blanks

RIN: 12054589 Lab Code: GEN Project: Rifle Disposal/Processing Site (old/new) Validation Date: 9/6/2012

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	306163010	EPA 3005/6010B	Calcium	84.3	B	50.0	ug/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
306163012	KGU 496	0294	58400	1.00		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	306163010	EPA 3005/6010B	Sodium	231	B	100	ug/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
306163012	KGU 496	0294	94800	1.00		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	306163010	EPA 3005/6020	Molybdenum	0.189	B	0.165	ug/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
306160009	KGU 508	0320	561	10.00		
306160011	KGU 484	0323	2980	100.00		
306160012	KGU 485	0324	2.3	1.00	B	
306160013	KGU 510	0452	1170	100.00		
306160014	KGU 486	0575	435	10.00		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	306163010	SM 5310 D	Total Carbon Average	1.04	J	0.660	mg/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
306163012	KGU 496	0294	18.7	5.00	H	

SAMPLE MANAGEMENT SYSTEM

Page 2 of 2

Validation Report: Equipment/Trip Blanks

RIN: 12054589 Lab Code: GEN Project: Rifle Disposal/Processing Site (old/new) Validation Date: 9/6/2012

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	306163010	SM 5310 D	Total Organic Carbon	1.19	J	0.660	mg/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
306163012	KGU 496	0294	3.06	2.00		J

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

Page 1 of 1

RIN: 12054589 Lab Code: GEN Project: Rifle Disposal/Processing Site (old/new) Validation Date: 9/6/2012

Duplicate: 2237

Sample: 0292A

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Calcium	138000			1.00	138000			1.00	0		ug/L
Chloride	54.7			20.00	55.2			20.00	0.91		mg/L
Magnesium	78500			1.00	83600			1.00	6.29		ug/L
Potassium	4480			1.00	4450			1.00	0.67		ug/L
Selenium	1.50	U		1.00	1.53	B		1.00			ug/L
Sodium	199000			1.00	205000			1.00	2.97		ug/L
Sulfate	599			20.00	600			20.00	0.17		mg/L
Total Carbon Average	41.3	H		10.00	54.5	H		20.00	27.56		mg/L
Total Organic Carbon	4.77			2.00	4.97			2.00	4.11		mg/L
Uranium	27.3			1.00	26.5			1.00	2.97		ug/L
Vanadium	1.00	U		1.00	1.00	U		1.00			ug/L

Duplicate: 2238

Sample: 0169

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Arsenic	1.70	U		1.00	1.70	U		1.00			ug/L
Molybdenum	4.34			1.00	5.66			1.00	26.40		ug/L
NH3 as N	0.0781	J		1.00	0.033	J		1.00			mg/L
NO2+NO3 as N	0.234	J		5.00	0.222	J		5.00			mg/L
Selenium	4.57	B		1.00	4.29	B		1.00			ug/L
Uranium	21.1			1.00	22.7			1.00	7.31		ug/L
Vanadium	1.00	U		1.00	1.14	B		1.00			ug/L

Duplicate: 2948

Sample: 0172

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Arsenic	6.88			1.00	2.38	B		1.00			ug/L
Molybdenum	5.56			1.00	5.58			1.00	0.36		ug/L
NH3 as N	0.166			1.00	0.132			1.00	22.82		mg/L
NO2+NO3 as N	0.085	U		5.00	0.085	U		5.00			mg/L
Selenium	7.50	U		5.00	7.50	U		5.00			ug/L
Uranium	72.2			1.00	75.3			1.00	4.20		ug/L
Vanadium	1.00	U		1.00	1.00	U		1.00			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 10-9-12
Stephen Donovan Date

Data Validation Lead:

Stephen Donovan 10-9-12
Stephen Donovan Date

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 SEEPro database. The application compares the new data set 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.

Nine results were identified as potentially anomalous.

Five of these are arsenic or selenium results that are below the PQL where large variations in the data are expected.

The magnesium and potassium results listed in the report are from wells where analyte concentrations have generally increased and are acceptable as reported.

The nitrate+nitrite as N result from well RFN01-0620 appears to be anomalous and is listed on the Anomalous Data Review Checksheet for further review.

At this time, all data from this sampling event may be treated as validated results.

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: GEL Laboratories

RIN: 12054589

Report Date: 9/24/2012

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Result	Historical Maximum Qualifiers		Result	Historical Minimum Qualifiers		Number of Data Points		Statistical Outlier
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	
RFN01	0169	N002	06/11/2012	Ammonia Total as N	0.033	J	F	0.11		F	0.078	J	F	9	7	No
RFN01	0169	N001	06/11/2012	Arsenic	0.0017	U	F	0.0016	U	F	0.00011	B		19	7	No
RFN01	0169	N002	06/11/2012	Arsenic	0.0017	U	F	0.0016	U	F	0.00011	B		19	7	No
RFN01	0170	N001	06/11/2012	Ammonia Total as N	0.502		F	0.321		F	0.1	U	F	9	3	No
RFN01	0170	N001	06/11/2012	Arsenic	0.0017	U	F	0.0016	U	F	0.00013	B	F	16	7	No
RFN01	0170	N001	06/11/2012	Nitrate + Nitrite as Nitrogen	10.9		F	37		F	11		F	9	0	No
RFN01	0170	N001	06/11/2012	Selenium	0.0148		F	0.013		F	0.0029	B		16	0	No
RFN01	0172	N002	06/12/2012	Ammonia Total as N	0.132		F	0.1	U	F	0.016	U	F	10	10	No
RFN01	0172	N001	06/12/2012	Ammonia Total as N	0.166		F	0.1	U	F	0.016	U	F	10	10	No
RFN01	0172	N001	06/12/2012	Selenium	0.0075	U	F	0.005	UN	F	0.000096	B	F	18	9	No
RFN01	0172	N002	06/12/2012	Selenium	0.0075	U	F	0.005	UN	F	0.000096	B	F	18	9	No
RFN01	0195	N001	06/11/2012	Arsenic	0.00552		F	0.0016	U	F	0.00013		UFQ	18	8	Yes
RFN01	0195	N001	06/11/2012	Molybdenum	0.014		F	0.6		FJ	0.017		F	20	0	No
RFN01	0195	N001	06/11/2012	Uranium	0.0109		F	0.177			0.012		F	20	0	No
RFN01	0201	N001	06/11/2012	Ammonia Total as N	73.5		F	130		F	79		F	13	0	No
RFN01	0201	N001	06/11/2012	Arsenic	0.0017	U	F	0.0016	U	F	0.00021	B	F	22	6	No
RFN01	0201	N001	06/11/2012	Uranium	0.122		F	0.115			0.072		F	30	0	No
RFN01	0215	N001	06/12/2012	Arsenic	0.00831		F	0.0019		F	0.0001	U		26	6	Yes

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: GEL Laboratories

RIN: 12054589

Report Date: 9/24/2012

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect	
RFN01	0215	N001	06/12/2012	Uranium	0.0343	F	0.034	F	0.008	E	F		32	0	No
RFN01	0217	N001	06/11/2012	Ammonia Total as N	35	F	110	F	45.9		F		13	0	No
RFN01	0217	N001	06/11/2012	Arsenic	0.0117	F	0.0041	B	0.00041		F		16	1	No
RFN01	0320	N001	06/11/2012	Uranium	0.0519		0.321		0.053				13	0	No
RFN01	0322	N001	06/11/2012	Ammonia Total as N	0.0811	J	1.4		0.1	U	J		12	6	No
RFN01	0322	N001	06/11/2012	Arsenic	0.00309	B	0.0016	U	0.0002	B			17	7	No
RFN01	0322	N001	06/11/2012	Selenium	0.00156	B	0.001	UN	0.00014				17	1	Yes
RFN01	0323	N001	06/11/2012	Ammonia Total as N	19		44		23.5				14	0	No
RFN01	0323	N001	06/11/2012	Arsenic	0.0017	U	0.0016	U	0.00021				12	1	No
RFN01	0324	N001	06/12/2012	Ammonia Total as N	0.0792	J	0.237		0.1	U	J		12	11	No
RFN01	0324	N001	06/12/2012	Nitrate + Nitrite as Nitrogen	0.017	U	0.518	J	0.075				12	1	No
RFN01	0324	N001	06/12/2012	Selenium	0.0015	U	0.001	UN	0.00013				9	1	No
RFN01	0452	N001	06/11/2012	Molybdenum	1.17		4.3	J	1.33				11	0	No
RFN01	0452	N001	06/11/2012	Nitrate + Nitrite as Nitrogen	0.085	U	250		0.75				9	0	No
RFN01	0452	N001	06/11/2012	Selenium	0.0015	U	0.0695	N	0.0071				8	0	No
RFN01	0590	N001	06/11/2012	Nitrate + Nitrite as Nitrogen	29.4	F	140	F	29.5		F		12	0	No
RFN01	0620	N001	06/12/2012	Nitrate + Nitrite as Nitrogen	72.5	F	42	F	2.2		F		12	0	Yes
RFN01	0635	N001	06/11/2012	Ammonia Total as N	72.5	F	210	F	77		F		11	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: GEL Laboratories

RIN: 12054589

Report Date: 9/24/2012

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Qualifiers Lab	Data	Result	Qualifiers Lab	Data	Result	Qualifiers Lab	Data	N	N Below Detect	
RFN01	0658	N001	06/11/2012	Ammonia Total as N	40.2		F	180		F	47		F	11	0	No
RFN01	0658	N001	06/11/2012	Nitrate + Nitrite as Nitrogen	0.855		F	75		F	3.9		F	11	0	No
RFN01	0659	N001	06/12/2012	Ammonia Total as N	16.1		F	92		F	31		F	16	0	No
RFN01	0664	N001	06/12/2012	Arsenic	0.0119		F	0.005		F	0.00099	B		18	2	Yes
RFN01	0670	N001	06/11/2012	Arsenic	0.00384	B	F	0.0175		FQ	0.0039		FQ	15	0	No
RFN01	0855	N001	06/11/2012	Molybdenum	0.69		F	18		FQ	1		F	19	0	No
RFO01	0292A	N001	06/12/2012	Potassium	4.48		F	8.1	EN	FJ	6.5		F	7	0	Yes
RFO01	0292A	N001	06/12/2012	Sodium	199		F	250		F	220		F	7	0	No
RFO01	0292A	N001	06/12/2012	Sulfate	599		F	760		F	630		F	7	0	No
RFO01	0304	N001	06/13/2012	Calcium	126		F	310		F	170		F	14	0	No
RFO01	0304	N001	06/13/2012	Magnesium	48.8		F	105			68		F	14	0	Yes
RFO01	0304	N001	06/13/2012	Potassium	4.48		F	16		FJ	5.5	E	F	11	0	No
RFO01	0304	N001	06/13/2012	Sulfate	347		F	1100		F	460		F	14	0	No
RFO01	0309	N001	06/13/2012	Potassium	6.49		F	9.8		FJ	7.8		F	8	0	No
RFO01	0309	N001	06/13/2012	Sodium	226		F	222			190		F	11	0	No
RFO01	0310	N001	06/13/2012	Potassium	7.88		F	13		F	11		F	9	0	Yes
RFO01	0396	N001	06/13/2012	Selenium	0.00165	B		0.001	UN		0.00017	B		27	2	Yes
RFO01	0396	N001	06/13/2012	Sodium	102			100			15			8	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: GEL Laboratories

RIN: 12054589

Report Date: 9/24/2012

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Qualifiers Lab	Data	Result	Qualifiers Lab	Data	Result	Qualifiers Lab	Data	N	N Below Detect	
RFO01	0398	N001	06/13/2012	Magnesium	44.7			99			45			13	0	No
RFO01	0398	N001	06/13/2012	Potassium	2.76			6		J	3.4			8	0	No
RFO01	0398	N001	06/13/2012	Vanadium	0.00282	B		0.0108		U	0.003	U		37	3	No
RFO01	0655	N001	06/13/2012	Potassium	7.17		F	13		FJ	8.8		F	8	0	No
RFO01	0656	N001	06/13/2012	Selenium	0.0176		F	0.017		F	0.00026		F	35	1	No
RFO01	0656	N001	06/13/2012	Uranium	0.225		F	0.212		F	0.0318		F	35	0	No
RFO01	0658	N001	06/12/2012	Calcium	138		F	289			140		F	11	0	No
RFO01	0658	N001	06/12/2012	Magnesium	75.9		F	174			82		F	11	0	No
RFO01	0658	N001	06/12/2012	Potassium	2.77		F	4.9		FJ	3.1		FJ	9	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.

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Anomalous Data Review Checksheet

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Anomalous Data Review Checksheet

Site:	Old and New Rifle, Colorado, Processing Sites
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Sampling Data: Groundwater

Reviewer:	Steve Donovan	<i>Steve Donovan</i>	10-9-2012
	Name (print)	Signature	Date

Site Hydrologist: Richard Dayvault
Name (print) Signature Date 10/9/12

Date of Review: September 25, 2012

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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: 9/27/2012

Location: 0169 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	3.13	- 18.13	508		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	3.13	- 18.13	0.0781	J	F	#	0.017	
Ammonia Total as N	mg/L	06/11/2012	N002	3.13	- 18.13	0.033	J	F	#	0.017	
Arsenic	mg/L	06/11/2012	N001	3.13	- 18.13	0.0017	U	F	#	0.0017	
Arsenic	mg/L	06/11/2012	N002	3.13	- 18.13	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	3.13	- 18.13	0.00434		JF	#	0.000165	
Molybdenum	mg/L	06/11/2012	N002	3.13	- 18.13	0.00566		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	3.13	- 18.13	0.234	J	F	#	0.085	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N002	3.13	- 18.13	0.222	J	F	#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	3.13	- 18.13	53.9		F	#		
pH	s.u.	06/11/2012	N001	3.13	- 18.13	6.93		F	#		
Selenium	mg/L	06/11/2012	N001	3.13	- 18.13	0.00457	B	F	#	0.0015	
Selenium	mg/L	06/11/2012	N002	3.13	- 18.13	0.00429	B	F	#	0.0015	
Specific Conductance	umhos /cm	06/11/2012	N001	3.13	- 18.13	2026		F	#		
Temperature	C	06/11/2012	N001	3.13	- 18.13	14.33		F	#		
Turbidity	NTU	06/11/2012	N001	3.13	- 18.13	5.24		F	#		

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

REPORT DATE: 9/27/2012

Location: 0169 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Uranium	mg/L	06/11/2012	N001	3.13 - 18.13	0.0211		F	#	0.000067	
Uranium	mg/L	06/11/2012	N002	3.13 - 18.13	0.0227		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	3.13 - 18.13	0.001	U	F	#	0.001	
Vanadium	mg/L	06/11/2012	N002	3.13 - 18.13	0.00114	B	F	#	0.001	

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

REPORT DATE: 9/27/2012

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	92.23 - 112.23	586		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	92.23 - 112.23	0.502		F	#	0.017	
Arsenic	mg/L	06/11/2012	N001	92.23 - 112.23	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	92.23 - 112.23	0.00388		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	92.23 - 112.23	10.9		F	#	0.17	
Oxidation Reduction Potential	mV	06/11/2012	N001	92.23 - 112.23	146		F	#		
pH	s.u.	06/11/2012	N001	92.23 - 112.23	6.93		F	#		
Selenium	mg/L	06/11/2012	N001	92.23 - 112.23	0.0148		F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	92.23 - 112.23	3095		F	#		
Temperature	C	06/11/2012	N001	92.23 - 112.23	14.96		F	#		
Turbidity	NTU	06/11/2012	N001	92.23 - 112.23	6.61		F	#		
Uranium	mg/L	06/11/2012	N001	92.23 - 112.23	0.0592		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	92.23 - 112.23	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0172 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/12/2012	N001	6.98	- 31.98	752		F	#		
Ammonia Total as N	mg/L	06/12/2012	N001	6.98	- 31.98	0.166		F	#	0.017	
Ammonia Total as N	mg/L	06/12/2012	N002	6.98	- 31.98	0.132		F	#	0.017	
Arsenic	mg/L	06/12/2012	N001	6.98	- 31.98	0.00688		F	#	0.0017	
Arsenic	mg/L	06/12/2012	N002	6.98	- 31.98	0.00238	B	F	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	6.98	- 31.98	0.00556		F	#	0.000165	
Molybdenum	mg/L	06/12/2012	N002	6.98	- 31.98	0.00558		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	6.98	- 31.98	0.085	U	F	#	0.085	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N002	6.98	- 31.98	0.085	U	F	#	0.085	
Oxidation Reduction Potential	mV	06/12/2012	N001	6.98	- 31.98	-86.7		F	#		
pH	s.u.	06/12/2012	N001	6.98	- 31.98	6.9		F	#		
Selenium	mg/L	06/12/2012	N001	6.98	- 31.98	0.0075	U	F	#	0.0075	
Selenium	mg/L	06/12/2012	N002	6.98	- 31.98	0.0075	U	F	#	0.0075	
Specific Conductance	umhos /cm	06/12/2012	N001	6.98	- 31.98	18736		F	#		
Temperature	C	06/12/2012	N001	6.98	- 31.98	14.51		F	#		
Turbidity	NTU	06/12/2012	N001	6.98	- 31.98	2.4		F	#		
Uranium	mg/L	06/12/2012	N001	6.98	- 31.98	0.0722		F	#	0.000067	

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

REPORT DATE: 9/27/2012

Location: 0172 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Uranium	mg/L	06/12/2012	N002	6.98 - 31.98	0.0753		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	6.98 - 31.98	0.001	U	F	#	0.001	
Vanadium	mg/L	06/12/2012	N002	6.98 - 31.98	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	5.29 - 25.29	471		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	5.29 - 25.29	0.189		F	#	0.017	
Arsenic	mg/L	06/11/2012	N001	5.29 - 25.29	0.00552		F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	5.29 - 25.29	0.014		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	5.29 - 25.29	0.085	U	F	#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	5.29 - 25.29	-15.4		F	#		
pH	s.u.	06/11/2012	N001	5.29 - 25.29	6.88		F	#		
Selenium	mg/L	06/11/2012	N001	5.29 - 25.29	0.0015	U	F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	5.29 - 25.29	1233		F	#		
Temperature	C	06/11/2012	N001	5.29 - 25.29	10.93		F	#		
Turbidity	NTU	06/11/2012	N001	5.29 - 25.29	1.65		F	#		
Uranium	mg/L	06/11/2012	N001	5.29 - 25.29	0.0109		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	5.29 - 25.29	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	7.35	- 22.35	286		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	7.35	- 22.35	73.5		F	#	0.85	
Arsenic	mg/L	06/11/2012	N001	7.35	- 22.35	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	7.35	- 22.35	2.03		F	#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	7.35	- 22.35	72.5		F	#	0.85	
Oxidation Reduction Potential	mV	06/11/2012	N001	7.35	- 22.35	138.3		F	#		
pH	s.u.	06/11/2012	N001	7.35	- 22.35	6.75		F	#		
Selenium	mg/L	06/11/2012	N001	7.35	- 22.35	0.0153		F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	7.35	- 22.35	4205		F	#		
Temperature	C	06/11/2012	N001	7.35	- 22.35	13.93		F	#		
Turbidity	NTU	06/11/2012	N001	7.35	- 22.35	2.44		F	#		
Uranium	mg/L	06/11/2012	N001	7.35	- 22.35	0.122		F	#	0.000335	
Vanadium	mg/L	06/11/2012	N001	7.35	- 22.35	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	6.84	- 21.84	326		F	#		
Ammonia Total as N	mg/L	06/12/2012	N001	6.84	- 21.84	2.36		F	#	0.085	
Arsenic	mg/L	06/12/2012	N001	6.84	- 21.84	0.00831		F	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	6.84	- 21.84	0.0122		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	6.84	- 21.84	0.017	U	F	#	0.017	
Oxidation Reduction Potential	mV	06/12/2012	N001	6.84	- 21.84	41.7		F	#		
pH	s.u.	06/12/2012	N001	6.84	- 21.84	7.15		F	#		
Selenium	mg/L	06/12/2012	N001	6.84	- 21.84	0.0015	U	F	#	0.0015	
Specific Conductance	umhos /cm	06/12/2012	N001	6.84	- 21.84	1721		F	#		
Temperature	C	06/12/2012	N001	6.84	- 21.84	12.56		F	#		
Turbidity	NTU	06/12/2012	N001	6.84	- 21.84	2.79		F	#		
Uranium	mg/L	06/12/2012	N001	6.84	- 21.84	0.0343		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	6.84	- 21.84	0.00231	B	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0216 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	5.5	-	20.5	268		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	5.5	-	20.5	4.67		F	#	0.085	
Arsenic	mg/L	06/11/2012	N001	5.5	-	20.5	0.0261		F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	5.5	-	20.5	0.0443		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	5.5	-	20.5	0.085	U	F	#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	5.5	-	20.5	-15.8		F	#		
pH	s.u.	06/11/2012	N001	5.5	-	20.5	7.47		F	#		
Selenium	mg/L	06/11/2012	N001	5.5	-	20.5	0.0015	U	F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	5.5	-	20.5	909		F	#		
Temperature	C	06/11/2012	N001	5.5	-	20.5	12.98		F	#		
Turbidity	NTU	06/11/2012	N001	5.5	-	20.5	8.19		F	#		
Uranium	mg/L	06/11/2012	N001	5.5	-	20.5	0.0167		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	5.5	-	20.5	0.192		F	#	0.001	

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

REPORT DATE: 9/27/2012

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	7.4	- 22.4	207		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	7.4	- 22.4	35		F	#	0.85	
Arsenic	mg/L	06/11/2012	N001	7.4	- 22.4	0.0117		F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	7.4	- 22.4	1.7		JF	#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	7.4	- 22.4	0.017	U	F	#	0.017	
Oxidation Reduction Potential	mV	06/11/2012	N001	7.4	- 22.4	152.5		F	#		
pH	s.u.	06/11/2012	N001	7.4	- 22.4	6.78		F	#		
Selenium	mg/L	06/11/2012	N001	7.4	- 22.4	0.00477	B	F	#	0.0015	
Specific Conductance	umhos /cm	06/11/2012	N001	7.4	- 22.4	3347		F	#		
Temperature	C	06/11/2012	N001	7.4	- 22.4	11.43		F	#		
Turbidity	NTU	06/11/2012	N001	7.4	- 22.4	5.99		F	#		
Uranium	mg/L	06/11/2012	N001	7.4	- 22.4	0.161		F	#	0.000335	
Vanadium	mg/L	06/11/2012	N001	7.4	- 22.4	1.95		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0590 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/11/2012	N001	5.21	- 19.21	298		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	5.21	- 19.21	132		F	#	1.7	
Arsenic	mg/L	06/11/2012	N001	5.21	- 19.21	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	5.21	- 19.21	1.84		F	#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	5.21	- 19.21	29.4		F	#	0.85	
Oxidation Reduction Potential	mV	06/11/2012	N001	5.21	- 19.21	174.8		F	#		
pH	s.u.	06/11/2012	N001	5.21	- 19.21	6.65		F	#		
Selenium	mg/L	06/11/2012	N001	5.21	- 19.21	0.0555		F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	5.21	- 19.21	5201		F	#		
Temperature	C	06/11/2012	N001	5.21	- 19.21	13.43		F	#		
Turbidity	NTU	06/11/2012	N001	5.21	- 19.21	5.92		F	#		
Uranium	mg/L	06/11/2012	N001	5.21	- 19.21	0.0732		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	5.21	- 19.21	0.449		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0620 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	6.7	-	10.7	525		F	#		
Ammonia Total as N	mg/L	06/12/2012	N001	6.7	-	10.7	0.172		F	#	0.017	
Arsenic	mg/L	06/12/2012	N001	6.7	-	10.7	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	6.7	-	10.7	0.00966		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	6.7	-	10.7	72.5		F	#	0.85	
Oxidation Reduction Potential	mV	06/12/2012	N001	6.7	-	10.7	0.2		F	#		
pH	s.u.	06/12/2012	N001	6.7	-	10.7	7		F	#		
Selenium	mg/L	06/12/2012	N001	6.7	-	10.7	0.0242		F	#	0.0015	
Specific Conductance	umhos /cm	06/12/2012	N001	6.7	-	10.7	6574		F	#		
Temperature	C	06/12/2012	N001	6.7	-	10.7	14.92		F	#		
Turbidity	NTU	06/12/2012	N001	6.7	-	10.7	3.09		F	#		
Uranium	mg/L	06/12/2012	N001	6.7	-	10.7	0.0638		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	6.7	-	10.7	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0635 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	12	-	17	362		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	12	-	17	72.5		F	#	1.7	
Arsenic	mg/L	06/11/2012	N001	12	-	17	0.0017	U	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	12	-	17	0.406		F	#	0.00165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	12	-	17	12.7		F	#	0.17	
Oxidation Reduction Potential	mV	06/11/2012	N001	12	-	17	139.7		F	#		
pH	s.u.	06/11/2012	N001	12	-	17	6.73		F	#		
Selenium	mg/L	06/11/2012	N001	12	-	17	0.0015	U	F	#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	12	-	17	4143		F	#		
Temperature	C	06/11/2012	N001	12	-	17	11.89		F	#		
Turbidity	NTU	06/11/2012	N001	12	-	17	8.3		F	#		
Uranium	mg/L	06/11/2012	N001	12	-	17	0.0896		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	12	-	17	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0658 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	.5	-	5.5	318		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	.5	-	5.5	40.2		F	#	0.85	
Arsenic	mg/L	06/11/2012	N001	.5	-	5.5	0.103		F	#	0.017	
Molybdenum	mg/L	06/11/2012	N001	.5	-	5.5	0.957		F	#	0.0033	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	.5	-	5.5	0.855		F	#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	.5	-	5.5	155.7		F	#		
pH	s.u.	06/11/2012	N001	.5	-	5.5	6.79		F	#		
Selenium	mg/L	06/11/2012	N001	.5	-	5.5	1.06		F	#	0.03	
Specific Conductance	umhos/cm	06/11/2012	N001	.5	-	5.5	2831		F	#		
Temperature	C	06/11/2012	N001	.5	-	5.5	14.56		F	#		
Turbidity	NTU	06/11/2012	N001	.5	-	5.5	4.84		F	#		
Uranium	mg/L	06/11/2012	N001	.5	-	5.5	0.0736		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	.5	-	5.5	31		F	#	0.01	

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

REPORT DATE: 9/27/2012

Location: 0659 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	.5	-	10.5	183		F	#		
Ammonia Total as N	mg/L	06/12/2012	N001	.5	-	10.5	16.1		F	#	0.17	
Arsenic	mg/L	06/12/2012	N001	.5	-	10.5	0.0344		F	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	.5	-	10.5	1.7		F	#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	.5	-	10.5	13.2		F	#	0.17	
Oxidation Reduction Potential	mV	06/12/2012	N001	.5	-	10.5	98.8		F	#		
pH	s.u.	06/12/2012	N001	.5	-	10.5	6.92		F	#		
Selenium	mg/L	06/12/2012	N001	.5	-	10.5	0.065		F	#	0.0015	
Specific Conductance	umhos/cm	06/12/2012	N001	.5	-	10.5	3453		F	#		
Temperature	C	06/12/2012	N001	.5	-	10.5	16.5		F	#		
Turbidity	NTU	06/12/2012	N001	.5	-	10.5	4.09		F	#		
Uranium	mg/L	06/12/2012	N001	.5	-	10.5	0.0957		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	.5	-	10.5	1.82		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0664 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	7.7	-	14.7	404		F	#		
Ammonia Total as N	mg/L	06/12/2012	N001	7.7	-	14.7	29.3		F	#	0.85	
Arsenic	mg/L	06/12/2012	N001	7.7	-	14.7	0.0119		F	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	7.7	-	14.7	0.32		F	#	0.00165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	7.7	-	14.7	15.6		F	#	0.85	
Oxidation Reduction Potential	mV	06/12/2012	N001	7.7	-	14.7	101.1		F	#		
pH	s.u.	06/12/2012	N001	7.7	-	14.7	6.94		F	#		
Selenium	mg/L	06/12/2012	N001	7.7	-	14.7	0.173		F	#	0.015	
Specific Conductance	umhos/cm	06/12/2012	N001	7.7	-	14.7	2408		F	#		
Temperature	C	06/12/2012	N001	7.7	-	14.7	15.44		F	#		
Turbidity	NTU	06/12/2012	N001	7.7	-	14.7	6.94		F	#		
Uranium	mg/L	06/12/2012	N001	7.7	-	14.7	0.0658		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	7.7	-	14.7	2.39		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0669 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	4	-	10.6	459		FQ	#		
Ammonia Total as N	mg/L	06/12/2012	N001	4	-	10.6	74.2		FQ	#	1.7	
Arsenic	mg/L	06/12/2012	N001	4	-	10.6	0.00602		FQ	#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	4	-	10.6	0.959		FQ	#	0.0033	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	4	-	10.6	0.965		FQ	#	0.085	
Oxidation Reduction Potential	mV	06/12/2012	N001	4	-	10.6	105.4		FQ	#		
pH	s.u.	06/12/2012	N001	4	-	10.6	6.89		FQ	#		
Selenium	mg/L	06/12/2012	N001	4	-	10.6	0.0313		FQ	#	0.0015	
Specific Conductance	umhos/cm	06/12/2012	N001	4	-	10.6	2794		FQ	#		
Temperature	C	06/12/2012	N001	4	-	10.6	14.23		FQ	#		
Turbidity	NTU	06/12/2012	N001	4	-	10.6	8.32		FQ	#		
Uranium	mg/L	06/12/2012	N001	4	-	10.6	0.115		FQ	#	0.00067	
Vanadium	mg/L	06/12/2012	N001	4	-	10.6	3.28		FQ	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0670 WELL For Organics Study.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	5.2	-	12.2	400		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	5.2	-	12.2	14.2		F	#	0.17	
Arsenic	mg/L	06/11/2012	N001	5.2	-	12.2	0.00384	B	F	#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	5.2	-	12.2	0.24		F	#	0.000825	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	5.2	-	12.2	4.24		F	#	0.17	
Oxidation Reduction Potential	mV	06/11/2012	N001	5.2	-	12.2	135.7		F	#		
pH	s.u.	06/11/2012	N001	5.2	-	12.2	6.91		F	#		
Selenium	mg/L	06/11/2012	N001	5.2	-	12.2	0.264		F	#	0.0075	
Specific Conductance	umhos /cm	06/11/2012	N001	5.2	-	12.2	2238		F	#		
Temperature	C	06/11/2012	N001	5.2	-	12.2	13.5		F	#		
Turbidity	NTU	06/11/2012	N001	5.2	-	12.2	3.91		F	#		
Uranium	mg/L	06/11/2012	N001	5.2	-	12.2	0.0857		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	5.2	-	12.2	2.19		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0689 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
2,4,5-T	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
2,4,5-TP (Silvex)	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
2,4-D	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
2,4-DB	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	4.5	-	9.38	329		FQ	#		
Ammonia Total as N	mg/L	06/13/2012	0001	4.5	-	9.38	1.28		FQ	#	0.017	
Arsenic	mg/L	06/13/2012	0001	4.5	-	9.38	0.0123		FQ	#	0.0017	
Dalapon	ug/L	06/13/2012	N001	4.5	-	9.38	1.25	U	FQ	#	1.25	
Dicamba	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
Dichlorprop	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
Dinoseb	ug/L	06/13/2012	N001	4.5	-	9.38	0.083	U	FQ	#	0.083	
MCPA	ug/L	06/13/2012	N001	4.5	-	9.38	11	U	FQ	#	11	
MCPP	ug/L	06/13/2012	N001	4.5	-	9.38	10	U	FQ	#	10	
Molybdenum	mg/L	06/13/2012	0001	4.5	-	9.38	0.252		FQ	#	0.00165	
Nitrate + Nitrite as Nitrogen	mg/L	06/13/2012	0001	4.5	-	9.38	29.3		FQ	#	0.85	
Oxidation Reduction Potential	mV	06/13/2012	N001	4.5	-	9.38	215.6		FQ	#		
pH	s.u.	06/13/2012	N001	4.5	-	9.38	7.03		FQ	#		

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

REPORT DATE: 9/27/2012

Location: 0689 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	06/13/2012	0001	4.5 - 9.38	0.812		FQ	#	0.015	
Specific Conductance	umhos /cm	06/13/2012	N001	4.5 - 9.38	2172		FQ	#		
Temperature	C	06/13/2012	N001	4.5 - 9.38	16.16		FQ	#		
Turbidity	NTU	06/13/2012	N001	4.5 - 9.38	96.7		FQ	#		
Uranium	mg/L	06/13/2012	0001	4.5 - 9.38	0.0513		FQ	#	0.000067	
Vanadium	mg/L	06/13/2012	0001	4.5 - 9.38	6.42		FQ	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0690 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
2,4,5-T	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
2,4,5-TP (Silvex)	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
2,4-D	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
2,4-DB	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
4,4'-DDD	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
4,4'-DDE	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
4,4'-DDT	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
Aldrin	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	4.61	-	9.49	406		FQ	#		
alpha-BHC	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Ammonia Total as N	mg/L	06/13/2012	0001	4.61	-	9.49	0.756		FQ	#	0.017	
Arsenic	mg/L	06/13/2012	0001	4.61	-	9.49	0.00431	B	FQ	#	0.0017	
beta-BHC	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Chlordane	ug/L	06/13/2012	N001	4.61	-	9.49	0.0781	UH	JFQ	#	0.0781	
Dalapon	ug/L	06/13/2012	N001	4.61	-	9.49	1.32	U	FQ	#	1.32	
delta-BHC	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Dicamba	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	

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

REPORT DATE: 9/27/2012

Location: 0690 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dichlorprop	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
Dieldrin	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
Dinoseb	ug/L	06/13/2012	N001	4.61	-	9.49	0.0874	U	FQ	#	0.0874	
Endosulfan I	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Endosulfan II	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
Endosulfan sulfate	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
Endrin	ug/L	06/13/2012	N001	4.61	-	9.49	0.0102	UH	JFQ	#	0.0102	
Endrin aldehyde	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
gamma-BHC (Lindane)	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Heptachlor	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
Heptachlor epoxide	ug/L	06/13/2012	N001	4.61	-	9.49	0.00679	UH	JFQ	#	0.00679	
MCPA	ug/L	06/13/2012	N001	4.61	-	9.49	11.6	U	FQ	#	11.6	
MCPP	ug/L	06/13/2012	N001	4.61	-	9.49	10.5	U	FQ	#	10.5	
Methoxychlor	ug/L	06/13/2012	N001	4.61	-	9.49	0.051	UH	JFQ	#	0.051	
Molybdenum	mg/L	06/13/2012	0001	4.61	-	9.49	0.155		FQ	#	0.00033	
Nitrate + Nitrite as Nitrogen	mg/L	06/13/2012	0001	4.61	-	9.49	1.4		FQ	#	0.085	
Oxidation Reduction Potential	mV	06/13/2012	N001	4.61	-	9.49	174.9		FQ	#		

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

REPORT DATE: 9/27/2012

Location: 0690 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
pH	s.u.	06/13/2012	N001	4.61	-	9.49	7.05		FQ	#		
Selenium	mg/L	06/13/2012	0001	4.61	-	9.49	0.0714		FQ	#	0.0015	
Specific Conductance	umhos /cm	06/13/2012	N001	4.61	-	9.49	1957		FQ	#		
Temperature	C	06/13/2012	N001	4.61	-	9.49	15.69		FQ	#		
Toxaphene	ug/L	06/13/2012	N001	4.61	-	9.49	0.153	UH	JFQ	#	0.153	
Turbidity	NTU	06/13/2012	N001	4.61	-	9.49	90.5		FQ	#		
Uranium	mg/L	06/13/2012	0001	4.61	-	9.49	0.037		FQ	#	0.000067	
Vanadium	mg/L	06/13/2012	0001	4.61	-	9.49	2.88		FQ	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0855 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/11/2012	N001	6	-	11	301		F	#		
Ammonia Total as N	mg/L	06/11/2012	N001	6	-	11	31.9		F	#	1.7	
Arsenic	mg/L	06/11/2012	N001	6	-	11	0.273		F	#	0.017	
Molybdenum	mg/L	06/11/2012	N001	6	-	11	0.69		F	#	0.0033	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	6	-	11	5.3		F	#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	6	-	11	117.7		F	#		
pH	s.u.	06/11/2012	N001	6	-	11	6.81		F	#		
Selenium	mg/L	06/11/2012	N001	6	-	11	0.963		F	#	0.03	
Specific Conductance	umhos /cm	06/11/2012	N001	6	-	11	2486		F	#		
Temperature	C	06/11/2012	N001	6	-	11	16.44		F	#		
Turbidity	NTU	06/11/2012	N001	6	-	11	3.85		F	#		
Uranium	mg/L	06/11/2012	N001	6	-	11	0.0652		F	#	0.000067	
Vanadium	mg/L	06/11/2012	N001	6	-	11	17.2		F	#	0.005	

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.

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Old Rifle Groundwater Quality Data

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

REPORT DATE: 9/27/2012

Location: 0292A WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	10.5	-	20.5	454		F	#		
Calcium	mg/L	06/12/2012	N001	10.5	-	20.5	138		F	#	0.05	
Calcium	mg/L	06/12/2012	N002	10.5	-	20.5	138		F	#	0.05	
Chloride	mg/L	06/12/2012	N001	10.5	-	20.5	54.7		F	#	1.34	
Chloride	mg/L	06/12/2012	N002	10.5	-	20.5	55.2		F	#	1.34	
Magnesium	mg/L	06/12/2012	N001	10.5	-	20.5	78.5		F	#	0.11	
Magnesium	mg/L	06/12/2012	N002	10.5	-	20.5	83.6		F	#	0.11	
Oxidation Reduction Potential	mV	06/12/2012	N001	10.5	-	20.5	56		F	#		
pH	s.u.	06/12/2012	N001	10.5	-	20.5	7.01		F	#		
Potassium	mg/L	06/12/2012	N001	10.5	-	20.5	4.48		F	#	0.05	
Potassium	mg/L	06/12/2012	N002	10.5	-	20.5	4.45		F	#	0.05	
Selenium	mg/L	06/12/2012	N001	10.5	-	20.5	0.0015	U	F	#	0.0015	
Selenium	mg/L	06/12/2012	N002	10.5	-	20.5	0.00153	B	UF	#	0.0015	
Sodium	mg/L	06/12/2012	N001	10.5	-	20.5	199		F	#	0.1	
Sodium	mg/L	06/12/2012	N002	10.5	-	20.5	205		F	#	0.1	
Specific Conductance	umhos/cm	06/12/2012	N001	10.5	-	20.5	1936		F	#		
Sulfate	mg/L	06/12/2012	N001	10.5	-	20.5	599		F	#	2.66	

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

REPORT DATE: 9/27/2012

Location: 0292A WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sulfate	mg/L	06/12/2012	N002	10.5	-	20.5	600		F	#	2.66	
Temperature	C	06/12/2012	N001	10.5	-	20.5	13.86		F	#		
TOTAL CARBON	mg/L	06/12/2012	N001	10.5	-	20.5	41.3	H	JF	#	3.3	
TOTAL CARBON	mg/L	06/12/2012	N002	10.5	-	20.5	54.5	H	JF	#	6.6	
Total Organic Carbon	mg/L	06/12/2012	N001	10.5	-	20.5	4.77		F	#	0.66	
Total Organic Carbon	mg/L	06/12/2012	N002	10.5	-	20.5	4.97		F	#	0.66	
Turbidity	NTU	06/12/2012	N001	10.5	-	20.5	5.91		F	#		
Uranium	mg/L	06/12/2012	N001	10.5	-	20.5	0.0273		F	#	0.000067	
Uranium	mg/L	06/12/2012	N002	10.5	-	20.5	0.0265		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	10.5	-	20.5	0.001	U	F	#	0.001	
Vanadium	mg/L	06/12/2012	N002	10.5	-	20.5	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0304 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	13.2	-	18.2	268		F	#		
Calcium	mg/L	06/13/2012	N001	13.2	-	18.2	126		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	13.2	-	18.2	135		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	13.2	-	18.2	48.8		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	13.2	-	18.2	220		F	#		
pH	s.u.	06/13/2012	N001	13.2	-	18.2	7.07		F	#		
Potassium	mg/L	06/13/2012	N001	13.2	-	18.2	4.48		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	13.2	-	18.2	0.00376	B	F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	13.2	-	18.2	137		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	13.2	-	18.2	1575		F	#		
Sulfate	mg/L	06/13/2012	N001	13.2	-	18.2	347		F	#	2.66	
Temperature	C	06/13/2012	N001	13.2	-	18.2	12.9		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	13.2	-	18.2	21.2		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	13.2	-	18.2	3.31		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	13.2	-	18.2	9.66		F	#		
Uranium	mg/L	06/13/2012	N001	13.2	-	18.2	0.0368		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	13.2	-	18.2	0.0461		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0305 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	13.76 - 18.76	315		F	#		
Calcium	mg/L	06/13/2012	N001	13.76 - 18.76	179		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	13.76 - 18.76	208		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	13.76 - 18.76	73.7		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	13.76 - 18.76	220		F	#		
pH	s.u.	06/13/2012	N001	13.76 - 18.76	7.14		F	#		
Potassium	mg/L	06/13/2012	N001	13.76 - 18.76	7.37		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	13.76 - 18.76	0.0235		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	13.76 - 18.76	154		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	13.76 - 18.76	2030		F	#		
Sulfate	mg/L	06/13/2012	N001	13.76 - 18.76	460		F	#	2.66	
Temperature	C	06/13/2012	N001	13.76 - 18.76	12.3		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	13.76 - 18.76	26.8		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	13.76 - 18.76	3.15		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	13.76 - 18.76	6.91		F	#		
Uranium	mg/L	06/13/2012	N001	13.76 - 18.76	0.0861		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	13.76 - 18.76	0.234		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0309 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/13/2012	N001	16.93 - 21.93	343		F	#		
Calcium	mg/L	06/13/2012	N001	16.93 - 21.93	182		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	16.93 - 21.93	122		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	16.93 - 21.93	117		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	16.93 - 21.93	85		F	#		
pH	s.u.	06/13/2012	N001	16.93 - 21.93	7.01		F	#		
Potassium	mg/L	06/13/2012	N001	16.93 - 21.93	6.49		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	16.93 - 21.93	0.0015	U	F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	16.93 - 21.93	226		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	16.93 - 21.93	2430		F	#		
Sulfate	mg/L	06/13/2012	N001	16.93 - 21.93	900		F	#	5.32	
Temperature	C	06/13/2012	N001	16.93 - 21.93	15.6		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	16.93 - 21.93	34.1		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	16.93 - 21.93	3.57		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	16.93 - 21.93	9.67		F	#		
Uranium	mg/L	06/13/2012	N001	16.93 - 21.93	0.0308		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	16.93 - 21.93	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0310 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	17.93 - 22.93	390		F	#		
Calcium	mg/L	06/13/2012	N001	17.93 - 22.93	221		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	17.93 - 22.93	147		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	17.93 - 22.93	106		F	#	0.11	
pH	s.u.	06/13/2012	N001	17.93 - 22.93	7.04		F	#		
Potassium	mg/L	06/13/2012	N001	17.93 - 22.93	7.88		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	17.93 - 22.93	0.0015	U	F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	17.93 - 22.93	216		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	17.93 - 22.93	2500		F	#		
Sulfate	mg/L	06/13/2012	N001	17.93 - 22.93	816		F	#	5.32	
Temperature	C	06/13/2012	N001	17.93 - 22.93	14.4		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	17.93 - 22.93	46.9		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	17.93 - 22.93	4.87		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	17.93 - 22.93	2.45		F	#		
Uranium	mg/L	06/13/2012	N001	17.93 - 22.93	0.207		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	17.93 - 22.93	0.00904		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0655 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	13.6	- 23.6	440		F	#		
Calcium	mg/L	06/13/2012	N001	13.6	- 23.6	183		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	13.6	- 23.6	103		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	13.6	- 23.6	118		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	13.6	- 23.6	205		F	#		
pH	s.u.	06/13/2012	N001	13.6	- 23.6	6.96		F	#		
Potassium	mg/L	06/13/2012	N001	13.6	- 23.6	7.17		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	13.6	- 23.6	0.0297		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	13.6	- 23.6	170		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	13.6	- 23.6	2235		F	#		
Sulfate	mg/L	06/13/2012	N001	13.6	- 23.6	750		F	#	2.66	
Temperature	C	06/13/2012	N001	13.6	- 23.6	13.3		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	13.6	- 23.6	39.8		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	13.6	- 23.6	4.31		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	13.6	- 23.6	1.55		F	#		
Uranium	mg/L	06/13/2012	N001	13.6	- 23.6	0.115		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	13.6	- 23.6	0.307		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0656 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	6.35	- 21.35	329		F	#		
Calcium	mg/L	06/13/2012	N001	6.35	- 21.35	153		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	6.35	- 21.35	174		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	6.35	- 21.35	76.7		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	6.35	- 21.35	224		F	#		
pH	s.u.	06/13/2012	N001	6.35	- 21.35	6.92		F	#		
Potassium	mg/L	06/13/2012	N001	6.35	- 21.35	7.45		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	6.35	- 21.35	0.0176		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	6.35	- 21.35	184		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	6.35	- 21.35	2020		F	#		
Sulfate	mg/L	06/13/2012	N001	6.35	- 21.35	481		F	#	2.66	
Temperature	C	06/13/2012	N001	6.35	- 21.35	15.9		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	6.35	- 21.35	31.8		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	6.35	- 21.35	3.33		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	6.35	- 21.35	4.86		F	#		
Uranium	mg/L	06/13/2012	N001	6.35	- 21.35	0.225		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	6.35	- 21.35	0.0189		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0658 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	2.3	-	17.3	370		F	#		
Calcium	mg/L	06/12/2012	N001	2.3	-	17.3	138		F	#	0.05	
Chloride	mg/L	06/12/2012	N001	2.3	-	17.3	21.8		F	#	0.134	
Magnesium	mg/L	06/12/2012	N001	2.3	-	17.3	75.9		F	#	0.11	
Oxidation Reduction Potential	mV	06/12/2012	N001	2.3	-	17.3	36		F	#		
pH	s.u.	06/12/2012	N001	2.3	-	17.3	7.05		F	#		
Potassium	mg/L	06/12/2012	N001	2.3	-	17.3	2.77		F	#	0.05	
Selenium	mg/L	06/12/2012	N001	2.3	-	17.3	0.0144		F	#	0.0015	
Sodium	mg/L	06/12/2012	N001	2.3	-	17.3	80.4		F	#	0.1	
Specific Conductance	umhos /cm	06/12/2012	N001	2.3	-	17.3	1449		F	#		
Sulfate	mg/L	06/12/2012	N001	2.3	-	17.3	448		F	#	2.66	
Temperature	C	06/12/2012	N001	2.3	-	17.3	10.26		F	#		
TOTAL CARBON	mg/L	06/12/2012	N001	2.3	-	17.3	35.4	H	JF	#	3.3	
Total Organic Carbon	mg/L	06/12/2012	N001	2.3	-	17.3	4.51		F	#	0.66	
Turbidity	NTU	06/12/2012	N001	2.3	-	17.3	5.92		F	#		
Uranium	mg/L	06/12/2012	N001	2.3	-	17.3	0.0124		F	#	0.000067	
Vanadium	mg/L	06/12/2012	N001	2.3	-	17.3	0.001	U	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0742-2 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/13/2012	N001	14.05 - 14.55	265		F	#		
Calcium	mg/L	06/13/2012	N001	14.05 - 14.55	136		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	14.05 - 14.55	156		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	14.05 - 14.55	54.2		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	14.05 - 14.55	-.7		F	#		
pH	s.u.	06/13/2012	N001	14.05 - 14.55	7.07		F	#		
Potassium	mg/L	06/13/2012	N001	14.05 - 14.55	3.44		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	14.05 - 14.55	0.00937		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	14.05 - 14.55	123		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	14.05 - 14.55	1569		F	#		
Sulfate	mg/L	06/13/2012	N001	14.05 - 14.55	327		F	#	2.66	
Temperature	C	06/13/2012	N001	14.05 - 14.55	13.15		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	14.05 - 14.55	25.1		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	14.05 - 14.55	2.82		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	14.05 - 14.55	4.93		F	#		
Uranium	mg/L	06/13/2012	N001	14.05 - 14.55	0.0296		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	14.05 - 14.55	0.423		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0742-3 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	18.05 - 18.55	269		F	#		
Calcium	mg/L	06/13/2012	N001	18.05 - 18.55	126		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	18.05 - 18.55	164		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	18.05 - 18.55	52.2		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	18.05 - 18.55	4.6		F	#		
pH	s.u.	06/13/2012	N001	18.05 - 18.55	7.28		F	#		
Potassium	mg/L	06/13/2012	N001	18.05 - 18.55	4.17		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	18.05 - 18.55	0.0258		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	18.05 - 18.55	125		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	18.05 - 18.55	1509		F	#		
Sulfate	mg/L	06/13/2012	N001	18.05 - 18.55	326		F	#	2.66	
Temperature	C	06/13/2012	N001	18.05 - 18.55	12.51		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	18.05 - 18.55	21.6		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	18.05 - 18.55	3.12		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	18.05 - 18.55	2.3		F	#		
Uranium	mg/L	06/13/2012	N001	18.05 - 18.55	0.0188		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	18.05 - 18.55	0.507		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0743-2 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	12.2	-	12.7	410		F	#		
Calcium	mg/L	06/13/2012	N001	12.2	-	12.7	227		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	12.2	-	12.7	200		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	12.2	-	12.7	108		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	12.2	-	12.7	23.1		F	#		
pH	s.u.	06/13/2012	N001	12.2	-	12.7	6.86		F	#		
Potassium	mg/L	06/13/2012	N001	12.2	-	12.7	8.68		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	12.2	-	12.7	0.105		F	#	0.0075	
Sodium	mg/L	06/13/2012	N001	12.2	-	12.7	233		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	12.2	-	12.7	2605		F	#		
Sulfate	mg/L	06/13/2012	N001	12.2	-	12.7	837		F	#	5.32	
Temperature	C	06/13/2012	N001	12.2	-	12.7	13.27		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	12.2	-	12.7	33.7		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	12.2	-	12.7	5.33		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	12.2	-	12.7	6.05		F	#		
Uranium	mg/L	06/13/2012	N001	12.2	-	12.7	0.239		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	12.2	-	12.7	3.57		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0743-3 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	16.2	-	16.7	469		F	#		
Calcium	mg/L	06/13/2012	N001	16.2	-	16.7	218		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	16.2	-	16.7	197		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	16.2	-	16.7	105		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	16.2	-	16.7	21.8		F	#		
pH	s.u.	06/13/2012	N001	16.2	-	16.7	7		F	#		
Potassium	mg/L	06/13/2012	N001	16.2	-	16.7	9.4		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	16.2	-	16.7	0.0285		F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	16.2	-	16.7	287		F	#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	16.2	-	16.7	2706		F	#		
Sulfate	mg/L	06/13/2012	N001	16.2	-	16.7	842		F	#	5.32	
Temperature	C	06/13/2012	N001	16.2	-	16.7	12.88		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	16.2	-	16.7	49.8		F	#	6.6	
Total Organic Carbon	mg/L	06/13/2012	N001	16.2	-	16.7	5.55		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	16.2	-	16.7	5.76		F	#		
Uranium	mg/L	06/13/2012	N001	16.2	-	16.7	0.205		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	16.2	-	16.7	3.03		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0744-1 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	11.2	-	11.7	610		F	#		
Calcium	mg/L	06/13/2012	N001	11.2	-	11.7	328		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	11.2	-	11.7	134		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	11.2	-	11.7	92.6		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	11.2	-	11.7	-50.4		F	#		
pH	s.u.	06/13/2012	N001	11.2	-	11.7	6.68		F	#		
Potassium	mg/L	06/13/2012	N001	11.2	-	11.7	12.7		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	11.2	-	11.7	0.0015	U	F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	11.2	-	11.7	227		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	11.2	-	11.7	2867		F	#		
Sulfate	mg/L	06/13/2012	N001	11.2	-	11.7	959		F	#	5.32	
Temperature	C	06/13/2012	N001	11.2	-	11.7	14.03		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	11.2	-	11.7	75.7		F	#	6.6	
Total Organic Carbon	mg/L	06/13/2012	N001	11.2	-	11.7	8.25		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	11.2	-	11.7	8.48		F	#		
Uranium	mg/L	06/13/2012	N001	11.2	-	11.7	0.0574		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	11.2	-	11.7	0.00248	B	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0744-2 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	15.2	-	15.7	477		F	#		
Calcium	mg/L	06/13/2012	N001	15.2	-	15.7	199		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	15.2	-	15.7	89.1		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	15.2	-	15.7	111		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	15.2	-	15.7	-56.3		F	#		
pH	s.u.	06/13/2012	N001	15.2	-	15.7	6.98		F	#		
Potassium	mg/L	06/13/2012	N001	15.2	-	15.7	6.8		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	15.2	-	15.7	0.00162	B	UF	#	0.0015	
Sodium	mg/L	06/13/2012	N001	15.2	-	15.7	188		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	15.2	-	15.7	2196		F	#		
Sulfate	mg/L	06/13/2012	N001	15.2	-	15.7	733		F	#	2.66	
Temperature	C	06/13/2012	N001	15.2	-	15.7	13.21		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	15.2	-	15.7	54		F	#	6.6	
Total Organic Carbon	mg/L	06/13/2012	N001	15.2	-	15.7	6.13		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	15.2	-	15.7	7.5		F	#		
Uranium	mg/L	06/13/2012	N001	15.2	-	15.7	0.325		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	15.2	-	15.7	0.00342	B	F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0744-3 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	19.2	-	19.7	458		F	#		
Calcium	mg/L	06/13/2012	N001	19.2	-	19.7	193		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	19.2	-	19.7	105		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	19.2	-	19.7	112		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	19.2	-	19.7	-78.8		F	#		
pH	s.u.	06/13/2012	N001	19.2	-	19.7	7.09		F	#		
Potassium	mg/L	06/13/2012	N001	19.2	-	19.7	6.72		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	19.2	-	19.7	0.0015	U	F	#	0.0015	
Sodium	mg/L	06/13/2012	N001	19.2	-	19.7	172		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	19.2	-	19.7	2276		F	#		
Sulfate	mg/L	06/13/2012	N001	19.2	-	19.7	785		F	#	2.66	
Temperature	C	06/13/2012	N001	19.2	-	19.7	13.15		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	19.2	-	19.7	39.2		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	19.2	-	19.7	4.68		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	19.2	-	19.7	6.3		F	#		
Uranium	mg/L	06/13/2012	N001	19.2	-	19.7	0.177		F	#	0.000335	
Vanadium	mg/L	06/13/2012	N001	19.2	-	19.7	0.148		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: CLOUGH WELL 1 WELL IFRC

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	-	264		F	#		
Calcium	mg/L	06/13/2012	N001	-	87.1		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	-	166		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	-	51.2		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	-	15.5		F	#		
pH	s.u.	06/13/2012	N001	-	7.27		F	#		
Potassium	mg/L	06/13/2012	N001	-	3.51		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	-	0.00179	B	UF	#	0.0015	
Sodium	mg/L	06/13/2012	N001	-	180		F	#	0.1	
Specific Conductance	umhos /cm	06/13/2012	N001	-	1552		F	#		
Sulfate	mg/L	06/13/2012	N001	-	281		F	#	2.66	
Temperature	C	06/13/2012	N001	-	14.83		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	-	33.6		F	#	0.66	
Total Organic Carbon	mg/L	06/13/2012	N001	-	2.82		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	-	6.41		F	#		
Uranium	mg/L	06/13/2012	N001	-	0.0234		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	-	0.00906		F	#	0.001	

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

REPORT DATE: 9/27/2012

Location: CLOUGH WELL 2 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Calcium	mg/L	06/13/2012	N001	-	149		F	#	0.05	
Chloride	mg/L	06/13/2012	N001	-	169		F	#	1.34	
Magnesium	mg/L	06/13/2012	N001	-	83.3		F	#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	-	43		F	#		
pH	s.u.	06/13/2012	N001	-	7.2		F	#		
Potassium	mg/L	06/13/2012	N001	-	4.94		F	#	0.05	
Selenium	mg/L	06/13/2012	N001	-	0.00519		UF	#	0.0015	
Sodium	mg/L	06/13/2012	N001	-	252		F	#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	-	2228		F	#		
Sulfate	mg/L	06/13/2012	N001	-	732		F	#	2.66	
Temperature	C	06/13/2012	N001	-	15.1		F	#		
TOTAL CARBON	mg/L	06/13/2012	N001	-	23.9		F	#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	-	4.63		F	#	0.66	
Turbidity	NTU	06/13/2012	N001	-	9.84		F	#		
Uranium	mg/L	06/13/2012	N001	-	0.0417		F	#	0.000067	
Vanadium	mg/L	06/13/2012	N001	-	0.00881		F	#	0.001	

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.

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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: 9/27/2012

Location: 0320 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/11/2012	N001	84			#		
Ammonia Total as N	mg/L	06/11/2012	N001	7.13			#	0.17	
Arsenic	mg/L	06/11/2012	N001	0.0104			#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	0.561			#	0.00165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	0.0915	J		#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	85.5			#		
pH	s.u.	06/11/2012	N001	8.25			#		
Selenium	mg/L	06/11/2012	N001	0.00468	B		#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	4890			#		
Temperature	C	06/11/2012	N001	25.88			#		
Turbidity	NTU	06/11/2012	N001	9.84			#		
Uranium	mg/L	06/11/2012	N001	0.0519			#	0.000067	
Vanadium	mg/L	06/11/2012	N001	0.0274			#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0322 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	100			#		
Ammonia Total as N	mg/L	06/11/2012	N001	0.0811	J		#	0.017	
Arsenic	mg/L	06/11/2012	N001	0.00309	B		#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	0.00262	B	U	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	0.017	U		#	0.017	
Oxidation Reduction Potential	mV	06/11/2012	N001	74.8			#		
pH	s.u.	06/11/2012	N001	8.33			#		
Selenium	mg/L	06/11/2012	N001	0.00156	B		#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	803			#		
Temperature	C	06/11/2012	N001	15.46			#		
Turbidity	NTU	06/11/2012	N001	8.89			#		
Uranium	mg/L	06/11/2012	N001	0.00183			#	0.000067	
Vanadium	mg/L	06/11/2012	N001	0.00106	B		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0323 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/11/2012	N001	190			#		
Ammonia Total as N	mg/L	06/11/2012	N001	19			#	0.85	
Arsenic	mg/L	06/11/2012	N001	0.0017	U		#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	2.98			#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	57.5			#	0.85	
Oxidation Reduction Potential	mV	06/11/2012	N001	84.8			#		
pH	s.u.	06/11/2012	N001	8.01			#		
Selenium	mg/L	06/11/2012	N001	0.00866			#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	8083			#		
Temperature	C	06/11/2012	N001	23.27			#		
Turbidity	NTU	06/11/2012	N001	4.89			#		
Uranium	mg/L	06/11/2012	N001	0.312			#	0.000335	
Vanadium	mg/L	06/11/2012	N001	0.00501			#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0324 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/12/2012	N001	186			#		
Ammonia Total as N	mg/L	06/12/2012	N001	0.0792	J		#	0.017	
Arsenic	mg/L	06/12/2012	N001	0.0017	U		#	0.0017	
Molybdenum	mg/L	06/12/2012	N001	0.0023	B		#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	06/12/2012	N001	0.017	U		#	0.017	
Oxidation Reduction Potential	mV	06/12/2012	N001	65			#		
pH	s.u.	06/12/2012	N001	8.2			#		
Selenium	mg/L	06/12/2012	N001	0.0015	U		#	0.0015	
Specific Conductance	umhos/cm	06/12/2012	N001	829			#		
Temperature	C	06/12/2012	N001	15.65			#		
Turbidity	NTU	06/12/2012	N001	6.69			#		
Uranium	mg/L	06/12/2012	N001	0.00182			#	0.000067	
Vanadium	mg/L	06/12/2012	N001	0.001	U		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0452 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/11/2012	N001	107			#		
Ammonia Total as N	mg/L	06/11/2012	N001	22.7			#	0.85	
Arsenic	mg/L	06/11/2012	N001	0.0179			#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	1.17			#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	0.085	U		#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	116			#		
pH	s.u.	06/11/2012	N001	7.87			#		
Selenium	mg/L	06/11/2012	N001	0.0015	U		#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	11305			#		
Temperature	C	06/11/2012	N001	26.56			#		
Turbidity	NTU	06/11/2012	N001	8.29			#		
Uranium	mg/L	06/11/2012	N001	0.0671			#	0.000067	
Vanadium	mg/L	06/11/2012	N001	0.246			#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0575 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/11/2012	N001	154			#		
Ammonia Total as N	mg/L	06/11/2012	N001	0.559			#	0.017	
Arsenic	mg/L	06/11/2012	N001	0.00399	B		#	0.0017	
Molybdenum	mg/L	06/11/2012	N001	0.435			#	0.00165	
Nitrate + Nitrite as Nitrogen	mg/L	06/11/2012	N001	1.02			#	0.085	
Oxidation Reduction Potential	mV	06/11/2012	N001	29.1			#		
pH	s.u.	06/11/2012	N001	9.67			#		
Selenium	mg/L	06/11/2012	N001	0.0015	U		#	0.0015	
Specific Conductance	umhos/cm	06/11/2012	N001	3577			#		
Temperature	C	06/11/2012	N001	21.51			#		
Turbidity	NTU	06/11/2012	N001	4.78			#		
Uranium	mg/L	06/11/2012	N001	0.0509			#	0.000067	
Vanadium	mg/L	06/11/2012	N001	0.00173	B		#	0.001	

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.

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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: 9/27/2012

Location: 0294 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/12/2012	N001	112			#		
Calcium	mg/L	06/12/2012	N001	58.4			#	0.05	
Chloride	mg/L	06/12/2012	N001	136			#	1.34	
Magnesium	mg/L	06/12/2012	N001	11			#	0.11	
Oxidation Reduction Potential	mV	06/12/2012	N001	93.4			#		
pH	s.u.	06/12/2012	N001	8.76			#		
Potassium	mg/L	06/12/2012	N001	2.76			#	0.05	
Selenium	mg/L	06/12/2012	N001	0.0015	U		#	0.0015	
Sodium	mg/L	06/12/2012	N001	94.8			#	0.1	
Specific Conductance	umhos/cm	06/12/2012	N001	855			#		
Sulfate	mg/L	06/12/2012	N001	84.5			#	2.66	
Temperature	C	06/12/2012	N001	19.04			#		
TOTAL CARBON	mg/L	06/12/2012	N001	18.7	H	J	#	1.65	
Total Organic Carbon	mg/L	06/12/2012	N001	3.06		J	#	0.66	
Turbidity	NTU	06/12/2012	N001	5.32			#		
Uranium	mg/L	06/12/2012	N001	0.00181			#	0.000067	
Vanadium	mg/L	06/12/2012	N001	0.00113	B		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0395 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	359			#		
Calcium	mg/L	06/13/2012	N001	130			#	0.05	
Chloride	mg/L	06/13/2012	N001	55			#	1.34	
Magnesium	mg/L	06/13/2012	N001	85.3			#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	106.8			#		
pH	s.u.	06/13/2012	N001	7.39			#		
Potassium	mg/L	06/13/2012	N001	2.98			#	0.05	
Selenium	mg/L	06/13/2012	N001	0.00815			#	0.0015	
Sodium	mg/L	06/13/2012	N001	83.8			#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	1569			#		
Sulfate	mg/L	06/13/2012	N001	469			#	2.66	
Temperature	C	06/13/2012	N001	27.57			#		
TOTAL CARBON	mg/L	06/13/2012	N001	30			#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	3.67			#	0.66	
Turbidity	NTU	06/13/2012	N001	6.58			#		
Uranium	mg/L	06/13/2012	N001	0.0353			#	0.000067	
Vanadium	mg/L	06/13/2012	N001	0.0019	B		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0396 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	84			#		
Calcium	mg/L	06/13/2012	N001	61.3			#	0.05	
Chloride	mg/L	06/13/2012	N001	151			#	1.34	
Magnesium	mg/L	06/13/2012	N001	11.9			#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	175			#		
pH	s.u.	06/13/2012	N001	8.61			#		
Potassium	mg/L	06/13/2012	N001	2.91			#	0.05	
Selenium	mg/L	06/13/2012	N001	0.00165	B		#	0.0015	
Sodium	mg/L	06/13/2012	N001	102			#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	940			#		
Sulfate	mg/L	06/13/2012	N001	92			#	2.66	
Temperature	C	06/13/2012	N001	20.5			#		
TOTAL CARBON	mg/L	06/13/2012	N001	15.5			#	1.65	
Total Organic Carbon	mg/L	06/13/2012	N001	3.09			#	0.66	
Turbidity	NTU	06/13/2012	N001	4.82			#		
Uranium	mg/L	06/13/2012	N001	0.002			#	0.000067	
Vanadium	mg/L	06/13/2012	N001	0.00105	B		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0398 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/13/2012	N001	186			#		
Calcium	mg/L	06/13/2012	N001	128			#	0.05	
Chloride	mg/L	06/13/2012	N001	134			#	1.34	
Magnesium	mg/L	06/13/2012	N001	44.7			#	0.11	
Oxidation Reduction Potential	mV	06/13/2012	N001	225			#		
pH	s.u.	06/13/2012	N001	7.52			#		
Potassium	mg/L	06/13/2012	N001	2.76			#	0.05	
Selenium	mg/L	06/13/2012	N001	0.00204	B		#	0.0015	
Sodium	mg/L	06/13/2012	N001	108			#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	1430			#		
Sulfate	mg/L	06/13/2012	N001	302			#	2.66	
Temperature	C	06/13/2012	N001	14.1			#		
TOTAL CARBON	mg/L	06/13/2012	N001	22.2			#	3.3	
Total Organic Carbon	mg/L	06/13/2012	N001	2.94			#	0.66	
Turbidity	NTU	06/13/2012	N001	4.93			#		
Uranium	mg/L	06/13/2012	N001	0.0136			#	0.000067	
Vanadium	mg/L	06/13/2012	N001	0.00282	B		#	0.001	

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

REPORT DATE: 9/27/2012

Location: 0741 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO ₃)	mg/L	06/13/2012	N001	85			#		
Calcium	mg/L	06/13/2012	N001	61.6			#	0.05	
Chloride	mg/L	06/13/2012	N001	151			#	1.34	
Magnesium	mg/L	06/13/2012	N001	12.4			#	0.11	
pH	s.u.	06/13/2012	N001	8.43			#		
Potassium	mg/L	06/13/2012	N001	3.2			#	0.05	
Selenium	mg/L	06/13/2012	N001	0.0015	U		#	0.0015	
Sodium	mg/L	06/13/2012	N001	102			#	0.1	
Specific Conductance	umhos/cm	06/13/2012	N001	915			#		
Sulfate	mg/L	06/13/2012	N001	91			#	2.66	
Temperature	C	06/13/2012	N001	21			#		
TOTAL CARBON	mg/L	06/13/2012	N001	10.6			#	1.65	
Total Organic Carbon	mg/L	06/13/2012	N001	3.12			#	0.66	
Turbidity	NTU	06/13/2012	N001	5.43			#		
Uranium	mg/L	06/13/2012	N001	0.00194			#	0.000067	
Vanadium	mg/L	06/13/2012	N001	0.00102	B		#	0.001	

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.

Equipment Blank Data

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BLANKS REPORT

LAB: GENERAL ENGINEERING (Charleston, SC)

RIN: 12054589

Report Date: 9/27/2012

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	RFO01	0999	06/12/2012	N001	mg/L	0.017	U	0.017		E
Arsenic	RFO01	0999	06/12/2012	N001	mg/L	0.0017	U	0.0017		E
Calcium	RFO01	0999	06/12/2012	N001	mg/L	0.0843	B	0.05		E
Chloride	RFO01	0999	06/12/2012	N001	mg/L	0.067	U	0.067		E
Magnesium	RFO01	0999	06/12/2012	N001	mg/L	0.11	U	0.11		E
Molybdenum	RFO01	0999	06/12/2012	N001	mg/L	0.000189	B	0.000165		E
Nitrate + Nitrite as Nitrogen	RFO01	0999	06/12/2012	N001	mg/L	0.085	U	0.085		E
Potassium	RFO01	0999	06/12/2012	N001	mg/L	0.05	U	0.05		E
Selenium	RFO01	0999	06/12/2012	N001	mg/L	0.0015	U	0.0015		E
Sodium	RFO01	0999	06/12/2012	N001	mg/L	0.231	B	0.1		E
Sulfate	RFO01	0999	06/12/2012	N001	mg/L	0.133	U	0.133		E
TOTAL CARBON	RFO01	0999	06/12/2012	N001	mg/L	1.04	J	0.66		E
Total Organic Carbon	RFO01	0999	06/12/2012	N001	mg/L	1.19	J	0.66		E
Uranium	RFO01	0999	06/12/2012	N001	mg/L	0.000067	U	0.000067		E
Vanadium	RFO01	0999	06/12/2012	N001	mg/L	0.001	U	0.001		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.	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.		

SAMPLE TYPES:

E Equipment Blank.

Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE RFN01, Rifle New Processing Site
REPORT DATE: 9/27/2012

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0169	U	5275.47	06/11/2012	11:30:44	9.35	5266.12
0170	D	5332.97	06/11/2012	09:30:19	94.25	5238.72
0172	D	5229.45	06/12/2012	09:55:54	16	5213.45
0195	D	5253.1	06/11/2012	10:10:17	9.58	5243.52
0201	D	5261.07	06/11/2012	14:00:23	13.44	5247.63
0215	O	5271.42	06/12/2012	09:00:34	11.23	5260.19
0216	O	5265.41	06/11/2012	12:05:30	7.3	5258.11
0217	D	5256.98	06/11/2012	15:45:14	5.21	5251.77
0590	D	5256.37	06/11/2012	15:00:54	7.41	5248.96
0620	D	5231.22	06/12/2012	10:35:26	9.57	5221.65
0635	D	5256.12	06/11/2012	10:45:57	8.31	5247.81
0658	O	5265.91	06/11/2012	17:10:33	6.75	5259.16
0659	O	5261.33	06/12/2012	11:20:21	7	5254.33
0664	O	5270.17	06/12/2012	12:05:05	13.39	5256.78
0669	O	5266.56	06/12/2012	11:35:14	9.99	5256.57
0670	O	5270.94	06/11/2012	17:35:18	13.1	5257.84
0689		NA	06/13/2012	08:15:32	9.2	NA
0690		NA	06/13/2012	08:40:30	10.05	NA
0855	O	5267.24	06/11/2012	16:50:18	8.15	5259.09

NA – Not available

FLOW CODES: B BACKGROUND
N UNKNOWN

C CROSS GRADIENT
O ON SITE

D DOWN GRADIENT
U UPGRADIENT

F OFF SITE

STATIC WATER LEVELS (USEE700) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 9/27/2012

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0292A		5323.08	06/12/2012	14:20:42	11.97	5311.11	
0304	O	5310.63	06/13/2012	09:50:54	10.59	5300.04	
0305	O	5312.08	06/13/2012	09:15:16	11.41	5300.67	
0309	O	5313.37	06/13/2012	13:40:06	14.94	5298.43	
0310	O	5311.64	06/13/2012	12:00:08	12.58	5299.06	
0655	O	5312.87	06/13/2012	11:30:44	12.5	5300.37	
0656	O	5313.28	06/13/2012	10:10:35	12.54	5300.74	
0658	U	5323.07	06/12/2012	13:45:17	7.6	5315.47	
0742-1		5313.28	06/13/2012	11:25:00			D
0742-2		5313.28	06/13/2012	11:45:52	13.2	5300.08	
0742-3		5313.28	06/13/2012	12:00:46	13.2	5300.08	
0743-1		5310.43	06/13/2012	09:29:00			D
0743-2		5310.43	06/13/2012	09:50:37	12	5298.43	
0743-3		5310.43	06/13/2012	10:05:24	12	5298.43	
0744-1		5309.25	06/13/2012	10:40:09	11.3	5297.95	
0744-2		5309.25	06/13/2012	11:00:14	11.3	5297.95	
0744-3		5309.25	06/13/2012	11:10:38	11.3	5297.95	

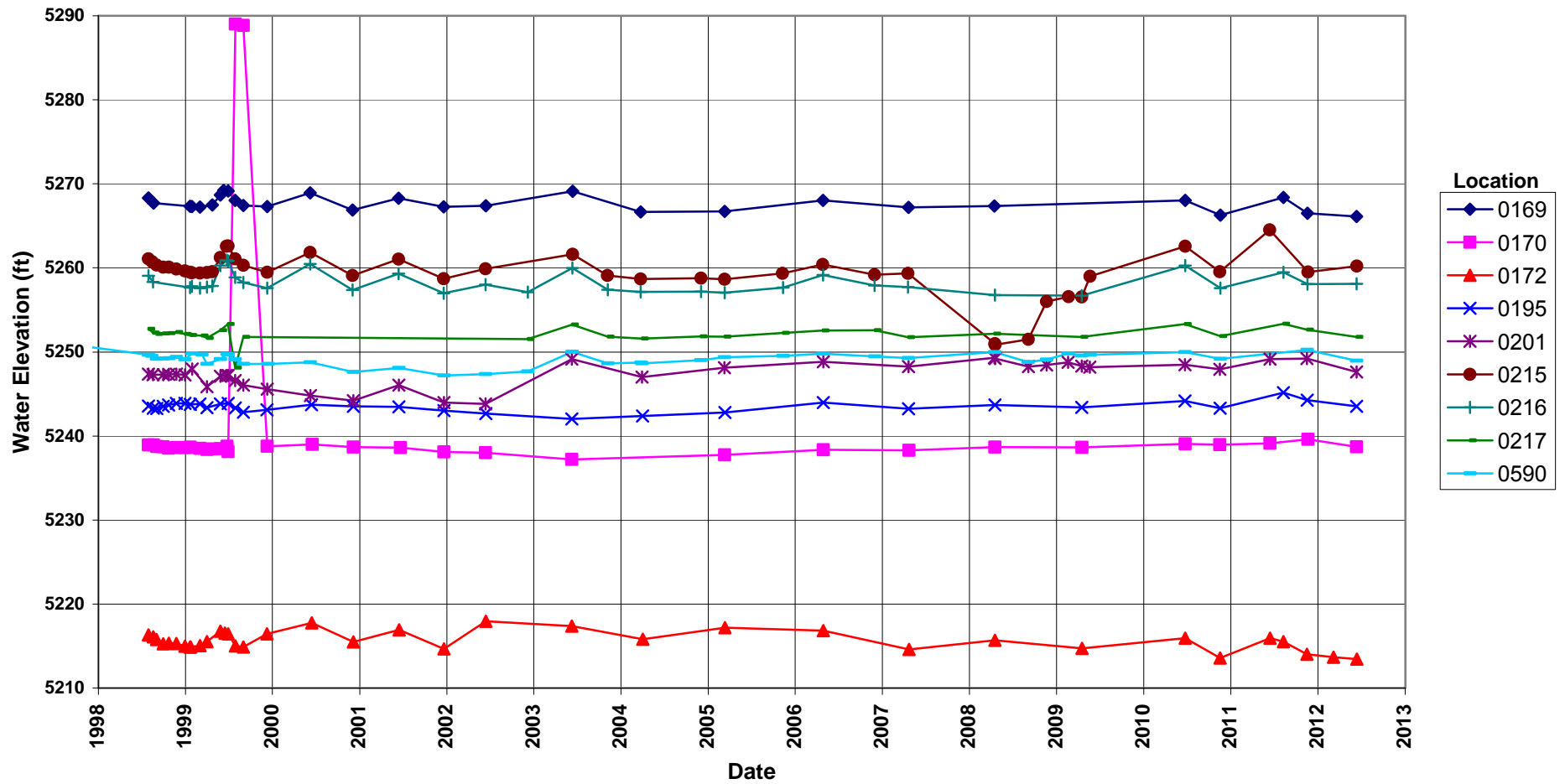
FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT F OFF SITE
N UNKNOWN O ON SITE U UPGRADIENT

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

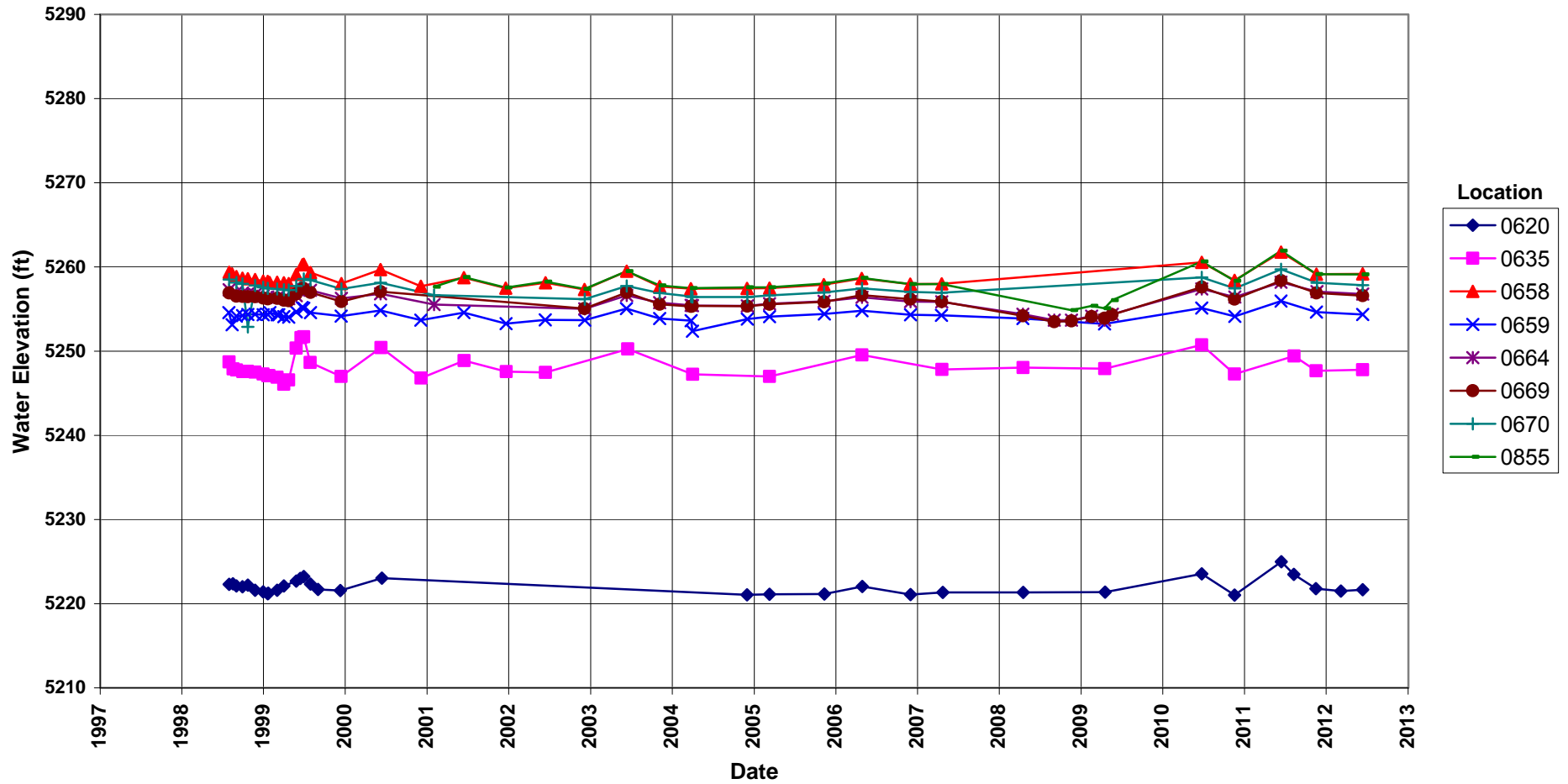
New Rifle Hydrographs

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Rifle New Processing Site Hydrograph



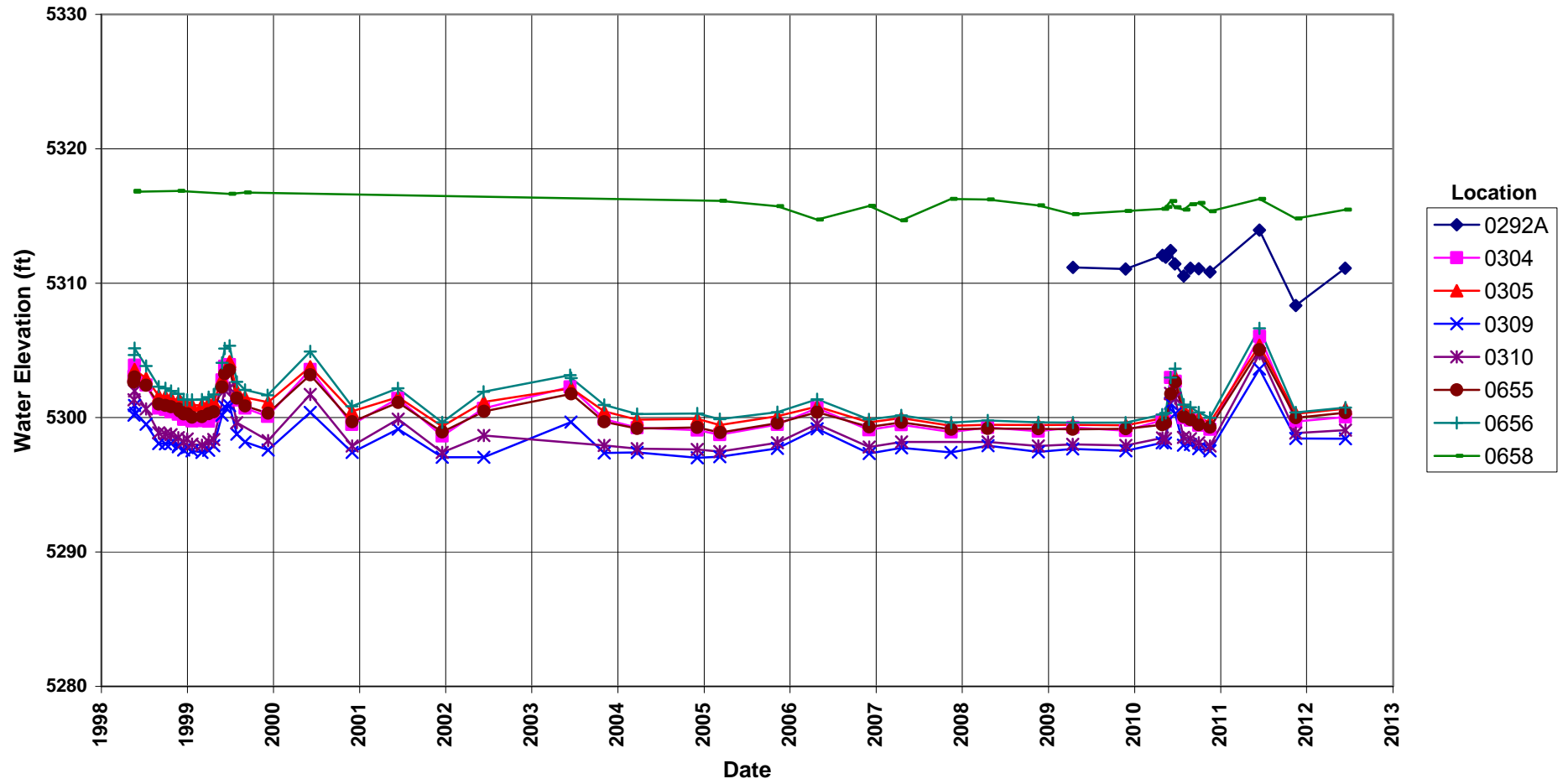
Rifle New Processing Site Hydrograph



Old Rifle Hydrographs

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Rifle Old Processing Site Hydrograph

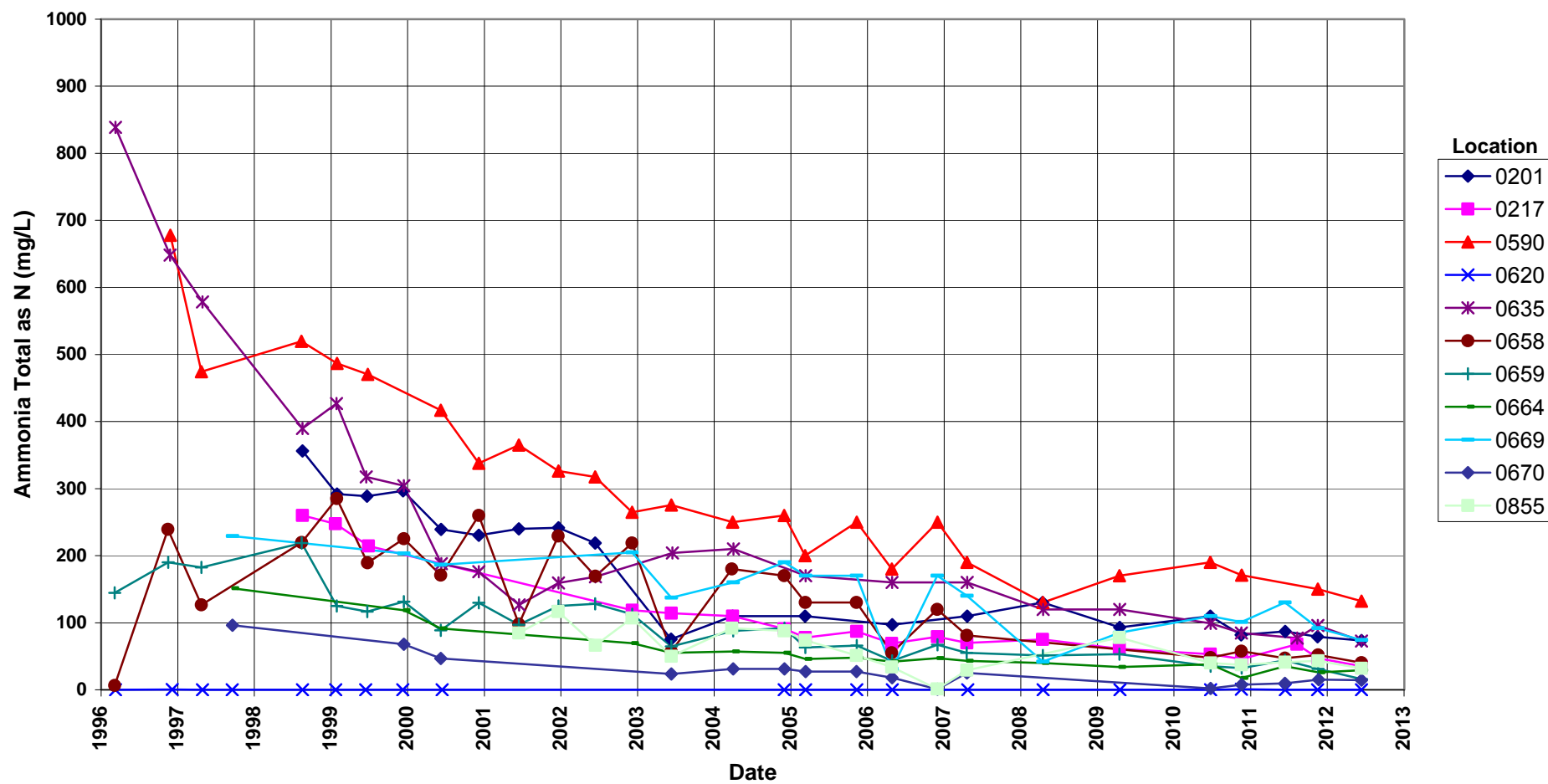


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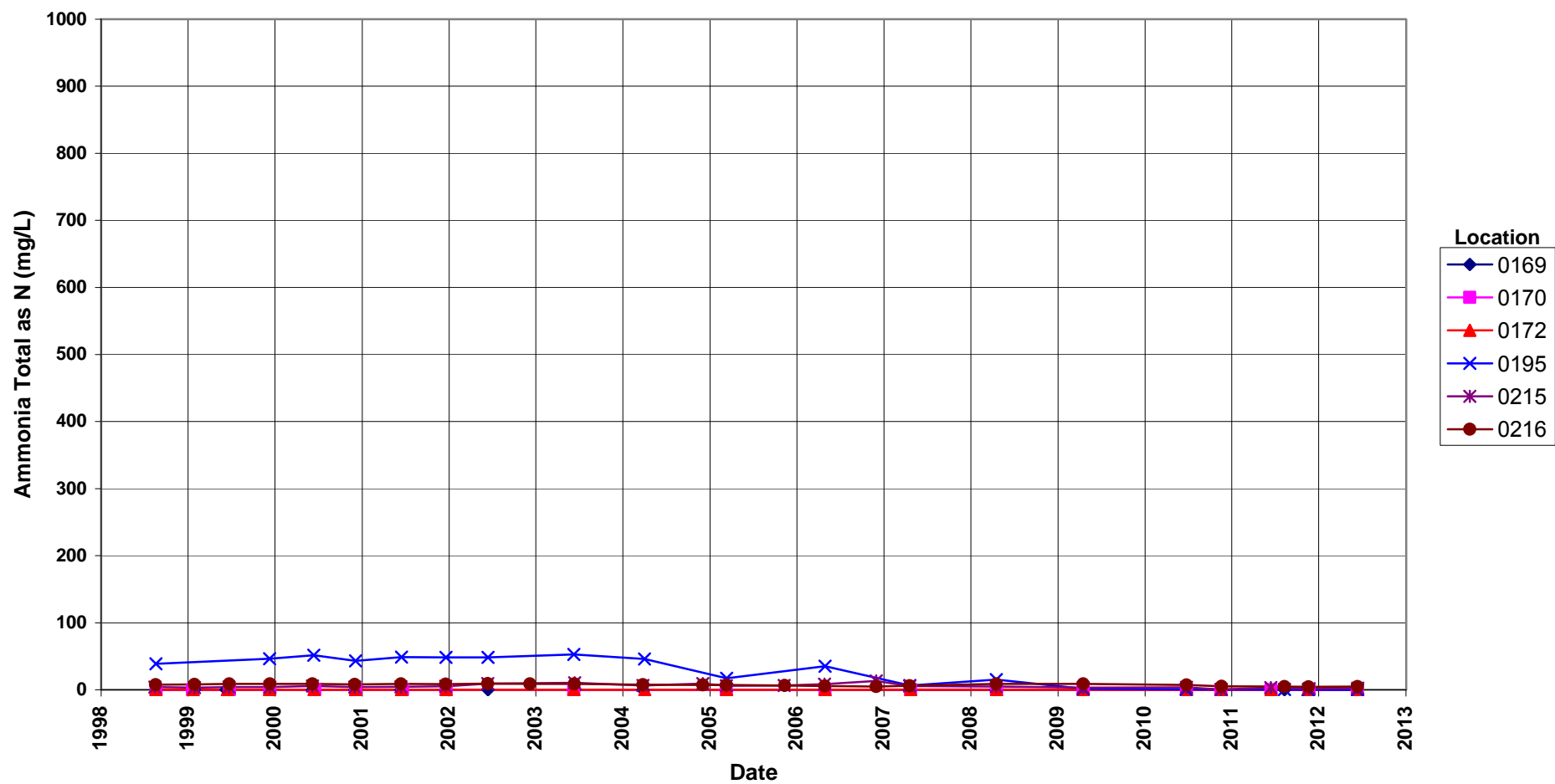
New Rifle Groundwater Time-Concentration Graphs

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Rifle New Processing Site Ammonia Total as N Concentration

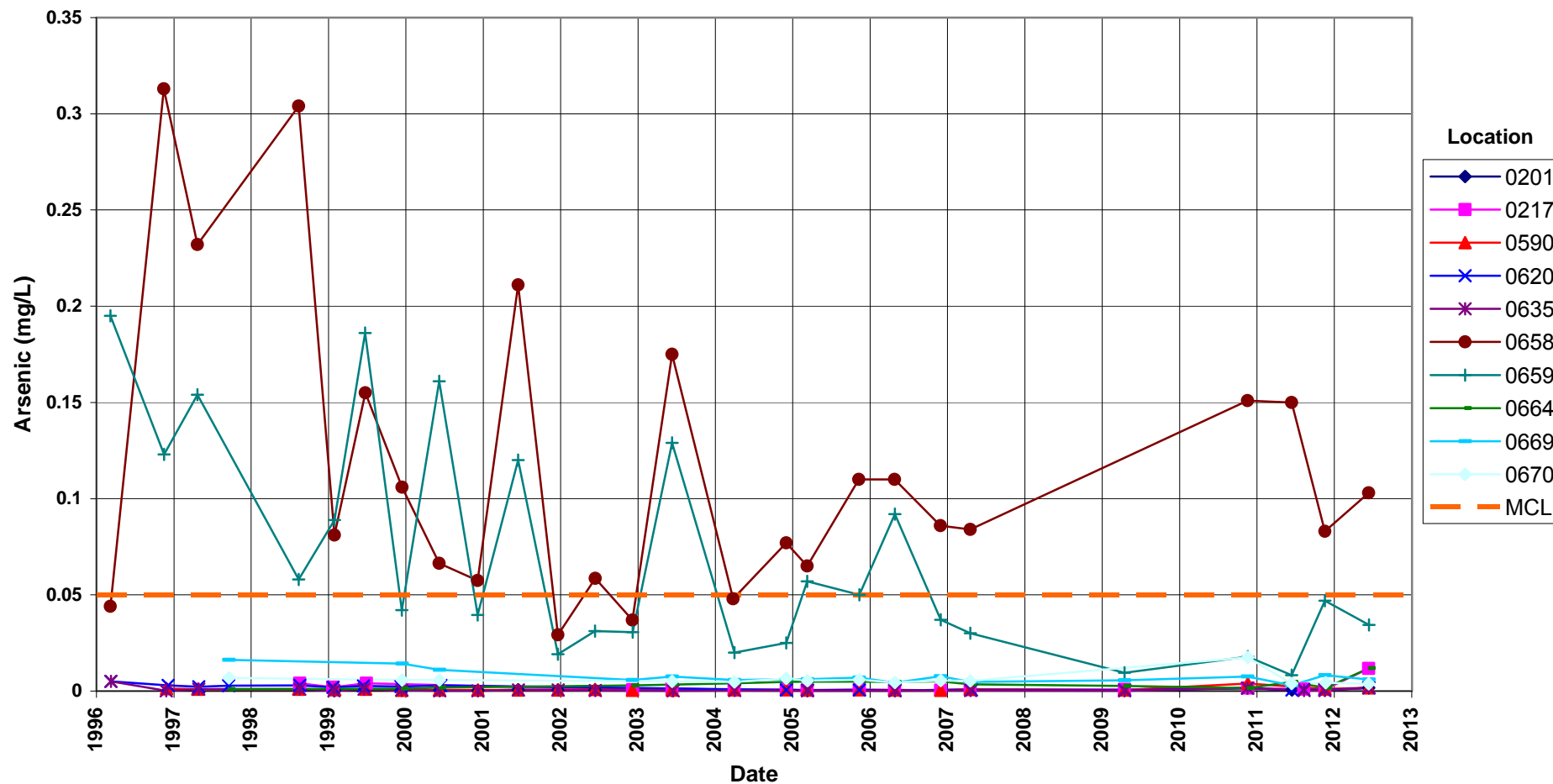


Rifle New Processing Site Ammonia Total as N Concentration

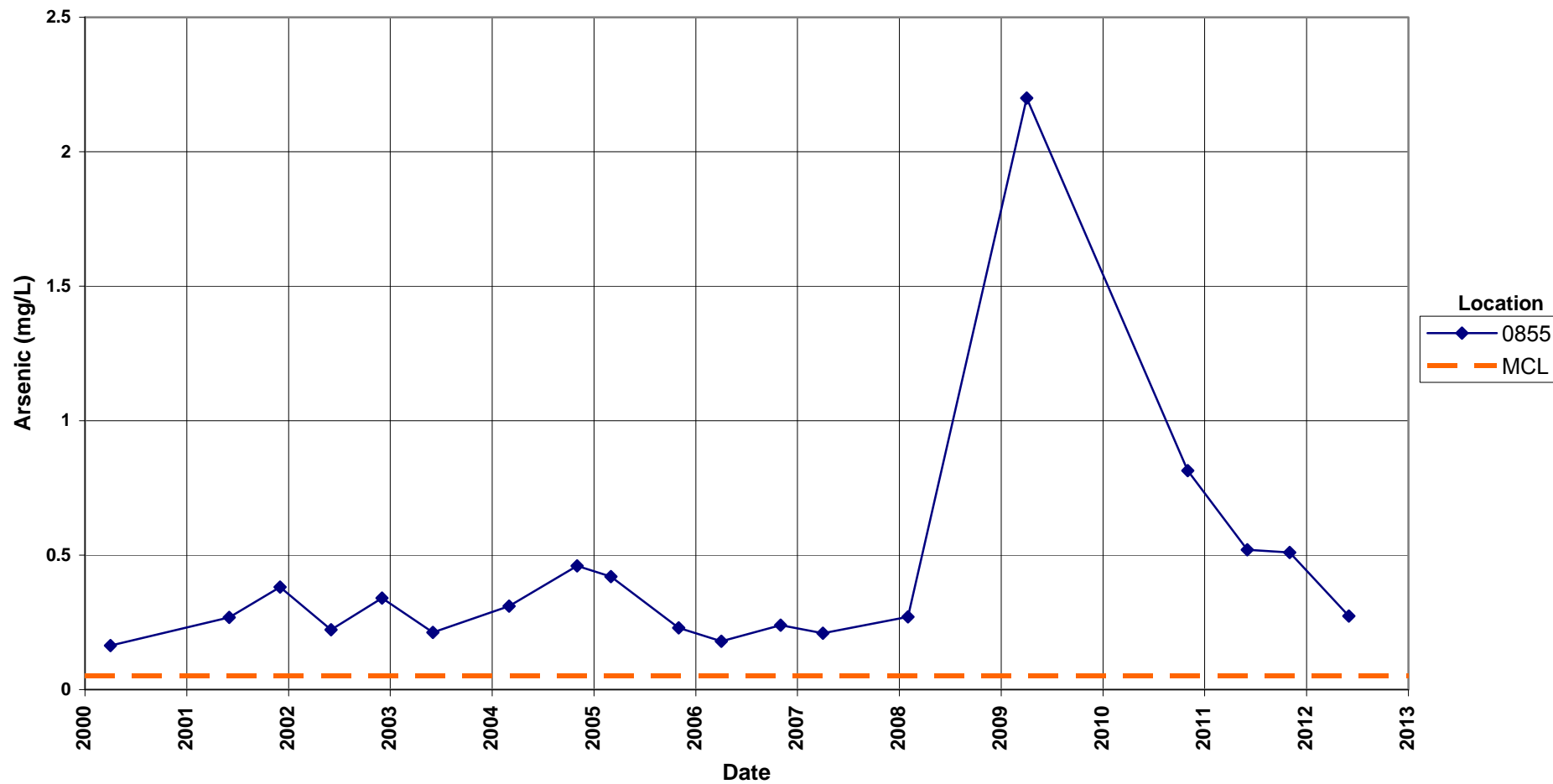


Rifle New Processing Site Arsenic Concentration

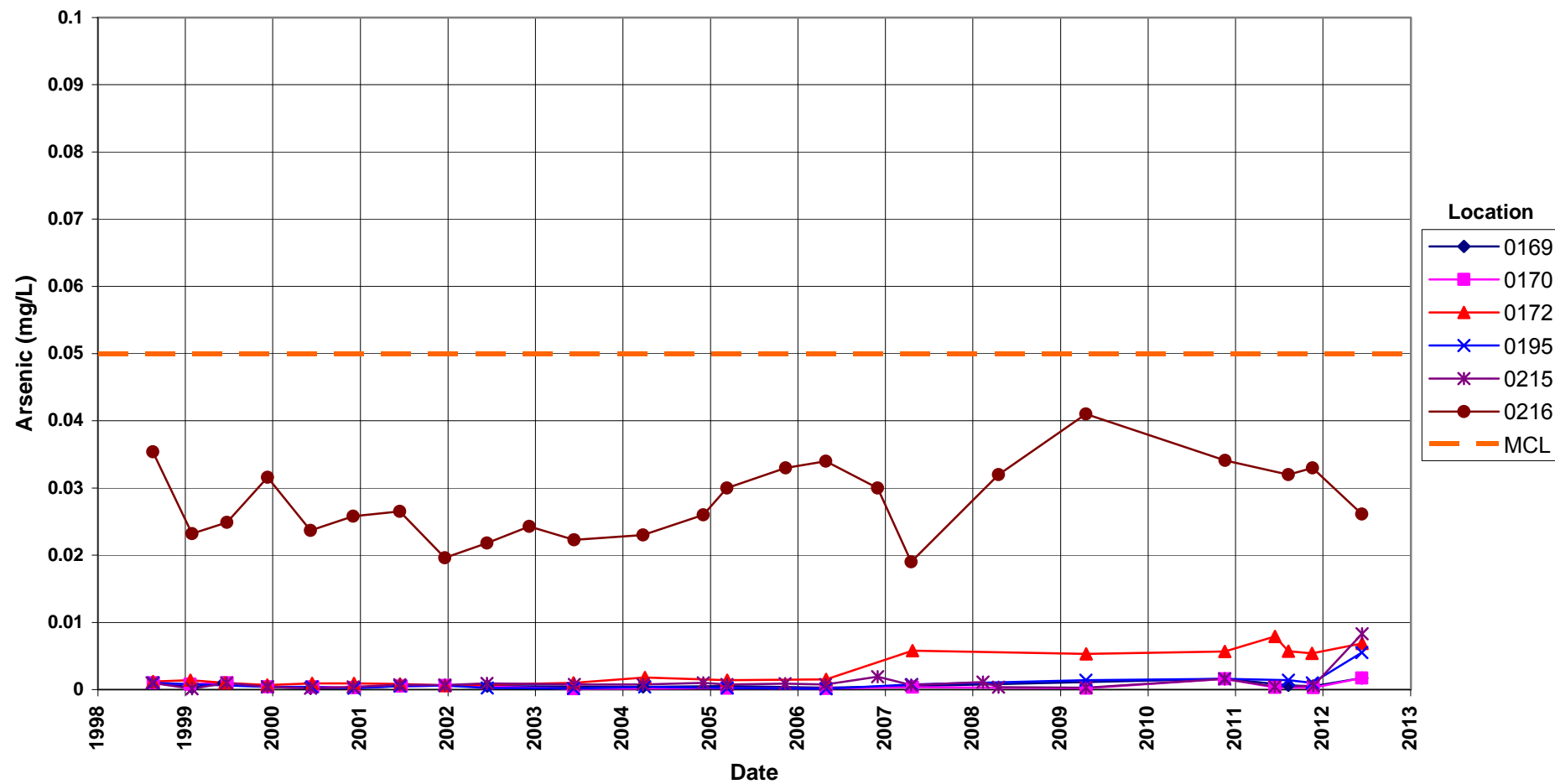
Maximum Concentration Limit (MCL) = 0.05 mg/L



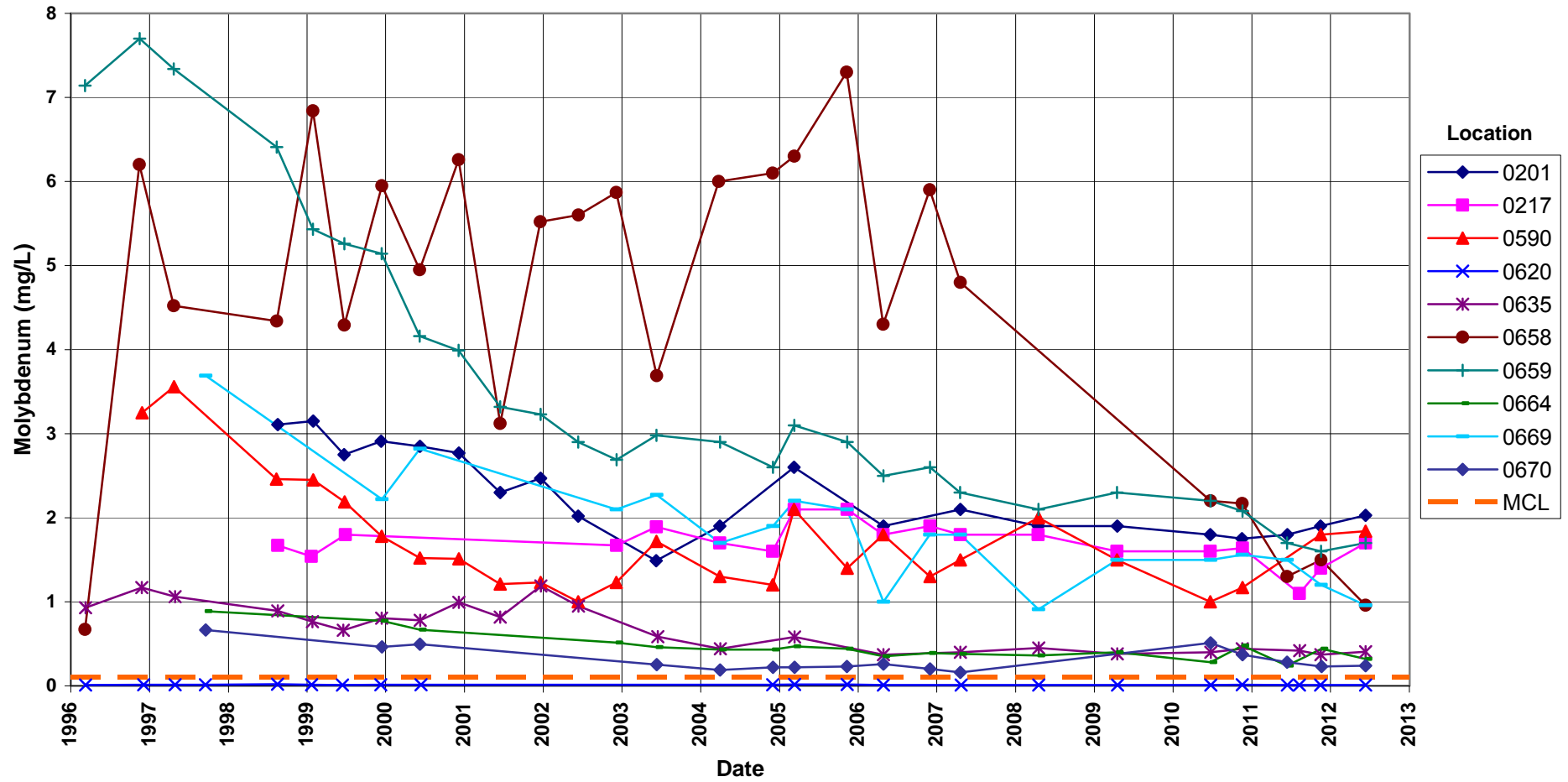
Rifle New Processing Site
Arsenic Concentration
Maximum Concentration Limit (MCL) = 0.05 mg/L



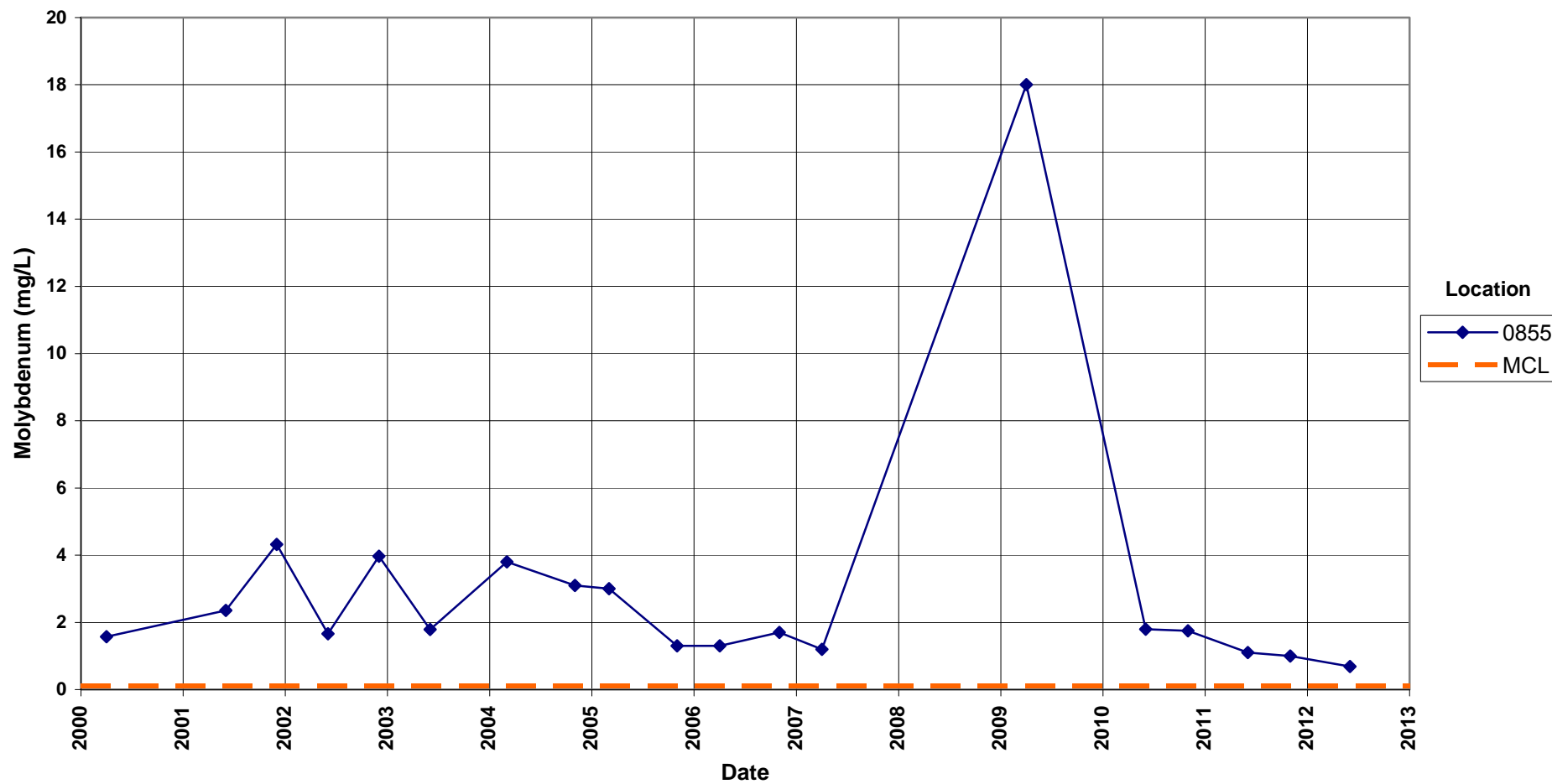
Rifle New Processing Site
Arsenic Concentration
Maximum Concentration Limit (MCL) = 0.05 mg/L



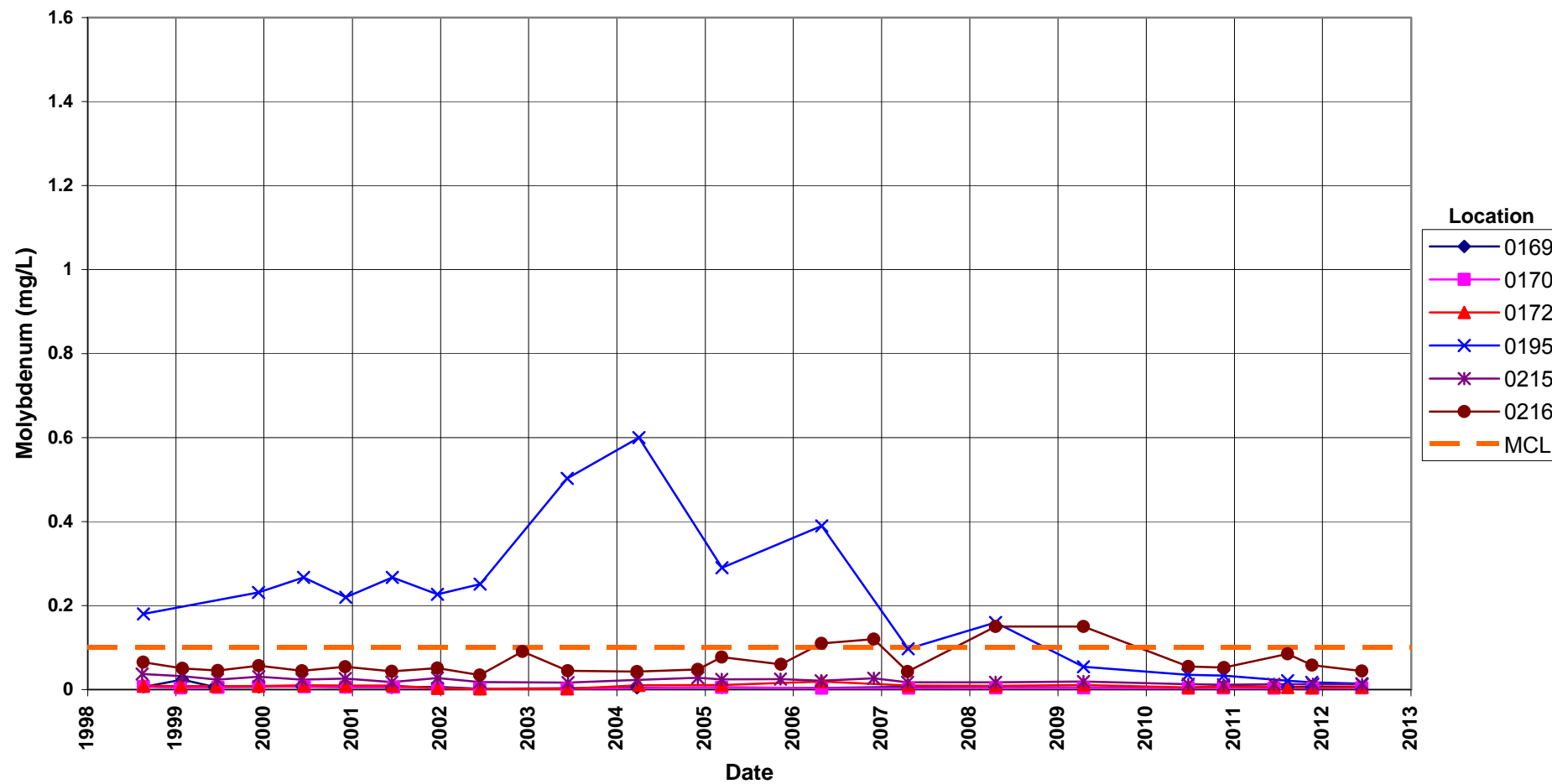
Rifle New Processing Site
Molybdenum Concentration
Maximum Concentration Limit (MCL) = 0.1 mg/L



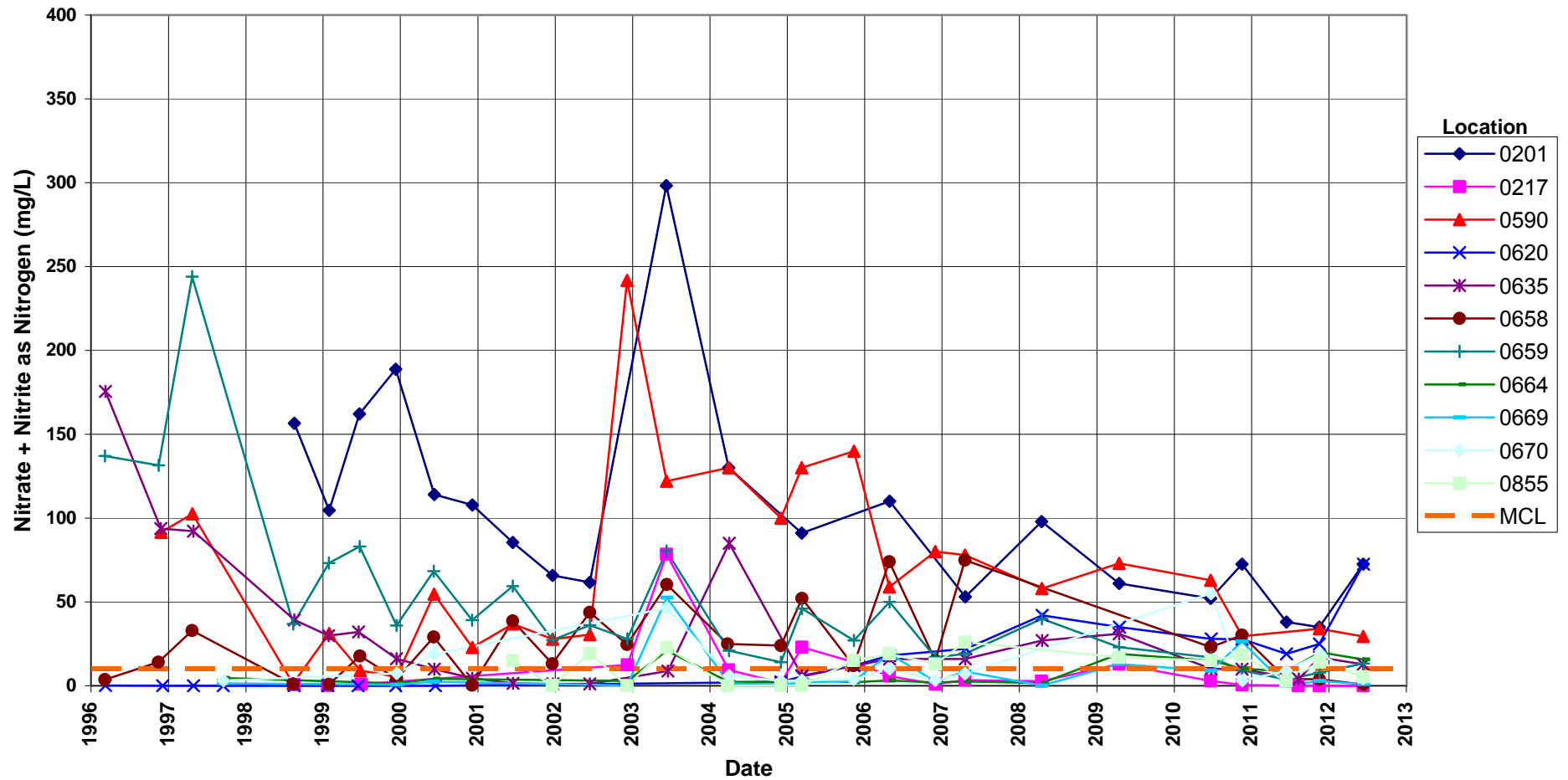
Rifle New Processing Site Molybdenum Concentration



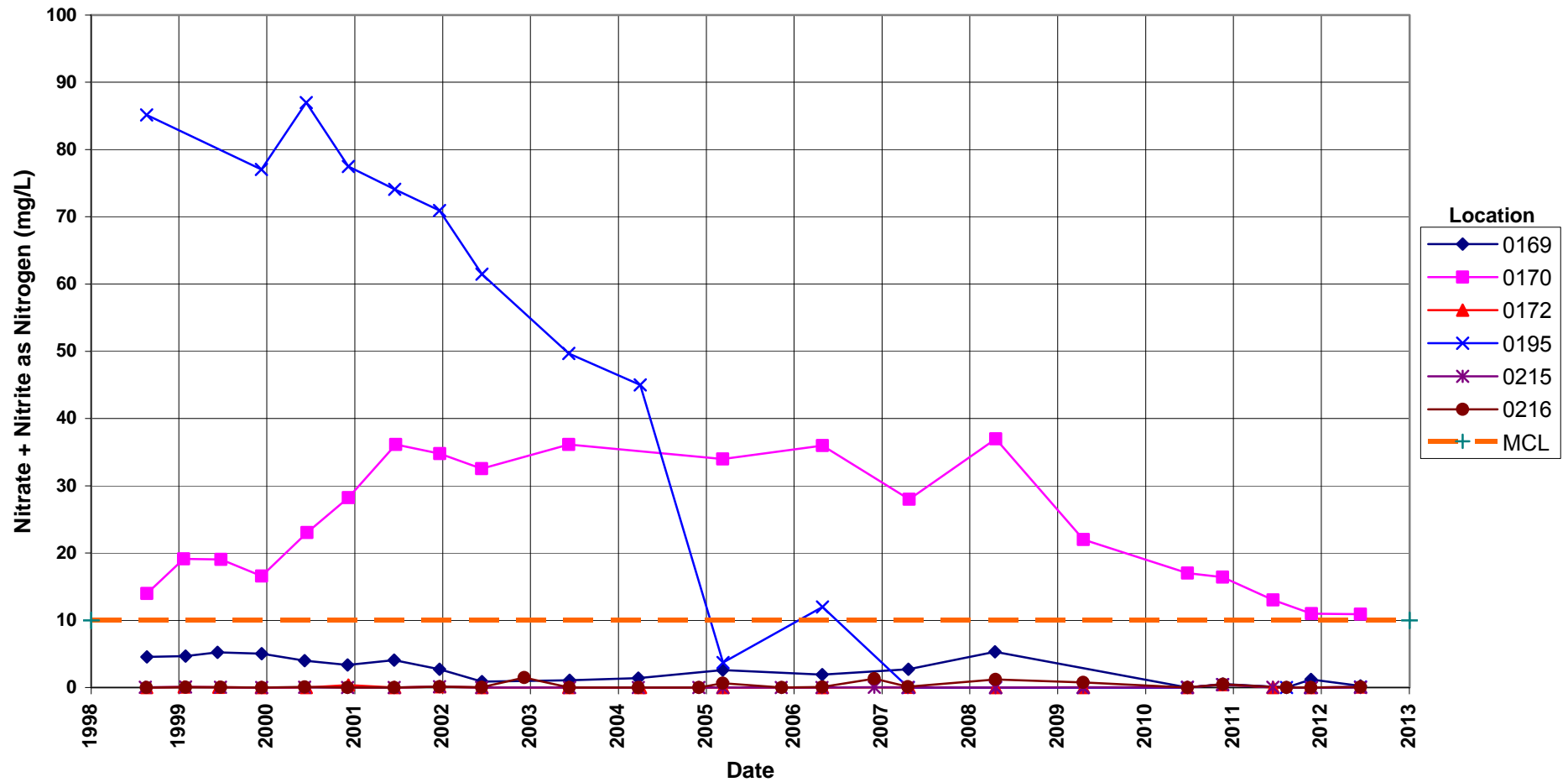
Rifle New Processing Site
Molybdenum Concentration
Maximum Concentration Limit (MCL) = 0.1 mg/L



Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Maximum Concentration Limit (MCL) = 10.0 mg/L

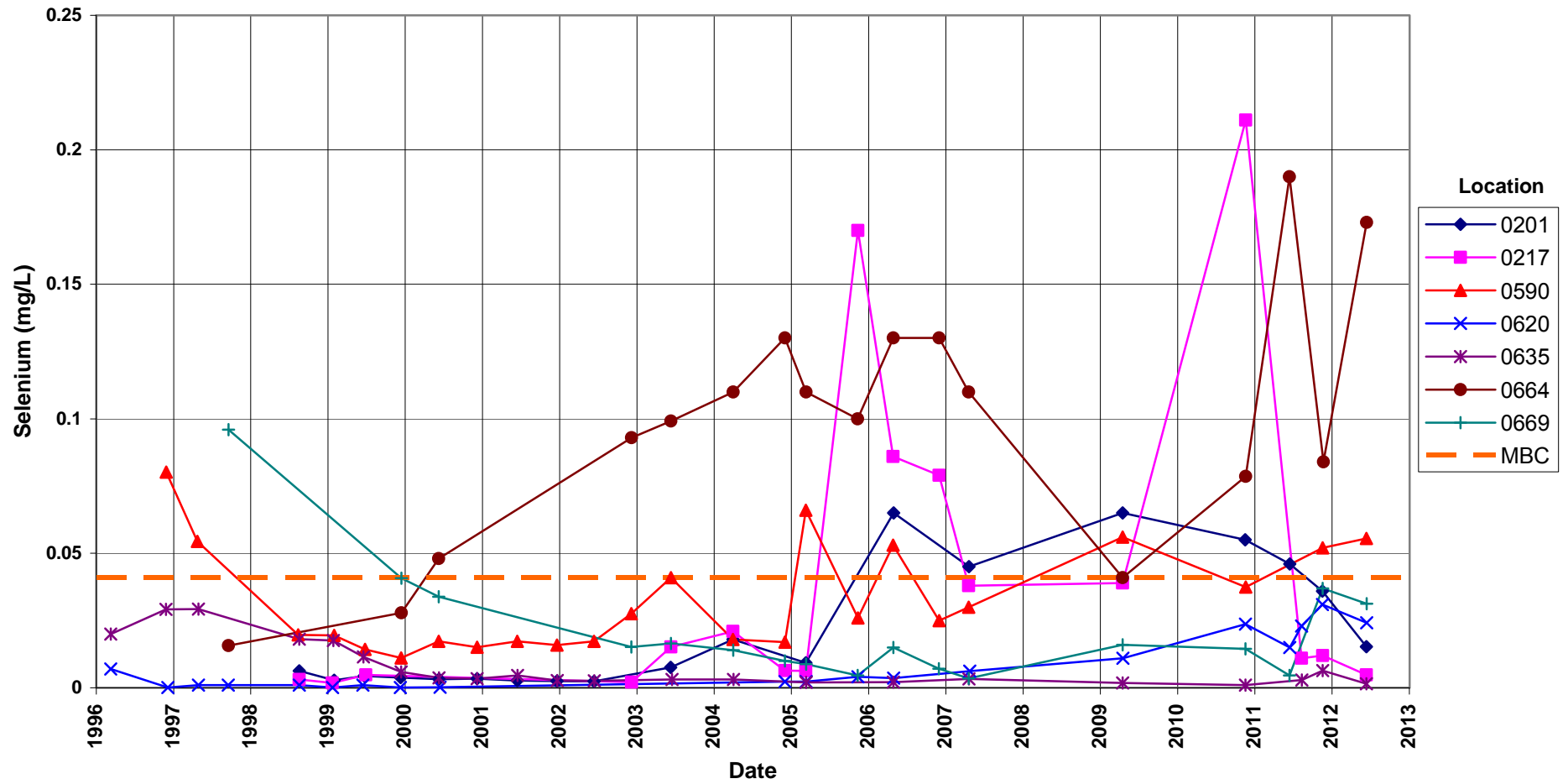


Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Maximum Contration Limit (MCL) = 10.0 mg/L



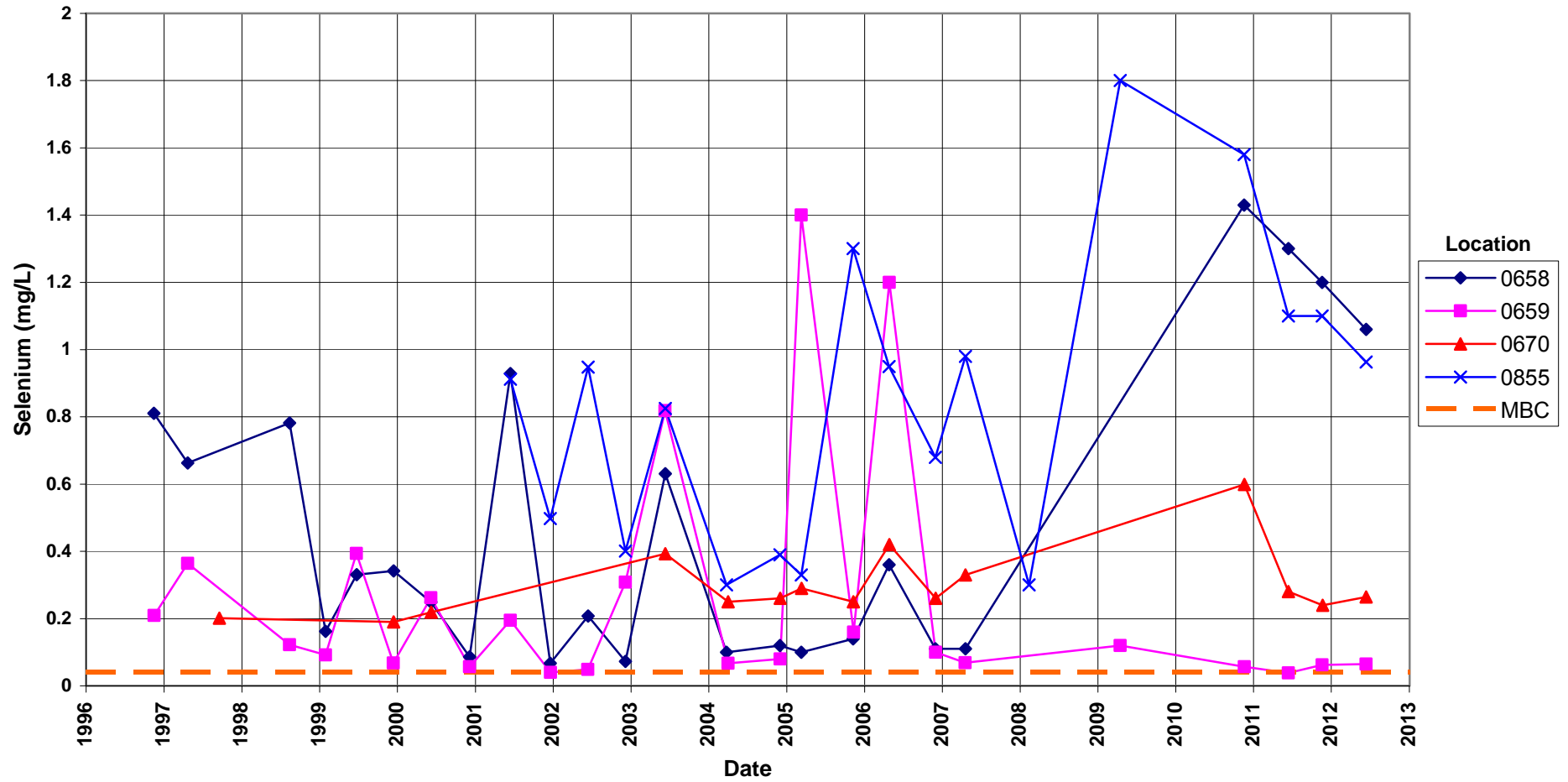
Rifle New Processing Site Selenium Concentration

Maximum Background Concentration (MBC) = 0.041 mg/L



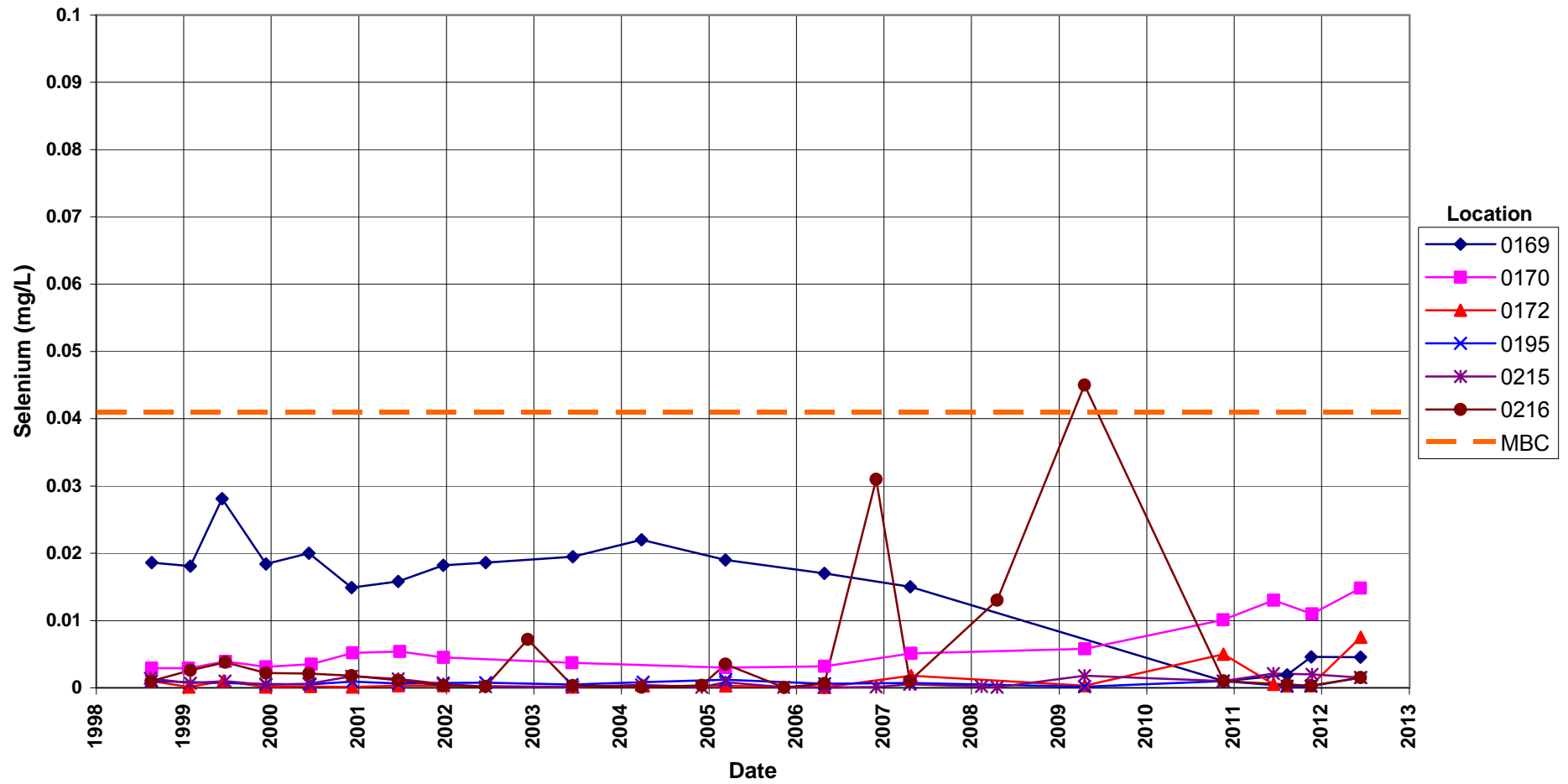
Rifle New Processing Site Selenium Concentration

Maximum Background Concentration (MBC) = 0.041 mg/L



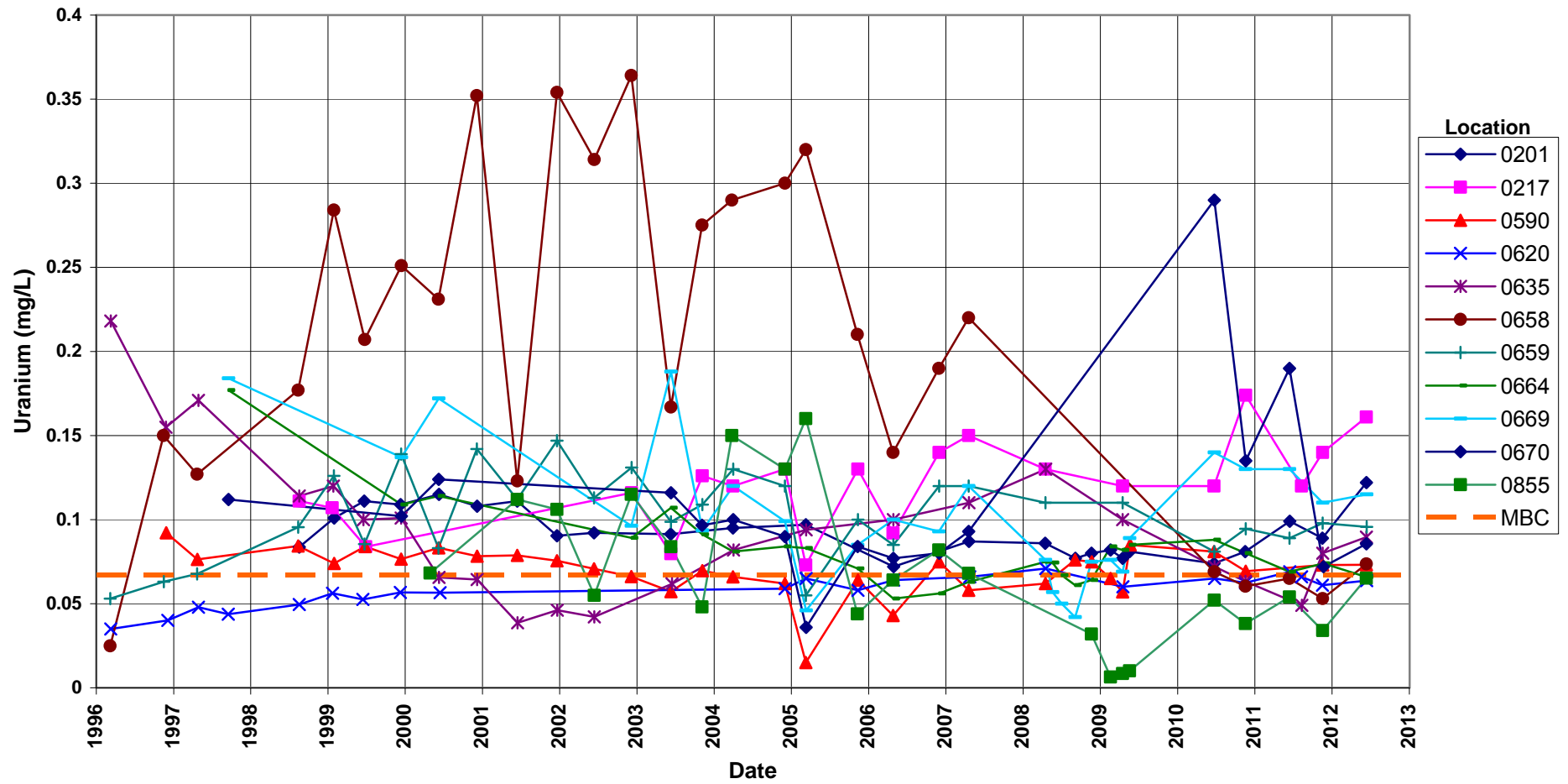
Rifle New Processing Site Selenium Concentration

Maximum Background Concentration (MBC) = 0.041 mg/L



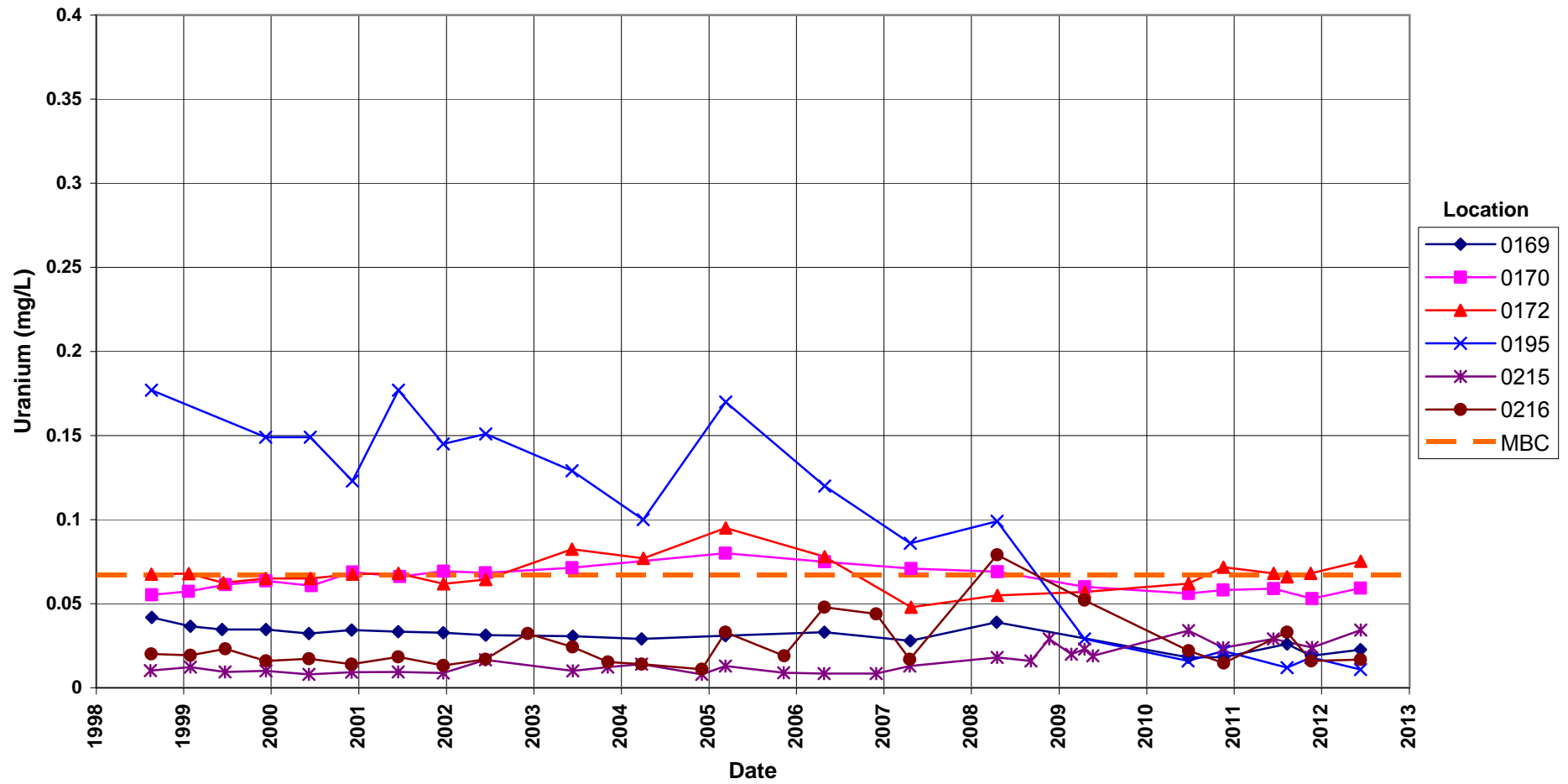
Rifle New Processing Site Uranium Concentration

Maximum Background Concentration (MBC) = 0.067 mg/L

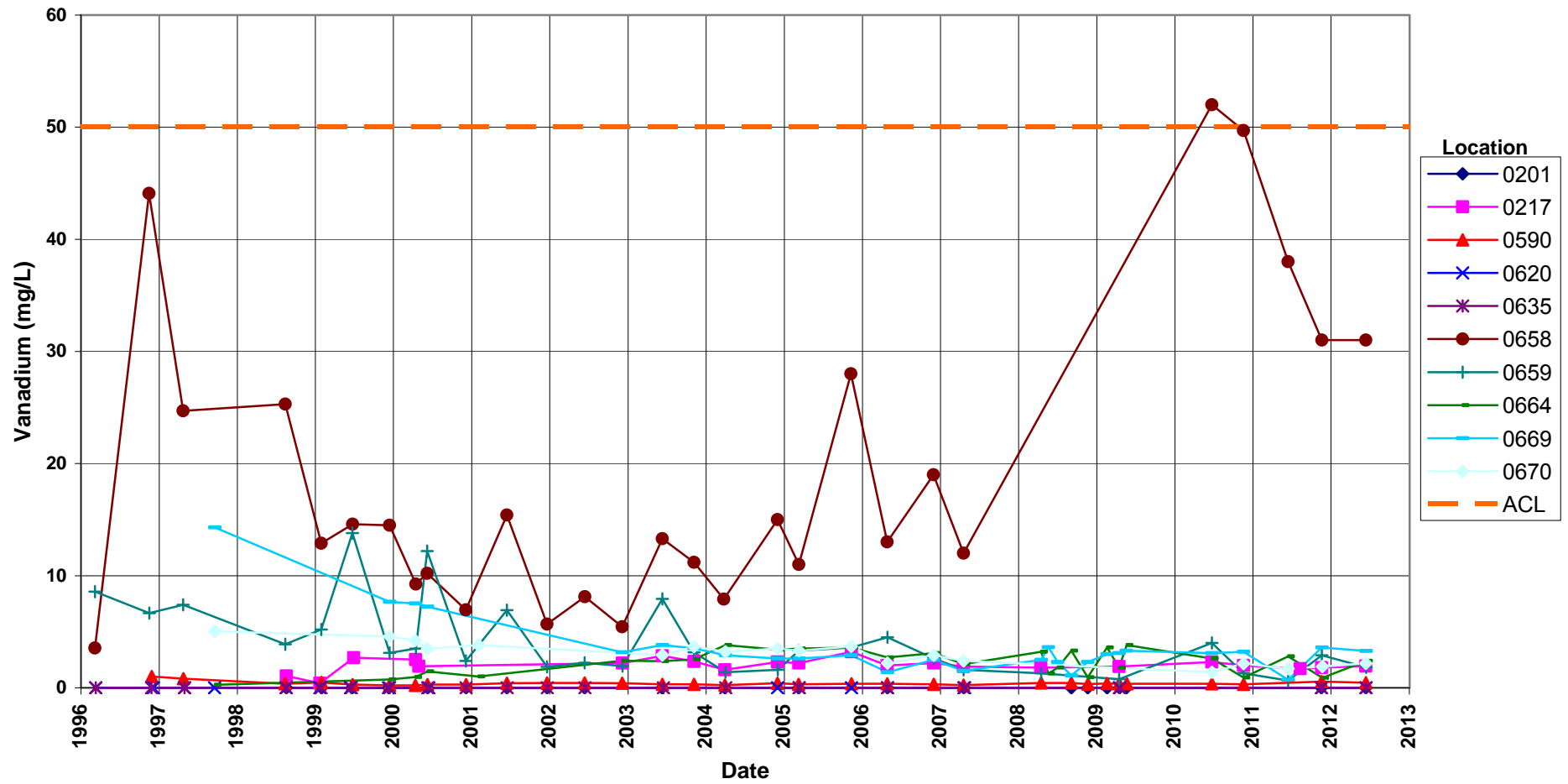


Rifle New Processing Site Uranium Concentration

Maximum Background Concentration (MBC) = 0.067 mg/L

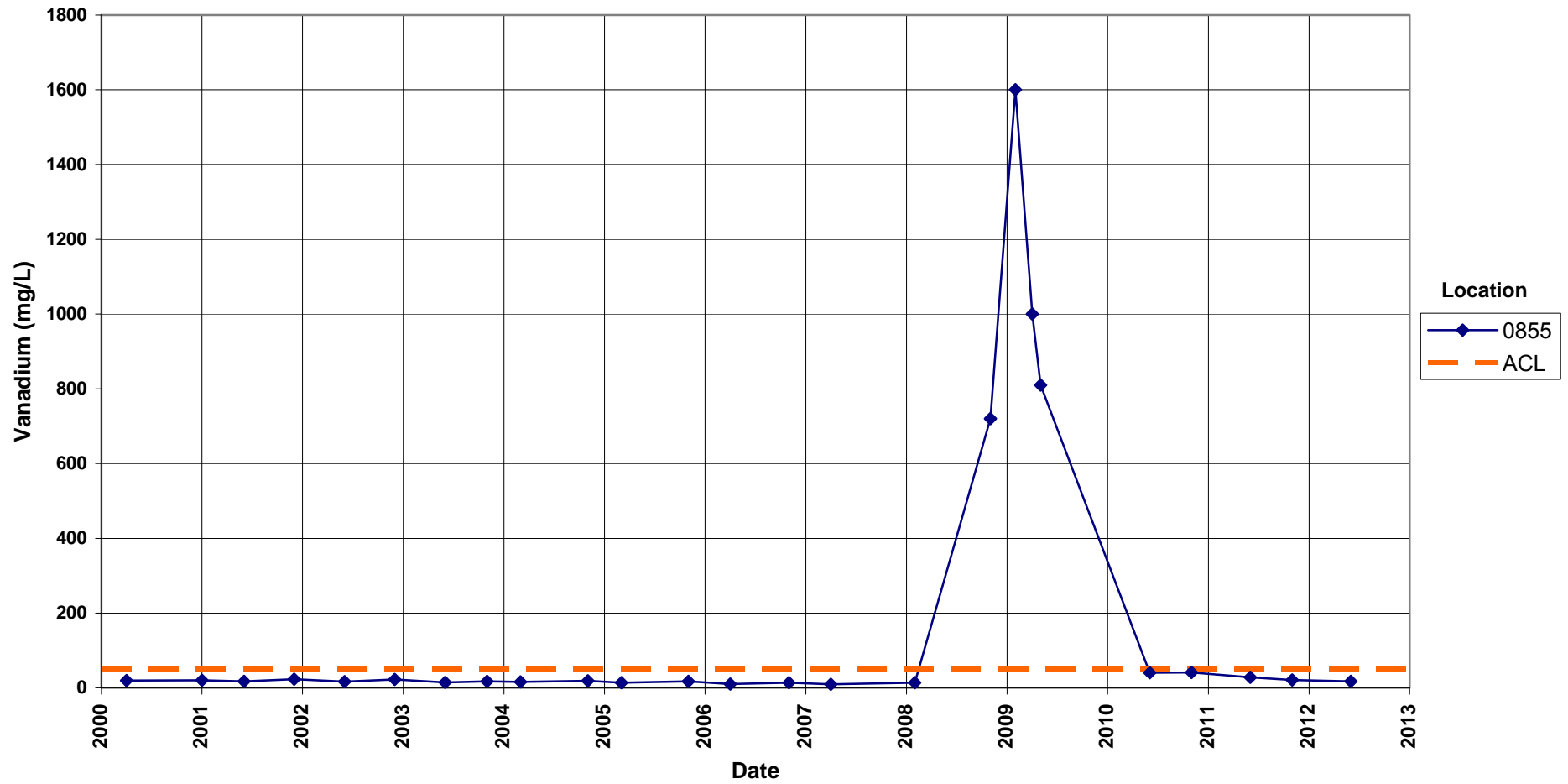


**Rifle New Processing Site
Vanadium Concentration**
Proposed Alternate Concentration Limit (ACL) = 50 mg/L



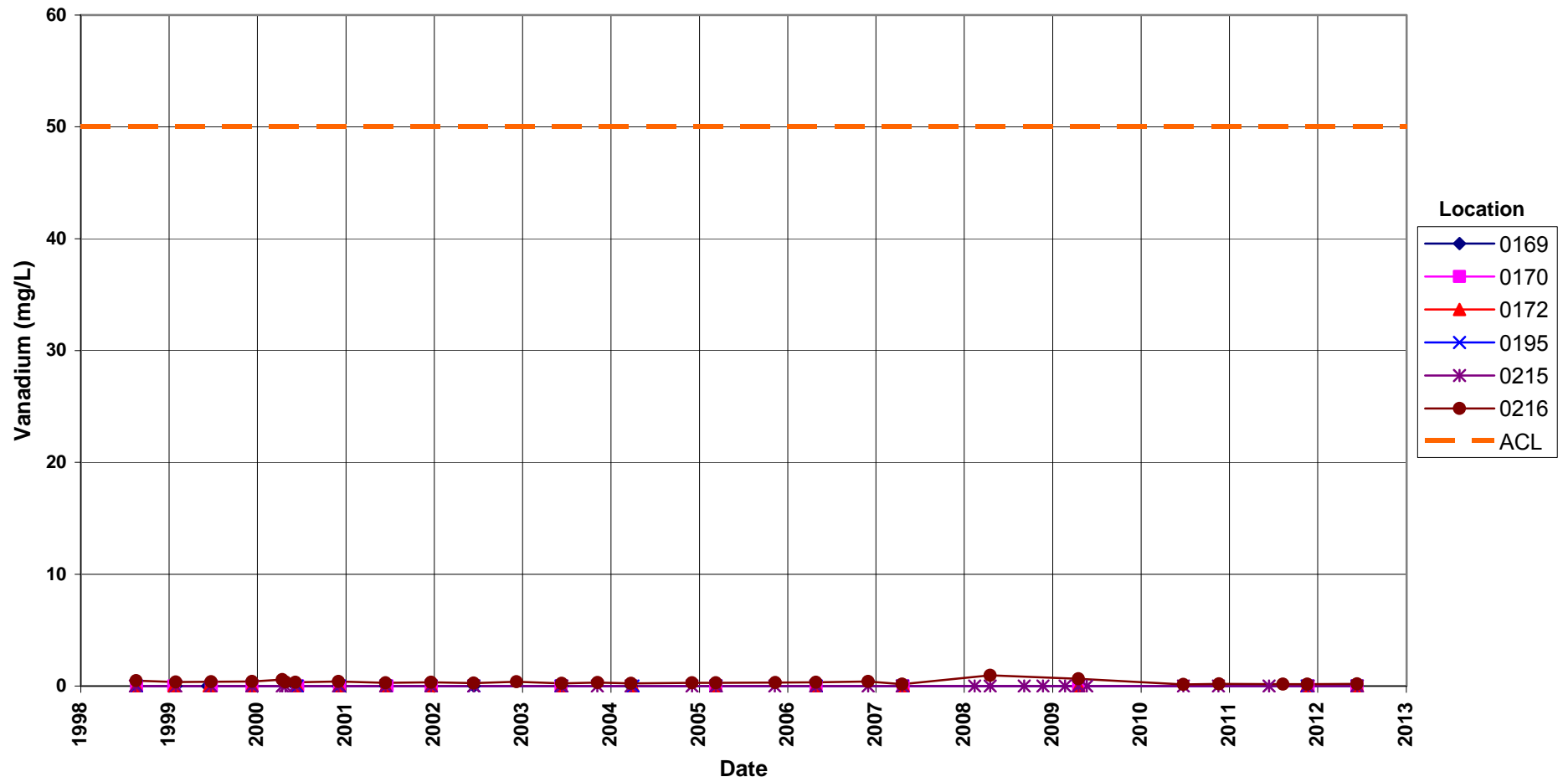
Rifle New Processing Site Vanadium Concentration

Proposed Alternate Concentration Limit (ACL) = 50 mg/L



Rifle New Processing Site Vanadium Concentration

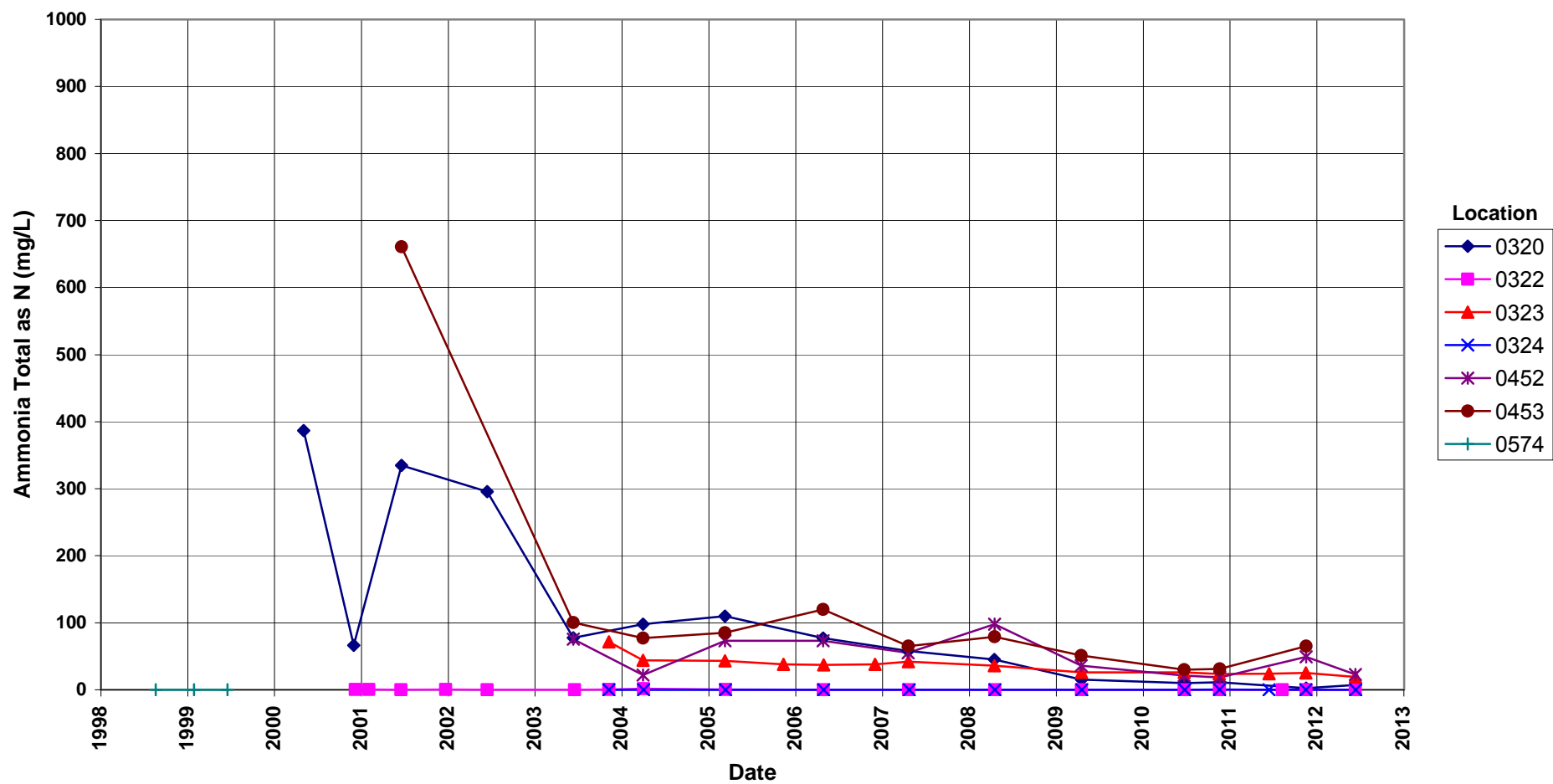
Proposed Alternate Concentration Limit (ACL) = 50 mg/L



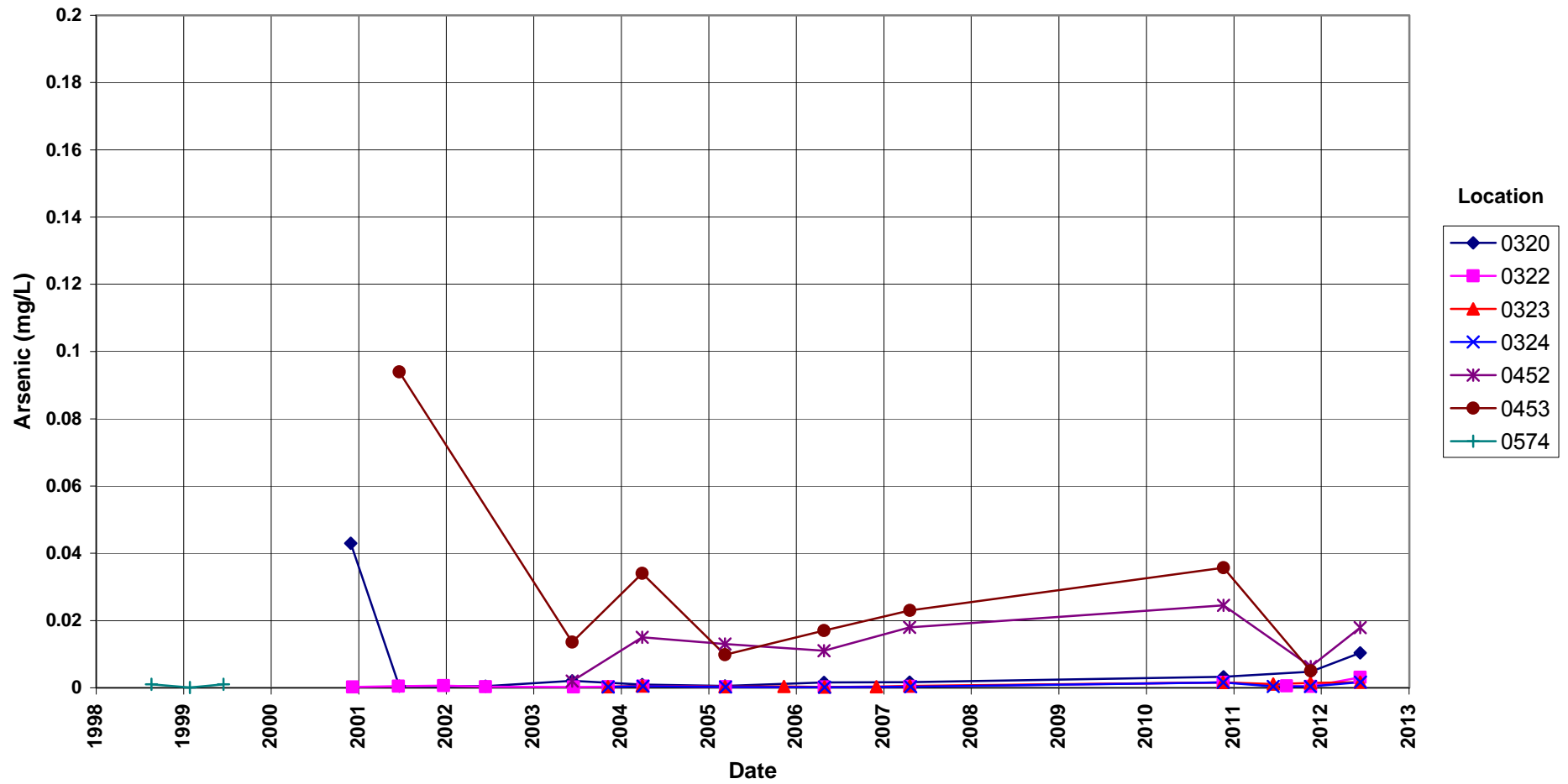
New Rifle Surface Water Time-Concentration Graphs

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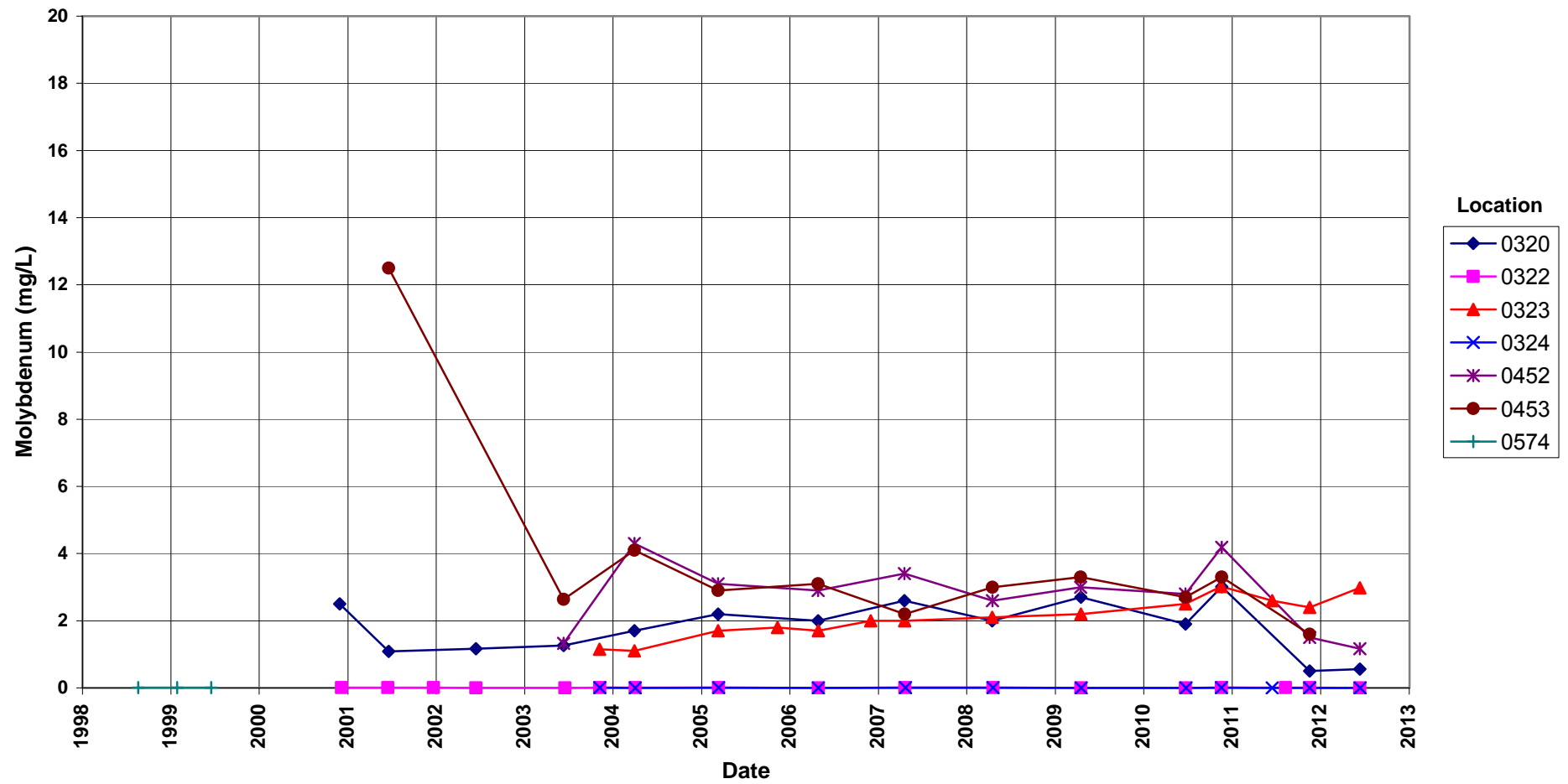
Rifle New Processing Site
Surface Water Locations
Ammonia Total as N Concentration



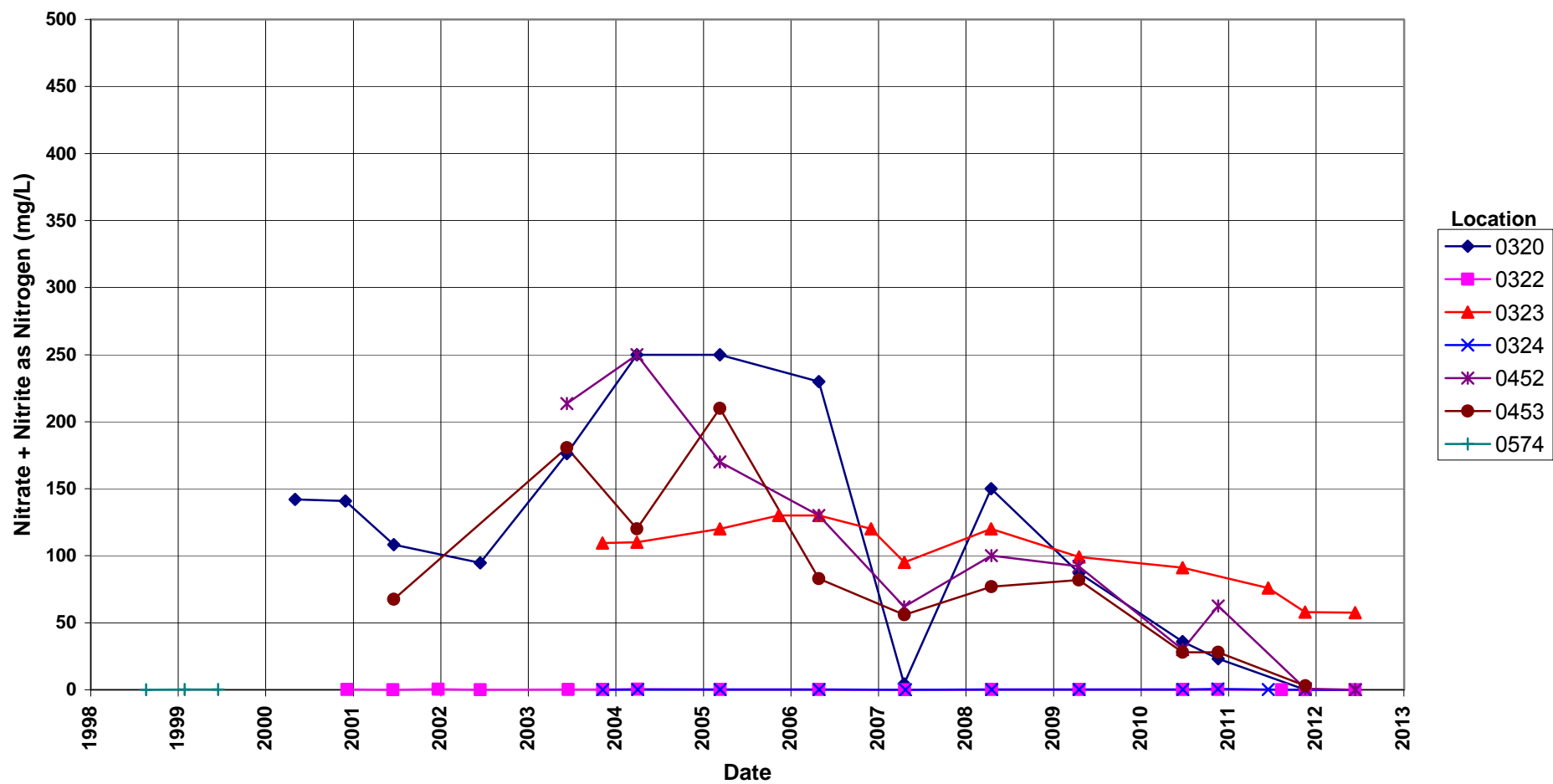
Rifle New Processing Site
Surface Water Locations
Arsenic Concentration



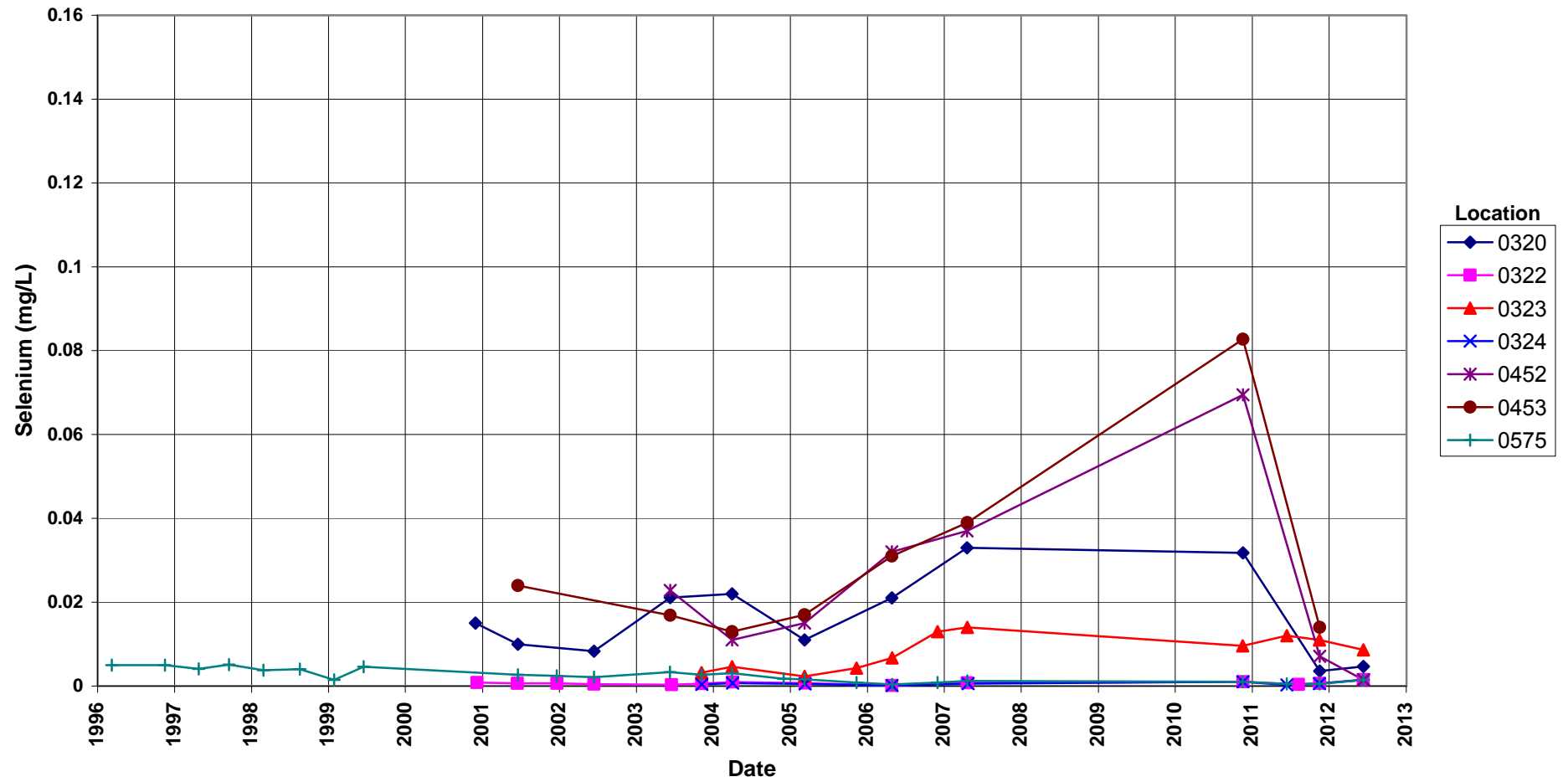
Rifle New Processing Site
Surface Water Locations
Molybdenum Concentration



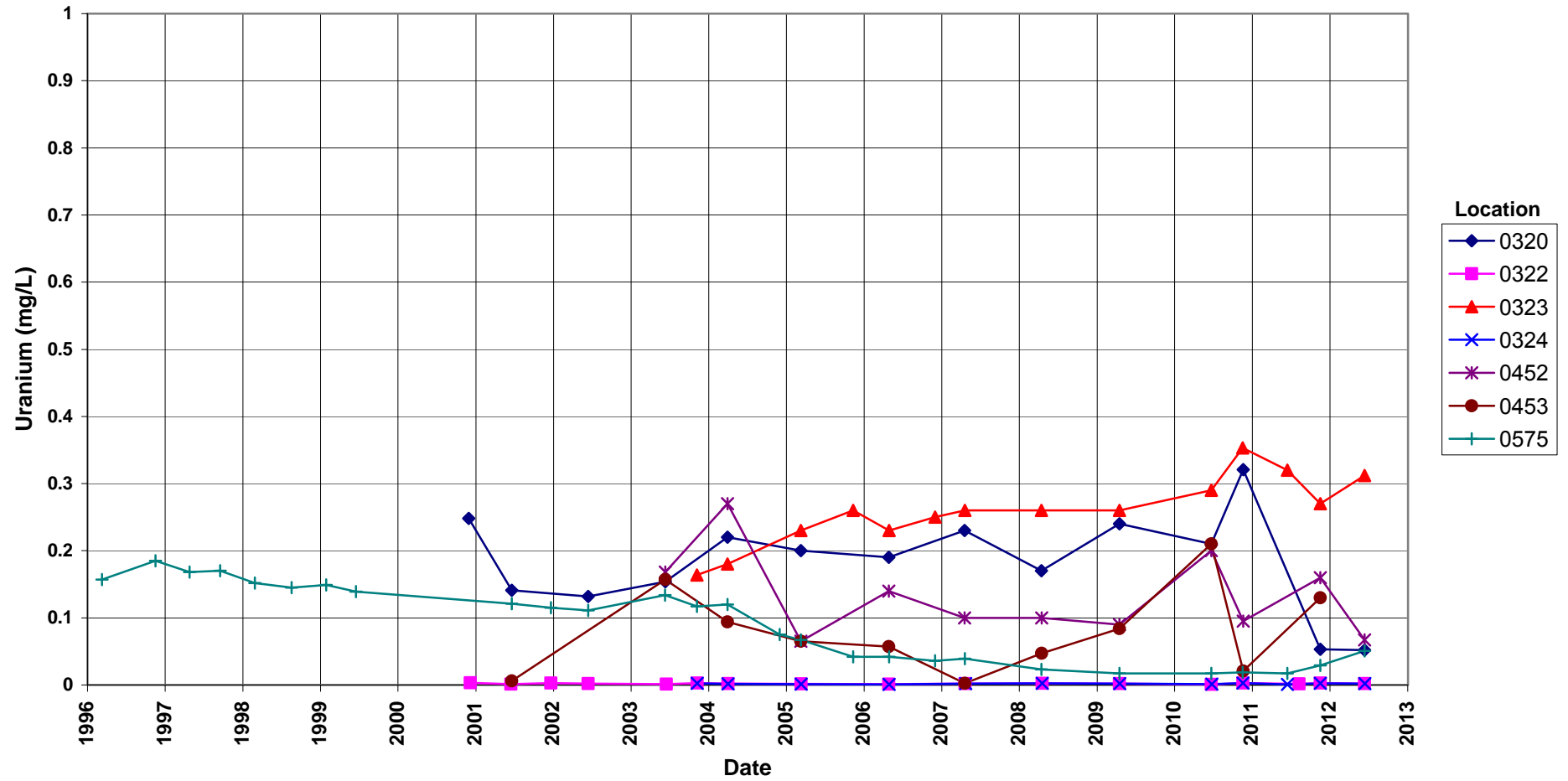
Rifle New Processing Site
Surface Water Locations
Nitrate + Nitrite as Nitrogen Concentration



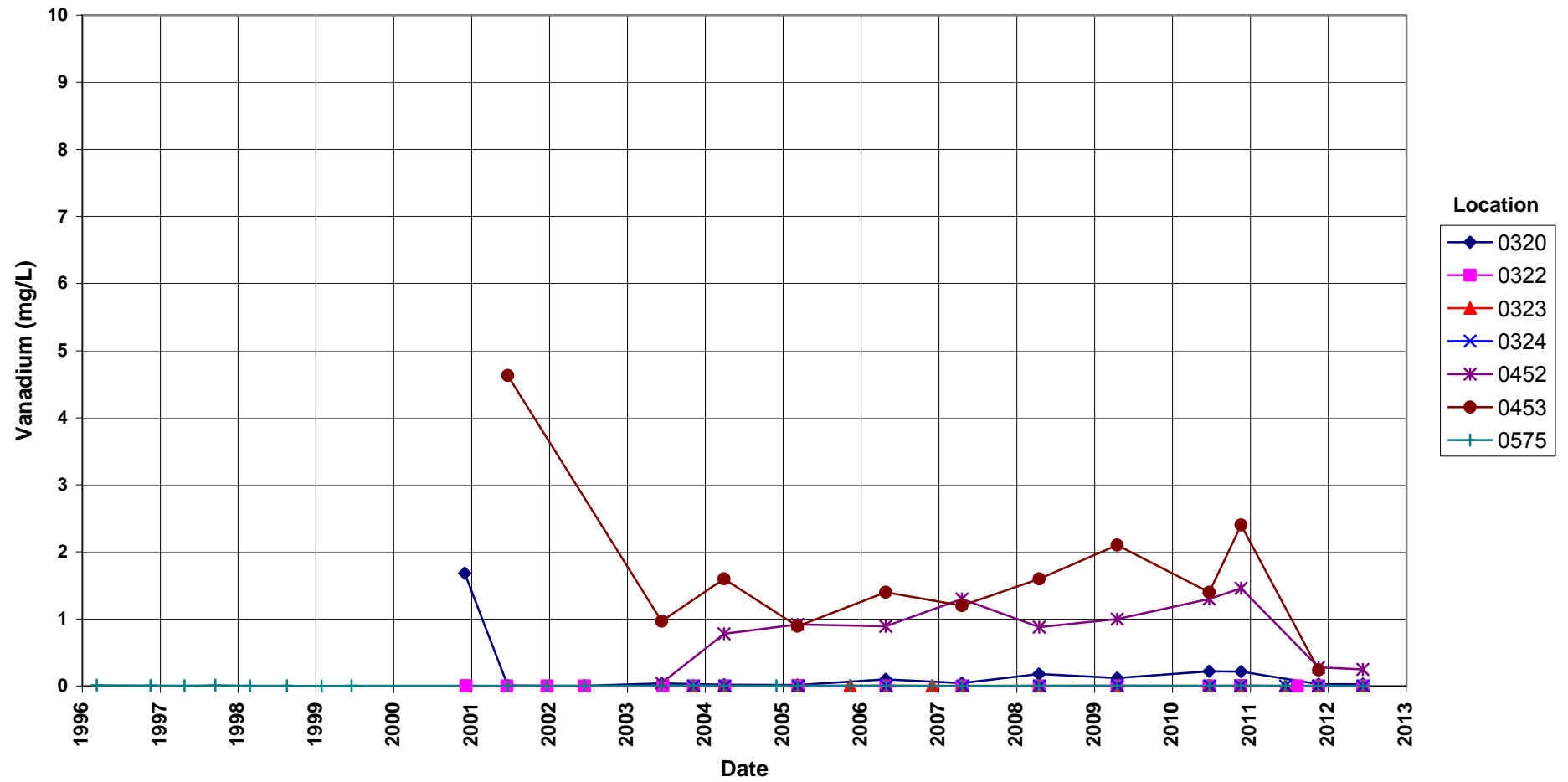
Rifle New Processing Site
Surface Water Locations
Selenium Concentration



Rifle New Processing Site
Surface Water Locations
Uranium Concentration



Rifle New Processing Site
Surface Water Locations
Vanadium Concentration



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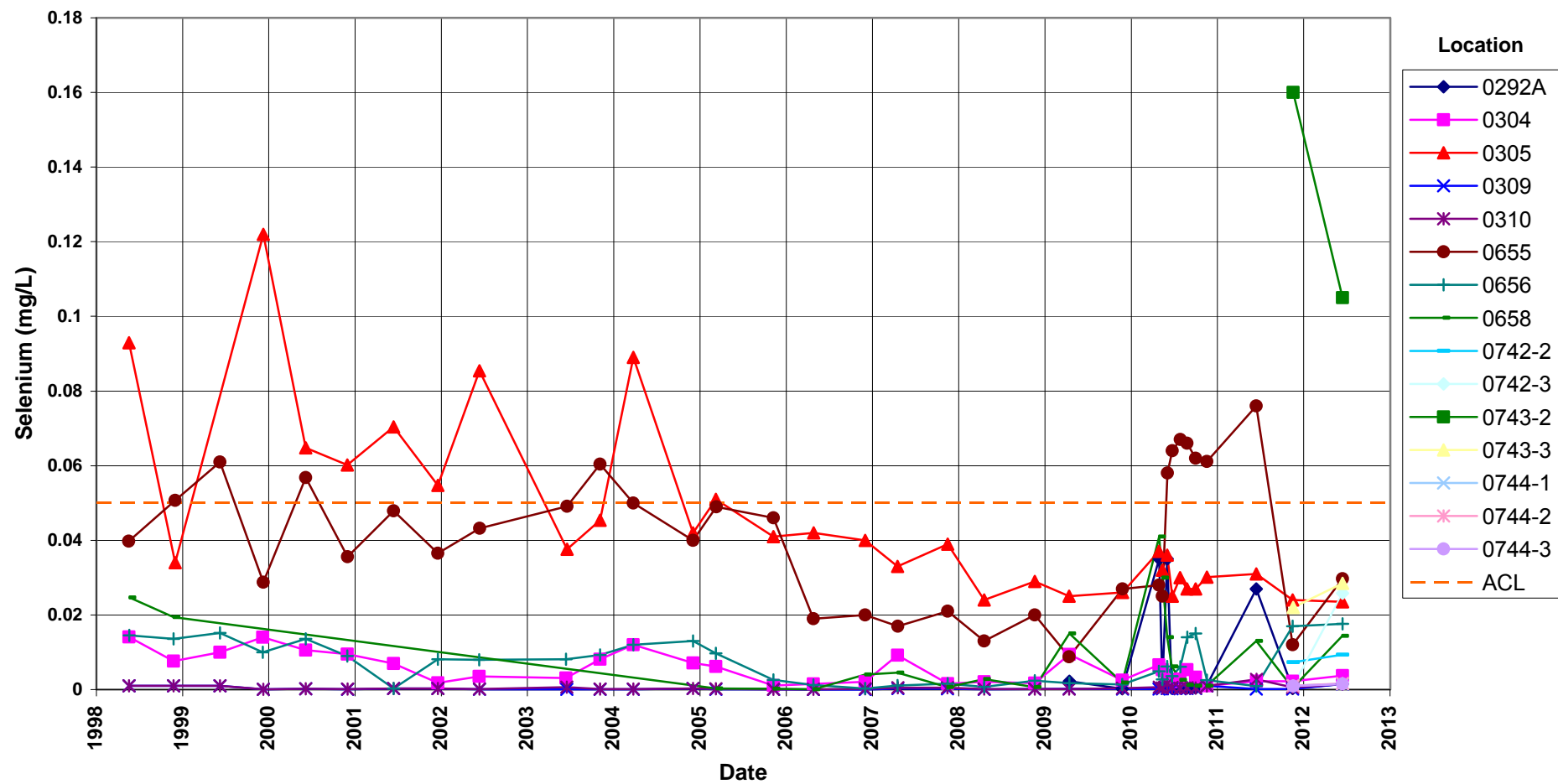
Old Rifle Groundwater Time-Concentration Graphs

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Rifle Old Processing Site

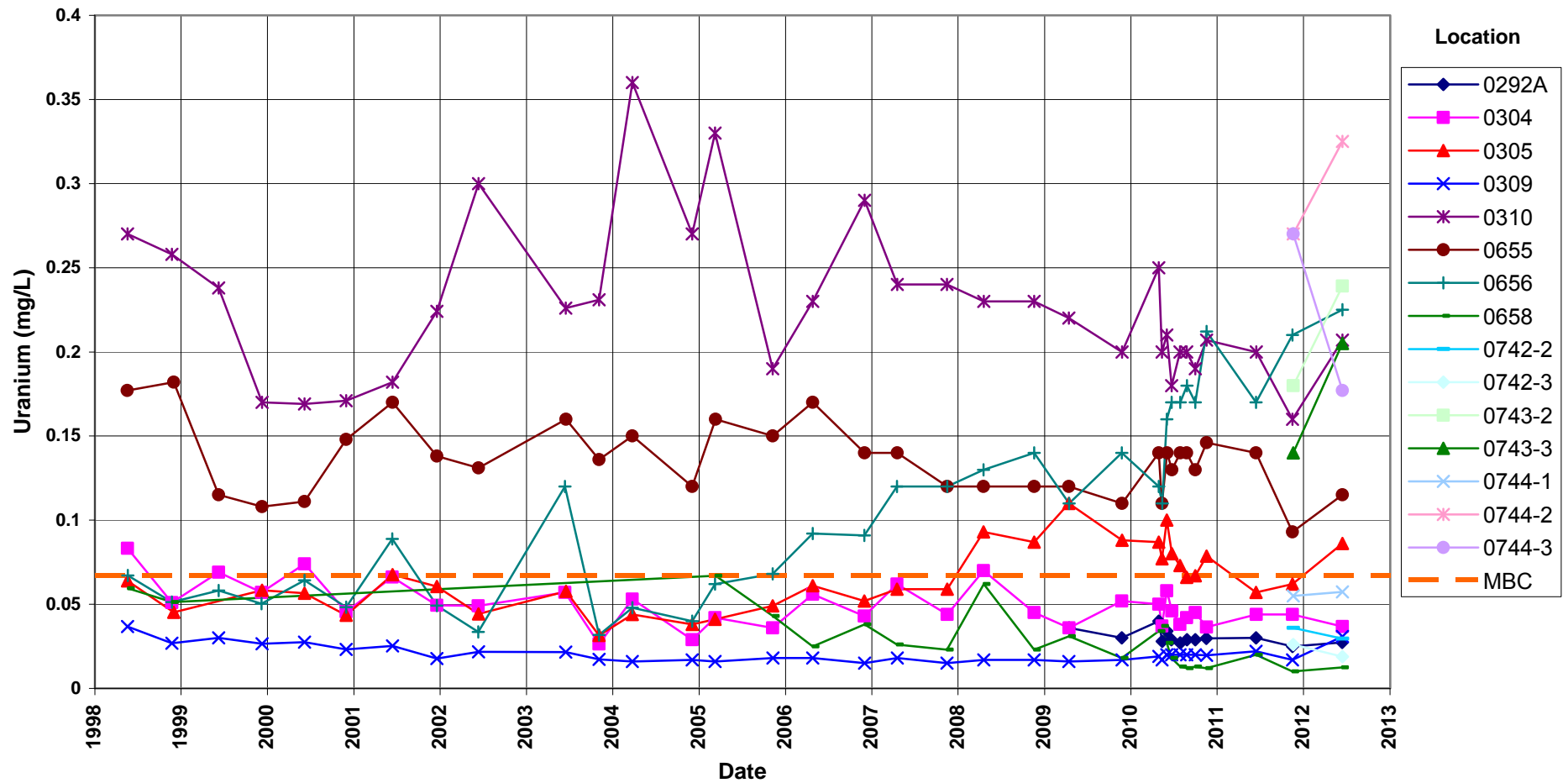
Selenium Concentration

Alternate Concentration Limit (ACL) = 0.05 mg/L



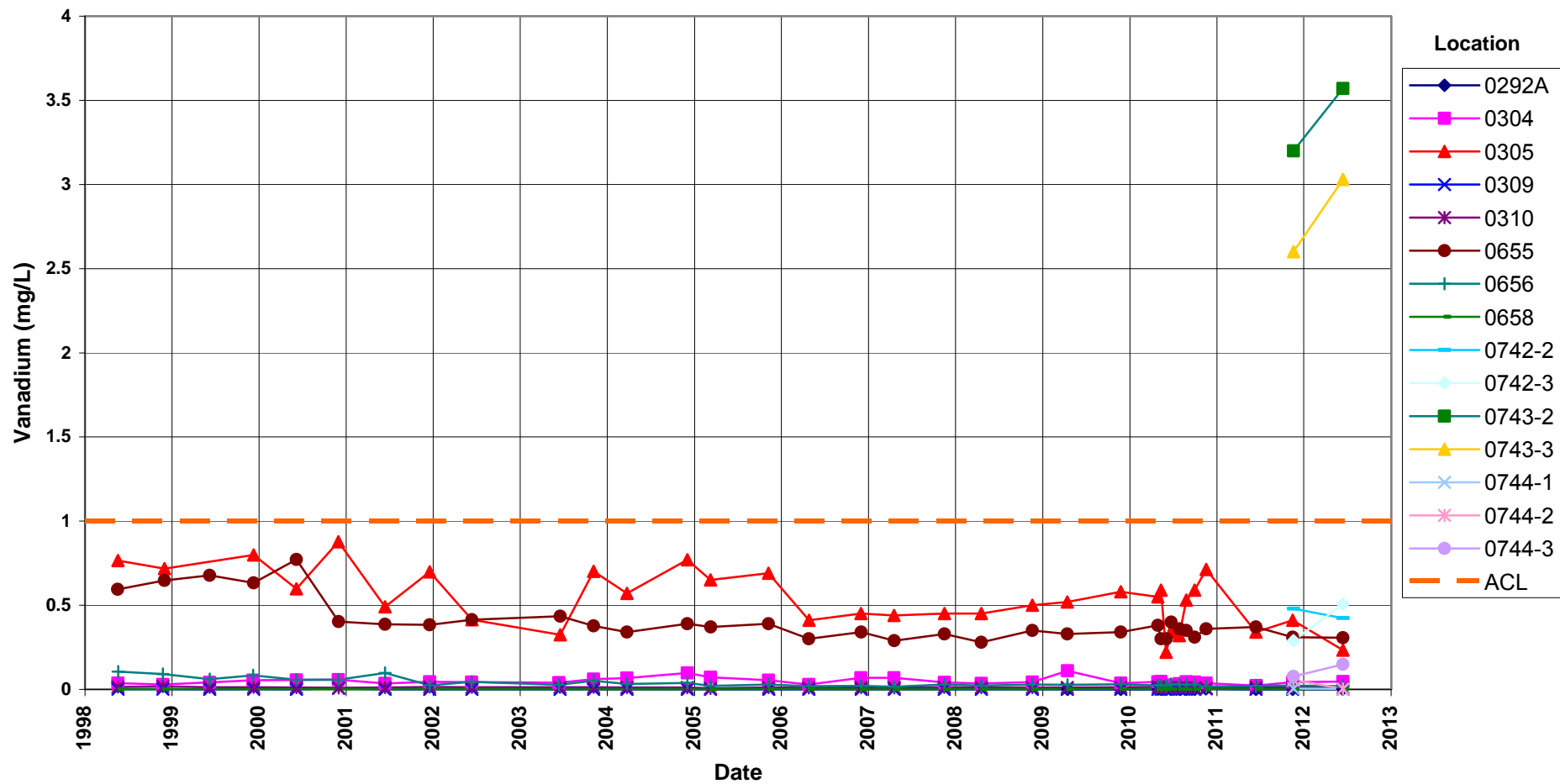
Rifle Old Processing Site Uranium Concentration

Maximum Background Concentration = 0.0567 mg/L



Rifle Old Processing Site Vanadium Concentration

Alternate Concentration Limit = 1.0 mg/L

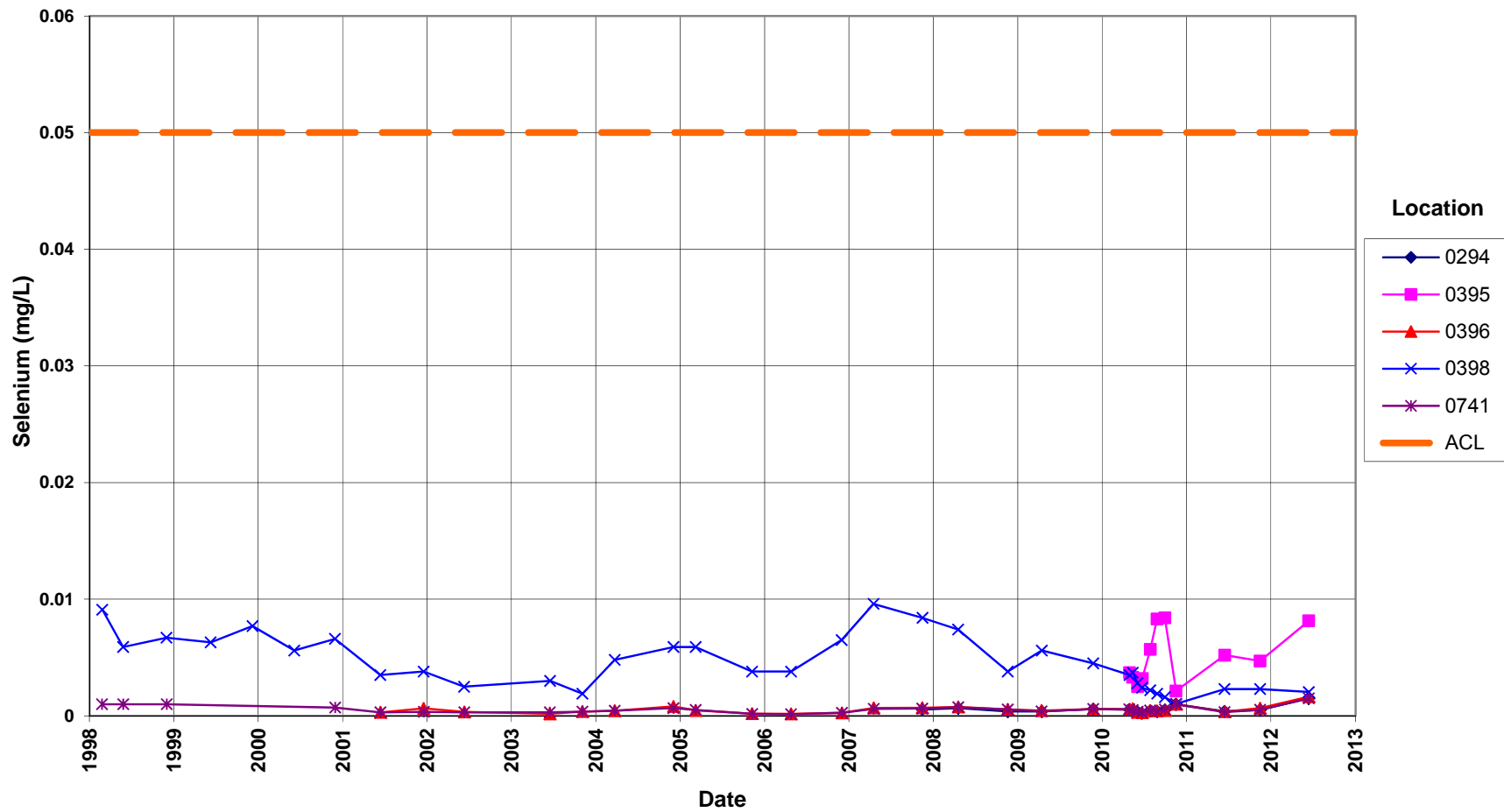


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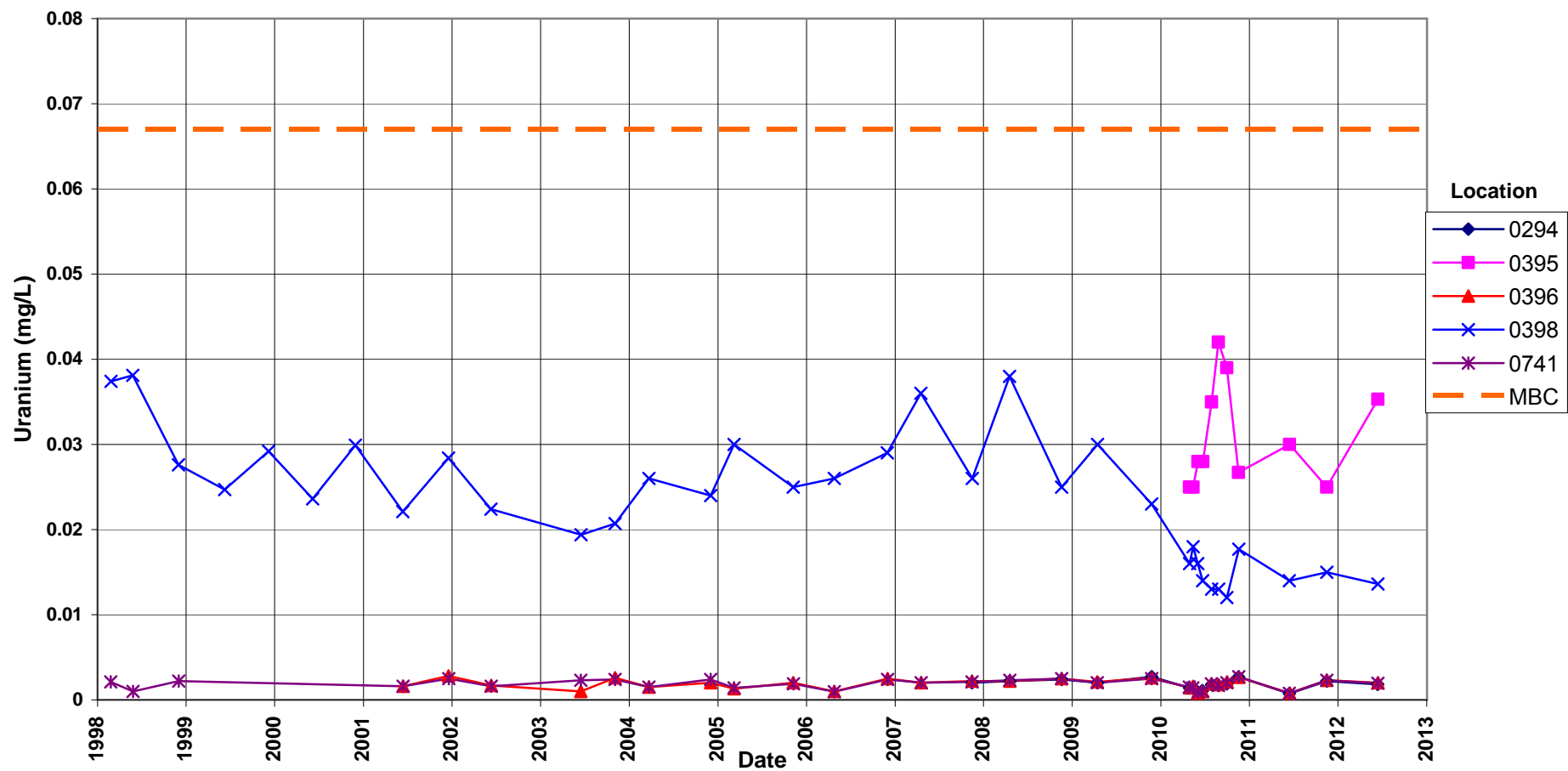
Old Rifle Surface Water Time-Concentration Graphs

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**Rifle Old Processing Site
Surface Water Locations
Selenium Concentration**
Alternate Concentration Limit = 0.05 mg/L

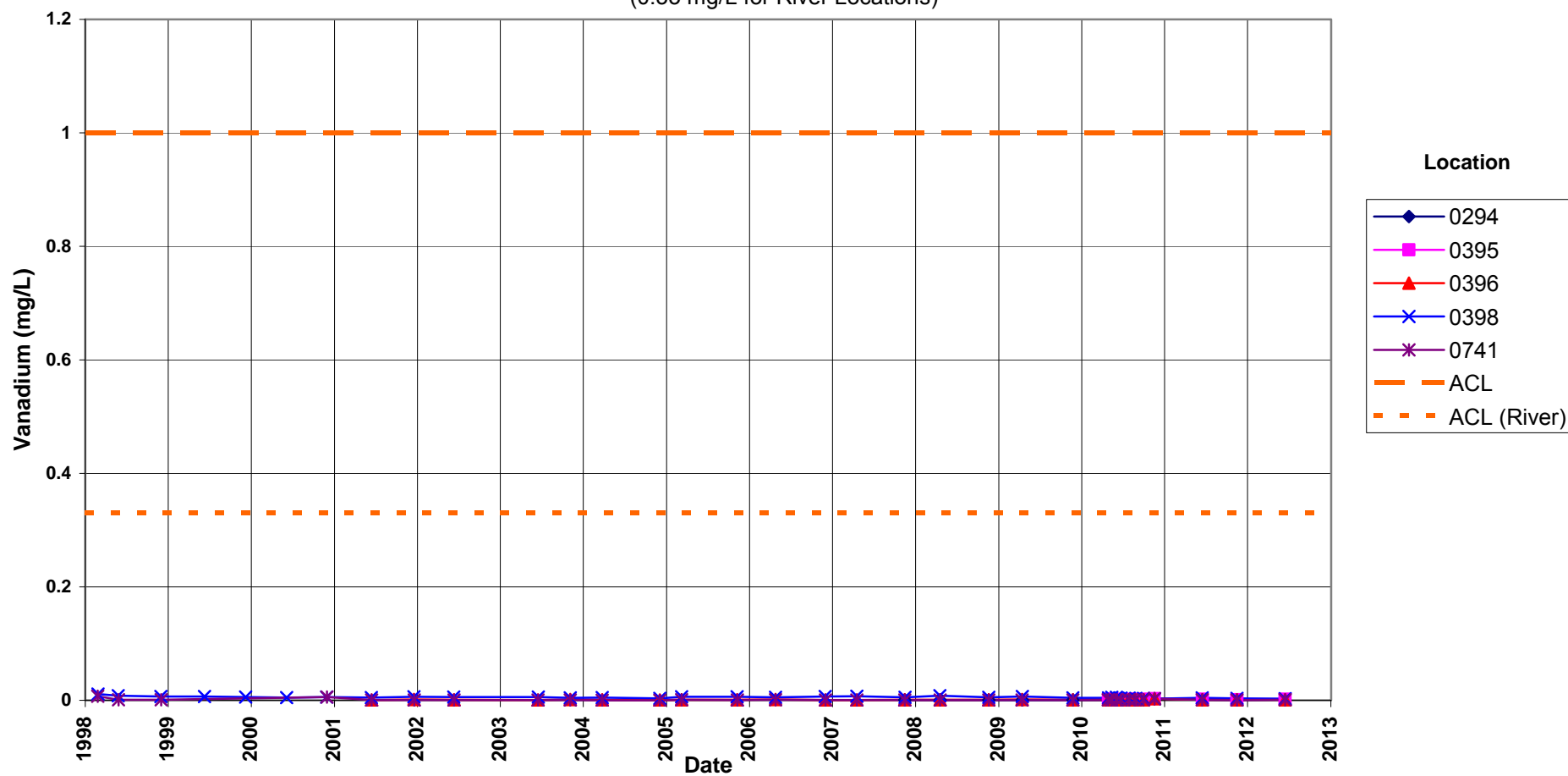


**Rifle Old Processing Site
Surface Water Locations
Uranium Concentration**
Maximum Background Concentration (MBC) = 0.067 mg/L



**Rifle Old Processing Site
Surface Water Locations
Vanadium Concentration**

Alternate Concentration Limit (ACL) = 1.0 mg/L
(0.33 mg/L for River Locations)



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Attachment 3

Sampling and Analysis Work Order

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established 1959

Task Order LM00-501
Control Number 12-0610

May 16, 2012

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 2012 Environmental Sampling at Rifle, Colorado, Old and New
Processing Sites

REFERENCE: Task Order LM00-501-02-116-402, Rifle (Old and New), Colorado,
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 map 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 11, 2012.

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 AI	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	305 AI	310 AI	656 AI	742 Nr	744 Nr
304 AI	309 AI	655 AI	658 AI	743 Nr	

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

Surface Locations

New Rifle

320	322	323	324	452	453	575
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The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

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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 or concerns.

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)

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		X				Background well
743		X				Background well
744		X				Background well
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				

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

Constituent Sampling Breakdown

Site	Rifle					Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Analyte	Groundwater		Surface Water					
Approx. No. Samples/yr	35		15					
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 (NO ₃ +NO ₂)-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.

Attachment 4

Trip Report

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Memorandum

DATE: June 21, 2012

TO: Richard Dayvault

FROM: Gretchen Baer

SUBJECT: Trip Report

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

Dates of Sampling Event: June 11-13, 2012

Team Members: Gretchen Baer, Heidi Frasure, Joe Trevino, and Jeff Price

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	19 (0689 and 0690 were added)	0	17
RFN01	New Rifle	Surface Water	6	1	7
RFO01	Old Rifle	Monitoring Wells	17 (Clough Well 1 and Clough Well 2 were added)	2	17*
RFO01	Old Rifle	Surface Water	5	1 (Clough Creek was added)	5

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

Locations Not Sampled/Reason: The RFO01 CMT ports 0742-1 and 0743-1 were dry. Surface water locations RFN01 0453 and RFO01 Clough Creek were dry.

Location Specific Information:

Site ID	Location IDs	Comments
All	Monitoring wells	Most monitoring wells had been re-developed shortly before sampling.
RFN01	0172, 0620	Sampled with Olsson Associates Consulting personnel. They took co-samples. 0172 had a petroleum odor. Olsson personnel disposed of 0172 purge water in a nearby tank. Copies of the FDCS field data notes were emailed to T. Dobransky of Olsson on June 19, 2012.
RFN01	0669	Category II well.
RFN01	0689, 0690	Category III wells. 0690 went dry while collecting the last bottle (herbicides) but the well recharged enough that all sample volumes were collected. Herbicides and pesticides were not filtered (per the SAP). Other analytes were filtered because turbidity was > 10NTU (also per the SAP).
RFO01	0294	This river sample was collected at a point ~50 feet farther upstream than the point indicated on the map. The river was low and the water was moving sluggishly at the usual location. This sample was collected at an area where there was perceptible flow.
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. When water had visibly cleared (and turbidity was measured as <10 NTUs), samples were collected by peristaltic pump and dedicated tubing.
RFO01	0658	Difficult to access. Port-o-potties are stored next to well. See 'Site Issues' below.
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.
RFO01	Clough Well 1	This well is flowing. Measured the total depth ~16feet.
RFO01	Clough Well 2	Measured the total depth ~26feet. Had to purge ~9L before turbidity purge criteria could be met.

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
2238	KGU 519	RFN01-0169	Duplicate*	Groundwater
2949	KGU 488	Associated with RFN01-0320, 0323, 0324, 0452, 0575 & RFO01-0294	Equipment Blank	Water
2948	KGU 487	RFN01-0172	Duplicate*	Groundwater
2237	KGU 512	RFO01-0292A	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: 12054589. Field data sheets can be found in Crow\sms\12054589 in the FieldData folder.

Sample Shipment: Samples were shipped from Grand Junction to GEL Laboratories on June 14, 2012.

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

Well Inspection Summary: No issues were identified.

Field Variance:

- RFO01-0310: The sampler using YSI “E” suspected an ORP probe failure because the reading was negative, and therefore did not record ORP measurements in the Purge Data section of the field notes. (The reading of -40 mV was recorded in the Comments section of the field notes.) A value of -40 is consistent with historical measurements at this location, so it is assumed that the instrument was performing correctly. The value of ‘-40 mV’ will be entered into SEEPro.
- RFO01-0741 and 0396: The sampler using YSI “E” suspected an ORP probe failure. The ORP value was not recorded at 0741. The ORP value was recorded at 0396. Because this value is not inconsistent with historical measurements at 0396, it will not be removed from the database. It was also noted that all post-trip calibration checks for the ORP probe were satisfactory.
- A pH span of 180.1mV for YSI “A” was slightly above the range of 180mV. This is acceptable according to the instrument manufacturer. The post-trip calibration check for ORP on YSI “A” failed slightly low at -10.2% and the acceptance criteria is +/- 10%.
- 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. These wells were sampled according to Category I purging stability requirements.

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 after decontamination of the tubing reel. 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.

Maintenance Requirements: None observed.

Safety Issues: None.

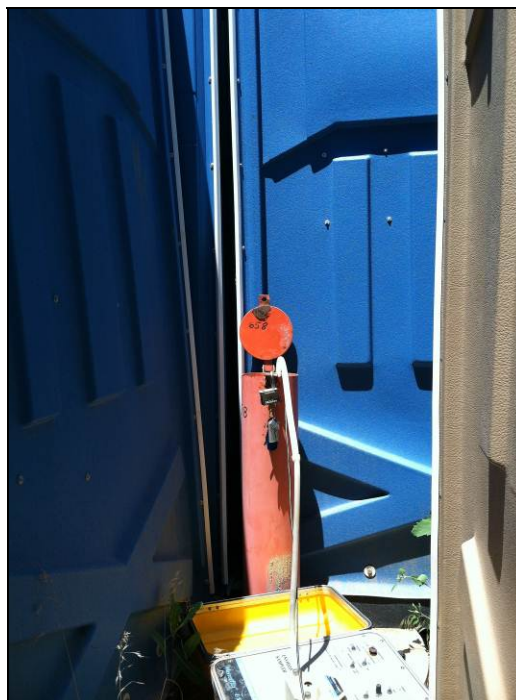
Access Issues:

- 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.*

- RFN01 0170: To access this well, drive around to a gate slightly east of the well and follow a pipeline road:



- RFO01 0658: The well is difficult to access because the landowner stores port-o-potties around the well. During this event the port-o-potties were sitting on the well pad and were touching the well casing:



Corrective Action Required: It is suggested that the property owner at RFO01 0658 be contacted about moving the port-o-potties away from the well.

(GB/lg)

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