

Data Validation Package

**November 2014
Water Sampling at the
Old and New Rifle, Colorado,
Processing Sites**

January 2015



**U.S. DEPARTMENT OF
ENERGY**

Legacy
Management

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Sampling Event Summary

Site: Old and New Rifle, Colorado, Processing Sites

Sampling Period: November 4–7 & 10, 2014

Thirty-five water samples were collected at New Rifle and Old Rifle, Colorado, Processing Sites. Duplicate samples were collected from New Rifle locations 0172 and 0323, and Old Rifle location 0658. 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/PRO/S04351, continually updated).

New Rifle Site

Samples were collected at the New Rifle site from 16 monitoring wells and 6 surface locations in compliance with the March 2013 *Groundwater Compliance Action Plan for the New Rifle, Colorado, Processing Site* (LMS/RFN/S01920). Water levels were measured at each sampled well.

The contaminants of concern (COCs) measured at the New Rifle site are arsenic, molybdenum, nitrate + nitrite as nitrogen, selenium, uranium, and vanadium. Ammonia as nitrogen is analyzed as an environmental indicator. Major cations and anions were also measured per request. The groundwater monitoring wells were sampled to monitor plume movement and natural attenuation. Alternate concentration limits (ACLs) are listed in Table 1. It should be noted that ACL values for New Rifle are specific to wells RFN-0217, -0659, -0664, and -0669 that are defined as point of compliance (POC) wells in the March 2013 *Groundwater Compliance Action Plan*. Concentrations of COCs in other onsite wells may be higher than these values but this is not considered an exceedance. No POC locations had contaminant concentrations that exceeded proposed ACLs.

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

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

Old Rifle Site

Samples were collected at the Old Rifle site from eight monitoring wells and five surface locations in compliance with the March 2013 *Groundwater Compliance Action Plan for the Old Rifle, Colorado, Processing Site* (LMS/RFO/S07857). Water levels were measured at each sampled well.

The COCs measured at the Old Rifle site are selenium, uranium, and vanadium. Major cations and anions were also measured per request. No Old Rifle locations had contaminant concentrations that exceeded proposed ACLs.

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

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

Table 1. Proposed ACLs for Point of Compliance Wells at the New Rifle Site

Analyte	Proposed ACL ^a (mg/L)
Arsenic	5.8
Molybdenum	96
Nitrate + Nitrite as Nitrogen	30,200
Selenium	96
Uranium	59
Vanadium	17

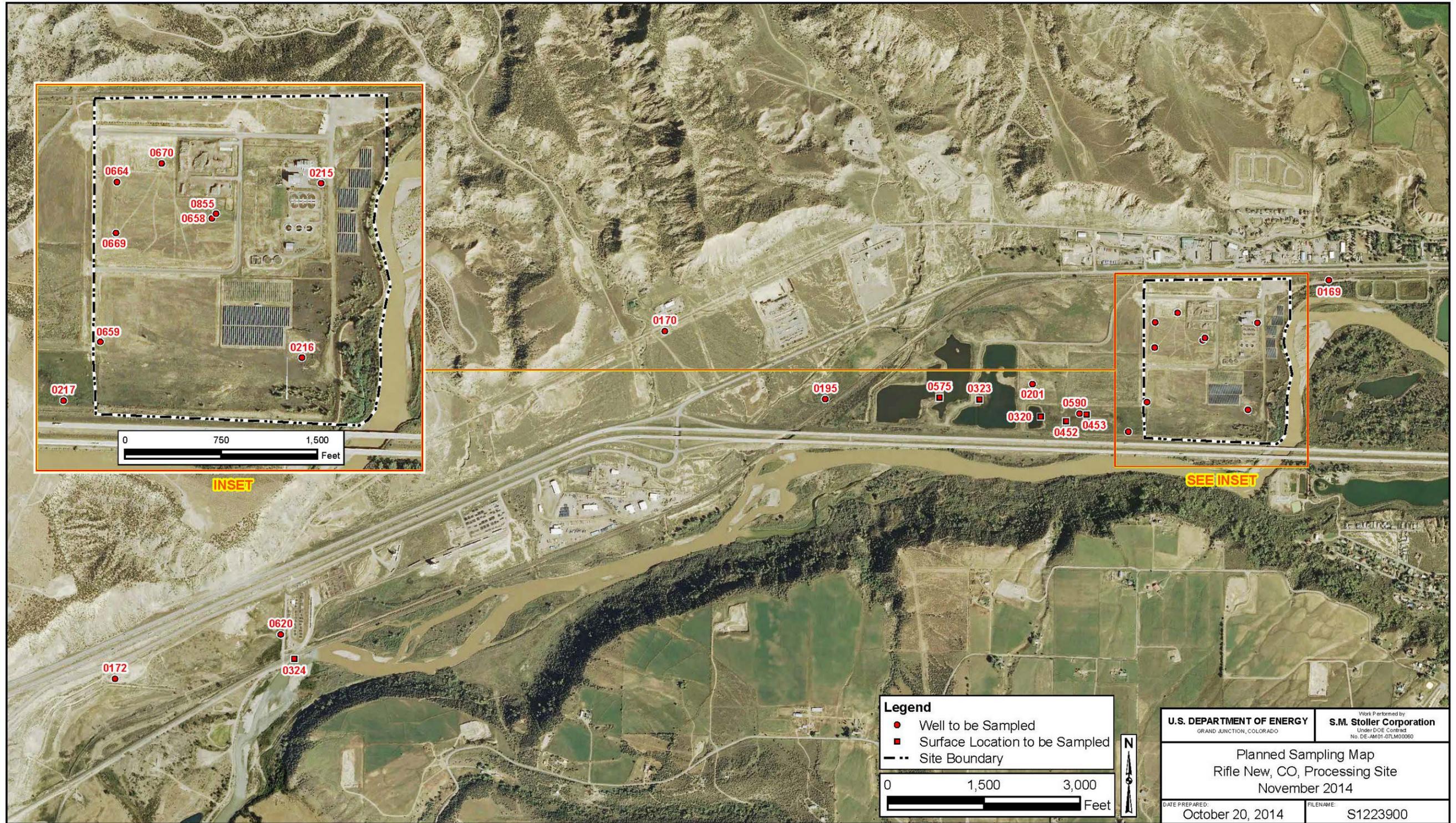
^a From Table 7 of the March 2013 *Groundwater Compliance Action Plan for the New Rifle, Colorado, Processing Site (LMS/RFN/S01920)*
mg/L = milligrams per liter

Table 2. Proposed ACLs for Monitoring Wells at the Old Rifle Site

Analyte	ACL ^a (mg/L)
Selenium	12.3
Uranium	44.4
Vanadium	126

^a From Table 3 of the March 2013 *Groundwater Compliance Action Plan for the Old Rifle, Colorado, Processing Site (LMS/RFO/S07857)*
mg/L = milligrams per liter


1/22/2015
 Richard Dayvault Date
 Site Lead, Stoller Newport News Nuclear, Inc.,
 a wholly owned subsidiary of Huntington
 Ingalls Industries, Inc.



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New Rifle, Colorado, Processing Site, Planned Sampling Map



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Old Rifle, Colorado, Processing Site, Planned Sampling Map

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Old and New Rifle, Colorado, Processing Sites	Date(s) of Water Sampling	November 4–7 & 10, 2014
Date(s) of Verification	January 7, 2015	Name of Verifier	Gretchen Baer

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List any Program Directives or other documents, SOPs, instructions.	Yes	Work Order letter dated October 21, 2014.
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Were calibrations conducted as specified in the above-named documents?	Yes	
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Were wells categorized correctly?	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? Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?	No	The specific conductivity did not stabilize at well RFN01 0855. Associated results have been qualified.
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	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were the true identities of the QC samples documented?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
19. Were water levels measured at the locations specified in the planning documents?	Yes	Water levels were measured at each sampled monitoring well.

Laboratory Performance Assessment

General Information

Report Number (RIN): 14106568
 Sample Event: November 4–7 & 10, 2014
 Site(s): New Rifle Processing Site, Colorado
 Laboratory: ALS Laboratory Group, Fort Collins, Colorado
 Work Order No.: 1411250
 Analysis: Metals and Wet Chemistry
 Validator: Gretchen Baer
 Review Date: January 7, 2015

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

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N	WCH-A-005	EPA 350.1	EPA 350.1
Arsenic, Molybdenum, Selenium, Uranium, Vanadium	LMM-02	SW-846 3005A	SW-846 6020
Calcium, Magnesium, Potassium, Sodium	LMM-01	SW-846 3005A	SW-846 6010
Chloride, Sulfate	MIS-A-045	SW-846 9056	SW-846 9056
Nitrate + Nitrite as N	WCH-A-022	EPA 353.2	EPA 353.2

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
1411250-3	0172	Selenium	J	Field duplicate range > PQL
1411250-3	0172	Vanadium	U	Less than 5 times the calibration blank
1411250-5	0201	Vanadium	U	Less than 5 times the calibration blank
1411250-13	0453	Arsenic	J	Serial dilution result
1411250-14	0575	Vanadium	U	Less than 5 times the calibration blank
1411250-24	0172 Duplicate	Selenium	J	Field duplicate range > PQL
1411250-24	0172 Duplicate	Vanadium	U	Less than 5 times the calibration blank
1411250-25	Equipment Blank	Magnesium	U	Less than 5 times the calibration blank
1411250-25	Equipment Blank	Sodium	U	Less than 5 times the calibration blank
1411250-25	Equipment Blank	Uranium	U	Less than 5 times the calibration blank
1411250-25	Equipment Blank	Vanadium	U	Less than 5 times the calibration blank

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 25 water samples on November 13, 2014, accompanied a Chain of Custody form. The Chain of Custody form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The receiving documentation included copies of the air bills. The Chain of Custody form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 0.2 °C, which complies with requirements. All samples were analyzed within the applicable holding times. All samples were received in the correct container types and had been preserved correctly for the requested analyses with four exceptions. The metals bottles for four samples were received with a pH of approximately 2.5, which is slightly above the acceptance limit of 2. The laboratory adjusted the pH of the samples upon receipt. No data qualification or further corrective action is required.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

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

Method EPA 350.1 Ammonia as N

Calibrations for ammonia as N were performed using six calibration standards on November 14, 2014. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

Method EPA 353.2 Nitrate + Nitrite as N

Calibrations for nitrate + nitrite as N were performed using seven calibration standards on November 19, 2014. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

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

Calibrations were performed on November 18 and 19, 2014, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of some intercepts were greater than 3 times the MDL. These intercepts were less than 3 times the reporting limits and all field results were above the reporting limits. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks associated with reported results 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, V

Calibrations were performed on November 18, 2014, 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 or only slightly above 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL 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 9056 Chloride, Sulfate

Calibrations for chloride and sulfate were performed using six calibration standards on October 6, 2014. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs. In cases where a blank concentration exceeds the MDL, the associated sample results are qualified with a “U” flag (not detected) when 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.

Laboratory Replicate Analysis

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

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with the exception of a dilution for arsenic at location 0453. Because of the possible reduced accuracy due to matrix interference, the associated result is qualified with a "J" flag as an estimated value.

Completeness

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

Electronic Data Deliverable (EDD) File

The EDD file arrived on November 21, 2014. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 14106568 Lab Code: PAR Validator: Gretchen Baer Validation Date: 1/6/2015
Project: Rifle Disposal/Processing Site (old/new) Analysis Type: Metals General Chem Rad Organics
of Samples: 25 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

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

All analyses were completed within the applicable holding times.

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

There was 1 trip/equipment blank evaluated.

There were 2 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM Metals Data Validation Worksheet

RIN: 14106568 **Lab Code:** PAR **Date Due:** 12/11/2014
Matrix: Water **Site Code:** RFL01 **Date Completed:** 11/24/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	11/18/2014	0.1490	1.0000	OK	OK	OK	95.0	83.0	86.0	1.0	99.0	2.0	99.0
Calcium	ICP/ES	11/18/2014	-1.8690	0.9999	OK	OK	OK	96.0			3.0	101.0	3.0	90.0
Magnesium	ICP/ES	11/18/2014	0.0210	0.9999	OK	OK	OK	93.0	94.0	97.0	1.0	106.0	2.0	107.0
Magnesium	ICP/ES	11/18/2014	0.2050	1.0000	OK	OK	OK	94.0	88.0	94.0	3.0	107.0	3.0	122.0
Potassium	ICP/ES	11/18/2014	-0.3870	1.0000	OK	OK	OK	94.0	91.0	94.0	2.0		2.0	96.0
Potassium	ICP/ES	11/18/2014	0.0100	0.9998	OK	OK	OK	93.0	96.0	98.0	2.0		4.0	98.0
Sodium	ICP/ES	11/18/2014	0.0110	0.9999	OK	OK	OK	95.0	96.0	105.0	2.0		2.0	112.0
Sodium	ICP/ES	11/18/2014	0.5680	0.9998	OK	OK	OK	96.0			4.0		1.0	118.0
Arsenic	ICP/MS	11/18/2014	-0.0020	1.0000	OK	OK	OK	104.0	105.0	103.0	2.0			
Arsenic	ICP/MS	11/18/2014			OK	OK	OK	107.0	104.0	106.0	2.0	102.0	14.0	99.0
Molybdenum	ICP/MS	11/18/2014	-0.0020	1.0000	OK	OK	OK	101.0	103.0	93.0	3.0		5.0	
Molybdenum	ICP/MS	11/18/2014			OK	OK	OK	109.0			2.0	98.0	2.0	96.0
Selenium	ICP/MS	11/18/2014	-0.0240	1.0000	OK	OK	OK	113.0	115.0	115.0	0.0		10.0	
Selenium	ICP/MS	11/18/2014			OK	OK	OK	114.0	110.0	104.0	1.0	100.0	1.0	101.0
Uranium	ICP/MS	11/18/2014	0.0000	1.0000	OK	OK	OK	110.0			2.0	102.0	6.0	100.0
Uranium	ICP/MS	11/18/2014			OK	OK	OK	102.0			6.0		2.0	
Vanadium	ICP/MS	11/18/2014	-0.0480	1.0000	OK	OK	OK	106.0			2.0		5.0	

SAMPLE MANAGEMENT SYSTEM Metals Data Validation Worksheet

RIN: 14106568 **Lab Code:** PAR **Date Due:** 12/11/2014
Matrix: Water **Site Code:** RFL01 **Date Completed:** 11/24/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Vanadium	ICP/MS	11/18/2014			OK	OK	OK	99.0			4.0	97.0	4.0	75.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 14106568 **Lab Code:** PAR **Date Due:** 12/11/2014
Matrix: Water **Site Code:** RFL01 **Date Completed:** 11/24/2014

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
AMMONIA AS N	11/16/2014	-0.060	1.0000	OK	OK	OK	96.00	101.0	101.0	1.00	
AMMONIA AS N	11/17/2014			OK	OK	OK	103.00	84.0	84.0	1.00	
Chloride	10/07/2014	0.020	0.9999								
CHLORIDE	11/15/2014			OK	OK	OK	102.00	102.0	103.0	0	
CHLORIDE	11/15/2014			OK	OK	OK	103.00	101.0	101.0	0	
Nitrate+Nitrite as N	11/19/2014	0.000	0.9998	OK	OK	OK	103.00	105.0	105.0	0	
Nitrate+Nitrite as N	11/19/2014			OK	OK	OK	105.00	104.0	104.0	0	
SULFATE	10/07/2014	0.444	0.9998								
SULFATE	11/15/2014			OK	OK	OK	101.00	105.0	106.0	0	
SULFATE	11/15/2014			OK	OK	OK	102.00	106.0	107.0	0	

General Information

Report Number (RIN): 14106569
Sample Event: November 4–7 & 10, 2014
Site(s): Old Rifle Processing Site, Colorado
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1411249
Analysis: Metals and Wet Chemistry
Validator: Gretchen Baer
Review Date: January 7, 2015

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated), “Standard Practice for Validation of Environmental Data.” The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 5.

Table 5. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Calcium, Magnesium, Potassium, Sodium	LMM-01	SW-846 3005A	SW-846 6010
Chloride, Sulfate	MIS-A-045	SW-846 9056	SW-846 9056
Nitrate + Nitrite as N	WCH-A-022	EPA 353.2	EPA 353.2
Selenium, Uranium, Vanadium	LMM-02	SW-846 3005A	SW-846 6020

Data Qualifier Summary

Analytical results were qualified as listed in Table 6. Refer to the sections below for an explanation of the data qualifiers applied.

Table 6. Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
1411249-1	0292A	Vanadium	U	Less than 5 times the calibration blank
1411249-2	0294	Vanadium	U	Less than 5 times the calibration blank
1411249-5	0309	Vanadium	U	Less than 5 times the calibration blank
1411249-8	0396	Vanadium	U	Less than 5 times the calibration blank
1411249-9	0398	Vanadium	U	Less than 5 times the calibration blank
1411249-12	0658	Vanadium	U	Less than 5 times the calibration blank
1411249-13	0741	Vanadium	U	Less than 5 times the calibration blank
1411249-14	0658 Duplicate	Vanadium	U	Less than 5 times the calibration blank

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 14 water samples on November 13, 2014, accompanied a Chain of Custody form. The Chain of Custody form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The receiving documentation included copies of the air bills. The Chain of Custody form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 0.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

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

Method EPA 353.2 Nitrate + Nitrite as N

Calibrations for nitrate + nitrite as N were performed using seven calibration standards on November 19, 2014. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

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

Calibrations were performed on November 18, 2014, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of some intercepts were greater than 3 times the MDL. These intercepts were less than 3 times the reporting limits and all results were above the reporting limits. Initial and continuing calibration verification

checks were made at the required frequency. All calibration checks associated with reported results 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 Se, U, V

Calibrations were performed on November 18, 2014, 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 or only slightly above 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL 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 9056 Chloride, Sulfate

Calibrations for chloride and sulfate were performed using six calibration standards on October 6, 2014. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. All calibration check results were within the acceptance criteria.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs. In cases where a blank concentration exceeds the MDL, the associated sample results are qualified with a “U” flag (not detected) when 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. All associated matrix spikes for metals were analyzed under RIN 14106568.

Laboratory Replicate Analysis

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

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All associated serial dilutions were analyzed under RIN 14106568.

Completeness

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

Electronic Data Deliverable (EDD) File

The EDD file arrived on November 20, 2014. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM
General Data Validation Report

RIN: 14106569 Lab Code: PAR Validator: Gretchen Baer Validation Date: 1/6/2015
Project: Rifle Disposal/Processing Site (old/new) Analysis Type: Metals General Chem Rad Organics
of Samples: 14 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

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

All analyses were completed within the applicable holding times.

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

There was 1 duplicate evaluated.

SAMPLE MANAGEMENT SYSTEM Metals Data Validation Worksheet

RIN: 14106569 **Lab Code:** PAR **Date Due:** 12/11/2014
Matrix: Water **Site Code:** RFL01 **Date Completed:** 11/21/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R ²	CCV	CCB								
Calcium	ICP/ES	11/18/2014	-1.8690	0.9999	OK	OK	OK	95.0				99.0		99.0
Magnesium	ICP/ES	11/18/2014	0.0210	0.9999	OK	OK	OK	93.0				106.0		107.0
Potassium	ICP/ES	11/18/2014	0.0100	0.9998	OK	OK	OK	93.0						96.0
Sodium	ICP/ES	11/18/2014	0.0110	0.9999	OK	OK	OK	95.0						112.0
Selenium	ICP/MS	11/18/2014	-0.0240	1.0000	OK	OK	OK	114.0				100.0		101.0
Uranium	ICP/MS	11/18/2014	0.0000	1.0000	OK	OK	OK	102.0				102.0		100.0
Vanadium	ICP/MS	11/18/2014	-0.0480	1.0000	OK	OK	OK	99.0				97.0		75.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 14106569 **Lab Code:** PAR **Date Due:** 12/11/2014
Matrix: Water **Site Code:** RFL01 **Date Completed:** 11/21/2014

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
CHLORIDE	10/07/2014	0.020	0.9999								
CHLORIDE	11/14/2014			OK	OK	OK	102.00				
Nitrate+Nitrite as N	11/19/2014	0.000	0.9998	OK	OK	OK	103.00	103.0	103.0	0	
Sulfate	10/07/2014	0.444	0.9998								
SULFATE	11/14/2014			OK	OK	OK	100.00	103.0	104.0	1.00	

Sampling Quality Control Assessment

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

Sampling Protocol

Sample results for all monitoring wells met the Category I or II low-flow sampling criteria and were qualified with an “F” flag in the database, indicating the wells were purged and sampled using the low-flow sampling method.

The groundwater sample results for New Rifle wells 0669 and 0670 were further qualified with a “Q” flag in the database indicating the data are considered qualitative because these are Category II wells.

The specific conductivity stability criterion was not met for New Rifle well 0855. The specific conductivity result from this location is qualified with a “J” flag (estimated).

Equipment Blank Assessment

An equipment blank (field ID 2673) was collected after decontamination of the tubing reel used to collect some surface water samples at the New Rifle site. Calcium, selenium, and sulfate were detected in the equipment blank. All associated sample results were greater than 5 times the equipment blank, so no further qualification is required. Magnesium, sodium, uranium, and vanadium were also detected in the blank by the laboratory, but these analytes have been qualified during data validation with a “U” flag as not detected. The equipment blank results indicate adequate decontamination of the sampling equipment.

Field Duplicate Analysis

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from New Rifle locations 0172 and 0323 and Old Rifle location 0658. The relative percent difference 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 should be no greater than the PQL. The duplicate results met the criteria, with the exception of the selenium results for 0172. There were no analytical errors identified during the review of the data. Associated results are qualified with a “J” flag as estimated values.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Equipment/Trip Blanks

Page 1 of 1

RIN: 14106568 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 1/7/2015

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1411250-25	SW6010	Calcium	960	B	12	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1411250-10	MLX 305	0323	590000	5		
1411250-14	MLX 309	0575	390000	5		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1411250-25	SW6020	Selenium	0.045	B	0.032	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1411250-10	MLX 305	0323	11	5		
1411250-14	MLX 309	0575	1.8	5		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1411250-25	SW9056	SULFATE	0.6		0.5	MG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1411250-10	MLX 305	0323	3400	100		
1411250-14	MLX 309	0575	3900	100		

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

Page 1 of 1

RIN: 14106568 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 1/6/2015

Duplicate: 2548

Sample: 0323

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	19			10	19			25	0		MG/L
Arsenic	1			5	1.1			5	9.52		UG/L
Calcium	590000			5	580000			5	1.71		UG/L
CHLORIDE	490			100	490			100	0		MG/L
Magnesium	150000			5	150000			5	0		UG/L
Molybdenum	2400			5	2500			5	4.08		UG/L
Nitrate+Nitrite as N	30			25	31			25	3.28		MG/L
Potassium	60000			5	60000			5	0		UG/L
Selenium	11			5	12			5	8.70		UG/L
Sodium	960000			5	950000			5	1.05		UG/L
SULFATE	3400			100	3400			100	0		MG/L
Uranium	280			5	280			5	0		UG/L
Vanadium	4.9			5	5.6			5	13.33		UG/L

Duplicate: 2549

Sample: 0172

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	0.1	U		1	0.1	U		1			MG/L
Arsenic	6.4			1	6			1	6.45		UG/L
Calcium	420000			1	440000			10	4.65		UG/L
CHLORIDE	1500			200	1400			200	6.90		MG/L
Magnesium	390000			1	380000			10	2.60		UG/L
Molybdenum	6.5			1	6.4			1	1.55		UG/L
Nitrate+Nitrite as N	0.026			1	0.023			1			MG/L
Potassium	14000			1	13000			10	7.41		UG/L
Selenium	0.34			1	0.81			1	>PQL		UG/L
Sodium	2600000			10	2700000			10	3.77		UG/L
SULFATE	6000			200	6100			200	1.65		MG/L
Uranium	54			1	55			1	1.83		UG/L
Vanadium	0.2	B		1	0.19	B		1	5.13		UG/L

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

Page 1 of 1

RIN: 14106569 Lab Code: PAR Project: Rifle Disposal/Processing Site (old/new) Validation Date: 1/6/2015

Analyte	Duplicate: 2551				Sample: 0658				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Calcium	140000			1	140000			1	0		UG/L
CHLORIDE	21			10	21			10	0		MG/L
Magnesium	80000			1	80000			1	0		UG/L
Nitrate+Nitrite as N	0.015			1	0.014			1			MG/L
Potassium	2900			1	2800			1	3.51		UG/L
Selenium	1.1			1	1.3			1	16.67		UG/L
Sodium	68000			1	68000			1	0		UG/L
SULFATE	370			10	370			10	0		MG/L
Uranium	9.3			1	9.6			1	3.17		UG/L
Vanadium	0.71			1	0.59			1	18.46		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:  1-26-2015
Stephen Donovan Date

Data Validation Lead:  1/20/15
Gretchen Baer 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 can result from transcription errors, data-coding errors, or measurement system problems. However, outliers can also represent true extreme values of a distribution and can 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.** Do this by generating the Outliers Report using the Sample Management System from data in the environmental database. The application compares the new data set (in standard environmental database units) with historical data and lists the new data that fall outside the historical data range. A determination is also made as to whether the data are normally distributed using the Shapiro-Wilk Test.
2. **Apply the appropriate statistical test.** Dixon's Test for extreme values is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. **Scientifically review statistical outliers and decide on their disposition.** The review should include an evaluation of any notable trends in the data that may indicate the outliers represent true extreme values.

Two laboratory results from this sampling event were identified as potential outliers. The data associated with these results were reviewed in detail with no errors noted. The uranium result for Old Rifle location 0656 had a concentration higher than previously observed. Recent results for uranium indicate upward trending at this location. The laboratory results for this RIN are acceptable as qualified. Potential anomalies in the field parameters were also examined for evidence which would suggest a systematic error due to instrument malfunction. No such data were found. All field data from this event are acceptable.

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Data Validation Outliers Report - No Field Parameters

Comparison: All historical Data Beginning 1/1/2004

Laboratory: ALS Laboratory Group

RIN: 14106568

Report Date: 1/7/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier		
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers			N	N Below Detect
						Lab	Data		Lab	Data		Lab	Data			
RFN01	0170	N001	11/10/2014	Nitrate + Nitrite as Nitrogen	5.80		F	37.0		F	8.70		F	14	0	No
RFN01	0170	N001	11/10/2014	Selenium	0.0200		F	0.0190		F	0.00300		F	12	0	No
RFN01	0201	N001	11/04/2014	Ammonia Total as N	69.0		F	130		F	72.0		F	19	0	No
RFN01	0201	N001	11/04/2014	Selenium	0.0790		F	0.0650		F	0.00480		F	17	0	No
RFN01	0215	N001	11/05/2014	Calcium	64.0		F	98.0		F	70.0		F	6	0	No
RFN01	0215	N001	11/05/2014	Chloride	66.0		F	200		F	130		F	6	0	No
RFN01	0215	N001	11/05/2014	Potassium	4.10		F	6.40		F	4.40		F	6	0	No
RFN01	0216	N001	11/05/2014	Calcium	58.0		F	87.0		F	70.0		F	5	0	No
RFN01	0216	N001	11/05/2014	Chloride	82.0		F	160		F	130		F	5	0	No
RFN01	0216	N001	11/05/2014	Magnesium	12.0		F	20.0		F	15.0		F	5	0	No
RFN01	0216	N001	11/05/2014	Potassium	5.70		F	8.90		JF	7.50		F	5	0	No
RFN01	0323	N002	11/04/2014	Nitrate + Nitrite as Nitrogen	31.0			130			34.0			19	0	No
RFN01	0323	N001	11/04/2014	Nitrate + Nitrite as Nitrogen	30.0			130			34.0			19	0	No
RFN01	0452	N001	11/04/2014	Arsenic	0.00440			0.0245			0.00630			11	0	No
RFN01	0452	N001	11/04/2014	Vanadium	0.210			1.46			0.230			14	0	No
RFN01	0575	0001	11/04/2014	Sulfate	3900			3600			990			11	0	No
RFN01	0575	0001	11/04/2014	Vanadium	0.00140	B	U	0.00370			0.00150			21	1	No

Data Validation Outliers Report - No Field Parameters

Comparison: All historical Data Beginning 1/1/2004

Laboratory: ALS Laboratory Group

RIN: 14106568

Report Date: 1/7/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
RFN01	0620	N001	11/06/2014	Calcium	400		F	390		F	340		F	6	0	No
RFN01	0620	N001	11/06/2014	Chloride	1200		F	1100		F	550		F	6	0	No
RFN01	0620	N001	11/06/2014	Magnesium	250		F	230		F	210		F	6	0	No
RFN01	0620	N001	11/06/2014	Selenium	0.0340		F	0.0310		F	0.00230		F	22	0	No
RFN01	0620	N001	11/06/2014	Sodium	1200		F	1100		F	770		F	6	0	No
RFN01	0620	N001	11/06/2014	Sulfate	2300		F	2200		F	1900		F	6	0	No
RFN01	0659	N001	11/04/2014	Ammonia Total as N	7.60		F	92.0		F	9.90		F	21	0	No
RFN01	0855	N001	11/05/2014	Magnesium	39.0		F	37.0		F	25.0		FQ	5	0	No
RFN01	0855	N001	11/05/2014	Sodium	210		F	190		F	160		F	5	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.

Data Validation Outliers Report - No Field Parameters

Comparison: All historical Data Beginning 1/1/2004

Laboratory: ALS Laboratory Group

RIN: 14106569

Report Date: 1/7/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
RFO01	0304	N001	11/06/2014	Sodium	180		F	160		F	110		F	14	0	No
RFO01	0395	0001	11/07/2014	Potassium	5.90			3.60		J	2.60			11	0	Yes
RFO01	0398	N001	11/07/2014	Calcium	110			240			120			12	0	NA
RFO01	0398	N001	11/07/2014	Magnesium	40.0			99.0			42.0			12	0	NA
RFO01	0655	N001	11/07/2014	Calcium	170		F	250		F	183		F	11	0	No
RFO01	0655	N001	11/07/2014	Magnesium	100.0		F	150		F	110		F	11	0	No
RFO01	0655	N001	11/07/2014	Potassium	6.20		F	13.0		FJ	7.17		F	11	0	No
RFO01	0655	N001	11/07/2014	Selenium	0.0009		F	0.0760		F	0.00580		F	27	0	No
RFO01	0655	N001	11/07/2014	Uranium	0.0690		F	0.170		F	0.0760		F	27	0	No
RFO01	0656	N001	11/07/2014	Uranium	0.310		F	0.240		F	0.0400		F	29	0	Yes

STATISTICAL TESTS:

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

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

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

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

NA: Data are not normally or lognormally distributed.

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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: 1/8/2015

Location: 0169 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	3.13	- 18.13	445		F	#		
Ammonia Total as N	mg/L	11/05/2014	N001	3.13	- 18.13	0.1	U	F	#	0.1	
Arsenic	mg/L	11/05/2014	N001	3.13	- 18.13	0.00047		F	#	0.000015	
Calcium	mg/L	11/05/2014	N001	3.13	- 18.13	180		F	#	0.024	
Chloride	mg/L	11/05/2014	N001	3.13	- 18.13	66		F	#	4	
Magnesium	mg/L	11/05/2014	N001	3.13	- 18.13	110		F	#	0.03	
Molybdenum	mg/L	11/05/2014	N001	3.13	- 18.13	0.0039		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	3.13	- 18.13	0.12		F	#	0.01	
Oxidation Reduction Potential	mV	11/05/2014	N001	3.13	- 18.13	53.4		F	#		
pH	s.u.	11/05/2014	N001	3.13	- 18.13	6.89		F	#		
Potassium	mg/L	11/05/2014	N001	3.13	- 18.13	5.5		F	#	0.052	
Selenium	mg/L	11/05/2014	N001	3.13	- 18.13	0.0045		F	#	0.000032	
Sodium	mg/L	11/05/2014	N001	3.13	- 18.13	160		F	#	0.047	
Specific Conductance	umhos/cm	11/05/2014	N001	3.13	- 18.13	2035		F	#		
Sulfate	mg/L	11/05/2014	N001	3.13	- 18.13	650		F	#	10	
Temperature	C	11/05/2014	N001	3.13	- 18.13	15.25		F	#		
Turbidity	NTU	11/05/2014	N001	3.13	- 18.13	1.08		F	#		
Uranium	mg/L	11/05/2014	N001	3.13	- 18.13	0.019		F	#	0.000029	
Vanadium	mg/L	11/05/2014	N001	3.13	- 18.13	0.0009		F	#	0.000015	

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

REPORT DATE: 1/8/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/10/2014	N001	92.23 - 112.23	420		F	#		
Ammonia Total as N	mg/L	11/10/2014	N001	92.23 - 112.23	0.54		F	#	0.1	
Arsenic	mg/L	11/10/2014	N001	92.23 - 112.23	0.00032		F	#	0.000015	
Calcium	mg/L	11/10/2014	N001	92.23 - 112.23	140		F	#	0.12	
Chloride	mg/L	11/10/2014	N001	92.23 - 112.23	150		F	#	5	
Magnesium	mg/L	11/10/2014	N001	92.23 - 112.23	85		F	#	0.15	
Molybdenum	mg/L	11/10/2014	N001	92.23 - 112.23	0.0033		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/10/2014	N001	92.23 - 112.23	5.8		F	#	0.1	
Oxidation Reduction Potential	mV	11/10/2014	N001	92.23 - 112.23	142.7		F	#		
pH	s.u.	11/10/2014	N001	92.23 - 112.23	6.76		F	#		
Potassium	mg/L	11/10/2014	N001	92.23 - 112.23	5.1		F	#	0.26	
Selenium	mg/L	11/10/2014	N001	92.23 - 112.23	0.02		F	#	0.000032	
Sodium	mg/L	11/10/2014	N001	92.23 - 112.23	450		F	#	0.23	
Specific Conductance	umhos/cm	11/10/2014	N001	92.23 - 112.23	3045		F	#		
Sulfate	mg/L	11/10/2014	N001	92.23 - 112.23	940		F	#	12	
Temperature	C	11/10/2014	N001	92.23 - 112.23	13.44		F	#		
Turbidity	NTU	11/10/2014	N001	92.23 - 112.23	1.01		F	#		
Uranium	mg/L	11/10/2014	N001	92.23 - 112.23	0.058		F	#	0.000029	
Vanadium	mg/L	11/10/2014	N001	92.23 - 112.23	0.00078		F	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0172 WELL

Parameter	Units	Sample		Depth Range			Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)	Lab	Data		QA				
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	6.98	-	31.98	790	F	#			
Ammonia Total as N	mg/L	11/06/2014	N001	6.98	-	31.98	0.1	U	F	#	0.1	
Ammonia Total as N	mg/L	11/06/2014	N002	6.98	-	31.98	0.1	U	F	#	0.1	
Arsenic	mg/L	11/06/2014	N001	6.98	-	31.98	0.0064		F	#	0.000015	
Arsenic	mg/L	11/06/2014	N002	6.98	-	31.98	0.006		F	#	0.000015	
Calcium	mg/L	11/06/2014	N001	6.98	-	31.98	420		F	#	0.024	
Calcium	mg/L	11/06/2014	N002	6.98	-	31.98	440		F	#	0.24	
Chloride	mg/L	11/06/2014	N001	6.98	-	31.98	1500		F	#	40	
Chloride	mg/L	11/06/2014	N002	6.98	-	31.98	1400		F	#	40	
Magnesium	mg/L	11/06/2014	N001	6.98	-	31.98	390		F	#	0.03	
Magnesium	mg/L	11/06/2014	N002	6.98	-	31.98	380		F	#	0.3	
Molybdenum	mg/L	11/06/2014	N001	6.98	-	31.98	0.0065		F	#	0.000032	
Molybdenum	mg/L	11/06/2014	N002	6.98	-	31.98	0.0064		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	6.98	-	31.98	0.026		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N002	6.98	-	31.98	0.023		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	6.98	-	31.98	-117.9		F	#		
pH	s.u.	11/06/2014	N001	6.98	-	31.98	7.06		F	#		
Potassium	mg/L	11/06/2014	N001	6.98	-	31.98	14		F	#	0.052	
Potassium	mg/L	11/06/2014	N002	6.98	-	31.98	13		F	#	0.52	
Selenium	mg/L	11/06/2014	N001	6.98	-	31.98	0.00034		JF	#	0.000032	

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

REPORT DATE: 1/8/2015

Location: 0172 WELL

Parameter	Units	Sample		Depth Range			Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)				Lab	Data	QA		
Selenium	mg/L	11/06/2014	N002	6.98	-	31.98	0.00081		JF	#	0.000032	
Sodium	mg/L	11/06/2014	N001	6.98	-	31.98	2600		F	#	0.47	
Sodium	mg/L	11/06/2014	N002	6.98	-	31.98	2700		F	#	0.47	
Specific Conductance	umhos /cm	11/06/2014	N001	6.98	-	31.98	13620		F	#		
Sulfate	mg/L	11/06/2014	N001	6.98	-	31.98	6000		F	#	100	
Sulfate	mg/L	11/06/2014	N002	6.98	-	31.98	6100		F	#	100	
Temperature	C	11/06/2014	N001	6.98	-	31.98	15.48		F	#		
Turbidity	NTU	11/06/2014	N001	6.98	-	31.98	1.27		F	#		
Uranium	mg/L	11/06/2014	N001	6.98	-	31.98	0.054		F	#	0.0000029	
Uranium	mg/L	11/06/2014	N002	6.98	-	31.98	0.055		F	#	0.0000029	
Vanadium	mg/L	11/06/2014	N001	6.98	-	31.98	0.0002	B	UF	#	0.000015	
Vanadium	mg/L	11/06/2014	N002	6.98	-	31.98	0.00019	B	UF	#	0.000015	

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

REPORT DATE: 1/8/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	5.29 - 25.29	356		F	#		
Ammonia Total as N	mg/L	11/06/2014	N001	5.29 - 25.29	0.44		F	#	0.1	
Arsenic	mg/L	11/06/2014	N001	5.29 - 25.29	0.00046		F	#	0.000015	
Calcium	mg/L	11/06/2014	N001	5.29 - 25.29	100		F	#	0.024	
Chloride	mg/L	11/06/2014	N001	5.29 - 25.29	25		F	#	2	
Magnesium	mg/L	11/06/2014	N001	5.29 - 25.29	62		F	#	0.03	
Molybdenum	mg/L	11/06/2014	N001	5.29 - 25.29	0.015		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	5.29 - 25.29	0.12		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	5.29 - 25.29	88.5		F	#		
pH	s.u.	11/06/2014	N001	5.29 - 25.29	6.78		F	#		
Potassium	mg/L	11/06/2014	N001	5.29 - 25.29	7		F	#	0.052	
Selenium	mg/L	11/06/2014	N001	5.29 - 25.29	0.004		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	5.29 - 25.29	83		F	#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	5.29 - 25.29	1228		F	#		
Sulfate	mg/L	11/06/2014	N001	5.29 - 25.29	310		F	#	5	
Temperature	C	11/06/2014	N001	5.29 - 25.29	12.33		F	#		
Turbidity	NTU	11/06/2014	N001	5.29 - 25.29	6.15		F	#		
Uranium	mg/L	11/06/2014	N001	5.29 - 25.29	0.027		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	5.29 - 25.29	0.00065		F	#	0.000015	

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

REPORT DATE: 1/8/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	7.35	- 22.35	240		F	#		
Ammonia Total as N	mg/L	11/04/2014	N001	7.35	- 22.35	69		F	#	5	
Arsenic	mg/L	11/04/2014	N001	7.35	- 22.35	0.00068		F	#	0.000074	
Calcium	mg/L	11/04/2014	N001	7.35	- 22.35	580		F	#	0.12	
Chloride	mg/L	11/04/2014	N001	7.35	- 22.35	190		F	#	10	
Magnesium	mg/L	11/04/2014	N001	7.35	- 22.35	51		F	#	0.15	
Molybdenum	mg/L	11/04/2014	N001	7.35	- 22.35	1.6		F	#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	7.35	- 22.35	35		F	#	0.25	
Oxidation Reduction Potential	mV	11/04/2014	N001	7.35	- 22.35	216.4		F	#		
pH	s.u.	11/04/2014	N001	7.35	- 22.35	6.72		F	#		
Potassium	mg/L	11/04/2014	N001	7.35	- 22.35	11		F	#	0.26	
Selenium	mg/L	11/04/2014	N001	7.35	- 22.35	0.079		F	#	0.00016	
Sodium	mg/L	11/04/2014	N001	7.35	- 22.35	270		F	#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	7.35	- 22.35	4073		F	#		
Sulfate	mg/L	11/04/2014	N001	7.35	- 22.35	1800		F	#	25	
Temperature	C	11/04/2014	N001	7.35	- 22.35	13.41		F	#		
Turbidity	NTU	11/04/2014	N001	7.35	- 22.35	3.09		F	#		
Uranium	mg/L	11/04/2014	N001	7.35	- 22.35	0.092		F	#	0.000015	
Vanadium	mg/L	11/04/2014	N001	7.35	- 22.35	0.0014	B	UF	#	0.000076	

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

REPORT DATE: 1/8/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	6.84	- 21.84	246		F	#		
Ammonia Total as N	mg/L	11/05/2014	N001	6.84	- 21.84	3.4		F	#	0.1	
Arsenic	mg/L	11/05/2014	N001	6.84	- 21.84	0.0006		F	#	0.000015	
Calcium	mg/L	11/05/2014	N001	6.84	- 21.84	64		F	#	0.024	
Chloride	mg/L	11/05/2014	N001	6.84	- 21.84	66		F	#	2	
Magnesium	mg/L	11/05/2014	N001	6.84	- 21.84	37		F	#	0.03	
Molybdenum	mg/L	11/05/2014	N001	6.84	- 21.84	0.017		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	6.84	- 21.84	0.01		F	#	0.01	
Oxidation Reduction Potential	mV	11/05/2014	N001	6.84	- 21.84	50.4		F	#		
pH	s.u.	11/05/2014	N001	6.84	- 21.84	7.21		F	#		
Potassium	mg/L	11/05/2014	N001	6.84	- 21.84	4.1		F	#	0.052	
Selenium	mg/L	11/05/2014	N001	6.84	- 21.84	0.00018		F	#	0.000032	
Sodium	mg/L	11/05/2014	N001	6.84	- 21.84	110		F	#	0.047	
Specific Conductance	umhos/cm	11/05/2014	N001	6.84	- 21.84	1137		F	#		
Sulfate	mg/L	11/05/2014	N001	6.84	- 21.84	210		F	#	5	
Temperature	C	11/05/2014	N001	6.84	- 21.84	15.27		F	#		
Turbidity	NTU	11/05/2014	N001	6.84	- 21.84	1.18		F	#		
Uranium	mg/L	11/05/2014	N001	6.84	- 21.84	0.015		F	#	0.000029	
Vanadium	mg/L	11/05/2014	N001	6.84	- 21.84	0.0031		F	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0216 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	5.5	-	20.5	162		F	#		
Ammonia Total as N	mg/L	11/05/2014	N001	5.5	-	20.5	5		F	#	0.2	
Arsenic	mg/L	11/05/2014	N001	5.5	-	20.5	0.034		F	#	0.000074	
Calcium	mg/L	11/05/2014	N001	5.5	-	20.5	58		F	#	0.024	
Chloride	mg/L	11/05/2014	N001	5.5	-	20.5	82		F	#	2	
Magnesium	mg/L	11/05/2014	N001	5.5	-	20.5	12		F	#	0.03	
Molybdenum	mg/L	11/05/2014	N001	5.5	-	20.5	0.052		F	#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	5.5	-	20.5	0.014		F	#	0.01	
Oxidation Reduction Potential	mV	11/05/2014	N001	5.5	-	20.5	14.7		F	#		
pH	s.u.	11/05/2014	N001	5.5	-	20.5	7.4		F	#		
Potassium	mg/L	11/05/2014	N001	5.5	-	20.5	5.7		F	#	0.052	
Selenium	mg/L	11/05/2014	N001	5.5	-	20.5	0.00058		F	#	0.00016	
Sodium	mg/L	11/05/2014	N001	5.5	-	20.5	84		F	#	0.047	
Specific Conductance	umhos/cm	11/05/2014	N001	5.5	-	20.5	805		F	#		
Sulfate	mg/L	11/05/2014	N001	5.5	-	20.5	110		F	#	5	
Temperature	C	11/05/2014	N001	5.5	-	20.5	14.5		F	#		
Turbidity	NTU	11/05/2014	N001	5.5	-	20.5	1.92		F	#		
Uranium	mg/L	11/05/2014	N001	5.5	-	20.5	0.014		F	#	0.000015	
Vanadium	mg/L	11/05/2014	N001	5.5	-	20.5	0.21		F	#	0.000076	

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

REPORT DATE: 1/8/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	7.4	-	22.4	225		F	#		
Ammonia Total as N	mg/L	11/04/2014	N001	7.4	-	22.4	44		F	#	2	
Arsenic	mg/L	11/04/2014	N001	7.4	-	22.4	0.0011		F	#	0.000074	
Calcium	mg/L	11/04/2014	N001	7.4	-	22.4	600		F	#	0.12	
Chloride	mg/L	11/04/2014	N001	7.4	-	22.4	250		F	#	10	
Magnesium	mg/L	11/04/2014	N001	7.4	-	22.4	22		F	#	0.15	
Molybdenum	mg/L	11/04/2014	N001	7.4	-	22.4	1.6		F	#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	7.4	-	22.4	0.048		F	#	0.01	
Oxidation Reduction Potential	mV	11/04/2014	N001	7.4	-	22.4	75.9		F	#		
pH	s.u.	11/04/2014	N001	7.4	-	22.4	6.78		F	#		
Potassium	mg/L	11/04/2014	N001	7.4	-	22.4	17		F	#	0.26	
Selenium	mg/L	11/04/2014	N001	7.4	-	22.4	0.0072		F	#	0.00016	
Sodium	mg/L	11/04/2014	N001	7.4	-	22.4	220		F	#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	7.4	-	22.4	3910		F	#		
Sulfate	mg/L	11/04/2014	N001	7.4	-	22.4	1600		F	#	25	
Temperature	C	11/04/2014	N001	7.4	-	22.4	12.22		F	#		
Turbidity	NTU	11/04/2014	N001	7.4	-	22.4	8.07		F	#		
Uranium	mg/L	11/04/2014	N001	7.4	-	22.4	0.15		F	#	0.000015	
Vanadium	mg/L	11/04/2014	N001	7.4	-	22.4	1.9		F	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0590 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	5.21	- 19.21	240		F	#		
Ammonia Total as N	mg/L	11/04/2014	N001	5.21	- 19.21	160		F	#	5	
Arsenic	mg/L	11/04/2014	N001	5.21	- 19.21	0.00086		F	#	0.000074	
Calcium	mg/L	11/04/2014	N001	5.21	- 19.21	520		F	#	0.12	
Chloride	mg/L	11/04/2014	N001	5.21	- 19.21	320		F	#	20	
Magnesium	mg/L	11/04/2014	N001	5.21	- 19.21	60		F	#	0.15	
Molybdenum	mg/L	11/04/2014	N001	5.21	- 19.21	1.1		F	#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	5.21	- 19.21	20		F	#	0.25	
Oxidation Reduction Potential	mV	11/04/2014	N001	5.21	- 19.21	204.5		F	#		
pH	s.u.	11/04/2014	N001	5.21	- 19.21	6.65		F	#		
Potassium	mg/L	11/04/2014	N001	5.21	- 19.21	27		F	#	0.26	
Selenium	mg/L	11/04/2014	N001	5.21	- 19.21	0.041		F	#	0.00016	
Sodium	mg/L	11/04/2014	N001	5.21	- 19.21	490		F	#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	5.21	- 19.21	5401		F	#		
Sulfate	mg/L	11/04/2014	N001	5.21	- 19.21	2300		F	#	50	
Temperature	C	11/04/2014	N001	5.21	- 19.21	14.09		F	#		
Turbidity	NTU	11/04/2014	N001	5.21	- 19.21	3.33		F	#		
Uranium	mg/L	11/04/2014	N001	5.21	- 19.21	0.079		F	#	0.000015	
Vanadium	mg/L	11/04/2014	N001	5.21	- 19.21	0.48		F	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0620 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	6.7 - 10.7	490		F	#		
Ammonia Total as N	mg/L	11/06/2014	N001	6.7 - 10.7	0.1	U	F	#	0.1	
Arsenic	mg/L	11/06/2014	N001	6.7 - 10.7	0.00063		F	#	0.000015	
Calcium	mg/L	11/06/2014	N001	6.7 - 10.7	400		F	#	0.12	
Chloride	mg/L	11/06/2014	N001	6.7 - 10.7	1200		F	#	20	
Magnesium	mg/L	11/06/2014	N001	6.7 - 10.7	250		F	#	0.15	
Molybdenum	mg/L	11/06/2014	N001	6.7 - 10.7	0.0069		F	#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	6.7 - 10.7	14		F	#	0.2	
Oxidation Reduction Potential	mV	11/06/2014	N001	6.7 - 10.7	28.5		F	#		
pH	s.u.	11/06/2014	N001	6.7 - 10.7	7.16		F	#		
Potassium	mg/L	11/06/2014	N001	6.7 - 10.7	9.4		F	#	0.26	
Selenium	mg/L	11/06/2014	N001	6.7 - 10.7	0.034		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	6.7 - 10.7	1200		F	#	0.23	
Specific Conductance	umhos/cm	11/06/2014	N001	6.7 - 10.7	7862		F	#		
Sulfate	mg/L	11/06/2014	N001	6.7 - 10.7	2300		F	#	50	
Temperature	C	11/06/2014	N001	6.7 - 10.7	15.42		F	#		
Turbidity	NTU	11/06/2014	N001	6.7 - 10.7	4.39		F	#		
Uranium	mg/L	11/06/2014	N001	6.7 - 10.7	0.068		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	6.7 - 10.7	0.0021		F	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0658 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty	
							Lab	Data	QA			
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	.5	-	5.5	268		F	#		
Ammonia Total as N	mg/L	11/05/2014	N001	.5	-	5.5	42		F	#	2	
Arsenic	mg/L	11/05/2014	N001	.5	-	5.5	0.09		F	#	0.0015	
Calcium	mg/L	11/05/2014	N001	.5	-	5.5	470		F	#	0.12	
Chloride	mg/L	11/05/2014	N001	.5	-	5.5	210		F	#	10	
Magnesium	mg/L	11/05/2014	N001	.5	-	5.5	35		F	#	0.15	
Molybdenum	mg/L	11/05/2014	N001	.5	-	5.5	1.8		F	#	0.0032	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	.5	-	5.5	11		F	#	0.1	
Oxidation Reduction Potential	mV	11/05/2014	N001	.5	-	5.5	6.3		F	#		
pH	s.u.	11/05/2014	N001	.5	-	5.5	6.71		F	#		
Potassium	mg/L	11/05/2014	N001	.5	-	5.5	7.8		F	#	0.26	
Selenium	mg/L	11/05/2014	N001	.5	-	5.5	1.2		F	#	0.0032	
Sodium	mg/L	11/05/2014	N001	.5	-	5.5	190		F	#	0.23	
Specific Conductance	umhos/cm	11/05/2014	N001	.5	-	5.5	3186		F	#		
Sulfate	mg/L	11/05/2014	N001	.5	-	5.5	1300		F	#	25	
Temperature	C	11/05/2014	N001	.5	-	5.5	14.03		F	#		
Turbidity	NTU	11/05/2014	N001	.5	-	5.5	5.7		F	#		
Uranium	mg/L	11/05/2014	N001	.5	-	5.5	0.051		F	#	0.00029	
Vanadium	mg/L	11/05/2014	N001	.5	-	5.5	26		F	#	0.0015	

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

REPORT DATE: 1/8/2015

Location: 0659 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	.5	- 10.5	209		F	#		
Ammonia Total as N	mg/L	11/04/2014	N001	.5	- 10.5	7.6		F	#	1	
Arsenic	mg/L	11/04/2014	N001	.5	- 10.5	0.04		F	#	0.00074	
Calcium	mg/L	11/04/2014	N001	.5	- 10.5	620		F	#	0.12	
Chloride	mg/L	11/04/2014	N001	.5	- 10.5	220		F	#	10	
Magnesium	mg/L	11/04/2014	N001	.5	- 10.5	40		F	#	0.15	
Molybdenum	mg/L	11/04/2014	N001	.5	- 10.5	1.3		F	#	0.0016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	.5	- 10.5	7.8		F	#	0.1	
pH	s.u.	11/04/2014	N001	.5	- 10.5	6.88		F	#		
Potassium	mg/L	11/04/2014	N001	.5	- 10.5	9.7		F	#	0.26	
Selenium	mg/L	11/04/2014	N001	.5	- 10.5	0.098		F	#	0.0016	
Sodium	mg/L	11/04/2014	N001	.5	- 10.5	170		F	#	0.23	
Specific Conductance	umhos /cm	11/04/2014	N001	.5	- 10.5	3401		F	#		
Sulfate	mg/L	11/04/2014	N001	.5	- 10.5	1600		F	#	25	
Temperature	C	11/04/2014	N001	.5	- 10.5	14.23		F	#		
Turbidity	NTU	11/04/2014	N001	.5	- 10.5	8.93		F	#		
Uranium	mg/L	11/04/2014	N001	.5	- 10.5	0.1		F	#	0.00015	
Vanadium	mg/L	11/04/2014	N001	.5	- 10.5	2.5		F	#	0.00076	

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

REPORT DATE: 1/8/2015

Location: 0664 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	7.7 - 14.7	361		F	#		
Ammonia Total as N	mg/L	11/04/2014	N001	7.7 - 14.7	24		F	#	2	
Arsenic	mg/L	11/04/2014	N001	7.7 - 14.7	0.0033		F	#	0.00015	
Calcium	mg/L	11/04/2014	N001	7.7 - 14.7	160		F	#	0.12	
Chloride	mg/L	11/04/2014	N001	7.7 - 14.7	130		F	#	4	
Magnesium	mg/L	11/04/2014	N001	7.7 - 14.7	70		F	#	0.15	
Molybdenum	mg/L	11/04/2014	N001	7.7 - 14.7	0.32		F	#	0.00032	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	7.7 - 14.7	3.5		F	#	0.05	
Oxidation Reduction Potential	mV	11/04/2014	N001	7.7 - 14.7	120.3		F	#		
pH	s.u.	11/04/2014	N001	7.7 - 14.7	6.85		F	#		
Potassium	mg/L	11/04/2014	N001	7.7 - 14.7	9.1		F	#	0.26	
Selenium	mg/L	11/04/2014	N001	7.7 - 14.7	0.17		F	#	0.00032	
Sodium	mg/L	11/04/2014	N001	7.7 - 14.7	200		F	#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	7.7 - 14.7	2245		F	#		
Sulfate	mg/L	11/04/2014	N001	7.7 - 14.7	650		F	#	10	
Temperature	C	11/04/2014	N001	7.7 - 14.7	14.1		F	#		
Turbidity	NTU	11/04/2014	N001	7.7 - 14.7	9.29		F	#		
Uranium	mg/L	11/04/2014	N001	7.7 - 14.7	0.056		F	#	0.000029	
Vanadium	mg/L	11/04/2014	N001	7.7 - 14.7	2.2		F	#	0.00015	

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

REPORT DATE: 1/8/2015

Location: 0669 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	4 - 10.6	373		FQ #		
Ammonia Total as N	mg/L	11/04/2014	N001	4 - 10.6	68		FQ #	2	
Arsenic	mg/L	11/04/2014	N001	4 - 10.6	0.0067		FQ #	0.00015	
Calcium	mg/L	11/04/2014	N001	4 - 10.6	290		FQ #	0.12	
Chloride	mg/L	11/04/2014	N001	4 - 10.6	140		FQ #	5	
Magnesium	mg/L	11/04/2014	N001	4 - 10.6	35		FQ #	0.15	
Molybdenum	mg/L	11/04/2014	N001	4 - 10.6	1		FQ #	0.00032	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	4 - 10.6	1.4		FQ #	0.01	
Oxidation Reduction Potential	mV	11/04/2014	N001	4 - 10.6	91.4		FQ #		
pH	s.u.	11/04/2014	N001	4 - 10.6	6.93		FQ #		
Potassium	mg/L	11/04/2014	N001	4 - 10.6	7.1		FQ #	0.26	
Selenium	mg/L	11/04/2014	N001	4 - 10.6	0.0072		FQ #	0.00032	
Sodium	mg/L	11/04/2014	N001	4 - 10.6	200		FQ #	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	4 - 10.6	2780		FQ #		
Sulfate	mg/L	11/04/2014	N001	4 - 10.6	970		FQ #	12	
Temperature	C	11/04/2014	N001	4 - 10.6	14.56		FQ #		
Turbidity	NTU	11/04/2014	N001	4 - 10.6	9.79		FQ #		
Uranium	mg/L	11/04/2014	N001	4 - 10.6	0.096		FQ #	0.000029	
Vanadium	mg/L	11/04/2014	N001	4 - 10.6	2.3		FQ #	0.00015	

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

REPORT DATE: 1/8/2015

Location: 0670 WELL For Organics Study.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	5.2	-	12.2	370		FQ	#		
Ammonia Total as N	mg/L	11/05/2014	N001	5.2	-	12.2	15		FQ	#	1	
Arsenic	mg/L	11/05/2014	N001	5.2	-	12.2	0.0048		FQ	#	0.00015	
Calcium	mg/L	11/05/2014	N001	5.2	-	12.2	130		FQ	#	0.024	
Chloride	mg/L	11/05/2014	N001	5.2	-	12.2	130		FQ	#	4	
Magnesium	mg/L	11/05/2014	N001	5.2	-	12.2	81		FQ	#	0.03	
Molybdenum	mg/L	11/05/2014	N001	5.2	-	12.2	0.19		FQ	#	0.00032	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	5.2	-	12.2	6.8		FQ	#	0.05	
Oxidation Reduction Potential	mV	11/05/2014	N001	5.2	-	12.2	56		FQ	#		
pH	s.u.	11/05/2014	N001	5.2	-	12.2	6.91		FQ	#		
Potassium	mg/L	11/05/2014	N001	5.2	-	12.2	9.2		FQ	#	0.052	
Selenium	mg/L	11/05/2014	N001	5.2	-	12.2	0.43		FQ	#	0.00032	
Sodium	mg/L	11/05/2014	N001	5.2	-	12.2	200		FQ	#	0.047	
Specific Conductance	umhos/cm	11/05/2014	N001	5.2	-	12.2	2088		FQ	#		
Sulfate	mg/L	11/05/2014	N001	5.2	-	12.2	570		FQ	#	10	
Temperature	C	11/05/2014	N001	5.2	-	12.2	14.83		FQ	#		
Turbidity	NTU	11/05/2014	N001	5.2	-	12.2	4.48		FQ	#		
Uranium	mg/L	11/05/2014	N001	5.2	-	12.2	0.063		FQ	#	0.000029	
Vanadium	mg/L	11/05/2014	N001	5.2	-	12.2	2.2		FQ	#	0.00015	

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

REPORT DATE: 1/8/2015

Location: 0855 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
								Lab	Data QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/05/2014	N001	6	-	11	246	F	#		
Ammonia Total as N	mg/L	11/05/2014	N001	6	-	11	33	F	#	1	
Arsenic	mg/L	11/05/2014	N001	6	-	11	0.52	F	#	0.0015	
Calcium	mg/L	11/05/2014	N001	6	-	11	320	F	#	0.12	
Chloride	mg/L	11/05/2014	N001	6	-	11	210	F	#	5	
Magnesium	mg/L	11/05/2014	N001	6	-	11	39	F	#	0.15	
Molybdenum	mg/L	11/05/2014	N001	6	-	11	0.79	F	#	0.0032	
Nitrate + Nitrite as Nitrogen	mg/L	11/05/2014	N001	6	-	11	17	F	#	0.2	
Oxidation Reduction Potential	mV	11/05/2014	N001	6	-	11	59.6	F	#		
pH	s.u.	11/05/2014	N001	6	-	11	6.65	F	#		
Potassium	mg/L	11/05/2014	N001	6	-	11	9.6	F	#	0.26	
Selenium	mg/L	11/05/2014	N001	6	-	11	1.1	F	#	0.0032	
Sodium	mg/L	11/05/2014	N001	6	-	11	210	F	#	0.23	
Specific Conductance	umhos/cm	11/05/2014	N001	6	-	11	3007	FJ	#		
Sulfate	mg/L	11/05/2014	N001	6	-	11	970	F	#	12	
Temperature	C	11/05/2014	N001	6	-	11	14.92	F	#		
Turbidity	NTU	11/05/2014	N001	6	-	11	5.58	F	#		
Uranium	mg/L	11/05/2014	N001	6	-	11	0.038	F	#	0.00029	
Vanadium	mg/L	11/05/2014	N001	6	-	11	22	F	#	0.0015	

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

**Old Rifle
Groundwater Quality Data**

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

REPORT DATE: 1/8/2015

Location: 0292A WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	10.5	- 20.5	476		F	#		
Calcium	mg/L	11/06/2014	N001	10.5	- 20.5	150		F	#	0.024	
Chloride	mg/L	11/06/2014	N001	10.5	- 20.5	73		F	#	4	
Magnesium	mg/L	11/06/2014	N001	10.5	- 20.5	87		F	#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	10.5	- 20.5	0.023		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	10.5	- 20.5	-5		F	#		
pH	s.u.	11/06/2014	N001	10.5	- 20.5	7.01		F	#		
Potassium	mg/L	11/06/2014	N001	10.5	- 20.5	5.1		F	#	0.052	
Selenium	mg/L	11/06/2014	N001	10.5	- 20.5	0.0006		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	10.5	- 20.5	210		F	#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	10.5	- 20.5	2021		F	#		
Sulfate	mg/L	11/06/2014	N001	10.5	- 20.5	600		F	#	10	
Temperature	C	11/06/2014	N001	10.5	- 20.5	14.4		F	#		
Turbidity	NTU	11/06/2014	N001	10.5	- 20.5	0.94		F	#		
Uranium	mg/L	11/06/2014	N001	10.5	- 20.5	0.027		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	10.5	- 20.5	0.00024	B	UF	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0304 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	13.2	-	18.2	250		F	#		
Calcium	mg/L	11/06/2014	N001	13.2	-	18.2	220		F	#	0.12	
Chloride	mg/L	11/06/2014	N001	13.2	-	18.2	320		F	#	4	
Magnesium	mg/L	11/06/2014	N001	13.2	-	18.2	88		F	#	0.15	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	13.2	-	18.2	0.016		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	13.2	-	18.2	3.6		F	#		
pH	s.u.	11/06/2014	N001	13.2	-	18.2	6.99		F	#		
Potassium	mg/L	11/06/2014	N001	13.2	-	18.2	6.4		F	#	0.26	
Selenium	mg/L	11/06/2014	N001	13.2	-	18.2	0.0023		F	#	0.00016	
Sodium	mg/L	11/06/2014	N001	13.2	-	18.2	180		F	#	0.23	
Specific Conductance	umhos/cm	11/06/2014	N001	13.2	-	18.2	2441		F	#		
Sulfate	mg/L	11/06/2014	N001	13.2	-	18.2	580		F	#	10	
Temperature	C	11/06/2014	N001	13.2	-	18.2	15.23		F	#		
Turbidity	NTU	11/06/2014	N001	13.2	-	18.2	2.59		F	#		
Uranium	mg/L	11/06/2014	N001	13.2	-	18.2	0.064		F	#	0.000015	
Vanadium	mg/L	11/06/2014	N001	13.2	-	18.2	0.045		F	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0305 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/07/2014	N001	13.76 - 18.76	346		F	#		
Calcium	mg/L	11/07/2014	N001	13.76 - 18.76	150		F	#	0.024	
Chloride	mg/L	11/07/2014	N001	13.76 - 18.76	200		F	#	4	
Magnesium	mg/L	11/07/2014	N001	13.76 - 18.76	65		F	#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/07/2014	N001	13.76 - 18.76	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	11/07/2014	N001	13.76 - 18.76	11.6		F	#		
pH	s.u.	11/07/2014	N001	13.76 - 18.76	7.14		F	#		
Potassium	mg/L	11/07/2014	N001	13.76 - 18.76	7.1		F	#	0.052	
Selenium	mg/L	11/07/2014	N001	13.76 - 18.76	0.022		F	#	0.00032	
Sodium	mg/L	11/07/2014	N001	13.76 - 18.76	170		F	#	0.047	
Specific Conductance	umhos/cm	11/07/2014	N001	13.76 - 18.76	1930		F	#		
Sulfate	mg/L	11/07/2014	N001	13.76 - 18.76	430		F	#	10	
Temperature	C	11/07/2014	N001	13.76 - 18.76	15.03		F	#		
Turbidity	NTU	11/07/2014	N001	13.76 - 18.76	2.53		F	#		
Uranium	mg/L	11/07/2014	N001	13.76 - 18.76	0.057		F	#	0.000029	
Vanadium	mg/L	11/07/2014	N001	13.76 - 18.76	0.42		F	#	0.00015	

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

REPORT DATE: 1/8/2015

Location: 0309 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	16.93	- 21.93	378		F	#		
Calcium	mg/L	11/06/2014	N001	16.93	- 21.93	170		F	#	0.12	
Chloride	mg/L	11/06/2014	N001	16.93	- 21.93	140		F	#	4	
Magnesium	mg/L	11/06/2014	N001	16.93	- 21.93	110		F	#	0.15	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	16.93	- 21.93	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	16.93	- 21.93	-30.2		F	#		
pH	s.u.	11/06/2014	N001	16.93	- 21.93	7.12		F	#		
Potassium	mg/L	11/06/2014	N001	16.93	- 21.93	6.8		F	#	0.26	
Selenium	mg/L	11/06/2014	N001	16.93	- 21.93	0.00017		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	16.93	- 21.93	210		F	#	0.23	
Specific Conductance	umhos/cm	11/06/2014	N001	16.93	- 21.93	2305		F	#		
Sulfate	mg/L	11/06/2014	N001	16.93	- 21.93	780		F	#	10	
Temperature	C	11/06/2014	N001	16.93	- 21.93	15.29		F	#		
Turbidity	NTU	11/06/2014	N001	16.93	- 21.93	2.01		F	#		
Uranium	mg/L	11/06/2014	N001	16.93	- 21.93	0.019		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	16.93	- 21.93	0.00027	B	UF	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0310 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	17.93 - 22.93	476		F	#		
Calcium	mg/L	11/06/2014	N001	17.93 - 22.93	220		F	#	0.12	
Chloride	mg/L	11/06/2014	N001	17.93 - 22.93	140		F	#	4	
Magnesium	mg/L	11/06/2014	N001	17.93 - 22.93	110		F	#	0.15	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	17.93 - 22.93	0.017		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	17.93 - 22.93	-37.3		F	#		
pH	s.u.	11/06/2014	N001	17.93 - 22.93	7.08		F	#		
Potassium	mg/L	11/06/2014	N001	17.93 - 22.93	7.9		F	#	0.26	
Selenium	mg/L	11/06/2014	N001	17.93 - 22.93	0.00031		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	17.93 - 22.93	200		F	#	0.23	
Specific Conductance	umhos/cm	11/06/2014	N001	17.93 - 22.93	2422		F	#		
Sulfate	mg/L	11/06/2014	N001	17.93 - 22.93	750		F	#	10	
Temperature	C	11/06/2014	N001	17.93 - 22.93	15.68		F	#		
Turbidity	NTU	11/06/2014	N001	17.93 - 22.93	1.82		F	#		
Uranium	mg/L	11/06/2014	N001	17.93 - 22.93	0.17		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	17.93 - 22.93	0.0089		F	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0655 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/07/2014	N001	13.6	-	23.6	374		F	#		
Calcium	mg/L	11/07/2014	N001	13.6	-	23.6	170		F	#	0.12	
Chloride	mg/L	11/07/2014	N001	13.6	-	23.6	160		F	#	4	
Magnesium	mg/L	11/07/2014	N001	13.6	-	23.6	100		F	#	0.15	
Nitrate + Nitrite as Nitrogen	mg/L	11/07/2014	N001	13.6	-	23.6	0.015		F	#	0.01	
Oxidation Reduction Potential	mV	11/07/2014	N001	13.6	-	23.6	-58		F	#		
pH	s.u.	11/07/2014	N001	13.6	-	23.6	7.15		F	#		
Potassium	mg/L	11/07/2014	N001	13.6	-	23.6	6.2		F	#	0.26	
Selenium	mg/L	11/07/2014	N001	13.6	-	23.6	0.0009		F	#	0.00016	
Sodium	mg/L	11/07/2014	N001	13.6	-	23.6	210		F	#	0.23	
Specific Conductance	umhos/cm	11/07/2014	N001	13.6	-	23.6	2386		F	#		
Sulfate	mg/L	11/07/2014	N001	13.6	-	23.6	680		F	#	10	
Temperature	C	11/07/2014	N001	13.6	-	23.6	14.14		F	#		
Turbidity	NTU	11/07/2014	N001	13.6	-	23.6	0.7		F	#		
Uranium	mg/L	11/07/2014	N001	13.6	-	23.6	0.069		F	#	0.000015	
Vanadium	mg/L	11/07/2014	N001	13.6	-	23.6	0.26		F	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0656 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/07/2014	N001	6.35	- 21.35	366		F	#		
Calcium	mg/L	11/07/2014	N001	6.35	- 21.35	170		F	#	0.12	
Chloride	mg/L	11/07/2014	N001	6.35	- 21.35	280		F	#	4	
Magnesium	mg/L	11/07/2014	N001	6.35	- 21.35	88		F	#	0.15	
Nitrate + Nitrite as Nitrogen	mg/L	11/07/2014	N001	6.35	- 21.35	0.13		F	#	0.01	
Oxidation Reduction Potential	mV	11/07/2014	N001	6.35	- 21.35	182.3		F	#		
pH	s.u.	11/07/2014	N001	6.35	- 21.35	6.96		F	#		
Potassium	mg/L	11/07/2014	N001	6.35	- 21.35	8.2		F	#	0.26	
Selenium	mg/L	11/07/2014	N001	6.35	- 21.35	0.0035		F	#	0.00016	
Sodium	mg/L	11/07/2014	N001	6.35	- 21.35	200		F	#	0.23	
Specific Conductance	umhos/cm	11/07/2014	N001	6.35	- 21.35	2240		F	#		
Sulfate	mg/L	11/07/2014	N001	6.35	- 21.35	430		F	#	10	
Temperature	C	11/07/2014	N001	6.35	- 21.35	17.31		F	#		
Turbidity	NTU	11/07/2014	N001	6.35	- 21.35	1.71		F	#		
Uranium	mg/L	11/07/2014	N001	6.35	- 21.35	0.31		F	#	0.000015	
Vanadium	mg/L	11/07/2014	N001	6.35	- 21.35	0.024		F	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0658 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	2.3	-	17.3	438		F	#		
Calcium	mg/L	11/06/2014	N001	2.3	-	17.3	140		F	#	0.024	
Calcium	mg/L	11/06/2014	N002	2.3	-	17.3	140		F	#	0.024	
Chloride	mg/L	11/06/2014	N001	2.3	-	17.3	21		F	#	2	
Chloride	mg/L	11/06/2014	N002	2.3	-	17.3	21		F	#	2	
Magnesium	mg/L	11/06/2014	N001	2.3	-	17.3	80		F	#	0.03	
Magnesium	mg/L	11/06/2014	N002	2.3	-	17.3	80		F	#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	2.3	-	17.3	0.015		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N002	2.3	-	17.3	0.014		F	#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	2.3	-	17.3	18.5		F	#		
pH	s.u.	11/06/2014	N001	2.3	-	17.3	6.94		F	#		
Potassium	mg/L	11/06/2014	N001	2.3	-	17.3	2.9		F	#	0.052	
Potassium	mg/L	11/06/2014	N002	2.3	-	17.3	2.8		F	#	0.052	
Selenium	mg/L	11/06/2014	N001	2.3	-	17.3	0.0011		F	#	0.000032	
Selenium	mg/L	11/06/2014	N002	2.3	-	17.3	0.0013		F	#	0.000032	
Sodium	mg/L	11/06/2014	N001	2.3	-	17.3	68		F	#	0.047	
Sodium	mg/L	11/06/2014	N002	2.3	-	17.3	68		F	#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	2.3	-	17.3	1397		F	#		
Sulfate	mg/L	11/06/2014	N001	2.3	-	17.3	370		F	#	5	
Sulfate	mg/L	11/06/2014	N002	2.3	-	17.3	370		F	#	5	

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

REPORT DATE: 1/8/2015

Location: 0658 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Temperature	C	11/06/2014	N001	2.3 - 17.3	12.65		F	#		
Turbidity	NTU	11/06/2014	N001	2.3 - 17.3	6.93		F	#		
Uranium	mg/L	11/06/2014	N001	2.3 - 17.3	0.0093		F	#	0.000029	
Uranium	mg/L	11/06/2014	N002	2.3 - 17.3	0.0096		F	#	0.000029	
Vanadium	mg/L	11/06/2014	N001	2.3 - 17.3	0.00071		UF	#	0.000015	
Vanadium	mg/L	11/06/2014	N002	2.3 - 17.3	0.00059		UF	#	0.000015	

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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**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: 1/8/2015

Location: 0320 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	169			#		
Ammonia Total as N	mg/L	11/04/2014	N001	5.7			#	0.5	
Arsenic	mg/L	11/04/2014	N001	0.0024			#	0.000074	
Calcium	mg/L	11/04/2014	N001	510			#	0.12	
Chloride	mg/L	11/04/2014	N001	400			#	10	
Magnesium	mg/L	11/04/2014	N001	82			#	0.15	
Molybdenum	mg/L	11/04/2014	N001	0.79			#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	2.3			#	0.05	
Oxidation Reduction Potential	mV	11/04/2014	N001	197.1			#		
pH	s.u.	11/04/2014	N001	8.05			#		
Potassium	mg/L	11/04/2014	N001	39			#	0.26	
Selenium	mg/L	11/04/2014	N001	0.0057			#	0.00016	
Sodium	mg/L	11/04/2014	N001	520			#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	4488			#		
Sulfate	mg/L	11/04/2014	N001	2200			#	25	
Temperature	C	11/04/2014	N001	8.84			#		
Turbidity	NTU	11/04/2014	N001	0.98			#		
Uranium	mg/L	11/04/2014	N001	0.11			#	0.000015	
Vanadium	mg/L	11/04/2014	N001	0.029			#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0323 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	135			#		
Ammonia Total as N	mg/L	11/04/2014	N001	19			#	1	
Ammonia Total as N	mg/L	11/04/2014	N002	19			#	2.5	
Arsenic	mg/L	11/04/2014	N001	0.001			#	0.000074	
Arsenic	mg/L	11/04/2014	N002	0.0011			#	0.000074	
Calcium	mg/L	11/04/2014	N001	590			#	0.12	
Calcium	mg/L	11/04/2014	N002	580			#	0.12	
Chloride	mg/L	11/04/2014	N001	490			#	20	
Chloride	mg/L	11/04/2014	N002	490			#	20	
Magnesium	mg/L	11/04/2014	N001	150			#	0.15	
Magnesium	mg/L	11/04/2014	N002	150			#	0.15	
Molybdenum	mg/L	11/04/2014	N001	2.4			#	0.00016	
Molybdenum	mg/L	11/04/2014	N002	2.5			#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	30			#	0.25	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N002	31			#	0.25	
Oxidation Reduction Potential	mV	11/04/2014	N001	192.2			#		
pH	s.u.	11/04/2014	N001	8.07			#		
Potassium	mg/L	11/04/2014	N001	60			#	0.26	
Potassium	mg/L	11/04/2014	N002	60			#	0.26	
Selenium	mg/L	11/04/2014	N001	0.011			#	0.00016	

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

REPORT DATE: 1/8/2015

Location: 0323 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Selenium	mg/L	11/04/2014	N002	0.012			#	0.00016	
Sodium	mg/L	11/04/2014	N001	960			#	0.23	
Sodium	mg/L	11/04/2014	N002	950			#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	6903			#		
Sulfate	mg/L	11/04/2014	N001	3400			#	50	
Sulfate	mg/L	11/04/2014	N002	3400			#	50	
Temperature	C	11/04/2014	N001	9.96			#		
Turbidity	NTU	11/04/2014	N001	3.83			#		
Uranium	mg/L	11/04/2014	N001	0.28			#	0.000015	
Uranium	mg/L	11/04/2014	N002	0.28			#	0.000015	
Vanadium	mg/L	11/04/2014	N001	0.0049			#	0.000076	
Vanadium	mg/L	11/04/2014	N002	0.0056			#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0324 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	116			#		
Ammonia Total as N	mg/L	11/06/2014	N001	0.1	U		#	0.1	
Arsenic	mg/L	11/06/2014	N001	0.00035			#	0.000015	
Calcium	mg/L	11/06/2014	N001	65			#	0.024	
Chloride	mg/L	11/06/2014	N001	160			#	2	
Magnesium	mg/L	11/06/2014	N001	14			#	0.03	
Molybdenum	mg/L	11/06/2014	N001	0.0047			#	0.000032	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	-82.6			#		
pH	s.u.	11/06/2014	N001	8.55			#		
Potassium	mg/L	11/06/2014	N001	3.1			#	0.052	
Selenium	mg/L	11/06/2014	N001	0.00038			#	0.000032	
Sodium	mg/L	11/06/2014	N001	100			#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	993			#		
Sulfate	mg/L	11/06/2014	N001	100			#	5	
Temperature	C	11/06/2014	N001	14.46			#		
Turbidity	NTU	11/06/2014	N001	3.47			#		
Uranium	mg/L	11/06/2014	N001	0.0021			#	0.000029	
Vanadium	mg/L	11/06/2014	N001	0.00067			#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0452 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	133			#		
Ammonia Total as N	mg/L	11/04/2014	N001	12			#	0.5	
Arsenic	mg/L	11/04/2014	N001	0.0044			#	0.000074	
Calcium	mg/L	11/04/2014	N001	600			#	0.12	
Chloride	mg/L	11/04/2014	N001	290			#	10	
Magnesium	mg/L	11/04/2014	N001	49			#	0.15	
Molybdenum	mg/L	11/04/2014	N001	1.4			#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	3.5			#	0.05	
Oxidation Reduction Potential	mV	11/04/2014	N001	197.7			#		
pH	s.u.	11/04/2014	N001	7.65			#		
Potassium	mg/L	11/04/2014	N001	26			#	0.26	
Selenium	mg/L	11/04/2014	N001	0.007			#	0.00016	
Sodium	mg/L	11/04/2014	N001	330			#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	4071			#		
Sulfate	mg/L	11/04/2014	N001	2000			#	25	
Temperature	C	11/04/2014	N001	6.24			#		
Turbidity	NTU	11/04/2014	N001	1.06			#		
Uranium	mg/L	11/04/2014	N001	0.1			#	0.000015	
Vanadium	mg/L	11/04/2014	N001	0.21			#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0453 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	98			#		
Ammonia Total as N	mg/L	11/04/2014	N001	23			#	1	
Arsenic	mg/L	11/04/2014	N001	0.014	E	J	#	0.00015	
Calcium	mg/L	11/04/2014	N001	560			#	0.12	
Chloride	mg/L	11/04/2014	N001	270			#	10	
Magnesium	mg/L	11/04/2014	N001	41			#	0.15	
Molybdenum	mg/L	11/04/2014	N001	2.1			#	0.00032	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	N001	19			#	0.2	
Oxidation Reduction Potential	mV	11/04/2014	N001	215.8			#		
pH	s.u.	11/04/2014	N001	7.26			#		
Potassium	mg/L	11/04/2014	N001	23			#	0.26	
Selenium	mg/L	11/04/2014	N001	0.022			#	0.00032	
Sodium	mg/L	11/04/2014	N001	290			#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	3964			#		
Sulfate	mg/L	11/04/2014	N001	1800			#	25	
Temperature	C	11/04/2014	N001	7.55			#		
Turbidity	NTU	11/04/2014	N001	2.77			#		
Uranium	mg/L	11/04/2014	N001	0.083			#	0.000029	
Vanadium	mg/L	11/04/2014	N001	1.1			#	0.00015	

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

REPORT DATE: 1/8/2015

Location: 0575 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/04/2014	N001	139			#		
Ammonia Total as N	mg/L	11/04/2014	0001	3.3			#	0.1	
Arsenic	mg/L	11/04/2014	0001	0.0014			#	0.000074	
Calcium	mg/L	11/04/2014	0001	390			#	0.12	
Chloride	mg/L	11/04/2014	0001	550			#	20	
Magnesium	mg/L	11/04/2014	0001	270			#	0.15	
Molybdenum	mg/L	11/04/2014	0001	0.74			#	0.00016	
Nitrate + Nitrite as Nitrogen	mg/L	11/04/2014	0001	0.96			#	0.01	
Oxidation Reduction Potential	mV	11/04/2014	N001	145.1			#		
pH	s.u.	11/04/2014	N001	8			#		
Potassium	mg/L	11/04/2014	0001	58			#	0.26	
Selenium	mg/L	11/04/2014	0001	0.0018			#	0.00016	
Sodium	mg/L	11/04/2014	0001	1100			#	0.23	
Specific Conductance	umhos/cm	11/04/2014	N001	7575			#		
Sulfate	mg/L	11/04/2014	0001	3900			#	50	
Temperature	C	11/04/2014	N001	10.8			#		
Turbidity	NTU	11/04/2014	N001	27.1			#		
Uranium	mg/L	11/04/2014	0001	0.12			#	0.000015	
Vanadium	mg/L	11/04/2014	0001	0.0014	B	U	#	0.000076	

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

**Old Rifle
Surface Water Quality Data**

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

REPORT DATE: 1/8/2015

Location: 0294 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	144			#		
Calcium	mg/L	11/06/2014	N001	62			#	0.024	
Chloride	mg/L	11/06/2014	N001	160			#	2	
Magnesium	mg/L	11/06/2014	N001	13			#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	12.5			#		
pH	s.u.	11/06/2014	N001	8.31			#		
Potassium	mg/L	11/06/2014	N001	3			#	0.052	
Selenium	mg/L	11/06/2014	N001	0.00053			#	0.000032	
Sodium	mg/L	11/06/2014	N001	100			#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	947			#		
Sulfate	mg/L	11/06/2014	N001	99			#	5	
Temperature	C	11/06/2014	N001	9.12			#		
Turbidity	NTU	11/06/2014	N001	2.41			#		
Uranium	mg/L	11/06/2014	N001	0.002			#	0.0000029	
Vanadium	mg/L	11/06/2014	N001	0.0006		U	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0395 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/07/2014	N001	362			#		
Calcium	mg/L	11/07/2014	0001	150			#	0.024	
Chloride	mg/L	11/07/2014	0001	55			#	4	
Magnesium	mg/L	11/07/2014	0001	100			#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/07/2014	0001	0.096			#	0.01	
Oxidation Reduction Potential	mV	11/07/2014	N001	50.1			#		
pH	s.u.	11/07/2014	N001	7.73			#		
Potassium	mg/L	11/07/2014	0001	5.9			#	0.052	
Selenium	mg/L	11/07/2014	0001	0.003			#	0.000032	
Sodium	mg/L	11/07/2014	0001	81			#	0.047	
Specific Conductance	umhos/cm	11/07/2014	N001	1568			#		
Sulfate	mg/L	11/07/2014	0001	530			#	10	
Temperature	C	11/07/2014	N001	11.1			#		
Turbidity	NTU	11/07/2014	N001	1000	U		#	1000	
Uranium	mg/L	11/07/2014	0001	0.025			#	0.0000029	
Vanadium	mg/L	11/07/2014	0001	0.0021			#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0396 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	136			#		
Calcium	mg/L	11/06/2014	N001	64			#	0.024	
Chloride	mg/L	11/06/2014	N001	160			#	2	
Magnesium	mg/L	11/06/2014	N001	13			#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	6			#		
pH	s.u.	11/06/2014	N001	8.5			#		
Potassium	mg/L	11/06/2014	N001	2.9			#	0.052	
Selenium	mg/L	11/06/2014	N001	0.0005			#	0.000032	
Sodium	mg/L	11/06/2014	N001	97			#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	958			#		
Sulfate	mg/L	11/06/2014	N001	100			#	5	
Temperature	C	11/06/2014	N001	9.34			#		
Turbidity	NTU	11/06/2014	N001	2.48			#		
Uranium	mg/L	11/06/2014	N001	0.0022			#	0.0000029	
Vanadium	mg/L	11/06/2014	N001	0.00068		U	#	0.000015	

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

REPORT DATE: 1/8/2015

Location: 0398 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/07/2014	N001	236			#		
Calcium	mg/L	11/07/2014	N001	110			#	0.024	
Chloride	mg/L	11/07/2014	N001	110			#	2	
Magnesium	mg/L	11/07/2014	N001	40			#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/07/2014	N001	0.3			#	0.01	
Oxidation Reduction Potential	mV	11/07/2014	N001	130.6			#		
pH	s.u.	11/07/2014	N001	8.02			#		
Potassium	mg/L	11/07/2014	N001	3			#	0.052	
Selenium	mg/L	11/07/2014	N001	0.0018			#	0.00016	
Sodium	mg/L	11/07/2014	N001	110			#	0.047	
Specific Conductance	umhos/cm	11/07/2014	N001	1323			#		
Sulfate	mg/L	11/07/2014	N001	290			#	5	
Temperature	C	11/07/2014	N001	9.76			#		
Turbidity	NTU	11/07/2014	N001	2.2			#		
Uranium	mg/L	11/07/2014	N001	0.013			#	0.000015	
Vanadium	mg/L	11/07/2014	N001	0.003		U	#	0.000076	

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

REPORT DATE: 1/8/2015

Location: 0741 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO ₃)	mg/L	11/06/2014	N001	120			#		
Calcium	mg/L	11/06/2014	N001	65			#	0.024	
Chloride	mg/L	11/06/2014	N001	160			#	2	
Magnesium	mg/L	11/06/2014	N001	13			#	0.03	
Nitrate + Nitrite as Nitrogen	mg/L	11/06/2014	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	11/06/2014	N001	14			#		
pH	s.u.	11/06/2014	N001	8.49			#		
Potassium	mg/L	11/06/2014	N001	3			#	0.052	
Selenium	mg/L	11/06/2014	N001	0.00052			#	0.000032	
Sodium	mg/L	11/06/2014	N001	99			#	0.047	
Specific Conductance	umhos/cm	11/06/2014	N001	927			#		
Sulfate	mg/L	11/06/2014	N001	99			#	5	
Temperature	C	11/06/2014	N001	9.44			#		
Turbidity	NTU	11/06/2014	N001	2.77			#		
Uranium	mg/L	11/06/2014	N001	0.0021			#	0.0000029	
Vanadium	mg/L	11/06/2014	N001	0.00062		U	#	0.000015	

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- | | | | | | |
|---|--|---|---|---|------------------|
| F | Low flow sampling method used. | 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: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)

RIN: 14106568

Report Date: 1/8/2015

Parameter	Site Code	Location ID	Sample		Units	Result	Qualifiers		Detection Limit	Uncertainty	Sample Type
			Date	ID			Lab	Data			
Ammonia Total as N	RFN01	0999	11/12/2014	N001	mg/L	0.1	U		0.1		E
Arsenic	RFN01	0999	11/12/2014	N001	mg/L	0.000015	U		0.000015		E
Calcium	RFN01	0999	11/12/2014	N001	mg/L	0.96	B		0.012		E
Chloride	RFN01	0999	11/12/2014	N001	mg/L	0.2	U		0.2		E
Magnesium	RFN01	0999	11/12/2014	N001	mg/L	0.046	B	U	0.013		E
Molybdenum	RFN01	0999	11/12/2014	N001	mg/L	0.000032	U		0.000032		E
Nitrate + Nitrite as Nitrogen	RFN01	0999	11/12/2014	N001	mg/L	0.01	U		0.01		E
Potassium	RFN01	0999	11/12/2014	N001	mg/L	0.11	U		0.11		E
Selenium	RFN01	0999	11/12/2014	N001	mg/L	0.000045	B		0.000032		E
Sodium	RFN01	0999	11/12/2014	N001	mg/L	0.1	B	U	0.0066		E
Sulfate	RFN01	0999	11/12/2014	N001	mg/L	0.6			0.5		E
Uranium	RFN01	0999	11/12/2014	N001	mg/L	0.000025		U	0.000029		E
Vanadium	RFN01	0999	11/12/2014	N001	mg/L	0.000036	B	U	0.000015		E

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.

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

DATA QUALIFIERS:

F	Low flow sampling method used.	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: 1/8/2015

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0169	U	5275.47	11/05/2014	11:25:55	9.14	5266.33	
0170	D	5332.97	11/10/2014	13:10:32	94.65	5238.32	
0172	D	5229.45	11/06/2014	16:00:27	16.27	5213.18	
0195	D	5253.10	11/06/2014	10:15:14	12.89	5240.21	
0201	D	5261.07	11/04/2014	09:20:01	13.21	5247.86	
0215	O	5271.42	11/05/2014	12:05:31	11.83	5259.59	
0216	O	5265.41	11/05/2014	12:45:59	7.41	5258.00	
0217	D	5256.98	11/04/2014	13:10:18	4.35	5252.63	
0590	D	5256.37	11/04/2014	10:05:38	6.75	5249.62	
0620	D	5231.22	11/06/2014	15:15:38	10.26	5220.96	
0658	O	5265.91	11/05/2014	14:35:00	7.14	5258.77	
0659	O	5261.33	11/04/2014	13:50:36	6.78	5254.55	
0664	O	5270.17	11/04/2014	15:45:19	13.42	5256.75	
0669	O	5266.56	11/04/2014	14:10:55	10.11	5256.45	
0670	O	5270.94	11/05/2014	13:10:01	13.06	5257.88	
0855	O	5267.24	11/05/2014	15:00:32	8.43	5258.81	

FLOW CODES: D DOWNGRADIENT O ONSITE U UPGRADIENT

STATIC WATER LEVELS (USEE700) FOR SITE RFO01, Rifle Old Processing Site
REPORT DATE: 1/8/2015

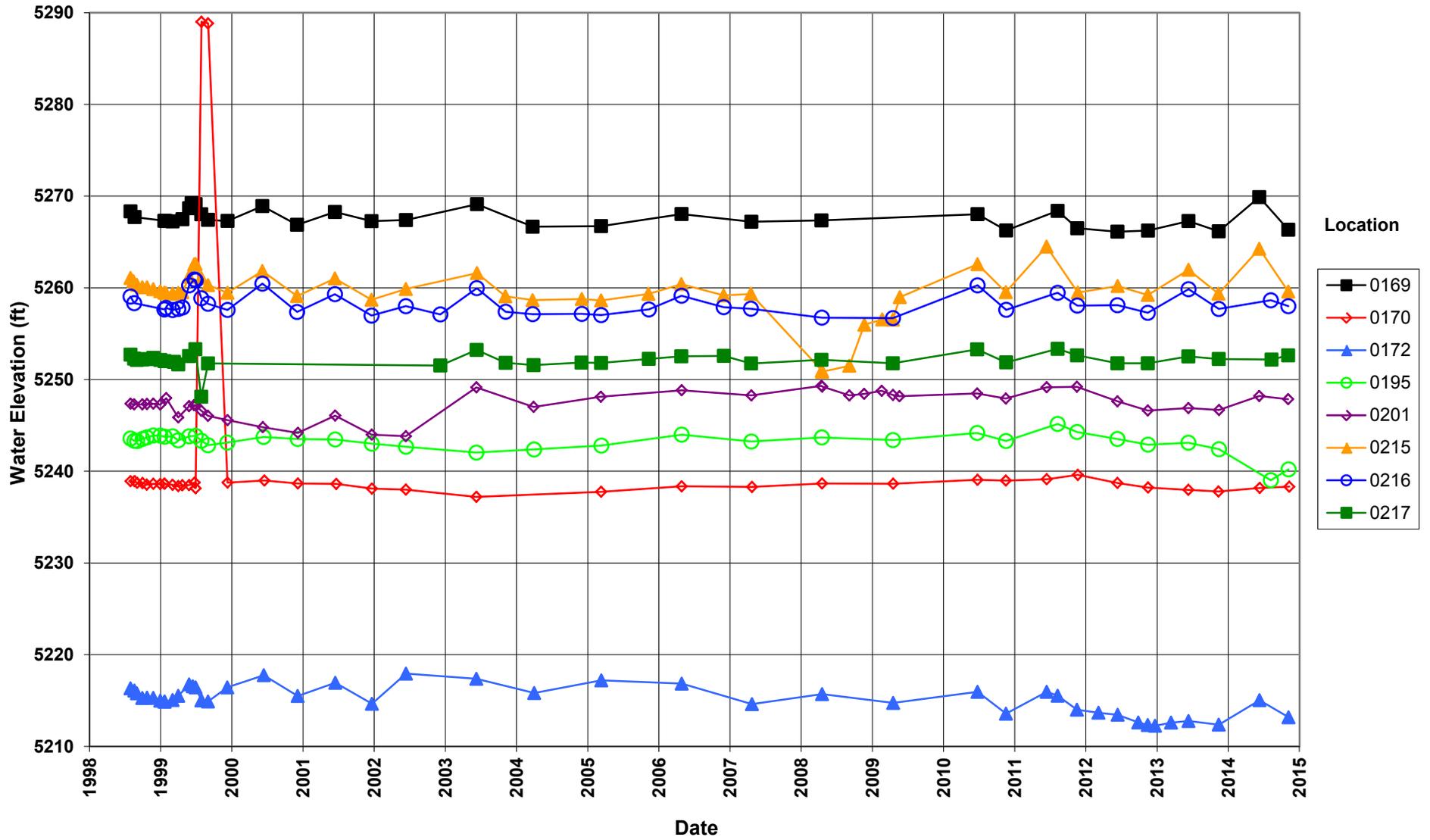
Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0292A		5323.08	11/06/2014	11:45:21	11.58	5311.50	
0304	O	5310.63	11/06/2014	14:35:25	11.01	5299.62	
0305	O	5312.08	11/07/2014	11:00:34	12.03	5300.05	
0309	O	5313.37	11/06/2014	13:15:04	15.50	5297.87	
0310	O	5311.64	11/06/2014	14:10:22	13.20	5298.44	
0655	O	5312.87	11/07/2014	10:35:54	13.13	5299.74	
0656	O	5313.28	11/07/2014	09:55:24	13.05	5300.23	
0658	U	5323.07	11/06/2014	11:10:48	7.39	5315.68	

FLOW CODES: O ONSITE U UPGRADIENT

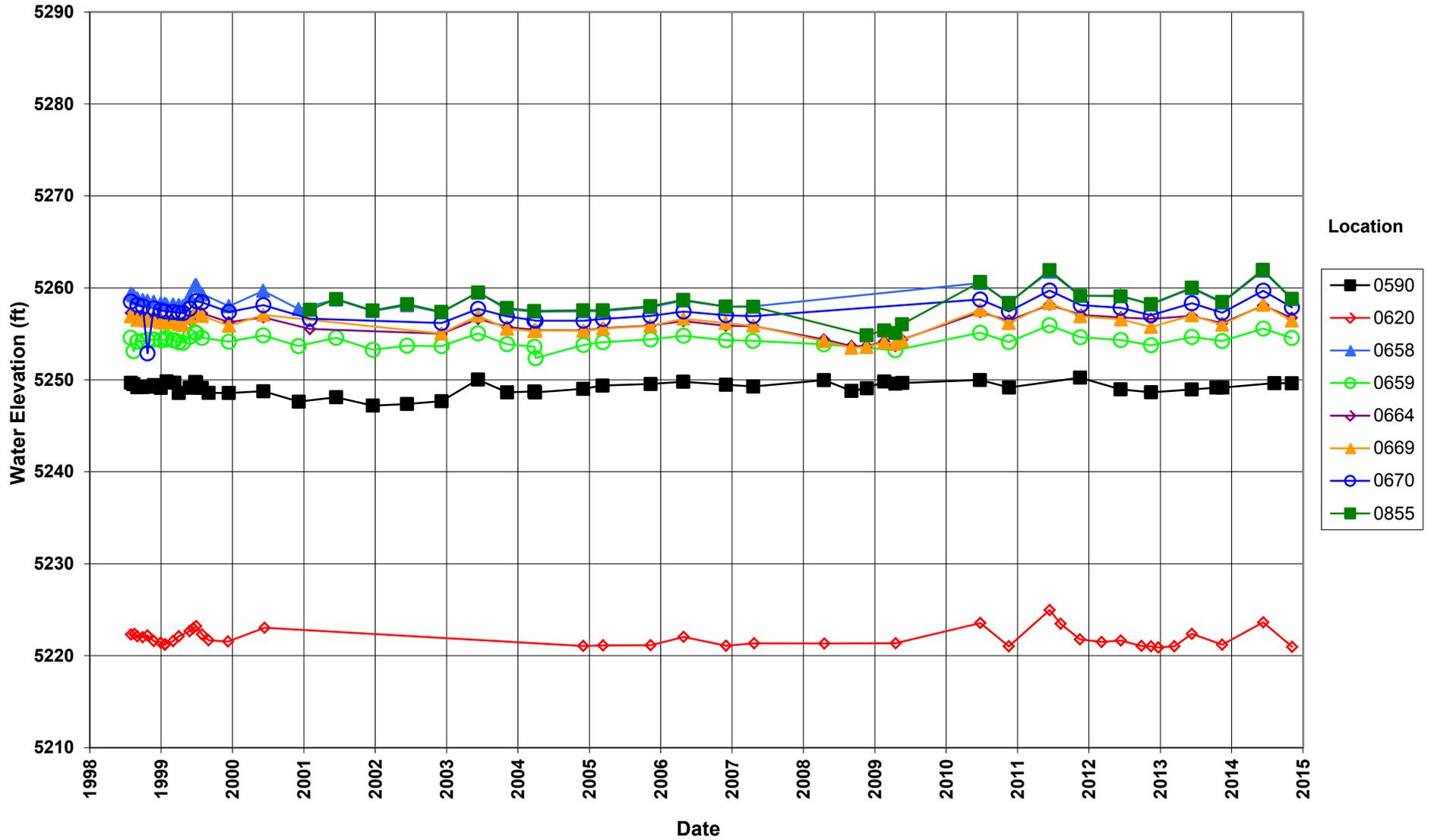
New Rifle Hydrographs

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Rifle New Processing Site Hydrograph



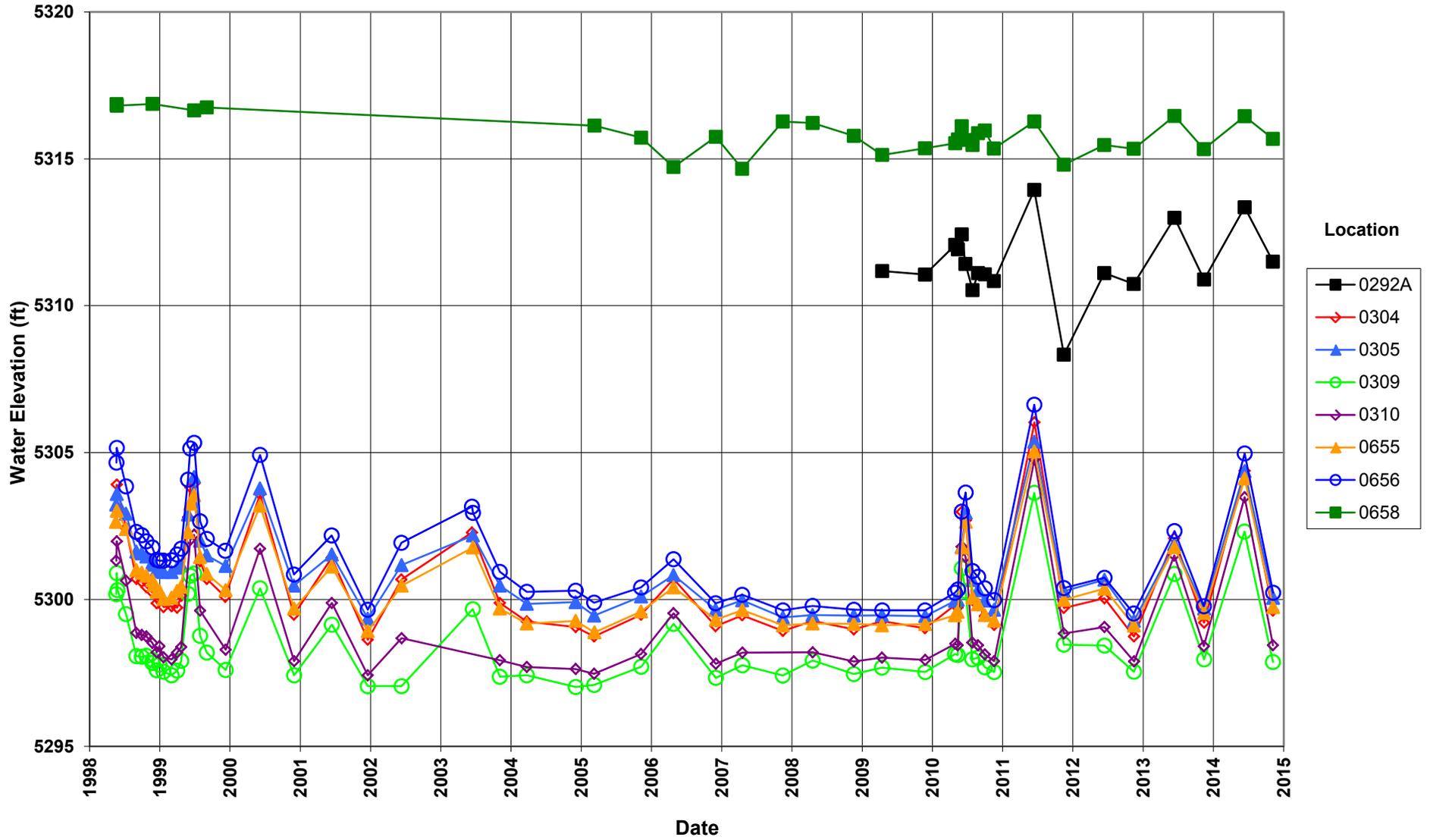
Rifle New Processing Site Hydrograph



Old Rifle Hydrograph

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Rifle Old Processing Site Hydrograph

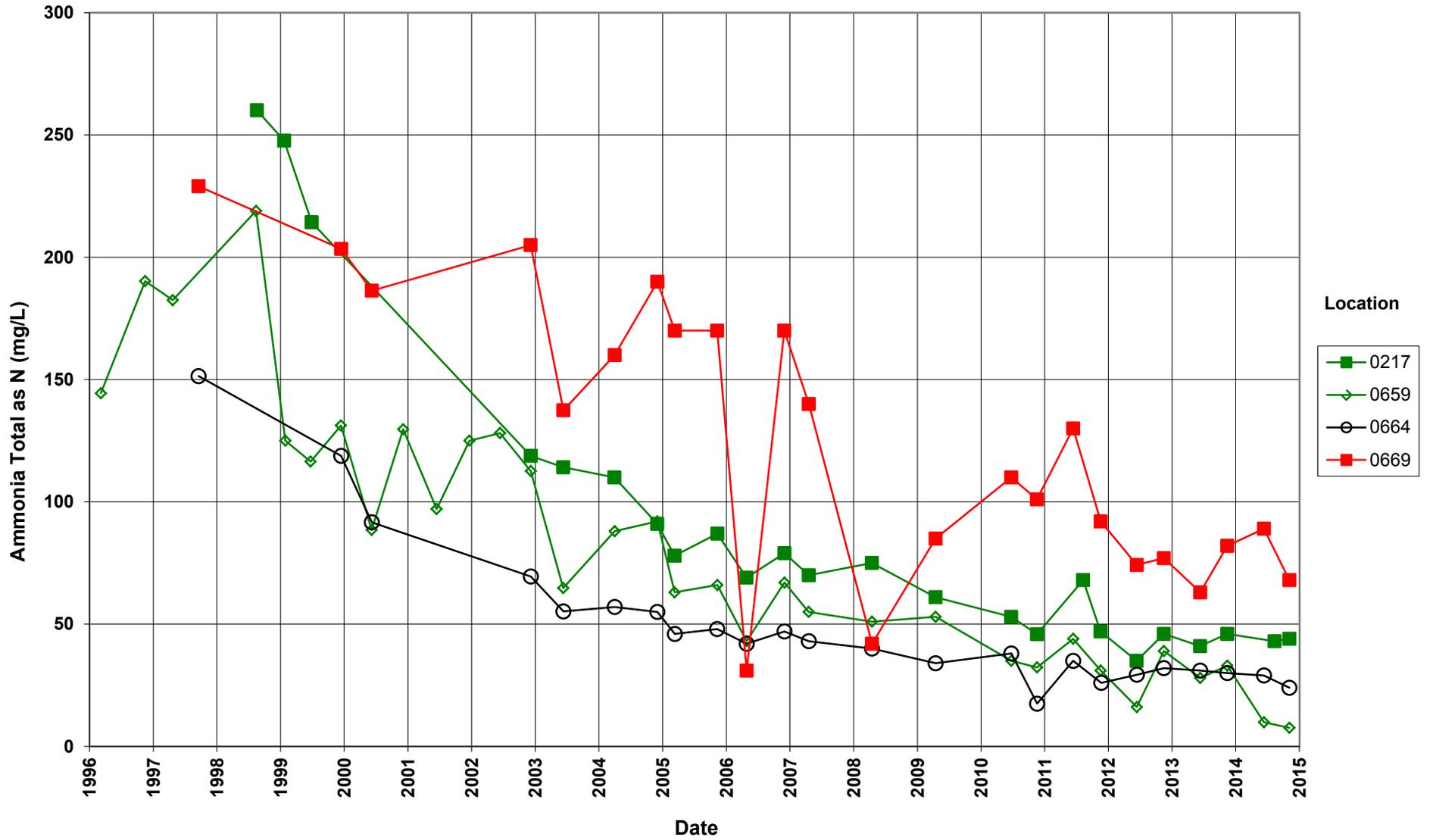


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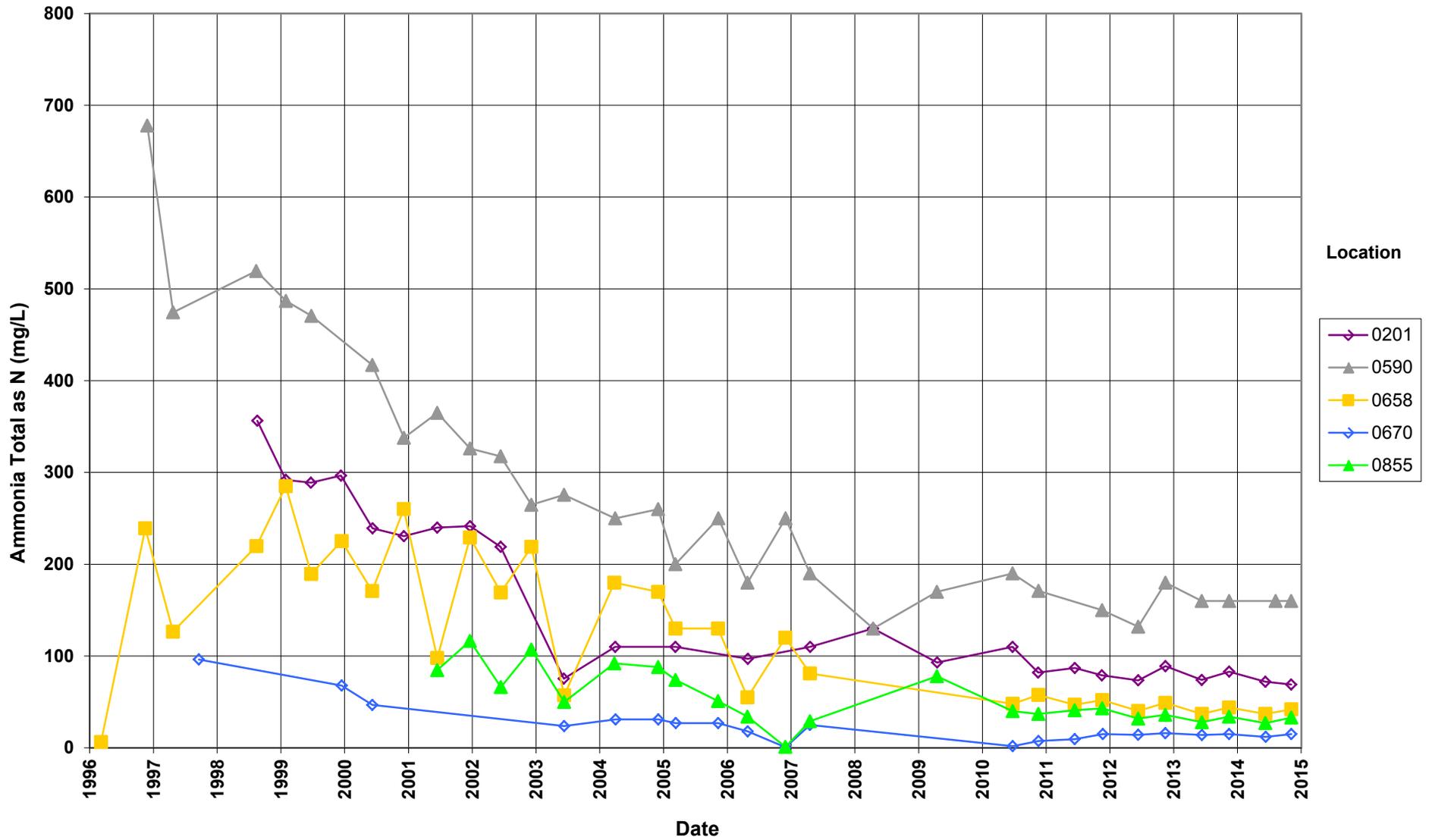
New Rifle Groundwater Time-Concentration Graphs

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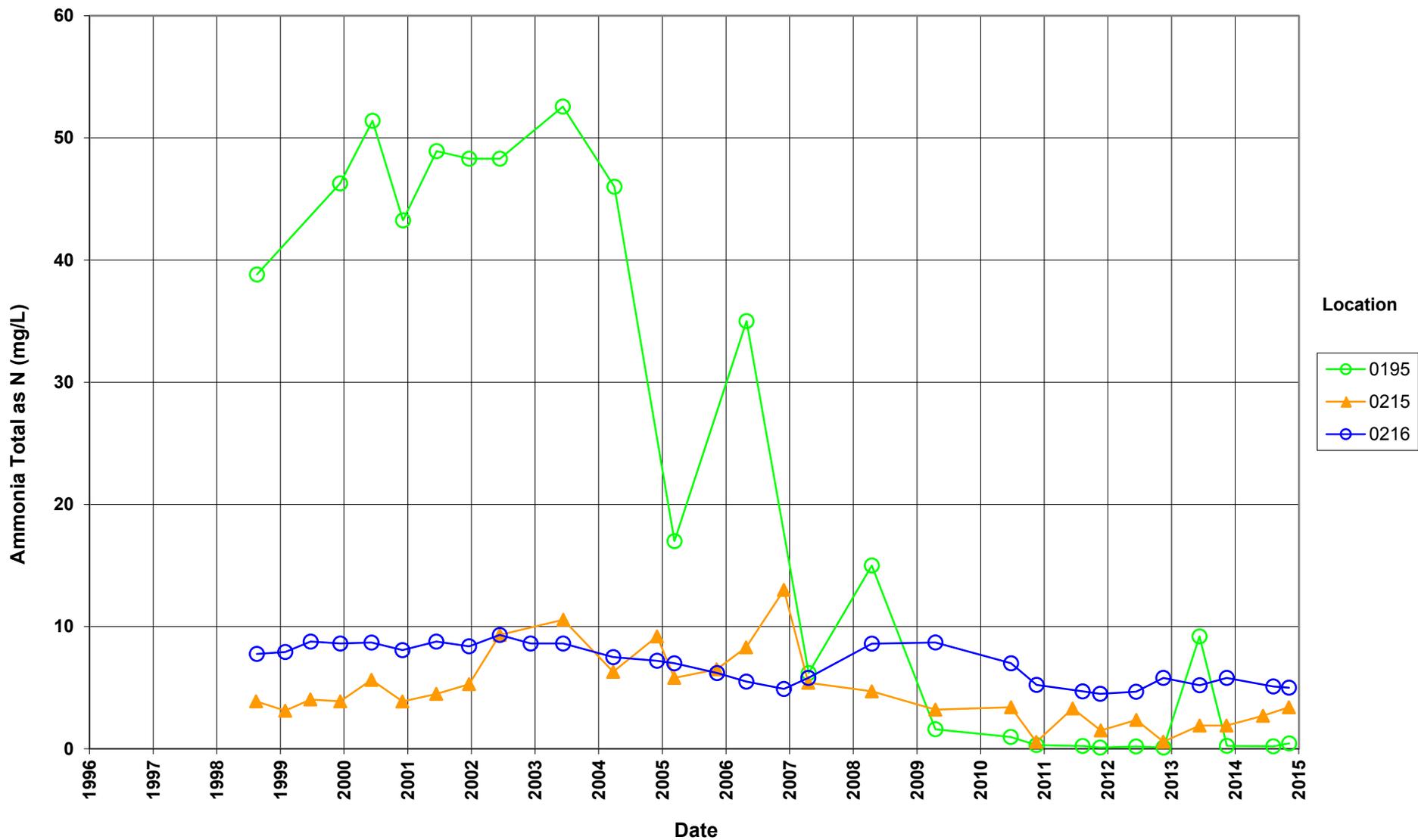
**Rifle New Processing Site
Ammonia Total as N Concentration
Point of Compliance Wells**



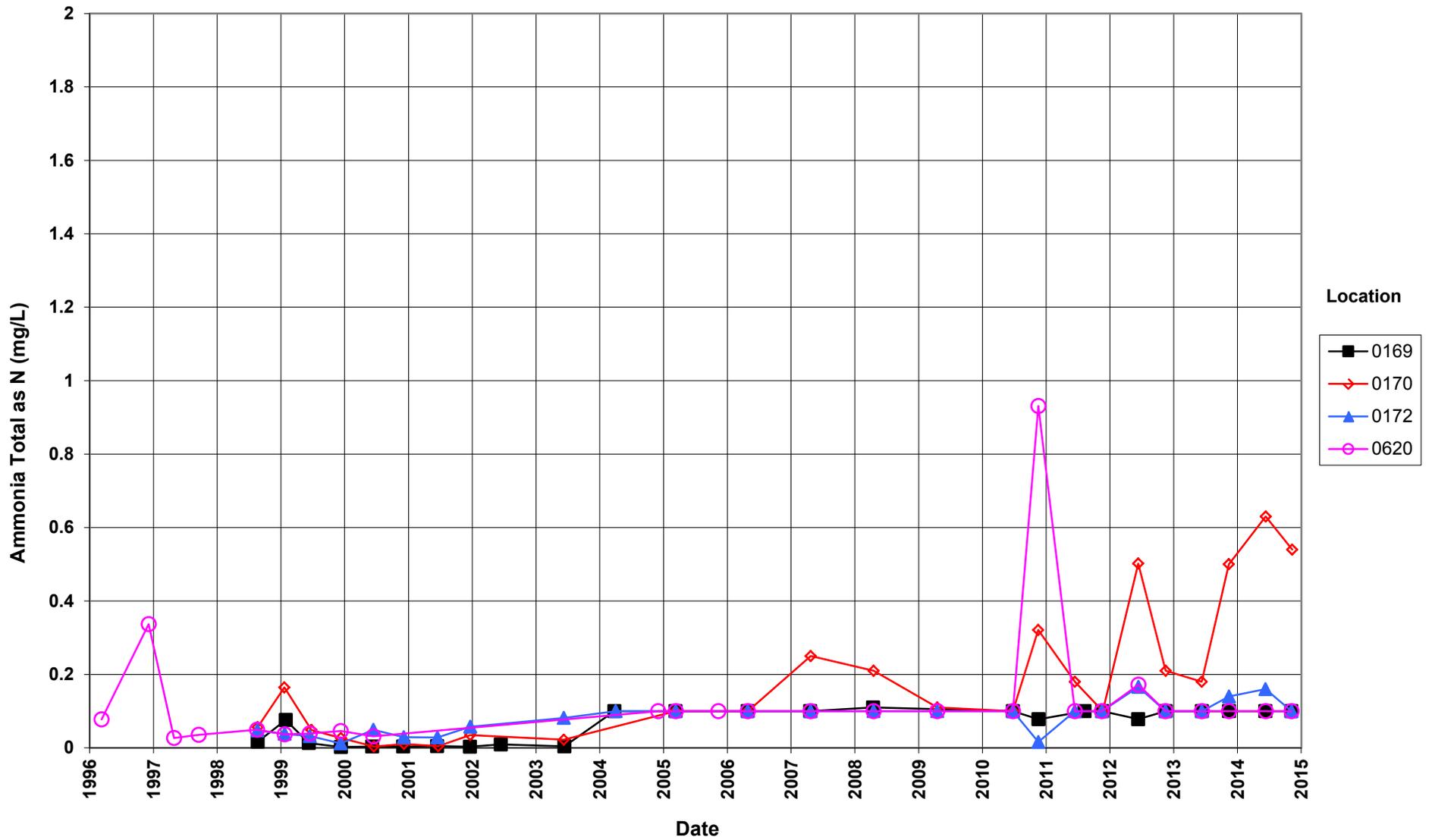
Rifle New Processing Site Ammonia Total as N Concentration



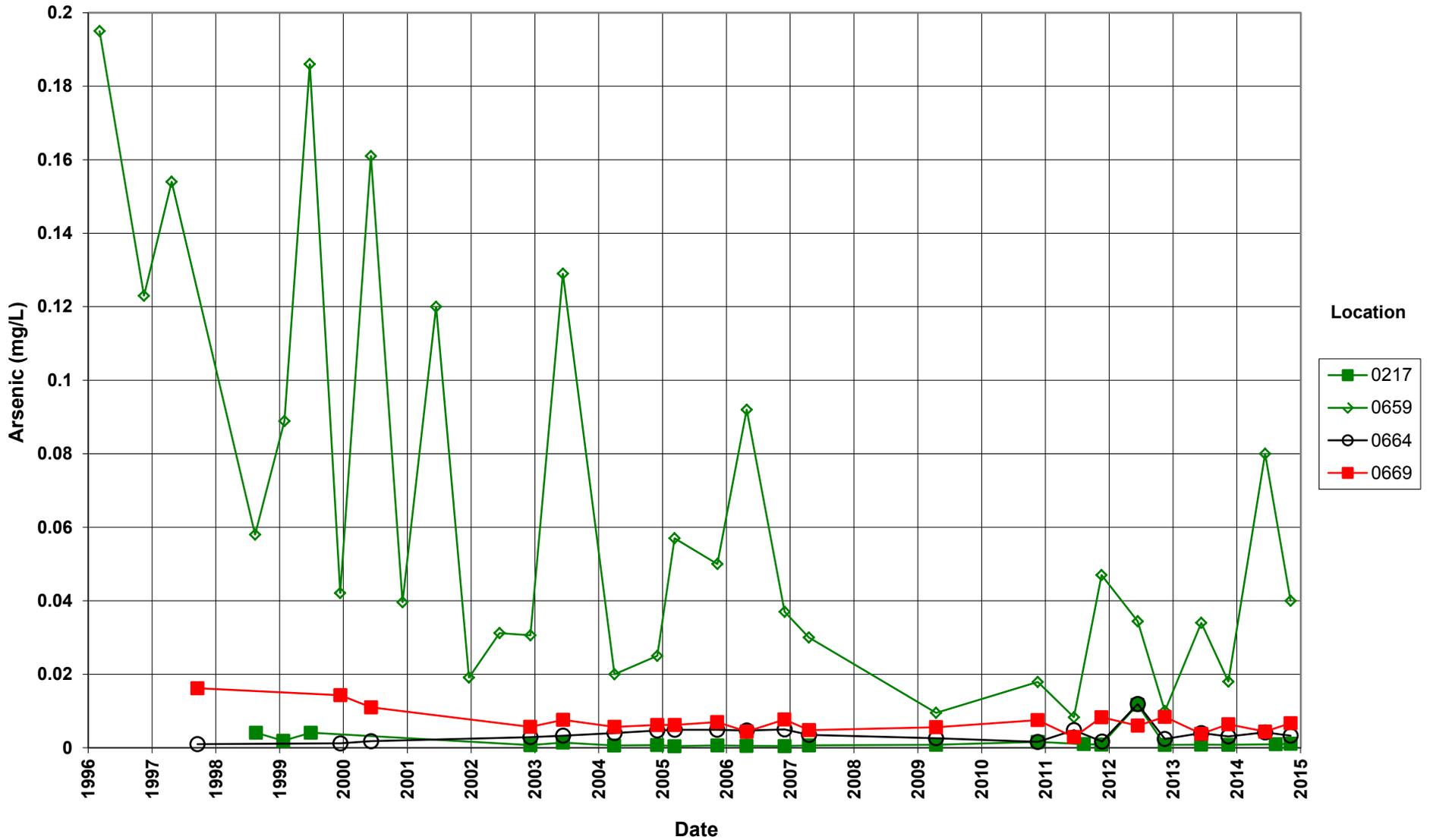
Rifle New Processing Site Ammonia Total as N Concentration



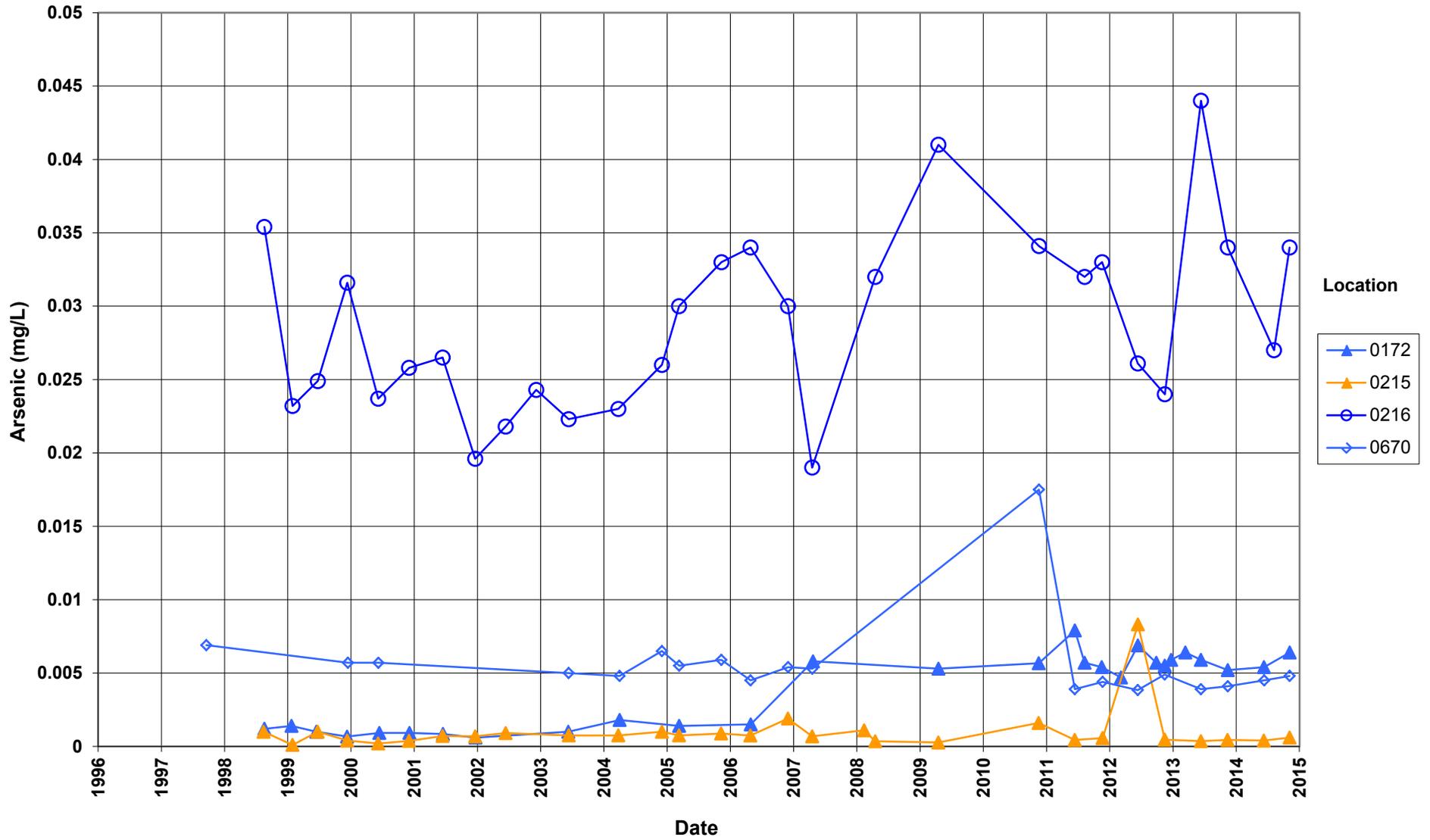
Rifle New Processing Site Ammonia Total as N Concentration



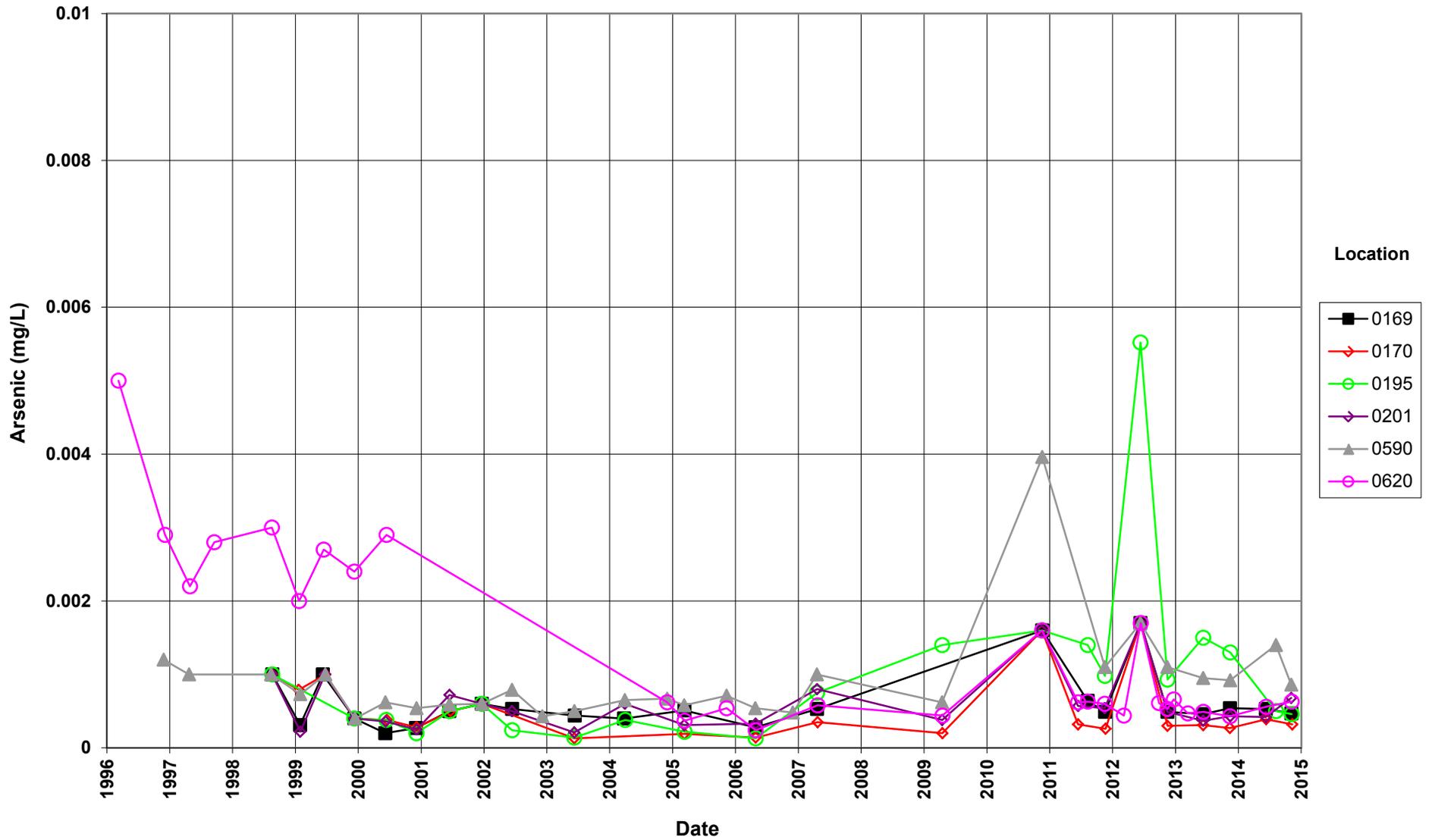
Rifle New Processing Site
Arsenic Concentration
Point of Compliance Wells
 Alternate Concentration Limit (ACL) = 5.8 mg/L



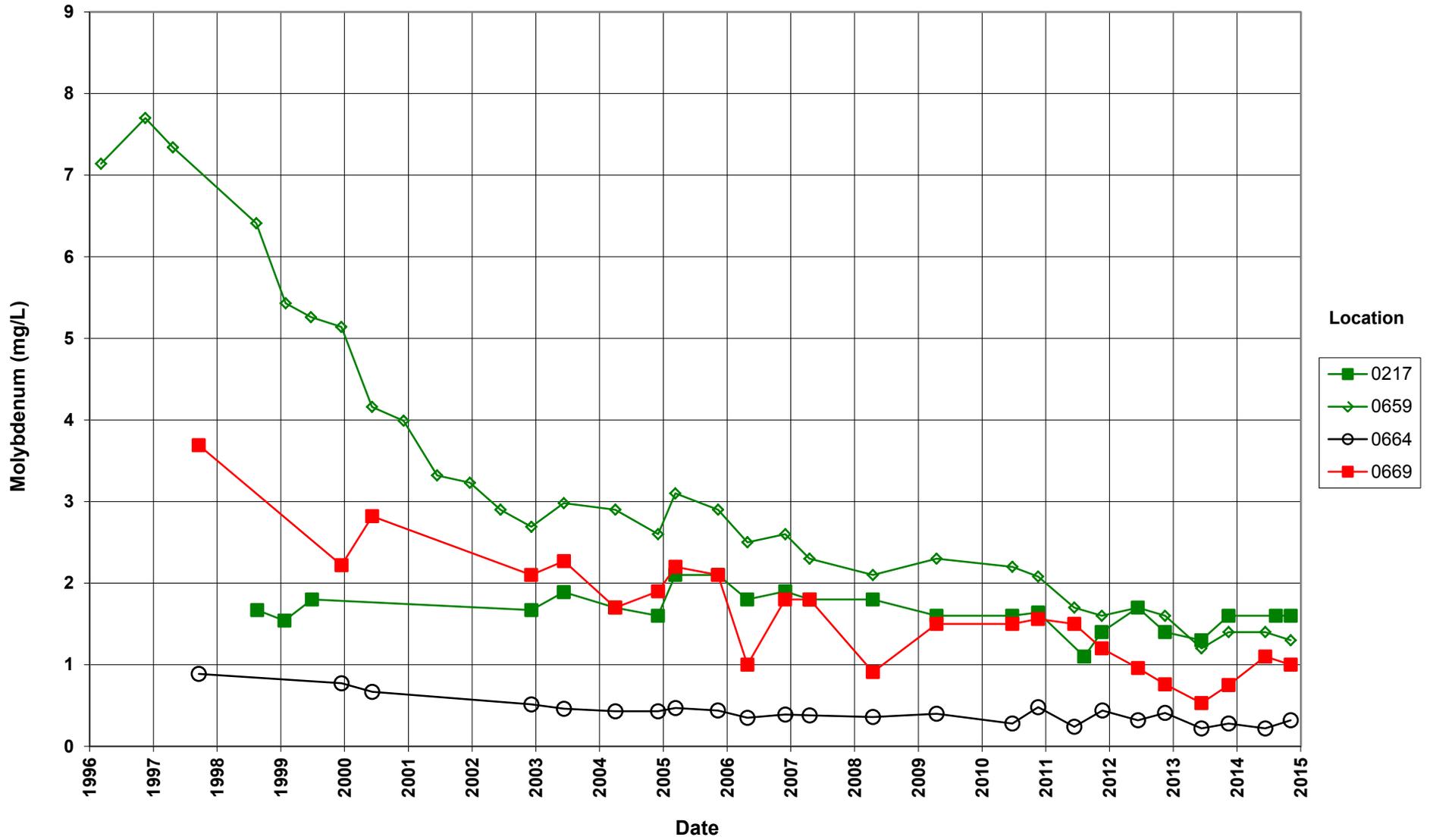
Rifle New Processing Site Arsenic Concentration



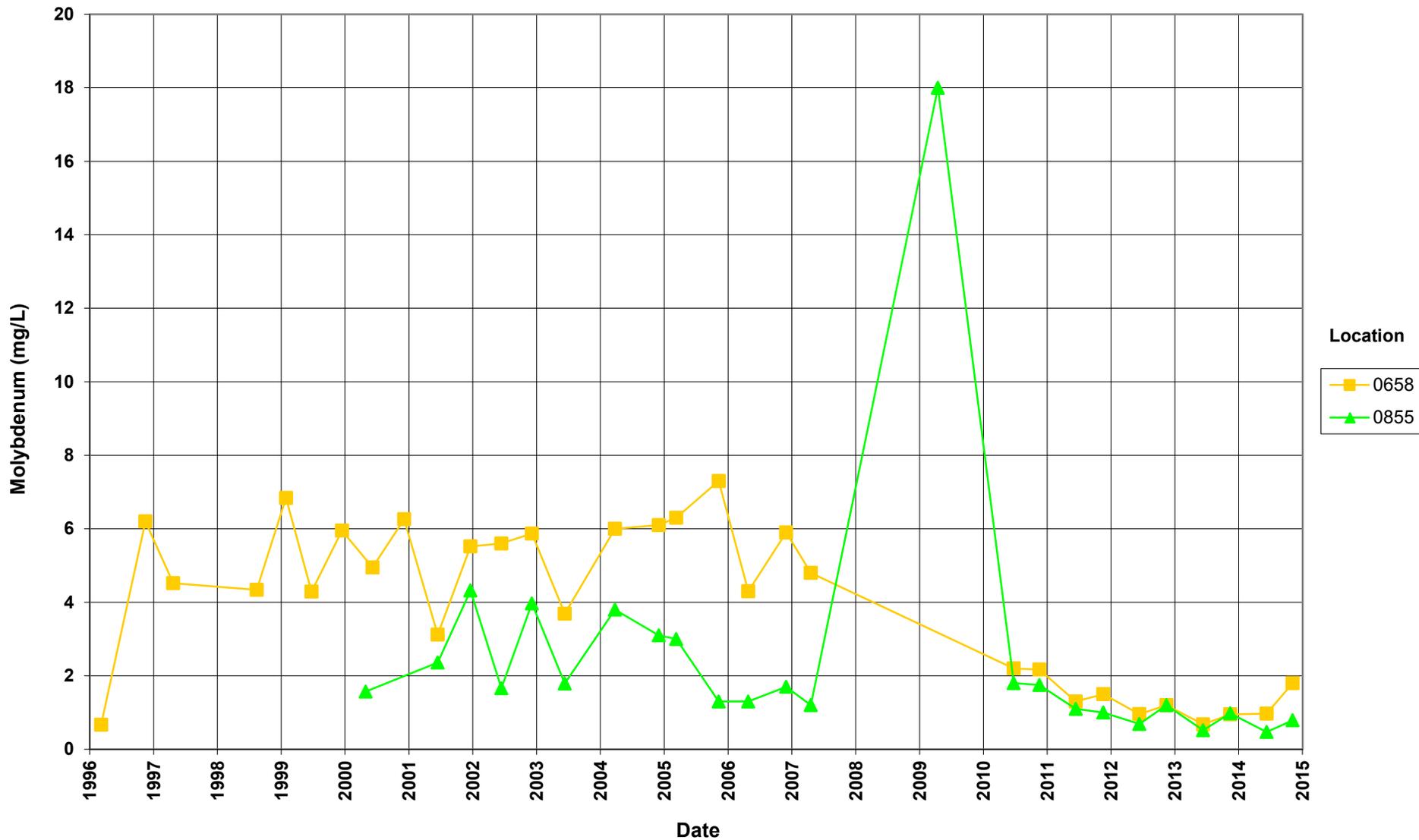
Rifle New Processing Site Arsenic Concentration



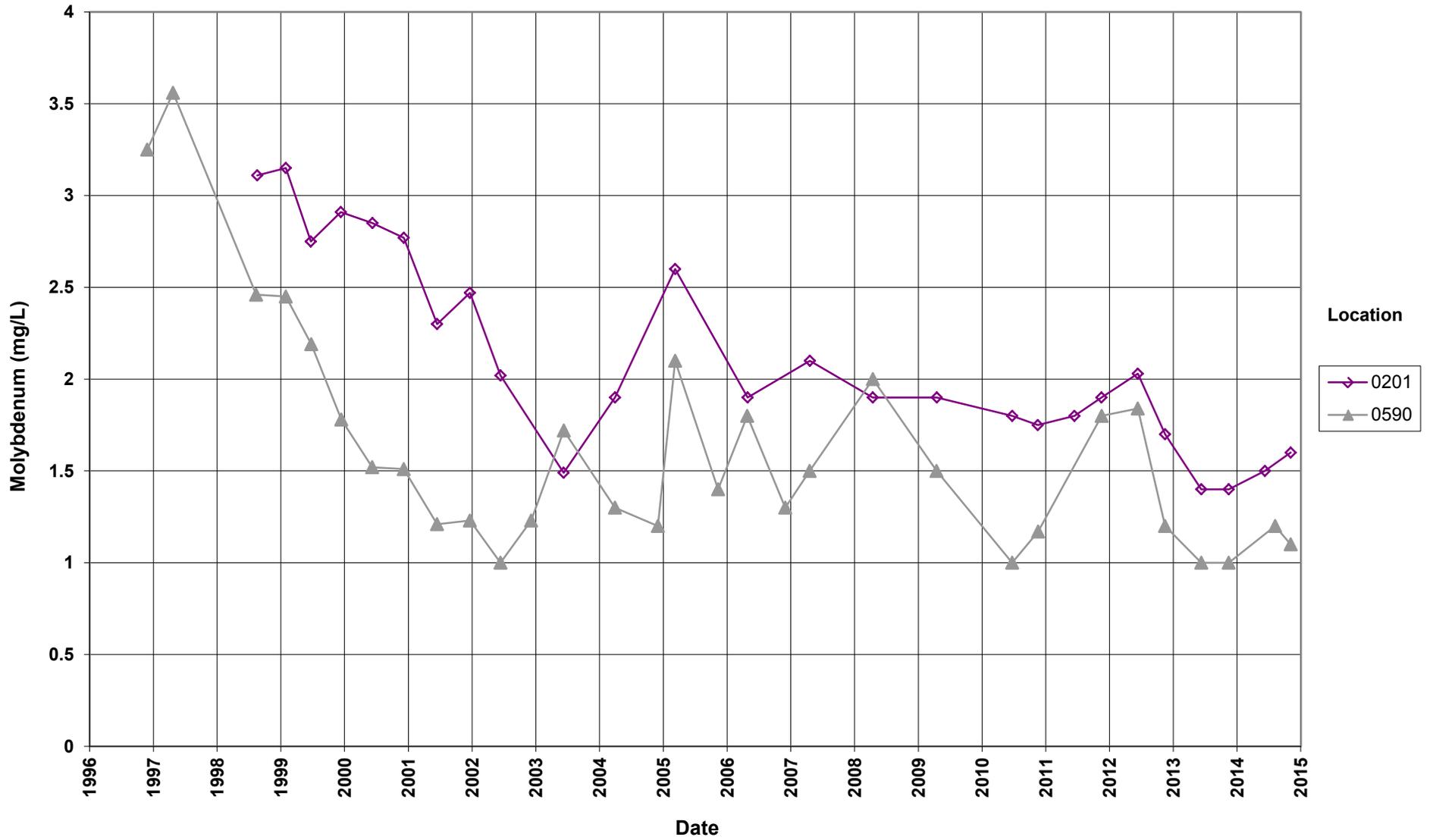
**Rifle New Processing Site
Molybdenum Concentration
Point of Compliance Wells**
Alternate Concentration Limit (ACL) = 96 mg/L



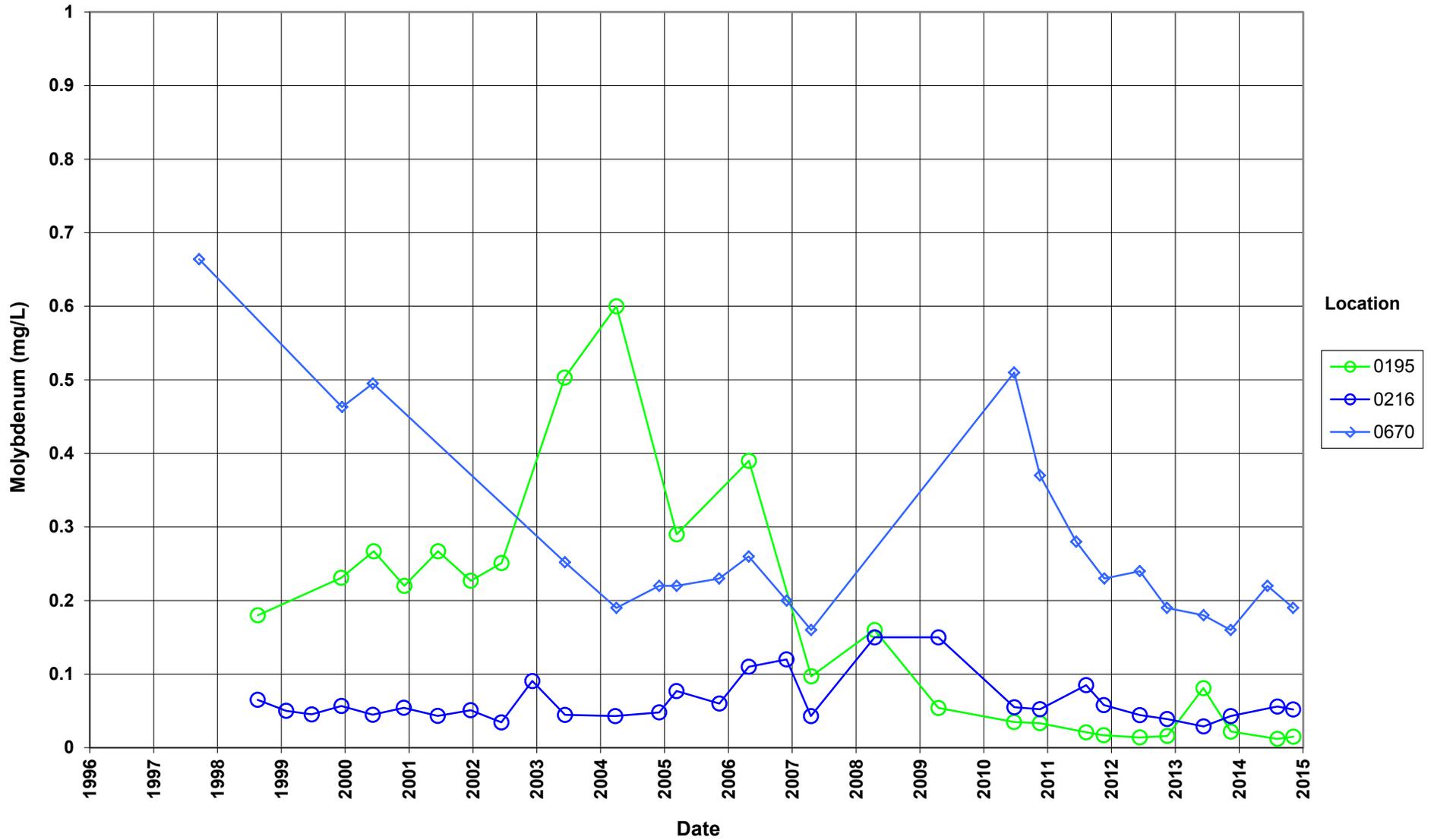
Rifle New Processing Site Molybdenum Concentration



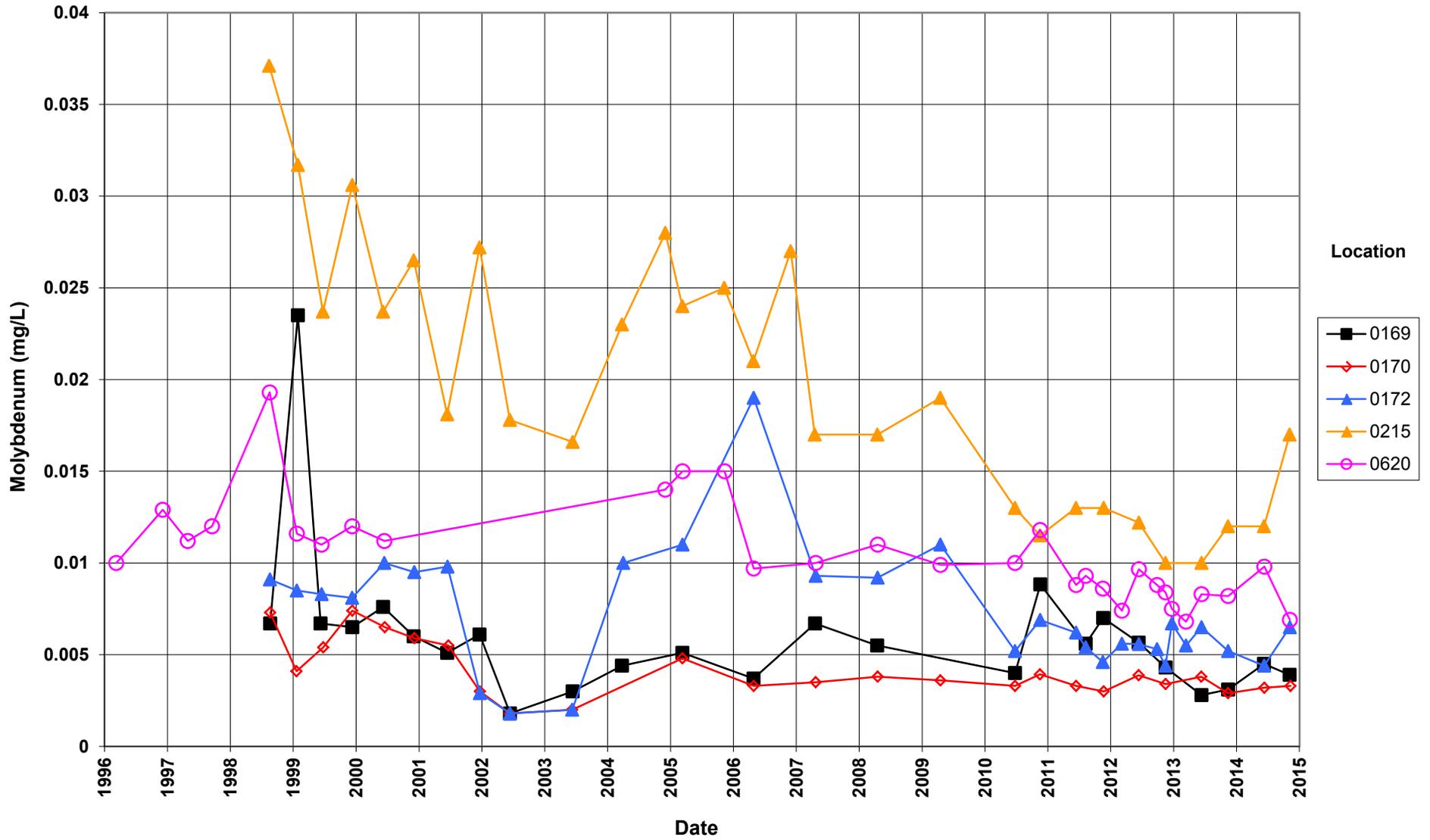
Rifle New Processing Site Molybdenum Concentration



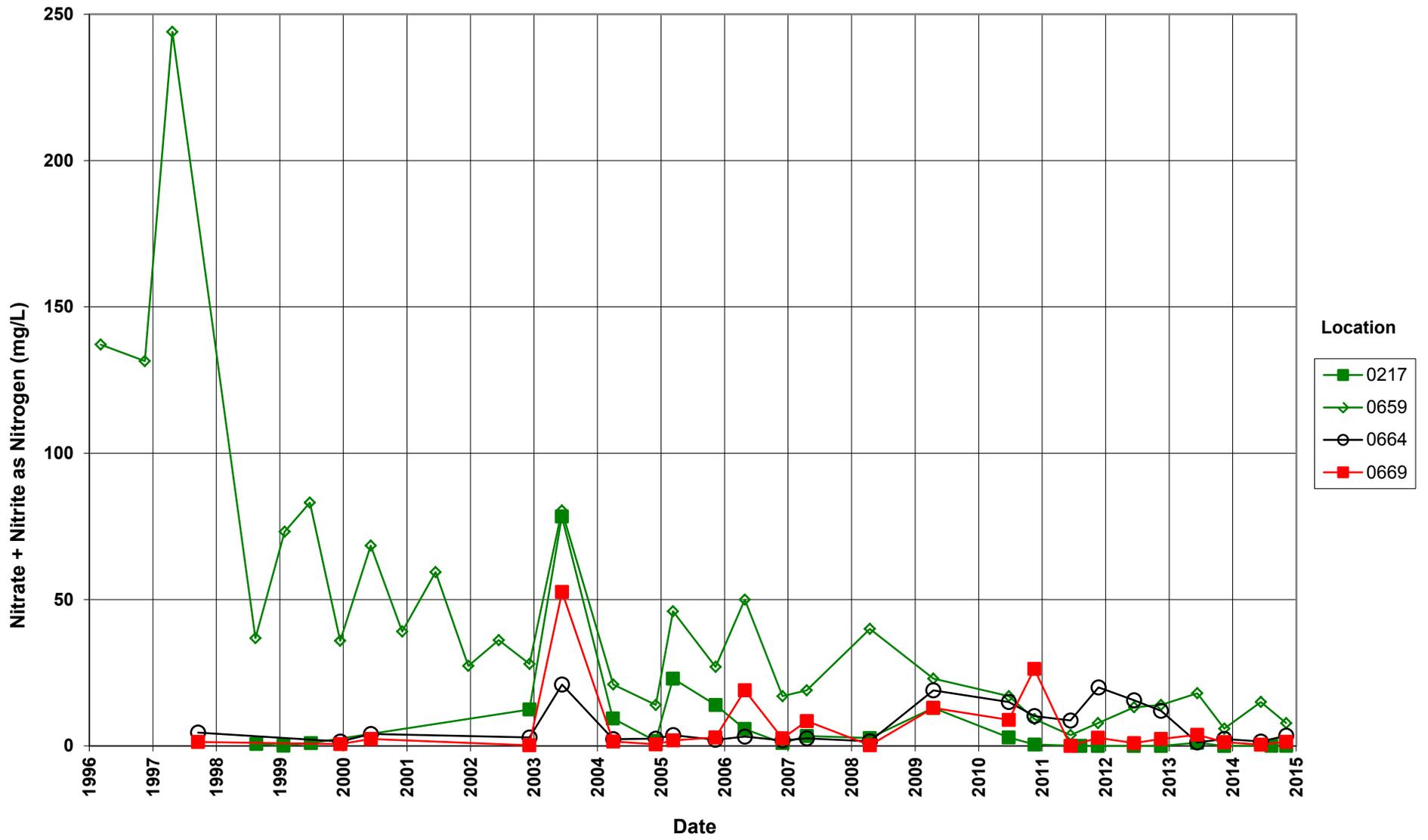
Rifle New Processing Site Molybdenum Concentration



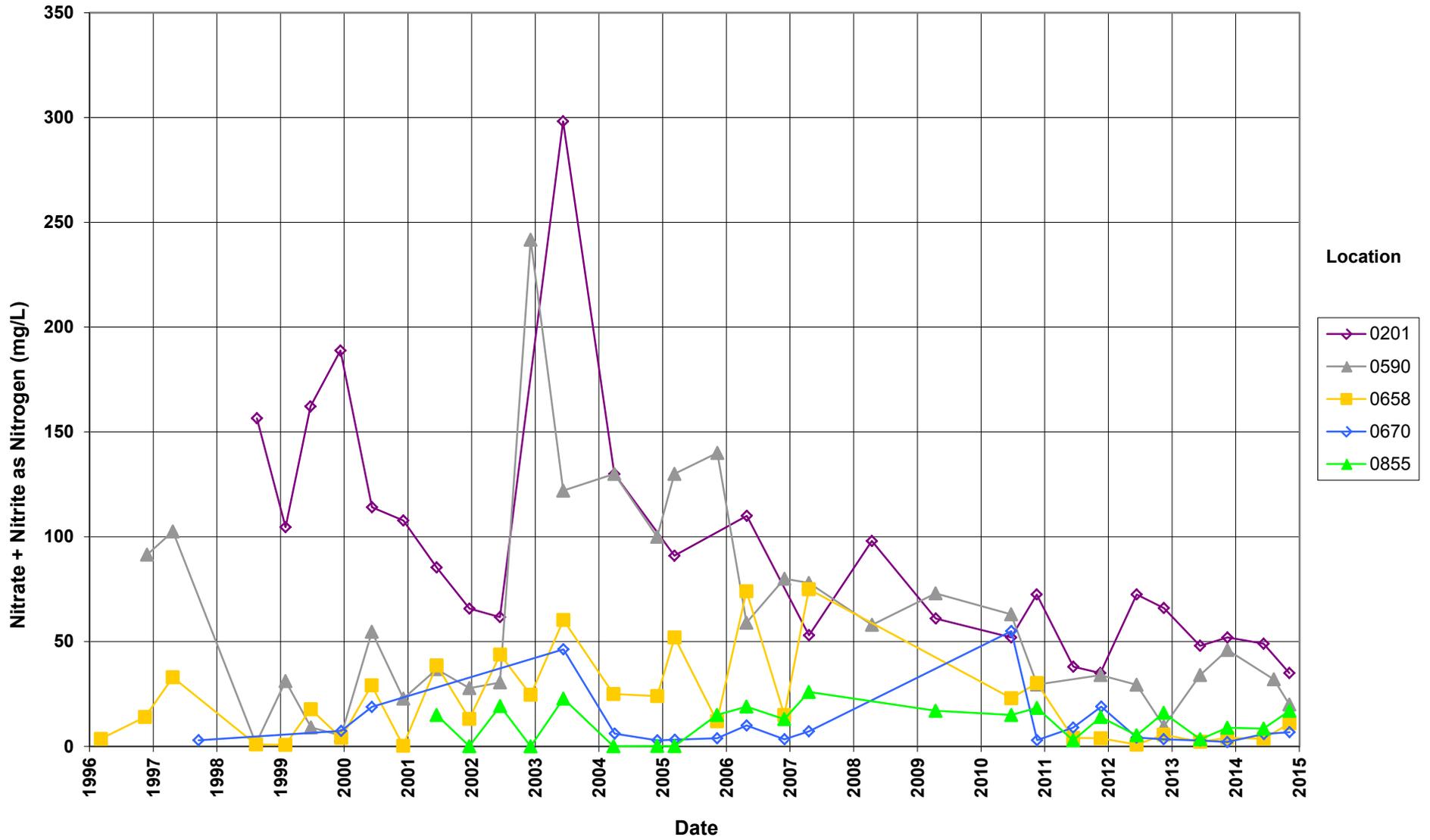
Rifle New Processing Site Molybdenum Concentration



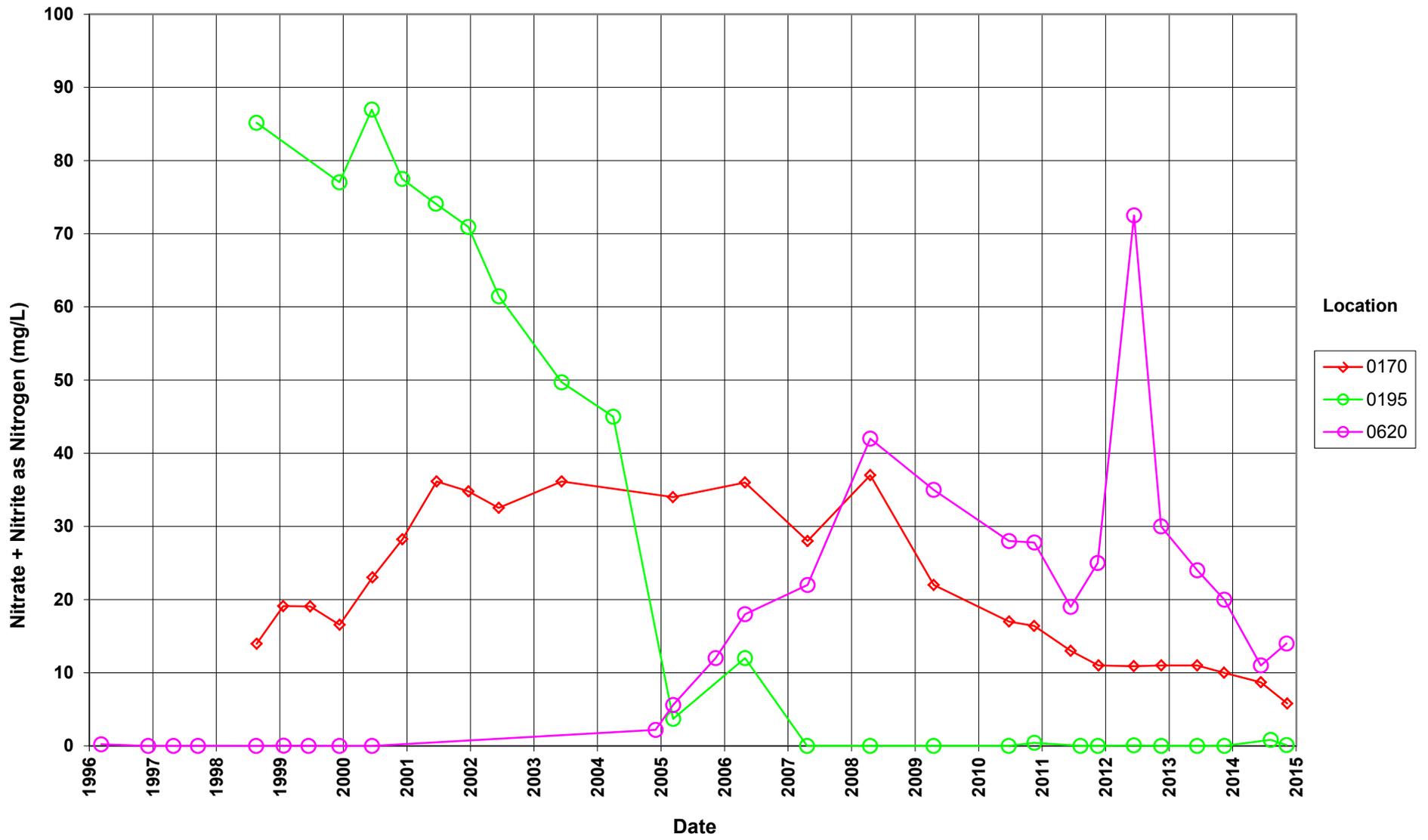
Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Point of Compliance Wells
 Alternate Concentration Limit (ACL) = 30,200 mg/L



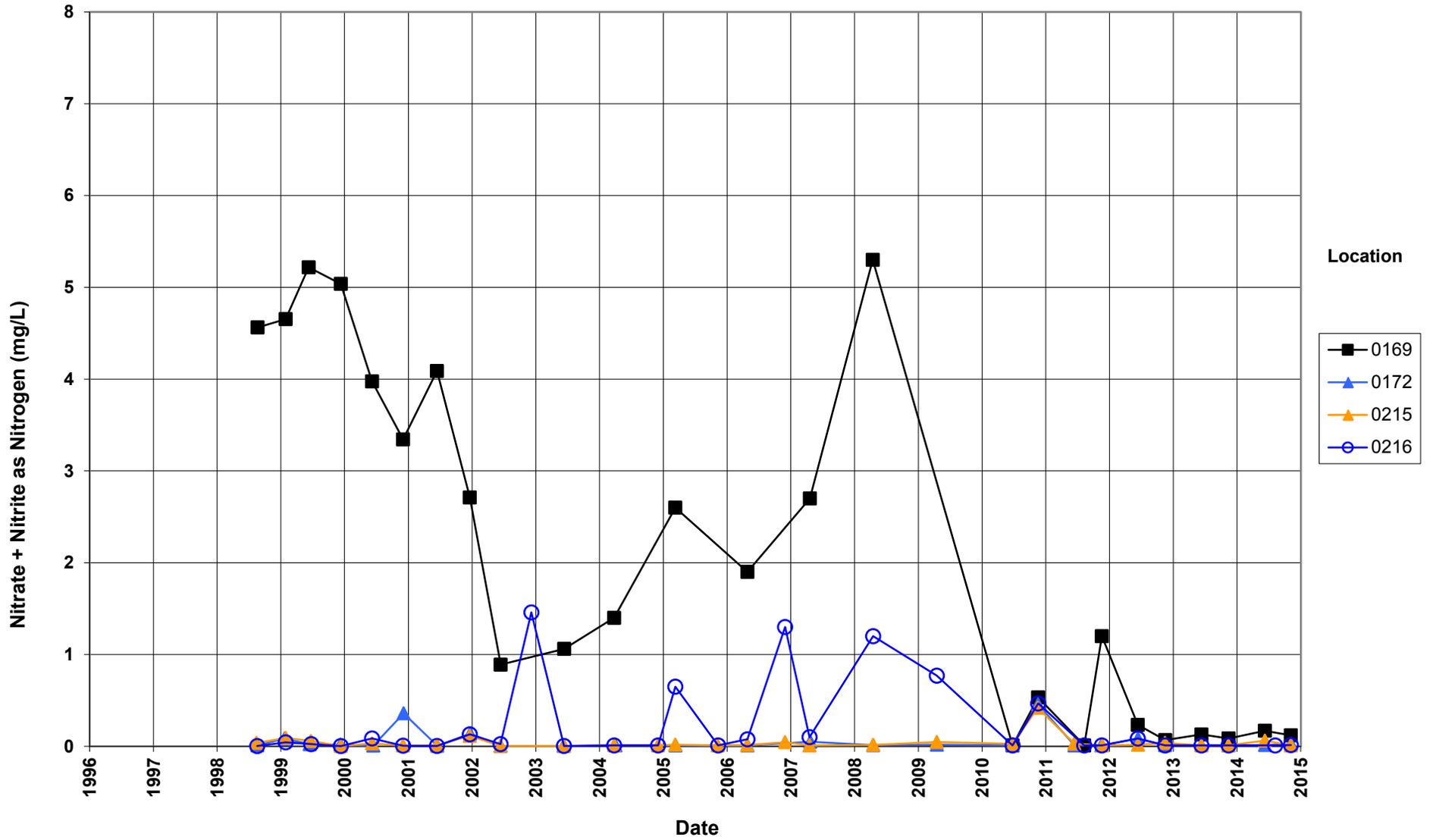
Rifle New Processing Site Nitrate + Nitrite as Nitrogen Concentration



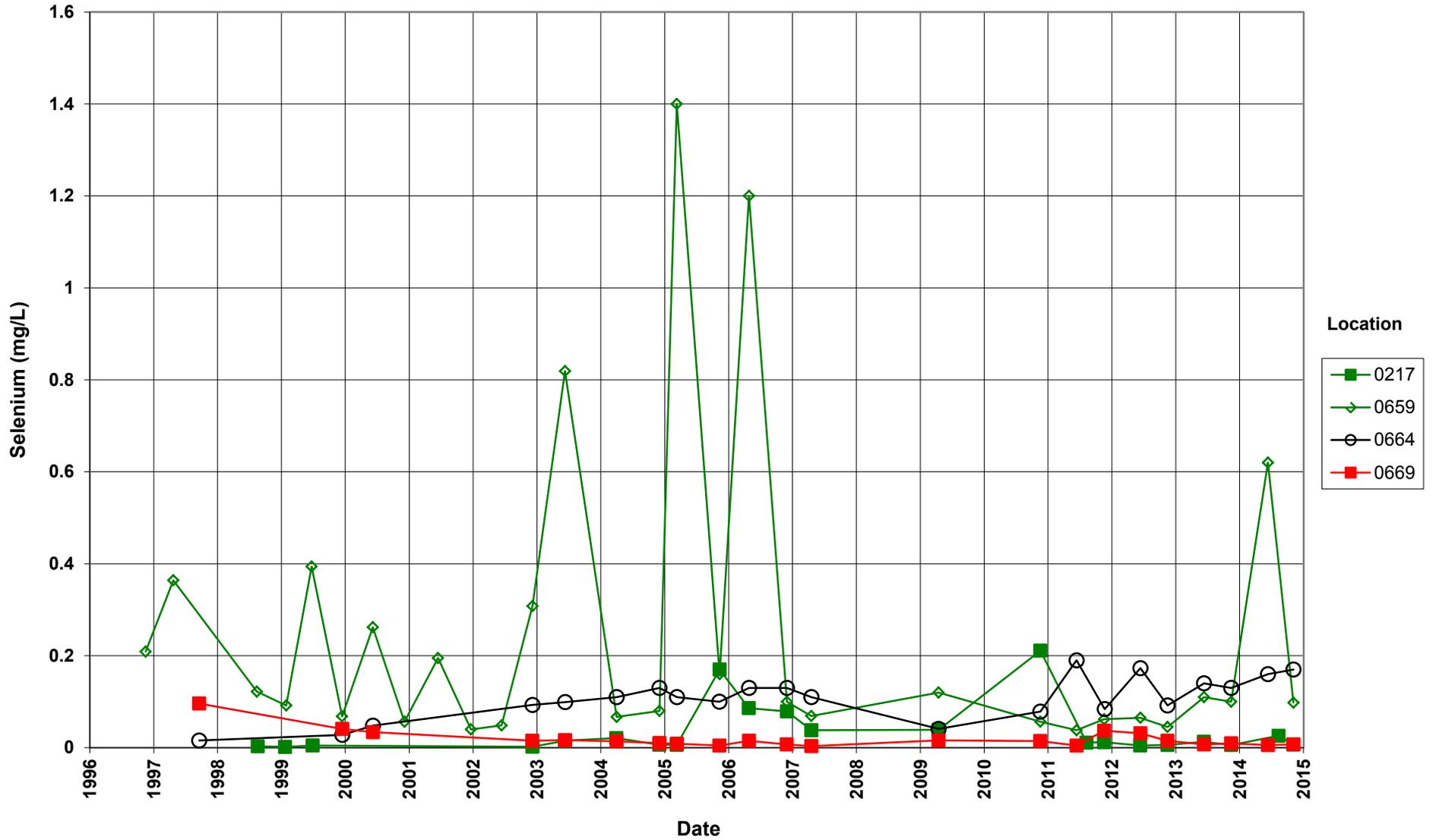
Rifle New Processing Site Nitrate + Nitrite as Nitrogen Concentration



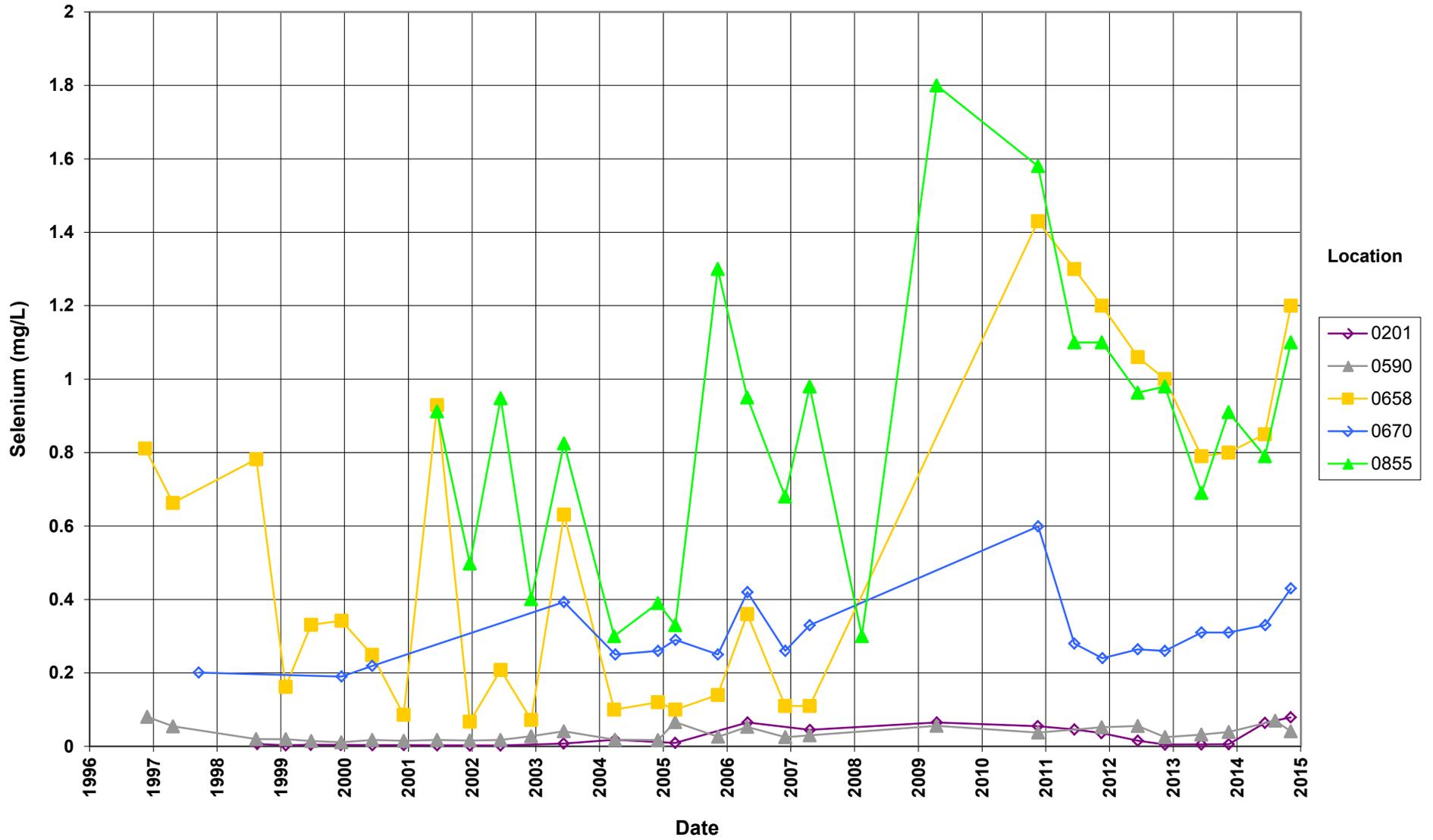
Rifle New Processing Site Nitrate + Nitrite as Nitrogen Concentration



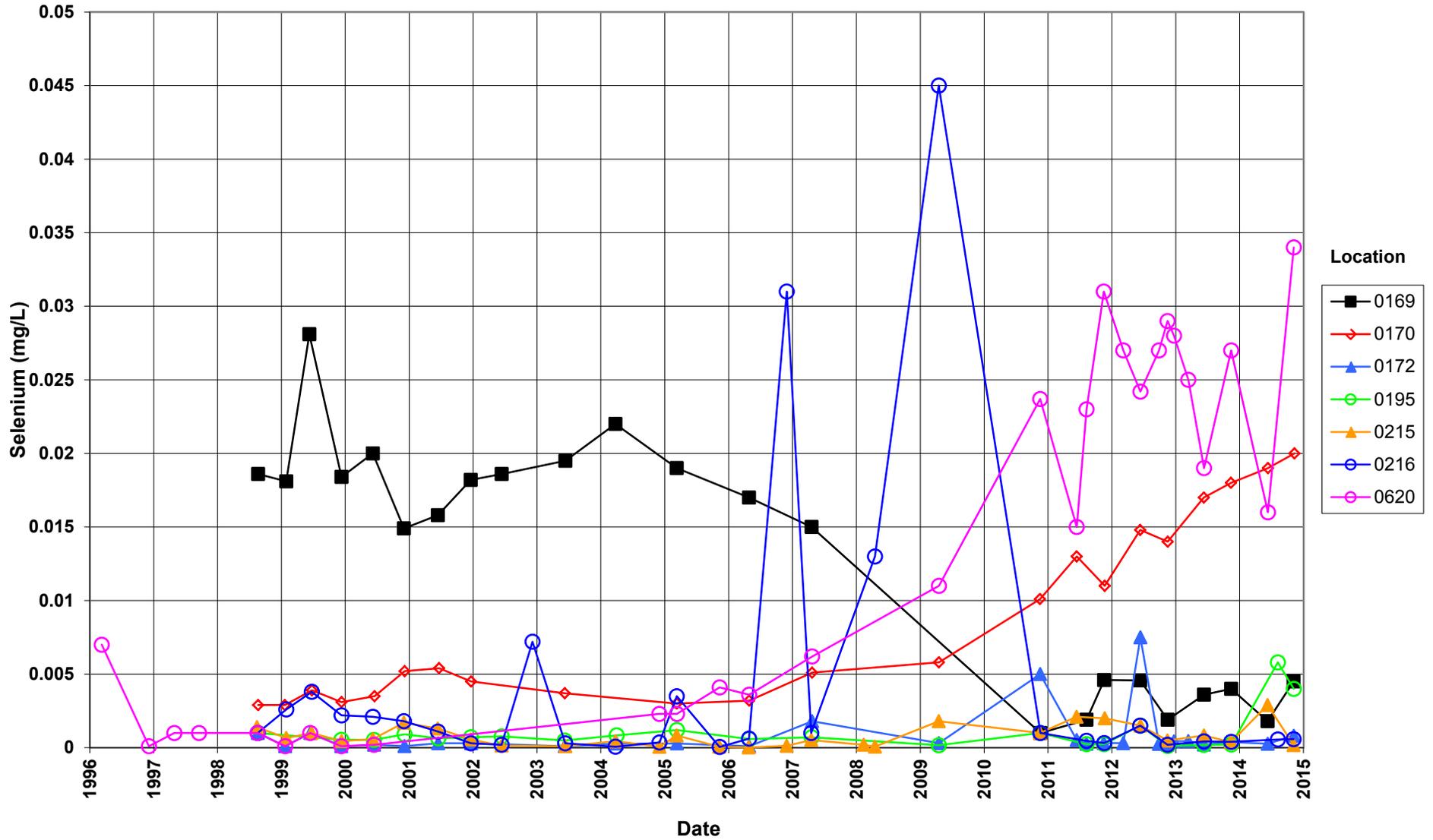
Rifle New Processing Site
Selenium Concentration
Point of Compliance Wells
 Alternate Concentration Limit (ACL) = 96 mg/L



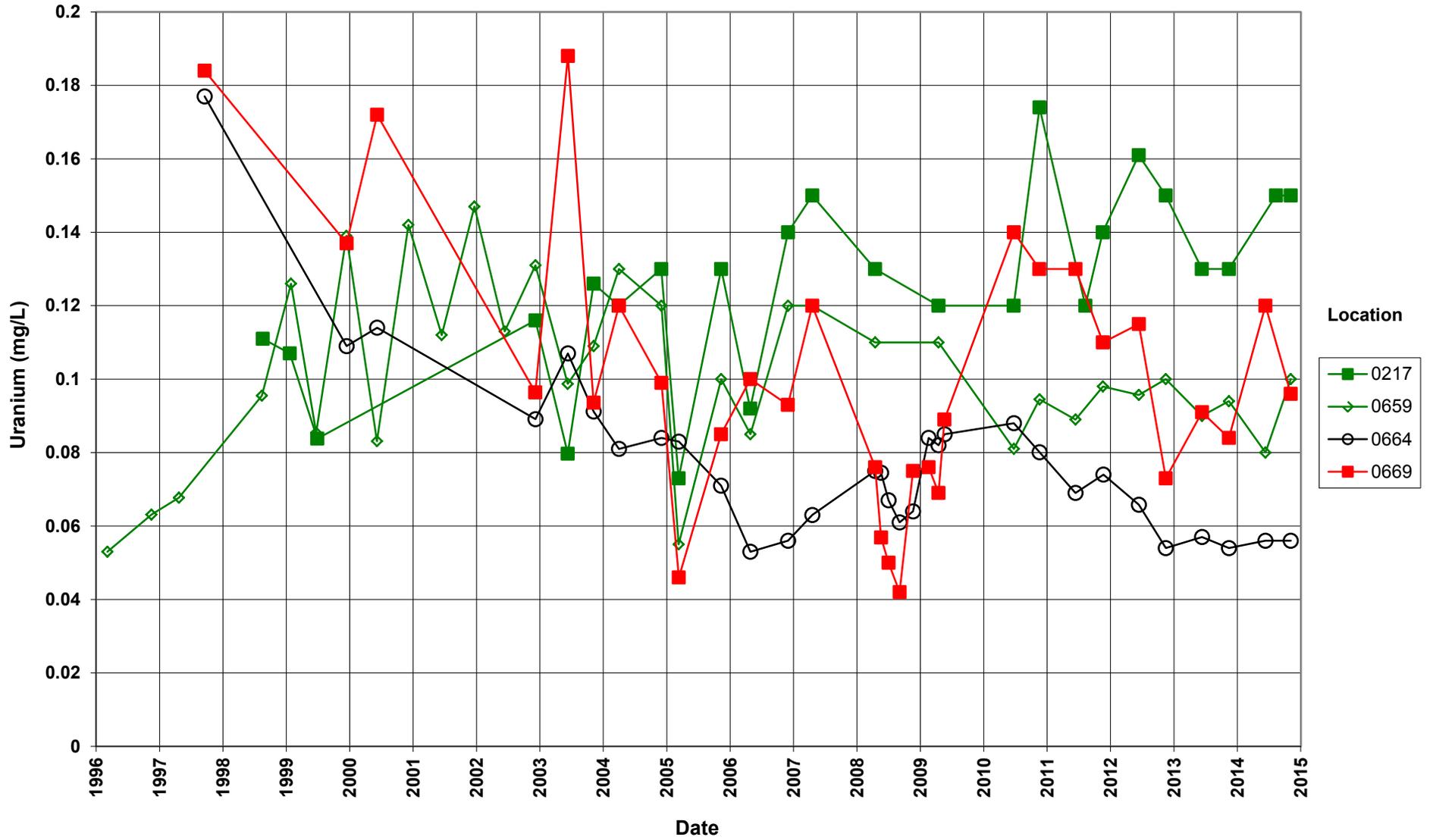
Rifle New Processing Site Selenium Concentration



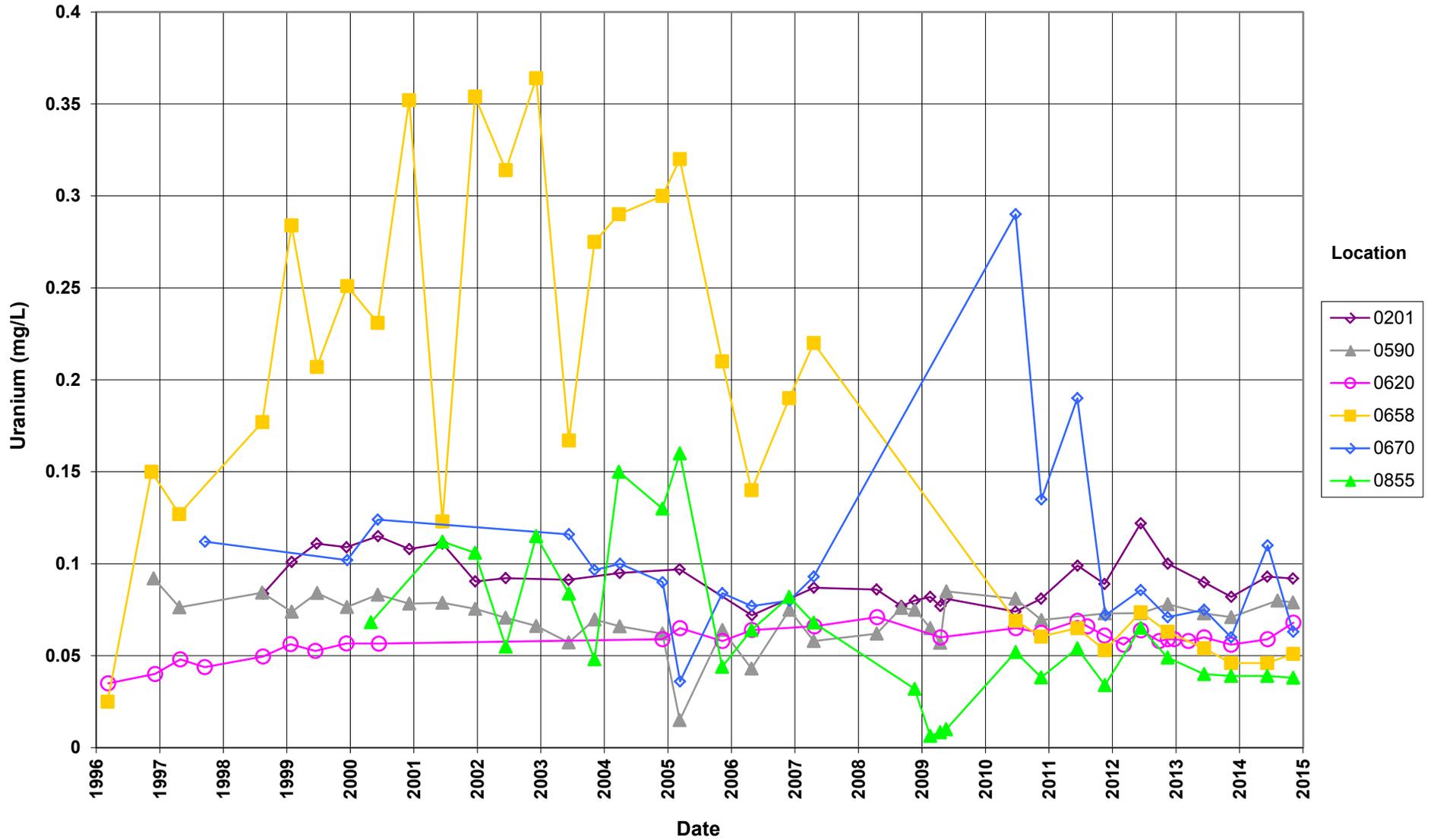
Rifle New Processing Site Selenium Concentration



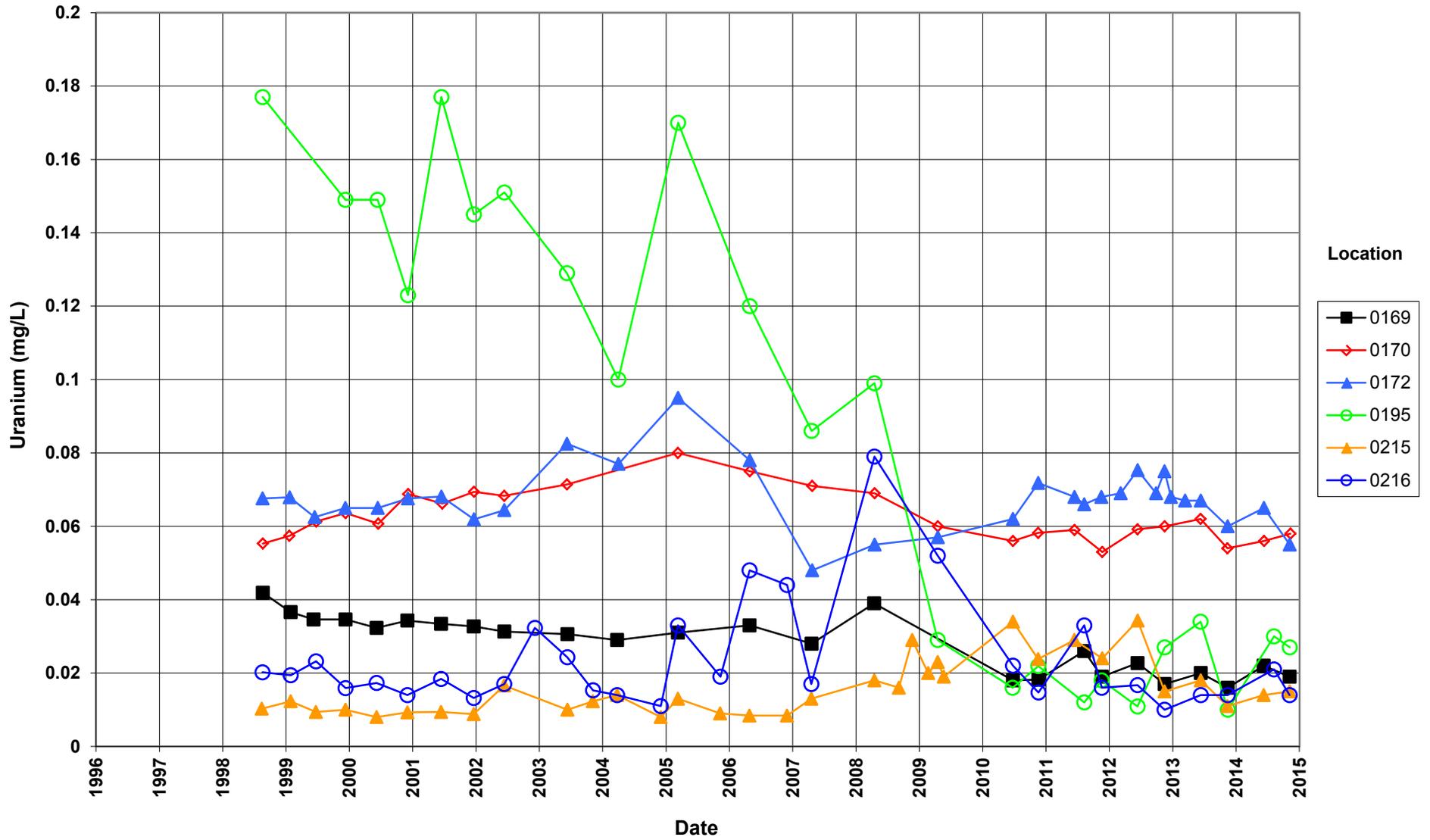
**Rifle New Processing Site
Uranium Concentration
Point of Compliance Wells**
Alternate Concentration Limit (ACL) = 59 mg/L



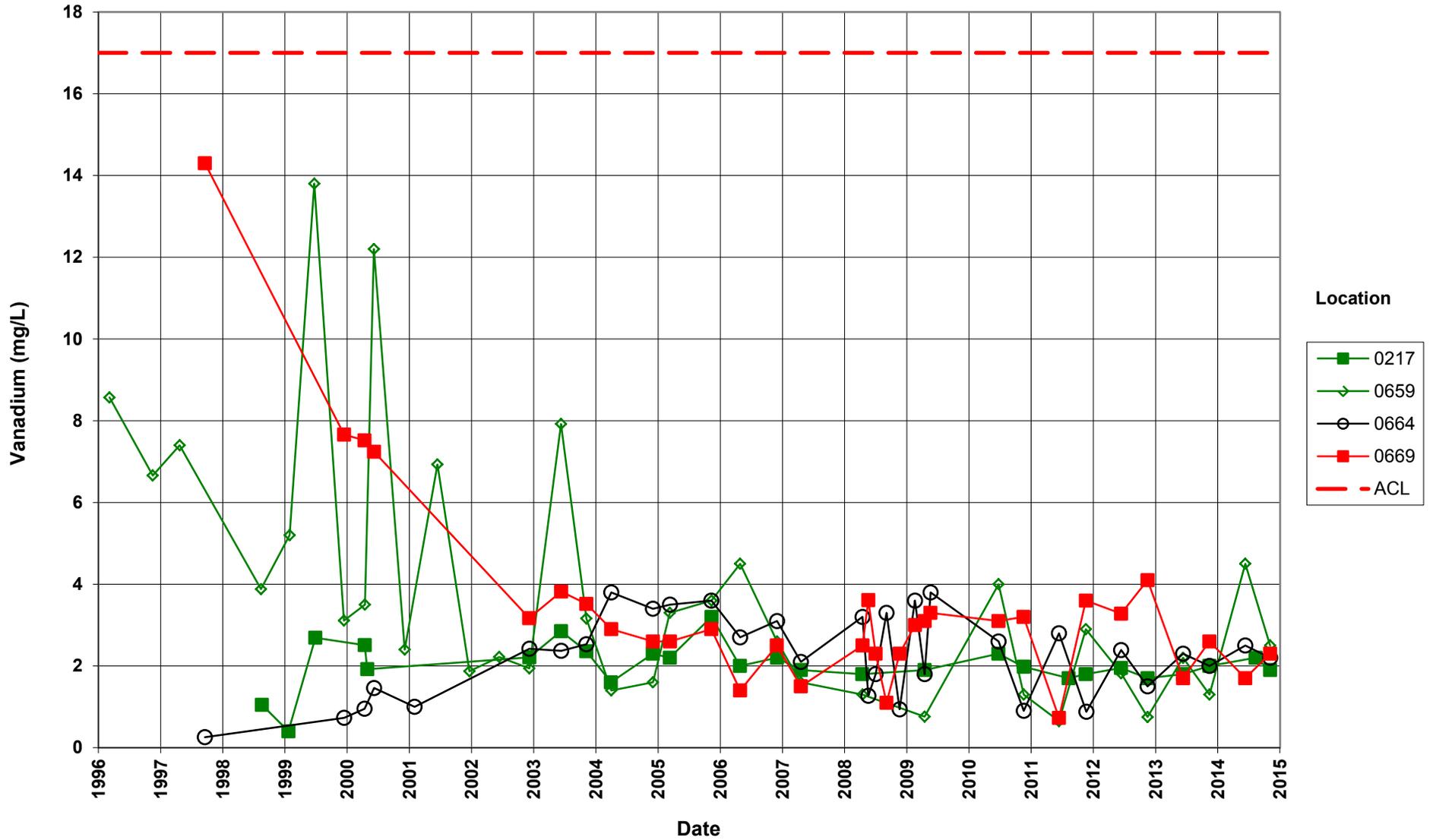
Rifle New Processing Site Uranium Concentration



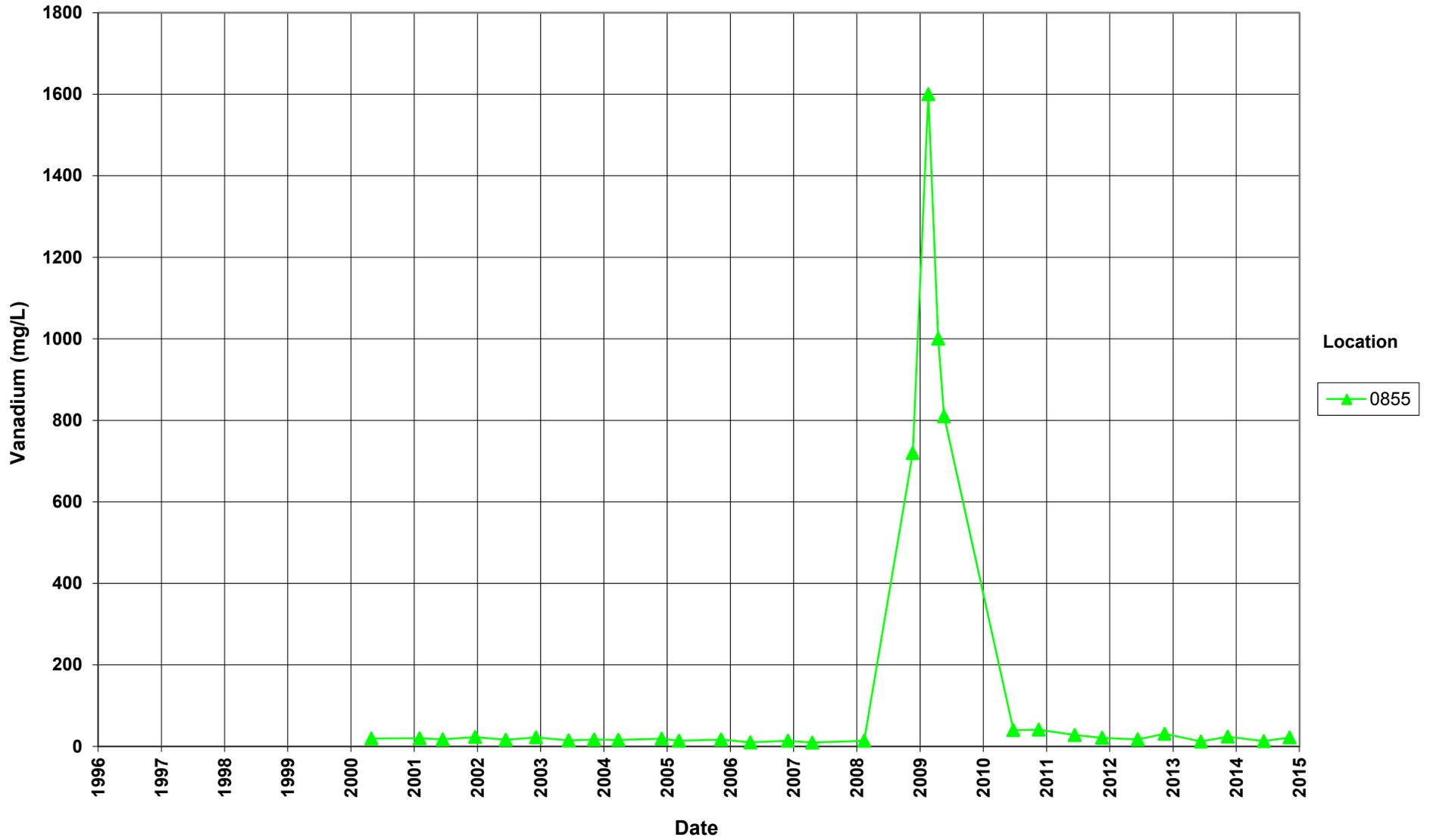
Rifle New Processing Site Uranium Concentration



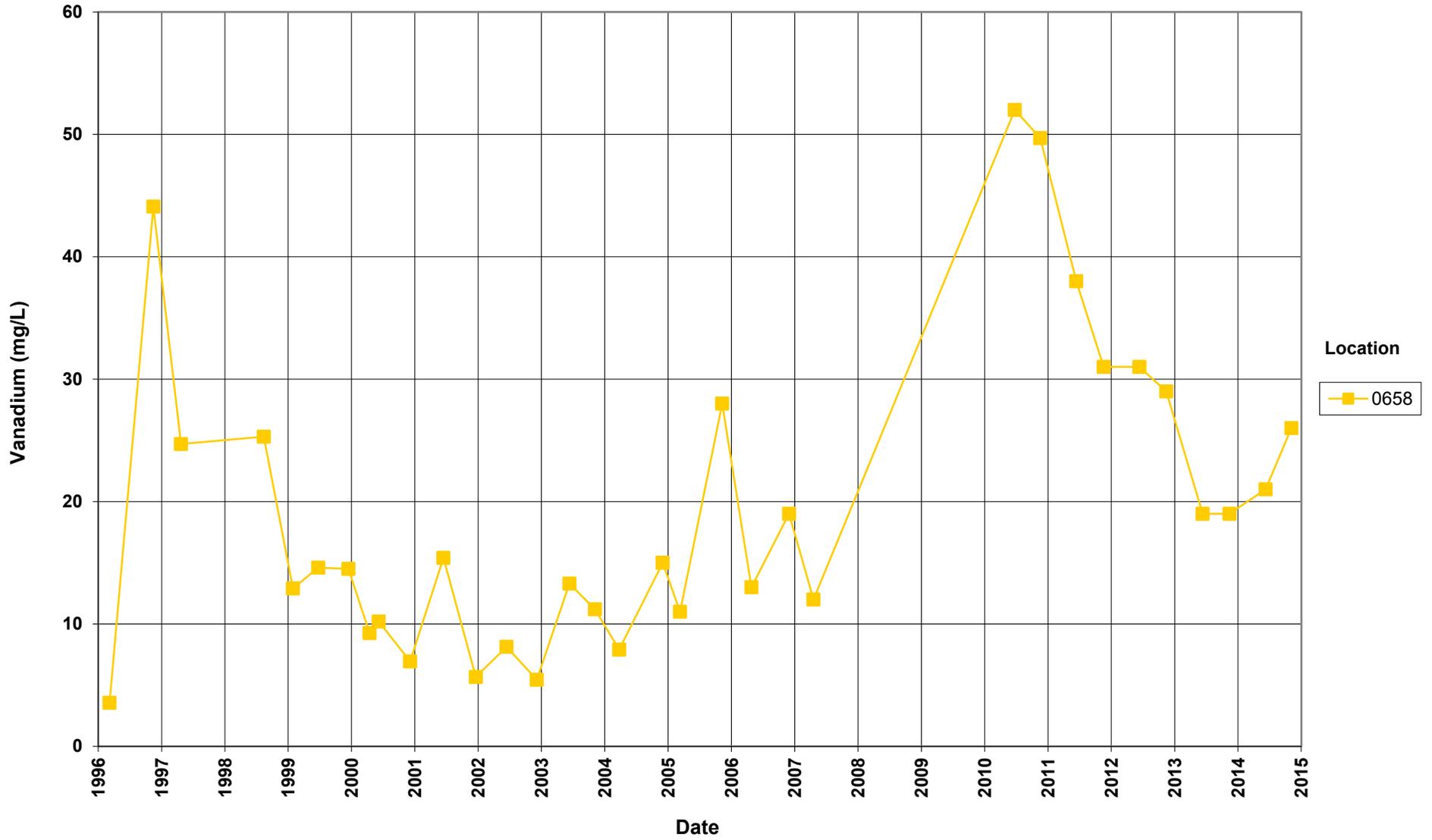
Rifle New Processing Site
Vanadium Concentration
Point of Compliance Wells
 Alternate Concentration Limit (ACL) = 17 mg/L



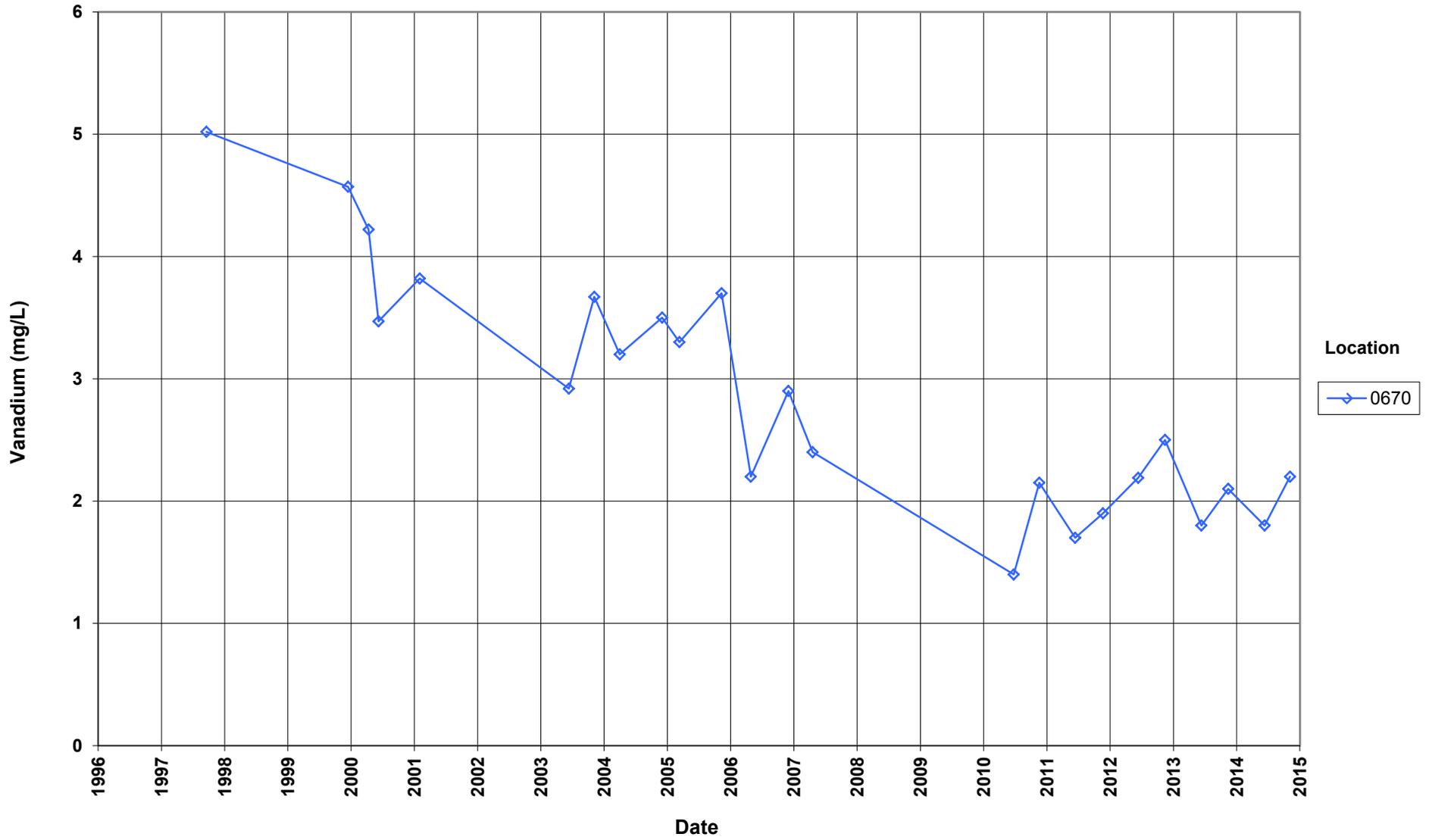
Rifle New Processing Site Vanadium Concentration



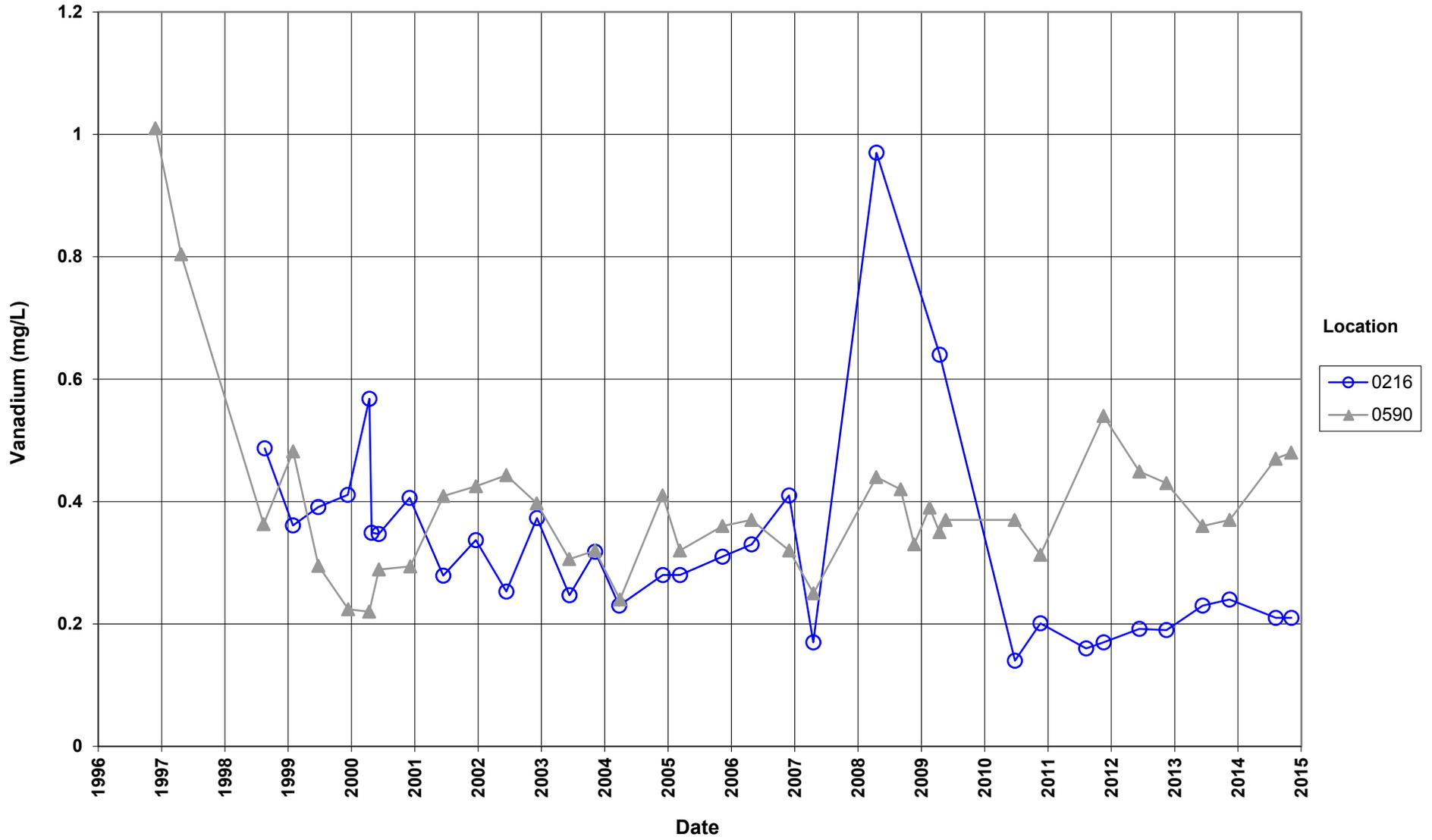
Rifle New Processing Site Vanadium Concentration



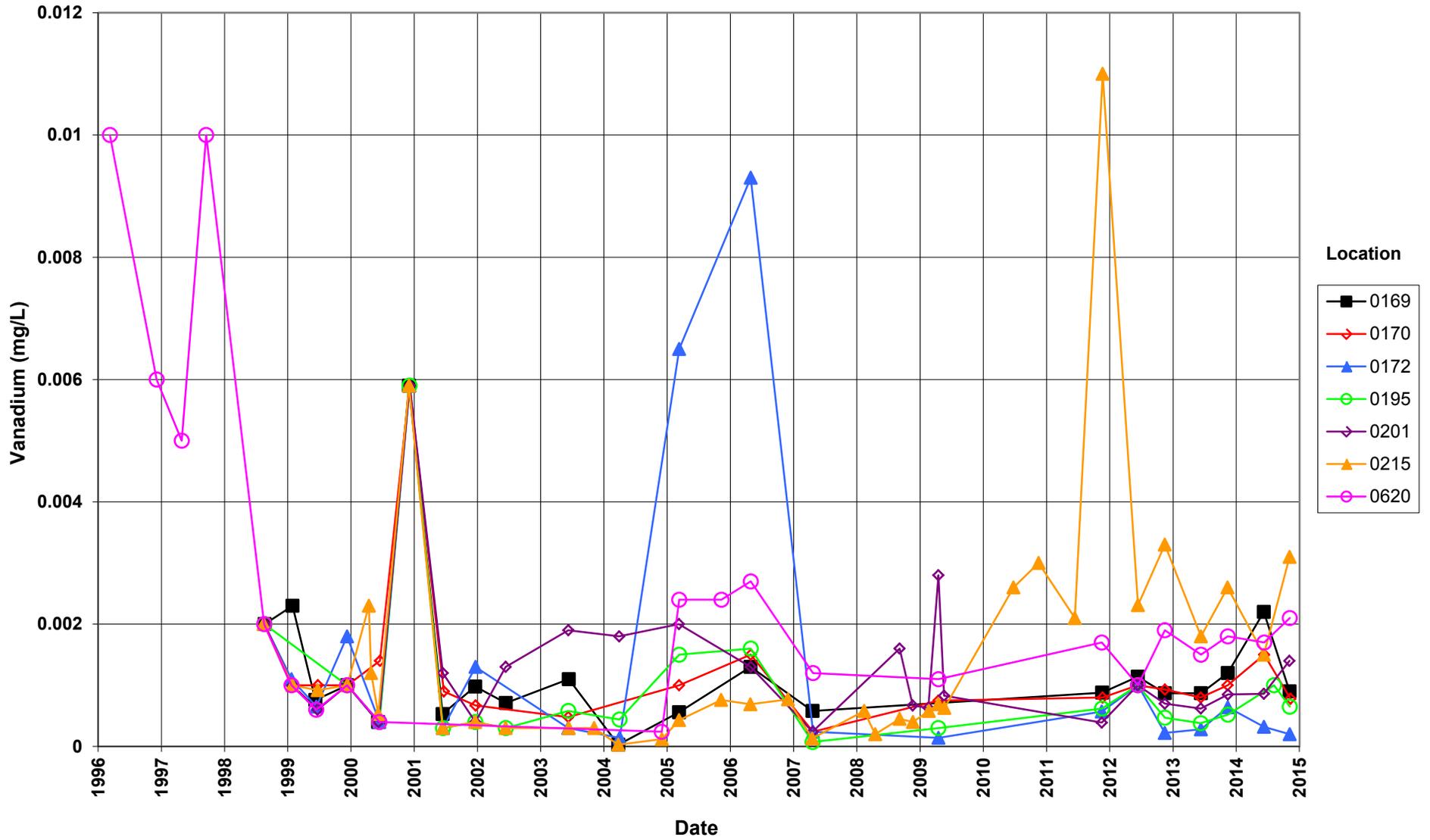
Rifle New Processing Site Vanadium Concentration



Rifle New Processing Site Vanadium Concentration



Rifle New Processing Site Vanadium Concentration

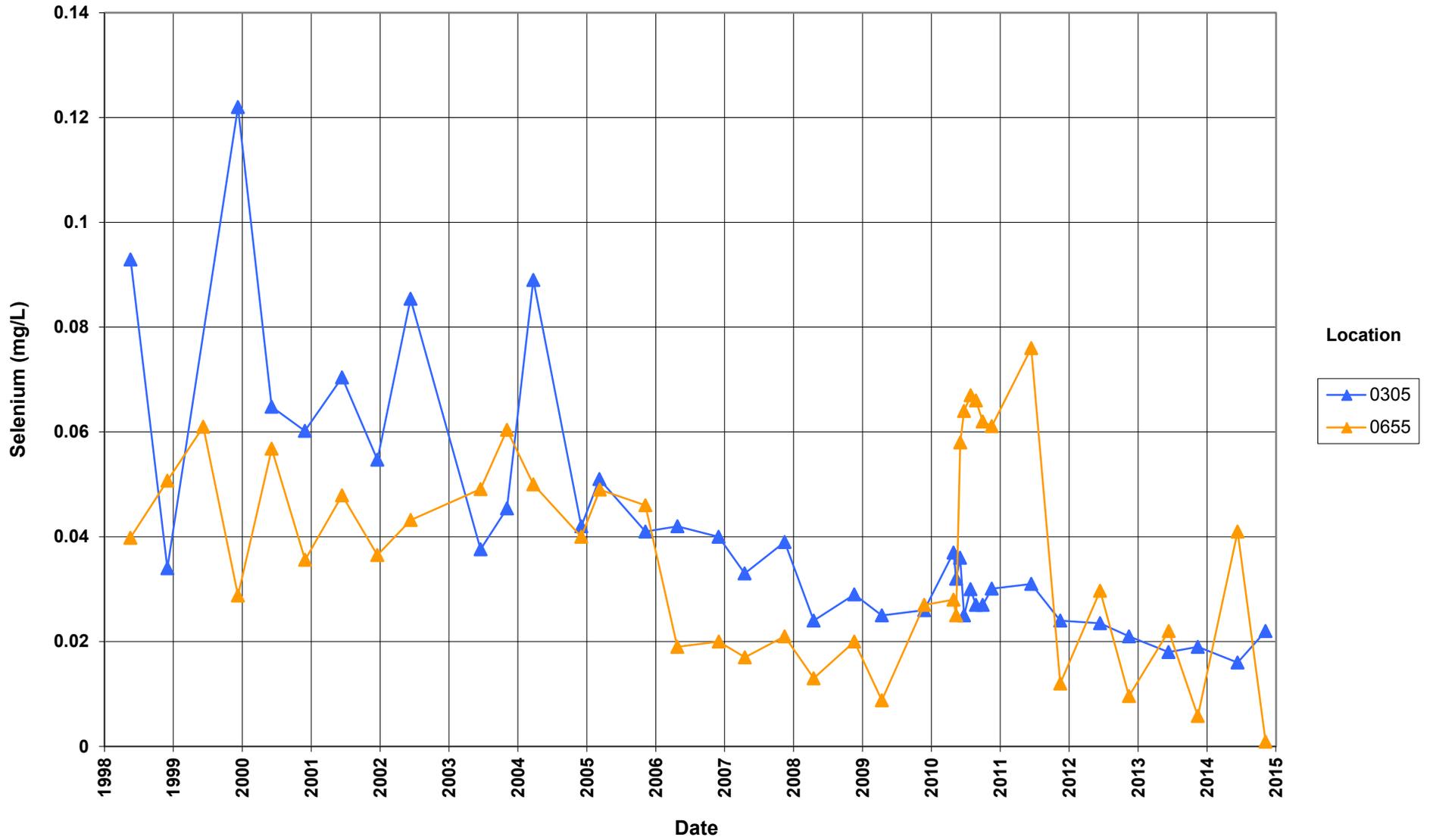


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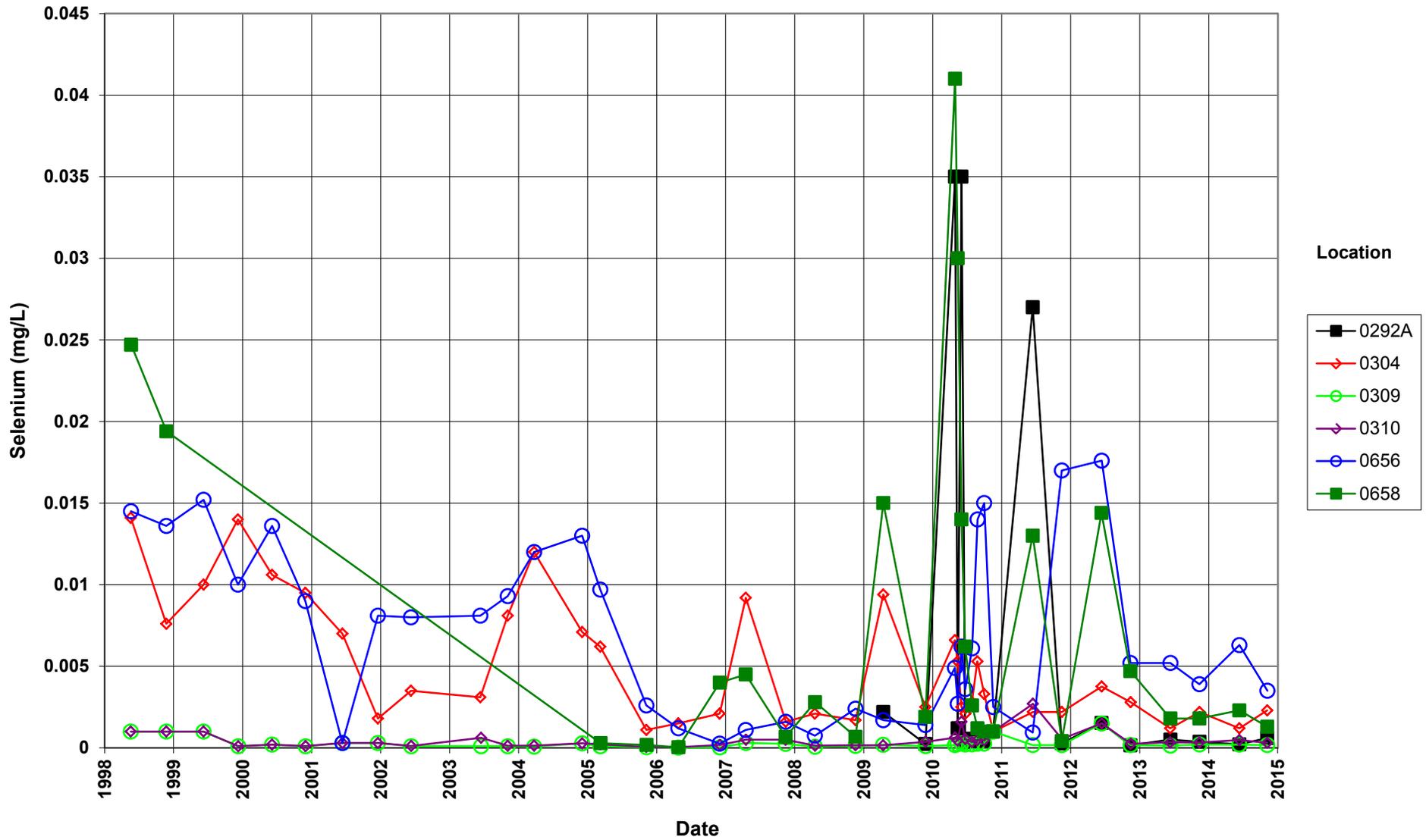
Old Rifle Groundwater Time-Concentration Graphs

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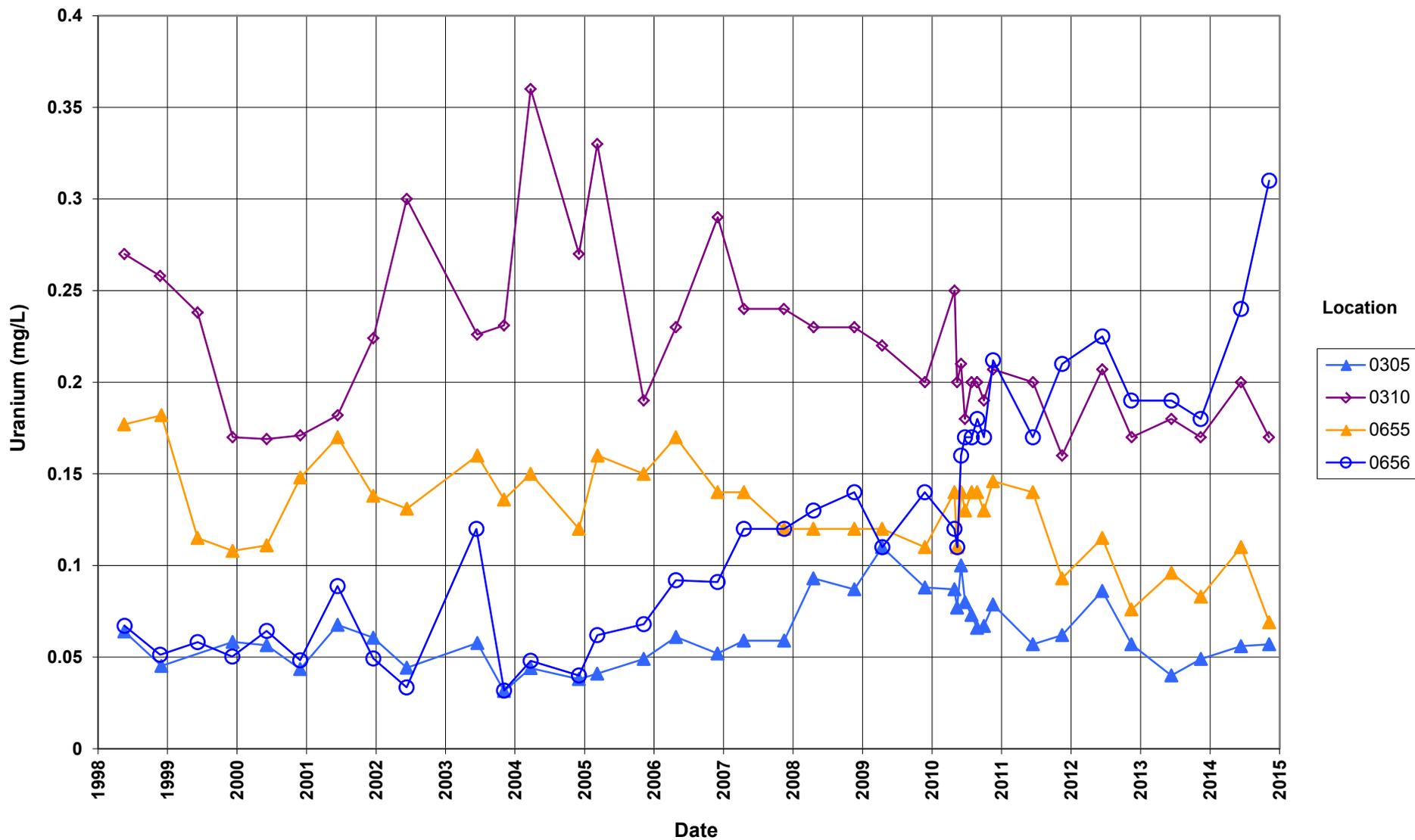
**Rifle Old Processing Site
Selenium Concentration**
Alternate Concentration Limit (ACL) = 12.3 mg/L



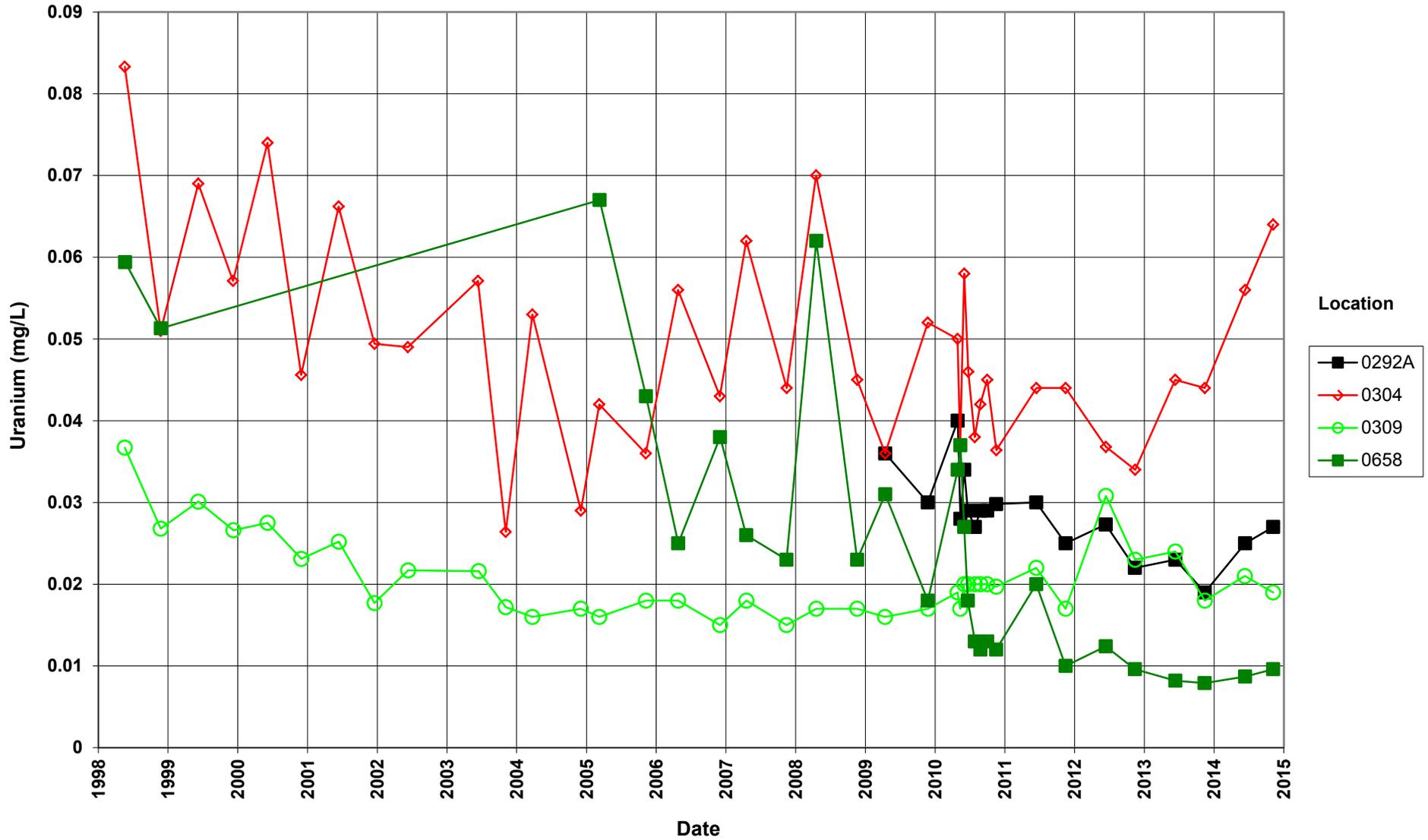
**Rifle Old Processing Site
Selenium Concentration**
Alternate Concentration Limit (ACL) = 12.3 mg/L



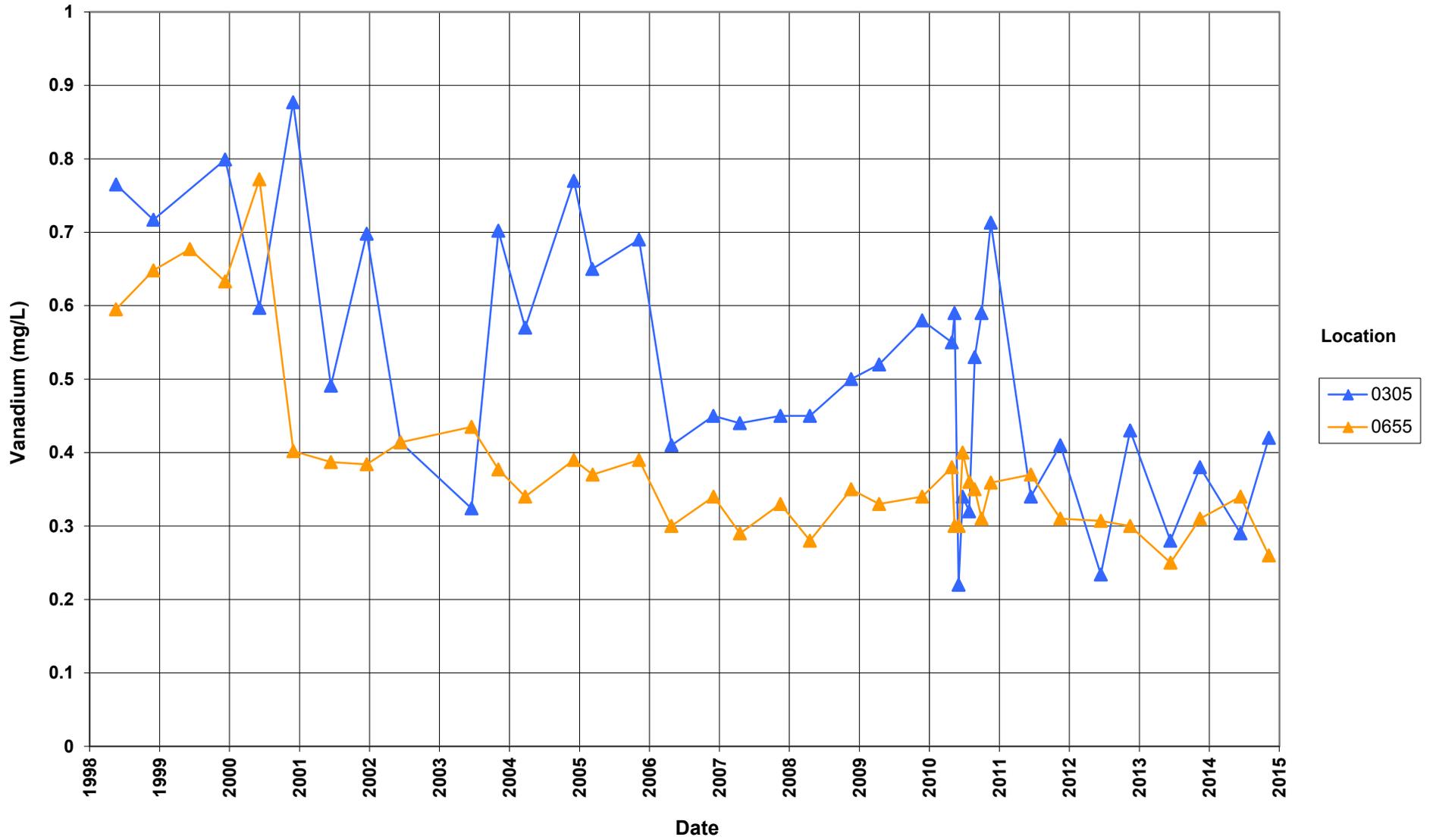
**Rifle Old Processing Site
Uranium Concentration**
Alternate Concentration Limit (ACL) = 44.4 mg/L



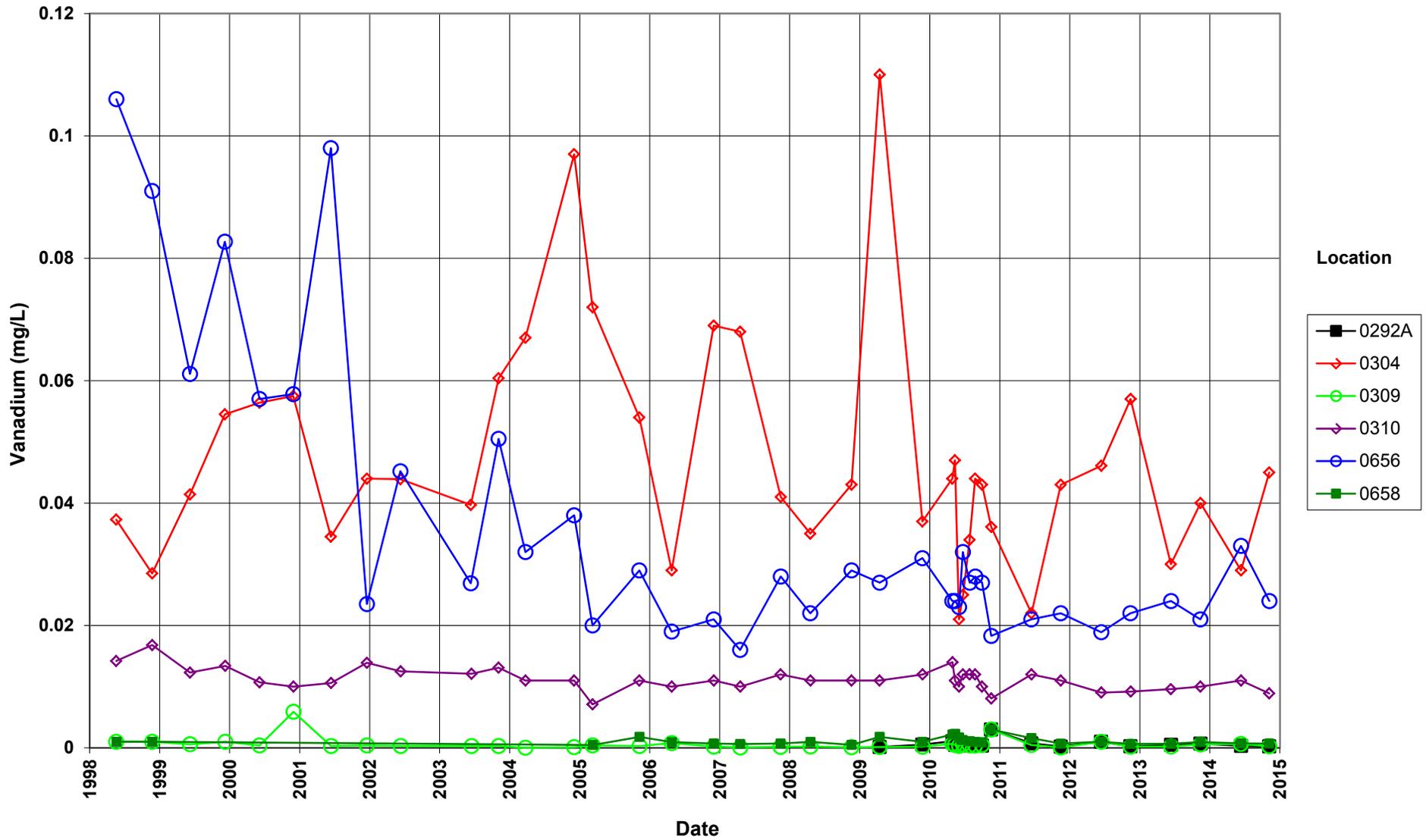
**Rifle Old Processing Site
Uranium Concentration**
Alternate Concentration Limit (ACL) = 44.4 mg/L



**Rifle Old Processing Site
Vanadium Concentration**
Alternate Concentration Limit (ACL) = 126 mg/L



**Rifle Old Processing Site
Vanadium Concentration**
Alternate Concentration Limit (ACL) = 126 mg/L

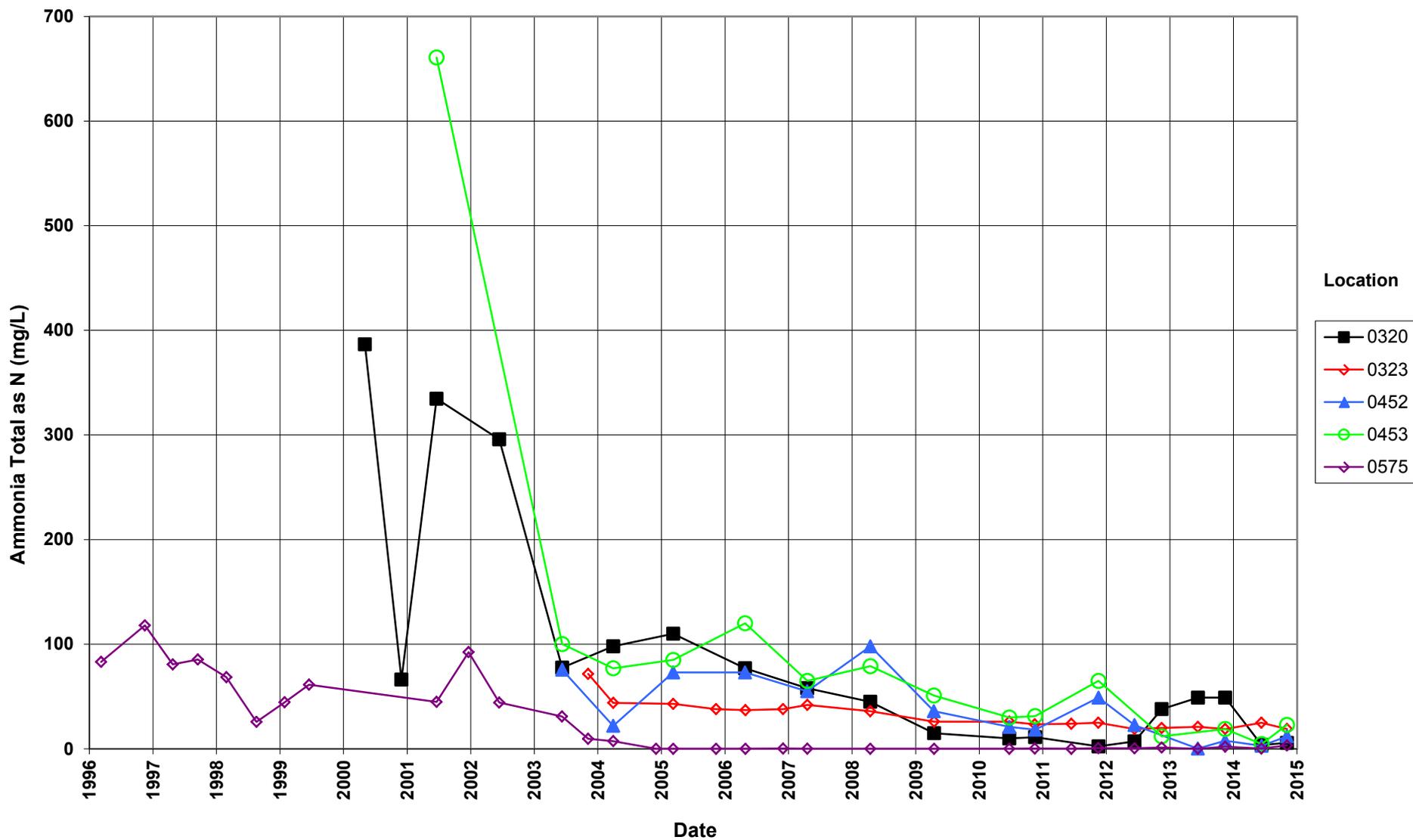


New Rifle Pond Locations Time-Concentration Graphs

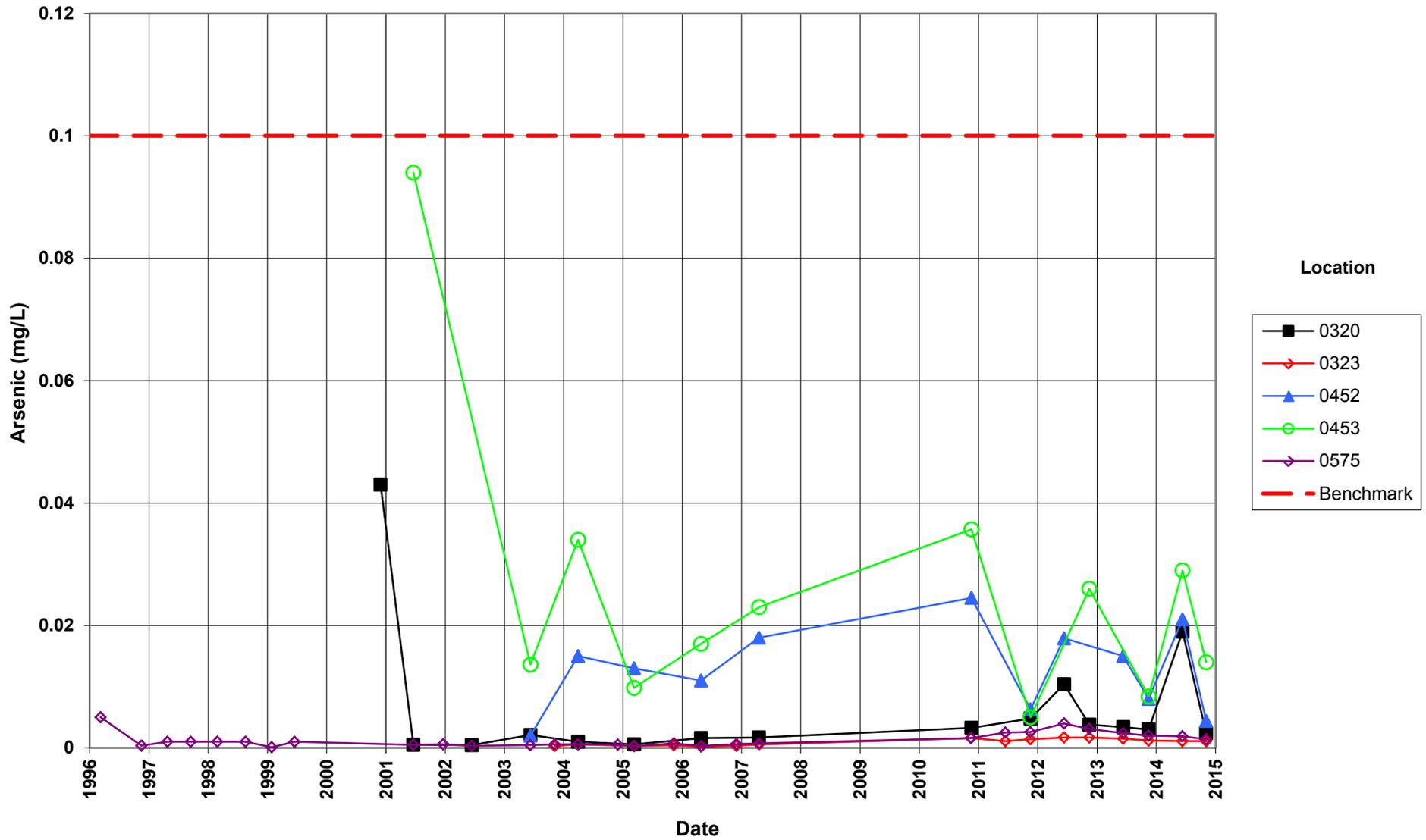
Agricultural standard/benchmark values are from Table 4 (New Rifle Ecological Risk Screening Table) of the March 2013 *Groundwater Compliance Action Plan for the New Rifle, Colorado, Processing Site* (LMS/RFN/S01920)

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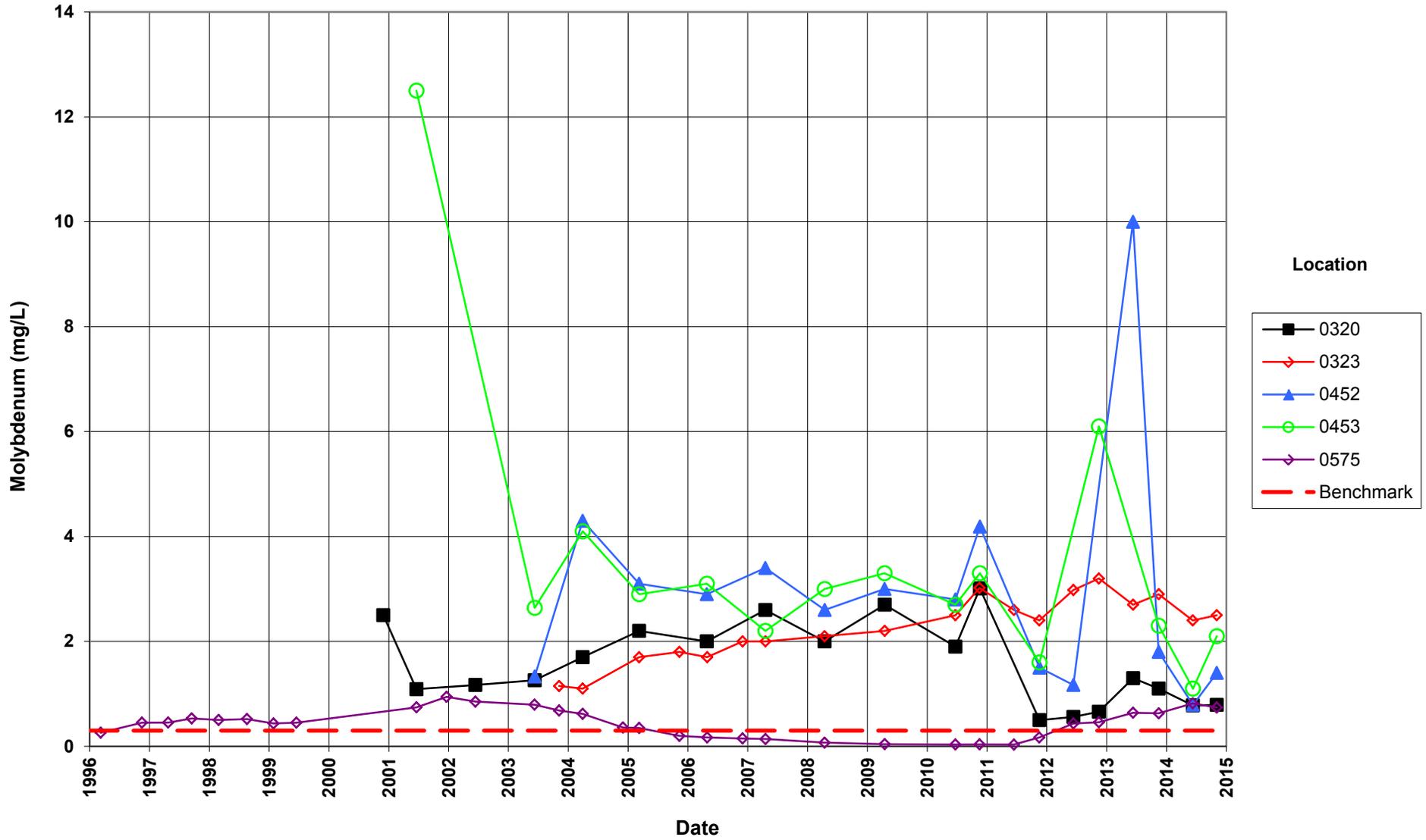
Rifle New Processing Site Ammonia Total as N Concentration



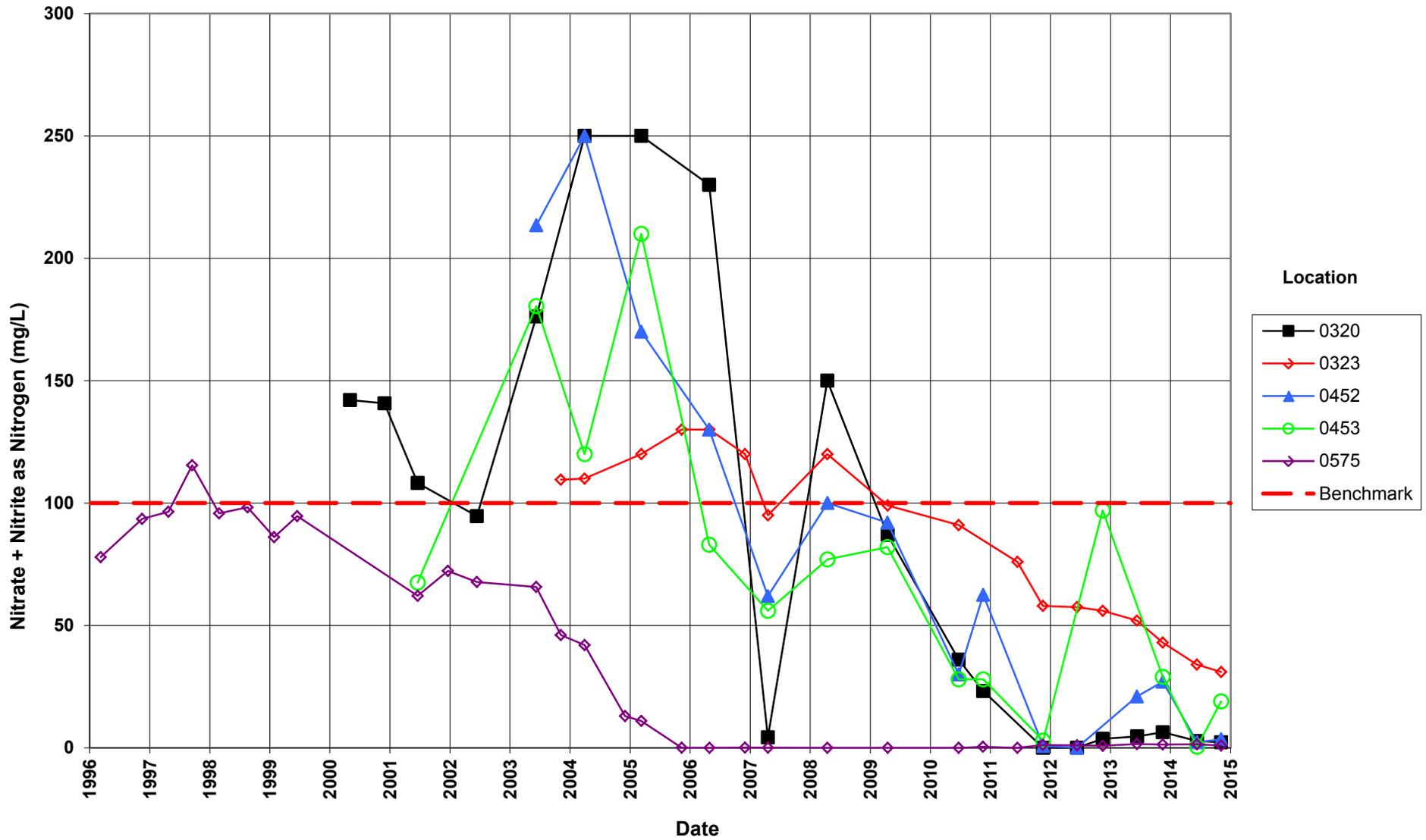
Rifle New Processing Site
Arsenic Concentration
Agricultural Standard / Benchmark = 0.1mg/L



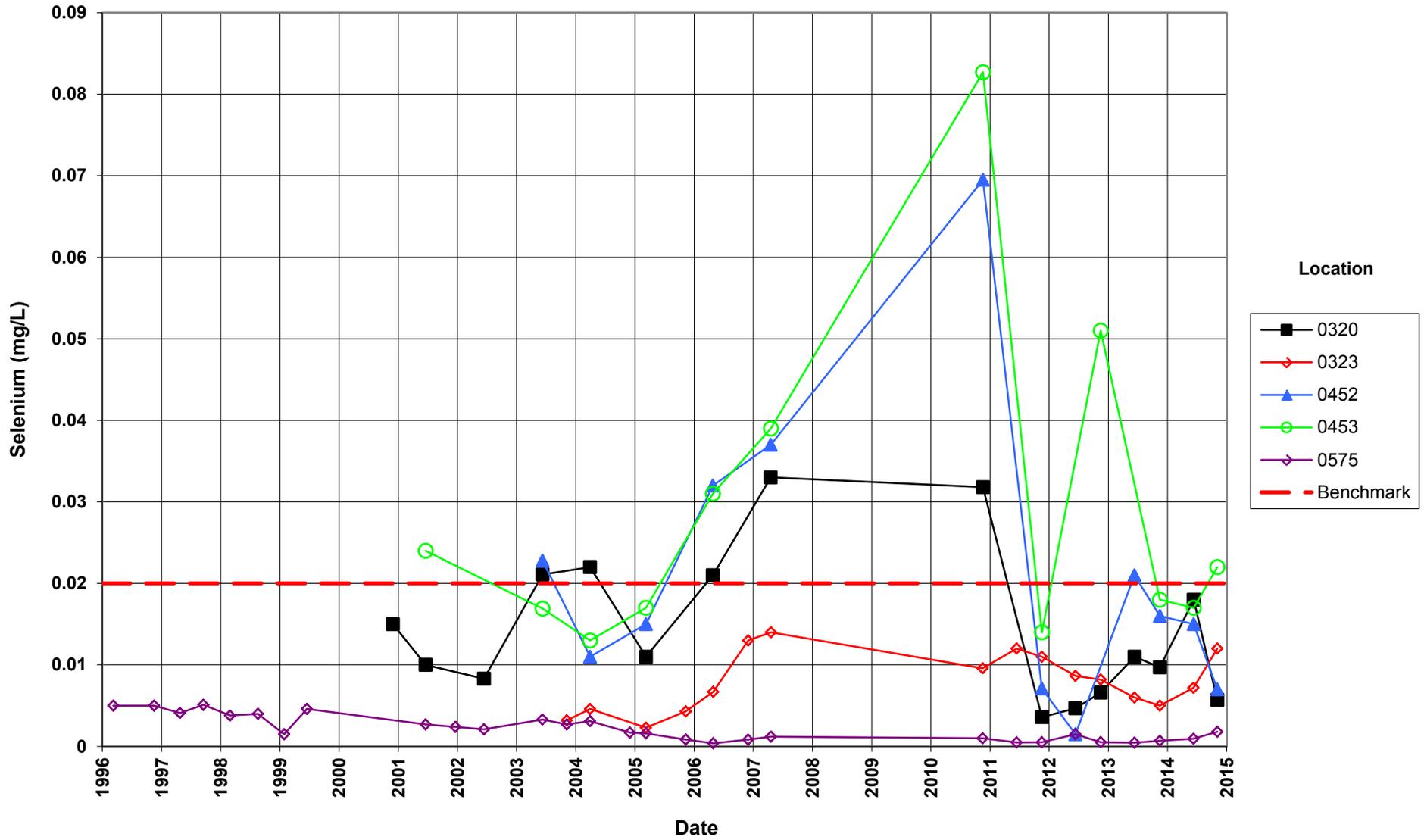
Rifle New Processing Site
Molybdenum Concentration
 Agricultural Standard / Benchmark = 0.3 mg/L



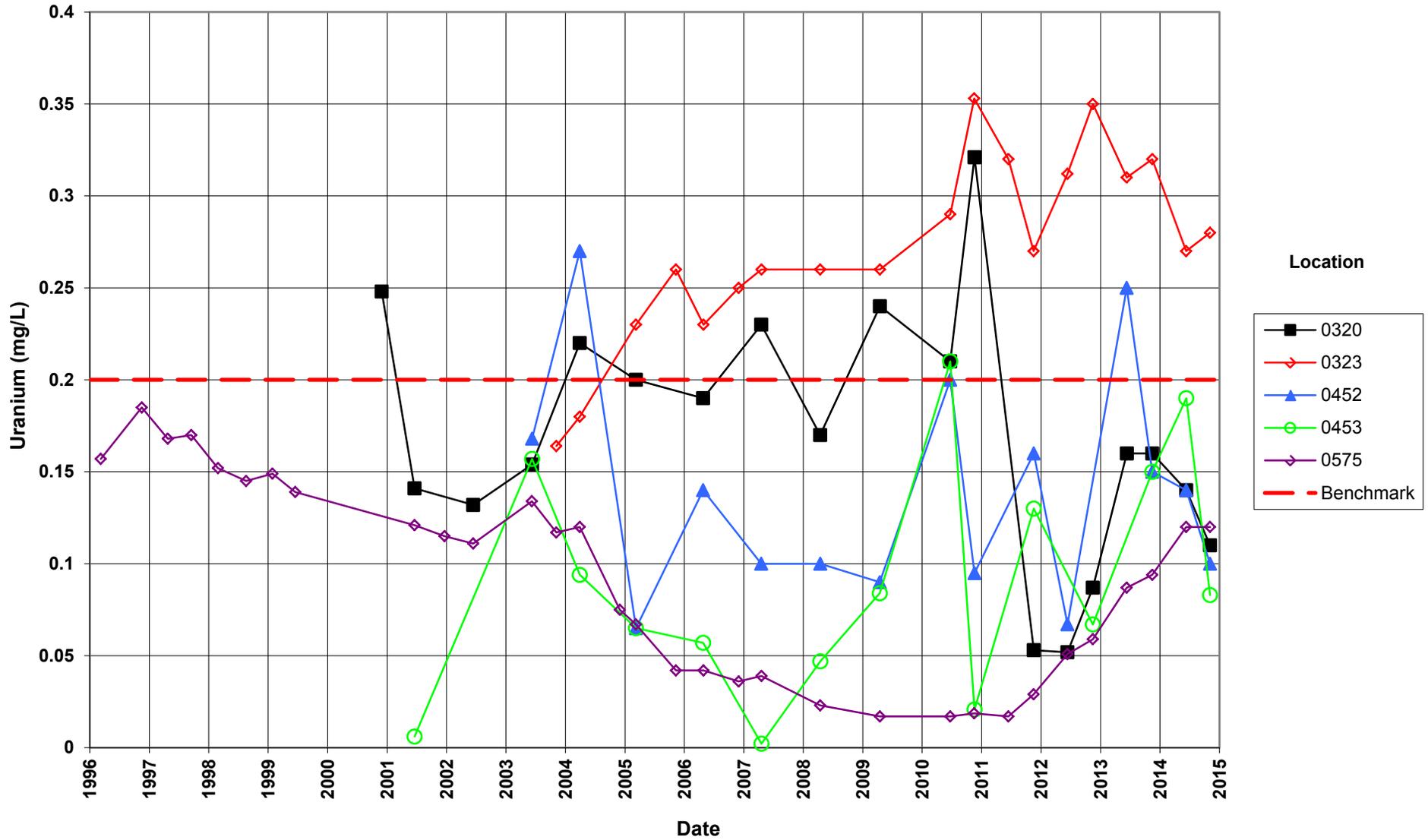
Rifle New Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Agricultural Standard / Benchmark = 100 mg/L



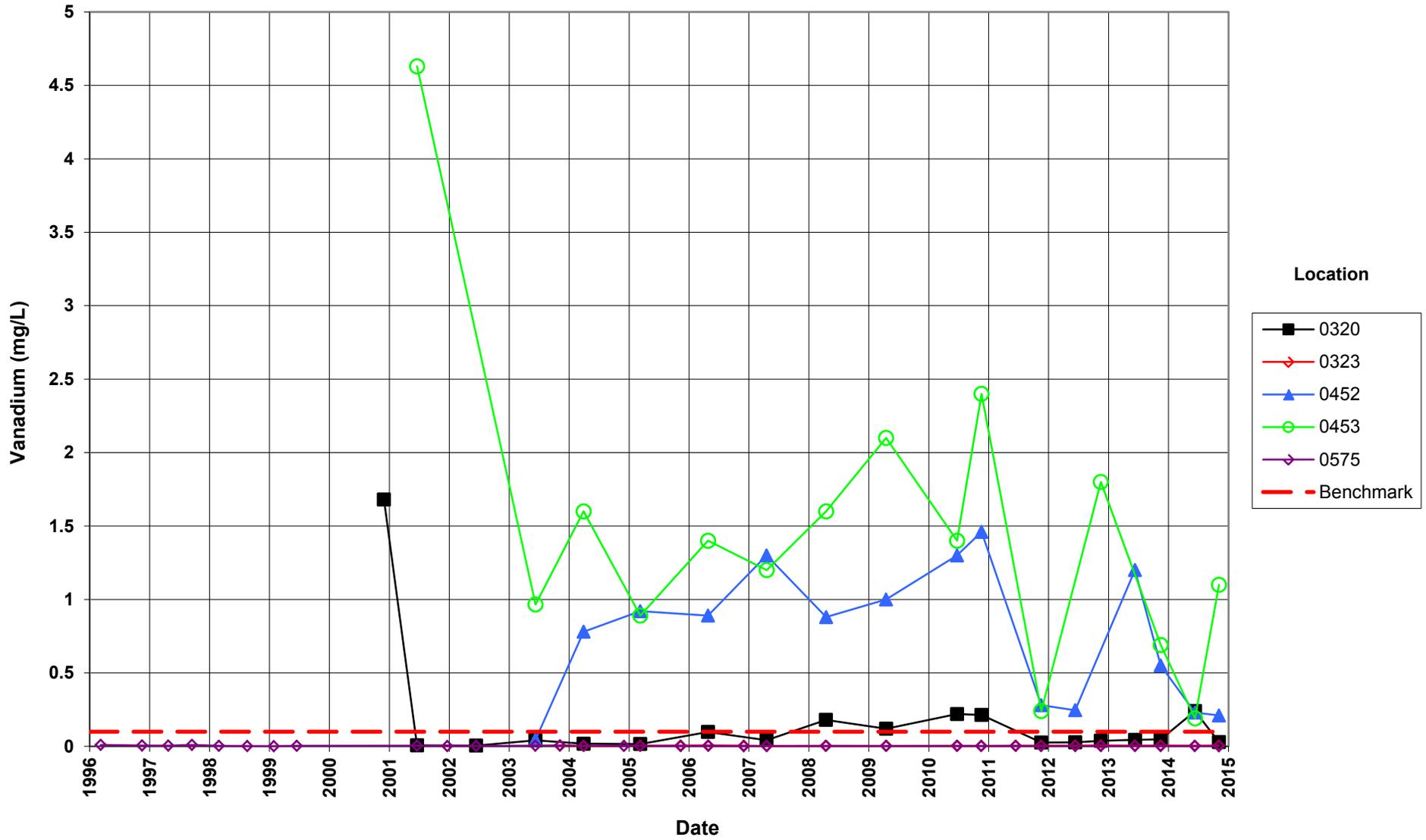
**Rifle New Processing Site
Selenium Concentration**
Agricultural Standard / Benchmark = 0.02 mg/L



Rifle New Processing Site
Uranium Concentration
Agricultural Standard / Benchmark = 0.2 mg/L



**Rifle New Processing Site
Vanadium Concentration**
Agricultural Standard / Benchmark = 0.1 mg/L



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Attachment 3
Sampling and Analysis Work Order

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October 21, 2014

Task Assignment 103
Control Number 15-0016

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-LM0000415, The S.M. Stoller Corporation, a wholly owned subsidiary of Huntington Ingalls Industries (Stoller)
Task Assignment 103 LTS&M - UMTRCA TI & TII, D&D, Others, and AS&T
November 2014 Environmental Sampling at the Rifle, Colorado, Processing Sites

REFERENCE: Task Assignment 103, 3-103-1-02-116-402, Rifle, 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 New and Old sites. Water quality data will be collected from these sites as part of the environmental sampling currently scheduled to begin the week of November 3, 2014.

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	590 AI	658 AI	664 AI	670 AI
170 AI	201 AI	217 AI	620 AI	659 AI	669 AI	855 AI
172 AI	215 AI					

Old Rifle

292A AI	305 AI	309 AI	310 AI	655 AI	656 AI	658 AI
304 AI						

*NOTE: AI = Alluvium

SURFACE LOCATIONS

New Rifle

320	323	324	452	453	575
-----	-----	-----	-----	-----	-----

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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.

Sincerely,



Richard Dayvault
Site Lead

RD/lcg/bkb

Enclosures (3)

cc: (electronic)

Christina Pennal, DOE
Richard Dayvault, Stoller
Steve Donovan, Stoller
Lauren Goodknight, Stoller
Diana Osborne, Stoller
EDD Delivery
rc-grand.junction
File: RFN 400.02
File: RFO 400.02

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Constituent Sampling Breakdown

Site	Rifle					Required Detection Limit (mg/L)	Analytical Method	Line Item Code
	Groundwater	Surface Water						
Analyte								
Approx. No. Samples/yr	57	24						
Field Measurements								
Alkalinity	X		X					
Dissolved Oxygen								
Redox Potential	X		X					
pH	X		X					
Specific Conductance	X		X					
Turbidity	X							
Temperature	X		X					
Laboratory Measurements								
	*RFO	*RFN	RFO	RFN	RFL			
Aluminum								
Ammonia as N (NH3-N)		X		X		0.1	EPA 350.1 WCH-A-005	
Arsenic		X		X		0.0001	SW-846 6020 LMM-02	
Calcium	X	X	X	X		5	SW-846 6010 LMM-01	
Chloride	X	X	X	X		0.5	SW-846 9056 MIS-A_039	
Chromium								
Gross Alpha								
Gross Beta								
Iron								
Lead								
Magnesium	X	X	X	X		5	SW-846 6010 LMM-01	
Manganese								
Molybdenum		X		X		0.003	SW-846 6020 LMM-02	
Nickel								
Nickel-63								
Nitrate + Nitrite as N (NO3+NO2)-N	X	X	X	X		0.05	EPA 353.1 WCH-A-022	
Potassium	X	X	X	X		1	SW-846 6010 LMM-01	
Radium-226								
Radium-228								
Selenium	X	X	X	X	X	0.0001	SW-846 6020 LMM-02	
Silica								
Sodium	X	X	X	X		1	SW-846 6010 LMM-01	
Strontium								
Sulfate	X	X	X	X		0.5	SW-846 9056 MIS-A-044	
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	10	13	10	13	3			

*RFN = New Rifle; *RFO = Old Rifle

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

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

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
New Rifle						
169		X				Background well
170		X				Far downgradient
172		X				Far downgradient
195		X				Downgradient
201		X				Data logger; downgradient
215		X				Onsite
216		X				Onsite
217		X				Downgradient
590		X				Data logger; downgradient
620		X				Far downgradient
635					X	Downgradient
658		X				Onsite
659		X				Onsite
664		X				Onsite
669		X				Onsite
670		X				Onsite
855		X				Onsite
Old Rifle						
292A		X				Background well
304		X				Onsite
305		X				Onsite
309		X				Onsite
310		X				Data logger; onsite
655		X				Data logger; onsite
656		X				Onsite
658		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				River

Semi-annual sampling conducted in June and November.

Attachment 4 Trip Report

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Memorandum

DATE: November 19, 2014

TO: Dick Dayvault

FROM: Tashina Jasso

SUBJECT: Trip Report

Site: Rifle, CO, New and Old Processing Sites

Dates of Sampling Event: November 4-7 & 10, 2014

Team Members: Alison Kuhlman, David Atkinson, and Tashina Jasso

Number of Locations Sampled: All of the planned locations were sampled.

	Surface Water	Monitoring Wells
Old Rifle	5	8
New Rifle	6	16

Location Specific Information:

Location IDs	Comments
RFN-0169	Well identification label on the outside of well is missing at this location.
RFN-0664,-0669	These locations did not have any locks in place upon arrival.
RFN-0855	Upon arrival this location was found unlocked and open with inner casing lid displaced. The lock and inner casing lid were found on ground next to well.
RFO-0395	This surface water location was collected via non-dedicated tubing and peristaltic pump. Two filters were used in collection of this sample.

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
2548	MLX 310	RFN-0323	Duplicate
2549	MLX 311	RFN-0172	Duplicate
2551	MLX 366	RFO-0658	Duplicate
2673	MMR 866	Associated with RFN-0323 and RFN-0575	RINST/EQBLANK

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Dick Dayvault
November 19, 2014
Page 2

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

RIN Number Assigned: Samples were assigned to RIN 14106568 (New Rifle) and 14106569 (Old Rifle). Field data sheets can be found in Crow\sms\14106568 and Crow\sms\14106569.

Sample Shipment: ALS samples were shipped overnight via FedEx to ALS Fort Collins, CO, from Grand Junction, CO, on November 11, 2014.

Sampling Method: Samples were collected according to the *Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated) and program directive # RFL-2013-01.

All surface water locations were collected via container immersion or through tubing reel and weight.

Field Variance: Samples collected for the following surface water locations were collected in two 500 mL bottles by container immersion and then poured into 125 mL bottles once back at the vehicle: 0324, 0396, 0741, and 0294.

Equipment: All equipment functioned properly.

Institutional Controls

Fences, Gates, Locks: All gates and locks were left as found.

Signs: No issues observed.

Trespassing/Site Disturbances: No issues observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: No issues observed.

Vegetation/Noxious Weed Concerns: No issues observed.

Maintenance Requirements: Well identification label is needed for location 0169.

Locks for locations 0664, 0669, and 0855 are needed.

Safety Issues: None.

Access Issues: WPX was contacted and was on site to provide access to location 0620 and 0324 on November 6, 2014, through a locked gate. Union Pacific Railroad was present during collection of samples 0396 and 0741 on November 6, 2014.

Corrective Action Required/Taken:

- Installation of outer casing locks at locations 0664, 0669 and 0855.
- Installation of new outer well identification label for 0169.

(TJ/lcg)

cc: (electronic)
Richard Bush, DOE
Dick Dayvault, Stoller

Steve Donovan, Stoller
EDD Delivery

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