

# Data Validation Package

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**September and October 2013  
Groundwater and Surface Water  
Sampling at the Shiprock, New Mexico,  
Disposal Site**

**January 2014**

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## **Attachment 1—Assessment of Anomalous Data**

Potential Outliers Report

## **Attachment 2—Data Presentation**

Groundwater Quality Data Floodplain Locations  
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Time-Concentration Graphs Floodplain Groundwater Locations

## **Attachment 3—Sampling and Analysis Work Order**

## **Attachment 4—Trip Report**

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# Sampling Event Summary

**Site:** Shiprock, New Mexico, Disposal Site

**Sampling Period:** September 24 – October 2, 2013

Groundwater and surface water sampling and analyses are performed semiannually at the Shiprock, New Mexico, Disposal Site. Sampling and analyses were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated) and the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated). Monitoring of terrace locations is performed to determine the effectiveness of active remediation. Monitoring of floodplain locations is performed to determine the progress of the natural flushing process and the effectiveness of groundwater removal to prevent contaminants from reaching the San Juan River.

The contaminants of concern (COC) for the Shiprock Disposal Site are ammonium, manganese, nitrate, selenium, strontium, sulfate, and uranium as stated in the *Final Ground Water Compliance Action Plan for Remediation at the Shiprock, New Mexico, UMTRA Site (July 2002)*, and as approved by the U.S. Nuclear Regulatory Commission. Wells with contaminant concentrations that exceeded compliance standards and cleanup goals presented in the plan are listed in Table 1. Time-concentration graphs for the contaminants of concern are also included in this report.

Alkalinity, conductivity, oxidation-reduction potential, pH, and temperature were measured in the field as geochemical indicators of general water quality.

Both filtered and unfiltered samples from the river locations were submitted. River location analyte concentrations of filtered and unfiltered samples were compared to statistical benchmark values (Tables 2 and 3). Benchmark data are a standard data set from location 0898, which is located upstream of the site on the San Juan River, against which other river location data are compared. The manganese concentration for the filtered sample from location 1205 exceeded the benchmark value. The manganese data for the filtered sample collected from this location was closely examined and determined to be error free.

*Table 1. Shiprock Floodplain Locations that Exceed Compliance Standards and Cleanup Goals*

COC	Standard <sup>a</sup>	Location	Concentration
Manganese	2.74	0608	2.9
		0614	3.2
		0618	3.6
		0623	3.3
		0626	8
		0628	3.4
		0630	2.9
		0734	3.1
		0779	2.8
		0782R	4.7
		0783R	3.6

*Table 1 (continued). Shiprock Floodplain Locations that Exceed Compliance Standards and Cleanup Goals*

COC	Standard <sup>a</sup>	Location	Concentration
Manganese	2.74	0792	4.9
		0797	3.9
		0854	2.8
		0855	3.1
		0856	2.8
		0857	5.6
		1114	2.8
		1115	3.2
		1137	4.9
		1138	5.5
		1140	3.2
Nitrate	44	0608	168
		0610	1018
		0614	531
		0735	2700
		0773	106
		0779	115
		0857	49
		1111	142
		1112	531
		1113	275
		1114	531
		1115	1372
		1128	2125
		1137	239
		1138	243
		1139	164
		1140	80
Selenium	0.05	0610	0.19
		0612	0.12
		0614	0.71
		0615	0.051
		0622	0.052
		0630	0.12
		0734	0.5
		0773	0.14
		0779	0.14
		0793	0.28
		0855	0.091
		1105	0.052
		1111	0.22
		1112	0.52
		1113	0.59
		1115	0.062
		1140	0.14
Sulfate	2000	0608	5900
		0610	5300
		0611	5100

*Table 1 (continued). Shiprock Floodplain Locations that Exceed Compliance Standards and Cleanup Goals*

COC	Standard <sup>a</sup>	Location	Concentration
Sulfate	2000	0614	6300
		0615	3400
		0618	5700
		0619	2900
		0622	2800
		0623	2600
		0625	2600
		0626	3800
		0628	2800
		0630	3800
		0655	3400
		0734	25000
		0735	13000
		0736	3100
		0766	4200
		0768	6700
		0773	1500
		0775	4200
		0779	12000
		0792	4400
		0793	7000
		0797	4700
		0798	5000
		0850	2600
		0854	7100
		0855	3600
		0856	2800
		0857	5700
		1008	4500
		1009	1500
		1089	4500
		1104	7100
		1105	3600
		1109	630
		1110	4800
		1111	7200
		1112	6400
		1113	4400
		1114	2700
		1115	6100
		1118	6800
		1128	6100
		1135	3100
		1136	1400
		1137	8100
		1138	11000
		1139	14000
		1140	8600

*Table 1 (continued). Shiprock Floodplain Locations that Exceed Compliance Standards and Cleanup Goals*

COC	Standard <sup>a</sup>	Location	Concentration
Sulfate	2000	1141	2500
		1143	3400
Uranium	0.044	0608	0.67
		0610	0.6
		0612	0.36
		0614	0.93
		0615	0.39
		0618	0.42
		0619	0.071
		0630	0.17
		0734	0.87
		0735	0.33
		0766	0.1
		0768	0.13
		0773	0.2
		0775	0.087
		0779	1.3
		0792	0.14
		0793	1
		0798	0.2
		0850	0.05
		0853	0.044
		0854	0.57
		0855	0.065
		0856	0.056
		0857	0.68
		1008	0.3
		1009	0.16
		1089	0.21
		1104	0.57
		1105	0.46
		1111	0.5
		1112	0.62
		1113	0.49
		1114	0.46
		1115	1.1
		1128	0.72
		1135	0.063
		1136	0.12
		1137	1.2
		1138	1.7
		1139	1.9
		1140	0.95
		1141	0.34
		1143	0.06

<sup>a</sup>Compliance standards and cleanup goals are listed in the *Final Ground Water Compliance Action Plan for Remediation at the Shiprock, New Mexico, UMTRA Site (July 2002)*, approved by the U.S. Nuclear Regulatory Commission; units are in milligrams per liter.

*Table 2. Benchmark Comparison for Floodplain River Locations (Unfiltered Samples)*

<b>Location</b>	<b>Ammonium</b>	<b>Manganese</b>	<b>Nitrate</b>	<b>Selenium</b>	<b>Strontium</b>	<b>Sulfate</b>	<b>Uranium</b>
<b>Benchmark<sup>a</sup></b>	<b>0.1</b>	<b>6.2</b>	<b>6.2</b>	<b>0.013</b>	<b>2.9</b>	<b>240</b>	<b>0.028</b>
0501	ND <sup>b</sup>	0.23	2.39	0.001	0.83	130	0.0019
0888	ND	2.7	2.26	0.0063	1.4	100	0.0056
0897	ND	0.59	1.95	0.0018	0.82	110	0.0024
0899	ND	0.18	2.66	0.0007	0.78	140	0.0017
0940	ND	0.54	1.77	0.0015	0.81	110	0.0022
0956	ND	0.60	1.95	0.0014	0.78	110	0.0020
0965	ND	0.53	1.82	0.0012	0.78	100	0.0021
1203	ND	0.21	2.57	0.0009	0.81	130	0.0019
1205	ND	0.38	2.70	0.0009	0.81	130	0.0019

Units are in milligrams per liter (mg/L).

<sup>a</sup> Benchmark values are calculated using guidance derived from *Data Quality Assessment: Statistical Methods for Practitioners* (EPA 2006).

<sup>b</sup> ND = Not Detected.

*Table 3. Benchmark Comparison for Floodplain River Locations (Filtered Samples)*

<b>Location</b>	<b>Ammonium</b>	<b>Manganese</b>	<b>Nitrate</b>	<b>Selenium</b>	<b>Strontium</b>	<b>Sulfate</b>	<b>Uranium</b>
<b>Benchmark<sup>a</sup></b>	<b>0.1</b>	<b>0.022</b>	<b>4.9</b>	<b>0.002</b>	<b>1.2</b>	<b>250</b>	<b>0.0032</b>
0501	ND <sup>b</sup>	0.003	2.48	0.00049	0.77	130	0.0015
0888	ND	0.005	1.90	0.00072	0.64	99	0.0017
0897	ND	0.0016	2.39	0.00062	0.69	110	0.0016
0899	ND	0.007	2.39	0.00051	0.76	140	0.0014
0940	ND	0.0023	2.04	0.00032	0.67	100	0.0013
0956	ND	0.0024	1.95	0.00043	0.66	110	0.0013
0965	ND	0.007	1.99	0.00044	0.69	110	0.0014
1203	ND	0.0027	2.61	0.00048	0.75	130	0.0015
1205	ND	0.62	2.61	0.00047	0.77	130	0.0014

Units are in milligrams per liter (mg/L).

<sup>a</sup> Benchmark values are calculated using guidance derived from *Data Quality Assessment: Statistical Methods for Practitioners* (EPA 2006).

<sup>b</sup> ND = Not Detected.

A comparison of filtered and unfiltered results from the river samples is shown in Table 4, excluding ammonium, which was not detected in the river location samples.

*Table 4. Floodplain River Locations, Filtered and Unfiltered Sample*

Location	COC	Result, Filtered	Result, Unfiltered	RPD <sup>a</sup> (%)
0501	Calcium	64	70	9.0
	Chloride	12	13	8.0
	Magnesium	9.1	11	18.9
	Manganese	0.003	0.23	194.8
	Nitrate	2.5	2.4	3.6
	Potassium	2.1	3.9	60.0
	Selenium	0.00049	0.001	68.5
	Sodium	27	29	7.1
	Strontium	0.77	0.83	7.5
	Sulfate	130	130	0.0
0888	Uranium	0.0015	0.0019	23.5
	Calcium	46	110	82.1
	Chloride	8.6	9.2	6.7
	Magnesium	5.1	25	132.2
	Manganese	0.005	2.7	199.3
	Nitrate	1.9	2.3	17.0
	Potassium	2.6	14	137.3
	Selenium	0.00072	0.0063	159.0
	Sodium	34	40	16.2
	Strontium	0.640	1.4	74.5
0897	Sulfate	99	100	1.0
	Uranium	0.0017	0.0056	106.8
	Calcium	55	67	19.7
	Chloride	10	9.8	2.0
	Magnesium	7.5	13	53.7
	Manganese	0.0016	0.590	198.9
	Nitrate	2.4	1.9	20.4
	Potassium	1.9	5.4	95.9
	Selenium	0.00062	0.0018	97.5
	Sodium	23	23	0.0
0899	Strontium	0.690	0.820	17.2
	Sulfate	110	110	0.0
	Uranium	0.0016	0.0024	40.0
	Calcium	62	64	3.2
	Chloride	13	14	7.4
	Magnesium	9.1	10	9.4
	Manganese	0.007	0.18	185.0
	Nitrate	0.35	2.7	154.0
	Potassium	2	3.2	46.2

Table 4. (continued). Floodplain River Locations, Filtered and Unfiltered Sample

Location	COC	Result, Filtered	Result, Unfiltered	RPD <sup>a</sup> (%)
0899	Selenium	0.00051	0.00073	35.5
	Sodium	28	27	3.6
	Strontium	0.76	0.78	2.6
	Sulfate	140	140	0.0
	Uranium	0.0014	0.0017	19.4
0940	Calcium	52	65	22.2
	Chloride	10	10	0.0
	Magnesium	7	11	44.4
	Manganese	0.0023	0.54	198.3
	Nitrate	2.0	1.8	14.0
	Potassium	1.8	4.7	89.2
	Selenium	0.00032	0.0015	129.7
	Sodium	21	22	4.7
	Strontium	0.67	0.81	18.9
	Sulfate	100	110	9.5
0956	Uranium	0.0013	0.0022	51.4
	Calcium	52	66	23.7
	Chloride	10	10	0.0
	Magnesium	7.1	11	43.1
	Manganese	0.0024	0.60	198.4
	Nitrate	1.9	1.9	0.0
	Potassium	1.8	4.1	78.0
	Selenium	0.00043	0.0014	106.0
	Sodium	20	21	4.9
	Strontium	0.66	0.78	16.7
0965	Sulfate	110	110	0.0
	Uranium	0.0013	0.002	42.4
	Calcium	54	65	18.5
	Chloride	10	10	0.0
	Magnesium	7.4	11	39.1
	Manganese	0.007	0.53	194.8
	Nitrate	2.0	1.8	9.3
	Potassium	1.9	4.1	73.3
	Selenium	0.00044	0.0012	92.7
	Sodium	21	21	0.0
1203	Strontium	0.69	0.78	12.2
	Sulfate	110	100	9.5
	Uranium	0.0014	0.0021	40.0
1203	Calcium	60	66	9.5

Table 4. (continued). Floodplain River Locations, Filtered and Unfiltered Sample

Location	COC	Result, Filtered	Result, Unfiltered	RPD <sup>a</sup> (%)
1205	Chloride	12	12	0.0
	Magnesium	8.8	11	22.2
	Manganese	0.0027	0.21	194.9
	Nitrate	2.6	2.6	1.7
	Potassium	2	3.7	59.6
	Selenium	0.00048	0.0009	60.9
	Sodium	27	28	3.6
	Strontium	0.75	0.81	7.7
	Sulfate	130	130	0.0
	Uranium	0.0015	0.0019	23.5
1205	Calcium	61	66	7.9
	Chloride	13	13	0.0
	Magnesium	8.5	12	34.1
	Manganese	0.62	0.38	48.0
	Nitrate	2.6	2.7	3.3
	Potassium	2.2	5.8	90.0
	Selenium	0.00047	0.00091	63.8
	Sodium	28	28	0.0
	Strontium	0.770	0.810	5.1
	Sulfate	130	130	0.0
1205	Uranium	0.0014	0.0019	30.3

Results units are in milligrams per liter (mg/L).

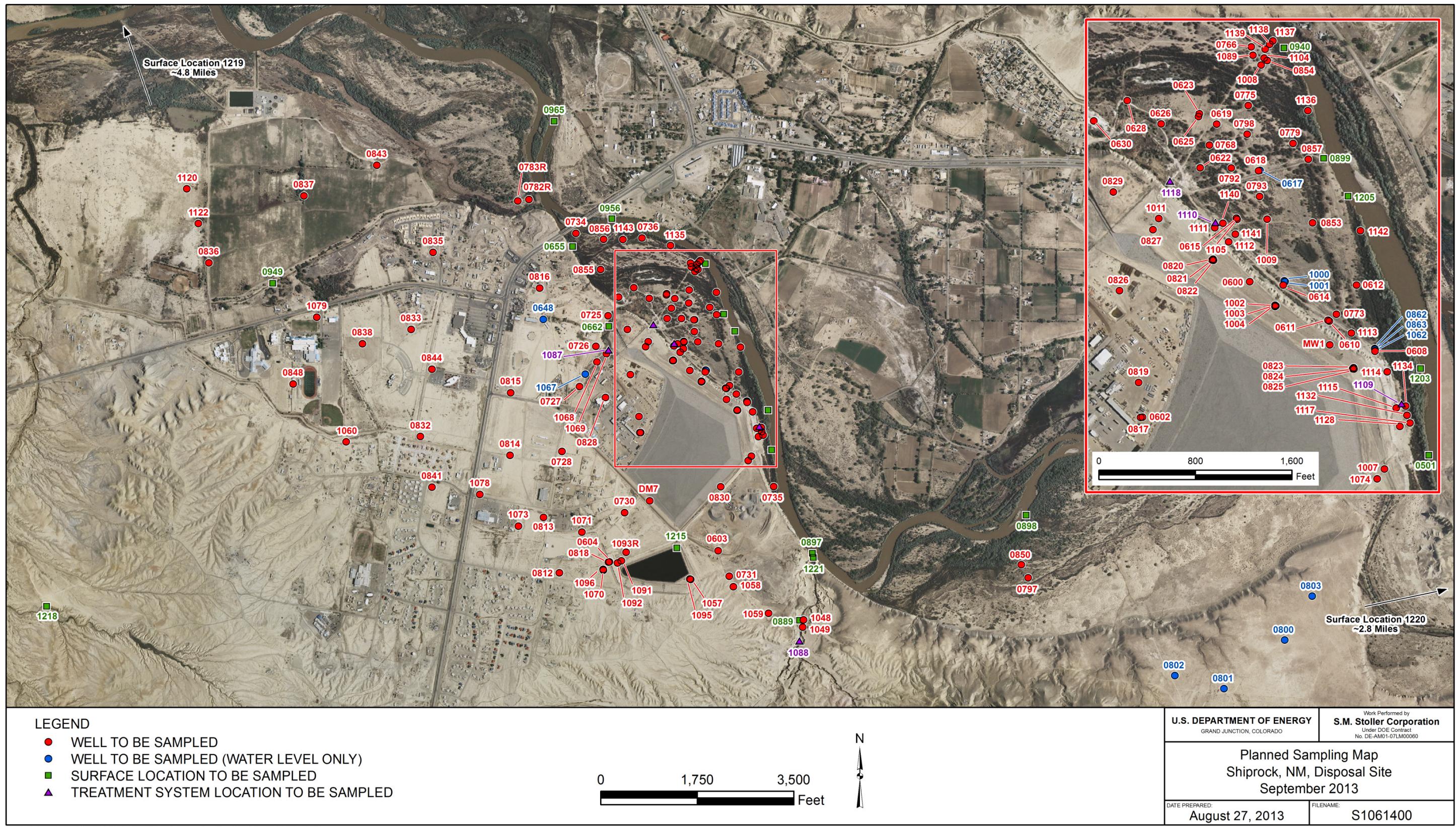
<sup>a</sup> RPD= relative percent difference

David Miller

Site Lead, S. M. Stoller Corporation

5/29/14

Date



Shiprock, New Mexico, Disposal Site Sample Location Map

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# **Data Assessment Summary**

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## Water Sampling Field Activities Verification Checklist

<b>Project</b>	Shiprock, New Mexico	<b>Date(s) of Water Sampling</b>	September 24 – October 2, 2013
<b>Date(s) of Verification</b>	December 5, 2013	<b>Name of Verifier</b>	Stephen Donivan
<b>Response (Yes, No, NA)</b>			<b>Comments</b>
1. Is the SAP the primary document directing field procedures?  List any Program Directives or other documents, SOPs, instructions.			Yes  Work Order letter dated August 28, 2013.
2. Were the sampling locations specified in the planning documents sampled?			No  Fourteen scheduled locations were not sampled because they were dry.
3. Were calibrations conducted as specified in the above-named documents?			Yes  Calibrations were performed between 9/19/2013 and 9/30/2013.
4. Was an operational check of the field equipment conducted daily?  Did the operational checks meet criteria?			Yes  Yes
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?			Yes  Yes
6. Were wells categorized correctly?			Yes  Yes
7. Were the following conditions met when purging a Category I well:  Was one pump/tubing volume purged prior to sampling?  Did the water level stabilize prior to sampling?  Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?  Was the flow rate less than 500 mL/min?			Yes  Yes  Yes  Yes

## Water Sampling Field Activities Verification Checklist (continued)

	<b>Response (Yes, No, NA)</b>	<b>Comments</b>
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicate samples were collected at 10 locations.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were 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?	No	Only a metals sample was collected at location 1069 due to insufficient water.
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	

## Laboratory Performance Assessment

### General Information

Report Number (RIN): 13095615  
Sample Event: September 24 – October 2, 2013  
Site(s): Shiprock Disposal Site (Floodplain), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1310162  
Analysis: Metals and Wet Chemistry  
Validator: Stephen Donivan  
Review Date: November 5, 2013

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

*Table 5. Analytes and Methods*

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonium	WCH-A-005	EPA 350.1	EPA 350.1
Calcium, Magnesium, Manganese, Potassium, Sodium, Strontium	LMM-01	SW-846 3005	SW-846 6010B
Chloride, Sulfate	MIS-A-045	SW-846 9056	SW-846 9056
Nitrate	WCH-A-022	EPA 353.2	EPA 353.2
Selenium, Uranium	LMM-02	SW-846 3005	SW-846 6020

### Data Qualifier Summary

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

*Table 6. Data Qualifiers*

Sample Number	Location	Analyte	Flag	Reason
1310162-1	0501	Nitrate	J	Matrix spike recoveries
1310162-23	0773	Manganese	J	Negative method blank result
1310162-42	0899	Nitrate analyzed on 10/17/2013	R	Laboratory error
1310162-42	0899	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time
1310162-52	1089	Potassium	J	Field duplicate precision
1310162-52	1089	Ammonium	J	Matrix spike duplicate recovery
1310162-54	1105	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time
1310162-61	1115	Ammonium	J	Matrix spike recoveries
1310162-62	1117	Selenium	J	Laboratory replicate precision
1310162-63	1118	Manganese	J	Field duplicate precision
1310162-63	1118	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time
1310162-80	1118 Duplicate	Manganese	J	Field duplicate precision
1310162-80	1118 Duplicate	Nitrate analyzed on 10/17/2013	R	Laboratory error
1310162-80	1118 Duplicate	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time
1310162-81	1089 Duplicate	Ammonia as N	J	Matrix spike duplicate recovery
1310162-81	1089 Duplicate	Potassium	J	Field duplicate precision
1310162-82	Equipment Blank	Manganese	U	Less than 5 times the calibration blank
1310162-82	Equipment Blank	Sodium	U	Less than 5 times the calibration blank

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 82 water samples on October 9, 2013, accompanied by Chain of Custody forms. Copies of the air bills were included in the receiving documentation. The Chain of Custody forms were checked to confirm that all of the samples were listed and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the Chain of Custody forms had no errors or omissions.

### Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers between 0.6 and 1.4 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the following exception. The acidified anions aliquot for sample 1089 duplicate had a pH value of seven when received. The aliquot was acidified to a pH of less than two and allowed to equilibrate prior to analysis. All samples were originally analyzed within the applicable holding times. The nitrate re-analysis for samples 0899 and 1118 (see Assessment of Anomalous Data and Field Duplicate Analysis) was performed outside on the holding time. The associated sample results are qualified with a “J” flag as estimated values.

## 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 and of producing a linear curve. 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*

Calibrations were performed for ammonium on October 21, 2013, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

### *Method EPA 353.2*

Calibrations were performed for nitrate on October 16, 17, and 30, 2013, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

### *Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 21–23, 2013, using three calibration standards. The correlation coefficient values were greater than 0.995. 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 with all calibration checks associated with reported results meeting 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 of 70 percent to 130 percent.

### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed October 22, 2013, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the

absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting 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 of 70 percent to 130 percent. 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*

Calibrations were performed for chloride and sulfate on September 9, 2013, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting 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 for all analytes. 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.

The method blank manganese results were negative, with the absolute value of the result greater than the MDL. Associated sample results that are less than 5 times the MDL are qualified with a "J" flag as estimated values.

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 spikes met the recovery and precision criteria for all analytes evaluated with the following exceptions.

The ammonium matrix spike and spike duplicate recoveries from sample 1115 were above the acceptance range with a positive bias of about 30 percent. The associated sample result is qualified with a "J" flag as an estimated value.

The ammonium spike duplicate recovery from sample 1089 Duplicate was below the acceptance range with a negative of about 30 percent. The associated sample and duplicate results are qualified with a “J” flag as estimated values.

The nitrate matrix spike and spike duplicate recoveries from sample 0501 were below the acceptance range with a negative bias of about 55 percent. The associated sample result is qualified with a “J” flag as an estimated value.

### Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The relative percent difference (RPD) for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria, demonstrating acceptable laboratory precision, for all samples with the flowing exception. The selenium replicate result for sample 1117 showed a bias of about 30 percent. The associated sample result is qualified with a “J” flag as an estimated value.

### Laboratory Control Samples

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. The control sample results were acceptable for all analytes.

### Metals Serial Dilution

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

### Completeness

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

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all chloride and sulfate data. All peak integrations were satisfactory.

### Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in milliequivalents per liter (meq/L). Table 7 shows the total anion and cation results in the samples from this event and the charge balance, which is a RPD calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

*Table 7. Comparison of Floodplain Major Anions and Cations*

Location	Sample Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0501	Surface Water (filtered)	5.19	5.49	2.8
0501	Surface Water (unfiltered)	5.78	5.51	2.4
0608	Groundwater	128.57	139.72	4.15
0610	Groundwater	125.76	137.61	4.50
0611	Groundwater	122.41	131.89	3.73
0612	Groundwater	34.61	37.93	4.59
0614	Groundwater	141.65	153.37	3.97
0615	Groundwater	76.22	81.45	3.31
0618	Groundwater	112.49	129.19	6.91
0619	Groundwater	66.83	71.70	3.51
0622	Groundwater	59.73	65.56	4.65
0623	Groundwater	57.61	63.63	4.97
0625	Groundwater	56.55	59.90	2.87
0626	Groundwater	79.46	87.31	4.70
0628	Groundwater	61.20	65.97	3.75
0630	Groundwater	87.51	95.49	4.36
0655	Surface Water (unfiltered)	72.77	81.75	5.81
0734	Groundwater	470.79	555.65	8.27
0735	Groundwater	294.36	354.50	9.27
0736	Groundwater	65.65	70.82	3.78
0766	Groundwater	89.90	97.23	3.92
0768	Groundwater	148.67	159.78	3.60
0773	Groundwater	39.07	39.99	1.16
0775	Groundwater	89.92	99.96	5.29
0779	Groundwater	251.91	278.86	5.08
0782R	Groundwater	12.55	13.06	2.00
0783R	Groundwater	18.37	19.66	3.41
0792	Groundwater	95.55	101.65	3.09
0793	Groundwater	151.58	164.39	4.06
0797	Groundwater	117.04	119.01	0.83
0798	Groundwater	113.95	117.37	1.48
0850	Groundwater	62.85	65.12	1.77
0853	Groundwater	15.99	16.77	2.39
0854	Groundwater	157.68	164.63	2.16
0855	Groundwater	80.22	83.56	2.04
0856	Groundwater	58.16	65.39	5.86
0857	Groundwater	124.35	135.62	4.34
0888	Surface Water (filtered)	4.28	4.69	4.7
0888	Surface Water (unfiltered)	4.55	4.74	0.9
0897	Surface Water (filtered)	4.43	4.97	5.7
0897	Surface Water (unfiltered)	5.57	4.96	5.8
0899	Surface Water (filtered)	5.13	5.69	5.2
0899	Surface Water (unfiltered)	5.29	5.75	4.2
0940	Surface Water (filtered)	4.15	4.28	1.6
0940	Surface Water (unfiltered)	5.24	4.48	7.9

*Table 7 (continued). Comparison of Floodplain Major Anions and Cation*

Location	Sample Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0956	Surface Water (filtered)	4.11	4.78	7.5
0956	Surface Water (unfiltered)	5.23	4.78	4.6
0965	Surface Water (filtered)	4.28	4.89	6.6
0965	Surface Water (unfiltered)	5.19	4.67	5.2
1008	Groundwater	95.50	106.27	5.34
1009	Groundwater	35.33	37.09	2.43
1089	Groundwater	95.50	105.39	4.92
1104	Groundwater	147.01	165.15	5.81
1105	Groundwater	79.90	87.01	4.26
1109	Groundwater	17.60	19.84	5.97
1110	Groundwater	112.55	113.47	0.41
1111	Groundwater	168.11	179.90	3.39
1112	Groundwater	143.08	156.46	4.47
1113	Groundwater	116.47	107.56	3.98
1114	Groundwater	71.69	79.77	5.34
1115	Groundwater	154.45	171.14	5.13
1117	Groundwater	7.46	8.50	6.54
1118	Surface Water (filtered)	156.27	166.08	3.04
1128	Groundwater	168.78	179.81	3.16
1132	Groundwater	5.50	6.43	7.81
1134	Groundwater	6.84	7.81	6.65
1135	Groundwater	63.90	71.40	5.55
1136	Groundwater	34.91	37.14	3.10
1137	Groundwater	172.57	196.28	6.43
1138	Groundwater	229.49	263.50	6.90
1139	Groundwater	284.29	329.17	7.32
1140	Groundwater	173.14	200.92	7.42
1141	Groundwater	56.48	59.87	2.91
1142	Groundwater	10.08	10.90	3.93
1143	Groundwater	66.54	78.44	8.21
1203	Surface Water (filtered)	4.96	5.45	4.7
1203	Surface Water (unfiltered)	5.53	5.45	0.8
1205	Surface Water (filtered)	5.04	5.51	4.5
1205	Surface Water (unfiltered)	5.67	5.51	1.4

meq/L = milliequivalents per liter

The charge balance difference for all locations was below 10 percent indicating that there are no significant errors associated with the measurement of major ion concentrations.

#### Electronic Data Deliverable (EDD) File

The EDD file arrived on October 31, 2013. The Sample Management System EDD validation module was used to verify that the EDD files were complete and in compliance with requirements. The module compares the contents of the files 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: 13095615 Lab Code: PAR Validator: Stephen Donivan Validation Date: 10/31/2013  
Project: Shiprock Monitoring Analysis Type:  Metals  General Chem  Rad  Organics  
# of Samples: 82 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

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## Metals Data Validation Worksheet

**RIN:** 13095615

**Lab Code:** PAR

**Date Due:** 11/06/2013

**Matrix:** Water

**Site Code:** SHP01

**Date Completed:** 11/04/2013

Analyte	Method Type	Date Analyzed	CALIBRATION				Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	101.0				106.0	2.0	103.0
Calcium	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	97.0	98.0	90.0	3.0	106.0	3.0	104.0
Calcium	ICP/ES	10/22/2013					OK	96.0	101.0	103.0	1.0	104.0	1.0	102.0
Calcium	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	95.0	89.0	88.0	0.0	103.0	2.0	102.0
Calcium	ICP/ES	10/23/2013					OK	94.0	98.0	99.0	0.0	103.0		103.0
Magnesium	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	100.0				105.0	0.0	103.0
Magnesium	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	96.0	95.0	94.0	0.0	104.0	3.0	103.0
Magnesium	ICP/ES	10/22/2013					OK	96.0	95.0	96.0	1.0	105.0	2.0	104.0
Magnesium	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	96.0	94.0	94.0	1.0	103.0	1.0	103.0
Magnesium	ICP/ES	10/23/2013					OK	94.0	94.0	95.0	0.0	103.0		103.0
Manganese	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	105.0					1.0	110.0
Manganese	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	103.0	100.0	99.0	1.0	95.0	2.0	113.0
Manganese	ICP/ES	10/22/2013					OK	103.0	99.0	101.0	1.0	97.0	2.0	112.0
Manganese	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	104.0	98.0	96.0	1.0	96.0	2.0	111.0
Manganese	ICP/ES	10/23/2013					OK	99.0	95.0	98.0	2.0	94.0		109.0
Potassium	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	98.0				93.0		80.0
Potassium	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	96.0	102.0	103.0	0.0			80.0
Potassium	ICP/ES	10/22/2013					OK	94.0	100.0	102.0	2.0			81.0

**SAMPLE MANAGEMENT SYSTEM**

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**Metals Data Validation Worksheet**

**RIN:** 13095615

**Lab Code:** PAR

**Date Due:** 11/06/2013

**Matrix:** Water

**Site Code:** SHP01

**Date Completed:** 11/04/2013

Analyte	Method Type	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R <sup>2</sup>	CCV/CCB								
Potassium	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	97.0	103.0	102.0	1.0		80.0
Potassium	ICP/ES	10/23/2013					OK	96.0	107.0	108.0	2.0		82.0
Selenium	ICP/MS	10/22/2013	0.0000	1.0000	OK	OK	OK	100.0	95.0	98.0	3.0	103.0	3.0
Selenium	ICP/MS	10/22/2013					OK	100.0	97.0	100.0	2.0		77.0
Selenium	ICP/MS	10/22/2013					OK	100.0	95.0	97.0	2.0		103.0
Selenium	ICP/MS	10/22/2013					OK	97.0	100.0	97.0	3.0		
Selenium	ICP/MS	10/22/2013					OK	101.0		27.0			
Sodium	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	105.0				9.0	84.0
Sodium	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	97.0	108.0	104.0	2.0	10.0	84.0
Sodium	ICP/ES	10/22/2013					OK	97.0	108.0	109.0	1.0	7.0	88.0
Sodium	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	97.0	105.0	102.0	2.0	7.0	82.0
Sodium	ICP/ES	10/23/2013					OK	96.0	114.0	110.0	2.0		81.0
Strontium	ICP/ES	10/21/2013	0.0000	1.0000	OK	OK	OK	109.0				95.0	0.0
Strontium	ICP/ES	10/22/2013	0.0000	1.0000	OK	OK	OK	104.0	100.0	94.0	2.0	96.0	2.0
Strontium	ICP/ES	10/22/2013					OK	104.0	103.0	106.0	1.0	95.0	0.0
Strontium	ICP/ES	10/23/2013	0.0000	1.0000	OK	OK	OK	105.0	98.0	95.0	1.0	94.0	0.0
Strontium	ICP/ES	10/23/2013					OK	101.0	101.0	100.0	0.0	92.0	
Uranium	ICP/MS	10/22/2013	0.0000	1.0000	OK	OK	OK	103.0	101.0	105.0	3.0	100.0	1.0
													100.0

**SAMPLE MANAGEMENT SYSTEM**

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**Metals Data Validation Worksheet**RIN: 13095615Lab Code: PARDate Due: 11/06/2013Matrix: WaterSite Code: SHP01Date Completed: 11/04/2013

Analyte	Method Type	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV/CCB								
Uranium	ICP/MS	10/22/2013				OK	101.0	105.0	99.0	4.0		7.0	110.0
Uranium	ICP/MS	10/22/2013				OK	100.0	98.0	100.0	1.0		1.0	101.0
Uranium	ICP/MS	10/22/2013				OK	95.0	104.0	107.0	2.0		0.0	
Uranium	ICP/MS	10/22/2013				OK	98.0						

**SAMPLE MANAGEMENT SYSTEM**  
**Wet Chemistry Data Validation Worksheet**

RIN: 13095615

Lab Code: PAR

Date Due: 11/06/2013

Matrix: Water

Site Code: SHP01

Date Completed: 11/04/2013

Analyte	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB	Blank				
AMMONIA AS N	10/21/2013	0.000	1.0000	OK	OK	OK	98.00	104.0	98.0	6.00
AMMONIA AS N	10/21/2013					OK	98.00	85.0	90.0	5.00
AMMONIA AS N	10/21/2013					OK	100.00	101.0	104.0	4.00
AMMONIA AS N	10/21/2013					OK	99.00	136.0	129.0	4.00
AMMONIA AS N	10/21/2013					OK	100.00	76.0	70.0	9.00
CHLORIDE	10/15/2013	0.000	1.0000	OK	OK	OK	102.00			
CHLORIDE	10/16/2013					OK	102.00	99.0	98.0	0
CHLORIDE	10/16/2013							102.0	102.0	0
CHLORIDE	10/17/2013			OK	OK			102.0	102.0	0
CHLORIDE	10/18/2013			OK	OK	OK	103.00	99.0	99.0	0
CHLORIDE	10/18/2013					OK	103.00			
CHLORIDE	10/21/2013				OK	OK	OK	104.00	102.0	102.0
Nitrate+Nitrite as N	10/16/2013	0.000	0.9990	OK	OK	OK	95.00	89.0	95.0	1.00
Nitrate+Nitrite as N	10/17/2013	0.000	1.0000	OK	OK	OK	98.00	101.0	102.0	0
Nitrate+Nitrite as N	10/17/2013					OK	98.00	122.0	120.0	1.00
Nitrate+Nitrite as N	10/17/2013	0.000	1.0000	OK	OK	OK	98.00	124.0	113.0	3.00

**SAMPLE MANAGEMENT SYSTEM**  
**Wet Chemistry Data Validation Worksheet**

RIN: 13095615

Lab Code: PAR

Date Due: 11/06/2013

Matrix: Water

Site Code: SHP01

Date Completed: 11/04/2013

Analyte	Date Analyzed	CALIBRATION				Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB	Blank					
Nitrate+Nitrite as N	10/17/2013					OK	97.00				
Nitrate+Nitrite as N	10/30/2013	0.000	0.9999	OK	OK			49.0	41.0	5.00	
SULFATE	10/15/2013	0.000	1.0000	OK	OK	OK	101.00				
SULFATE	10/16/2013					OK	101.00	99.0	99.0	0	
SULFATE	10/17/2013			OK	OK			102.0	100.0	0	
SULFATE	10/18/2013			OK	OK	OK	102.00	100.0	100.0	0	
SULFATE	10/18/2013					OK	102.00				
SULFATE	10/21/2013			OK	OK	OK	103.00	103.0	105.0	1.00	

## General Information

Report Number (RIN): 13095616  
Sample Event: September 24 – October 2, 2013  
Site(s): Shiprock Disposal Site (Terrace), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1310159  
Analysis: Metals and Wet Chemistry  
Validator: Stephen Donivan  
Review Date: October 31, 2013

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated), “*Standard Practice for Validation of Environmental Data.*” The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 8.

*Table 8. Analytes and Methods.*

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonium	WCH-A-005	EPA 350.1	EPA 350.1
Calcium, Magnesium, Manganese, Potassium, Sodium, Strontium	LMM-01	SW-846 3005	SW-846 6010B
Chloride, Sulfate	MIS-A-045	SW-846 9056	SW-846 9056
Nitrate	WCH-A-022	EPA 353.2	EPA 353.2
Selenium, Uranium	LMM-02	SW-846 3005	SW-846 6020

## Data Qualifier Summary

Analytical results were qualified as listed in Table 9. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

*Table 9. Data Qualifiers*

Sample Number	Location	Analyte	Flag	Reason
1310159-1	0600	Ammonium	J	Matrix spike recovery
1310159-2	0602	Manganese	J	Serial dilution result
1310159-2	0602	Potassium	J	Matrix spike recovery
1310159-16	0816	Manganese	J	Negative method blank result
1310159-35	0844	Manganese	J	Negative method blank result
1310159-39	1048	Manganese	J	Negative method blank result
1310159-40	1049	Manganese	J	Negative method blank result
1310159-46	1070	Potassium	J	Matrix spike duplicate recovery
1310159-51	1079	Manganese	J	Negative method blank result
1310159-56	1093R	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time
1310159-58	1096	Manganese	J	Field duplicate precision
1310159-66	1070 Duplicate	Potassium	J	Matrix spike duplicate recovery
1310159-67	1096 Duplicate	Manganese	J	Field duplicate precision
1310159-70	1093R Duplicate	Nitrate analyzed on 10/17/2013	R	Laboratory error
1310159-70	1093R Duplicate	Nitrate analyzed on 11/7/2013	J	Analyzed outside of holding time

#### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 71 water samples on October 9, 2013, accompanied by Chain of Custody forms. Copies of the air bills were included in the receiving documentation. The Chain of Custody forms were checked to confirm that all of the samples were listed and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the Chain of Custody forms had no errors or omissions with the following exceptions.

Due to insufficient water, only a metals aliquot was collected from location 1069. However, the anions aliquots were listed on the COC form for this location.

One of the anions aliquots from location 1071 was received labeled with the location and ticket number for location 1073. The aliquot was matched to the COC and logged in based on the sample date and time.

#### Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers between 3.2 and 3.6 °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 originally analyzed within the applicable holding times. The nitrate re-analysis for sample 1093R (see Field Duplicate Analysis) was performed outside on the holding time. The associated sample results are qualified with a “J” flag as estimated values.

## Detection and Quantitation Limits

The 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 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 and of producing a linear curve. 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*

Calibrations were performed for ammonium on October 14, 2013, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

### *Method EPA 353.2*

Calibrations were performed for nitrate on October 16, 2013, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

### *Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 17-18, 2013, using three calibration standards. The correlation coefficient values were greater than 0.995. 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 with all calibration checks associated with reported results meeting 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 of 70 percent to 130 percent.

### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed October 17, 2013, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks

associated with reported results meeting 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 of 70 percent to 130 percent. 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*

Calibrations were performed for chloride and sulfate on September 9, 2013, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting 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 for all analytes. 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.

The method blank manganese results were negative, with the absolute value of the result greater than the MDL. Associated sample results that are less than 5 times the MDL are qualified with a "J" flag as estimated values.

#### 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

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 spikes met the recovery and precision criteria for all analytes evaluated with the following exceptions.

The potassium matrix spike and spike duplicate recoveries from sample 0602 were above the acceptance range with a positive bias of about 30 percent. The associated sample result is qualified with a "J" flag as an estimated value.

The potassium spike duplicate recovery from sample 1070 Duplicate was above the acceptance range with a positive bias of about 20 percent. Associated sample and duplicate results are qualified with a "J" flag as estimated values.

The ammonium spike recovery from sample 0600 was below the acceptance range with a negative bias of about 25 percent. The associated sample result is qualified with a “J” flag as an estimated value.

#### Laboratory Replicate Analysis

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

#### Laboratory Control Samples

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. The control sample results were acceptable for all analytes.

#### 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 following exception. The serial dilution for manganese prepared from sample 0602 did not meet the acceptance criteria, with positive bias. Because of the possible reduced accuracy due to matrix interference, the associated sample 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.

#### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all chloride and sulfate data. All peak integrations were satisfactory.

#### Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in meq/L. Table 10 shows the total anion and cation results in the samples from this event and the charge balance, which is a RPD calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

*Table 10. Comparison of Terrace Major Anions and Cations*

Location	Sample Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0600	Groundwater	248.85	304.63	10.08
0602	Groundwater	399.63	478.27	8.96
0603	Groundwater	202.59	188.61	3.57
0604	Groundwater	361.84	428.53	8.44
0662	Surface Water	39.48	44.84	6.36
0725	Groundwater	73.43	83.49	6.41
0726	Groundwater	140.05	157.12	5.74
0727	Groundwater	237.71	270.27	6.41
0728	Groundwater	70.87	73.63	1.91
0730	Groundwater	41.60	50.96	10.11
0731	Groundwater	80.74	93.93	7.55
0812	Groundwater	435.82	589.59	15.00
0813	Groundwater	352.45	422.77	9.07
0814	Groundwater	357.37	402.49	5.94
0815	Groundwater	325.27	424.22	13.20
0816	Groundwater	21.15	22.55	3.21
0817	Groundwater	286.56	338.35	8.29
0818	Groundwater	300.81	416.06	16.08
0819	Groundwater	289.41	340.48	8.11
0820	Groundwater	336.84	403.32	8.98
0822	Groundwater	275.68	329.54	8.90
0824	Groundwater	295.48	362.87	10.24
0825	Groundwater	317.49	374.31	8.21
0826	Groundwater	277.99	313.67	6.03
0827	Groundwater	179.81	195.67	4.22
0828	Groundwater	53.07	55.18	1.95
0830	Groundwater	27.94	28.44	0.88
0833	Groundwater	108.00	120.41	5.43
0835	Groundwater	17.28	17.88	1.70
0836	Groundwater	59.67	69.75	7.79
0837	Groundwater	63.40	70.86	5.56
0838	Groundwater	225.58	245.03	4.13
0841	Groundwater	284.62	364.06	12.25
0843	Groundwater	43.86	46.07	2.46
0844	Groundwater	271.72	322.77	8.59
0848	Groundwater	324.38	446.14	15.80
0889	Surface Water	242.40	288.93	8.76
1007	Groundwater	307.65	374.22	9.76
1048	Groundwater	383.95	490.05	12.14
1049	Groundwater	379.54	468.16	10.45
1057	Groundwater	196.49	149.80	13.48
1058	Groundwater	150.99	166.73	4.95
1059	Groundwater	215.50	235.36	4.40
1068	Groundwater	132.33	146.11	4.95
1069	Groundwater	NA	NA	NA

*Table 10 (continued). Comparison of Major Anions and Cation*

Location	Sample Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
1070	Groundwater	359.52	426.80	8.56
1071	Groundwater	311.45	381.29	10.08
1073	Groundwater	308.99	363.75	8.14
1074	Groundwater	278.67	311.38	5.54
1078	Groundwater	328.12	386.23	8.13
1079	Groundwater	65.19	71.39	4.54
1087	Groundwater	143.53	168.45	7.99
1088	Groundwater	368.48	434.53	8.23
1091	Groundwater	402.13	436.93	4.15
1092	Groundwater	375.81	476.88	11.85
1093R	Groundwater	58.86	62.57	3.06
1095	Groundwater	231.40	243.87	2.62
1096	Groundwater	318.19	398.05	11.15
1215	Surface Water	1963.00	1685.97	7.59
1219	Surface Water	48.06	51.02	2.99
1220	Surface Water	30.47	31.00	0.86
MW1	Groundwater	194.00	239.25	10.44

meq/L = milliequivalents per liter

The charge balance differences exceed 10 percent for 15 wells. Most of these wells are Category II or III wells where larger variations in the data are expected. There were no analytical errors identified during the review of the data associated with these locations. At location 1069, a sample was collected for metals only and the charge balance difference cannot be calculated.

#### EDD File

The EDD file arrived on October 30, 2013. The Sample Management System EDD validation module was used to verify that the EDD files were complete and in compliance with requirements. The module compares the contents of the files 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: 13095616 Lab Code: PAR Validator: Stephen Donivan Validation Date: 10/30/2013  
Project: Shiprock Monitoring Analysis Type:  Metals  General Chem  Rad  Organics  
# of Samples: 71 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 were 8 duplicates evaluated.

# SAMPLE MANAGEMENT SYSTEM

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## Metals Data Validation Worksheet

**RIN:** 13095616

**Lab Code:** PAR

**Date Due:** 11/06/2013

**Matrix:** Water

**Site Code:** SHP01

**Date Completed:** 10/30/2013

Analyte	Method Type	Date Analyzed	CALIBRATION				Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	95.0			4.0	101.0	6.0	105.0
Calcium	ICP/ES	10/17/2013					OK	101.0			3.0	102.0	5.0	104.0
Calcium	ICP/ES	10/17/2013					OK	99.0			4.0	102.0	3.0	104.0
Calcium	ICP/ES	10/17/2013					OK	97.0			0.0		4.0	
Magnesium	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	99.0			4.0	105.0	1.0	105.0
Magnesium	ICP/ES	10/17/2013					OK	102.0			4.0	104.0	1.0	103.0
Magnesium	ICP/ES	10/17/2013					OK	100.0			4.0	102.0	1.0	101.0
Magnesium	ICP/ES	10/17/2013					OK	98.0			0.0		1.0	
Manganese	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	99.0	104.0	96.0	3.0	97.0	12.0	112.0
Manganese	ICP/ES	10/17/2013					OK	100.0			3.0	94.0	0.0	108.0
Manganese	ICP/ES	10/17/2013					OK	100.0			4.0	97.0	4.0	111.0
Manganese	ICP/ES	10/17/2013					OK	103.0	97.0	96.0	1.0	93.0		107.0
Potassium	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	98.0	136.0	126.0	3.0		5.0	85.0
Potassium	ICP/ES	10/17/2013					OK	101.0	99.0	116.0	4.0			84.0
Potassium	ICP/ES	10/17/2013					OK	99.0	111.0	93.0	3.0			83.0
Potassium	ICP/ES	10/17/2013					OK	98.0	117.0	122.0	2.0			
Selenium	ICP/MS	10/17/2013	0.0000	1.0000	OK	OK	OK	101.0	109.0	111.0	2.0		8.0	100.0
Selenium	ICP/MS	10/17/2013					OK	97.0	112.0	84.0	26.0		7.0	98.0

**SAMPLE MANAGEMENT SYSTEM**

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**Metals Data Validation Worksheet**

RIN: 13095616

Lab Code: PAR

Date Due: 11/06/2013

Matrix: Water

Site Code: SHP01

Date Completed: 10/30/2013

Analyte	Method Type	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB	Blank						
Selenium	ICP/MS	10/17/2013				OK	101.0	108.0	114.0	4.0			
Selenium	ICP/MS	10/17/2013				OK	96.0			1.0			
Sodium	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	99.0		5.0		3.0	84.0
Sodium	ICP/ES	10/17/2013				OK	101.0			4.0		8.0	85.0
Sodium	ICP/ES	10/17/2013				OK	101.0			3.0		5.0	85.0
Sodium	ICP/ES	10/17/2013				OK	100.0			0.0		7.0	84.0
Strontium	ICP/ES	10/17/2013	0.0000	1.0000	OK	OK	OK	105.0		4.0	95.0	3.0	109.0
Strontium	ICP/ES	10/17/2013				OK	108.0			3.0	95.0	6.0	111.0
Strontium	ICP/ES	10/17/2013				OK	109.0			4.0	96.0	4.0	110.0
Strontium	ICP/ES	10/17/2013				OK	108.0			1.0		5.0	
Uranium	ICP/MS	10/17/2013	0.0000	1.0000	OK	OK	OK	103.0		0.0		6.0	105.0
Uranium	ICP/MS	10/17/2013				OK	103.0			9.0		2.0	105.0
Uranium	ICP/MS	10/17/2013				OK	106.0	120.0	104.0	5.0		5.0	
Uranium	ICP/MS	10/17/2013				OK	106.0			1.0		1.0	

**SAMPLE MANAGEMENT SYSTEM**  
**Wet Chemistry Data Validation Worksheet**

RIN: 13095616

Lab Code: PAR

Date Due: 11/06/2013

Matrix: Water

Site Code: SHP01

Date Completed: 10/30/2013

Analyte	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB	Blank				
AMMONIA AS N	10/14/2013	0.000	1.0000	OK	OK	OK	101.00	76.0	74.0	1.00
AMMONIA AS N	10/14/2013					OK	99.00	81.0	80.0	0
AMMONIA AS N	10/14/2013					OK	99.00	96.0	96.0	0
AMMONIA AS N	10/14/2013					OK	99.00	92.0	92.0	0
CHLORIDE	10/10/2013	0.000	0.9999	OK	OK	OK	102.00	101.0	101.0	0
CHLORIDE	10/11/2013					OK	104.00	87.0	91.0	1.00
CHLORIDE	10/15/2013					OK	103.00	102.0	101.0	1.00
CHLORIDE	10/15/2013					OK	102.00	101.0	102.0	0
Nitrate+Nitrite as N	10/16/2013	0.000	0.9990	OK	OK	OK	95.00	87.0	103.0	5.00
Nitrate+Nitrite as N	10/16/2013					OK	98.00	94.0	99.0	2.00
Nitrate+Nitrite as N	10/16/2013					OK	95.00	82.0	95.0	4.00
Nitrate+Nitrite as N	10/16/2013					OK	95.00	96.0	91.0	2.00
SULFATE	10/10/2013	0.000	0.9999	OK	OK	OK	100.00	102.0	100.0	1.00
SULFATE	10/11/2013					OK	103.00	100.0	101.0	1.00
SULFATE	10/15/2013					OK	101.00	103.0	102.0	0
SULFATE	10/15/2013					OK	101.00	95.0	96.0	0

## **Sampling Quality Control Assessment**

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

### Sampling Protocol

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

Floodplain wells 0734, 0779, and 0797; and terrace wells 0600, 0602, 0604, 0727, 0730, 0814, 0816, 0817, 0819, 0820, 0824, 0825, 0826, 0827, 1007, 1057, 1058, 1059, 1068, 1069, 1073, 1074, and MW1 were classified as Category II or III. The sample results for these wells were further qualified with a “Q” flag, indicating the data are qualitative because of the sampling technique.

Terrace well 0822 was sampled with a disposable bailer due to difficulties with the dedicated bladder pump.

Both filtered and unfiltered samples were collected from floodplain river locations 0501, 0897, 0898, 0899, 0940, 0956, 0965, 1203, and 1205.

### Equipment Blank

Equipment blanks are prepared and analyzed to document contamination attributable to the sample collection process. One equipment blank was submitted with these samples. Uranium was detected in this blank. The uranium concentrations in the associated samples were much greater than the blank concentration requiring no qualification.

### 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. The RPD for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results (RPD is NA on the Field Duplicates report), the range should be no greater than the PQL.

Duplicate samples were collected from floodplain locations 1089 and 1118. The duplicate results met the criteria with the following exceptions. The potassium results from location 1089, and the manganese and nitrate results from location 1118 had RPD values greater than 20 percent. An analytical error was suspected regarding the nitrate results from location 1118 and the laboratory was requested to repeat the analysis for those samples. The results of the reanalysis confirmed an error was made during the original analysis. The original duplicate nitrate result is qualified with an “R” flag as rejected. The reanalysis nitrate results are qualified with a “J” flag as an estimated value because the analysis was performed outside of holding time.

Duplicate samples were collected from terrace locations 0818, 1070, 1071, 1078, 1088, 1093R, 1095, and 1096. The duplicate results met the criteria with the following exceptions. The nitrate results from location 1078; the ammonium, manganese, and nitrate results from location 1096; and the nitrate results from location 1093R, had RPD values greater than 20 percent. An analytical error was suspected regarding the nitrate results from location 1093R and the laboratory was requested to repeat the analysis for those samples. The results of the reanalysis confirmed an error was made during the original analysis. The original duplicate nitrate result is qualified with an “R” flag as rejected. The reanalysis nitrate results are qualified with a “J” flag as an estimated value because the analysis was performed outside of holding time.

During the review of the duplicate data, there were no additional analytical errors identified and sampling difficulties were not reported on the field data sheets. For those results where the RPD exceeded 20 percent, the precision observed is attributed to the complex sample matrix that required sample dilution prior to analysis for most analytes and those results are qualified with a “J” flag as estimated values. The duplicate results are acceptable as qualified.

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Equipment/Trip Blanks

RIN: 13095615 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 11/05/2013

### Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1310162-82	SW6020	Uranium	0.003	B	0.0029	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1310162-1	LKW 330	0501	1.5	1		
1310162-17	LKW 392	0655	45	10		
1310162-2	LKW 341	0501	1.9	1		
1310162-40	LKW 320	0898	1.7	1		
1310162-41	LKW 354	0898	5.6	1		
1310162-44	LKW 321	0940	1.3	1		
1310162-45	LKW 356	0940	2.2	1		
1310162-46	LKW 322	0956	1.3	1		
1310162-47	LKW 359	0956	2	1		

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Field Duplicates

RIN: 13095615      Lab Code: PAR      Project: Shiprock Monitoring      Validation Date: 10/31/2013

Duplicate: 2210

Sample: 1118

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
Calcium	360000			5	350000			1	2.82		UG/L
CHLORIDE	310			100	310			100	0		MG/L
Magnesium	710000			5	730000			50	2.78		UG/L
Manganese	52			5	42			1	21.28		UG/L
Nitrate+Nitrite as N	66			50	17			200	118.07		MG/L
Potassium	55000			5	66000			1	18.18		UG/L
Selenium	270			50	250			10	7.69		UG/L
Sodium	1800000			50	1700000			50	5.71		UG/L
Strontium	9200			5	8300			1	10.29		UG/L
SULFATE	6800			100	6800			100	0		MG/L
Uranium	510			50	500			10	1.98		UG/L

Duplicate: 2211

Sample: 1089

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	0.39			1	0.1	UN		1			MG/L
Calcium	320000			10	330000			1	3.08		UG/L
CHLORIDE	120			100	120			100	0		MG/L
Magnesium	210000			10	200000			1	4.88		UG/L
Manganese	900			10	760			1	16.87		UG/L
Nitrate+Nitrite as N	1.6			1	1.9			1	17.14		MG/L
Potassium	48000			10	63000			1	27.03		UG/L
Selenium	4.6			1	4.4			5	4.44		UG/L
Sodium	1400000			10	1500000			10	6.90		UG/L
Strontium	4900			10	4600			1	6.32		UG/L
SULFATE	4500			100	4600			100	2.20		MG/L
Uranium	210			10	210			5	0		UG/L

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Field Duplicates

RIN: 13095616      Lab Code: PAR      Project: Shiprock Monitoring      Validation Date: 10/30/2013

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**Duplicate: 2319**

**Sample: 1078**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	1.5		1		1.5		1		0		MG/L
Calcium	380000		10		370000		5		2.67		UG/L
CHLORIDE	1100		500		1100		500		0		MG/L
Magnesium	930000		10		900000		5		3.28		UG/L
Manganese	59		10		62		5		4.96		UG/L
Nitrate+Nitrite as N	440		500		550		2000		22.22		MG/L
Potassium	71000		10		80000		5		11.92		UG/L
Selenium	2400		100		2800		50		15.38		UG/L
Sodium	5300000		100		5300000		100		0		UG/L
Strontium	9600		10		9200		5		4.26		UG/L
SULFATE	15000		500		15000		500		0		MG/L
Uranium	120		100		130		50		8.00		UG/L

**Duplicate: 2320**

**Sample: 1071**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	22		10		21		10		4.65		MG/L
Calcium	430000		50		410000		10		4.76		UG/L
CHLORIDE	1200		500		1200		500		0		MG/L
Magnesium	1100000		50		1200000		10		8.70		UG/L
Manganese	1900		50		1900		10		0		UG/L
Nitrate+Nitrite as N	670		500		790		500		16.44		MG/L
Potassium	77000		50		88000		10		13.33		UG/L
Selenium	2400		100		2600		50		8.00		UG/L
Sodium	4500000		50		4400000		100		2.25		UG/L
Strontium	11000		50		11000		10		0		UG/L
SULFATE	14000		500		14000		500		0		MG/L
Uranium	120		100		130		50		8.00		UG/L

**Duplicate: 2466**

**Sample: 0818**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	55		20		51		100		7.55		MG/L
Calcium	380000		50		410000		10		7.59		UG/L
CHLORIDE	1100		500		1100		500		0		MG/L
Magnesium	1500000		50		1600000		10		6.45		UG/L
Manganese	480		50		520		10		8.00		UG/L
Nitrate+Nitrite as N	800		500		750		5000		6.45		MG/L

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Field Duplicates

RIN: 13095616      Lab Code: PAR      Project: Shiprock Monitoring      Validation Date: 10/30/2013

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**Duplicate: 2466**

**Sample: 0818**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Potassium	81000		50		89000			10	9.41		UG/L
Selenium	2400		100		2300			50	4.26		UG/L
Sodium	3500000		50		4100000			50	15.79		UG/L
Strontium	11000		50		12000			10	8.70		UG/L
SULFATE	15000		500		15000			500	0		MG/L
Uranium	130		100		130			50	0		UG/L

**Duplicate: 2467**

**Sample: 1070**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	2.7		1		2.7			1	0		MG/L
Calcium	360000		10		390000			50	8.00		UG/L
CHLORIDE	1200		500		1300			500	8.00		MG/L
Magnesium	950000		10		970000			50	2.08		UG/L
Manganese	250		10		230	B		50	8.33		UG/L
Nitrate+Nitrite as N	630		500		690			500	9.09		MG/L
Potassium	80000		10		74000	N		50	7.79		UG/L
Selenium	2100		100		2000			100	4.88		UG/L
Sodium	6000000		100		5800000			50	3.39		UG/L
Strontium	9200		10		9800			50	6.32		UG/L
SULFATE	16000		500		17000			500	6.06		MG/L
Uranium	75		100		71			100	5.48		UG/L

**Duplicate: 2468**

**Sample: 1096**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	3.1		1		2.4			1	25.45		MG/L
Calcium	360000		10		400000			50	10.53		UG/L
CHLORIDE	960		500		980			500	2.06		MG/L
Magnesium	820000		10		870000			50	5.92		UG/L
Manganese	330		10		120	B		50	93.33		UG/L
Nitrate+Nitrite as N	620		500		500			500	21.43		MG/L
Potassium	72000		10		71000			50	1.40		UG/L
Selenium	2400		50		2400			50	0		UG/L
Sodium	5300000		100		5500000			50	3.70		UG/L
Strontium	8400		10		9200			50	9.09		UG/L
SULFATE	15000		500		15000			500	0		MG/L

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Field Duplicates

RIN: 13095616      Lab Code: PAR      Project: Shiprock Monitoring      Validation Date: 10/30/2013

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**Duplicate: 2468**

**Sample: 1096**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Uranium	82			50	84			50	2.41		UG/L

**Duplicate: 2534**

**Sample: 1088**

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
Calcium	370000			10	380000			50	2.67		UG/L
CHLORIDE	1200			500	1300			500	8.00		MG/L
Magnesium	900000			10	890000			50	1.12		UG/L
Manganese	700			10	680			50	2.90		UG/L
Nitrate+Nitrite as N	240			500	280			200	15.38		MG/L
Potassium	70000			10	64000			50	8.96		UG/L
Selenium	630			50	610			50	3.23		UG/L
Sodium	6300000			100	6000000			50	4.88		UG/L
Strontium	7800			10	7900			50	1.27		UG/L
SULFATE	17000			500	17000			500	0		MG/L
Uranium	190			50	170			50	11.11		UG/L

**Duplicate: 2810**

**Sample: 1095**

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	410			100	420			200	2.41		MG/L
Calcium	770000			10	730000			10	5.33		UG/L
CHLORIDE	300			250	300			250	0		MG/L
Magnesium	1300000			10	1200000			10	8.00		UG/L
Manganese	31000			10	31000			10	0		UG/L
Nitrate+Nitrite as N	1700			2000	1700			2000	0		MG/L
Potassium	170000			10	160000			10	6.06		UG/L
Selenium	130			10	110			10	16.67		UG/L
Sodium	1200000			10	1100000			10	8.70		UG/L
Strontium	8700			10	8200			10	5.92		UG/L
SULFATE	5100			250	5200			250	1.94		MG/L
Uranium	48			10	47			10	2.11		UG/L

# SAMPLE MANAGEMENT SYSTEM

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## Validation Report: Field Duplicates

RIN: 13095616 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 10/30/2013

Duplicate: 2811

Sample: 1093R

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	24		20	24			5	0	MG/L		
Calcium	620000		10	610000			10	1.63	UG/L		
CHLORIDE	53		50	55			50	3.70	MG/L		
Magnesium	200000		10	190000			10	5.13	UG/L		
Manganese	4000		10	3900			10	2.53	UG/L		
Nitrate+Nitrite as N	210		500	18			100	168.42	MG/L		
Potassium	39000		10	39000			10	0	UG/L		
Selenium	46		10	52			10	12.24	UG/L		
Sodium	200000		10	190000			10	5.13	UG/L		
Strontium	2500		10	2500			10	0	UG/L		
SULFATE	1900		50	2000			50	5.13	MG/L		
Uranium	68		10	70			10	2.90	UG/L		

## Certification

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

Laboratory Coordinator:

Stephen Donivan  
Stephen Donivan

5-28-2014  
Date

Data Validation Lead:

Stephen Donivan  
Stephen Donivan

5-28-2014  
Date

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**Attachment 1**  
**Assessment of Anomalous Data**

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## **Potential Outliers Report**

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## Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected. Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

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

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

Review of the potential outliers identified indicated the following.

An analytical error was suspected regarding the nitrate results from locations 0899 and 1105 and the laboratory was requested to repeat the analysis for those samples. The results of the reanalysis confirmed an error was made during the original analysis of the sample from location 0899. The original 0899 nitrate result is qualified with an "R" flag as rejected. The reanalysis nitrate results are qualified with a "J" flag as an estimated value because the analysis was performed outside of holding time.

The manganese data for the filtered sample collected from location 1205 was closely examined and determined to be error free. The result is acceptable without qualification.

Data from many locations show an overall downward or upward shift in concentration for multiple analytes measured by different methods, indicating that these results are representative of the samples collected.

There is no indication that there are errors associated with the data identified as potential outliers and the data from this event are acceptable as qualified.

**Data Validation Outliers Report - No Field Parameters****Comparison: All Historical Data for Filtered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

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		
SHP01	0888	0001	09/26/2013	Magnesium	5.10		50.3		5.14		7	0
SHP01	0899	0001	10/02/2013	Nitrate	0.345	R	2.70		1.51		8	0
SHP01	0956	0001	09/27/2013	Manganese	0.00240	B	0.468		0.00260	B	29	1
SHP01	1118	0002	09/24/2013	Nitrate	75.3	R	314		128		5	0
SHP01	1205	0001	10/02/2013	Manganese	0.620		0.150		0.00099	B	29	0

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP01	0608	N001	09/25/2013	Magnesium	450	F		2370			490	F	14	0	NA	
SHP01	0610	N001	09/25/2013	Magnesium	690	F		1600	FQ		710	F	11	0	No	
SHP01	0610	N001	09/25/2013	Uranium	0.600	F		2.00			0.870	F	11	0	No	
SHP01	0611	N001	09/25/2013	Calcium	140	F		350	F		150	F	8	0	No	
SHP01	0611	N001	09/25/2013	Magnesium	72.0	F		460	F		76.0	F	8	0	NA	
SHP01	0611	N001	09/25/2013	Nitrate	0.0664	F		531	F		0.0708	F	8	0	No	
SHP01	0611	N001	09/25/2013	Strontium	6.40	F		8.70	F		6.60	F	8	0	No	
SHP01	0611	N001	09/25/2013	Uranium	0.00380	F		0.520	F		0.00630	F	8	0	NA	
SHP01	0612	N001	09/25/2013	Nitrate	0.332	F		0.120	F		0.0443	U	F	10	7	NA
SHP01	0612	N001	09/25/2013	Selenium	0.120	F		0.0430	NS		0.00021	F	11	1	NA	
SHP01	0614	N001	09/25/2013	Chloride	180	F		580	F		190	F	15	0	No	
SHP01	0614	N001	09/25/2013	Magnesium	760	F		2300	F		810	F	15	0	No	
SHP01	0614	N001	09/25/2013	Strontium	6.40	F		13.0	F		6.50	F	13	0	No	
SHP01	0614	N001	09/25/2013	Uranium	0.930	F		2.52			0.960	F	15	0	No	
SHP01	0615	N001	09/26/2013	Chloride	78.0	F		451			87.0	F	16	0	NA	
SHP01	0615	N001	09/26/2013	Magnesium	320	F		1880			400	F	16	0	NA	
SHP01	0615	N001	09/26/2013	Sodium	580	F		2950			590	F	16	0	NA	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP01	0615	N001	09/26/2013	Strontium	4.60	F	8.44				4.70	F	13	0	No
SHP01	0615	N001	09/26/2013	Sulfate	3400	F	12400				3500	F	16	0	NA
SHP01	0615	N001	09/26/2013	Uranium	0.390	F	2.89				0.500	F	16	0	No
SHP01	0618	N001	09/26/2013	Ammonium	23.3	F	76.2		F	24.4		F	14	0	No
SHP01	0618	N001	09/26/2013	Chloride	110	F	720		F	170		F	14	0	NA
SHP01	0618	N001	09/26/2013	Magnesium	410	F	2100		F	630		F	14	0	Yes
SHP01	0618	N001	09/26/2013	Manganese	3.60	F	10.4	E	F	4.40		F	14	0	NA
SHP01	0618	N001	09/26/2013	Nitrate	0.381	F	1549		F	8.85		F	14	0	No
SHP01	0618	N001	09/26/2013	Selenium	0.00670	F	0.511	N	FJ	0.0520		F	14	0	No
SHP01	0618	N001	09/26/2013	Sodium	1300	F	3830		F	1700		F	14	0	Yes
SHP01	0618	N001	09/26/2013	Strontium	4.60	F	11.0		F	5.50		F	12	0	Yes
SHP01	0618	N001	09/26/2013	Sulfate	5700	F	15000		F	6700		F	14	0	NA
SHP01	0618	N001	09/26/2013	Uranium	0.420	F	2.83		F	0.730		F	14	0	Yes
SHP01	0619	N001	09/26/2013	Calcium	230	F	410		F	240		F	15	0	No
SHP01	0619	N001	09/26/2013	Magnesium	82.0	F	1060			99.0		F	15	0	No
SHP01	0619	N001	09/26/2013	Uranium	0.0710	F	1.20			0.110		F	15	0	NA
SHP01	0622	N001	09/26/2013	Strontium	8.20	F	7.95		F	4.80		F	9	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points		Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data	N	
SHP01	0622	N001	09/26/2013	Uranium	0.0430	F	0.240	F	0.0550	F	9	0	No		
SHP01	0623	N001	10/02/2013	Calcium	200	F	292	F	220	F	11	0	No		
SHP01	0623	N001	10/02/2013	Magnesium	43.0	F	68.7	F	55.0	F	11	0	No		
SHP01	0623	N001	10/02/2013	Sulfate	2600	F	3100	F	2700	F	11	0	No		
SHP01	0623	N001	10/02/2013	Uranium	0.0340	F	0.0746	F	0.0470	F	11	0	No		
SHP01	0625	N001	10/02/2013	Calcium	200	F	280	F	220	F	9	0	No		
SHP01	0625	N001	10/02/2013	Magnesium	41.0	F	59.0	F	47.0	F	9	0	No		
SHP01	0625	N001	10/02/2013	Manganese	2.50	F	5.10	F	3.00	F	9	0	No		
SHP01	0625	N001	10/02/2013	Selenium	0.00094	F	0.00200	F	0.00110	F	9	1	No		
SHP01	0626	N001	10/01/2013	Calcium	350	F	325	F	160	F	13	0	Yes		
SHP01	0626	N001	10/01/2013	Manganese	8.00	F	4.90	F	1.04		13	0	NA		
SHP01	0626	N001	10/01/2013	Potassium	19.0	F	18.8		6.72	JF	13	0	Yes		
SHP01	0626	N001	10/01/2013	Strontium	19.0	F	12.0	F	5.23		11	0	Yes		
SHP01	0655	N001	10/02/2013	Calcium	270		330		278		8	0	No		
SHP01	0734	N001	10/02/2013	Chloride	630	FQ	272		82.0	FQ	7	0	Yes		
SHP01	0734	N001	10/02/2013	Magnesium	1200	FQ	380	F	96.0	FQ	8	0	Yes		
SHP01	0734	N001	10/02/2013	Potassium	36.0	FQ	26.0	N	FJ	10.00	B	FQ	8	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points	N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP01	0734	N001	10/02/2013	Selenium	0.500	FQ		0.0350			0.00320	FQ	10	1	Yes
SHP01	0734	N001	10/02/2013	Sodium	8100	FQ	2380		FQ	920		FQ	9	0	Yes
SHP01	0734	N001	10/02/2013	Strontium	17.0	FQ	11.0		F	3.11			9	0	No
SHP01	0734	N001	10/02/2013	Sulfate	25000	FQ	7100		F	2900		FQ	7	0	Yes
SHP01	0734	N001	10/02/2013	Uranium	0.870	FQ	0.520			0.0410		FQ	10	0	NA
SHP01	0735	N001	10/02/2013	Ammonium	1.16	F	26.5		F	7.73		F	15	0	Yes
SHP01	0736	N001	10/02/2013	Nitrate	1.59	F	0.576		F	0.0443	U	F	10	2	Yes
SHP01	0766	N001	09/27/2013	Calcium	220	F	420		F	270		F	7	0	No
SHP01	0766	N001	09/27/2013	Chloride	100.0	F	190		F	120		F	7	0	NA
SHP01	0766	N001	09/27/2013	Magnesium	150	F	500		FQ	180		F	7	0	No
SHP01	0766	N001	09/27/2013	Strontium	3.50	F	6.30		F	3.90		F	7	0	No
SHP01	0766	N001	09/27/2013	Sulfate	4200	F	8100		FQ	4400		F	7	0	No
SHP01	0766	N001	09/27/2013	Uranium	0.1000	F	0.370		FQ	0.170		F	7	0	No
SHP01	0773	N001	09/25/2013	Uranium	0.200	F	0.680		F	0.210		FQ	10	0	No
SHP01	0775	N001	09/26/2013	Magnesium	130	F	410		F	150		F	9	0	No
SHP01	0775	N001	09/26/2013	Uranium	0.0870	F	0.650		F	0.150		F	9	0	NA
SHP01	0779	N001	09/26/2013	Selenium	0.140	FQ	0.0750		F	0.00150	U	F	11	3	Yes

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points		Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data	N	
SHP01	0782R	N001	09/27/2013	Manganese	4.70	F	3.20	F	1.20	F	10	0	Yes		
SHP01	0783R	N001	09/27/2013	Chloride	29.0	F	28.0	F	14.0	F	10	0	Yes		
SHP01	0783R	N001	09/27/2013	Manganese	3.60	F	2.30	F	0.390	F	10	0	Yes		
SHP01	0783R	N001	09/27/2013	Potassium	6.30	F	5.40	F	3.20	F	10	0	No		
SHP01	0783R	N001	09/27/2013	Selenium	0.00021	F	0.00150	U	F	0.00036	F	10	1	No	
SHP01	0783R	N001	09/27/2013	Sodium	210	F	176	F	100.0	F	10	0	No		
SHP01	0783R	N001	09/27/2013	Sulfate	710	F	615	F	340	F	10	0	No		
SHP01	0783R	N001	09/27/2013	Uranium	0.00600	F	0.0104	E	F	0.00660	F	10	0	No	
SHP01	0792	N001	09/26/2013	Ammonium	0.265	F	0.109	F	0.0684	J	13	11	NA		
SHP01	0792	N001	09/26/2013	Chloride	92.0	F	1000	F	110	F	13	0	No		
SHP01	0792	N001	09/26/2013	Magnesium	190	F	2100	F	210	F	13	0	No		
SHP01	0792	N001	09/26/2013	Selenium	0.00130	F	0.150	F	0.00150	U	F	13	3	NA	
SHP01	0792	N001	09/26/2013	Sodium	1300	F	6500	F	1400	F	13	0	No		
SHP01	0792	N001	09/26/2013	Sulfate	4400	F	27000	F	4500	F	13	0	No		
SHP01	0793	N001	09/26/2013	Sodium	1300	F	1200	F	510	F	9	0	No		
SHP01	0793	N001	09/26/2013	Sulfate	7000	F	6800	F	3000	F	9	0	No		
SHP01	0797	N001	09/26/2013	Ammonium	0.116	FQ	0.108	UFQ	0.106	U	F	11	11	NA	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points N	N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP01	0798	N001	09/26/2013	Chloride	130	F		610	F		150	F	9	0	No
SHP01	0798	N001	09/26/2013	Magnesium	220	F		1600	F		270	F	9	0	No
SHP01	0798	N001	09/26/2013	Selenium	0.00097	F		0.140	F		0.00160	F	9	0	No
SHP01	0798	N001	09/26/2013	Strontium	5.60	F		15.0	F		5.66	F	9	0	No
SHP01	0798	N001	09/26/2013	Uranium	0.200	F		2.10	F		0.250	F	9	0	No
SHP01	0850	N001	09/26/2013	Chloride	180	F		150	FQ		16.0	F	7	0	No
SHP01	0850	N001	09/26/2013	Nitrate	25.2	F		0.0443	U		0.0443	U	7	6	NA
SHP01	0850	N001	09/26/2013	Selenium	0.0200	F		0.00351	B		0.00017	F	7	0	Yes
SHP01	0850	N001	09/26/2013	Sodium	1200	F		1000	FQ		160	F	7	0	No
SHP01	0854	N001	09/27/2013	Ammonium	3.39	F		9.43	F		3.71	F	7	0	No
SHP01	0854	N001	09/27/2013	Chloride	180	F		560	F		240	F	7	0	No
SHP01	0854	N001	09/27/2013	Magnesium	480	F		1700	F		690	F	7	0	No
SHP01	0854	N001	09/27/2013	Nitrate	0.412	F		531	F		24.3	F	7	0	No
SHP01	0854	N001	09/27/2013	Selenium	0.00220	F		0.0280	F		0.00600	F	7	0	No
SHP01	0854	N001	09/27/2013	Sulfate	7100	F		12000	F		8000	F	7	0	No
SHP01	0854	N001	09/27/2013	Uranium	0.570	F		2.00	F		0.760	F	7	0	No
SHP01	0855	N001	10/02/2013	Manganese	3.10	F		2.43			1.000	F	12	0	NA

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP01	0855	N001	10/02/2013	Selenium	0.0910	F		0.0730	F		0.00250	F		12	0	No
SHP01	0855	N001	10/02/2013	Strontium	16.0	F		14.0	F		6.60	F		10	0	No
SHP01	0855	N001	10/02/2013	Uranium	0.0650	F		0.150	F		0.0680	F		12	0	No
SHP01	0856	N001	10/02/2013	Manganese	2.80	F		2.00	F		0.990	F		12	0	NA
SHP01	0857	N001	09/26/2013	Potassium	46.0	F		41.0	F		10.00	F		9	0	No
SHP01	0899	N001	10/02/2013	Nitrate	2.66			2.52			1.52			8	0	No
SHP01	1008	N001	09/27/2013	Chloride	100.0	F		890	F		120	F		9	0	No
SHP01	1008	N001	09/27/2013	Magnesium	210	F		2300	F		280	F		9	0	No
SHP01	1008	N001	09/27/2013	Manganese	1.70	F		11.0	L		1.80	F		10	0	No
SHP01	1008	N001	09/27/2013	Strontium	4.90	F		12.0	F		5.20	F		9	0	No
SHP01	1008	N001	09/27/2013	Sulfate	4500	F		18000	F		4600	F		10	0	No
SHP01	1008	N001	09/27/2013	Uranium	0.300	F		3.10	F		0.400	F		10	0	No
SHP01	1009	N001	09/26/2013	Calcium	280	F		490	F		336	F		12	0	No
SHP01	1009	N001	09/26/2013	Magnesium	120	F		410	F		170	F		12	0	NA
SHP01	1009	N001	09/26/2013	Selenium	0.00160	F		0.340	F		0.00700	F		13	0	No
SHP01	1009	N001	09/26/2013	Strontium	2.80	F		5.30	F		3.30	F		10	0	No
SHP01	1009	N001	09/26/2013	Sulfate	1500	F		3920	L		1830	F		13	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

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	
SHP01	1009	N001	09/26/2013	Uranium	0.160	F	0.430	F	0.200	F	13	0	No
SHP01	1089	N002	09/24/2013	Ammonium	0.106	UN J	1.16	F	0.186		11	0	No
SHP01	1089	N001	09/24/2013	Calcium	320		490	F	330		11	0	NA
SHP01	1105	N001	09/26/2013	Calcium	400	F	560	F	410	F	12	0	No
SHP01	1105	N001	09/26/2013	Chloride	97.0	F	620	F	237	F	12	0	NA
SHP01	1105	N001	09/26/2013	Magnesium	350	F	2700	F	1080	F	12	0	NA
SHP01	1105	N001	09/26/2013	Manganese	2.00	F	6.60	F	2.50	F	12	0	No
SHP01	1105	N003	09/26/2013	Nitrate	31.0	FJ	3409	F	266	F	12	0	No
SHP01	1105	N001	09/26/2013	Nitrate	29.7	F	3409	F	266	F	12	0	No
SHP01	1105	N001	09/26/2013	Potassium	58.0	F	180	F	59.4	F	12	0	No
SHP01	1105	N001	09/26/2013	Sodium	670	F	3300	F	1410	F	12	0	No
SHP01	1105	N001	09/26/2013	Strontium	4.70	F	14.0	F	8.08	F	12	0	No
SHP01	1105	N001	09/26/2013	Sulfate	3600	F	16000	F	8060	F	12	0	NA
SHP01	1105	N001	09/26/2013	Uranium	0.460	F	3.20	F	1.57	F	12	0	NA
SHP01	1109	N001	09/24/2013	Magnesium	73.0		320		85.6		11	0	NA
SHP01	1109	N001	09/24/2013	Manganese	0.190		0.900		0.230		11	0	No
SHP01	1109	N001	09/24/2013	Nitrate	115		620		121		11	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

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Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP01	1109	N001	09/24/2013	Uranium	0.0650			0.320			0.0832			11	0	NA
SHP01	1110	N001	09/24/2013	Calcium	330			440			360			12	0	NA
SHP01	1110	N001	09/24/2013	Chloride	170			510			200			12	0	No
SHP01	1110	N001	09/24/2013	Magnesium	460			1500			532			12	0	No
SHP01	1110	N001	09/24/2013	Uranium	0.370			1.50			0.510			12	0	No
SHP01	1111	N001	09/25/2013	Calcium	340	F		560	F		360	F		11	0	NA
SHP01	1111	N001	09/25/2013	Magnesium	810	F		1600	F		850	F		11	0	No
SHP01	1111	N001	09/25/2013	Manganese	1.10	F		1.000	F		0.340	F		11	0	No
SHP01	1111	N001	09/25/2013	Uranium	0.500	F		1.23	F		0.620	F		11	0	No
SHP01	1112	N001	09/25/2013	Chloride	200	F		480	F		270	F		13	0	No
SHP01	1112	N001	09/25/2013	Magnesium	710	F		2100	F		850	F		13	0	No
SHP01	1112	N001	09/25/2013	Nitrate	531	F		3099	F		576	F		13	0	No
SHP01	1112	N001	09/25/2013	Sodium	1400	F		2730	F		1600	F		13	0	NA
SHP01	1112	N001	09/25/2013	Sulfate	6400	F		13000	F		7100	F		13	0	No
SHP01	1112	N001	09/25/2013	Uranium	0.620	F		2.12	E	J	0.880	F		13	0	No
SHP01	1117	N001	09/24/2013	Nitrate	5.76	F		2.17	F		0.0443	U	F	14	7	NA
SHP01	1117	N001	09/24/2013	Strontium	0.960	F		0.930	F		0.490	F		12	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

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	
SHP01	1117	N001	09/24/2013	Sulfate	220	F	208	F	87.0		F	14	0	No
SHP01	1128	N001	09/24/2013	Ammonium	138	F	498	F	307		F	9	0	Yes
SHP01	1128	N001	09/24/2013	Chloride	240	F	380	F	300		F	9	0	No
SHP01	1128	N001	09/24/2013	Magnesium	920	F	1850	F	1200		F	9	0	No
SHP01	1128	N001	09/24/2013	Manganese	2.30	F	5.33	F	2.70		F	9	0	No
SHP01	1128	N001	09/24/2013	Potassium	110	F	195	F	130		JF	9	0	No
SHP01	1128	N001	09/24/2013	Selenium	0.0450	F	0.0250	F	0.0150		F	9	0	Yes
SHP01	1128	N001	09/24/2013	Sulfate	6100	F	10000	F	7500		F	9	0	NA
SHP01	1128	N001	09/24/2013	Uranium	0.720	F	1.60	F	1.10		F	9	0	NA
SHP01	1132	N001	09/24/2013	Ammonium	0.699	F	1.48	F	0.932		F	10	0	NA
SHP01	1132	N001	09/24/2013	Magnesium	13.0	F	20.0	F	14.0		F	10	0	NA
SHP01	1135	N001	09/27/2013	Calcium	290	F	407	F	350		F	8	0	Yes
SHP01	1135	N001	09/27/2013	Chloride	73.0	F	110	F	88.0		F	8	0	No
SHP01	1135	N001	09/27/2013	Magnesium	100.0	F	360	F	130		F	8	0	No
SHP01	1135	N001	09/27/2013	Sodium	930	F	1500	F	960		F	8	0	No
SHP01	1135	N001	09/27/2013	Strontium	3.40	F	5.30	F	4.10		F	6	0	No
SHP01	1135	N001	09/27/2013	Sulfate	3100	F	5800	F	3400		F	8	0	NA

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier
						Lab	Data	Result	Lab	Data	Result	Lab	Data	
SHP01	1135	N001	09/27/2013	Uranium	0.0630	F	0.240	F	0.0900	F	8	0	No	
SHP01	1137	N001	09/27/2013	Calcium	490	F	400	F	124	F	6	0	No	
SHP01	1137	N001	09/27/2013	Chloride	460	F	230	F	48.4	F	6	0	No	
SHP01	1137	N001	09/27/2013	Magnesium	990	F	560	F	184	F	6	0	No	
SHP01	1137	N001	09/27/2013	Manganese	4.90	F	2.80	F	0.924	F	6	0	No	
SHP01	1137	N001	09/27/2013	Nitrate	239	F	142	F	17.7	F	6	0	No	
SHP01	1137	N001	09/27/2013	Potassium	47.0	F	29.0	F	12.0	F	6	0	No	
SHP01	1137	N001	09/27/2013	Sodium	1500	F	1000	F	570	F	6	0	No	
SHP01	1137	N001	09/27/2013	Strontium	8.70	F	5.20	F	1.72	F	6	0	No	
SHP01	1137	N001	09/27/2013	Sulfate	8100	F	4800	F	2010	F	6	0	No	
SHP01	1137	N001	09/27/2013	Uranium	1.20	F	0.600	F	0.172	F	6	0	Yes	
SHP01	1138	N001	09/27/2013	Ammonium	0.964	F	0.466	F	0.287	F	7	0	Yes	
SHP01	1138	N001	09/27/2013	Nitrate	243	F	230	F	25.7	F	7	0	No	
SHP01	1138	N001	09/27/2013	Potassium	71.0	F	54.0	F	17.8	F	7	0	No	
SHP01	1138	N001	09/27/2013	Sodium	2500	F	2100	F	490	F	7	0	No	
SHP01	1139	N001	09/27/2013	Chloride	590	F	279	F	29.0	F	8	0	Yes	
SHP01	1139	N001	09/27/2013	Magnesium	1400	F	922	F	50.6	F	8	0	No	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points	N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP01	1139	N001	09/27/2013	Nitrate	164	F		132	F		0.438	J	F	8	0	No
SHP01	1139	N001	09/27/2013	Potassium	94.0	F		55.0	F		9.40	E	F	8	0	No
SHP01	1139	N001	09/27/2013	Sodium	3300	F		2020	F		183	F		8	0	No
SHP01	1139	N001	09/27/2013	Strontium	11.0	F		7.75	F		1.60	F		6	0	No
SHP01	1139	N001	09/27/2013	Sulfate	14000	F		6800	F		370	F		8	0	Yes
SHP01	1139	N001	09/27/2013	Uranium	1.90	F		0.845	F		0.102	F		8	0	Yes
SHP01	1140	N001	09/26/2013	Magnesium	860	F		1640	F		920	F		8	0	No
SHP01	1140	N001	09/26/2013	Nitrate	79.7	F		1417	F		151	F		8	0	No
SHP01	1140	N001	09/26/2013	Uranium	0.950	F		2.26	F		1.10	F		8	0	No
SHP01	1141	N001	09/26/2013	Calcium	400	F		530	F		440	F		8	0	No
SHP01	1141	N001	09/26/2013	Chloride	53.0	F		140	F		65.0	F		8	0	No
SHP01	1141	N001	09/26/2013	Magnesium	220	F		700	F		290	F		8	0	No
SHP01	1141	N001	09/26/2013	Manganese	1.30	F		2.10	F		1.40	F		8	0	No
SHP01	1141	N001	09/26/2013	Nitrate	0.0531	F		259	F		3.01	F		8	0	No
SHP01	1141	N001	09/26/2013	Selenium	0.0210	F		0.706	N		0.0960	F		8	0	No
SHP01	1141	N001	09/26/2013	Strontium	3.80	F		6.36	F		4.20	F		8	0	No
SHP01	1141	N001	09/26/2013	Sulfate	2500	F		5200	F		2700	F		8	0	No

**Data Validation Outliers Report - No Field Parameters****Comparison: All Historical Data for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 13095615

Report Date: 05/23/2014

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
SHP01	1141	N001	09/26/2013	Uranium	0.340	F	1.10	F	0.440	F	8	0	No
SHP01	1142	N001	09/25/2013	Calcium	110	F	70.0	F	53.0	F	9	0	Yes
SHP01	1142	N001	09/25/2013	Magnesium	18.0	F	14.0	F	10.00	F	9	0	Yes
SHP01	1142	N001	09/25/2013	Manganese	1.90	F	0.580	F	0.270	F	9	0	Yes
SHP01	1142	N001	09/25/2013	Sodium	69.0	F	43.3	F	30.0	F	9	0	Yes
SHP01	1142	N001	09/25/2013	Strontium	1.20	F	0.820	F	0.600	F	7	0	Yes
SHP01	1142	N001	09/25/2013	Sulfate	280	F	160	F	110	F	9	0	Yes
SHP01	1143	N001	10/02/2013	Strontium	3.60	F	2.86	F	2.30	F	7	0	Yes
SHP01	1143	N001	10/02/2013	Sulfate	3400	F	3090		2600	F	9	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

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	
SHP02	0602	N001	09/25/2013	Ammonium	73.1	FQ	402	F	95.3		F	10	0	No
SHP02	0602	N001	09/25/2013	Chloride	2500	FQ	2100	F	610	N	28	0	NA	
SHP02	0602	N001	09/25/2013	Magnesium	1300	FQ	2940		1400		FQ	28	0	NA
SHP02	0602	N001	09/25/2013	Manganese	0.740	E	FQJ	2.40		0.800	F	29	0	NA
SHP02	0602	N001	09/25/2013	Sodium	6100	FQ	5700	F	2120		28	0	NA	
SHP02	0603	N001	09/26/2013	Uranium	0.00570	F	0.0170		0.00600		F	24	0	No
SHP02	0604	N001	09/25/2013	Sulfate	13000	FQ	12000	FQ	1.59	L	16	0	NA	
SHP02	0727	N001	09/25/2013	Magnesium	1500	FQ	2390		1600		FQ	21	0	No
SHP02	0727	N001	09/25/2013	Nitrate	336	FQ	797	F	372		FQ	10	0	No
SHP02	0728	N001	09/25/2013	Ammonium	49.8	F	233	F	64.6		F	12	0	No
SHP02	0728	N001	09/25/2013	Chloride	32.0	F	374		33.0		F	27	0	No
SHP02	0728	N001	09/25/2013	Nitrate	62.0	F	2214	F	151		F	12	0	Yes
SHP02	0728	N001	09/25/2013	Selenium	0.00110	F	0.0840	+	0.00120		F	30	1	NA
SHP02	0728	N001	09/25/2013	Uranium	0.160	F	0.801		0.174		31	0	No	
SHP02	0730	0001	09/26/2013	Ammonium	44.5	FQ	106	FQ	53.0		FQ	12	0	No
SHP02	0730	0001	09/26/2013	Magnesium	110	FQ	174	L	120		F	19	0	No
SHP02	0730	0001	09/26/2013	Nitrate	421	FQ	1195	F	434		JF	12	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP02	0731	N001	09/26/2013	Magnesium	350	F	856				363	F	19	0	No
SHP02	0731	N001	09/26/2013	Sodium	650	F	1400				660	F	21	0	No
SHP02	0812	N001	09/25/2013	Calcium	420		530		FQ	440		FQ	18	0	No
SHP02	0812	N001	09/25/2013	Chloride	2800		2700		FQ	2150		FQ	18	0	Yes
SHP02	0812	N001	09/25/2013	Magnesium	2000		2600		FQ	2050		L	18	0	No
SHP02	0812	N001	09/25/2013	Sulfate	19000		17000		FQ	14100		L	19	0	Yes
SHP02	0813	N001	09/25/2013	Chloride	900	F	880		F	590		F	22	0	Yes
SHP02	0813	N001	09/25/2013	Magnesium	2500	F	3400		F	2630			22	0	No
SHP02	0813	N001	09/25/2013	Uranium	0.0900	F	0.160			0.1000		F	22	0	No
SHP02	0814	0001	09/25/2013	Ammonium	41.3	FQ	169			42.4		FQ	10	0	No
SHP02	0814	0001	09/25/2013	Magnesium	2000	FQ	2530		L	2070		FQ	15	0	No
SHP02	0815	N001	09/25/2013	Calcium	390	F	520		F	410		FQ	18	0	No
SHP02	0815	N001	09/25/2013	Selenium	0.0170	F	0.633		L	0.0180	E	F	19	0	NA
SHP02	0816	N001	09/24/2013	Magnesium	55.0	FQ	702			58.0		FQ	18	0	No
SHP02	0816	N001	09/24/2013	Nitrate	53.1	FQ	270		F	62.0		F	11	0	No
SHP02	0816	N001	09/24/2013	Uranium	0.00980	FQ	0.0749			0.0120		FQ	19	0	No
SHP02	0817	N001	09/25/2013	Calcium	410	FQ	527		F	423		L	26	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points N	N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP02	0817	N001	09/25/2013	Chloride	630	FQ		624	L		393	F	26	0	No
SHP02	0817	N001	09/25/2013	Nitrate	1240	FQ		6198	F		1328	FQ	20	0	NA
SHP02	0818	N001	09/24/2013	Calcium	380			687			440		22	0	NA
SHP02	0818	N002	09/24/2013	Calcium	410			687			440		22	0	NA
SHP02	0818	N001	09/24/2013	Magnesium	1500			2780			1800		22	0	No
SHP02	0818	N002	09/24/2013	Magnesium	1600			2780			1800		22	0	No
SHP02	0818	N002	09/24/2013	Sodium	4100			4000			2600		22	0	No
SHP02	0819	N001	09/25/2013	Chloride	1000	FQ		830	L		480	FQ	17	0	NA
SHP02	0820	0001	09/26/2013	Chloride	9900	FQ		9200	FQ		1620	L	13	0	NA
SHP02	0820	0001	09/26/2013	Sodium	7300	FQ		7150	FQ		4670	L	12	0	No
SHP02	0822	0001	09/26/2013	Chloride	7100			6600	FQ		6000	FQ	6	0	No
SHP02	0822	0001	09/26/2013	Magnesium	62.0			79.0	FQ		67.0	FQ	6	0	No
SHP02	0822	0001	09/26/2013	Manganese	0.550			0.440	FQ		0.260	FQ	6	0	No
SHP02	0822	0001	09/26/2013	Nitrate	15.9			62.0	FQ		21.7	FQ	6	0	No
SHP02	0822	0001	09/26/2013	Uranium	0.0570			0.0880	FQ		0.0660	FQ	6	0	No
SHP02	0824	N001	09/26/2013	Chloride	8400	FQ		7700	FQ		3230	L	13	0	No
SHP02	0824	N001	09/26/2013	Nitrate	6.20	FQ		1421	FQ		7.53	FQ	8	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points		Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data	N		
SHP02	0824	N001	09/26/2013	Selenium	0.00046	FQ		0.0162	L		0.001	FQ	14	1	No	
SHP02	0824	N001	09/26/2013	Uranium	0.0200	FQ		0.400	FQ		0.0263	L	14	0	No	
SHP02	0825	0001	09/26/2013	Chloride	9100	FQ		9000	FQ		6430	FQ	8	0	No	
SHP02	0825	0001	09/26/2013	Magnesium	73.0	FQ		99.3	FQ		74.0	FQ	8	0	No	
SHP02	0825	0001	09/26/2013	Nitrate	3.54	FQ		133	FQ		6.64	FQ	8	0	No	
SHP02	0825	0001	09/26/2013	Sodium	6900	FQ		6510	FQ		5600	FQ	8	0	No	
SHP02	0825	0001	09/26/2013	Uranium	0.0150	FQ		0.0490	FQ		0.0230	FQ	8	0	No	
SHP02	0826	N001	09/25/2013	Chloride	410	FQ		792			490	FQ	20	0	No	
SHP02	0826	N001	09/25/2013	Magnesium	2000	FQ		3000	FQ		2190		20	0	No	
SHP02	0826	N001	09/25/2013	Nitrate	62.0	FQ		553	FQ		88.5	FQ	12	0	No	
SHP02	0826	N001	09/25/2013	Sodium	1900	FQ		2300	FQ		2000	F	20	0	No	
SHP02	0826	N001	09/25/2013	Uranium	1.90	FQ		3.80	FQ		2.50	FQ	20	0	Yes	
SHP02	0827	N001	09/27/2013	Ammonium	2.01	FQ		23.3	FQ		2.33	FQ	11	0	No	
SHP02	0827	N001	09/27/2013	Calcium	400	FQ		510	FQ		420	FQ	18	0	No	
SHP02	0828	N001	09/25/2013	Manganese	1.50	F		1.10	F		0.0001	UE	JF	17	4	No
SHP02	0828	N001	09/25/2013	Nitrate	22.1	F		784	F		31.0	F	9	0	No	
SHP02	0830	N001	09/26/2013	Calcium	470	F		680	F		480	F	24	0	No	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier
						Lab	Data	Result	Lab	Data	Result	Lab	Data	
SHP02	0830	N001	09/26/2013	Chloride	21.0	F	86.0	F	41.0	F	24	0	No	
SHP02	0830	N001	09/26/2013	Magnesium	20.0	F	67.0	F	32.0	F	24	0	No	
SHP02	0830	N001	09/26/2013	Manganese	1.10	F	6.10	F	1.50	F	25	0	No	
SHP02	0830	N001	09/26/2013	Nitrate	48.7	F	1062	F	93.0	F	19	0	No	
SHP02	0830	N001	09/26/2013	Selenium	0.00890	F	0.0330	F	0.0190	F	25	0	Yes	
SHP02	0830	N001	09/26/2013	Sodium	63.0	F	180	F	110	F	24	0	Yes	
SHP02	0830	N001	09/26/2013	Sulfate	1300	F	1900	F	1500	F	25	0	No	
SHP02	0833	N001	09/24/2013	Nitrate	421	F	5578	F	487	F	11	0	No	
SHP02	0835	N001	09/24/2013	Calcium	65.0	F	743	F	360		32	0	Yes	
SHP02	0835	N001	09/24/2013	Magnesium	47.0	F	546	F	92.9		32	0	NA	
SHP02	0835	N001	09/24/2013	Manganese	0.140	F	0.0520	F	0.0001	U	JF	33	16	Yes
SHP02	0835	N001	09/24/2013	Nitrate	25.7	F	1062	F	186	F	21	0	NA	
SHP02	0835	N001	09/24/2013	Selenium	0.0260	F	0.587	F	0.0370		33	0	No	
SHP02	0835	N001	09/24/2013	Strontium	0.790	F	8.75	F	3.13		32	0	Yes	
SHP02	0835	N001	09/24/2013	Sulfate	620	F	4690	JF	882		33	0	NA	
SHP02	0835	N001	09/24/2013	Uranium	0.00980	F	0.0930	F	0.0258		33	0	No	
SHP02	0836	N001	09/24/2013	Nitrate	212	F	208	F	15.9	F	19	0	No	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points	N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP02	0837	N001	09/24/2013	Chloride	100.0	F		82.0	F		16.5			19	0	No
SHP02	0837	N001	09/24/2013	Nitrate	155	F		53.1	F		16.4	F		12	0	Yes
SHP02	0837	N001	09/24/2013	Sulfate	2800	F		2700	F		1190			20	0	No
SHP02	0838	N001	09/24/2013	Sulfate	8800	F		8600	F		1180			32	0	NA
SHP02	0838	N001	09/24/2013	Uranium	0.190	F		0.170	F		0.0235			32	0	NA
SHP02	0841	N001	09/24/2013	Magnesium	630	F		1010	F		640	F		35	0	No
SHP02	0841	N001	09/24/2013	Nitrate	2258	F		4073	F		2479	F		22	0	NA
SHP02	0841	N001	09/24/2013	Uranium	0.0830	F		0.150	F		0.0900			36	0	No
SHP02	0843	N001	09/24/2013	Chloride	83.0	F		60.0	F		24.7			17	0	NA
SHP02	0843	N001	09/24/2013	Sodium	340	F		330	E	FJ	174			17	0	No
SHP02	0844	N001	09/24/2013	Calcium	430	F		552	F		448			19	0	No
SHP02	0844	N001	09/24/2013	Chloride	910	F		900	F		54.5			19	0	NA
SHP02	0844	N001	09/24/2013	Sulfate	11000	F		10000	F		2670			20	0	NA
SHP02	0848	N001	09/24/2013	Calcium	330	F		548			350	F		17	0	No
SHP02	0848	N001	09/24/2013	Chloride	1300	F		1200	F		218			17	0	NA
SHP02	0848	N001	09/24/2013	Magnesium	440	F		610	F		445			17	0	No
SHP02	0848	N001	09/24/2013	Sulfate	18000	F		17000	F		4310			18	0	NA

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier	
						Lab	Data	Result	Lab	Data	Result	Lab	Data		
SHP02	0848	N001	09/24/2013	Uranium	0.0160	F		0.0623			0.0180	F	18	0	No
SHP02	1048	N001	09/26/2013	Calcium	360	F	430		F	370		F	6	0	No
SHP02	1048	N001	09/26/2013	Sulfate	19000	F		17600			16000	F	6	0	No
SHP02	1049	0001	09/26/2013	Calcium	360	F	420		FQ	379			11	0	No
SHP02	1057	N001	10/01/2013	Ammonium	116	FQ	1483		JF	233		F	13	0	No
SHP02	1057	N001	10/01/2013	Nitrate	2833	FQ	10625		F	6198		F	13	0	No
SHP02	1057	N001	10/01/2013	Selenium	0.0480	FQ	0.593		L	0.0650		F	18	0	No
SHP02	1057	N001	10/01/2013	Uranium	0.0210	FQ	0.110		F	0.0310		F	18	0	No
SHP02	1059	N001	09/26/2013	Calcium	300	FQ	441		FQ	310		FQ	15	0	No
SHP02	1070	N001	09/24/2013	Magnesium	950			1960			1100		16	0	NA
SHP02	1070	N002	09/24/2013	Magnesium	970			1960			1100		16	0	NA
SHP02	1070	N002	09/24/2013	Selenium	2.00			4.11			2.10		16	0	NA
SHP02	1070	N002	09/24/2013	Uranium	0.0710			0.140			0.0780		19	0	No
SHP02	1070	N001	09/24/2013	Uranium	0.0750			0.140			0.0780		19	0	No
SHP02	1071	N002	09/24/2013	Calcium	410			1700			440		17	0	NA
SHP02	1071	N001	09/24/2013	Calcium	430			1700			440		17	0	NA
SHP02	1073	0001	09/25/2013	Ammonium	16.9	FQ	212		FQ	21.2		FQ	11	0	No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points	N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP02	1073	0001	09/25/2013	Nitrate	3453	FQ		7482	FQ		3630			11	0	No
SHP02	1073	0001	09/25/2013	Sulfate	13000	FQ		12000			8290	FQ	11	0	Yes	
SHP02	1074	N001	09/26/2013	Manganese	1.40	FQ	2.10		FQ	1.50		FQ	11	0	No	
SHP02	1078	N002	09/24/2013	Calcium	370		480			380			19	0	No	
SHP02	1078	N002	09/24/2013	Magnesium	900		1210			990			19	0	NA	
SHP02	1078	N001	09/24/2013	Magnesium	930		1210			990			19	0	NA	
SHP02	1078	N001	09/24/2013	Nitrate	1948		3674			2435			21	0	No	
SHP02	1078	N001	09/24/2013	Selenium	2.40		3.32			2.60			19	0	No	
SHP02	1087	N001	09/24/2013	Uranium	0.380		0.870			0.420			24	0	No	
SHP02	1088	N001	09/24/2013	Manganese	0.700		0.626		0.00110	U			18	3	No	
SHP02	1088	N002	09/24/2013	Manganese	0.680		0.626		0.00110	U			18	3	No	
SHP02	1088	N001	09/24/2013	Nitrate	1062		3807			2125			19	0	Yes	
SHP02	1088	N002	09/24/2013	Nitrate	1240		3807			2125			19	0	Yes	
SHP02	1088	N002	09/24/2013	Selenium	0.610		2.10			1.20			18	0	Yes	
SHP02	1088	N001	09/24/2013	Selenium	0.630		2.10			1.20			18	0	Yes	
SHP02	1092	0001	09/25/2013	Strontium	14.0		13.0			9.20			15	0	No	
SHP02	1093R	N002	09/24/2013	Ammonium	25.4		921			305			13	0	No	

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

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	
SHP02	1093R	N001	09/24/2013	Ammonium	25.4			921			305			13 0 No
SHP02	1093R	N002	09/24/2013	Calcium	610			1200			810			13 0 No
SHP02	1093R	N001	09/24/2013	Calcium	620			1200			810			13 0 No
SHP02	1093R	N002	09/24/2013	Chloride	55.0			740			377			13 0 Yes
SHP02	1093R	N001	09/24/2013	Chloride	53.0			740			377			13 0 Yes
SHP02	1093R	N001	09/24/2013	Magnesium	200			2300			1260			13 0 Yes
SHP02	1093R	N002	09/24/2013	Magnesium	190			2300			1260			13 0 Yes
SHP02	1093R	N002	09/24/2013	Manganese	3.90			40.0			17.0			13 0 No
SHP02	1093R	N001	09/24/2013	Manganese	4.00			40.0			17.0			13 0 No
SHP02	1093R	N004	09/24/2013	Nitrate	885	J		12838			7526			13 0 Yes
SHP02	1093R	N003	09/24/2013	Nitrate	1062	J		12838			7526			13 0 Yes
SHP02	1093R	N002	09/24/2013	Nitrate	79.7	R		12838			7526			13 0 Yes
SHP02	1093R	N001	09/24/2013	Nitrate	930			12838			7526			13 0 Yes
SHP02	1093R	N001	09/24/2013	Potassium	39.0			280			124			13 0 Yes
SHP02	1093R	N002	09/24/2013	Potassium	39.0			280			124			13 0 Yes
SHP02	1093R	N001	09/24/2013	Selenium	0.0460			0.710			0.380			13 0 Yes
SHP02	1093R	N002	09/24/2013	Selenium	0.0520			0.710			0.380			13 0 Yes

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

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	
SHP02	1093R	N002	09/24/2013	Sodium	190			2200			1400			13 0 Yes
SHP02	1093R	N001	09/24/2013	Sodium	200			2200			1400			13 0 Yes
SHP02	1093R	N001	09/24/2013	Strontium	2.50			12.0			9.60			13 0 Yes
SHP02	1093R	N002	09/24/2013	Strontium	2.50			12.0			9.60			13 0 Yes
SHP02	1093R	N001	09/24/2013	Sulfate	1900			7600			4200			13 0 Yes
SHP02	1093R	N002	09/24/2013	Sulfate	2000			7600			4200			13 0 Yes
SHP02	1093R	N001	09/24/2013	Uranium	0.0680			0.150			0.0851	*EN		13 0 Yes
SHP02	1093R	N002	09/24/2013	Uranium	0.0700			0.150			0.0851	*EN		13 0 Yes
SHP02	1095	N002	09/24/2013	Ammonium	445			1165			455			15 0 No
SHP02	1095	N001	09/24/2013	Ammonium	434			1165			455			15 0 No
SHP02	1095	N002	09/24/2013	Selenium	0.110			0.300			0.130			14 0 No
SHP02	1096	N001	09/24/2013	Calcium	360			430			390			16 0 Yes
SHP02	1096	N001	09/24/2013	Magnesium	820			1300	J	910				16 0 No
SHP02	1096	N002	09/24/2013	Magnesium	870			1300	J	910				16 0 No
SHP02	1096	N002	09/24/2013	Nitrate	2214			3453			2346			17 0 No
SHP02	1096	N001	09/24/2013	Strontium	8.40			11.0			8.70			16 0 No
SHP02	1215	N001	09/27/2013	Potassium	1000			890	J	110				14 0 No

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		Number of Data Points	N Below Detect	Statistical Outlier			
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP02	1215	N001	09/27/2013	Selenium	5.10			4.90			0.860			14	0	No
SHP02	1215	N001	09/27/2013	Sodium	25000			19000			4600			14	0	No
SHP02	1215	N001	09/27/2013	Uranium	7.40			6.90			1.70			15	0	No
SHP02	1219	N001	09/26/2013	Calcium	540			1180			560			5	0	No
SHP02	1219	N001	09/26/2013	Chloride	26.0			24.0			14.5			5	0	No
SHP02	1219	N001	09/26/2013	Nitrate	23.9			97.4			24.3			5	0	No
SHP02	1219	N001	09/26/2013	Selenium	0.0280			0.120			0.0313	E		5	0	No
SHP02	1219	N001	09/26/2013	Sulfate	2100			1900			1790			5	0	Yes
SHP02	1221	N001	09/27/2013	Calcium	280			450			390			7	0	Yes
SHP02	1221	N001	09/27/2013	Chloride	530			2900			1700			7	0	No
SHP02	1221	N001	09/27/2013	Magnesium	380			2400			1500			7	0	Yes
SHP02	1221	N001	09/27/2013	Manganese	0.590			0.130			0.00570	U		7	2	Yes
SHP02	1221	N001	09/27/2013	Nitrate	885			4870			2833			7	0	No
SHP02	1221	N001	09/27/2013	Potassium	31.0			130	J	41.0	BN	J	7	0	No	
SHP02	1221	N001	09/27/2013	Selenium	0.490			2.80			1.60			7	0	No
SHP02	1221	N001	09/27/2013	Sodium	2300			12000			7600			7	0	Yes
SHP02	1221	N001	09/27/2013	Strontium	4.40			11.0			9.10			7	0	Yes

**Data Validation Outliers Report - No Field Parameters**

**Comparison: All Historical Data**

Laboratory: ALS Laboratory Group

RIN: 13095616

Report Date: 05/23/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Current Qualifiers		Historical Maximum Qualifiers		Historical Minimum Qualifiers		N	Number of Data Points N Below Detect	Statistical Outlier		
						Lab	Data	Result	Lab	Data	Result	Lab	Data			
SHP02	1221	N001	09/27/2013	Sulfate	7000			35000			21000			7	0	No
SHP02	1221	N001	09/27/2013	Uranium	0.0520			0.260			0.170			7	0	Yes
SHP02	MW1	0001	09/27/2013	Chloride	5500	FQ		5100	FQ		3060	L		11	0	NA
SHP02	MW1	0001	09/27/2013	Potassium	25.0	FQ		24.0	FQ		7.20	B	FQ	11	0	No
SHP02	MW1	0001	09/27/2013	Sulfate	2400	FQ		2230	FQ		1460	L		11	0	NA

**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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## **Groundwater Quality Data Floodplain Locations**

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0608 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/25/2013	N001	10	-	15	398		F	#		
Ammonium	mg/L	09/25/2013	N001	10	-	15	82.4		F	#	2.58	
Calcium	mg/L	09/25/2013	N001	10	-	15	310		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	10	-	15	220		F	#	20	
Magnesium	mg/L	09/25/2013	N001	10	-	15	450		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	10	-	15	2.9		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	10	-	15	168		F	#	2.21	
Oxidation Reduction Potential	mV	09/25/2013	N001	10	-	15	105		F	#		
pH	s.u.	09/25/2013	N001	10	-	15	6.93		F	#		
Potassium	mg/L	09/25/2013	N001	10	-	15	69		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	10	-	15	0.0039		F	#	0.000065	
Sodium	mg/L	09/25/2013	N001	10	-	15	1600		F	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	10	-	15	9915		F	#		
Strontium	mg/L	09/25/2013	N001	10	-	15	7		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	10	-	15	5900		F	#	50	
Temperature	C	09/25/2013	N001	10	-	15	21.3		F	#		
Turbidity	NTU	09/25/2013	N001	10	-	15	5.9		F	#		
Uranium	mg/L	09/25/2013	N001	10	-	15	0.67		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0610 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/25/2013	N001	4	-	9	288		F	#		
Ammonium	mg/L	09/25/2013	N001	4	-	9	6.18		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	4	-	9	440		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	4	-	9	180		F	#	20	
Magnesium	mg/L	09/25/2013	N001	4	-	9	690		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	4	-	9	0.16		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	4	-	9	1018		F	#	8.85	
Oxidation Reduction Potential	mV	09/25/2013	N001	4	-	9	150		F	#		
pH	s.u.	09/25/2013	N001	4	-	9	6.96		F	#		
Potassium	mg/L	09/25/2013	N001	4	-	9	120		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	4	-	9	0.19		F	#	0.0032	
Sodium	mg/L	09/25/2013	N001	4	-	9	1000		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	4	-	9	9430		F	#		
Strontium	mg/L	09/25/2013	N001	4	-	9	6.6		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	4	-	9	5300		F	#	50	
Temperature	C	09/25/2013	N001	4	-	9	24.8		F	#		
Turbidity	NTU	09/25/2013	N001	4	-	9	1.13		F	#		
Uranium	mg/L	09/25/2013	N001	4	-	9	0.6		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0611 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/25/2013	N001	9.5	-	14.5	580		F	#		
Ammonium	mg/L	09/25/2013	N001	9.5	-	14.5	2.83		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	9.5	-	14.5	140		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	9.5	-	14.5	500		F	#	20	
Magnesium	mg/L	09/25/2013	N001	9.5	-	14.5	72		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	9.5	-	14.5	0.06		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	9.5	-	14.5	0.0664		F	#	0.0443	
Oxidation Reduction Potential	mV	09/25/2013	N001	9.5	-	14.5	15		F	#		
pH	s.u.	09/25/2013	N001	9.5	-	14.5	7.1		F	#		
Potassium	mg/L	09/25/2013	N001	9.5	-	14.5	18		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	9.5	-	14.5	0.00049		F	#	0.000032	
Sodium	mg/L	09/25/2013	N001	9.5	-	14.5	2500		F	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	9.5	-	14.5	10870		F	#		
Strontium	mg/L	09/25/2013	N001	9.5	-	14.5	6.4		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	9.5	-	14.5	5100		F	#	50	
Temperature	C	09/25/2013	N001	9.5	-	14.5	24.8		F	#		
Turbidity	NTU	09/25/2013	N001	9.5	-	14.5	5.5		F	#		
Uranium	mg/L	09/25/2013	N001	9.5	-	14.5	0.0038		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/25/2013	N001	5	-	10	498		F	#		
Ammonium	mg/L	09/25/2013	N001	5	-	10	0.129	U	F	#	0.129	
Calcium	mg/L	09/25/2013	N001	5	-	10	140		F	#	0.06	
Chloride	mg/L	09/25/2013	N001	5	-	10	32		F	#	4	
Magnesium	mg/L	09/25/2013	N001	5	-	10	100		F	#	0.065	
Manganese	mg/L	09/25/2013	N001	5	-	10	0.089		F	#	0.00057	
Nitrate	mg/L	09/25/2013	N001	5	-	10	0.332		F	#	0.0443	
Oxidation Reduction Potential	mV	09/25/2013	N001	5	-	10	-121		F	#		
pH	s.u.	09/25/2013	N001	5	-	10	7.46		F	#		
Potassium	mg/L	09/25/2013	N001	5	-	10	8		F	#	0.54	
Selenium	mg/L	09/25/2013	N001	5	-	10	0.12		F	#	0.000032	
Sodium	mg/L	09/25/2013	N001	5	-	10	440		F	#	0.033	
Specific Conductance	umhos /cm	09/25/2013	N001	5	-	10	3074		F	#		
Strontium	mg/L	09/25/2013	N001	5	-	10	2		F	#	0.00039	
Sulfate	mg/L	09/25/2013	N001	5	-	10	1300		F	#	10	
Temperature	C	09/25/2013	N001	5	-	10	21.51		F	#		
Turbidity	NTU	09/25/2013	N001	5	-	10	4.74		F	#		
Uranium	mg/L	09/25/2013	N001	5	-	10	0.36		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0614 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/25/2013	N001	10	-	15	428		F	#		
Ammonium	mg/L	09/25/2013	N001	10	-	15	59.2		F	#	1.29	
Calcium	mg/L	09/25/2013	N001	10	-	15	420		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	10	-	15	180		F	#	20	
Magnesium	mg/L	09/25/2013	N001	10	-	15	760		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	10	-	15	3.2		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	10	-	15	531		F	#	4.43	
Oxidation Reduction Potential	mV	09/25/2013	N001	10	-	15	129		F	#		
pH	s.u.	09/25/2013	N001	10	-	15	6.89		F	#		
Potassium	mg/L	09/25/2013	N001	10	-	15	100		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	10	-	15	0.71		F	#	0.0032	
Sodium	mg/L	09/25/2013	N001	10	-	15	1200		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	10	-	15	10364		F	#		
Strontium	mg/L	09/25/2013	N001	10	-	15	6.4		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	10	-	15	6300		F	#	50	
Temperature	C	09/25/2013	N001	10	-	15	21.35		F	#		
Turbidity	NTU	09/25/2013	N001	10	-	15	2.09		F	#		
Uranium	mg/L	09/25/2013	N001	10	-	15	0.93		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0615 WELL S of floodplain fence, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/26/2013	N001	4.5	-	9.5	418		F	#		
Ammonium	mg/L	09/26/2013	N001	4.5	-	9.5	1.55		F	#	0.129	
Calcium	mg/L	09/26/2013	N001	4.5	-	9.5	460		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	4.5	-	9.5	78		F	#	10	
Magnesium	mg/L	09/26/2013	N001	4.5	-	9.5	320		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	4.5	-	9.5	1.2		F	#	0.00057	
Nitrate	mg/L	09/26/2013	N001	4.5	-	9.5	6.20		F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	4.5	-	9.5	80.9		F	#		
pH	s.u.	09/26/2013	N001	4.5	-	9.5	7.03		F	#		
Potassium	mg/L	09/26/2013	N001	4.5	-	9.5	60		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	4.5	-	9.5	0.051		F	#	0.0016	
Sodium	mg/L	09/26/2013	N001	4.5	-	9.5	580		F	#	0.033	
Specific Conductance	umhos /cm	09/26/2013	N001	4.5	-	9.5	5761		F	#		
Strontium	mg/L	09/26/2013	N001	4.5	-	9.5	4.6		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	4.5	-	9.5	3400		F	#	25	
Temperature	C	09/26/2013	N001	4.5	-	9.5	20.8		F	#		
Turbidity	NTU	09/26/2013	N001	4.5	-	9.5	8.52		F	#		
Uranium	mg/L	09/26/2013	N001	4.5	-	9.5	0.39		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0618 WELL Center of floodplain, well nest, just N of floodplain fence

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/26/2013	N001	11	-	16	370		F	#		
Ammonium	mg/L	09/26/2013	N001	11	-	16	28.3		F	#	1.29	
Calcium	mg/L	09/26/2013	N001	11	-	16	380		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	11	-	16	110		F	#	20	
Magnesium	mg/L	09/26/2013	N001	11	-	16	410		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	11	-	16	3.6		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	11	-	16	0.381		F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	11	-	16	1		F	#		
pH	s.u.	09/26/2013	N001	11	-	16	6.93		F	#		
Potassium	mg/L	09/26/2013	N001	11	-	16	62		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	11	-	16	0.0067		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	11	-	16	1300		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	11	-	16	8855		F	#		
Strontium	mg/L	09/26/2013	N001	11	-	16	4.6		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	11	-	16	5700		F	#	50	
Temperature	C	09/26/2013	N001	11	-	16	20.8		F	#		
Turbidity	NTU	09/26/2013	N001	11	-	16	8.24		F	#		
Uranium	mg/L	09/26/2013	N001	11	-	16	0.42		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0619 WELL Center of floodplain

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	8	-	13	460		F	#		
Ammonium	mg/L	09/26/2013	N001	8	-	13	0.386		F	#	0.129	
Calcium	mg/L	09/26/2013	N001	8	-	13	230		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	8	-	13	75		F	#	10	
Magnesium	mg/L	09/26/2013	N001	8	-	13	82		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	8	-	13	2.3		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	8	-	13	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	8	-	13	-16.5		F	#		
pH	s.u.	09/26/2013	N001	8	-	13	7.04		F	#		
Potassium	mg/L	09/26/2013	N001	8	-	13	23		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	8	-	13	0.00075		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	8	-	13	1100		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	8	-	13	5859		F	#		
Strontium	mg/L	09/26/2013	N001	8	-	13	6.9		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	8	-	13	2900		F	#	25	
Temperature	C	09/26/2013	N001	8	-	13	20.79		F	#		
Turbidity	NTU	09/26/2013	N001	8	-	13	1.62		F	#		
Uranium	mg/L	09/26/2013	N001	8	-	13	0.071		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0622 WELL Center of floodplain, well nest, N of floodplain fence

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/26/2013	N001	5	-	10	250		F	#		
Ammonium	mg/L	09/26/2013	N001	5	-	10	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	5	-	10	210		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	5	-	10	80		F	#	10	
Magnesium	mg/L	09/26/2013	N001	5	-	10	72		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	5	-	10	2.2		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	5	-	10	0.487		F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	5	-	10	35		F	#		
pH	s.u.	09/26/2013	N001	5	-	10	7.22		F	#		
Potassium	mg/L	09/26/2013	N001	5	-	10	20		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	5	-	10	0.052		F	#	0.00032	
Sodium	mg/L	09/26/2013	N001	5	-	10	980		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	5	-	10	5330		F	#		
Strontium	mg/L	09/26/2013	N001	5	-	10	8.2		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	5	-	10	2800		F	#	25	
Temperature	C	09/26/2013	N001	5	-	10	20.9		F	#		
Turbidity	NTU	09/26/2013	N001	5	-	10	2.28		F	#		
Uranium	mg/L	09/26/2013	N001	5	-	10	0.043		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0623 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	10	-	15	376		F	#		
Ammonium	mg/L	10/02/2013	N001	10	-	15	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	10	-	15	200		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	10	-	15	70		F	#	10	
Magnesium	mg/L	10/02/2013	N001	10	-	15	43		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	10	-	15	3.3		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	10	-	15	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	10	-	15	84.8		F	#		
pH	s.u.	10/02/2013	N001	10	-	15	7.23		F	#		
Potassium	mg/L	10/02/2013	N001	10	-	15	15		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	10	-	15	0.0015		F	#	0.000032	
Sodium	mg/L	10/02/2013	N001	10	-	15	1000		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	10	-	15	5311		F	#		
Strontium	mg/L	10/02/2013	N001	10	-	15	8.8		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	10	-	15	2600		F	#	25	
Temperature	C	10/02/2013	N001	10	-	15	17.62		F	#		
Turbidity	NTU	10/02/2013	N001	10	-	15	2.63		F	#		
Uranium	mg/L	10/02/2013	N001	10	-	15	0.034		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0625 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	4.5	-	9.5	188		F	#		
Ammonium	mg/L	10/02/2013	N001	4.5	-	9.5	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	4.5	-	9.5	200		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	4.5	-	9.5	71		F	#	10	
Magnesium	mg/L	10/02/2013	N001	4.5	-	9.5	41		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	4.5	-	9.5	2.5		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	4.5	-	9.5	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	4.5	-	9.5	116.4		F	#		
pH	s.u.	10/02/2013	N001	4.5	-	9.5	7.22		F	#		
Potassium	mg/L	10/02/2013	N001	4.5	-	9.5	14		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	4.5	-	9.5	0.00094		F	#	0.000032	
Sodium	mg/L	10/02/2013	N001	4.5	-	9.5	980		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	4.5	-	9.5	5224		F	#		
Strontium	mg/L	10/02/2013	N001	4.5	-	9.5	9.2		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	4.5	-	9.5	2600		F	#	25	
Temperature	C	10/02/2013	N001	4.5	-	9.5	18.79		F	#		
Turbidity	NTU	10/02/2013	N001	4.5	-	9.5	4.15		F	#		
Uranium	mg/L	10/02/2013	N001	4.5	-	9.5	0.029		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0626 WELL Center of floodplain, just NE of wetland

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/01/2013	N001	9.5	-	14.5	240		F	#		
Ammonium	mg/L	10/01/2013	N001	9.5	-	14.5	0.142		F	#	0.129	
Calcium	mg/L	10/01/2013	N001	9.5	-	14.5	350		F	#	0.12	
Chloride	mg/L	10/01/2013	N001	9.5	-	14.5	120		F	#	10	
Magnesium	mg/L	10/01/2013	N001	9.5	-	14.5	55		F	#	0.13	
Manganese	mg/L	10/01/2013	N001	9.5	-	14.5	8		F	#	0.0011	
Nitrate	mg/L	10/01/2013	N001	9.5	-	14.5	0.212		F	#	0.0443	
Oxidation Reduction Potential	mV	10/01/2013	N001	9.5	-	14.5	-9.4		F	#		
pH	s.u.	10/01/2013	N001	9.5	-	14.5	7.38		F	#		
Potassium	mg/L	10/01/2013	N001	9.5	-	14.5	19		F	#	1.1	
Selenium	mg/L	10/01/2013	N001	9.5	-	14.5	0.0025		F	#	0.000032	
Sodium	mg/L	10/01/2013	N001	9.5	-	14.5	1300		F	#	0.066	
Specific Conductance	umhos /cm	10/01/2013	N001	9.5	-	14.5	6913		F	#		
Strontium	mg/L	10/01/2013	N001	9.5	-	14.5	19		F	#	0.00078	
Sulfate	mg/L	10/01/2013	N001	9.5	-	14.5	3800		F	#	25	
Temperature	C	10/01/2013	N001	9.5	-	14.5	18.15		F	#		
Turbidity	NTU	10/01/2013	N001	9.5	-	14.5	7.14		F	#		
Uranium	mg/L	10/01/2013	N001	9.5	-	14.5	0.031		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0628 WELL Center of floodplain, well nest, just N of wetland

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/01/2013	N001	6	-	10	275		F	#		
Ammonium	mg/L	10/01/2013	N001	6	-	10	0.129	U	F	#	0.129	
Calcium	mg/L	10/01/2013	N001	6	-	10	190		F	#	0.12	
Chloride	mg/L	10/01/2013	N001	6	-	10	77		F	#	10	
Magnesium	mg/L	10/01/2013	N001	6	-	10	39		F	#	0.13	
Manganese	mg/L	10/01/2013	N001	6	-	10	3.4		F	#	0.0011	
Nitrate	mg/L	10/01/2013	N001	6	-	10	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	10/01/2013	N001	6	-	10	-149.8		F	#		
pH	s.u.	10/01/2013	N001	6	-	10	7.47		F	#		
Potassium	mg/L	10/01/2013	N001	6	-	10	16		F	#	1.1	
Selenium	mg/L	10/01/2013	N001	6	-	10	0.00084		F	#	0.000032	
Sodium	mg/L	10/01/2013	N001	6	-	10	1100		F	#	0.066	
Specific Conductance	umhos /cm	10/01/2013	N001	6	-	10	5688		F	#		
Strontium	mg/L	10/01/2013	N001	6	-	10	11		F	#	0.00078	
Sulfate	mg/L	10/01/2013	N001	6	-	10	2800		F	#	25	
Temperature	C	10/01/2013	N001	6	-	10	17.24		F	#		
Turbidity	NTU	10/01/2013	N001	6	-	10	3.43		F	#		
Uranium	mg/L	10/01/2013	N001	6	-	10	0.025		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0630 WELL Just N of mouth of Bob Lee Wash, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	5	-	10	594		F	#		
Ammonium	mg/L	10/02/2013	N001	5	-	10	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	5	-	10	260		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	5	-	10	150		F	#	10	
Magnesium	mg/L	10/02/2013	N001	5	-	10	210		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	5	-	10	2.9		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	5	-	10	16.4		F	#	0.443	
Oxidation Reduction Potential	mV	10/02/2013	N001	5	-	10	127.3		F	#		
pH	s.u.	10/02/2013	N001	5	-	10	7.1		F	#		
Potassium	mg/L	10/02/2013	N001	5	-	10	18		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	5	-	10	0.12		F	#	0.0016	
Sodium	mg/L	10/02/2013	N001	5	-	10	1300		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	5	-	10	7300		F	#		
Strontium	mg/L	10/02/2013	N001	5	-	10	11		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	5	-	10	3800		F	#	25	
Temperature	C	10/02/2013	N001	5	-	10	19.21		F	#		
Turbidity	NTU	10/02/2013	N001	5	-	10	2.63		F	#		
Uranium	mg/L	10/02/2013	N001	5	-	10	0.17		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0734 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	2	-	4	866		FQ	#		
Ammonium	mg/L	10/02/2013	N001	2	-	4	0.129	U	FQ	#	0.129	
Calcium	mg/L	10/02/2013	N001	2	-	4	370		FQ	#	0.06	
Chloride	mg/L	10/02/2013	N001	2	-	4	630		FQ	#	100	
Magnesium	mg/L	10/02/2013	N001	2	-	4	1200		FQ	#	0.065	
Manganese	mg/L	10/02/2013	N001	2	-	4	3.1		FQ	#	0.00057	
Nitrate	mg/L	10/02/2013	N001	2	-	4	3.32		FQ	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	2	-	4	103.3		FQ	#		
pH	s.u.	10/02/2013	N001	2	-	4	7.81		FQ	#		
Potassium	mg/L	10/02/2013	N001	2	-	4	36		FQ	#	0.54	
Selenium	mg/L	10/02/2013	N001	2	-	4	0.5		FQ	#	0.00032	
Sodium	mg/L	10/02/2013	N001	2	-	4	8100		FQ	#	0.66	
Specific Conductance	umhos /cm	10/02/2013	N001	2	-	4	29950		FQ	#		
Strontium	mg/L	10/02/2013	N001	2	-	4	17		FQ	#	0.00039	
Sulfate	mg/L	10/02/2013	N001	2	-	4	25000		FQ	#	250	
Temperature	C	10/02/2013	N001	2	-	4	20.85		FQ	#		
Turbidity	NTU	10/02/2013	N001	2	-	4	7.53		FQ	#		
Uranium	mg/L	10/02/2013	N001	2	-	4	0.87		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0735 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	3	-	8	928		F	#		
Ammonium	mg/L	10/02/2013	N001	3	-	8	1.42		F	#	0.129	
Calcium	mg/L	10/02/2013	N001	3	-	8	390		F	#	0.6	
Chloride	mg/L	10/02/2013	N001	3	-	8	770		F	#	100	
Magnesium	mg/L	10/02/2013	N001	3	-	8	1200		F	#	0.65	
Manganese	mg/L	10/02/2013	N001	3	-	8	2		F	#	0.0057	
Nitrate	mg/L	10/02/2013	N001	3	-	8	2700		F	#	22.1	
Oxidation Reduction Potential	mV	10/02/2013	N001	3	-	8	135.3		F	#		
pH	s.u.	10/02/2013	N001	3	-	8	7.09		F	#		
Potassium	mg/L	10/02/2013	N001	3	-	8	74		F	#	5.4	
Selenium	mg/L	10/02/2013	N001	3	-	8	0.026		F	#	0.00016	
Sodium	mg/L	10/02/2013	N001	3	-	8	4000		F	#	0.33	
Specific Conductance	umhos /cm	10/02/2013	N001	3	-	8	21360		F	#		
Strontium	mg/L	10/02/2013	N001	3	-	8	11		F	#	0.0039	
Sulfate	mg/L	10/02/2013	N001	3	-	8	13000		F	#	250	
Temperature	C	10/02/2013	N001	3	-	8	17.83		F	#		
Uranium	mg/L	10/02/2013	N001	3	-	8	0.33		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0736 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	3	-	5	208		F	#		
Ammonium	mg/L	10/02/2013	N001	3	-	5	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	3	-	5	330		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	3	-	5	74		F	#	10	
Magnesium	mg/L	10/02/2013	N001	3	-	5	61		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	3	-	5	0.94		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	3	-	5	1.59		F	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	3	-	5	127.8		F	#		
pH	s.u.	10/02/2013	N001	3	-	5	7.6		F	#		
Potassium	mg/L	10/02/2013	N001	3	-	5	22		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	3	-	5	0.0014		F	#	0.000032	
Sodium	mg/L	10/02/2013	N001	3	-	5	1000		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	3	-	5	5621		F	#		
Strontium	mg/L	10/02/2013	N001	3	-	5	4.5		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	3	-	5	3100		F	#	25	
Temperature	C	10/02/2013	N001	3	-	5	21.09		F	#		
Turbidity	NTU	10/02/2013	N001	3	-	5	6.23		F	#		
Uranium	mg/L	10/02/2013	N001	3	-	5	0.04		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0766 WELL Well Point

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	6.25	-	8.75	346		F	#		
Ammonium	mg/L	09/27/2013	N001	6.25	-	8.75	0.129	U	F	#	0.129	
Calcium	mg/L	09/27/2013	N001	6.25	-	8.75	220		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	6.25	-	8.75	100		F	#	20	
Magnesium	mg/L	09/27/2013	N001	6.25	-	8.75	150		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	6.25	-	8.75	0.42		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	6.25	-	8.75	2.61		F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	6.25	-	8.75	-145		F	#		
pH	s.u.	09/27/2013	N001	6.25	-	8.75	7.39		F	#		
Potassium	mg/L	09/27/2013	N001	6.25	-	8.75	49		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	6.25	-	8.75	0.0026		F	#	0.000032	
Sodium	mg/L	09/27/2013	N001	6.25	-	8.75	1500		F	#	0.33	
Specific Conductance	umhos /cm	09/27/2013	N001	6.25	-	8.75	7725		F	#		
Strontium	mg/L	09/27/2013	N001	6.25	-	8.75	3.5		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	6.25	-	8.75	4200		F	#	50	
Temperature	C	09/27/2013	N001	6.25	-	8.75	21.8		F	#		
Turbidity	NTU	09/27/2013	N001	6.25	-	8.75	3.93		F	#		
Uranium	mg/L	09/27/2013	N001	6.25	-	8.75	0.1		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0768 WELL Well Point

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	4.58	-	7.08	760		F	#		
Ammonium	mg/L	09/26/2013	N001	4.58	-	7.08	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	4.58	-	7.08	380		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	4.58	-	7.08	180		F	#	20	
Magnesium	mg/L	09/26/2013	N001	4.58	-	7.08	230		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	4.58	-	7.08	1.7		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	4.58	-	7.08	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	4.58	-	7.08	-101.7		F	#		
pH	s.u.	09/26/2013	N001	4.58	-	7.08	7.11		F	#		
Potassium	mg/L	09/26/2013	N001	4.58	-	7.08	69		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	4.58	-	7.08	0.0015		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	4.58	-	7.08	2500		F	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	4.58	-	7.08	12012		F	#		
Strontium	mg/L	09/26/2013	N001	4.58	-	7.08	12		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	4.58	-	7.08	6700		F	#	50	
Temperature	C	09/26/2013	N001	4.58	-	7.08	21.19		F	#		
Turbidity	NTU	09/26/2013	N001	4.58	-	7.08	2.94		F	#		
Uranium	mg/L	09/26/2013	N001	4.58	-	7.08	0.13		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0773 WELL Well Point

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	4	-	6.5	276		F	#		
Ammonium	mg/L	09/25/2013	N001	4	-	6.5	0.129	U	F	#	0.129	
Calcium	mg/L	09/25/2013	N001	4	-	6.5	180		F	#	0.012	
Chloride	mg/L	09/25/2013	N001	4	-	6.5	54		F	#	4	
Magnesium	mg/L	09/25/2013	N001	4	-	6.5	190		F	#	0.013	
Manganese	mg/L	09/25/2013	N001	4	-	6.5	0.0024	B	FJ	#	0.00011	
Nitrate	mg/L	09/25/2013	N001	4	-	6.5	106		F	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	4	-	6.5	145		F	#		
pH	s.u.	09/25/2013	N001	4	-	6.5	7.2		F	#		
Potassium	mg/L	09/25/2013	N001	4	-	6.5	36		F	#	0.11	
Selenium	mg/L	09/25/2013	N001	4	-	6.5	0.14		F	#	0.00032	
Sodium	mg/L	09/25/2013	N001	4	-	6.5	310		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	4	-	6.5	3213		F	#		
Strontium	mg/L	09/25/2013	N001	4	-	6.5	2.2		F	#	0.000078	
Sulfate	mg/L	09/25/2013	N001	4	-	6.5	1500		F	#	10	
Temperature	C	09/25/2013	N001	4	-	6.5	25.41		F	#		
Turbidity	NTU	09/25/2013	N001	4	-	6.5	2.05		F	#		
Uranium	mg/L	09/25/2013	N001	4	-	6.5	0.2		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0775 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	4.25	-	6.75	486		F	#		
Ammonium	mg/L	09/26/2013	N001	4.25	-	6.75	0.206		F	#	0.129	
Calcium	mg/L	09/26/2013	N001	4.25	-	6.75	430		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	4.25	-	6.75	99		F	#	20	
Magnesium	mg/L	09/26/2013	N001	4.25	-	6.75	130		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	4.25	-	6.75	2.6		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	4.25	-	6.75	0.0620		F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	4.25	-	6.75	-44.1		F	#		
pH	s.u.	09/26/2013	N001	4.25	-	6.75	7.05		F	#		
Potassium	mg/L	09/26/2013	N001	4.25	-	6.75	42		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	4.25	-	6.75	0.0017		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	4.25	-	6.75	1300		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	4.25	-	6.75	7477		F	#		
Strontium	mg/L	09/26/2013	N001	4.25	-	6.75	6		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	4.25	-	6.75	4200		F	#	50	
Temperature	C	09/26/2013	N001	4.25	-	6.75	21.91		F	#		
Turbidity	NTU	09/26/2013	N001	4.25	-	6.75	8.78		F	#		
Uranium	mg/L	09/26/2013	N001	4.25	-	6.75	0.087		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0779 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7	-	9.5	808		FQ	#		
Ammonium	mg/L	09/26/2013	N001	7	-	9.5	4.38		FQ	#	0.129	
Calcium	mg/L	09/26/2013	N001	7	-	9.5	360		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	7	-	9.5	390		FQ	#	40	
Magnesium	mg/L	09/26/2013	N001	7	-	9.5	1100		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	7	-	9.5	2.8		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	7	-	9.5	115		FQ	#	2.21	
Oxidation Reduction Potential	mV	09/26/2013	N001	7	-	9.5	100		FQ	#		
pH	s.u.	09/26/2013	N001	7	-	9.5	7.17		FQ	#		
Potassium	mg/L	09/26/2013	N001	7	-	9.5	150		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	7	-	9.5	0.14		FQ	#	0.0032	
Sodium	mg/L	09/26/2013	N001	7	-	9.5	3200		FQ	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	7	-	9.5	16920		FQ	#		
Strontium	mg/L	09/26/2013	N001	7	-	9.5	9.5		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	7	-	9.5	12000		FQ	#	100	
Temperature	C	09/26/2013	N001	7	-	9.5	21.6		FQ	#		
Turbidity	NTU	09/26/2013	N001	7	-	9.5	8.38		FQ	#		
Uranium	mg/L	09/26/2013	N001	7	-	9.5	1.3		FQ	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0782R WELL Island area NW of US Hwy 491 bridge.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	4.71	-	9.46	168		F	#		
Ammonium	mg/L	09/27/2013	N001	4.71	-	9.46	0.129	U	F	#	0.129	
Calcium	mg/L	09/27/2013	N001	4.71	-	9.46	87		F	#	0.012	
Chloride	mg/L	09/27/2013	N001	4.71	-	9.46	19		F	#	2	
Magnesium	mg/L	09/27/2013	N001	4.71	-	9.46	24		F	#	0.013	
Manganese	mg/L	09/27/2013	N001	4.71	-	9.46	4.7		F	#	0.00011	
Nitrate	mg/L	09/27/2013	N001	4.71	-	9.46	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	4.71	-	9.46	71.3		F	#		
pH	s.u.	09/27/2013	N001	4.71	-	9.46	7.22		F	#		
Potassium	mg/L	09/27/2013	N001	4.71	-	9.46	4.3		F	#	0.11	
Selenium	mg/L	09/27/2013	N001	4.71	-	9.46	0.00034		F	#	0.000032	
Sodium	mg/L	09/27/2013	N001	4.71	-	9.46	140		F	#	0.0066	
Specific Conductance	umhos /cm	09/27/2013	N001	4.71	-	9.46	1439		F	#		
Strontium	mg/L	09/27/2013	N001	4.71	-	9.46	1.1		F	#	0.000078	
Sulfate	mg/L	09/27/2013	N001	4.71	-	9.46	440		F	#	5	
Temperature	C	09/27/2013	N001	4.71	-	9.46	16.86		F	#		
Turbidity	NTU	09/27/2013	N001	4.71	-	9.46	6.48		F	#		
Uranium	mg/L	09/27/2013	N001	4.71	-	9.46	0.0068		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0783R WELL Island area NW of US Hwy 491 bridge.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	4.38	-	9.38	203		F	#		
Ammonium	mg/L	09/27/2013	N001	4.38	-	9.38	0.129	U	F	#	0.129	
Calcium	mg/L	09/27/2013	N001	4.38	-	9.38	120		F	#	0.012	
Chloride	mg/L	09/27/2013	N001	4.38	-	9.38	29		F	#	2	
Magnesium	mg/L	09/27/2013	N001	4.38	-	9.38	37		F	#	0.013	
Manganese	mg/L	09/27/2013	N001	4.38	-	9.38	3.6		F	#	0.00011	
Nitrate	mg/L	09/27/2013	N001	4.38	-	9.38	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	4.38	-	9.38	92.6		F	#		
pH	s.u.	09/27/2013	N001	4.38	-	9.38	7.26		F	#		
Potassium	mg/L	09/27/2013	N001	4.38	-	9.38	6.3		F	#	0.11	
Selenium	mg/L	09/27/2013	N001	4.38	-	9.38	0.00021		F	#	0.000032	
Sodium	mg/L	09/27/2013	N001	4.38	-	9.38	210		F	#	0.066	
Specific Conductance	umhos /cm	09/27/2013	N001	4.38	-	9.38	1769		F	#		
Strontium	mg/L	09/27/2013	N001	4.38	-	9.38	1.4		F	#	0.000078	
Sulfate	mg/L	09/27/2013	N001	4.38	-	9.38	710		F	#	5	
Temperature	C	09/27/2013	N001	4.38	-	9.38	22.09		F	#		
Turbidity	NTU	09/27/2013	N001	4.38	-	9.38	8.36		F	#		
Uranium	mg/L	09/27/2013	N001	4.38	-	9.38	0.006		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0792 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	6	-	8	372		F	#		
Ammonium	mg/L	09/26/2013	N001	6	-	8	0.322		F	#	0.129	
Calcium	mg/L	09/26/2013	N001	6	-	8	440		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	6	-	8	92		F	#	20	
Magnesium	mg/L	09/26/2013	N001	6	-	8	190		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	6	-	8	4.9		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	6	-	8	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	6	-	8	-35		F	#		
pH	s.u.	09/26/2013	N001	6	-	8	7.2		F	#		
Potassium	mg/L	09/26/2013	N001	6	-	8	49		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	6	-	8	0.0013		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	6	-	8	1300		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	6	-	8	7450		F	#		
Strontium	mg/L	09/26/2013	N001	6	-	8	6.6		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	6	-	8	4400		F	#	50	
Temperature	C	09/26/2013	N001	6	-	8	21.3		F	#		
Turbidity	NTU	09/26/2013	N001	6	-	8	6.17		F	#		
Uranium	mg/L	09/26/2013	N001	6	-	8	0.14		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0793 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	5.2	-	7.2	554		F	#		
Ammonium	mg/L	09/26/2013	N001	5.2	-	7.2	10.6		F	#	0.644	
Calcium	mg/L	09/26/2013	N001	5.2	-	7.2	530		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	5.2	-	7.2	250		F	#	20	
Magnesium	mg/L	09/26/2013	N001	5.2	-	7.2	800		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	5.2	-	7.2	0.084		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	5.2	-	7.2	32.3		F	#	0.885	
Oxidation Reduction Potential	mV	09/26/2013	N001	5.2	-	7.2	90		F	#		
pH	s.u.	09/26/2013	N001	5.2	-	7.2	6.86		F	#		
Potassium	mg/L	09/26/2013	N001	5.2	-	7.2	79		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	5.2	-	7.2	0.28		F	#	0.0032	
Sodium	mg/L	09/26/2013	N001	5.2	-	7.2	1300		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	5.2	-	7.2	10420		F	#		
Strontium	mg/L	09/26/2013	N001	5.2	-	7.2	8.3		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	5.2	-	7.2	7000		F	#	50	
Temperature	C	09/26/2013	N001	5.2	-	7.2	22.6		F	#		
Turbidity	NTU	09/26/2013	N001	5.2	-	7.2	2.09		F	#		
Uranium	mg/L	09/26/2013	N001	5.2	-	7.2	1		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0797 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7.3	-	9.3	620		FQ	#		
Ammonium	mg/L	09/26/2013	N001	7.3	-	9.3	0.142		FQ	#	0.129	
Calcium	mg/L	09/26/2013	N001	7.3	-	9.3	410		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	7.3	-	9.3	310		FQ	#	20	
Magnesium	mg/L	09/26/2013	N001	7.3	-	9.3	110		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	7.3	-	9.3	3.9		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	7.3	-	9.3	0.385		FQ	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	7.3	-	9.3	-43.1		FQ	#		
pH	s.u.	09/26/2013	N001	7.3	-	9.3	7.14		FQ	#		
Potassium	mg/L	09/26/2013	N001	7.3	-	9.3	14		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	7.3	-	9.3	0.0006		FQ	#	0.000032	
Sodium	mg/L	09/26/2013	N001	7.3	-	9.3	2000		FQ	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	7.3	-	9.3	9325		FQ	#		
Strontium	mg/L	09/26/2013	N001	7.3	-	9.3	7.8		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	7.3	-	9.3	4700		FQ	#	50	
Temperature	C	09/26/2013	N001	7.3	-	9.3	20.65		FQ	#		
Turbidity	NTU	09/26/2013	N001	7.3	-	9.3	6.42		FQ	#		
Uranium	mg/L	09/26/2013	N001	7.3	-	9.3	0.024		FQ	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0798 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7.1	-	9.1	480		F	#		
Ammonium	mg/L	09/26/2013	N001	7.1	-	9.1	1.80		F	#	0.129	
Calcium	mg/L	09/26/2013	N001	7.1	-	9.1	410		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	7.1	-	9.1	130		F	#	20	
Magnesium	mg/L	09/26/2013	N001	7.1	-	9.1	220		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	7.1	-	9.1	2		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	7.1	-	9.1	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	7.1	-	9.1	33.6		F	#		
pH	s.u.	09/26/2013	N001	7.1	-	9.1	7.06		F	#		
Potassium	mg/L	09/26/2013	N001	7.1	-	9.1	48		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	7.1	-	9.1	0.00097		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	7.1	-	9.1	1700		F	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	7.1	-	9.1	8679		F	#		
Strontium	mg/L	09/26/2013	N001	7.1	-	9.1	5.6		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	7.1	-	9.1	5000		F	#	50	
Temperature	C	09/26/2013	N001	7.1	-	9.1	20.45		F	#		
Turbidity	NTU	09/26/2013	N001	7.1	-	9.1	1.67		F	#		
Uranium	mg/L	09/26/2013	N001	7.1	-	9.1	0.2		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0850 WELL Background area 1 mi E of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	5.6	-	15.4	275		F	#		
Ammonium	mg/L	09/26/2013	N001	5.6	-	15.4	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	5.6	-	15.4	150		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	5.6	-	15.4	180		F	#	10	
Magnesium	mg/L	09/26/2013	N001	5.6	-	15.4	36		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	5.6	-	15.4	0.24		F	#	0.00057	
Nitrate	mg/L	09/26/2013	N001	5.6	-	15.4	25.2		F	#	0.443	
Oxidation Reduction Potential	mV	09/26/2013	N001	5.6	-	15.4	-7.9		F	#		
pH	s.u.	09/26/2013	N001	5.6	-	15.4	7.65		F	#		
Potassium	mg/L	09/26/2013	N001	5.6	-	15.4	5.5		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	5.6	-	15.4	0.02		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	5.6	-	15.4	1200		F	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	5.6	-	15.4	5711		F	#		
Strontium	mg/L	09/26/2013	N001	5.6	-	15.4	2.5		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	5.6	-	15.4	2600		F	#	25	
Temperature	C	09/26/2013	N001	5.6	-	15.4	19.75		F	#		
Turbidity	NTU	09/26/2013	N001	5.6	-	15.4	7.6		F	#		
Uranium	mg/L	09/26/2013	N001	5.6	-	15.4	0.05		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0853 WELL S of floodplain fence

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	10	-	15	226		F	#		
Ammonium	mg/L	09/26/2013	N001	10	-	15	18.0		F	#	1.29	
Calcium	mg/L	09/26/2013	N001	10	-	15	140		F	#	0.012	
Chloride	mg/L	09/26/2013	N001	10	-	15	21		F	#	2	
Magnesium	mg/L	09/26/2013	N001	10	-	15	40		F	#	0.013	
Manganese	mg/L	09/26/2013	N001	10	-	15	0.66		F	#	0.00011	
Nitrate	mg/L	09/26/2013	N001	10	-	15	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	10	-	15	-53.7		F	#		
pH	s.u.	09/26/2013	N001	10	-	15	7.15		F	#		
Potassium	mg/L	09/26/2013	N001	10	-	15	13		F	#	0.11	
Selenium	mg/L	09/26/2013	N001	10	-	15	0.00016		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	10	-	15	100		F	#	0.0066	
Specific Conductance	umhos /cm	09/26/2013	N001	10	-	15	1481		F	#		
Strontium	mg/L	09/26/2013	N001	10	-	15	1.4		F	#	0.000078	
Sulfate	mg/L	09/26/2013	N001	10	-	15	560		F	#	5	
Temperature	C	09/26/2013	N001	10	-	15	22.08		F	#		
Turbidity	NTU	09/26/2013	N001	10	-	15	8.71		F	#		
Uranium	mg/L	09/26/2013	N001	10	-	15	0.044		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0854 WELL NE part of floodplain

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	9.05	-	11.55	586		F	#		
Ammonium	mg/L	09/27/2013	N001	9.05	-	11.55	4.12		F	#	0.129	
Calcium	mg/L	09/27/2013	N001	9.05	-	11.55	400		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	9.05	-	11.55	180		F	#	20	
Magnesium	mg/L	09/27/2013	N001	9.05	-	11.55	480		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	9.05	-	11.55	2.8		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	9.05	-	11.55	0.412		F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	9.05	-	11.55	-30		F	#		
pH	s.u.	09/27/2013	N001	9.05	-	11.55	7.06		F	#		
Potassium	mg/L	09/27/2013	N001	9.05	-	11.55	85		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	9.05	-	11.55	0.0022		F	#	0.000032	
Sodium	mg/L	09/27/2013	N001	9.05	-	11.55	2200		F	#	0.33	
Specific Conductance	umhos /cm	09/27/2013	N001	9.05	-	11.55	11475		F	#		
Strontium	mg/L	09/27/2013	N001	9.05	-	11.55	6.6		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	9.05	-	11.55	7100		F	#	50	
Temperature	C	09/27/2013	N001	9.05	-	11.55	20.2		F	#		
Turbidity	NTU	09/27/2013	N001	9.05	-	11.55	7.21		F	#		
Uranium	mg/L	09/27/2013	N001	9.05	-	11.55	0.57		F	#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0855 WELL NW part of floodplain

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	4.9	-	14.9	266		F	#		
Ammonium	mg/L	10/02/2013	N001	4.9	-	14.9	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	4.9	-	14.9	380		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	4.9	-	14.9	110		F	#	10	
Magnesium	mg/L	10/02/2013	N001	4.9	-	14.9	100		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	4.9	-	14.9	3.1		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	4.9	-	14.9	11.5		F	#	0.443	
Oxidation Reduction Potential	mV	10/02/2013	N001	4.9	-	14.9	116.4		F	#		
pH	s.u.	10/02/2013	N001	4.9	-	14.9	7.31		F	#		
Potassium	mg/L	10/02/2013	N001	4.9	-	14.9	18		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	4.9	-	14.9	0.091		F	#	0.00032	
Sodium	mg/L	10/02/2013	N001	4.9	-	14.9	1200		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	4.9	-	14.9	6497		F	#		
Strontium	mg/L	10/02/2013	N001	4.9	-	14.9	16		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	4.9	-	14.9	3600		F	#	25	
Temperature	C	10/02/2013	N001	4.9	-	14.9	18.51		F	#		
Turbidity	NTU	10/02/2013	N001	4.9	-	14.9	5.46		F	#		
Uranium	mg/L	10/02/2013	N001	4.9	-	14.9	0.065		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0856 WELL NW part of floodplain

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	18.8	-	23.8	246		F	#		
Ammonium	mg/L	10/02/2013	N001	18.8	-	23.8	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	18.8	-	23.8	200		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	18.8	-	23.8	77		F	#	10	
Magnesium	mg/L	10/02/2013	N001	18.8	-	23.8	50		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	18.8	-	23.8	2.8		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	18.8	-	23.8	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	18.8	-	23.8	64.5		F	#		
pH	s.u.	10/02/2013	N001	18.8	-	23.8	7.59		F	#		
Potassium	mg/L	10/02/2013	N001	18.8	-	23.8	16		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	18.8	-	23.8	0.00061		F	#	0.000032	
Sodium	mg/L	10/02/2013	N001	18.8	-	23.8	1000		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	18.8	-	23.8	5389		F	#		
Strontium	mg/L	10/02/2013	N001	18.8	-	23.8	6.6		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	18.8	-	23.8	2800		F	#	25	
Temperature	C	10/02/2013	N001	18.8	-	23.8	16.3		F	#		
Turbidity	NTU	10/02/2013	N001	18.8	-	23.8	6.31		F	#		
Uranium	mg/L	10/02/2013	N001	18.8	-	23.8	0.056		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0857 WELL Near E end of floodplain fence

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	13.2	-	18.2	526		F	#		
Ammonium	mg/L	09/26/2013	N001	13.2	-	18.2	16.7		F	#	0.644	
Calcium	mg/L	09/26/2013	N001	13.2	-	18.2	560		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	13.2	-	18.2	200		F	#	20	
Magnesium	mg/L	09/26/2013	N001	13.2	-	18.2	510		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	13.2	-	18.2	5.6		F	#	0.00057	
Nitrate	mg/L	09/26/2013	N001	13.2	-	18.2	48.7		F	#	0.443	
Oxidation Reduction Potential	mV	09/26/2013	N001	13.2	-	18.2	99.4		F	#		
pH	s.u.	09/26/2013	N001	13.2	-	18.2	6.92		F	#		
Potassium	mg/L	09/26/2013	N001	13.2	-	18.2	46		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	13.2	-	18.2	0.0082		F	#	0.00032	
Sodium	mg/L	09/26/2013	N001	13.2	-	18.2	1200		F	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	13.2	-	18.2	9097		F	#		
Strontium	mg/L	09/26/2013	N001	13.2	-	18.2	7.1		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	13.2	-	18.2	5700		F	#	50	
Temperature	C	09/26/2013	N001	13.2	-	18.2	19.83		F	#		
Turbidity	NTU	09/26/2013	N001	13.2	-	18.2	5.44		F	#		
Uranium	mg/L	09/26/2013	N001	13.2	-	18.2	0.68		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1008 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	6.9	-	16.9	488		F	#		
Ammonium	mg/L	09/27/2013	N001	6.9	-	16.9	4.64		F	#	0.129	
Calcium	mg/L	09/27/2013	N001	6.9	-	16.9	400		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	6.9	-	16.9	100		F	#	20	
Magnesium	mg/L	09/27/2013	N001	6.9	-	16.9	210		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	6.9	-	16.9	1.7		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	6.9	-	16.9	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	6.9	-	16.9	208.8		F	#		
pH	s.u.	09/27/2013	N001	6.9	-	16.9	7.05		F	#		
Potassium	mg/L	09/27/2013	N001	6.9	-	16.9	53		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	6.9	-	16.9	0.0039		F	#	0.00016	
Sodium	mg/L	09/27/2013	N001	6.9	-	16.9	1300		F	#	0.066	
Specific Conductance	umhos /cm	09/27/2013	N001	6.9	-	16.9	7750		F	#		
Strontium	mg/L	09/27/2013	N001	6.9	-	16.9	4.9		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	6.9	-	16.9	4500		F	#	50	
Temperature	C	09/27/2013	N001	6.9	-	16.9	17.64		F	#		
Turbidity	NTU	09/27/2013	N001	6.9	-	16.9	2.22		F	#		
Uranium	mg/L	09/27/2013	N001	6.9	-	16.9	0.3		F	#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1009 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7.4	-	17.4	248		F	#		
Ammonium	mg/L	09/26/2013	N001	7.4	-	17.4	14.2		F	#	1.29	
Calcium	mg/L	09/26/2013	N001	7.4	-	17.4	280		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	7.4	-	17.4	32		F	#	4	
Magnesium	mg/L	09/26/2013	N001	7.4	-	17.4	120		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	7.4	-	17.4	1.1		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	7.4	-	17.4	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	7.4	-	17.4	66.6		F	#		
pH	s.u.	09/26/2013	N001	7.4	-	17.4	6.99		F	#		
Potassium	mg/L	09/26/2013	N001	7.4	-	17.4	25		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	7.4	-	17.4	0.0016		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	7.4	-	17.4	230		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	7.4	-	17.4	2917		F	#		
Strontium	mg/L	09/26/2013	N001	7.4	-	17.4	2.8		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	7.4	-	17.4	1500		F	#	10	
Temperature	C	09/26/2013	N001	7.4	-	17.4	21.39		F	#		
Turbidity	NTU	09/26/2013	N001	7.4	-	17.4	2.13		F	#		
Uranium	mg/L	09/26/2013	N001	7.4	-	17.4	0.16		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1089 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	4.8	-	14.8	410			#		
Ammonium	mg/L	09/24/2013	N001	4.8	-	14.8	0.502		J	#	0.129	
Ammonium	mg/L	09/24/2013	N002	4.8	-	14.8	0.129	UN	J	#	0.129	
Calcium	mg/L	09/24/2013	N001	4.8	-	14.8	320			#	0.12	
Calcium	mg/L	09/24/2013	N002	4.8	-	14.8	330			#	0.012	
Chloride	mg/L	09/24/2013	N001	4.8	-	14.8	120			#	20	
Chloride	mg/L	09/24/2013	N002	4.8	-	14.8	120			#	20	
Magnesium	mg/L	09/24/2013	N001	4.8	-	14.8	210			#	0.13	
Magnesium	mg/L	09/24/2013	N002	4.8	-	14.8	200			#	0.013	
Manganese	mg/L	09/24/2013	N001	4.8	-	14.8	0.9			#	0.0011	
Manganese	mg/L	09/24/2013	N002	4.8	-	14.8	0.76			#	0.00011	
Nitrate	mg/L	09/24/2013	N001	4.8	-	14.8	7.08			#	0.0443	
Nitrate	mg/L	09/24/2013	N002	4.8	-	14.8	8.41			#	0.0443	
Oxidation Reduction Potential	mV	09/24/2013	N001	4.8	-	14.8	145			#		
pH	s.u.	09/24/2013	N001	4.8	-	14.8	7.32			#		
Potassium	mg/L	09/24/2013	N001	4.8	-	14.8	48		J	#	1.1	
Potassium	mg/L	09/24/2013	N002	4.8	-	14.8	63		J	#	0.11	
Selenium	mg/L	09/24/2013	N001	4.8	-	14.8	0.0046			#	0.000032	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1089 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	4.8	-	14.8	0.0044		#	0.00016		
Sodium	mg/L	09/24/2013	N001	4.8	-	14.8	1400		#	0.066		
Sodium	mg/L	09/24/2013	N002	4.8	-	14.8	1500		#	0.066		
Specific Conductance	umhos /cm	09/24/2013	N001	4.8	-	14.8	8050		#			
Strontium	mg/L	09/24/2013	N001	4.8	-	14.8	4.9		#	0.00078		
Strontium	mg/L	09/24/2013	N002	4.8	-	14.8	4.6		#	0.000078		
Sulfate	mg/L	09/24/2013	N001	4.8	-	14.8	4500		#	50		
Sulfate	mg/L	09/24/2013	N002	4.8	-	14.8	4600		#	50		
Temperature	C	09/24/2013	N001	4.8	-	14.8	23.1		#			
Turbidity	NTU	09/24/2013	N001	4.8	-	14.8	3.57		#			
Uranium	mg/L	09/24/2013	N001	4.8	-	14.8	0.21		#	0.000029		
Uranium	mg/L	09/24/2013	N002	4.8	-	14.8	0.21		#	0.000015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1104 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	10	-	15	568		#		
Ammonium	mg/L	09/24/2013	N001	10	-	15	1.67		#	0.129	
Calcium	mg/L	09/24/2013	N001	10	-	15	350		#	0.12	
Chloride	mg/L	09/24/2013	N001	10	-	15	200		#	20	
Magnesium	mg/L	09/24/2013	N001	10	-	15	490		#	0.13	
Manganese	mg/L	09/24/2013	N001	10	-	15	1.2		#	0.0011	
Nitrate	mg/L	09/24/2013	N001	10	-	15	19.9		#	0.221	
Oxidation Reduction Potential	mV	09/24/2013	N001	10	-	15	160		#		
pH	s.u.	09/24/2013	N001	10	-	15	7.17		#		
Potassium	mg/L	09/24/2013	N001	10	-	15	79		#	1.1	
Selenium	mg/L	09/24/2013	N001	10	-	15	0.0073		#	0.00032	
Sodium	mg/L	09/24/2013	N001	10	-	15	2000		#	0.33	
Specific Conductance	umhos /cm	09/24/2013	N001	10	-	15	11620		#		
Strontium	mg/L	09/24/2013	N001	10	-	15	6.2		#	0.00078	
Sulfate	mg/L	09/24/2013	N001	10	-	15	7100		#	50	
Temperature	C	09/24/2013	N001	10	-	15	23.8		#		
Turbidity	NTU	09/24/2013	N001	10	-	15	1.32		#		
Uranium	mg/L	09/24/2013	N001	10	-	15	0.57		#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1105 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	4.5	-	14.5	442		F	#		
Ammonium	mg/L	09/26/2013	N001	4.5	-	14.5	7.60		F	#	1.29	
Calcium	mg/L	09/26/2013	N001	4.5	-	14.5	400		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	4.5	-	14.5	97		F	#	10	
Magnesium	mg/L	09/26/2013	N001	4.5	-	14.5	350		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	4.5	-	14.5	2		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	4.5	-	14.5	29.7		F	#	0.885	
Nitrate	mg/L	09/26/2013	N003	4.5	-	14.5	31.0		FJ	#	0.885	
Oxidation Reduction Potential	mV	09/26/2013	N001	4.5	-	14.5	85		F	#		
pH	s.u.	09/26/2013	N001	4.5	-	14.5	6.95		F	#		
Potassium	mg/L	09/26/2013	N001	4.5	-	14.5	58		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	4.5	-	14.5	0.052		F	#	0.0032	
Sodium	mg/L	09/26/2013	N001	4.5	-	14.5	670		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	4.5	-	14.5	6040		F	#		
Strontium	mg/L	09/26/2013	N001	4.5	-	14.5	4.7		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	4.5	-	14.5	3600		F	#	25	
Temperature	C	09/26/2013	N001	4.5	-	14.5	20.8		F	#		
Turbidity	NTU	09/26/2013	N001	4.5	-	14.5	1.71		F	#		
Uranium	mg/L	09/26/2013	N001	4.5	-	14.5	0.46		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1111 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	7	-	12	920		F	#		
Ammonium	mg/L	09/25/2013	N001	7	-	12	0.489		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	7	-	12	340		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	7	-	12	330		F	#	20	
Magnesium	mg/L	09/25/2013	N001	7	-	12	810		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	7	-	12	1.1		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	7	-	12	142		F	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	7	-	12	115		F	#		
pH	s.u.	09/25/2013	N001	7	-	12	6.75		F	#		
Potassium	mg/L	09/25/2013	N001	7	-	12	63		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	7	-	12	0.22		F	#	0.0032	
Sodium	mg/L	09/25/2013	N001	7	-	12	1900		F	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	7	-	12	11750		F	#		
Strontium	mg/L	09/25/2013	N001	7	-	12	11		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	7	-	12	7200		F	#	50	
Temperature	C	09/25/2013	N001	7	-	12	20.3		F	#		
Turbidity	NTU	09/25/2013	N001	7	-	12	4.42		F	#		
Uranium	mg/L	09/25/2013	N001	7	-	12	0.5		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1112 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	7	-	12	450		F	#		
Ammonium	mg/L	09/25/2013	N001	7	-	12	15.5		F	#	2.58	
Calcium	mg/L	09/25/2013	N001	7	-	12	410		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	7	-	12	200		F	#	20	
Magnesium	mg/L	09/25/2013	N001	7	-	12	710		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	7	-	12	1.5		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	7	-	12	531		F	#	4.43	
Oxidation Reduction Potential	mV	09/25/2013	N001	7	-	12	110		F	#		
pH	s.u.	09/25/2013	N001	7	-	12	6.95		F	#		
Potassium	mg/L	09/25/2013	N001	7	-	12	90		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	7	-	12	0.52		F	#	0.0032	
Sodium	mg/L	09/25/2013	N001	7	-	12	1400		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	7	-	12	10290		F	#		
Strontium	mg/L	09/25/2013	N001	7	-	12	7.6		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	7	-	12	6400		F	#	50	
Temperature	C	09/25/2013	N001	7	-	12	20.4		F	#		
Turbidity	NTU	09/25/2013	N001	7	-	12	2.22		F	#		
Uranium	mg/L	09/25/2013	N001	7	-	12	0.62		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1113 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	0001	7	-	12	294		F	#		
Ammonium	mg/L	09/25/2013	0001	7	-	12	1.42		F	#	0.129	
Calcium	mg/L	09/25/2013	0001	7	-	12	450		F	#	0.12	
Chloride	mg/L	09/25/2013	0001	7	-	12	200		F	#	20	
Magnesium	mg/L	09/25/2013	0001	7	-	12	590		F	#	0.13	
Manganese	mg/L	09/25/2013	0001	7	-	12	0.03	B	F	#	0.0011	
Nitrate	mg/L	09/25/2013	0001	7	-	12	274		F	#	22.1	
Oxidation Reduction Potential	mV	09/25/2013	N001	7	-	12	155		F	#		
pH	s.u.	09/25/2013	N001	7	-	12	7.07		F	#		
Potassium	mg/L	09/25/2013	0001	7	-	12	120		F	#	1.1	
Selenium	mg/L	09/25/2013	0001	7	-	12	0.59		F	#	0.0016	
Sodium	mg/L	09/25/2013	0001	7	-	12	970		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	7	-	12	9500		F	#		
Strontium	mg/L	09/25/2013	0001	7	-	12	6.7		F	#	0.00078	
Sulfate	mg/L	09/25/2013	0001	7	-	12	4400		F	#	50	
Temperature	C	09/25/2013	N001	7	-	12	21		F	#		
Turbidity	NTU	09/25/2013	N001	7	-	12	18.5		F	#		
Uranium	mg/L	09/25/2013	0001	7	-	12	0.49		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1114 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	7	-	12	580		F	#		
Ammonium	mg/L	09/25/2013	N001	7	-	12	116		F	#	2.58	
Calcium	mg/L	09/25/2013	N001	7	-	12	200		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	7	-	12	120		F	#	10	
Magnesium	mg/L	09/25/2013	N001	7	-	12	360		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	7	-	12	2.8		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	7	-	12	531		F	#	4.43	
Oxidation Reduction Potential	mV	09/25/2013	N001	7	-	12	195		F	#		
pH	s.u.	09/25/2013	N001	7	-	12	6.84		F	#		
Potassium	mg/L	09/25/2013	N001	7	-	12	65		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	7	-	12	0.025		F	#	0.00065	
Sodium	mg/L	09/25/2013	N001	7	-	12	550		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	7	-	12	5900		F	#		
Strontium	mg/L	09/25/2013	N001	7	-	12	3.5		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	7	-	12	2700		F	#	25	
Temperature	C	09/25/2013	N001	7	-	12	21.2		F	#		
Turbidity	NTU	09/25/2013	N001	7	-	12	3.25		F	#		
Uranium	mg/L	09/25/2013	N001	7	-	12	0.46		F	#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1115 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	7	-	12	804			#		
Ammonium	mg/L	09/25/2013	N001	7	-	12	124	N	J	#	25.8	
Calcium	mg/L	09/25/2013	N001	7	-	12	380			#	0.12	
Chloride	mg/L	09/25/2013	N001	7	-	12	210			#	20	
Magnesium	mg/L	09/25/2013	N001	7	-	12	890			#	0.13	
Manganese	mg/L	09/25/2013	N001	7	-	12	3.2			#	0.0011	
Nitrate	mg/L	09/25/2013	N001	7	-	12	1372			#	8.85	
Oxidation Reduction Potential	mV	09/25/2013	N001	7	-	12	205			#		
pH	s.u.	09/25/2013	N001	7	-	12	6.67			#		
Potassium	mg/L	09/25/2013	N001	7	-	12	120			#	1.1	
Selenium	mg/L	09/25/2013	N001	7	-	12	0.062			#	0.00065	
Sodium	mg/L	09/25/2013	N001	7	-	12	1200			#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	7	-	12	11270			#		
Strontium	mg/L	09/25/2013	N001	7	-	12	7.4			#	0.00078	
Sulfate	mg/L	09/25/2013	N001	7	-	12	6100			#	50	
Temperature	C	09/25/2013	N001	7	-	12	20.1			#		
Turbidity	NTU	09/25/2013	N001	7	-	12	3.49			#		
Uranium	mg/L	09/25/2013	N001	7	-	12	1.1			#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1117 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	7	-	12	156		F	#		
Ammonium	mg/L	09/24/2013	N001	7	-	12	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	7	-	12	84		F	#	0.012	
Chloride	mg/L	09/24/2013	N001	7	-	12	25		F	#	1	
Magnesium	mg/L	09/24/2013	N001	7	-	12	13		F	#	0.013	
Manganese	mg/L	09/24/2013	N001	7	-	12	0.31		F	#	0.00011	
Nitrate	mg/L	09/24/2013	N001	7	-	12	5.76		F	#	0.443	
Oxidation Reduction Potential	mV	09/24/2013	N001	7	-	12	115.6		F	#		
pH	s.u.	09/24/2013	N001	7	-	12	7.39		F	#		
Potassium	mg/L	09/24/2013	N001	7	-	12	3		F	#	0.11	
Selenium	mg/L	09/24/2013	N001	7	-	12	0.00063	*	FJ	#	0.000032	
Sodium	mg/L	09/24/2013	N001	7	-	12	48		F	#	0.0066	
Specific Conductance	umhos /cm	09/24/2013	N001	7	-	12	800		F	#		
Strontium	mg/L	09/24/2013	N001	7	-	12	0.96		F	#	0.000078	
Sulfate	mg/L	09/24/2013	N001	7	-	12	220		F	#	2.5	
Temperature	C	09/24/2013	N001	7	-	12	19.95		F	#		
Turbidity	NTU	09/24/2013	N001	7	-	12	2.98		F	#		
Uranium	mg/L	09/24/2013	N001	7	-	12	0.0057		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1128 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	6.81	-	11.81	588		F	#		
Ammonium	mg/L	09/24/2013	N001	6.81	-	11.81	167		F	#	25.8	
Calcium	mg/L	09/24/2013	N001	6.81	-	11.81	400		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	6.81	-	11.81	240		F	#	20	
Magnesium	mg/L	09/24/2013	N001	6.81	-	11.81	920		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	6.81	-	11.81	2.3		F	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	6.81	-	11.81	2125		F	#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	6.81	-	11.81	195		F	#		
pH	s.u.	09/24/2013	N001	6.81	-	11.81	6.69		F	#		
Potassium	mg/L	09/24/2013	N001	6.81	-	11.81	110		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	6.81	-	11.81	0.045		F	#	0.0016	
Sodium	mg/L	09/24/2013	N001	6.81	-	11.81	1400		F	#	0.066	
Specific Conductance	umhos /cm	09/24/2013	N001	6.81	-	11.81	11900		F	#		
Strontium	mg/L	09/24/2013	N001	6.81	-	11.81	6.6		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	6.81	-	11.81	6100		F	#	50	
Temperature	C	09/24/2013	N001	6.81	-	11.81	21		F	#		
Turbidity	NTU	09/24/2013	N001	6.81	-	11.81	9.97		F	#		
Uranium	mg/L	09/24/2013	N001	6.81	-	11.81	0.72		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1132 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	6.07	-	11.07	160		F	#		
Ammonium	mg/L	09/24/2013	N001	6.07	-	11.07	0.850		F	#	0.129	
Calcium	mg/L	09/24/2013	N001	6.07	-	11.07	53		F	#	0.012	
Chloride	mg/L	09/24/2013	N001	6.07	-	11.07	11		F	#	1	
Magnesium	mg/L	09/24/2013	N001	6.07	-	11.07	13		F	#	0.013	
Manganese	mg/L	09/24/2013	N001	6.07	-	11.07	0.34		F	#	0.00011	
Nitrate	mg/L	09/24/2013	N001	6.07	-	11.07	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/24/2013	N001	6.07	-	11.07	-85		F	#		
pH	s.u.	09/24/2013	N001	6.07	-	11.07	7.57		F	#		
Potassium	mg/L	09/24/2013	N001	6.07	-	11.07	2.6		F	#	0.11	
Selenium	mg/L	09/24/2013	N001	6.07	-	11.07	0.00024		F	#	0.000032	
Sodium	mg/L	09/24/2013	N001	6.07	-	11.07	38		F	#	0.0066	
Specific Conductance	umhos /cm	09/24/2013	N001	6.07	-	11.07	595		F	#		
Strontium	mg/L	09/24/2013	N001	6.07	-	11.07	0.66		F	#	0.000078	
Sulfate	mg/L	09/24/2013	N001	6.07	-	11.07	140		F	#	2.5	
Temperature	C	09/24/2013	N001	6.07	-	11.07	19.2		F	#		
Turbidity	NTU	09/24/2013	N001	6.07	-	11.07	4.53		F	#		
Uranium	mg/L	09/24/2013	N001	6.07	-	11.07	0.011		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1134 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	8.16	-	13.16	156		F	#		
Ammonium	mg/L	09/24/2013	N001	8.16	-	13.16	1.02		F	#	0.129	
Calcium	mg/L	09/24/2013	N001	8.16	-	13.16	72		F	#	0.012	
Chloride	mg/L	09/24/2013	N001	8.16	-	13.16	16		F	#	1	
Magnesium	mg/L	09/24/2013	N001	8.16	-	13.16	16		F	#	0.013	
Manganese	mg/L	09/24/2013	N001	8.16	-	13.16	0.65		F	#	0.00011	
Nitrate	mg/L	09/24/2013	N001	8.16	-	13.16	4.87		F	#	0.443	
Oxidation Reduction Potential	mV	09/24/2013	N001	8.16	-	13.16	-125		F	#		
pH	s.u.	09/24/2013	N001	8.16	-	13.16	7.4		F	#		
Potassium	mg/L	09/24/2013	N001	8.16	-	13.16	2.8		F	#	0.11	
Selenium	mg/L	09/24/2013	N001	8.16	-	13.16	0.00079		F	#	0.000032	
Sodium	mg/L	09/24/2013	N001	8.16	-	13.16	41		F	#	0.0066	
Specific Conductance	umhos /cm	09/24/2013	N001	8.16	-	13.16	730		F	#		
Strontium	mg/L	09/24/2013	N001	8.16	-	13.16	0.84		F	#	0.000078	
Sulfate	mg/L	09/24/2013	N001	8.16	-	13.16	200		F	#	2.5	
Temperature	C	09/24/2013	N001	8.16	-	13.16	17.4		F	#		
Turbidity	NTU	09/24/2013	N001	8.16	-	13.16	2.06		F	#		
Uranium	mg/L	09/24/2013	N001	8.16	-	13.16	0.01		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1135 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	6.39	-	11.39	240		F	#		
Ammonium	mg/L	09/27/2013	N001	6.39	-	11.39	0.180		F	#	0.129	
Calcium	mg/L	09/27/2013	N001	6.39	-	11.39	290		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	6.39	-	11.39	73		F	#	10	
Magnesium	mg/L	09/27/2013	N001	6.39	-	11.39	100		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	6.39	-	11.39	1.8		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	6.39	-	11.39	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	6.39	-	11.39	-40		F	#		
pH	s.u.	09/27/2013	N001	6.39	-	11.39	7.18		F	#		
Potassium	mg/L	09/27/2013	N001	6.39	-	11.39	26		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	6.39	-	11.39	0.00028		F	#	0.000032	
Sodium	mg/L	09/27/2013	N001	6.39	-	11.39	930		F	#	0.066	
Specific Conductance	umhos /cm	09/27/2013	N001	6.39	-	11.39	5770		F	#		
Strontium	mg/L	09/27/2013	N001	6.39	-	11.39	3.4		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	6.39	-	11.39	3100		F	#	25	
Temperature	C	09/27/2013	N001	6.39	-	11.39	17.6		F	#		
Turbidity	NTU	09/27/2013	N001	6.39	-	11.39	9.23		F	#		
Uranium	mg/L	09/27/2013	N001	6.39	-	11.39	0.063		F	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1136 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	6.29	-	11.29	284		F	#		
Ammonium	mg/L	09/26/2013	N001	6.29	-	11.29	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	6.29	-	11.29	150		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	6.29	-	11.29	58		F	#	4	
Magnesium	mg/L	09/26/2013	N001	6.29	-	11.29	140		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	6.29	-	11.29	2.1		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	6.29	-	11.29	42.1		F	#	2.21	
Oxidation Reduction Potential	mV	09/26/2013	N001	6.29	-	11.29	80		F	#		
pH	s.u.	09/26/2013	N001	6.29	-	11.29	7.26		F	#		
Potassium	mg/L	09/26/2013	N001	6.29	-	11.29	7.7	B	F	#	1.1	
Selenium	mg/L	09/26/2013	N001	6.29	-	11.29	0.00089		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	6.29	-	11.29	360		F	#	0.066	
Specific Conductance	umhos /cm	09/26/2013	N001	6.29	-	11.29	3020		F	#		
Strontium	mg/L	09/26/2013	N001	6.29	-	11.29	2.2		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	6.29	-	11.29	1400		F	#	10	
Temperature	C	09/26/2013	N001	6.29	-	11.29	18.2		F	#		
Turbidity	NTU	09/26/2013	N001	6.29	-	11.29	1.61		F	#		
Uranium	mg/L	09/26/2013	N001	6.29	-	11.29	0.12		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1137 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	9.4	-	14.4	540		F	#		
Ammonium	mg/L	09/27/2013	N001	9.4	-	14.4	0.992		F	#	0.129	
Calcium	mg/L	09/27/2013	N001	9.4	-	14.4	490		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	9.4	-	14.4	460		F	#	20	
Magnesium	mg/L	09/27/2013	N001	9.4	-	14.4	990		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	9.4	-	14.4	4.9		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	9.4	-	14.4	239		F	#	2.21	
Oxidation Reduction Potential	mV	09/27/2013	N001	9.4	-	14.4	99.3		F	#		
pH	s.u.	09/27/2013	N001	9.4	-	14.4	7.09		F	#		
Potassium	mg/L	09/27/2013	N001	9.4	-	14.4	47		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	9.4	-	14.4	0.0057		F	#	0.00032	
Sodium	mg/L	09/27/2013	N001	9.4	-	14.4	1500		F	#	0.066	
Specific Conductance	umhos /cm	09/27/2013	N001	9.4	-	14.4	12137		F	#		
Strontium	mg/L	09/27/2013	N001	9.4	-	14.4	8.7		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	9.4	-	14.4	8100		F	#	50	
Temperature	C	09/27/2013	N001	9.4	-	14.4	14.5		F	#		
Turbidity	NTU	09/27/2013	N001	9.4	-	14.4	4.3		F	#		
Uranium	mg/L	09/27/2013	N001	9.4	-	14.4	1.2		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1138 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	8.09	-	13.09	780		F	#		
Ammonium	mg/L	09/27/2013	N001	8.09	-	13.09	1.17		F	#	0.129	
Calcium	mg/L	09/27/2013	N001	8.09	-	13.09	400		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	8.09	-	13.09	530		F	#	40	
Magnesium	mg/L	09/27/2013	N001	8.09	-	13.09	1200		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	8.09	-	13.09	5.5		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	8.09	-	13.09	243		F	#	2.21	
Oxidation Reduction Potential	mV	09/27/2013	N001	8.09	-	13.09	90.7		F	#		
pH	s.u.	09/27/2013	N001	8.09	-	13.09	7.14		F	#		
Potassium	mg/L	09/27/2013	N001	8.09	-	13.09	71		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	8.09	-	13.09	0.003		F	#	0.000065	
Sodium	mg/L	09/27/2013	N001	8.09	-	13.09	2500		F	#	0.33	
Specific Conductance	umhos /cm	09/27/2013	N001	8.09	-	13.09	16186		F	#		
Strontium	mg/L	09/27/2013	N001	8.09	-	13.09	9.6		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	8.09	-	13.09	11000		F	#	100	
Temperature	C	09/27/2013	N001	8.09	-	13.09	15.7		F	#		
Turbidity	NTU	09/27/2013	N001	8.09	-	13.09	9.19		F	#		
Uranium	mg/L	09/27/2013	N001	8.09	-	13.09	1.7		F	#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1139 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	6.19	-	11.19	920		F	#		
Ammonium	mg/L	09/27/2013	N001	6.19	-	11.19	0.129	U	F	#	0.129	
Calcium	mg/L	09/27/2013	N001	6.19	-	11.19	460		F	#	0.12	
Chloride	mg/L	09/27/2013	N001	6.19	-	11.19	590		F	#	50	
Magnesium	mg/L	09/27/2013	N001	6.19	-	11.19	1400		F	#	0.13	
Manganese	mg/L	09/27/2013	N001	6.19	-	11.19	0.16		F	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	6.19	-	11.19	164		F	#	0.885	
Oxidation Reduction Potential	mV	09/27/2013	N001	6.19	-	11.19	65		F	#		
pH	s.u.	09/27/2013	N001	6.19	-	11.19	7.28		F	#		
Potassium	mg/L	09/27/2013	N001	6.19	-	11.19	94		F	#	1.1	
Selenium	mg/L	09/27/2013	N001	6.19	-	11.19	0.0092		F	#	0.00016	
Sodium	mg/L	09/27/2013	N001	6.19	-	11.19	3300		F	#	0.33	
Specific Conductance	umhos /cm	09/27/2013	N001	6.19	-	11.19	19340		F	#		
Strontium	mg/L	09/27/2013	N001	6.19	-	11.19	11		F	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	6.19	-	11.19	14000		F	#	120	
Temperature	C	09/27/2013	N001	6.19	-	11.19	18.9		F	#		
Turbidity	NTU	09/27/2013	N001	6.19	-	11.19	5.29		F	#		
Uranium	mg/L	09/27/2013	N001	6.19	-	11.19	1.9		F	#	0.000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1140 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7.6	-	12.6	648		F	#		
Ammonium	mg/L	09/26/2013	N001	7.6	-	12.6	19.3		F	#	0.644	
Calcium	mg/L	09/26/2013	N001	7.6	-	12.6	410		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	7.6	-	12.6	270		F	#	20	
Magnesium	mg/L	09/26/2013	N001	7.6	-	12.6	860		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	7.6	-	12.6	3.2		F	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	7.6	-	12.6	79.7		F	#	2.21	
Oxidation Reduction Potential	mV	09/26/2013	N001	7.6	-	12.6	150		F	#		
pH	s.u.	09/26/2013	N001	7.6	-	12.6	6.85		F	#		
Potassium	mg/L	09/26/2013	N001	7.6	-	12.6	95		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	7.6	-	12.6	0.14		F	#	0.0032	
Sodium	mg/L	09/26/2013	N001	7.6	-	12.6	1800		F	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	7.6	-	12.6	12655		F	#		
Strontium	mg/L	09/26/2013	N001	7.6	-	12.6	7.2		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	7.6	-	12.6	8600		F	#	50	
Temperature	C	09/26/2013	N001	7.6	-	12.6	20		F	#		
Turbidity	NTU	09/26/2013	N001	7.6	-	12.6	1.76		F	#		
Uranium	mg/L	09/26/2013	N001	7.6	-	12.6	0.95		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1141 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	5.6	-	10.6	316		F	#		
Ammonium	mg/L	09/26/2013	N001	5.6	-	10.6	12.9		F	#	0.644	
Calcium	mg/L	09/26/2013	N001	5.6	-	10.6	400		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	5.6	-	10.6	53		F	#	10	
Magnesium	mg/L	09/26/2013	N001	5.6	-	10.6	220		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	5.6	-	10.6	1.3		F	#	0.00057	
Nitrate	mg/L	09/26/2013	N001	5.6	-	10.6	0.0531		F	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	5.6	-	10.6	27		F	#		
pH	s.u.	09/26/2013	N001	5.6	-	10.6	6.95		F	#		
Potassium	mg/L	09/26/2013	N001	5.6	-	10.6	43		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	5.6	-	10.6	0.021		F	#	0.000032	
Sodium	mg/L	09/26/2013	N001	5.6	-	10.6	380		F	#	0.033	
Specific Conductance	umhos /cm	09/26/2013	N001	5.6	-	10.6	4399		F	#		
Strontium	mg/L	09/26/2013	N001	5.6	-	10.6	3.8		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	5.6	-	10.6	2500		F	#	25	
Temperature	C	09/26/2013	N001	5.6	-	10.6	20.74		F	#		
Turbidity	NTU	09/26/2013	N001	5.6	-	10.6	5.56		F	#		
Uranium	mg/L	09/26/2013	N001	5.6	-	10.6	0.34		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1142 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	9	-	14	224		F	#		
Ammonium	mg/L	09/25/2013	N001	9	-	14	0.129	U	F	#	0.129	
Calcium	mg/L	09/25/2013	N001	9	-	14	110		F	#	0.012	
Chloride	mg/L	09/25/2013	N001	9	-	14	21		F	#	2	
Magnesium	mg/L	09/25/2013	N001	9	-	14	18		F	#	0.013	
Manganese	mg/L	09/25/2013	N001	9	-	14	1.9		F	#	0.00011	
Nitrate	mg/L	09/25/2013	N001	9	-	14	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	09/25/2013	N001	9	-	14	22.23		F	#		
pH	s.u.	09/25/2013	N001	9	-	14	7.05		F	#		
Potassium	mg/L	09/25/2013	N001	9	-	14	2.9		F	#	0.11	
Selenium	mg/L	09/25/2013	N001	9	-	14	0.00044		F	#	0.000032	
Sodium	mg/L	09/25/2013	N001	9	-	14	69		F	#	0.0066	
Specific Conductance	umhos /cm	09/25/2013	N001	9	-	14	1043		F	#		
Strontium	mg/L	09/25/2013	N001	9	-	14	1.2		F	#	0.000078	
Sulfate	mg/L	09/25/2013	N001	9	-	14	280		F	#	5	
Temperature	C	09/25/2013	N001	9	-	14	17.5		F	#		
Turbidity	NTU	09/25/2013	N001	9	-	14	7.75		F	#		
Uranium	mg/L	09/25/2013	N001	9	-	14	0.0056		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 1143 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	8.3	-	13.3	264		F	#		
Ammonium	mg/L	10/02/2013	N001	8.3	-	13.3	0.129	U	F	#	0.129	
Calcium	mg/L	10/02/2013	N001	8.3	-	13.3	240		F	#	0.12	
Chloride	mg/L	10/02/2013	N001	8.3	-	13.3	84		F	#	10	
Magnesium	mg/L	10/02/2013	N001	8.3	-	13.3	74		F	#	0.13	
Manganese	mg/L	10/02/2013	N001	8.3	-	13.3	2		F	#	0.0011	
Nitrate	mg/L	10/02/2013	N001	8.3	-	13.3	0.0443	U	F	#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	8.3	-	13.3	28.4		F	#		
pH	s.u.	10/02/2013	N001	8.3	-	13.3	7.51		F	#		
Potassium	mg/L	10/02/2013	N001	8.3	-	13.3	21		F	#	1.1	
Selenium	mg/L	10/02/2013	N001	8.3	-	13.3	0.00015		F	#	0.000032	
Sodium	mg/L	10/02/2013	N001	8.3	-	13.3	1100		F	#	0.066	
Specific Conductance	umhos /cm	10/02/2013	N001	8.3	-	13.3	6314		F	#		
Strontium	mg/L	10/02/2013	N001	8.3	-	13.3	3.6		F	#	0.00078	
Sulfate	mg/L	10/02/2013	N001	8.3	-	13.3	3400		F	#	25	
Temperature	C	10/02/2013	N001	8.3	-	13.3	17.96		F	#		
Turbidity	NTU	10/02/2013	N001	8.3	-	13.3	8.92		F	#		
Uranium	mg/L	10/02/2013	N001	8.3	-	13.3	0.06		F	#	0.0000029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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## **Groundwater Quality Data Terrace Locations**

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0600 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	29	-	48.8	1413		FQ	#		
Ammonium	mg/L	09/26/2013	N001	29	-	48.8	21.9	N	FQJ	#	0.644	
Calcium	mg/L	09/26/2013	N001	29	-	48.8	250		FQ	#	0.6	
Chloride	mg/L	09/26/2013	N001	29	-	48.8	1400		FQ	#	100	
Magnesium	mg/L	09/26/2013	N001	29	-	48.8	250		FQ	#	0.65	
Manganese	mg/L	09/26/2013	N001	29	-	48.8	0.23	B	FQ	#	0.0057	
Nitrate	mg/L	09/26/2013	N001	29	-	48.8	487		FQ	#	4.43	
Oxidation Reduction Potential	mV	09/26/2013	N001	29	-	48.8	45.1		FQ	#		
pH	s.u.	09/26/2013	N001	29	-	48.8	6.76		FQ	#		
Potassium	mg/L	09/26/2013	N001	29	-	48.8	50	B	FQ	#	5.4	
Selenium	mg/L	09/26/2013	N001	29	-	48.8	0.0016		FQ	#	0.000065	
Sodium	mg/L	09/26/2013	N001	29	-	48.8	4900		FQ	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	29	-	48.8	21120		FQ	#		
Strontium	mg/L	09/26/2013	N001	29	-	48.8	8.1		FQ	#	0.0039	
Sulfate	mg/L	09/26/2013	N001	29	-	48.8	11000		FQ	#	250	
Temperature	C	09/26/2013	N001	29	-	48.8	17.82		FQ	#		
Turbidity	NTU	09/26/2013	N001	29	-	48.8	2.61		FQ	#		
Uranium	mg/L	09/26/2013	N001	29	-	48.8	0.73		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0602 WELL Just W of Disposal Cell; NECA yard

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	27	-	47	1560		FQ	#		
Ammonium	mg/L	09/25/2013	N001	27	-	47	88.9		FQ	#	2.58	
Calcium	mg/L	09/25/2013	N001	27	-	47	390		FQ	#	0.6	
Chloride	mg/L	09/25/2013	N001	27	-	47	2500		FQ	#	100	
Magnesium	mg/L	09/25/2013	N001	27	-	47	1300		FQ	#	0.65	
Manganese	mg/L	09/25/2013	N001	27	-	47	0.74	E	FQJ	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	27	-	47	111		FQ	#	2.21	
Oxidation Reduction Potential	mV	09/25/2013	N001	27	-	47	207.9		FQ	#		
pH	s.u.	09/25/2013	N001	27	-	47	6.96		FQ	#		
Potassium	mg/L	09/25/2013	N001	27	-	47	100	N	FQJ	#	5.4	
Selenium	mg/L	09/25/2013	N001	27	-	47	0.0036		FQ	#	0.00032	
Sodium	mg/L	09/25/2013	N001	27	-	47	6100		FQ	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	27	-	47	29645		FQ	#		
Strontium	mg/L	09/25/2013	N001	27	-	47	19		FQ	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	27	-	47	18000		FQ	#	250	
Temperature	C	09/25/2013	N001	27	-	47	19.95		FQ	#		
Turbidity	NTU	09/25/2013	N001	27	-	47	1.67		FQ	#		
Uranium	mg/L	09/25/2013	N001	27	-	47	0.47		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0603 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	25.9	-	35.9	148		F	#		
Ammonium	mg/L	09/26/2013	N001	25.9	-	35.9	1082		F	#	25.8	
Calcium	mg/L	09/26/2013	N001	25.9	-	35.9	1100		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	25.9	-	35.9	180		F	#	20	
Magnesium	mg/L	09/26/2013	N001	25.9	-	35.9	660		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	25.9	-	35.9	57		F	#	0.0057	
Nitrate	mg/L	09/26/2013	N001	25.9	-	35.9	7969		F	#	88.5	
Oxidation Reduction Potential	mV	09/26/2013	N001	25.9	-	35.9	103.6		F	#		
pH	s.u.	09/26/2013	N001	25.9	-	35.9	6.06		F	#		
Potassium	mg/L	09/26/2013	N001	25.9	-	35.9	160		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	25.9	-	35.9	0.08		F	#	0.00032	
Sodium	mg/L	09/26/2013	N001	25.9	-	35.9	670		F	#	0.033	
Specific Conductance	umhos /cm	09/26/2013	N001	25.9	-	35.9	17458		F	#		
Strontium	mg/L	09/26/2013	N001	25.9	-	35.9	5		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	25.9	-	35.9	2500		F	#	50	
Temperature	C	09/26/2013	N001	25.9	-	35.9	18.05		F	#		
Turbidity	NTU	09/26/2013	N001	25.9	-	35.9	1.7		F	#		
Uranium	mg/L	09/26/2013	N001	25.9	-	35.9	0.0057		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0604 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	62.7	-	72.7	938		FQ	#		
Ammonium	mg/L	09/25/2013	N001	62.7	-	72.7	3.09		FQ	#	0.129	
Calcium	mg/L	09/25/2013	N001	62.7	-	72.7	480		FQ	#	0.6	
Chloride	mg/L	09/25/2013	N001	62.7	-	72.7	2400		FQ	#	100	
Magnesium	mg/L	09/25/2013	N001	62.7	-	72.7	1700		FQ	#	0.65	
Manganese	mg/L	09/25/2013	N001	62.7	-	72.7	0.92		FQ	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	62.7	-	72.7	4427		FQ	#	44.3	
Oxidation Reduction Potential	mV	09/25/2013	N001	62.7	-	72.7	136.2		FQ	#		
pH	s.u.	09/25/2013	N001	62.7	-	72.7	6.64		FQ	#		
Potassium	mg/L	09/25/2013	N001	62.7	-	72.7	69		FQ	#	5.4	
Selenium	mg/L	09/25/2013	N001	62.7	-	72.7	0.83		FQ	#	0.00032	
Sodium	mg/L	09/25/2013	N001	62.7	-	72.7	4500		FQ	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	62.7	-	72.7	26839		FQ	#		
Strontium	mg/L	09/25/2013	N001	62.7	-	72.7	18		FQ	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	62.7	-	72.7	13000		FQ	#	250	
Temperature	C	09/25/2013	N001	62.7	-	72.7	18.18		FQ	#		
Turbidity	NTU	09/25/2013	N001	62.7	-	72.7	8.74		FQ	#		
Uranium	mg/L	09/25/2013	N001	62.7	-	72.7	0.088		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0725 WELL West side, lower Bob Lee Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	7.5	-	17.5	444		F	#		
Ammonium	mg/L	09/25/2013	N001	7.5	-	17.5	0.129	U	F	#	0.129	
Calcium	mg/L	09/25/2013	N001	7.5	-	17.5	300		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	7.5	-	17.5	110		F	#	20	
Magnesium	mg/L	09/25/2013	N001	7.5	-	17.5	120		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	7.5	-	17.5	0.23		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	7.5	-	17.5	44.3		F	#	0.443	
Oxidation Reduction Potential	mV	09/25/2013	N001	7.5	-	17.5	199.3		F	#		
pH	s.u.	09/25/2013	N001	7.5	-	17.5	6.64		F	#		
Potassium	mg/L	09/25/2013	N001	7.5	-	17.5	18		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	7.5	-	17.5	0.024		F	#	0.00032	
Sodium	mg/L	09/25/2013	N001	7.5	-	17.5	1100		F	#	0.066	
Specific Conductance	umhos /cm	09/25/2013	N001	7.5	-	17.5	6566		F	#		
Strontium	mg/L	09/25/2013	N001	7.5	-	17.5	12		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	7.5	-	17.5	3400		F	#	50	
Temperature	C	09/25/2013	N001	7.5	-	17.5	20.39		F	#		
Turbidity	NTU	09/25/2013	N001	7.5	-	17.5	4.26		F	#		
Uranium	mg/L	09/25/2013	N001	7.5	-	17.5	0.082		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0726 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	27.2	-	37.2	590		F	#		
Ammonium	mg/L	09/25/2013	N001	27.2	-	37.2	2.83		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	27.2	-	37.2	190		F	#	0.12	
Chloride	mg/L	09/25/2013	N001	27.2	-	37.2	390		F	#	40	
Magnesium	mg/L	09/25/2013	N001	27.2	-	37.2	200		F	#	0.13	
Manganese	mg/L	09/25/2013	N001	27.2	-	37.2	0.39		F	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	27.2	-	37.2	66.4		F	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	27.2	-	37.2	210.4		F	#		
pH	s.u.	09/25/2013	N001	27.2	-	37.2	7.04		F	#		
Potassium	mg/L	09/25/2013	N001	27.2	-	37.2	28		F	#	1.1	
Selenium	mg/L	09/25/2013	N001	27.2	-	37.2	0.015		F	#	0.00032	
Sodium	mg/L	09/25/2013	N001	27.2	-	37.2	2600		F	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	27.2	-	37.2	12100		F	#		
Strontium	mg/L	09/25/2013	N001	27.2	-	37.2	7		F	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	27.2	-	37.2	6400		F	#	100	
Temperature	C	09/25/2013	N001	27.2	-	37.2	19.03		F	#		
Turbidity	NTU	09/25/2013	N001	27.2	-	37.2	7.22		F	#		
Uranium	mg/L	09/25/2013	N001	27.2	-	37.2	0.023		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0727 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	6.7	-	16.7	1269		FQ	#		
Ammonium	mg/L	09/25/2013	N001	6.7	-	16.7	5.80		FQ	#	0.129	
Calcium	mg/L	09/25/2013	N001	6.7	-	16.7	400		FQ	#	0.12	
Chloride	mg/L	09/25/2013	N001	6.7	-	16.7	370		FQ	#	20	
Magnesium	mg/L	09/25/2013	N001	6.7	-	16.7	1500		FQ	#	0.13	
Manganese	mg/L	09/25/2013	N001	6.7	-	16.7	1.2		FQ	#	0.0011	
Nitrate	mg/L	09/25/2013	N001	6.7	-	16.7	336		FQ	#	4.43	
Oxidation Reduction Potential	mV	09/25/2013	N001	6.7	-	16.7	220.4		FQ	#		
pH	s.u.	09/25/2013	N001	6.7	-	16.7	6.43		FQ	#		
Potassium	mg/L	09/25/2013	N001	6.7	-	16.7	97		FQ	#	1.1	
Selenium	mg/L	09/25/2013	N001	6.7	-	16.7	0.0017		FQ	#	0.000032	
Sodium	mg/L	09/25/2013	N001	6.7	-	16.7	2100		FQ	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	6.7	-	16.7	15521		FQ	#		
Strontium	mg/L	09/25/2013	N001	6.7	-	16.7	11		FQ	#	0.00078	
Sulfate	mg/L	09/25/2013	N001	6.7	-	16.7	11000		FQ	#	100	
Temperature	C	09/25/2013	N001	6.7	-	16.7	21.56		FQ	#		
Turbidity	NTU	09/25/2013	N001	6.7	-	16.7	1.03		FQ	#		
Uranium	mg/L	09/25/2013	N001	6.7	-	16.7	0.24		FQ	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0728 WELL W of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	17	-	27	255		F	#		
Ammonium	mg/L	09/25/2013	N001	17	-	27	60.5		F	#	2.58	
Calcium	mg/L	09/25/2013	N001	17	-	27	460		F	#	0.06	
Chloride	mg/L	09/25/2013	N001	17	-	27	32		F	#	5	
Magnesium	mg/L	09/25/2013	N001	17	-	27	370		F	#	0.065	
Manganese	mg/L	09/25/2013	N001	17	-	27	0.79		F	#	0.00057	
Nitrate	mg/L	09/25/2013	N001	17	-	27	62.0		F	#	2.21	
Oxidation Reduction Potential	mV	09/25/2013	N001	17	-	27	205.2		F	#		
pH	s.u.	09/25/2013	N001	17	-	27	6.76		F	#		
Potassium	mg/L	09/25/2013	N001	17	-	27	55		F	#	0.54	
Selenium	mg/L	09/25/2013	N001	17	-	27	0.0011		F	#	0.000032	
Sodium	mg/L	09/25/2013	N001	17	-	27	290		F	#	0.033	
Specific Conductance	umhos /cm	09/25/2013	N001	17	-	27	4532		F	#		
Strontium	mg/L	09/25/2013	N001	17	-	27	4.5		F	#	0.00039	
Sulfate	mg/L	09/25/2013	N001	17	-	27	3200		F	#	25	
Temperature	C	09/25/2013	N001	17	-	27	16.89		F	#		
Turbidity	NTU	09/25/2013	N001	17	-	27	1.46		F	#		
Uranium	mg/L	09/25/2013	N001	17	-	27	0.16		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0730 WELL Just SW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	26.93	-	36.93	0		FQ	#		
Ammonium	mg/L	09/26/2013	0001	26.93	-	36.93	54.1		FQ	#	6.44	
Calcium	mg/L	09/26/2013	0001	26.93	-	36.93	520		FQ	#	0.12	
Chloride	mg/L	09/26/2013	0001	26.93	-	36.93	16		FQ	#	5	
Magnesium	mg/L	09/26/2013	0001	26.93	-	36.93	110		FQ	#	0.013	
Manganese	mg/L	09/26/2013	0001	26.93	-	36.93	18		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	0001	26.93	-	36.93	421		FQ	#	4.43	
Oxidation Reduction Potential	mV	09/26/2013	N001	26.93	-	36.93	304.8		FQ	#		
pH	s.u.	09/26/2013	N001	26.93	-	36.93	4.35		FQ	#		
Potassium	mg/L	09/26/2013	0001	26.93	-	36.93	18		FQ	#	0.11	
Selenium	mg/L	09/26/2013	0001	26.93	-	36.93	0.012		FQ	#	0.00016	
Sodium	mg/L	09/26/2013	0001	26.93	-	36.93	71		FQ	#	0.0066	
Specific Conductance	umhos /cm	09/26/2013	N001	26.93	-	36.93	3556		FQ	#		
Strontium	mg/L	09/26/2013	0001	26.93	-	36.93	2.5		FQ	#	0.000078	
Sulfate	mg/L	09/26/2013	0001	26.93	-	36.93	2100		FQ	#	12	
Temperature	C	09/26/2013	N001	26.93	-	36.93	14.54		FQ	#		
Turbidity	NTU	09/26/2013	N001	26.93	-	36.93	94.7		FQ	#		
Uranium	mg/L	09/26/2013	0001	26.93	-	36.93	0.0079		FQ	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0731 WELL SE of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	17	-	27	339		F	#		
Ammonium	mg/L	09/26/2013	N001	17	-	27	27.0		F	#	1.29	
Calcium	mg/L	09/26/2013	N001	17	-	27	420		F	#	0.06	
Chloride	mg/L	09/26/2013	N001	17	-	27	95		F	#	20	
Magnesium	mg/L	09/26/2013	N001	17	-	27	350		F	#	0.065	
Manganese	mg/L	09/26/2013	N001	17	-	27	0.096		F	#	0.00057	
Nitrate	mg/L	09/26/2013	N001	17	-	27	332		F	#	4.43	
Oxidation Reduction Potential	mV	09/26/2013	N001	17	-	27	69.7		F	#		
pH	s.u.	09/26/2013	N001	17	-	27	6.84		F	#		
Potassium	mg/L	09/26/2013	N001	17	-	27	42		F	#	0.54	
Selenium	mg/L	09/26/2013	N001	17	-	27	0.034		F	#	0.00016	
Sodium	mg/L	09/26/2013	N001	17	-	27	650		F	#	0.033	
Specific Conductance	umhos /cm	09/26/2013	N001	17	-	27	7745		F	#		
Strontium	mg/L	09/26/2013	N001	17	-	27	6.6		F	#	0.00039	
Sulfate	mg/L	09/26/2013	N001	17	-	27	3800		F	#	50	
Temperature	C	09/26/2013	N001	17	-	27	18.41		F	#		
Turbidity	NTU	09/26/2013	N001	17	-	27	1.43		F	#		
Uranium	mg/L	09/26/2013	N001	17	-	27	0.019		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0812 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	51.3	-	61.3	753		#			
Ammonium	mg/L	09/25/2013	N001	51.3	-	61.3	0.129	U	#	0.129		
Calcium	mg/L	09/25/2013	N001	51.3	-	61.3	420		#	0.6		
Chloride	mg/L	09/25/2013	N001	51.3	-	61.3	2800		#	100		
Magnesium	mg/L	09/25/2013	N001	51.3	-	61.3	2000		#	0.65		
Manganese	mg/L	09/25/2013	N001	51.3	-	61.3	0.23	B	#	0.0057		
Nitrate	mg/L	09/25/2013	N001	51.3	-	61.3	6198		#	44.3		
Oxidation Reduction Potential	mV	09/25/2013	N001	51.3	-	61.3	172.2		#			
pH	s.u.	09/25/2013	N001	51.3	-	61.3	6.97		#			
Potassium	mg/L	09/25/2013	N001	51.3	-	61.3	83		#	5.4		
Selenium	mg/L	09/25/2013	N001	51.3	-	61.3	5.5		#	0.0032		
Sodium	mg/L	09/25/2013	N001	51.3	-	61.3	5700		#	0.33		
Specific Conductance	umhos /cm	09/25/2013	N001	51.3	-	61.3	33235		#			
Strontium	mg/L	09/25/2013	N001	51.3	-	61.3	14		#	0.0039		
Sulfate	mg/L	09/25/2013	N001	51.3	-	61.3	19000		#	250		
Temperature	C	09/25/2013	N001	51.3	-	61.3	17.04		#			
Turbidity	NTU	09/25/2013	N001	51.3	-	61.3	9.07		#			
Uranium	mg/L	09/25/2013	N001	51.3	-	61.3	0.13		#	0.00029		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0813 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	40.8	-	50.8	891		F	#		
Ammonium	mg/L	09/25/2013	N001	40.8	-	50.8	51.5		F	#	2.58	
Calcium	mg/L	09/25/2013	N001	40.8	-	50.8	550		F	#	0.6	
Chloride	mg/L	09/25/2013	N001	40.8	-	50.8	900		F	#	100	
Magnesium	mg/L	09/25/2013	N001	40.8	-	50.8	2500		F	#	0.65	
Manganese	mg/L	09/25/2013	N001	40.8	-	50.8	0.83		F	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	40.8	-	50.8	10625		F	#	88.5	
Oxidation Reduction Potential	mV	09/25/2013	N001	40.8	-	50.8	160.5		F	#		
pH	s.u.	09/25/2013	N001	40.8	-	50.8	6.7		F	#		
Potassium	mg/L	09/25/2013	N001	40.8	-	50.8	120		F	#	5.4	
Selenium	mg/L	09/25/2013	N001	40.8	-	50.8	0.092		F	#	0.00032	
Sodium	mg/L	09/25/2013	N001	40.8	-	50.8	2600		F	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	40.8	-	50.8	26794		F	#		
Strontium	mg/L	09/25/2013	N001	40.8	-	50.8	17		F	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	40.8	-	50.8	10000		F	#	250	
Temperature	C	09/25/2013	N001	40.8	-	50.8	16.85		F	#		
Turbidity	NTU	09/25/2013	N001	40.8	-	50.8	7.79		F	#		
Uranium	mg/L	09/25/2013	N001	40.8	-	50.8	0.09		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0814 WELL South edge of fairgrounds, flush mount.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	23.8	-	33.8	750		FQ	#		
Ammonium	mg/L	09/25/2013	0001	23.8	-	33.8	50.2		FQ	#	2.58	
Calcium	mg/L	09/25/2013	0001	23.8	-	33.8	420		FQ	#	0.12	
Chloride	mg/L	09/25/2013	0001	23.8	-	33.8	1100		FQ	#	100	
Magnesium	mg/L	09/25/2013	0001	23.8	-	33.8	2000		FQ	#	0.13	
Manganese	mg/L	09/25/2013	0001	23.8	-	33.8	1.1		FQ	#	0.0011	
Nitrate	mg/L	09/25/2013	0001	23.8	-	33.8	4029		FQ	#	22.1	
Oxidation Reduction Potential	mV	09/25/2013	N001	23.8	-	33.8	222.4		FQ	#		
pH	s.u.	09/25/2013	N001	23.8	-	33.8	6.88		FQ	#		
Potassium	mg/L	09/25/2013	0001	23.8	-	33.8	140		FQ	#	1.1	
Selenium	mg/L	09/25/2013	0001	23.8	-	33.8	2		FQ	#	0.0016	
Sodium	mg/L	09/25/2013	0001	23.8	-	33.8	3800		FQ	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	23.8	-	33.8	23563		FQ	#		
Strontium	mg/L	09/25/2013	0001	23.8	-	33.8	12		FQ	#	0.00078	
Sulfate	mg/L	09/25/2013	0001	23.8	-	33.8	14000		FQ	#	250	
Temperature	C	09/25/2013	N001	23.8	-	33.8	15.61		FQ	#		
Turbidity	NTU	09/25/2013	N001	23.8	-	33.8	46.4		FQ	#		
Uranium	mg/L	09/25/2013	0001	23.8	-	33.8	0.086		FQ	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0815 WELL Fairgrounds, just N of Uranium Blvd., flush mount.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	22.3	-	32.3	1452		F	#		
Ammonium	mg/L	09/25/2013	N001	22.3	-	32.3	0.760		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	22.3	-	32.3	390		F	#	0.6	
Chloride	mg/L	09/25/2013	N001	22.3	-	32.3	580		F	#	100	
Magnesium	mg/L	09/25/2013	N001	22.3	-	32.3	2100		F	#	0.65	
Manganese	mg/L	09/25/2013	N001	22.3	-	32.3	1.3		F	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	22.3	-	32.3	2833		F	#	22.1	
Oxidation Reduction Potential	mV	09/25/2013	N001	22.3	-	32.3	250.6		F	#		
pH	s.u.	09/25/2013	N001	22.3	-	32.3	6.46		F	#		
Potassium	mg/L	09/25/2013	N001	22.3	-	32.3	91		F	#	5.4	
Selenium	mg/L	09/25/2013	N001	22.3	-	32.3	0.017		F	#	0.00032	
Sodium	mg/L	09/25/2013	N001	22.3	-	32.3	3000		F	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	22.3	-	32.3	22682		F	#		
Strontium	mg/L	09/25/2013	N001	22.3	-	32.3	11		F	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	22.3	-	32.3	16000		F	#	250	
Temperature	C	09/25/2013	N001	22.3	-	32.3	16.45		F	#		
Turbidity	NTU	09/25/2013	N001	22.3	-	32.3	1.18		F	#		
Uranium	mg/L	09/25/2013	N001	22.3	-	32.3	0.3		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0816 WELL N of artesian well 648

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	20.1	-	25.1	278		FQ	#		
Ammonium	mg/L	09/24/2013	N001	20.1	-	25.1	0.129	U	FQ	#	0.129	
Calcium	mg/L	09/24/2013	N001	20.1	-	25.1	49		FQ	#	0.06	
Chloride	mg/L	09/24/2013	N001	20.1	-	25.1	48		FQ	#	5	
Magnesium	mg/L	09/24/2013	N001	20.1	-	25.1	55		FQ	#	0.065	
Manganese	mg/L	09/24/2013	N001	20.1	-	25.1	0.002	B	FQJ	#	0.00057	
Nitrate	mg/L	09/24/2013	N001	20.1	-	25.1	53.1		FQ	#	0.443	
Oxidation Reduction Potential	mV	09/24/2013	N001	20.1	-	25.1	155.1		FQ	#		
pH	s.u.	09/24/2013	N001	20.1	-	25.1	6.99		FQ	#		
Potassium	mg/L	09/24/2013	N001	20.1	-	25.1	9.2		FQ	#	0.54	
Selenium	mg/L	09/24/2013	N001	20.1	-	25.1	0.0081		FQ	#	0.00016	
Sodium	mg/L	09/24/2013	N001	20.1	-	25.1	320		FQ	#	0.033	
Specific Conductance	umhos /cm	09/24/2013	N001	20.1	-	25.1	2434		FQ	#		
Strontium	mg/L	09/24/2013	N001	20.1	-	25.1	1		FQ	#	0.00039	
Sulfate	mg/L	09/24/2013	N001	20.1	-	25.1	710		FQ	#	12	
Temperature	C	09/24/2013	N001	20.1	-	25.1	20.18		FQ	#		
Turbidity	NTU	09/24/2013	N001	20.1	-	25.1	7.44		FQ	#		
Uranium	mg/L	09/24/2013	N001	20.1	-	25.1	0.0098		FQ	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0817 WELL Just W of Disposal Cell, NECA yard

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	21.6	-	31.62	1496		FQ	#		
Ammonium	mg/L	09/25/2013	N001	21.6	-	31.62	1211		FQ	#	25.8	
Calcium	mg/L	09/25/2013	N001	21.6	-	31.62	410		FQ	#	0.6	
Chloride	mg/L	09/25/2013	N001	21.6	-	31.62	630		FQ	#	100	
Magnesium	mg/L	09/25/2013	N001	21.6	-	31.62	1600		FQ	#	0.65	
Manganese	mg/L	09/25/2013	N001	21.6	-	31.62	2		FQ	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	21.6	-	31.62	1240		FQ	#	22.1	
Oxidation Reduction Potential	mV	09/25/2013	N001	21.6	-	31.62	231.3		FQ	#		
pH	s.u.	09/25/2013	N001	21.6	-	31.62	6.33		FQ	#		
Potassium	mg/L	09/25/2013	N001	21.6	-	31.62	240		FQ	#	5.4	
Selenium	mg/L	09/25/2013	N001	21.6	-	31.62	0.003		FQ	#	0.00032	
Sodium	mg/L	09/25/2013	N001	21.6	-	31.62	1400		FQ	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	21.6	-	31.62	21370		FQ	#		
Strontium	mg/L	09/25/2013	N001	21.6	-	31.62	11		FQ	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	21.6	-	31.62	13000		FQ	#	250	
Temperature	C	09/25/2013	N001	21.6	-	31.62	18.34		FQ	#		
Turbidity	NTU	09/25/2013	N001	21.6	-	31.62	5.72		FQ	#		
Uranium	mg/L	09/25/2013	N001	21.6	-	31.62	6.8		FQ	#	0.0029	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	52	-	61.5	780		#			
Ammonium	mg/L	09/24/2013	N001	52	-	61.5	70.8		#	2.58		
Ammonium	mg/L	09/24/2013	N002	52	-	61.5	65.7		#	12.9		
Calcium	mg/L	09/24/2013	N001	52	-	61.5	380		#	0.6		
Calcium	mg/L	09/24/2013	N002	52	-	61.5	410		#	0.12		
Chloride	mg/L	09/24/2013	N001	52	-	61.5	1100		#	100		
Chloride	mg/L	09/24/2013	N002	52	-	61.5	1100		#	100		
Magnesium	mg/L	09/24/2013	N001	52	-	61.5	1500		#	0.65		
Magnesium	mg/L	09/24/2013	N002	52	-	61.5	1600		#	0.13		
Manganese	mg/L	09/24/2013	N001	52	-	61.5	0.48		#	0.0057		
Manganese	mg/L	09/24/2013	N002	52	-	61.5	0.52		#	0.0011		
Nitrate	mg/L	09/24/2013	N001	52	-	61.5	3542		#	22.1		
Nitrate	mg/L	09/24/2013	N002	52	-	61.5	3320		#	221		
Oxidation Reduction Potential	mV	09/24/2013	N001	52	-	61.5	195		#			
pH	s.u.	09/24/2013	N001	52	-	61.5	6.87		#			
Potassium	mg/L	09/24/2013	N001	52	-	61.5	81		#	5.4		
Potassium	mg/L	09/24/2013	N002	52	-	61.5	89		#	1.1		
Selenium	mg/L	09/24/2013	N001	52	-	61.5	2.4		#	0.0032		

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	52	-	61.5	2.3		#	0.0016		
Sodium	mg/L	09/24/2013	N001	52	-	61.5	3500		#	0.33		
Sodium	mg/L	09/24/2013	N002	52	-	61.5	4100		#	0.33		
Specific Conductance	umhos /cm	09/24/2013	N001	52	-	61.5	23580		#			
Strontium	mg/L	09/24/2013	N001	52	-	61.5	11		#	0.0039		
Strontium	mg/L	09/24/2013	N002	52	-	61.5	12		#	0.00078		
Sulfate	mg/L	09/24/2013	N001	52	-	61.5	15000		#	250		
Sulfate	mg/L	09/24/2013	N002	52	-	61.5	15000		#	250		
Temperature	C	09/24/2013	N001	52	-	61.5	15.7		#			
Turbidity	NTU	09/24/2013	N001	52	-	61.5	2.83		#			
Uranium	mg/L	09/24/2013	N001	52	-	61.5	0.13		#	0.00029		
Uranium	mg/L	09/24/2013	N002	52	-	61.5	0.13		#	0.00015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0819 WELL Just W of Disposal Cell, NECA yard, flush mount.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	15.67	-	25.67	1984		FQ	#		
Ammonium	mg/L	09/25/2013	N001	15.67	-	25.67	541		FQ	#	25.8	
Calcium	mg/L	09/25/2013	N001	15.67	-	25.67	430		FQ	#	0.6	
Chloride	mg/L	09/25/2013	N001	15.67	-	25.67	1000		FQ	#	100	
Magnesium	mg/L	09/25/2013	N001	15.67	-	25.67	1400		FQ	#	0.65	
Manganese	mg/L	09/25/2013	N001	15.67	-	25.67	2		FQ	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	15.67	-	25.67	120		FQ	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	15.67	-	25.67	87.3		FQ	#		
pH	s.u.	09/25/2013	N001	15.67	-	25.67	6.27		FQ	#		
Potassium	mg/L	09/25/2013	N001	15.67	-	25.67	200		FQ	#	5.4	
Selenium	mg/L	09/25/2013	N001	15.67	-	25.67	0.017		FQ	#	0.00016	
Sodium	mg/L	09/25/2013	N001	15.67	-	25.67	2700		FQ	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	15.67	-	25.67	21073		FQ	#		
Strontium	mg/L	09/25/2013	N001	15.67	-	25.67	9.7		FQ	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	15.67	-	25.67	13000		FQ	#	250	
Temperature	C	09/25/2013	N001	15.67	-	25.67	19.93		FQ	#		
Turbidity	NTU	09/25/2013	N001	15.67	-	25.67	9.26		FQ	#		
Uranium	mg/L	09/25/2013	N001	15.67	-	25.67	1.4		FQ	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0820 WELL Just N of Disposal Cell, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	0001	149	-	151.5	625		FQ	#		
Ammonium	mg/L	09/26/2013	0001	149	-	151.5	1.55		FQ	#	0.129	
Calcium	mg/L	09/26/2013	0001	149	-	151.5	220		FQ	#	0.12	
Chloride	mg/L	09/26/2013	0001	149	-	151.5	9900		FQ	#	100	
Magnesium	mg/L	09/26/2013	0001	149	-	151.5	82		FQ	#	0.13	
Manganese	mg/L	09/26/2013	0001	149	-	151.5	0.45		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	0001	149	-	151.5	204		FQ	#	2.21	
Oxidation Reduction Potential	mV	09/26/2013	N001	149	-	151.5	117.3		FQ	#		
pH	s.u.	09/26/2013	N001	149	-	151.5	7.1		FQ	#		
Potassium	mg/L	09/26/2013	0001	149	-	151.5	39		FQ	#	1.1	
Selenium	mg/L	09/26/2013	0001	149	-	151.5	0.0052		FQ	#	0.00016	
Sodium	mg/L	09/26/2013	0001	149	-	151.5	7300		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	149	-	151.5	31670		FQ	#		
Strontium	mg/L	09/26/2013	0001	149	-	151.5	22		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	0001	149	-	151.5	5200		FQ	#	250	
Temperature	C	09/26/2013	N001	149	-	151.5	17.53		FQ	#		
Turbidity	NTU	09/26/2013	N001	149	-	151.5	42.7		FQ	#		
Uranium	mg/L	09/26/2013	0001	149	-	151.5	0.083		FQ	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0822 WELL Just N of Disposal Cell, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				199	-	201.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	0001	199	-	201.5	412		#		
Ammonium	mg/L	09/26/2013	0001	199	-	201.5	0.129	U	#	0.129	
Calcium	mg/L	09/26/2013	0001	199	-	201.5	150		#	0.12	
Chloride	mg/L	09/26/2013	0001	199	-	201.5	7100		#	100	
Magnesium	mg/L	09/26/2013	0001	199	-	201.5	62		#	0.13	
Manganese	mg/L	09/26/2013	0001	199	-	201.5	0.55		#	0.0011	
Nitrate	mg/L	09/26/2013	0001	199	-	201.5	15.9		#	0.221	
Oxidation Reduction Potential	mV	09/26/2013	N001	199	-	201.5	199.5		#		
pH	s.u.	09/26/2013	N001	199	-	201.5	7.31		#		
Potassium	mg/L	09/26/2013	0001	199	-	201.5	68		#	1.1	
Selenium	mg/L	09/26/2013	0001	199	-	201.5	0.0008		#	0.000032	
Sodium	mg/L	09/26/2013	0001	199	-	201.5	6000		#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	199	-	201.5	26607		#		
Strontium	mg/L	09/26/2013	0001	199	-	201.5	16		#	0.00078	
Sulfate	mg/L	09/26/2013	0001	199	-	201.5	5800		#	250	
Temperature	C	09/26/2013	N001	199	-	201.5	17.58		#		
Turbidity	NTU	09/26/2013	N001	199	-	201.5	20.6		#		
Uranium	mg/L	09/26/2013	0001	199	-	201.5	0.057		#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0824 WELL Just NE of Disposal Cell, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	198.5	-	201	357		FQ	#		
Ammonium	mg/L	09/26/2013	N001	198.5	-	201	11.5		FQ	#	0.644	
Calcium	mg/L	09/26/2013	N001	198.5	-	201	180		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	198.5	-	201	8400		FQ	#	100	
Magnesium	mg/L	09/26/2013	N001	198.5	-	201	68		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	198.5	-	201	0.52		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	198.5	-	201	6.20		FQ	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	198.5	-	201	-71.1		FQ	#		
pH	s.u.	09/26/2013	N001	198.5	-	201	7.08		FQ	#		
Potassium	mg/L	09/26/2013	N001	198.5	-	201	55		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	198.5	-	201	0.00046		FQ	#	0.000032	
Sodium	mg/L	09/26/2013	N001	198.5	-	201	6400		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	198.5	-	201	28847		FQ	#		
Strontium	mg/L	09/26/2013	N001	198.5	-	201	21		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	198.5	-	201	5700		FQ	#	250	
Temperature	C	09/26/2013	N001	198.5	-	201	22.86		FQ	#		
Turbidity	NTU	09/26/2013	N001	198.5	-	201	8.6		FQ	#		
Uranium	mg/L	09/26/2013	N001	198.5	-	201	0.02		FQ	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0825 WELL Just NE of Disposal Cell, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	0001	147.79	-	150.23	360		FQ	#		
Ammonium	mg/L	09/26/2013	0001	147.79	-	150.23	3.09		FQ	#	0.129	
Calcium	mg/L	09/26/2013	0001	147.79	-	150.23	190		FQ	#	0.12	
Chloride	mg/L	09/26/2013	0001	147.79	-	150.23	9100		FQ	#	100	
Magnesium	mg/L	09/26/2013	0001	147.79	-	150.23	73		FQ	#	0.13	
Manganese	mg/L	09/26/2013	0001	147.79	-	150.23	0.55		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	0001	147.79	-	150.23	3.54		FQ	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	147.79	-	150.23	-59.3		FQ	#		
pH	s.u.	09/26/2013	N001	147.79	-	150.23	7.24		FQ	#		
Potassium	mg/L	09/26/2013	0001	147.79	-	150.23	48		FQ	#	1.1	
Selenium	mg/L	09/26/2013	0001	147.79	-	150.23	0.001		FQ	#	0.000032	
Sodium	mg/L	09/26/2013	0001	147.79	-	150.23	6900		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	147.79	-	150.23	30054		FQ	#		
Strontium	mg/L	09/26/2013	0001	147.79	-	150.23	21		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	0001	147.79	-	150.23	5300		FQ	#	250	
Temperature	C	09/26/2013	N001	147.79	-	150.23	19.86		FQ	#		
Turbidity	NTU	09/26/2013	N001	147.79	-	150.23	14.2		FQ	#		
Uranium	mg/L	09/26/2013	0001	147.79	-	150.23	0.015		FQ	#	0.0000058	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0826 WELL Just West of Disposal Cell, NECA yard, flush mount.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	10	-	20	1522		FQ	#		
Ammonium	mg/L	09/25/2013	N001	10	-	20	118		FQ	#	2.58	
Calcium	mg/L	09/25/2013	N001	10	-	20	410		FQ	#	0.6	
Chloride	mg/L	09/25/2013	N001	10	-	20	410		FQ	#	40	
Magnesium	mg/L	09/25/2013	N001	10	-	20	2000		FQ	#	0.65	
Manganese	mg/L	09/25/2013	N001	10	-	20	2.5		FQ	#	0.0057	
Nitrate	mg/L	09/25/2013	N001	10	-	20	62.0		FQ	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	10	-	20	224.5		FQ	#		
pH	s.u.	09/25/2013	N001	10	-	20	6.41		FQ	#		
Potassium	mg/L	09/25/2013	N001	10	-	20	140		FQ	#	5.4	
Selenium	mg/L	09/25/2013	N001	10	-	20	0.0072		FQ	#	0.0016	
Sodium	mg/L	09/25/2013	N001	10	-	20	1900		FQ	#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	10	-	20	16947		FQ	#		
Strontium	mg/L	09/25/2013	N001	10	-	20	11		FQ	#	0.0039	
Sulfate	mg/L	09/25/2013	N001	10	-	20	13000		FQ	#	100	
Temperature	C	09/25/2013	N001	10	-	20	23.79		FQ	#		
Turbidity	NTU	09/25/2013	N001	10	-	20	5.09		FQ	#		
Uranium	mg/L	09/25/2013	N001	10	-	20	1.9		FQ	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0827 WELL Just NW of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	19.9	-	29.9	1268		FQ	#		
Ammonium	mg/L	09/27/2013	N001	19.9	-	29.9	2.45		FQ	#	0.129	
Calcium	mg/L	09/27/2013	N001	19.9	-	29.9	400		FQ	#	0.12	
Chloride	mg/L	09/27/2013	N001	19.9	-	29.9	380		FQ	#	20	
Magnesium	mg/L	09/27/2013	N001	19.9	-	29.9	920		FQ	#	0.13	
Manganese	mg/L	09/27/2013	N001	19.9	-	29.9	0.37		FQ	#	0.0011	
Nitrate	mg/L	09/27/2013	N001	19.9	-	29.9	84.1		FQ	#	0.885	
Oxidation Reduction Potential	mV	09/27/2013	N001	19.9	-	29.9	130.1		FQ	#		
pH	s.u.	09/27/2013	N001	19.9	-	29.9	6.58		FQ	#		
Potassium	mg/L	09/27/2013	N001	19.9	-	29.9	47		FQ	#	1.1	
Selenium	mg/L	09/27/2013	N001	19.9	-	29.9	0.022		FQ	#	0.0016	
Sodium	mg/L	09/27/2013	N001	19.9	-	29.9	1900		FQ	#	0.66	
Specific Conductance	umhos /cm	09/27/2013	N001	19.9	-	29.9	11775		FQ	#		
Strontium	mg/L	09/27/2013	N001	19.9	-	29.9	9.2		FQ	#	0.00078	
Sulfate	mg/L	09/27/2013	N001	19.9	-	29.9	7600		FQ	#	50	
Temperature	C	09/27/2013	N001	19.9	-	29.9	16.54		FQ	#		
Turbidity	NTU	09/27/2013	N001	19.9	-	29.9	2.19		FQ	#		
Uranium	mg/L	09/27/2013	N001	19.9	-	29.9	0.88		FQ	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0828 WELL Just E of upper Bob Lee Wash, NECA yard

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	5.3	-	15.3	850		F	#		
Ammonium	mg/L	09/25/2013	N001	5.3	-	15.3	1.08		F	#	0.129	
Calcium	mg/L	09/25/2013	N001	5.3	-	15.3	280		F	#	0.06	
Chloride	mg/L	09/25/2013	N001	5.3	-	15.3	160		F	#	10	
Magnesium	mg/L	09/25/2013	N001	5.3	-	15.3	220		F	#	0.065	
Manganese	mg/L	09/25/2013	N001	5.3	-	15.3	1.5		F	#	0.00057	
Nitrate	mg/L	09/25/2013	N001	5.3	-	15.3	22.1		F	#	0.885	
Oxidation Reduction Potential	mV	09/25/2013	N001	5.3	-	15.3	168.6		F	#		
pH	s.u.	09/25/2013	N001	5.3	-	15.3	6.85		F	#		
Potassium	mg/L	09/25/2013	N001	5.3	-	15.3	16		F	#	0.54	
Selenium	mg/L	09/25/2013	N001	5.3	-	15.3	0.0092		F	#	0.00016	
Sodium	mg/L	09/25/2013	N001	5.3	-	15.3	470		F	#	0.033	
Specific Conductance	umhos /cm	09/25/2013	N001	5.3	-	15.3	4213		F	#		
Strontium	mg/L	09/25/2013	N001	5.3	-	15.3	4.1		F	#	0.00039	
Sulfate	mg/L	09/25/2013	N001	5.3	-	15.3	1600		F	#	25	
Temperature	C	09/25/2013	N001	5.3	-	15.3	19.62		F	#		
Turbidity	NTU	09/25/2013	N001	5.3	-	15.3	2.18		F	#		
Uranium	mg/L	09/25/2013	N001	5.3	-	15.3	0.5		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0830 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	7.7	-	17.7	0		F	#		
Ammonium	mg/L	09/26/2013	N001	7.7	-	17.7	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	7.7	-	17.7	470		F	#	0.012	
Chloride	mg/L	09/26/2013	N001	7.7	-	17.7	21		F	#	4	
Magnesium	mg/L	09/26/2013	N001	7.7	-	17.7	20		F	#	0.013	
Manganese	mg/L	09/26/2013	N001	7.7	-	17.7	1.1		F	#	0.00011	
Nitrate	mg/L	09/26/2013	N001	7.7	-	17.7	48.7		F	#	2.21	
Oxidation Reduction Potential	mV	09/26/2013	N001	7.7	-	17.7	263		F	#		
pH	s.u.	09/26/2013	N001	7.7	-	17.7	4.44		F	#		
Potassium	mg/L	09/26/2013	N001	7.7	-	17.7	3.6		F	#	0.11	
Selenium	mg/L	09/26/2013	N001	7.7	-	17.7	0.0089		F	#	0.00016	
Sodium	mg/L	09/26/2013	N001	7.7	-	17.7	63		F	#	0.0066	
Specific Conductance	umhos /cm	09/26/2013	N001	7.7	-	17.7	2116		F	#		
Strontium	mg/L	09/26/2013	N001	7.7	-	17.7	0.3		F	#	0.000078	
Sulfate	mg/L	09/26/2013	N001	7.7	-	17.7	1300		F	#	10	
Temperature	C	09/26/2013	N001	7.7	-	17.7	25.15		F	#		
Turbidity	NTU	09/26/2013	N001	7.7	-	17.7	0.59		F	#		
Uranium	mg/L	09/26/2013	N001	7.7	-	17.7	0.0025		F	#	0.000015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0833 WELL Just NE of Dine College tract

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	24.9	-	34.9	475		F	#		
Ammonium	mg/L	09/24/2013	N001	24.9	-	34.9	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	24.9	-	34.9	420		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	24.9	-	34.9	370		F	#	20	
Magnesium	mg/L	09/24/2013	N001	24.9	-	34.9	520		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	24.9	-	34.9	0.019	B	F	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	24.9	-	34.9	421		F	#	4.43	
Oxidation Reduction Potential	mV	09/24/2013	N001	24.9	-	34.9	103.8		F	#		
pH	s.u.	09/24/2013	N001	24.9	-	34.9	6.94		F	#		
Potassium	mg/L	09/24/2013	N001	24.9	-	34.9	25		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	24.9	-	34.9	0.25		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	24.9	-	34.9	1000		F	#	0.066	
Specific Conductance	umhos /cm	09/24/2013	N001	24.9	-	34.9	8326		F	#		
Strontium	mg/L	09/24/2013	N001	24.9	-	34.9	6		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	24.9	-	34.9	4500		F	#	50	
Temperature	C	09/24/2013	N001	24.9	-	34.9	17.43		F	#		
Turbidity	NTU	09/24/2013	N001	24.9	-	34.9	9.51		F	#		
Uranium	mg/L	09/24/2013	N001	24.9	-	34.9	0.097		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0835 WELL Housing area between 2nd Wash and 3rd Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	21.9	-	31.9	163		F	#		
Ammonium	mg/L	09/24/2013	N001	21.9	-	31.9	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	21.9	-	31.9	65		F	#	0.06	
Chloride	mg/L	09/24/2013	N001	21.9	-	31.9	46		F	#	2	
Magnesium	mg/L	09/24/2013	N001	21.9	-	31.9	47		F	#	0.065	
Manganese	mg/L	09/24/2013	N001	21.9	-	31.9	0.14		F	#	0.00057	
Nitrate	mg/L	09/24/2013	N001	21.9	-	31.9	25.7		F	#	2.21	
Oxidation Reduction Potential	mV	09/24/2013	N001	21.9	-	31.9	63.1		F	#		
pH	s.u.	09/24/2013	N001	21.9	-	31.9	7.49		F	#		
Potassium	mg/L	09/24/2013	N001	21.9	-	31.9	5.7		F	#	0.54	
Selenium	mg/L	09/24/2013	N001	21.9	-	31.9	0.026		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	21.9	-	31.9	230		F	#	0.033	
Specific Conductance	umhos /cm	09/24/2013	N001	21.9	-	31.9	1684		F	#		
Strontium	mg/L	09/24/2013	N001	21.9	-	31.9	0.79		F	#	0.00039	
Sulfate	mg/L	09/24/2013	N001	21.9	-	31.9	620		F	#	5	
Temperature	C	09/24/2013	N001	21.9	-	31.9	18.53		F	#		
Turbidity	NTU	09/24/2013	N001	21.9	-	31.9	7.68		F	#		
Uranium	mg/L	09/24/2013	N001	21.9	-	31.9	0.0098		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0836 WELL SW part of Blueeyes Ranch, N of US Hwy 64

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	26.8	-	36.8	294		F	#		
Ammonium	mg/L	09/24/2013	N001	26.8	-	36.8	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	26.8	-	36.8	480		F	#	0.06	
Chloride	mg/L	09/24/2013	N001	26.8	-	36.8	76		F	#	5	
Magnesium	mg/L	09/24/2013	N001	26.8	-	36.8	240		F	#	0.065	
Manganese	mg/L	09/24/2013	N001	26.8	-	36.8	0.26		F	#	0.00057	
Nitrate	mg/L	09/24/2013	N001	26.8	-	36.8	212		F	#	2.21	
Oxidation Reduction Potential	mV	09/24/2013	N001	26.8	-	36.8	135		F	#		
pH	s.u.	09/24/2013	N001	26.8	-	36.8	6.75		F	#		
Potassium	mg/L	09/24/2013	N001	26.8	-	36.8	6.6		F	#	0.54	
Selenium	mg/L	09/24/2013	N001	26.8	-	36.8	0.33		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	26.8	-	36.8	360		F	#	0.033	
Specific Conductance	umhos /cm	09/24/2013	N001	26.8	-	36.8	4686		F	#		
Strontium	mg/L	09/24/2013	N001	26.8	-	36.8	6.4		F	#	0.00039	
Sulfate	mg/L	09/24/2013	N001	26.8	-	36.8	2800		F	#	25	
Temperature	C	09/24/2013	N001	26.8	-	36.8	15.4		F	#		
Turbidity	NTU	09/24/2013	N001	26.8	-	36.8	3.23		F	#		
Uranium	mg/L	09/24/2013	N001	26.8	-	36.8	0.043		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0837 WELL Center of Blueeyes Ranch, N of US Hwy 64

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	17	-	27.1	362		F	#		
Ammonium	mg/L	09/24/2013	N001	17	-	27.1	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	17	-	27.1	560		F	#	0.06	
Chloride	mg/L	09/24/2013	N001	17	-	27.1	100		F	#	5	
Magnesium	mg/L	09/24/2013	N001	17	-	27.1	240		F	#	0.065	
Manganese	mg/L	09/24/2013	N001	17	-	27.1	3.9		F	#	0.00057	
Nitrate	mg/L	09/24/2013	N001	17	-	27.1	155		F	#	0.885	
Oxidation Reduction Potential	mV	09/24/2013	N001	17	-	27.1	117.7		F	#		
pH	s.u.	09/24/2013	N001	17	-	27.1	6.69		F	#		
Potassium	mg/L	09/24/2013	N001	17	-	27.1	13		F	#	0.54	
Selenium	mg/L	09/24/2013	N001	17	-	27.1	0.15		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	17	-	27.1	350		F	#	0.033	
Specific Conductance	umhos /cm	09/24/2013	N001	17	-	27.1	4752		F	#		
Strontium	mg/L	09/24/2013	N001	17	-	27.1	6.7		F	#	0.00039	
Sulfate	mg/L	09/24/2013	N001	17	-	27.1	2800		F	#	25	
Temperature	C	09/24/2013	N001	17	-	27.1	15.17		F	#		
Turbidity	NTU	09/24/2013	N001	17	-	27.1	2.22		F	#		
Uranium	mg/L	09/24/2013	N001	17	-	27.1	0.032		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0838 WELL W part of Dine College tract

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	21.9	-	31.9	460		F	#		
Ammonium	mg/L	09/24/2013	N001	21.9	-	31.9	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	21.9	-	31.9	440		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	21.9	-	31.9	650		F	#	40	
Magnesium	mg/L	09/24/2013	N001	21.9	-	31.9	1300		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	21.9	-	31.9	0.046	B	F	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	21.9	-	31.9	2125		F	#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	21.9	-	31.9	122.6		F	#		
pH	s.u.	09/24/2013	N001	21.9	-	31.9	6.92		F	#		
Potassium	mg/L	09/24/2013	N001	21.9	-	31.9	30		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	21.9	-	31.9	0.74		F	#	0.0016	
Sodium	mg/L	09/24/2013	N001	21.9	-	31.9	2200		F	#	0.66	
Specific Conductance	umhos /cm	09/24/2013	N001	21.9	-	31.9	15421		F	#		
Strontium	mg/L	09/24/2013	N001	21.9	-	31.9	11		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	21.9	-	31.9	8800		F	#	100	
Temperature	C	09/24/2013	N001	21.9	-	31.9	16.84		F	#		
Turbidity	NTU	09/24/2013	N001	21.9	-	31.9	2.75		F	#		
Uranium	mg/L	09/24/2013	N001	21.9	-	31.9	0.19		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0841 WELL S of Multipurpose Center tract, W of US Hwy 491

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	42	-	52	694		F	#		
Ammonium	mg/L	09/24/2013	N001	42	-	52	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	42	-	52	360		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	42	-	52	790		F	#	100	
Magnesium	mg/L	09/24/2013	N001	42	-	52	630		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	42	-	52	0.032	B	F	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	42	-	52	2258		F	#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	42	-	52	135.2		F	#		
pH	s.u.	09/24/2013	N001	42	-	52	7.01		F	#		
Potassium	mg/L	09/24/2013	N001	42	-	52	60		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	42	-	52	2.6		F	#	0.0032	
Sodium	mg/L	09/24/2013	N001	42	-	52	4900		F	#	0.66	
Specific Conductance	umhos /cm	09/24/2013	N001	42	-	52	22344		F	#		
Strontium	mg/L	09/24/2013	N001	42	-	52	7.3		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	42	-	52	14000		F	#	250	
Temperature	C	09/24/2013	N001	42	-	52	16.58		F	#		
Turbidity	NTU	09/24/2013	N001	42	-	52	9.88		F	#		
Uranium	mg/L	09/24/2013	N001	42	-	52	0.083		F	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0843 WELL E part of Blueeyes Ranch, N of US Hwy 64

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	11.9	-	21.9	266		F	#		
Ammonium	mg/L	09/24/2013	N001	11.9	-	21.9	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	11.9	-	21.9	360		F	#	0.06	
Chloride	mg/L	09/24/2013	N001	11.9	-	21.9	83		F	#	5	
Dissolved Oxygen	mg/L	09/24/2013	N001	11.9	-	21.9	2.33		F	#		
Magnesium	mg/L	09/24/2013	N001	11.9	-	21.9	130		F	#	0.065	
Manganese	mg/L	09/24/2013	N001	11.9	-	21.9	1.3		F	#	0.00057	
Nitrate	mg/L	09/24/2013	N001	11.9	-	21.9	57.6		F	#	0.443	
Oxidation Reduction Potential	mV	09/24/2013	N001	11.9	-	21.9	85.3		F	#		
pH	s.u.	09/24/2013	N001	11.9	-	21.9	6.9		F	#		
Potassium	mg/L	09/24/2013	N001	11.9	-	21.9	12		F	#	0.54	
Selenium	mg/L	09/24/2013	N001	11.9	-	21.9	0.33		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	11.9	-	21.9	340		F	#	0.033	
Specific Conductance	umhos /cm	09/24/2013	N001	11.9	-	21.9	3457		F	#		
Strontium	mg/L	09/24/2013	N001	11.9	-	21.9	4.4		F	#	0.00039	
Sulfate	mg/L	09/24/2013	N001	11.9	-	21.9	1800		F	#	12	
Temperature	C	09/24/2013	N001	11.9	-	21.9	16.26		F	#		
Turbidity	NTU	09/24/2013	N001	11.9	-	21.9	9.84		F	#		
Uranium	mg/L	09/24/2013	N001	11.9	-	21.9	0.024		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0844 WELL W part of Multipurpose Center tract, W of US Hwy 491, flush mount.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	28.91	-	38.91	655		F	#		
Ammonium	mg/L	09/24/2013	N001	28.91	-	38.91	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	28.91	-	38.91	430		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	28.91	-	38.91	910		F	#	50	
Magnesium	mg/L	09/24/2013	N001	28.91	-	38.91	1700		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	28.91	-	38.91	0.0021	B	FJ	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	28.91	-	38.91	3409		F	#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	28.91	-	38.91	125.5		F	#		
pH	s.u.	09/24/2013	N001	28.91	-	38.91	7.29		F	#		
Potassium	mg/L	09/24/2013	N001	28.91	-	38.91	56		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	28.91	-	38.91	1.7		F	#	0.0016	
Sodium	mg/L	09/24/2013	N001	28.91	-	38.91	2500		F	#	0.66	
Specific Conductance	umhos /cm	09/24/2013	N001	28.91	-	38.91	19059		F	#		
Strontium	mg/L	09/24/2013	N001	28.91	-	38.91	12		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	28.91	-	38.91	11000		F	#	120	
Temperature	C	09/24/2013	N001	28.91	-	38.91	18.42		F	#		
Turbidity	NTU	09/24/2013	N001	28.91	-	38.91	1.11		F	#		
Uranium	mg/L	09/24/2013	N001	28.91	-	38.91	0.18		F	#	0.00015	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0848 WELL Just W of Shiprock High School track, S of US Hwy 64

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	45	-	142.58	1735		F	#		
Ammonium	mg/L	09/24/2013	N001	45	-	142.58	9.66		F	#	0.644	
Calcium	mg/L	09/24/2013	N001	45	-	142.58	330		F	#	0.6	
Chloride	mg/L	09/24/2013	N001	45	-	142.58	1300		F	#	100	
Magnesium	mg/L	09/24/2013	N001	45	-	142.58	440		F	#	0.65	
Manganese	mg/L	09/24/2013	N001	45	-	142.58	2.6		F	#	0.0057	
Nitrate	mg/L	09/24/2013	N001	45	-	142.58	0.0708		F	#	0.0443	
Oxidation Reduction Potential	mV	09/24/2013	N001	45	-	142.58	-21.3		F	#		
pH	s.u.	09/24/2013	N001	45	-	142.58	6.72		F	#		
Potassium	mg/L	09/24/2013	N001	45	-	142.58	42	B	F	#	5.4	
Selenium	mg/L	09/24/2013	N001	45	-	142.58	0.043		F	#	0.00032	
Sodium	mg/L	09/24/2013	N001	45	-	142.58	6200		F	#	0.33	
Specific Conductance	umhos /cm	09/24/2013	N001	45	-	142.58	26947		F	#		
Strontium	mg/L	09/24/2013	N001	45	-	142.58	19		F	#	0.0039	
Sulfate	mg/L	09/24/2013	N001	45	-	142.58	18000		F	#	250	
Temperature	C	09/24/2013	N001	45	-	142.58	17.58		F	#		
Turbidity	NTU	09/24/2013	N001	45	-	142.58	5.5		F	#		
Uranium	mg/L	09/24/2013	N001	45	-	142.58	0.016		F	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1007 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	0001	36.8	-	46.3	1463		FQ	#		
Ammonium	mg/L	09/26/2013	0001	36.8	-	46.3	16.7		FQ	#	0.644	
Calcium	mg/L	09/26/2013	0001	36.8	-	46.3	430		FQ	#	0.6	
Chloride	mg/L	09/26/2013	0001	36.8	-	46.3	630		FQ	#	100	
Magnesium	mg/L	09/26/2013	0001	36.8	-	46.3	2000		FQ	#	0.65	
Manganese	mg/L	09/26/2013	0001	36.8	-	46.3	1.6		FQ	#	0.0057	
Nitrate	mg/L	09/26/2013	0001	36.8	-	46.3	2214		FQ	#	22.1	
Oxidation Reduction Potential	mV	09/26/2013	N001	36.8	-	46.3	109		FQ	#		
pH	s.u.	09/26/2013	N001	36.8	-	46.3	6.65		FQ	#		
Potassium	mg/L	09/26/2013	0001	36.8	-	46.3	120		FQ	#	5.4	
Selenium	mg/L	09/26/2013	0001	36.8	-	46.3	0.052		FQ	#	0.00032	
Sodium	mg/L	09/26/2013	0001	36.8	-	46.3	2700		FQ	#	0.33	
Specific Conductance	umhos /cm	09/26/2013	N001	36.8	-	46.3	20474		FQ	#		
Strontium	mg/L	09/26/2013	0001	36.8	-	46.3	12		FQ	#	0.0039	
Sulfate	mg/L	09/26/2013	0001	36.8	-	46.3	14000		FQ	#	250	
Temperature	C	09/26/2013	N001	36.8	-	46.3	19.39		FQ	#		
Turbidity	NTU	09/26/2013	N001	36.8	-	46.3	13.9		FQ	#		
Uranium	mg/L	09/26/2013	0001	36.8	-	46.3	2.5		FQ	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1048 WELL Many Devils Wash, just E of knickpoint, flush mount.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	3.6	-	8.6	644		F	#		
Ammonium	mg/L	09/26/2013	N001	3.6	-	8.6	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	N001	3.6	-	8.6	360		F	#	0.12	
Chloride	mg/L	09/26/2013	N001	3.6	-	8.6	1500		F	#	100	
Magnesium	mg/L	09/26/2013	N001	3.6	-	8.6	1100		F	#	0.13	
Manganese	mg/L	09/26/2013	N001	3.6	-	8.6	0.0011	U	FJ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	3.6	-	8.6	2435		F	#	22.1	
Oxidation Reduction Potential	mV	09/26/2013	N001	3.6	-	8.6	207.6		F	#		
pH	s.u.	09/26/2013	N001	3.6	-	8.6	7.25		F	#		
Potassium	mg/L	09/26/2013	N001	3.6	-	8.6	50		F	#	1.1	
Selenium	mg/L	09/26/2013	N001	3.6	-	8.6	1.2		F	#	0.0016	
Sodium	mg/L	09/26/2013	N001	3.6	-	8.6	6300		F	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	3.6	-	8.6	28844		F	#		
Strontium	mg/L	09/26/2013	N001	3.6	-	8.6	8.9		F	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	3.6	-	8.6	19000		F	#	250	
Temperature	C	09/26/2013	N001	3.6	-	8.6	18.34		F	#		
Turbidity	NTU	09/26/2013	N001	3.6	-	8.6	7.01		F	#		
Uranium	mg/L	09/26/2013	N001	3.6	-	8.6	0.15		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1049 WELL Many Devils Wash, just E of knickpoint, flush mount.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	4.3	-	9.3	662		F	#		
Ammonium	mg/L	09/26/2013	0001	4.3	-	9.3	0.129	U	F	#	0.129	
Calcium	mg/L	09/26/2013	0001	4.3	-	9.3	360		F	#	0.12	
Chloride	mg/L	09/26/2013	0001	4.3	-	9.3	1500		F	#	40	
Magnesium	mg/L	09/26/2013	0001	4.3	-	9.3	1100		F	#	0.13	
Manganese	mg/L	09/26/2013	0001	4.3	-	9.3	0.0033	B	FJ	#	0.0011	
Nitrate	mg/L	09/26/2013	0001	4.3	-	9.3	2346		F	#	22.1	
Oxidation Reduction Potential	mV	09/26/2013	N001	4.3	-	9.3	210.1		F	#		
pH	s.u.	09/26/2013	N001	4.3	-	9.3	7.34		F	#		
Potassium	mg/L	09/26/2013	0001	4.3	-	9.3	48		F	#	1.1	
Selenium	mg/L	09/26/2013	0001	4.3	-	9.3	1.1		F	#	0.0016	
Sodium	mg/L	09/26/2013	0001	4.3	-	9.3	6200		F	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	4.3	-	9.3	28288		F	#		
Strontium	mg/L	09/26/2013	0001	4.3	-	9.3	8.9		F	#	0.00078	
Sulfate	mg/L	09/26/2013	0001	4.3	-	9.3	18000		F	#	100	
Temperature	C	09/26/2013	N001	4.3	-	9.3	17.64		F	#		
Turbidity	NTU	09/26/2013	N001	4.3	-	9.3	659		F	#		
Uranium	mg/L	09/26/2013	0001	4.3	-	9.3	0.15		F	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1057 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/01/2013	N001	36.66	-	41.66	140		FQ	#		
Ammonium	mg/L	10/01/2013	N001	36.66	-	41.66	142		FQ	#	12.9	
Calcium	mg/L	10/01/2013	N001	36.66	-	41.66	660		FQ	#	0.12	
Chloride	mg/L	10/01/2013	N001	36.66	-	41.66	270		FQ	#	40	
Magnesium	mg/L	10/01/2013	N001	36.66	-	41.66	1200		FQ	#	0.13	
Manganese	mg/L	10/01/2013	N001	36.66	-	41.66	16		FQ	#	0.0011	
Nitrate	mg/L	10/01/2013	N001	36.66	-	41.66	2833		FQ	#	22.1	
Oxidation Reduction Potential	mV	10/01/2013	N001	36.66	-	41.66	164.9		FQ	#		
pH	s.u.	10/01/2013	N001	36.66	-	41.66	5.96		FQ	#		
Potassium	mg/L	10/01/2013	N001	36.66	-	41.66	180		FQ	#	1.1	
Selenium	mg/L	10/01/2013	N001	36.66	-	41.66	0.048		FQ	#	0.00032	
Sodium	mg/L	10/01/2013	N001	36.66	-	41.66	1200		FQ	#	0.066	
Specific Conductance	umhos /cm	10/01/2013	N001	36.66	-	41.66	15003		FQ	#		
Strontium	mg/L	10/01/2013	N001	36.66	-	41.66	9		FQ	#	0.00078	
Sulfate	mg/L	10/01/2013	N001	36.66	-	41.66	4500		FQ	#	100	
Temperature	C	10/01/2013	N001	36.66	-	41.66	17.25		FQ	#		
Turbidity	NTU	10/01/2013	N001	36.66	-	41.66	7.87		FQ	#		
Uranium	mg/L	10/01/2013	N001	36.66	-	41.66	0.021		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1058 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	41.7	-	51.2	636		FQ	#		
Ammonium	mg/L	09/26/2013	N001	41.7	-	51.2	3.74		FQ	#	0.129	
Calcium	mg/L	09/26/2013	N001	41.7	-	51.2	210		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	41.7	-	51.2	1400		FQ	#	40	
Magnesium	mg/L	09/26/2013	N001	41.7	-	51.2	110		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	41.7	-	51.2	0.17		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	41.7	-	51.2	0.0443	U	FQ	#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	41.7	-	51.2	-32.1		FQ	#		
pH	s.u.	09/26/2013	N001	41.7	-	51.2	7.06		FQ	#		
Potassium	mg/L	09/26/2013	N001	41.7	-	51.2	20		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	41.7	-	51.2	0.00031		FQ	#	0.000032	
Sodium	mg/L	09/26/2013	N001	41.7	-	51.2	3000		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	41.7	-	51.2	13787		FQ	#		
Strontium	mg/L	09/26/2013	N001	41.7	-	51.2	11		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	41.7	-	51.2	5500		FQ	#	100	
Temperature	C	09/26/2013	N001	41.7	-	51.2	16.62		FQ	#		
Turbidity	NTU	09/26/2013	N001	41.7	-	51.2	5.1		FQ	#		
Uranium	mg/L	09/26/2013	N001	41.7	-	51.2	0.0029		FQ	#	0.0000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1059 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	39.5	-	49	614		FQ	#		
Ammonium	mg/L	09/26/2013	N001	39.5	-	49	1.80		FQ	#	0.129	
Calcium	mg/L	09/26/2013	N001	39.5	-	49	300		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	39.5	-	49	700		FQ	#	40	
Magnesium	mg/L	09/26/2013	N001	39.5	-	49	360		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	39.5	-	49	0.066		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	39.5	-	49	1505		FQ	#	8.85	
Oxidation Reduction Potential	mV	09/26/2013	N001	39.5	-	49	202.8		FQ	#		
pH	s.u.	09/26/2013	N001	39.5	-	49	6.98		FQ	#		
Potassium	mg/L	09/26/2013	N001	39.5	-	49	32		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	39.5	-	49	0.0091		FQ	#	0.00032	
Sodium	mg/L	09/26/2013	N001	39.5	-	49	3900		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	39.5	-	49	18056		FQ	#		
Strontium	mg/L	09/26/2013	N001	39.5	-	49	16		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	39.5	-	49	8600		FQ	#	100	
Temperature	C	09/26/2013	N001	39.5	-	49	17.1		FQ	#		
Turbidity	NTU	09/26/2013	N001	39.5	-	49	8.53		FQ	#		
Uranium	mg/L	09/26/2013	N001	39.5	-	49	0.062		FQ	#	0.000029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1068 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	0001	6.95	-	8.95	848		FQ	#		
Ammonium	mg/L	09/25/2013	0001	6.95	-	8.95	39.9		FQ	#	2.58	
Calcium	mg/L	09/25/2013	0001	6.95	-	8.95	410		FQ	#	0.06	
Chloride	mg/L	09/25/2013	0001	6.95	-	8.95	230		FQ	#	20	
Magnesium	mg/L	09/25/2013	0001	6.95	-	8.95	730		FQ	#	0.065	
Manganese	mg/L	09/25/2013	0001	6.95	-	8.95	1.1		FQ	#	0.00057	
Nitrate	mg/L	09/25/2013	0001	6.95	-	8.95	1151		FQ	#	8.85	
Oxidation Reduction Potential	mV	09/25/2013	N001	6.95	-	8.95	231		FQ	#		
pH	s.u.	09/25/2013	N001	6.95	-	8.95	6.76		FQ	#		
Potassium	mg/L	09/25/2013	0001	6.95	-	8.95	62		FQ	#	0.54	
Selenium	mg/L	09/25/2013	0001	6.95	-	8.95	0.019		FQ	#	0.00065	
Sodium	mg/L	09/25/2013	0001	6.95	-	8.95	1100		FQ	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	6.95	-	8.95	9996		FQ	#		
Strontium	mg/L	09/25/2013	0001	6.95	-	8.95	8.2		FQ	#	0.00039	
Sulfate	mg/L	09/25/2013	0001	6.95	-	8.95	5000		FQ	#	50	
Temperature	C	09/25/2013	N001	6.95	-	8.95	24.22		FQ	#		
Turbidity	NTU	09/25/2013	N001	6.95	-	8.95	50.5		FQ	#		
Uranium	mg/L	09/25/2013	0001	6.95	-	8.95	0.65		FQ	#	0.000058	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1069 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	0001	4.35	-	6.35	698		FQ	#		
Calcium	mg/L	09/25/2013	0001	4.35	-	6.35	430		FQ	#	0.12	
Magnesium	mg/L	09/25/2013	0001	4.35	-	6.35	2400		FQ	#	0.13	
Manganese	mg/L	09/25/2013	0001	4.35	-	6.35	0.025	B	FQ	#	0.0011	
Oxidation Reduction Potential	mV	09/25/2013	N001	4.35	-	6.35	213.9		FQ	#		
pH	s.u.	09/25/2013	N001	4.35	-	6.35	7.08		FQ	#		
Potassium	mg/L	09/25/2013	0001	4.35	-	6.35	110		FQ	#	1.1	
Selenium	mg/L	09/25/2013	0001	4.35	-	6.35	0.48		FQ	#	0.0016	
Sodium	mg/L	09/25/2013	0001	4.35	-	6.35	3800		FQ	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	4.35	-	6.35	24316		FQ	#		
Strontium	mg/L	09/25/2013	0001	4.35	-	6.35	15		FQ	#	0.00078	
Temperature	C	09/25/2013	N001	4.35	-	6.35	23.81		FQ	#		
Turbidity	NTU	09/25/2013	N001	4.35	-	6.35	136		FQ	#		
Uranium	mg/L	09/25/2013	0001	4.35	-	6.35	2.3		FQ	#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1070 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				52.5	-	62		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	52.5	-	62	742		#		
Ammonium	mg/L	09/24/2013	N001	52.5	-	62	3.48		#	0.129	
Ammonium	mg/L	09/24/2013	N002	52.5	-	62	3.48		#	0.129	
Calcium	mg/L	09/24/2013	N001	52.5	-	62	360		#	0.12	
Calcium	mg/L	09/24/2013	N002	52.5	-	62	390		#	0.6	
Chloride	mg/L	09/24/2013	N001	52.5	-	62	1200		#	100	
Chloride	mg/L	09/24/2013	N002	52.5	-	62	1300		#	100	
Magnesium	mg/L	09/24/2013	N001	52.5	-	62	950		#	0.13	
Magnesium	mg/L	09/24/2013	N002	52.5	-	62	970		#	0.65	
Manganese	mg/L	09/24/2013	N001	52.5	-	62	0.25		#	0.0011	
Manganese	mg/L	09/24/2013	N002	52.5	-	62	0.23	B	#	0.0057	
Nitrate	mg/L	09/24/2013	N001	52.5	-	62	2789		#	22.1	
Nitrate	mg/L	09/24/2013	N002	52.5	-	62	3055		#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	52.5	-	62	240		#		
pH	s.u.	09/24/2013	N001	52.5	-	62	6.9		#		
Potassium	mg/L	09/24/2013	N001	52.5	-	62	80	J	#	1.1	
Potassium	mg/L	09/24/2013	N002	52.5	-	62	74	N	#	5.4	
Selenium	mg/L	09/24/2013	N001	52.5	-	62	2.1		#	0.0032	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1070 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	52.5	-	62	2		#	0.0032		
Sodium	mg/L	09/24/2013	N001	52.5	-	62	6000		#	0.66		
Sodium	mg/L	09/24/2013	N002	52.5	-	62	5800		#	0.33		
Specific Conductance	umhos /cm	09/24/2013	N001	52.5	-	62	27880		#			
Strontium	mg/L	09/24/2013	N001	52.5	-	62	9.2		#	0.00078		
Strontium	mg/L	09/24/2013	N002	52.5	-	62	9.8		#	0.0039		
Sulfate	mg/L	09/24/2013	N001	52.5	-	62	16000		#	250		
Sulfate	mg/L	09/24/2013	N002	52.5	-	62	17000		#	250		
Temperature	C	09/24/2013	N001	52.5	-	62	18.2		#			
Turbidity	NTU	09/24/2013	N001	52.5	-	62	2.33		#			
Uranium	mg/L	09/24/2013	N001	52.5	-	62	0.075		#	0.00029		
Uranium	mg/L	09/24/2013	N002	52.5	-	62	0.071		#	0.00029		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1071 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv.		Lab Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	36.5	-	46	406		#		
Ammonium	mg/L	09/24/2013	N001	36.5	-	46	28.3		#	1.29	
Ammonium	mg/L	09/24/2013	N002	36.5	-	46	27.0		#	1.29	
Calcium	mg/L	09/24/2013	N001	36.5	-	46	430		#	0.6	
Calcium	mg/L	09/24/2013	N002	36.5	-	46	410		#	0.12	
Chloride	mg/L	09/24/2013	N001	36.5	-	46	1200		#	100	
Chloride	mg/L	09/24/2013	N002	36.5	-	46	1200		#	100	
Magnesium	mg/L	09/24/2013	N001	36.5	-	46	1100		#	0.65	
Magnesium	mg/L	09/24/2013	N002	36.5	-	46	1200		#	0.13	
Manganese	mg/L	09/24/2013	N001	36.5	-	46	1.9		#	0.0057	
Manganese	mg/L	09/24/2013	N002	36.5	-	46	1.9		#	0.0011	
Nitrate	mg/L	09/24/2013	N001	36.5	-	46	2966		#	22.1	
Nitrate	mg/L	09/24/2013	N002	36.5	-	46	3497		#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	36.5	-	46	212		#		
pH	s.u.	09/24/2013	N001	36.5	-	46	6.91		#		
Potassium	mg/L	09/24/2013	N001	36.5	-	46	77		#	5.4	
Potassium	mg/L	09/24/2013	N002	36.5	-	46	88		#	1.1	
Selenium	mg/L	09/24/2013	N001	36.5	-	46	2.4		#	0.0032	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1071 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	36.5	-	46	2.6		#	0.0016		
Sodium	mg/L	09/24/2013	N001	36.5	-	46	4500		#	0.33		
Sodium	mg/L	09/24/2013	N002	36.5	-	46	4400		#	0.66		
Specific Conductance	umhos /cm	09/24/2013	N001	36.5	-	46	23670		#			
Strontium	mg/L	09/24/2013	N001	36.5	-	46	11		#	0.0039		
Strontium	mg/L	09/24/2013	N002	36.5	-	46	11		#	0.00078		
Sulfate	mg/L	09/24/2013	N001	36.5	-	46	14000		#	250		
Sulfate	mg/L	09/24/2013	N002	36.5	-	46	14000		#	250		
Temperature	C	09/24/2013	N001	36.5	-	46	17.5		#			
Turbidity	NTU	09/24/2013	N001	36.5	-	46	4.64		#			
Uranium	mg/L	09/24/2013	N001	36.5	-	46	0.12		#	0.00029		
Uranium	mg/L	09/24/2013	N002	36.5	-	46	0.13		#	0.00015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1073 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	0001	40.5	-	50	318		FQ	#		
Ammonium	mg/L	09/25/2013	0001	40.5	-	50	20.6		FQ	#	1.29	
Calcium	mg/L	09/25/2013	0001	40.5	-	50	420		FQ	#	0.12	
Chloride	mg/L	09/25/2013	0001	40.5	-	50	1100		FQ	#	50	
Magnesium	mg/L	09/25/2013	0001	40.5	-	50	1700		FQ	#	0.13	
Manganese	mg/L	09/25/2013	0001	40.5	-	50	0.18		FQ	#	0.0011	
Nitrate	mg/L	09/25/2013	0001	40.5	-	50	3453		FQ	#	44.3	
Oxidation Reduction Potential	mV	09/25/2013	N001	40.5	-	50	234.7		FQ	#		
pH	s.u.	09/25/2013	N001	40.5	-	50	7.05		FQ	#		
Potassium	mg/L	09/25/2013	0001	40.5	-	50	130		FQ	#	1.1	
Selenium	mg/L	09/25/2013	0001	40.5	-	50	1.9		FQ	#	0.0032	
Sodium	mg/L	09/25/2013	0001	40.5	-	50	3300		FQ	#	0.66	
Specific Conductance	umhos /cm	09/25/2013	N001	40.5	-	50	22035		FQ	#		
Strontium	mg/L	09/25/2013	0001	40.5	-	50	9.8		FQ	#	0.00078	
Sulfate	mg/L	09/25/2013	0001	40.5	-	50	13000		FQ	#	120	
Temperature	C	09/25/2013	N001	40.5	-	50	15.09		FQ	#		
Turbidity	NTU	09/25/2013	N001	40.5	-	50	196		FQ	#		
Uranium	mg/L	09/25/2013	0001	40.5	-	50	0.081		FQ	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1074 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	27	-	36.5	1197		FQ	#		
Ammonium	mg/L	09/26/2013	N001	27	-	36.5	5.41		FQ	#	0.129	
Calcium	mg/L	09/26/2013	N001	27	-	36.5	500		FQ	#	0.12	
Chloride	mg/L	09/26/2013	N001	27	-	36.5	1100		FQ	#	50	
Magnesium	mg/L	09/26/2013	N001	27	-	36.5	1900		FQ	#	0.13	
Manganese	mg/L	09/26/2013	N001	27	-	36.5	1.4		FQ	#	0.0011	
Nitrate	mg/L	09/26/2013	N001	27	-	36.5	5312		FQ	#	44.3	
Oxidation Reduction Potential	mV	09/26/2013	N001	27	-	36.5	107.6		FQ	#		
pH	s.u.	09/26/2013	N001	27	-	36.5	6.56		FQ	#		
Potassium	mg/L	09/26/2013	N001	27	-	36.5	48		FQ	#	1.1	
Selenium	mg/L	09/26/2013	N001	27	-	36.5	0.38		FQ	#	0.0032	
Sodium	mg/L	09/26/2013	N001	27	-	36.5	2200		FQ	#	0.66	
Specific Conductance	umhos /cm	09/26/2013	N001	27	-	36.5	20715		FQ	#		
Strontium	mg/L	09/26/2013	N001	27	-	36.5	11		FQ	#	0.00078	
Sulfate	mg/L	09/26/2013	N001	27	-	36.5	8200		FQ	#	120	
Temperature	C	09/26/2013	N001	27	-	36.5	19.19		FQ	#		
Turbidity	NTU	09/26/2013	N001	27	-	36.5	1.53		FQ	#		
Uranium	mg/L	09/26/2013	N001	27	-	36.5	1.7		FQ	#	0.00029	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1078 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interval		Lab Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	35.5	-	45	574		#		
Ammonium	mg/L	09/24/2013	N001	35.5	-	45	1.93		#	0.129	
Ammonium	mg/L	09/24/2013	N002	35.5	-	45	1.93		#	0.129	
Calcium	mg/L	09/24/2013	N001	35.5	-	45	380		#	0.12	
Calcium	mg/L	09/24/2013	N002	35.5	-	45	370		#	0.06	
Chloride	mg/L	09/24/2013	N001	35.5	-	45	1100		#	100	
Chloride	mg/L	09/24/2013	N002	35.5	-	45	1100		#	100	
Magnesium	mg/L	09/24/2013	N001	35.5	-	45	930		#	0.13	
Magnesium	mg/L	09/24/2013	N002	35.5	-	45	900		#	0.065	
Manganese	mg/L	09/24/2013	N001	35.5	-	45	0.059		#	0.0011	
Manganese	mg/L	09/24/2013	N002	35.5	-	45	0.062		#	0.00057	
Nitrate	mg/L	09/24/2013	N001	35.5	-	45	1948		#	22.1	
Nitrate	mg/L	09/24/2013	N002	35.5	-	45	2435		#	88.5	
Oxidation Reduction Potential	mV	09/24/2013	N001	35.5	-	45	155		#		
pH	s.u.	09/24/2013	N001	35.5	-	45	7.01		#		
Potassium	mg/L	09/24/2013	N001	35.5	-	45	71		#	1.1	
Potassium	mg/L	09/24/2013	N002	35.5	-	45	80		#	0.54	
Selenium	mg/L	09/24/2013	N001	35.5	-	45	2.4		#	0.0032	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1078 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	35.5	-	45	2.8		#	0.0016		
Sodium	mg/L	09/24/2013	N001	35.5	-	45	5300		#	0.66		
Sodium	mg/L	09/24/2013	N002	35.5	-	45	5300		#	0.66		
Specific Conductance	umhos /cm	09/24/2013	N001	35.5	-	45	24595		#			
Strontium	mg/L	09/24/2013	N001	35.5	-	45	9.6		#	0.00078		
Strontium	mg/L	09/24/2013	N002	35.5	-	45	9.2		#	0.00039		
Sulfate	mg/L	09/24/2013	N001	35.5	-	45	15000		#	250		
Sulfate	mg/L	09/24/2013	N002	35.5	-	45	15000		#	250		
Temperature	C	09/24/2013	N001	35.5	-	45	16.6		#			
Turbidity	NTU	09/24/2013	N001	35.5	-	45	5.21		#			
Uranium	mg/L	09/24/2013	N001	35.5	-	45	0.12		#	0.00029		
Uranium	mg/L	09/24/2013	N002	35.5	-	45	0.13		#	0.00015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1079 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	10.5	-	20	312		F	#		
Ammonium	mg/L	09/24/2013	N001	10.5	-	20	0.129	U	F	#	0.129	
Calcium	mg/L	09/24/2013	N001	10.5	-	20	490		F	#	0.12	
Chloride	mg/L	09/24/2013	N001	10.5	-	20	230		F	#	10	
Magnesium	mg/L	09/24/2013	N001	10.5	-	20	130		F	#	0.13	
Manganese	mg/L	09/24/2013	N001	10.5	-	20	0.0033	B	FJ	#	0.0011	
Nitrate	mg/L	09/24/2013	N001	10.5	-	20	797		F	#	22.1	
Oxidation Reduction Potential	mV	09/24/2013	N001	10.5	-	20	54.7		F	#		
pH	s.u.	09/24/2013	N001	10.5	-	20	6.73		F	#		
Potassium	mg/L	09/24/2013	N001	10.5	-	20	13		F	#	1.1	
Selenium	mg/L	09/24/2013	N001	10.5	-	20	0.25		F	#	0.0016	
Sodium	mg/L	09/24/2013	N001	10.5	-	20	680		F	#	0.066	
Specific Conductance	umhos /cm	09/24/2013	N001	10.5	-	20	5614		F	#		
Strontium	mg/L	09/24/2013	N001	10.5	-	20	5.8		F	#	0.00078	
Sulfate	mg/L	09/24/2013	N001	10.5	-	20	2200		F	#	25	
Temperature	C	09/24/2013	N001	10.5	-	20	17		F	#		
Turbidity	NTU	09/24/2013	N001	10.5	-	20	4.35		F	#		
Uranium	mg/L	09/24/2013	N001	10.5	-	20	0.034		F	#	0.00015	

**General Water Quality Data by Location (USEE105) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

**REPORT DATE: 10/20/2014**

**Location: 1087 TREATMENT SYSTEM Sump from interceptor trenches in Bob Lee Wash**

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
Parameter	Units	Date	ID	Min	Max	Avg	Result	Lab	Data	QA	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/24/2013	N001	0	-	0	572		#		
Ammonia Total as N	mg/L	09/24/2013	N001	0	-	0	110		#	5	
Calcium	mg/L	09/24/2013	N001	0	-	0	370		#	0.12	
Chloride	mg/L	09/24/2013	N001	0	-	0	260		#	20	
Magnesium	mg/L	09/24/2013	N001	0	-	0	860		#	0.13	
Manganese	mg/L	09/24/2013	N001	0	-	0	0.87		#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2013	N001	0	-	0	230		#	2	
Oxidation Reduction Potential	mV	09/24/2013	N001	0	-	0	235		#		
pH	s.u.	09/24/2013	N001	0	-	0	6.77		#		
Potassium	mg/L	09/24/2013	N001	0	-	0	110		#	1.1	
Selenium	mg/L	09/24/2013	N001	0	-	0	0.033		#	0.0016	
Sodium	mg/L	09/24/2013	N001	0	-	0	1000		#	0.066	
Specific Conductance	umhos /cm	09/24/2013	N001	0	-	0	11090		#		
Strontium	mg/L	09/24/2013	N001	0	-	0	7.4		#	0.00078	
Sulfate	mg/L	09/24/2013	N001	0	-	0	6400		#	50	
Temperature	C	09/24/2013	N001	0	-	0	21		#		
Turbidity	NTU	09/24/2013	N001	0	-	0	2.16		#		
Uranium	mg/L	09/24/2013	N001	0	-	0	0.38		#	0.00015	

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**General Water Quality Data by Location (USEE105) FOR SITE SHP02, Shiprock Disposal Site (Terrace)****REPORT DATE: 10/20/2014****Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash**

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/24/2013	N001	0	-	0	1480			#		
Ammonia Total as N	mg/L	09/24/2013	N001	0	-	0	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/24/2013	N002	0	-	0	0.1	U		#	0.1	
Calcium	mg/L	09/24/2013	N001	0	-	0	370			#	0.12	
Calcium	mg/L	09/24/2013	N002	0	-	0	380			#	0.6	
Chloride	mg/L	09/24/2013	N001	0	-	0	1200			#	100	
Chloride	mg/L	09/24/2013	N002	0	-	0	1300			#	100	
Magnesium	mg/L	09/24/2013	N001	0	-	0	900			#	0.13	
Magnesium	mg/L	09/24/2013	N002	0	-	0	890			#	0.65	
Manganese	mg/L	09/24/2013	N001	0	-	0	0.7			#	0.0011	
Manganese	mg/L	09/24/2013	N002	0	-	0	0.68			#	0.0057	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2013	N001	0	-	0	240			#	5	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2013	N002	0	-	0	280			#	2	
Oxidation Reduction Potential	mV	09/24/2013	N001	0	-	0	185			#		
pH	s.u.	09/24/2013	N001	0	-	0	7.44			#		
Potassium	mg/L	09/24/2013	N001	0	-	0	70			#	1.1	
Potassium	mg/L	09/24/2013	N002	0	-	0	64			#	5.4	
Selenium	mg/L	09/24/2013	N001	0	-	0	0.63			#	0.0016	

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**General Water Quality Data by Location (USEE105) FOR SITE SHP02, Shiprock Disposal Site (Terrace)****REPORT DATE: 10/20/2014****Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash**

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	0	-	0	0.61		#	0.0016		
Sodium	mg/L	09/24/2013	N001	0	-	0	6300		#	0.66		
Sodium	mg/L	09/24/2013	N002	0	-	0	6000		#	0.33		
Specific Conductance	umhos /cm	09/24/2013	N001	0	-	0	27390		#			
Strontium	mg/L	09/24/2013	N001	0	-	0	7.8		#	0.00078		
Strontium	mg/L	09/24/2013	N002	0	-	0	7.9		#	0.0039		
Sulfate	mg/L	09/24/2013	N001	0	-	0	17000		#	250		
Sulfate	mg/L	09/24/2013	N002	0	-	0	17000		#	250		
Temperature	C	09/24/2013	N001	0	-	0	19.2		#			
Turbidity	NTU	09/24/2013	N001	0	-	0	9.12		#			
Uranium	mg/L	09/24/2013	N001	0	-	0	0.19		#	0.00015		
Uranium	mg/L	09/24/2013	N002	0	-	0	0.17		#	0.00015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1091 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				33	-	43		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	N001	33	-	43	1006		#		
Ammonium	mg/L	09/25/2013	N001	33	-	43	0.129	U	#	0.129	
Calcium	mg/L	09/25/2013	N001	33	-	43	470		#	0.6	
Chloride	mg/L	09/25/2013	N001	33	-	43	1300		#	100	
Magnesium	mg/L	09/25/2013	N001	33	-	43	2300		#	0.65	
Manganese	mg/L	09/25/2013	N001	33	-	43	1.1		#	0.0057	
Nitrate	mg/L	09/25/2013	N001	33	-	43	4206		#	44.3	
Oxidation Reduction Potential	mV	09/25/2013	N001	33	-	43	275		#		
pH	s.u.	09/25/2013	N001	33	-	43	6.57		#		
Potassium	mg/L	09/25/2013	N001	33	-	43	84		#	5.4	
Selenium	mg/L	09/25/2013	N001	33	-	43	0.68		#	0.0016	
Sodium	mg/L	09/25/2013	N001	33	-	43	4300		#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	33	-	43	25220		#		
Strontium	mg/L	09/25/2013	N001	33	-	43	15		#	0.0039	
Sulfate	mg/L	09/25/2013	N001	33	-	43	15000		#	250	
Temperature	C	09/25/2013	N001	33	-	43	18.6		#		
Turbidity	NTU	09/25/2013	N001	33	-	43	5.13		#		
Uranium	mg/L	09/25/2013	N001	33	-	43	0.11		#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1092 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				33	-	43		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/25/2013	0001	33	-	43	824		#		
Ammonium	mg/L	09/25/2013	0001	33	-	43	19.3		#	1.29	
Calcium	mg/L	09/25/2013	0001	33	-	43	480		#	0.6	
Chloride	mg/L	09/25/2013	0001	33	-	43	1200		#	100	
Magnesium	mg/L	09/25/2013	0001	33	-	43	1800		#	0.65	
Manganese	mg/L	09/25/2013	0001	33	-	43	2.2		#	0.0057	
Nitrate	mg/L	09/25/2013	0001	33	-	43	7083		#	44.3	
Oxidation Reduction Potential	mV	09/25/2013	N001	33	-	43	238		#		
pH	s.u.	09/25/2013	N001	33	-	43	6.98		#		
Potassium	mg/L	09/25/2013	0001	33	-	43	92		#	5.4	
Selenium	mg/L	09/25/2013	0001	33	-	43	1.1		#	0.0016	
Sodium	mg/L	09/25/2013	0001	33	-	43	4600		#	0.33	
Specific Conductance	umhos /cm	09/25/2013	N001	33	-	43	23500		#		
Strontium	mg/L	09/25/2013	0001	33	-	43	14		#	0.0039	
Sulfate	mg/L	09/25/2013	0001	33	-	43	15000		#	250	
Temperature	C	09/25/2013	N001	33	-	43	16.3		#		
Turbidity	NTU	09/25/2013	N001	33	-	43	14.1		#		
Uranium	mg/L	09/25/2013	0001	33	-	43	0.11		#	0.00015	

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1093R WELL a replacement extraction well for 1093

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				34	-	38		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	34	-	38	326		#		
Ammonium	mg/L	09/24/2013	N001	34	-	38	30.9		#	2.58	
Ammonium	mg/L	09/24/2013	N002	34	-	38	30.9		#	0.644	
Calcium	mg/L	09/24/2013	N001	34	-	38	620		#	0.12	
Calcium	mg/L	09/24/2013	N002	34	-	38	610		#	0.12	
Chloride	mg/L	09/24/2013	N001	34	-	38	53		#	10	
Chloride	mg/L	09/24/2013	N002	34	-	38	55		#	10	
Magnesium	mg/L	09/24/2013	N001	34	-	38	200		#	0.13	
Magnesium	mg/L	09/24/2013	N002	34	-	38	190		#	0.13	
Manganese	mg/L	09/24/2013	N001	34	-	38	4		#	0.0011	
Manganese	mg/L	09/24/2013	N002	34	-	38	3.9		#	0.0011	
Nitrate	mg/L	09/24/2013	N001	34	-	38	930		#	22.1	
Nitrate	mg/L	09/24/2013	N002	34	-	38	79.7	R	#	4.43	
Nitrate	mg/L	09/24/2013	N003	34	-	38	1062	J	#	22.1	
Nitrate	mg/L	09/24/2013	N004	34	-	38	885	J	#	4.43	
Oxidation Reduction Potential	mV	09/24/2013	N001	34	-	38	195		#		
pH	s.u.	09/24/2013	N001	34	-	38	6.47		#		
Potassium	mg/L	09/24/2013	N001	34	-	38	39		#	1.1	

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1093R WELL a replacement extraction well for 1093

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Potassium	mg/L	09/24/2013	N002	34	-	38	39		#	1.1		
Selenium	mg/L	09/24/2013	N001	34	-	38	0.046		#	0.00032		
Selenium	mg/L	09/24/2013	N002	34	-	38	0.052		#	0.00032		
Sodium	mg/L	09/24/2013	N001	34	-	38	200		#	0.066		
Sodium	mg/L	09/24/2013	N002	34	-	38	190		#	0.066		
Specific Conductance	umhos /cm	09/24/2013	N001	34	-	38	5045		#			
Strontium	mg/L	09/24/2013	N001	34	-	38	2.5		#	0.00078		
Strontium	mg/L	09/24/2013	N002	34	-	38	2.5		#	0.00078		
Sulfate	mg/L	09/24/2013	N001	34	-	38	1900		#	25		
Sulfate	mg/L	09/24/2013	N002	34	-	38	2000		#	25		
Temperature	C	09/24/2013	N001	34	-	38	19.7		#			
Turbidity	NTU	09/24/2013	N001	34	-	38	3.21		#			
Uranium	mg/L	09/24/2013	N001	34	-	38	0.068		#	0.000029		
Uranium	mg/L	09/24/2013	N002	34	-	38	0.07		#	0.000029		

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1095 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	39	-	49	392		#			
Ammonium	mg/L	09/24/2013	N001	39	-	49	528		#	12.9		
Ammonium	mg/L	09/24/2013	N002	39	-	49	541		#	25.8		
Calcium	mg/L	09/24/2013	N001	39	-	49	770		#	0.12		
Calcium	mg/L	09/24/2013	N002	39	-	49	730		#	0.12		
Chloride	mg/L	09/24/2013	N001	39	-	49	300		#	50		
Chloride	mg/L	09/24/2013	N002	39	-	49	300		#	50		
Magnesium	mg/L	09/24/2013	N001	39	-	49	1300		#	0.13		
Magnesium	mg/L	09/24/2013	N002	39	-	49	1200		#	0.13		
Manganese	mg/L	09/24/2013	N001	39	-	49	31		#	0.0011		
Manganese	mg/L	09/24/2013	N002	39	-	49	31		#	0.0011		
Nitrate	mg/L	09/24/2013	N001	39	-	49	7526		#	88.5		
Nitrate	mg/L	09/24/2013	N002	39	-	49	7526		#	88.5		
Oxidation Reduction Potential	mV	09/24/2013	N001	39	-	49	200		#			
pH	s.u.	09/24/2013	N001	39	-	49	6.5		#			
Potassium	mg/L	09/24/2013	N001	39	-	49	170		#	1.1		
Potassium	mg/L	09/24/2013	N002	39	-	49	160		#	1.1		
Selenium	mg/L	09/24/2013	N001	39	-	49	0.13		#	0.00032		

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1095 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	39	-	49	0.11		#	0.00032		
Sodium	mg/L	09/24/2013	N001	39	-	49	1200		#	0.066		
Sodium	mg/L	09/24/2013	N002	39	-	49	1100		#	0.066		
Specific Conductance	umhos /cm	09/24/2013	N001	39	-	49	18370		#			
Strontium	mg/L	09/24/2013	N001	39	-	49	8.7		#	0.00078		
Strontium	mg/L	09/24/2013	N002	39	-	49	8.2		#	0.00078		
Sulfate	mg/L	09/24/2013	N001	39	-	49	5100		#	120		
Sulfate	mg/L	09/24/2013	N002	39	-	49	5200		#	120		
Temperature	C	09/24/2013	N001	39	-	49	17.8		#			
Turbidity	NTU	09/24/2013	N001	39	-	49	3.17		#			
Uranium	mg/L	09/24/2013	N001	39	-	49	0.048		#	0.000029		
Uranium	mg/L	09/24/2013	N002	39	-	49	0.047		#	0.000029		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1096 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty	
				Min	Max	Interval		Lab Data				
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2013	N001	57.5	-	66.5	720		#			
Ammonium	mg/L	09/24/2013	N001	57.5	-	66.5	3.99		#	0.129		
Ammonium	mg/L	09/24/2013	N002	57.5	-	66.5	3.09		#	0.129		
Calcium	mg/L	09/24/2013	N001	57.5	-	66.5	360		#	0.12		
Calcium	mg/L	09/24/2013	N002	57.5	-	66.5	400		#	0.6		
Chloride	mg/L	09/24/2013	N001	57.5	-	66.5	960		#	100		
Chloride	mg/L	09/24/2013	N002	57.5	-	66.5	980		#	100		
Magnesium	mg/L	09/24/2013	N001	57.5	-	66.5	820		#	0.13		
Magnesium	mg/L	09/24/2013	N002	57.5	-	66.5	870		#	0.65		
Manganese	mg/L	09/24/2013	N001	57.5	-	66.5	0.33	J	#	0.0011		
Manganese	mg/L	09/24/2013	N002	57.5	-	66.5	0.12	B	J	#	0.0057	
Nitrate	mg/L	09/24/2013	N001	57.5	-	66.5	2745		#	22.1		
Nitrate	mg/L	09/24/2013	N002	57.5	-	66.5	2214		#	22.1		
Oxidation Reduction Potential	mV	09/24/2013	N001	57.5	-	66.5	195		#			
pH	s.u.	09/24/2013	N001	57.5	-	66.5	7.02		#			
Potassium	mg/L	09/24/2013	N001	57.5	-	66.5	72		#	1.1		
Potassium	mg/L	09/24/2013	N002	57.5	-	66.5	71		#	5.4		
Selenium	mg/L	09/24/2013	N001	57.5	-	66.5	2.4		#	0.0016		

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1096 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2013	N002	57.5	-	66.5	2.4		#	0.0016		
Sodium	mg/L	09/24/2013	N001	57.5	-	66.5	5300		#	0.66		
Sodium	mg/L	09/24/2013	N002	57.5	-	66.5	5500		#	0.33		
Specific Conductance	umhos /cm	09/24/2013	N001	57.5	-	66.5	25270		#			
Strontium	mg/L	09/24/2013	N001	57.5	-	66.5	8.4		#	0.00078		
Strontium	mg/L	09/24/2013	N002	57.5	-	66.5	9.2		#	0.0039		
Sulfate	mg/L	09/24/2013	N001	57.5	-	66.5	15000		#	250		
Sulfate	mg/L	09/24/2013	N002	57.5	-	66.5	15000		#	250		
Temperature	C	09/24/2013	N001	57.5	-	66.5	16		#			
Turbidity	NTU	09/24/2013	N001	57.5	-	66.5	1.2		#			
Uranium	mg/L	09/24/2013	N001	57.5	-	66.5	0.082		#	0.00015		
Uranium	mg/L	09/24/2013	N002	57.5	-	66.5	0.084		#	0.00015		

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: MW1 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	0001	-	1705		FQ	#		
Ammonium	mg/L	09/27/2013	0001	-	1.29		FQ	#	0.129	
Calcium	mg/L	09/27/2013	0001	-	67		FQ	#	0.12	
Chloride	mg/L	09/27/2013	0001	-	5500		FQ	#	100	
Magnesium	mg/L	09/27/2013	0001	-	33		FQ	#	0.13	
Manganese	mg/L	09/27/2013	0001	-	0.09		FQ	#	0.0011	
Nitrate	mg/L	09/27/2013	0001	-	1.77		FQ	#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	-	185.6		FQ	#		
pH	s.u.	09/27/2013	N001	-	6.84		FQ	#		
Potassium	mg/L	09/27/2013	0001	-	25		FQ	#	1.1	
Selenium	mg/L	09/27/2013	0001	-	0.00037		FQ	#	0.000032	
Sodium	mg/L	09/27/2013	0001	-	4300		FQ	#	0.66	
Specific Conductance	umhos /cm	09/27/2013	N001	-	19076		FQ	#		
Strontium	mg/L	09/27/2013	0001	-	8.4		FQ	#	0.00078	
Sulfate	mg/L	09/27/2013	0001	-	2400		FQ	#	120	
Temperature	C	09/27/2013	N001	-	14.79		FQ	#		
Turbidity	NTU	09/27/2013	N001	-	146		FQ	#		
Uranium	mg/L	09/27/2013	0001	-	0.00045		FQ	#	0.0000029	

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:

## **Surface Water Quality Data Floodplain Locations**

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	120		#		
Ammonium	mg/L	10/02/2013	0001	0.129	U	#	0.129	
Ammonium	mg/L	10/02/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	10/02/2013	0001	64		#	0.012	
Calcium	mg/L	10/02/2013	N001	70		#	0.012	
Chloride	mg/L	10/02/2013	0001	12		#	1	
Chloride	mg/L	10/02/2013	N001	13		#	1	
Magnesium	mg/L	10/02/2013	0001	9.1		#	0.013	
Magnesium	mg/L	10/02/2013	N001	11		#	0.013	
Manganese	mg/L	10/02/2013	0001	0.003	B	#	0.00011	
Manganese	mg/L	10/02/2013	N001	0.23		#	0.00011	
Nitrate	mg/L	10/02/2013	0001	2.48	N	J	#	0.0443
Nitrate	mg/L	10/02/2013	N001	2.39		#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	89		#		
pH	s.u.	10/02/2013	N001	8.21		#		
Potassium	mg/L	10/02/2013	0001	2.1		#	0.11	
Potassium	mg/L	10/02/2013	N001	3.9		#	0.11	
Selenium	mg/L	10/02/2013	0001	0.00049		#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

Parameter	Units	Sample Date	ID	Result	Qualifiers	Lab	QA	Detection Limit	Uncertainty
Selenium	mg/L	10/02/2013	N001	0.001		#		0.000032	
Sodium	mg/L	10/02/2013	0001	27		#		0.0066	
Sodium	mg/L	10/02/2013	N001	29		#		0.0066	
Specific Conductance	umhos/cm	10/02/2013	N001	632		#			
Strontium	mg/L	10/02/2013	0001	0.77		#		0.000078	
Strontium	mg/L	10/02/2013	N001	0.83		#		0.000078	
Sulfate	mg/L	10/02/2013	0001	130		#		2.5	
Sulfate	mg/L	10/02/2013	N001	130		#		2.5	
Temperature	C	10/02/2013	N001	16.15		#			
Turbidity	NTU	10/02/2013	N001	484		#			
Uranium	mg/L	10/02/2013	0001	0.0015		#		0.0000029	
Uranium	mg/L	10/02/2013	N001	0.0019		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0655 SURFACE LOCATION Ditch in NW end of floodplain

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	406			#		
Ammonium	mg/L	10/02/2013	N001	0.129	U		#	0.129	
Calcium	mg/L	10/02/2013	N001	270			#	0.12	
Chloride	mg/L	10/02/2013	N001	100			#	10	
Magnesium	mg/L	10/02/2013	N001	77			#	0.13	
Manganese	mg/L	10/02/2013	N001	1			#	0.0011	
Nitrate	mg/L	10/02/2013	N001	1.46			#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	114.2			#		
pH	s.u.	10/02/2013	N001	7.52			#		
Potassium	mg/L	10/02/2013	N001	20			#	1.1	
Selenium	mg/L	10/02/2013	N001	0.0052			#	0.000032	
Sodium	mg/L	10/02/2013	N001	1200			#	0.066	
Specific Conductance	umhos/cm	10/02/2013	N001	6576			#		
Strontium	mg/L	10/02/2013	N001	11			#	0.00078	
Sulfate	mg/L	10/02/2013	N001	3400			#	25	
Temperature	C	10/02/2013	N001	21.29			#		
Turbidity	NTU	10/02/2013	N001	14.9			#		
Uranium	mg/L	10/02/2013	N001	0.045			#	0.000029	

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0888 SURFACE LOCATION S. bank San Juan River, just below Chaco River confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	118			#		
Ammonium	mg/L	09/26/2013	0001	0.129	U		#	0.129	
Ammonium	mg/L	09/26/2013	N001	0.129	U		#	0.129	
Calcium	mg/L	09/26/2013	0001	46			#	0.012	
Calcium	mg/L	09/26/2013	N001	110			#	0.012	
Chloride	mg/L	09/26/2013	0001	8.6			#	1	
Chloride	mg/L	09/26/2013	N001	9.2			#	0.2	
Magnesium	mg/L	09/26/2013	0001	5.1			#	0.013	
Magnesium	mg/L	09/26/2013	N001	25			#	0.013	
Manganese	mg/L	09/26/2013	0001	0.005			#	0.00011	
Manganese	mg/L	09/26/2013	N001	2.7			#	0.00011	
Nitrate	mg/L	09/26/2013	0001	1.90			#	0.0443	
Nitrate	mg/L	09/26/2013	N001	2.26			#	0.0443	
Oxidation Reduction Potential	mV	09/26/2013	N001	81.2			#		
pH	s.u.	09/26/2013	N001	8.21			#		
Potassium	mg/L	09/26/2013	0001	2.6			#	0.11	
Potassium	mg/L	09/26/2013	N001	14			#	0.11	
Selenium	mg/L	09/26/2013	0001	0.00072			#	0.000032	

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

REPORT DATE: 05/23/2014

Location: 0888 SURFACE LOCATION S. bank San Juan River, just below Chaco River confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/26/2013	N001	0.0063		#		0.000032	
Sodium	mg/L	09/26/2013	0001	34		#		0.0066	
Sodium	mg/L	09/26/2013	N001	40		#		0.0066	
Specific Conductance	umhos/cm	09/26/2013	N001	470		#			
Strontium	mg/L	09/26/2013	0001	0.64		#		0.000078	
Strontium	mg/L	09/26/2013	N001	1.4		#		0.000078	
Sulfate	mg/L	09/26/2013	0001	99		#		2.5	
Sulfate	mg/L	09/26/2013	N001	100		#		2.5	
Temperature	C	09/26/2013	N001	16.21		#			
Turbidity	NTU	09/26/2013	N001	1000	>	#			
Uranium	mg/L	09/26/2013	0001	0.0017		#		0.0000029	
Uranium	mg/L	09/26/2013	N001	0.0056		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	118		#		
Ammonium	mg/L	09/27/2013	0001	0.129	U	#	0.129	
Ammonium	mg/L	09/27/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	09/27/2013	0001	55		#	0.012	
Calcium	mg/L	09/27/2013	N001	67		#	0.012	
Chloride	mg/L	09/27/2013	0001	10		#	1	
Chloride	mg/L	09/27/2013	N001	9.8		#	1	
Magnesium	mg/L	09/27/2013	0001	7.5		#	0.013	
Magnesium	mg/L	09/27/2013	N001	13		#	0.013	
Manganese	mg/L	09/27/2013	0001	0.0016	B	#	0.00011	
Manganese	mg/L	09/27/2013	N001	0.59		#	0.00011	
Nitrate	mg/L	09/27/2013	0001	2.39		#	0.0443	
Nitrate	mg/L	09/27/2013	N001	1.95		#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	79.6		#		
pH	s.u.	09/27/2013	N001	8.62		#		
Potassium	mg/L	09/27/2013	0001	1.9		#	0.11	
Potassium	mg/L	09/27/2013	N001	5.4		#	0.11	
Selenium	mg/L	09/27/2013	0001	0.00062		#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

Parameter	Units	Sample Date	ID	Result	Qualifiers	Lab	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/27/2013	N001	0.0018		#		0.000032	
Sodium	mg/L	09/27/2013	0001	23		#		0.0066	
Sodium	mg/L	09/27/2013	N001	23		#		0.0066	
Specific Conductance	umhos/cm	09/27/2013	N001	505		#			
Strontium	mg/L	09/27/2013	0001	0.69		#		0.000078	
Strontium	mg/L	09/27/2013	N001	0.82		#		0.000078	
Sulfate	mg/L	09/27/2013	0001	110		#		2.5	
Sulfate	mg/L	09/27/2013	N001	110		#		2.5	
Temperature	C	09/27/2013	N001	13.09		#			
Turbidity	NTU	09/27/2013	N001	1000	>		#		
Uranium	mg/L	09/27/2013	0001	0.0016		#		0.0000029	
Uranium	mg/L	09/27/2013	N001	0.0024		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	122			#		
Ammonium	mg/L	10/02/2013	0001	0.129	U		#	0.129	
Ammonium	mg/L	10/02/2013	N001	0.129	U		#	0.129	
Calcium	mg/L	10/02/2013	0001	62			#	0.012	
Calcium	mg/L	10/02/2013	N001	64			#	0.012	
Chloride	mg/L	10/02/2013	0001	13			#	0.2	
Chloride	mg/L	10/02/2013	N001	14			#	0.2	
Magnesium	mg/L	10/02/2013	0001	9.1			#	0.013	
Magnesium	mg/L	10/02/2013	N001	10			#	0.013	
Manganese	mg/L	10/02/2013	0001	0.007			#	0.00011	
Manganese	mg/L	10/02/2013	N001	0.18			#	0.00011	
Nitrate	mg/L	10/02/2013	0001	0.345	R		#	0.0443	
Nitrate	mg/L	10/02/2013	0003	2.39	J		#	0.0443	
Nitrate	mg/L	10/02/2013	N001	2.66			#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	103.5			#		
pH	s.u.	10/02/2013	N001	8.22			#		
Potassium	mg/L	10/02/2013	0001	2			#	0.11	
Potassium	mg/L	10/02/2013	N001	3.2			#	0.11	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Selenium	mg/L	10/02/2013	0001	0.00051	#		0.000032	
Selenium	mg/L	10/02/2013	N001	0.00073	#		0.000032	
Sodium	mg/L	10/02/2013	0001	28	#		0.0066	
Sodium	mg/L	10/02/2013	N001	27	#		0.0066	
Specific Conductance	umhos/cm	10/02/2013	N001	550	#			
Strontium	mg/L	10/02/2013	0001	0.76	#		0.000078	
Strontium	mg/L	10/02/2013	N001	0.78	#		0.000078	
Sulfate	mg/L	10/02/2013	0001	140	#		2.5	
Sulfate	mg/L	10/02/2013	N001	140	#		2.5	
Temperature	C	10/02/2013	N001	16.15	#			
Turbidity	NTU	10/02/2013	N001	445	#			
Uranium	mg/L	10/02/2013	0001	0.0014	#		0.0000029	
Uranium	mg/L	10/02/2013	N001	0.0017	#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 491 bridge

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	0002	94		#			
Ammonium	mg/L	09/27/2013	0001	0.129	U	#	0.129		
Ammonium	mg/L	09/27/2013	N001	0.129	U	#	0.129		
Calcium	mg/L	09/27/2013	0001	52		#	0.012		
Calcium	mg/L	09/27/2013	N001	65		#	0.012		
Chloride	mg/L	09/27/2013	0001	10		#	0.2		
Chloride	mg/L	09/27/2013	N001	10		#	0.2		
Magnesium	mg/L	09/27/2013	0001	7		#	0.013		
Magnesium	mg/L	09/27/2013	N001	11		#	0.013		
Manganese	mg/L	09/27/2013	0001	0.0023	B	#	0.00011		
Manganese	mg/L	09/27/2013	N001	0.54		#	0.00011		
Nitrate	mg/L	09/27/2013	0001	2.04		#	0.0443		
Nitrate	mg/L	09/27/2013	N001	1.77		#	0.0443		
Oxidation Reduction Potential	mV	09/27/2013	N001	70		#			
pH	s.u.	09/27/2013	N001	8.17		#			
Potassium	mg/L	09/27/2013	0001	1.8		#	0.11		
Potassium	mg/L	09/27/2013	N001	4.7		#	0.11		
Selenium	mg/L	09/27/2013	0001	0.00032		#	0.000032		

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 491 bridge

Parameter	Units	Sample Date	ID	Result	Qualifiers	Lab	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/27/2013	N001	0.0015		#		0.000032	
Sodium	mg/L	09/27/2013	0001	21		#		0.0066	
Sodium	mg/L	09/27/2013	N001	22		#		0.0066	
Specific Conductance	umhos/cm	09/27/2013	N001	460		#			
Strontium	mg/L	09/27/2013	0001	0.67		#		0.000078	
Strontium	mg/L	09/27/2013	N001	0.81		#		0.000078	
Sulfate	mg/L	09/27/2013	0001	100		#		2.5	
Sulfate	mg/L	09/27/2013	N001	110		#		2.5	
Temperature	C	09/27/2013	N001	13.3		#			
Turbidity	NTU	09/27/2013	N001	1000		#			
Uranium	mg/L	09/27/2013	0001	0.0013		#		0.0000029	
Uranium	mg/L	09/27/2013	N001	0.0022		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	109		#		
Ammonium	mg/L	09/27/2013	0001	0.129	U	#	0.129	
Ammonium	mg/L	09/27/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	09/27/2013	0001	52		#	0.012	
Calcium	mg/L	09/27/2013	N001	66		#	0.012	
Chloride	mg/L	09/27/2013	0001	10		#	0.2	
Chloride	mg/L	09/27/2013	N001	10		#	0.2	
Magnesium	mg/L	09/27/2013	0001	7.1		#	0.013	
Magnesium	mg/L	09/27/2013	N001	11		#	0.013	
Manganese	mg/L	09/27/2013	0001	0.0024	B	#	0.00011	
Manganese	mg/L	09/27/2013	N001	0.6		#	0.00011	
Nitrate	mg/L	09/27/2013	0001	1.95		#	0.0443	
Nitrate	mg/L	09/27/2013	N001	1.95		#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	90.04		#		
pH	s.u.	09/27/2013	N001	8.17		#		
Potassium	mg/L	09/27/2013	0001	1.8		#	0.11	
Potassium	mg/L	09/27/2013	N001	4.1		#	0.11	
Selenium	mg/L	09/27/2013	0001	0.00043		#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	Lab	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/27/2013	N001	0.0014		#		0.000032	
Sodium	mg/L	09/27/2013	0001	20		#		0.0066	
Sodium	mg/L	09/27/2013	N001	21		#		0.0066	
Specific Conductance	umhos/cm	09/27/2013	N001	467		#			
Strontium	mg/L	09/27/2013	0001	0.66		#		0.000078	
Strontium	mg/L	09/27/2013	N001	0.78		#		0.000078	
Sulfate	mg/L	09/27/2013	0001	110		#		2.5	
Sulfate	mg/L	09/27/2013	N001	110		#		2.5	
Temperature	C	09/27/2013	N001	13.88		#			
Turbidity	NTU	09/27/2013	N001	971		#			
Uranium	mg/L	09/27/2013	0001	0.0013		#		0.0000029	
Uranium	mg/L	09/27/2013	N001	0.002		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	114			#		
Ammonium	mg/L	09/27/2013	0001	0.129	U		#	0.129	
Ammonium	mg/L	09/27/2013	N001	0.129	U		#	0.129	
Calcium	mg/L	09/27/2013	0001	54			#	0.012	
Calcium	mg/L	09/27/2013	N001	65			#	0.012	
Chloride	mg/L	09/27/2013	0001	10			#	0.2	
Chloride	mg/L	09/27/2013	N001	10			#	0.2	
Magnesium	mg/L	09/27/2013	0001	7.4			#	0.013	
Magnesium	mg/L	09/27/2013	N001	11			#	0.013	
Manganese	mg/L	09/27/2013	0001	0.007			#	0.00011	
Manganese	mg/L	09/27/2013	N001	0.53			#	0.00011	
Nitrate	mg/L	09/27/2013	0001	1.99			#	0.0443	
Nitrate	mg/L	09/27/2013	N001	1.82			#	0.0443	
Oxidation Reduction Potential	mV	09/27/2013	N001	110			#		
pH	s.u.	09/27/2013	N001	8.27			#		
Potassium	mg/L	09/27/2013	0001	1.9			#	0.11	
Potassium	mg/L	09/27/2013	N001	4.1			#	0.11	
Selenium	mg/L	09/27/2013	0001	0.00044			#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/27/2013	N001	0.0012		#		0.000032	
Sodium	mg/L	09/27/2013	0001	21		#		0.0066	
Sodium	mg/L	09/27/2013	N001	21		#		0.0066	
Specific Conductance	umhos/cm	09/27/2013	N001	503		#			
Strontium	mg/L	09/27/2013	0001	0.69		#		0.000078	
Strontium	mg/L	09/27/2013	N001	0.78		#		0.000078	
Sulfate	mg/L	09/27/2013	0001	110		#		2.5	
Sulfate	mg/L	09/27/2013	N001	100		#		2.5	
Temperature	C	09/27/2013	N001	13.39		#			
Turbidity	NTU	09/27/2013	N001	1000	>	#			
Uranium	mg/L	09/27/2013	0001	0.0014		#		0.0000029	
Uranium	mg/L	09/27/2013	N001	0.0021		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	118		#		
Ammonium	mg/L	10/02/2013	0001	0.129	U	#	0.129	
Ammonium	mg/L	10/02/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	10/02/2013	0001	60		#	0.012	
Calcium	mg/L	10/02/2013	N001	66		#	0.012	
Chloride	mg/L	10/02/2013	0001	12		#	1	
Chloride	mg/L	10/02/2013	N001	12		#	1	
Magnesium	mg/L	10/02/2013	0001	8.8		#	0.013	
Magnesium	mg/L	10/02/2013	N001	11		#	0.013	
Manganese	mg/L	10/02/2013	0001	0.0027	B	#	0.00011	
Manganese	mg/L	10/02/2013	N001	0.21		#	0.00011	
Nitrate	mg/L	10/02/2013	0001	2.61		#	0.0443	
Nitrate	mg/L	10/02/2013	N001	2.57		#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	114.1		#		
pH	s.u.	10/02/2013	N001	8.27		#		
Potassium	mg/L	10/02/2013	0001	2		#	0.11	
Potassium	mg/L	10/02/2013	N001	3.7		#	0.11	
Selenium	mg/L	10/02/2013	0001	0.00048		#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	Lab	QA	Detection Limit	Uncertainty
Selenium	mg/L	10/02/2013	N001	0.0009		#		0.000032	
Sodium	mg/L	10/02/2013	0001	27		#		0.0066	
Sodium	mg/L	10/02/2013	N001	28		#		0.0066	
Specific Conductance	umhos/cm	10/02/2013	N001	557		#			
Strontium	mg/L	10/02/2013	0001	0.75		#		0.000078	
Strontium	mg/L	10/02/2013	N001	0.81		#		0.000078	
Sulfate	mg/L	10/02/2013	0001	130		#		2.5	
Sulfate	mg/L	10/02/2013	N001	130		#		2.5	
Temperature	C	10/02/2013	N001	17.89		#			
Turbidity	NTU	10/02/2013	N001	535		#			
Uranium	mg/L	10/02/2013	0001	0.0015		#		0.0000029	
Uranium	mg/L	10/02/2013	N001	0.0019		#		0.0000029	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	10/02/2013	N001	120		#		
Ammonium	mg/L	10/02/2013	0001	0.129	U	#	0.129	
Ammonium	mg/L	10/02/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	10/02/2013	0001	61		#	0.012	
Calcium	mg/L	10/02/2013	N001	66		#	0.012	
Chloride	mg/L	10/02/2013	0001	13		#	1	
Chloride	mg/L	10/02/2013	N001	13		#	1	
Magnesium	mg/L	10/02/2013	0001	8.5		#	0.013	
Magnesium	mg/L	10/02/2013	N001	12		#	0.013	
Manganese	mg/L	10/02/2013	0001	0.62		#	0.00011	
Manganese	mg/L	10/02/2013	N001	0.38		#	0.00011	
Nitrate	mg/L	10/02/2013	0001	2.61		#	0.0443	
Nitrate	mg/L	10/02/2013	N001	2.70		#	0.0443	
Oxidation Reduction Potential	mV	10/02/2013	N001	104.3		#		
pH	s.u.	10/02/2013	N001	7.96		#		
Potassium	mg/L	10/02/2013	0001	2.2		#	0.11	
Potassium	mg/L	10/02/2013	N001	5.8		#	0.11	
Selenium	mg/L	10/02/2013	0001	0.00047		#	0.000032	

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

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REPORT DATE: 05/23/2014

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	10/02/2013	N001	0.00091		#		0.000032	
Sodium	mg/L	10/02/2013	0001	28		#		0.0066	
Sodium	mg/L	10/02/2013	N001	28		#		0.0066	
Specific Conductance	umhos/cm	10/02/2013	N001	560		#			
Strontium	mg/L	10/02/2013	0001	0.77		#		0.000078	
Strontium	mg/L	10/02/2013	N001	0.81		#		0.000078	
Sulfate	mg/L	10/02/2013	0001	130		#		2.5	
Sulfate	mg/L	10/02/2013	N001	130		#		2.5	
Temperature	C	10/02/2013	N001	19.69		#			
Turbidity	NTU	10/02/2013	N001	512		#			
Uranium	mg/L	10/02/2013	0001	0.0014		#		0.0000029	
Uranium	mg/L	10/02/2013	N001	0.0019		#		0.0000029	

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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.

## **Surface Water Quality Data Terrace Locations**

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0662 SURFACE LOCATION Bob Lee Wash, just below outflow ditch confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	80		#			
Ammonium	mg/L	09/27/2013	N001	0.129	U	#	0.129		
Calcium	mg/L	09/27/2013	N001	110		#	0.06		
Chloride	mg/L	09/27/2013	N001	56		#	10		
Magnesium	mg/L	09/27/2013	N001	15		#	0.065		
Manganese	mg/L	09/27/2013	N001	0.17		#	0.00057		
Nitrate	mg/L	09/27/2013	N001	0.930		#	0.0443		
Oxidation Reduction Potential	mV	09/27/2013	N001	101.6		#			
pH	s.u.	09/27/2013	N001	8.29		#			
Potassium	mg/L	09/27/2013	N001	12		#	0.54		
Selenium	mg/L	09/27/2013	N001	0.00024		#	0.000032		
Sodium	mg/L	09/27/2013	N001	740		#	0.033		
Specific Conductance	umhos/cm	09/27/2013	N001	4213		#			
Strontium	mg/L	09/27/2013	N001	11		#	0.00039		
Sulfate	mg/L	09/27/2013	N001	2000		#	25		
Temperature	C	09/27/2013	N001	17.85		#			
Turbidity	NTU	09/27/2013	N001	35.4		#			
Uranium	mg/L	09/27/2013	N001	0.00021		#	0.0000029		

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 0889 SURFACE LOCATION Many Devils Wash, just below knickpoint

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	418		#			
Ammonium	mg/L	09/26/2013	0001	0.129	U	#	0.129		
Calcium	mg/L	09/26/2013	0001	320		#	0.6		
Chloride	mg/L	09/26/2013	0001	840		#	50		
Magnesium	mg/L	09/26/2013	0001	620		#	0.65		
Manganese	mg/L	09/26/2013	0001	0.069	B	#	0.0057		
Nitrate	mg/L	09/26/2013	0001	1727		#	22.1		
Oxidation Reduction Potential	mV	09/26/2013	N001	191		#			
pH	s.u.	09/26/2013	N001	7.91		#			
Potassium	mg/L	09/26/2013	0001	51		#	5.4		
Selenium	mg/L	09/26/2013	0001	0.87		#	0.0016		
Sodium	mg/L	09/26/2013	0001	4000		#	0.33		
Specific Conductance	umhos/cm	09/26/2013	N001	19595		#			
Strontium	mg/L	09/26/2013	0001	6.3		#	0.0039		
Sulfate	mg/L	09/26/2013	0001	11000		#	120		
Temperature	C	09/26/2013	N001	12.2		#			
Turbidity	NTU	09/26/2013	N001	22.2		#			
Uranium	mg/L	09/26/2013	0001	0.097		#	0.00015		

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	770			#		
Ammonium	mg/L	09/27/2013	N001	23.2			#	1.29	
Calcium	mg/L	09/27/2013	N001	520			#	1.2	
Chloride	mg/L	09/27/2013	N001	3400			#	200	
Magnesium	mg/L	09/27/2013	N001	10000			#	1.3	
Manganese	mg/L	09/27/2013	N001	0.36	B		#	0.011	
Nitrate	mg/L	09/27/2013	N001	13724			#	88.5	
Oxidation Reduction Potential	mV	09/27/2013	N001	163.1			#		
pH	s.u.	09/27/2013	N001	8.18			#		
Potassium	mg/L	09/27/2013	N001	1000			#	11	
Selenium	mg/L	09/27/2013	N001	5.1			#	0.0065	
Sodium	mg/L	09/27/2013	N001	25000			#	6.6	
Specific Conductance	umhos/cm	09/27/2013	N001	78889			#		
Strontium	mg/L	09/27/2013	N001	17			#	0.0078	
Sulfate	mg/L	09/27/2013	N001	65000			#	500	
Temperature	C	09/27/2013	N001	12.46			#		
Turbidity	NTU	09/27/2013	N001	9.07			#		
Uranium	mg/L	09/27/2013	N001	7.4			#	0.00058	

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1219 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	309		#			
Ammonium	mg/L	09/26/2013	N001	0.129	U	#	0.129		
Calcium	mg/L	09/26/2013	N001	540		#	0.12		
Chloride	mg/L	09/26/2013	N001	26		#	5		
Magnesium	mg/L	09/26/2013	N001	160		#	0.013		
Manganese	mg/L	09/26/2013	N001	0.0086		#	0.00011		
Nitrate	mg/L	09/26/2013	N001	23.9		#	0.443		
Oxidation Reduction Potential	mV	09/26/2013	N001	109.2		#			
pH	s.u.	09/26/2013	N001	7.78		#			
Potassium	mg/L	09/26/2013	N001	16		#	0.11		
Selenium	mg/L	09/26/2013	N001	0.028		#	0.00032		
Sodium	mg/L	09/26/2013	N001	170		#	0.066		
Specific Conductance	umhos/cm	09/26/2013	N001	3523		#			
Strontium	mg/L	09/26/2013	N001	6.5		#	0.000078		
Sulfate	mg/L	09/26/2013	N001	2100		#	12		
Temperature	C	09/26/2013	N001	19.58		#			
Turbidity	NTU	09/26/2013	N001	4.94		#			
Uranium	mg/L	09/26/2013	N001	0.027		#	0.000029		

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1220 SURFACE LOCATION Seep at the Eagles Nest Arroyo east of town

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/26/2013	N001	251		#			
Ammonium	mg/L	09/26/2013	0001	0.129	U	#	0.129		
Calcium	mg/L	09/26/2013	0001	350		#	0.012		
Chloride	mg/L	09/26/2013	0001	34		#	4		
Magnesium	mg/L	09/26/2013	0001	92		#	0.013		
Manganese	mg/L	09/26/2013	0001	0.19		#	0.00011		
Nitrate	mg/L	09/26/2013	0001	2.12		#	0.0443		
Oxidation Reduction Potential	mV	09/26/2013	N001	101.1		#			
pH	s.u.	09/26/2013	N001	7.39		#			
Potassium	mg/L	09/26/2013	0001	4.6		#	0.11		
Selenium	mg/L	09/26/2013	0001	0.019		#	0.00016		
Sodium	mg/L	09/26/2013	0001	120		#	0.0066		
Specific Conductance	umhos/cm	09/26/2013	N001	2302		#			
Strontium	mg/L	09/26/2013	0001	4.1		#	0.000078		
Sulfate	mg/L	09/26/2013	0001	1200		#	10		
Temperature	C	09/26/2013	N001	15.96		#			
Turbidity	NTU	09/26/2013	N001	353		#			
Uranium	mg/L	09/26/2013	0001	0.021		#	0.000015		

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**

REPORT DATE: 05/23/2014

Location: 1221 SURFACE LOCATION Many Devils Wash, 10 feet up from the river.

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/27/2013	N001	336		#		
Ammonium	mg/L	09/27/2013	N001	0.129	U	#	0.129	
Calcium	mg/L	09/27/2013	N001	280		#	0.12	
Chloride	mg/L	09/27/2013	N001	530		#	40	
Magnesium	mg/L	09/27/2013	N001	380		#	0.13	
Manganese	mg/L	09/27/2013	N001	0.59		#	0.0011	
Nitrate	mg/L	09/27/2013	N001	885		#	22.1	
Oxidation Reduction Potential	mV	09/27/2013	N001	138.5		#		
pH	s.u.	09/27/2013	N001	8.17		#		
Potassium	mg/L	09/27/2013	N001	31		#	1.1	
Selenium	mg/L	09/27/2013	N001	0.49		#	0.0032	
Sodium	mg/L	09/27/2013	N001	2300		#	0.33	
Specific Conductance	umhos/cm	09/27/2013	N001	21804		#		
Strontium	mg/L	09/27/2013	N001	4.4		#	0.00078	
Sulfate	mg/L	09/27/2013	N001	7000		#	100	
Temperature	C	09/27/2013	N001	11.88		#		
Turbidity	NTU	09/27/2013	N001	1000	>	#		
Uranium	mg/L	09/27/2013	N001	0.052		#	0.00029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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## **Equipment Blank Data**

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**BLANKS REPORT**

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

RIN: 13095615

Report Date: 12/09/2013

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Data	Detection Limit	Uncertainty	Sample Type
Ammonium	SHP01	0999	10/02/2013	N001	mg/L	0.1	U		0.1		E
Calcium	SHP01	0999	10/02/2013	N001	mg/L	0.012	U		0.012		E
Chloride	SHP01	0999	10/02/2013	N001	mg/L	0.2	U		0.2		E
Magnesium	SHP01	0999	10/02/2013	N001	mg/L	0.013	U		0.013		E
Manganese	SHP01	0999	10/02/2013	N001	mg/L	0.00055	B	U	0.00011		E
Nitrate	SHP01	0999	10/02/2013	N001	mg/L	0.04	U		0.04		E
Potassium	SHP01	0999	10/02/2013	N001	mg/L	0.11	U		0.11		E
Selenium	SHP01	0999	10/02/2013	N001	mg/L	0.000032	U		0.000032		E
Sodium	SHP01	0999	10/02/2013	N001	mg/L	0.43	B	U	0.0066		E
Strontium	SHP01	0999	10/02/2013	N001	mg/L	0.000078	U		0.000078		E
Sulfate	SHP01	0999	10/02/2013	N001	mg/L	0.5	U		0.5		E
Uranium	SHP01	0999	10/02/2013	N001	mg/L	0.000003	B		0.0000029		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 Floodplain Locations**

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**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 12/09/2013**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0608		4893.35	09/25/2013	10:55:44	5.13	4888.22
0610		4895.7	09/25/2013	14:05:46	9.31	4886.39
0611		4895.62	09/25/2013	14:25:50	9.19	4886.43
0612		4893.35	09/25/2013	14:55:30	6.52	4886.83
0614		4892.79	09/25/2013	16:05:58	7.79	4885
0615		4892.23	09/26/2013	08:55:34	8.49	4883.74
0618		4891.51	09/26/2013	11:45:11	6.92	4884.59
0619		4892.19	09/26/2013	15:50:45	6.95	4885.24
0622		4890.06	09/26/2013	14:25:40	4.2	4885.86
0626		4891.4	10/01/2013	18:10:54	5.41	4885.99
0628		4889.87	10/01/2013	17:40:50	4.11	4885.76
0766		4892.55	09/27/2013	10:45:24	9.97	4882.58
0768		4892.33	09/26/2013	15:25:19	6.65	4885.68
0773		4894.87	09/25/2013	13:20:12	8.08	4886.79
0775		4892.2	09/26/2013	16:40:25	7.92	4884.28
0779		4893.86	09/26/2013	12:35:14	9.48	4884.38
0782R		4884.75	09/27/2013	10:55:10	7	4877.75
0783R		4884.09	09/27/2013	10:35:44	7.34	4876.75
0792		4891.52	09/26/2013	14:45:11	6.72	4884.8
0793		4891.05	09/26/2013	11:05:11	6.75	4884.3
0797		4908.04	09/26/2013	13:25:24	8.35	4899.69
0798		4891.55	09/26/2013	16:15:12	7.18	4884.37
0850	B	4907.51	09/26/2013	14:00:18	7.52	4899.99
0853		4891.41	09/26/2013	10:10:13	6.78	4884.63
0854		4890.09	09/27/2013	08:45:17	7.54	4882.55
0857		4894.02	09/26/2013	12:15:09	9.27	4884.75
1008		4890.8	09/27/2013	08:15:10	7.69	4883.11
1009		4892.1	09/26/2013	09:35:52	7.8	4884.3

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 12/09/2013**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
1105	O	4892.4	09/26/2013	09:10:47	8.39	4884.01
1111		4889.85	09/25/2013	17:00:55	7.62	4882.23
1112		4890.01	09/25/2013	16:30:43	7.34	4882.67
1113		4892	09/25/2013	11:40:04	4.59	4887.41
1114		4892.86	09/25/2013	10:30:09	3.93	4888.93
1115		4895.59	09/25/2013	10:10:36	6.39	4889.2
1117		4896.7	09/24/2013	15:50:13	6.92	4889.78
1128		4897.63	09/24/2013	15:10:08	7.97	4889.66
1132		4894.5	09/24/2013	16:20:29	4.91	4889.59
1134		4895.88	09/24/2013	16:50:13	6.4	4889.48
1135		4890.71	09/27/2013	11:10:33	7.55	4883.16
1136		4892.47	09/26/2013	13:05:09	8.29	4884.18
1137		4891.3	09/27/2013	09:55:43	8.46	4882.84
1138		4891.48	09/27/2013	09:30:24	8.72	4882.76
1139		4890.44	09/27/2013	09:05:07	7.73	4882.71
1140		4891.53	09/26/2013	08:15:07	8.78	4882.75
1141		4892.48	09/26/2013	10:35:04	9	4883.48
1142		4894.34	09/25/2013	15:20:54	8.19	4886.15

FLOW CODES: B BACKGROUND  
N UNKNOWN

C CROSS GRADIENT  
O ON SITE

D DOWN GRADIENT  
U UPGRADE

F OFF SITE

## **Static Water Level Data Terrace Locations**

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**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 12/09/2013**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0600		4955.87	09/26/2013	15:40:19	33.9	4921.97	
0602		4956.89	09/25/2013	15:30:01	22.05	4934.84	
0603		4978.62	09/26/2013	11:45:01	31.84	4946.78	
0604		4995.87	09/25/2013	16:40:09	56.12	4939.75	
0725		4908.58	09/25/2013	11:35:45	13.81	4894.77	
0726		4939.95	09/25/2013	12:15:17	25.77	4914.18	
0727		4940.65	09/25/2013	11:05:07	7.01	4933.64	
0728		4964.46	09/25/2013	10:25:14	24.58	4939.88	
0730		4977.75	09/26/2013	08:25:43	35.15	4942.6	
0731		4972.15	09/26/2013	12:10:30	24.27	4947.88	
0812		5004.98	09/25/2013	17:00:01	61.24	4943.74	
0813		4984.37	09/25/2013	16:20:35	43.4	4940.97	
0814		4968.12	09/25/2013	09:45:13	32.22	4935.9	
0815		4953.67	09/25/2013	08:25:08	26.42	4927.25	
0816		4937.92	09/24/2013	16:50:47			B
0817		4957.34	09/25/2013	14:50:16	18.9	4938.44	
0819		4955.76	09/25/2013	16:00:54	20.19	4935.57	
0820		4954.95	09/26/2013	16:05:53	150.4	4804.55	
0821		4955.46	09/26/2013	09:33:00			D
0822		4954.42	09/26/2013	16:15:33	140.24	4814.18	
0823		4957.65	09/26/2013	14:32:00			D
0824		4958.21	09/26/2013	14:55:31	191.1	4767.11	
0825		4958.68	09/26/2013	14:50:52	148.97	4809.71	
0826		4950.73	09/25/2013	13:50:27	17.31	4933.42	
0827		4946.92	09/27/2013	09:20:41	26.34	4920.58	
0828		4957.43	09/25/2013	14:25:48	19.06	4938.37	
0829		4941.94	09/26/2013	14:02:00			D

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 12/09/2013**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0830		4960.77	09/26/2013	14:00:25	16.2	4944.57	
0832		4964.65	09/24/2013	15:27:00			D
0833		4940.52	09/24/2013	14:20:00	29.57	4910.95	
0835		4930.48	09/24/2013	13:50:21	20.88	4909.6	
0836		4901.74	09/24/2013	11:20:14	32.19	4869.55	
0837		4889.54	09/24/2013	10:30:03	23.66	4865.88	
0838		4937.7	09/24/2013	14:45:42	30.88	4906.82	
0843		4883.56	09/24/2013	09:55:01	15.44	4868.12	
0844		4948.46	09/24/2013	15:15:18	32.38	4916.08	
0848		4949.91	09/24/2013	12:20:38	45.14	4904.77	
1002		4957.63	09/26/2013	15:20:00			D
1003		4957.84	09/26/2013	15:19:00			D
1004		4957.61	09/26/2013	15:16:00			D
1007		4962.01	09/26/2013	13:20:31	44.65	4917.36	
1011		4945.96	09/27/2013	09:34:00			D
1048		4921.35	09/26/2013	10:10:44	5.12	4916.23	
1049		4923.89	09/26/2013	09:30:34	6.76	4917.13	
1057		4984.83	10/01/2013	17:05:40	35.59	4949.24	
1058		4973.58	09/26/2013	11:15:15	28.43	4945.15	
1059		4970.52	09/26/2013	10:50:11	23.69	4946.83	
1060		4970.62	09/24/2013	16:26:00			D
1068		4927.97	09/25/2013	13:00:43	7.48	4920.49	
1069		4922.62	09/25/2013	12:35:36	4.38	4918.24	
1073		4991.43	09/25/2013	08:55:49	49.71	4941.72	
1074		4959.52	09/26/2013	13:05:58	34.66	4924.86	
1079		4925.22	09/24/2013	13:10:43	20.94	4904.28	
1120		4890.98	09/24/2013	11:00:00			D
1122		4893.62	09/24/2013	11:01:00			D

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**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
REPORT DATE: 12/09/2013

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date Time		Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
DM7		4974.44	10/01/2013 16:45:00				D
MW1		4955.64	09/27/2013 08:55:05		52.11	4903.53	

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

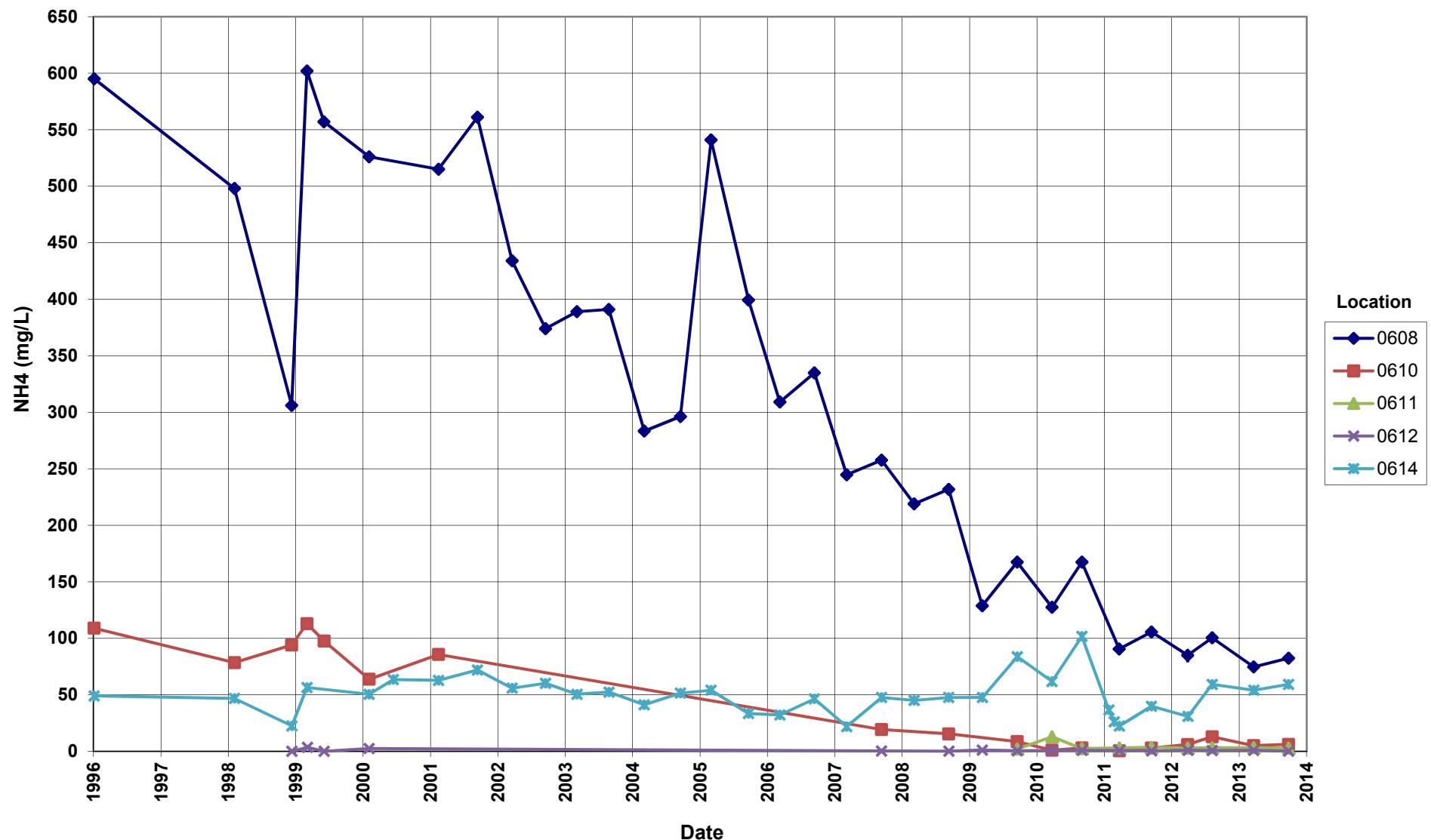
WATER LEVEL FLAGS: D Dry      F Flowing      B Below top of pump

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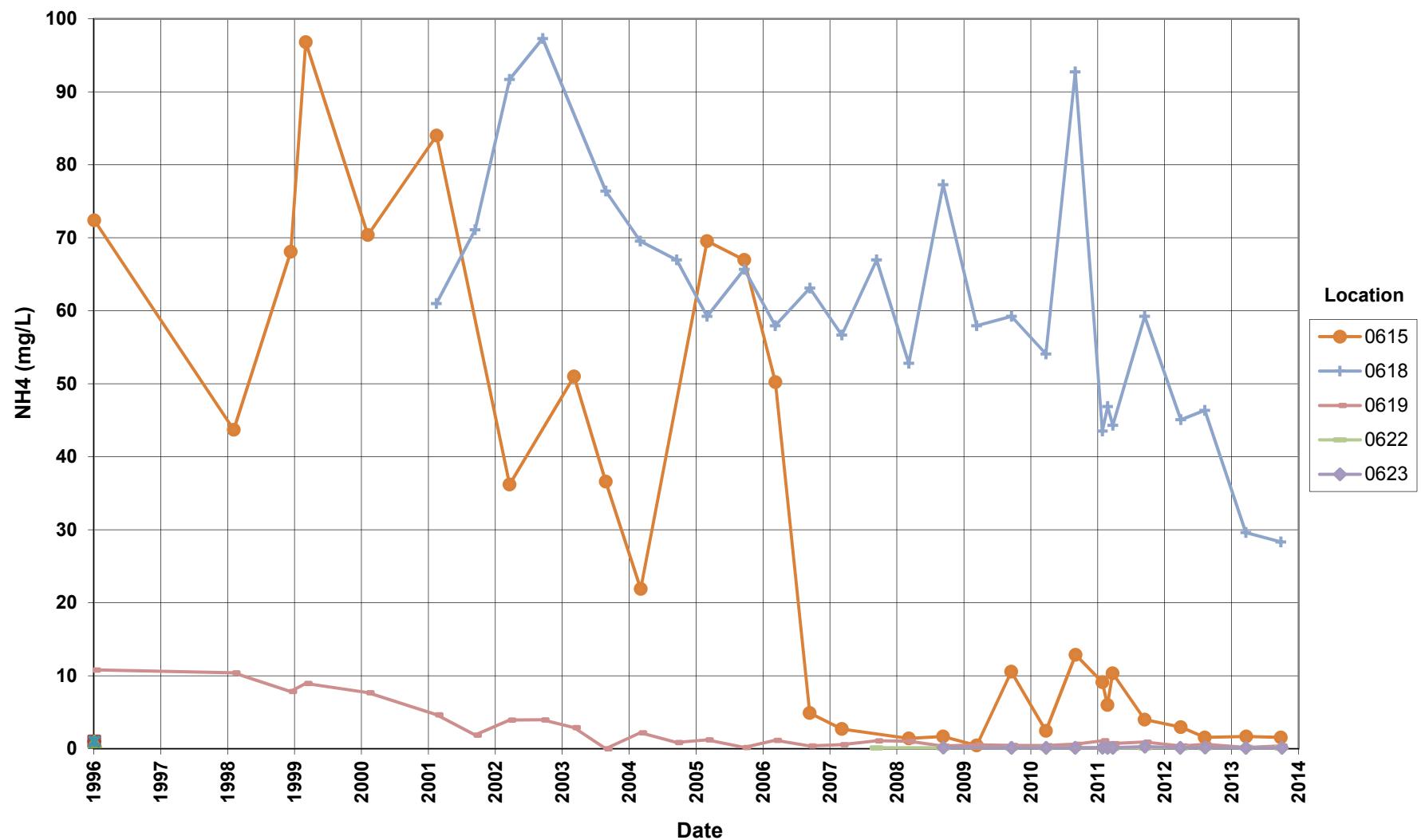
## **Time-Concentration Graphs Floodplain Groundwater Locations**

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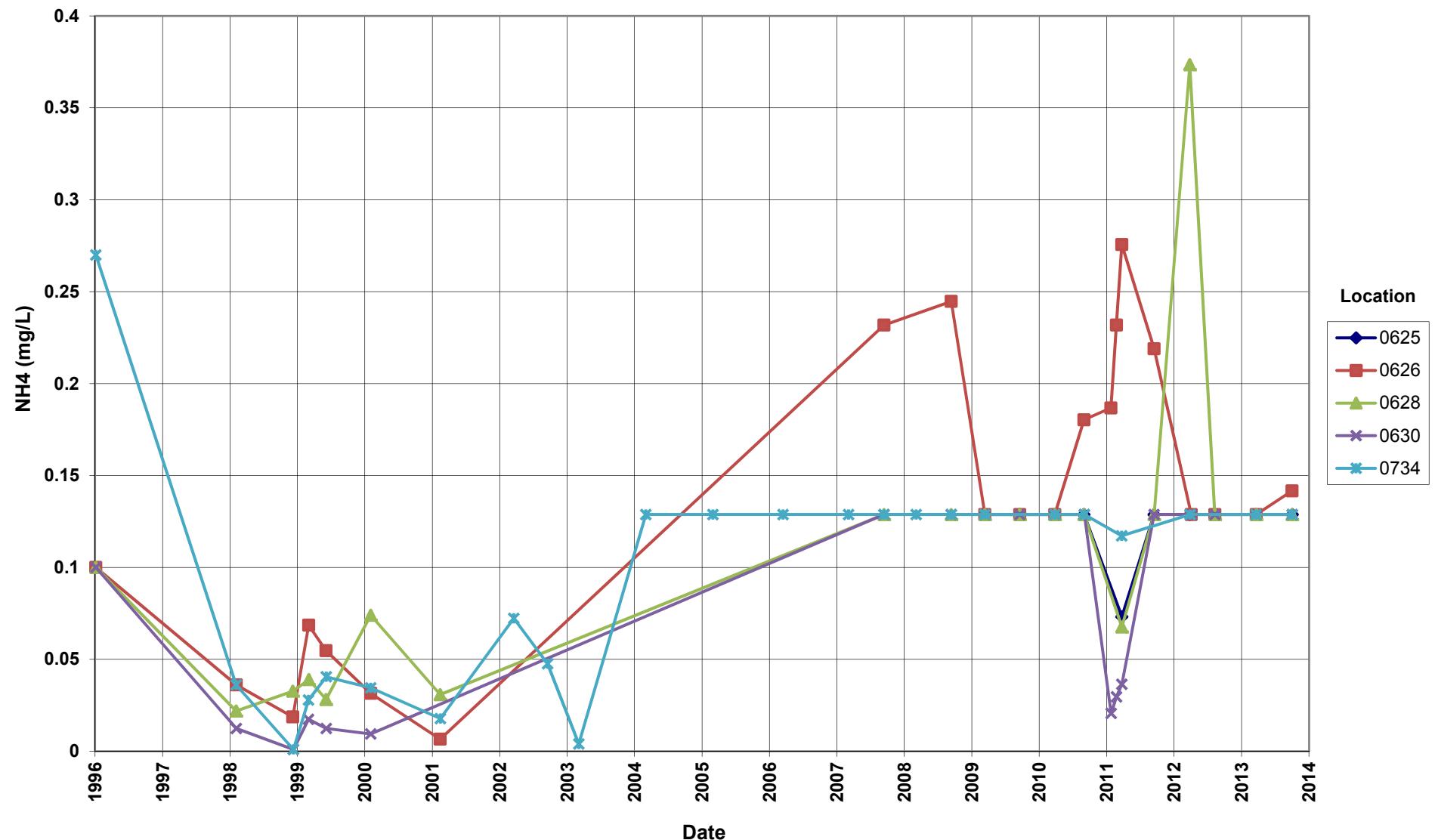
### Shiprock Disposal Site (Floodplain) Ammonium Concentration



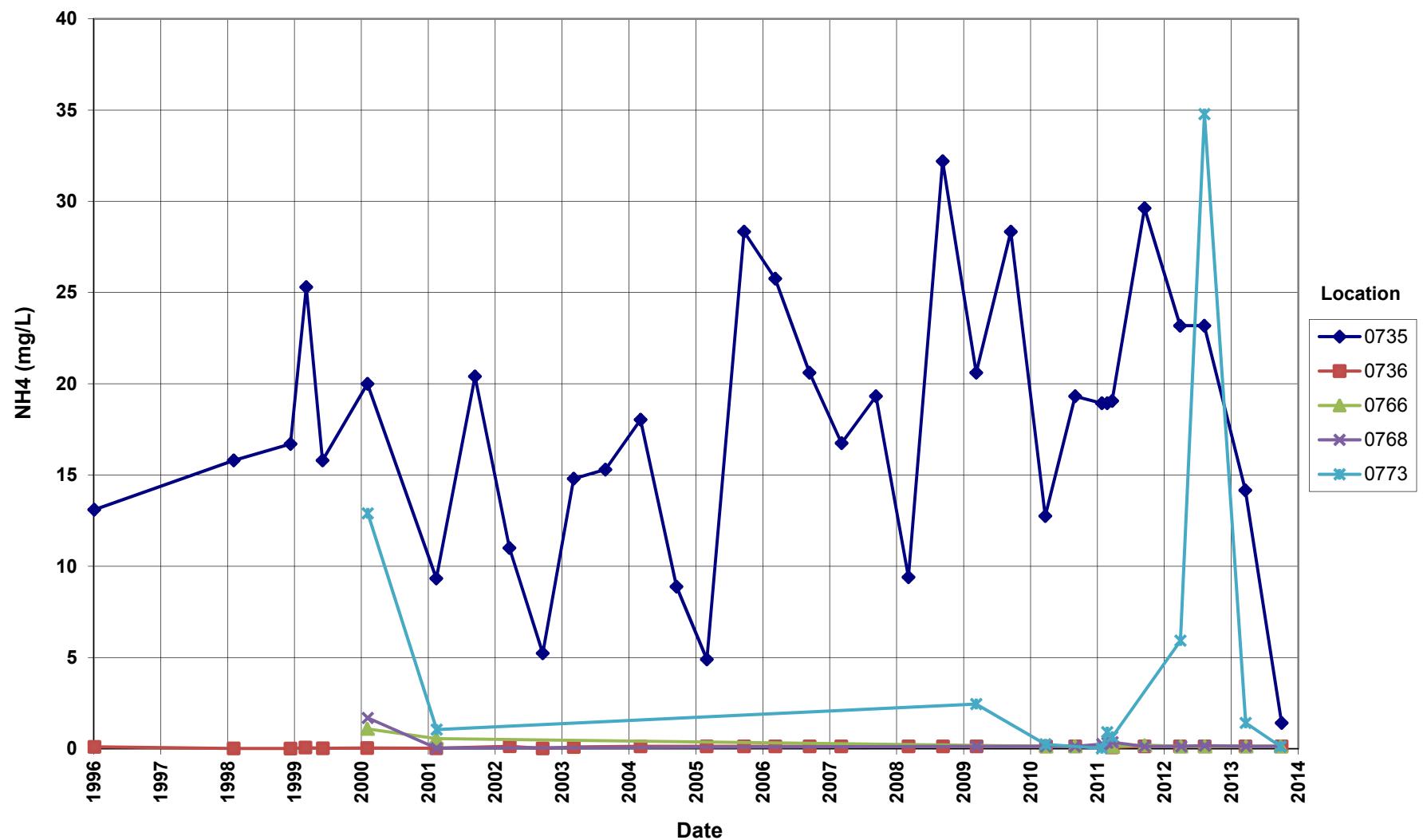
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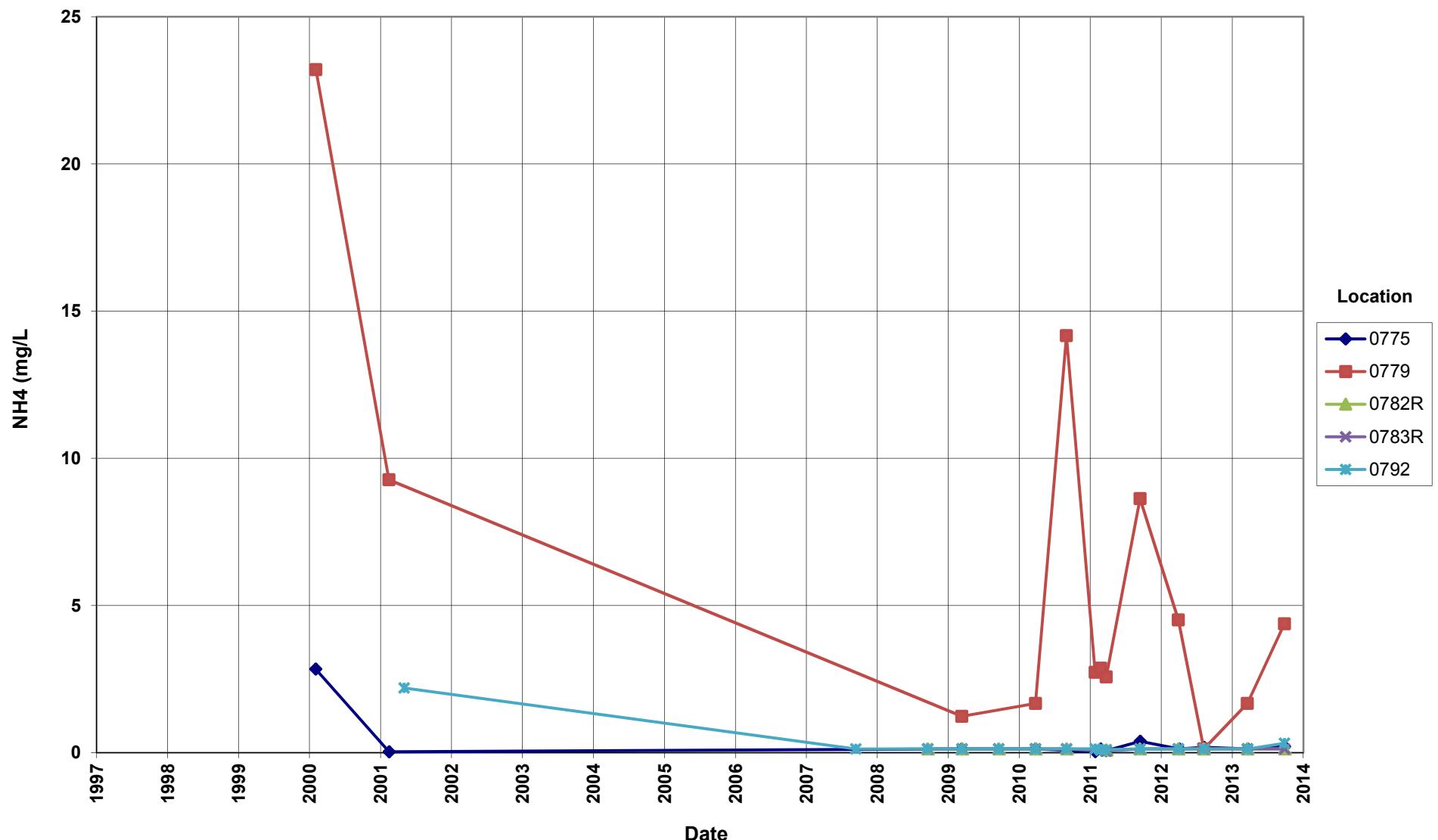
### Shiprock Disposal Site (Floodplain) Ammonium Concentration



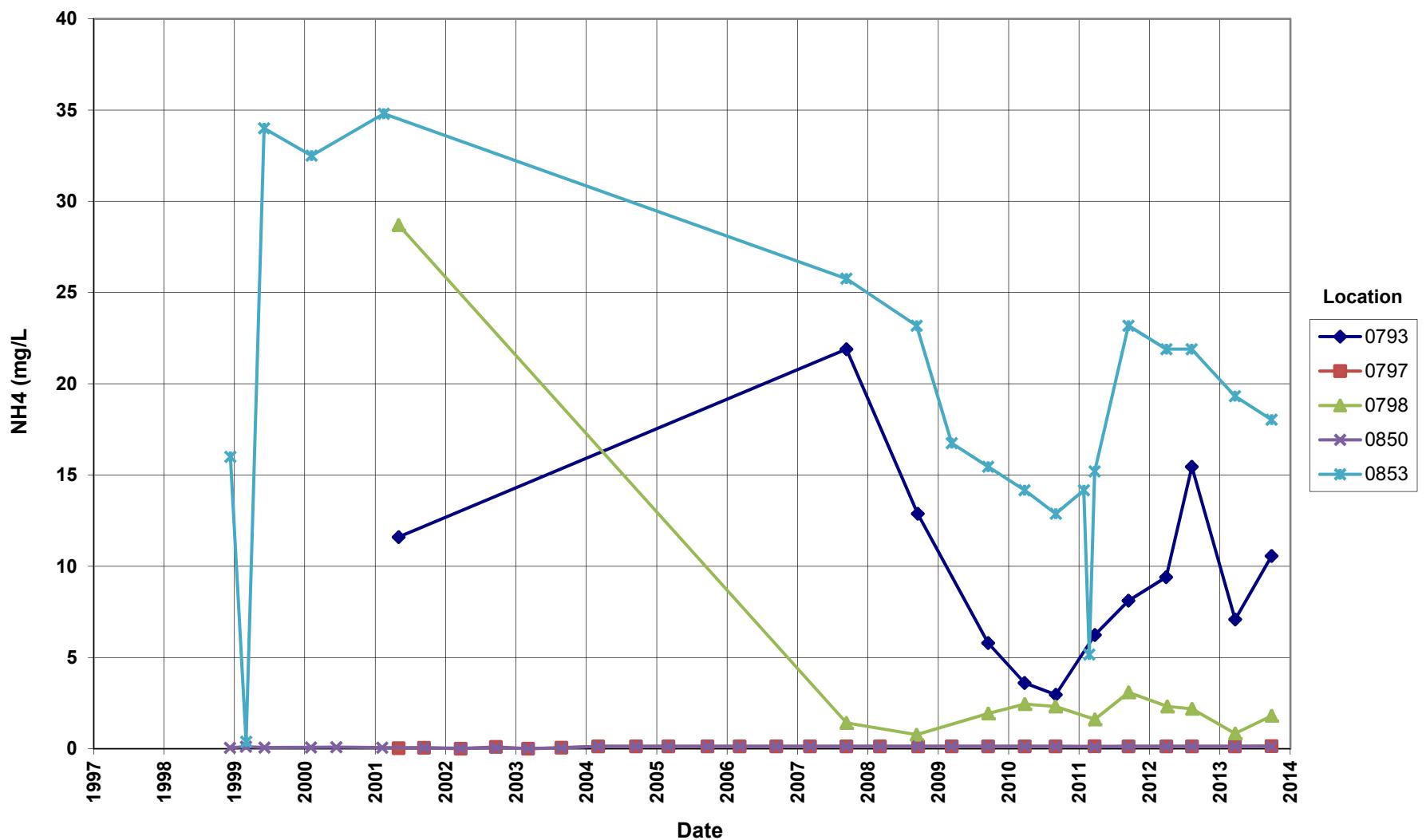
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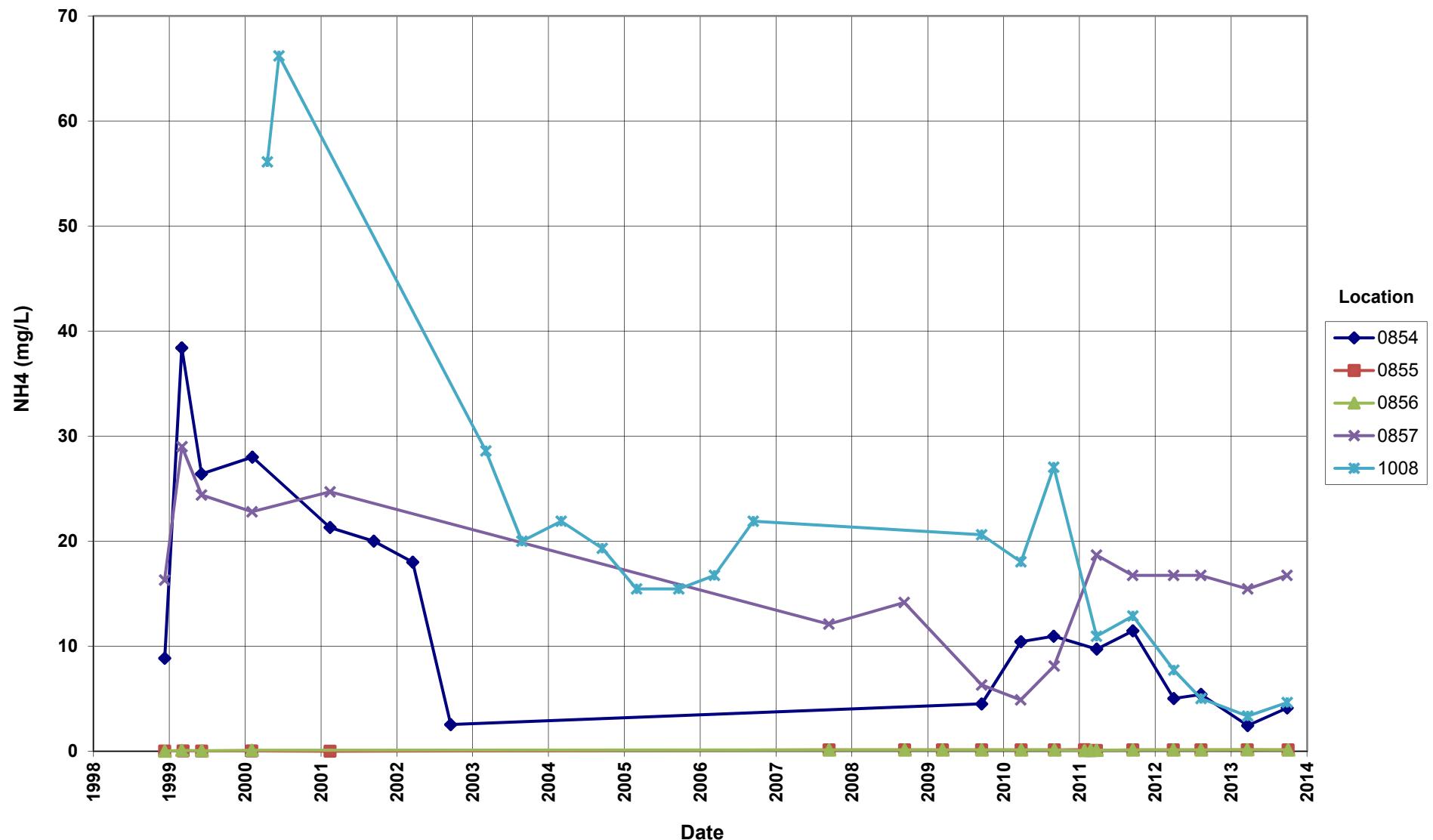
### Shiprock Disposal Site (Floodplain) Ammonium Concentration



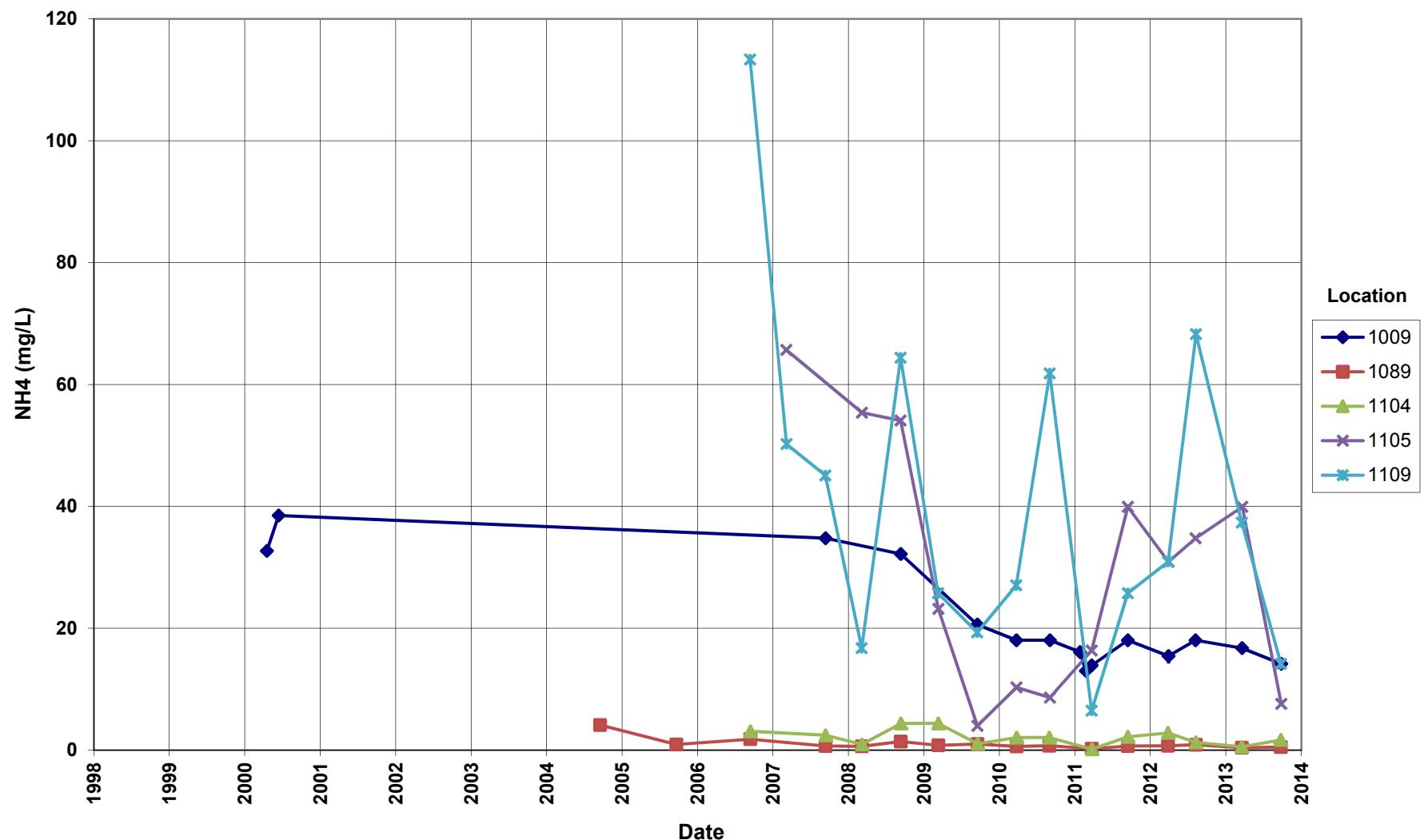
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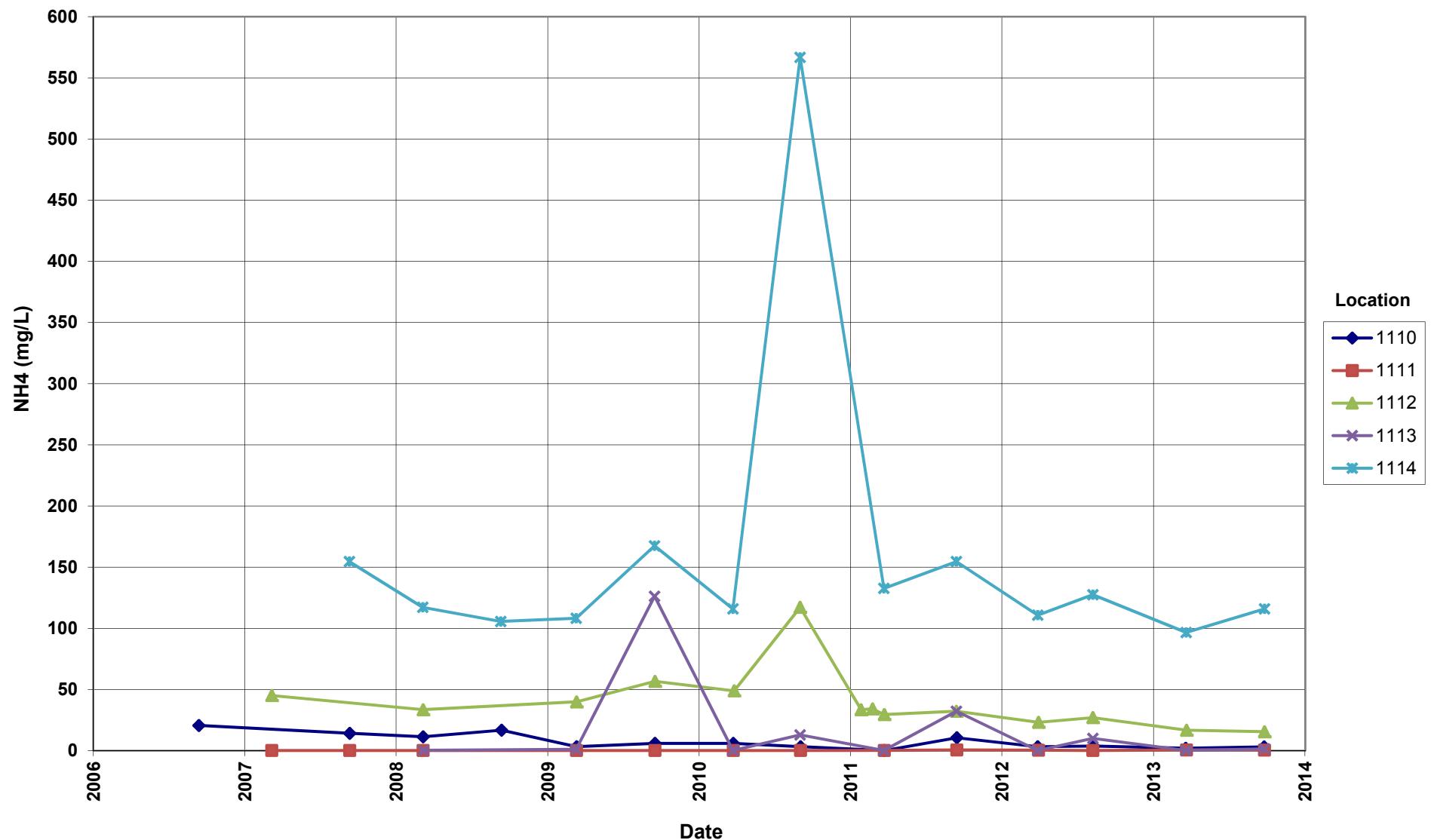
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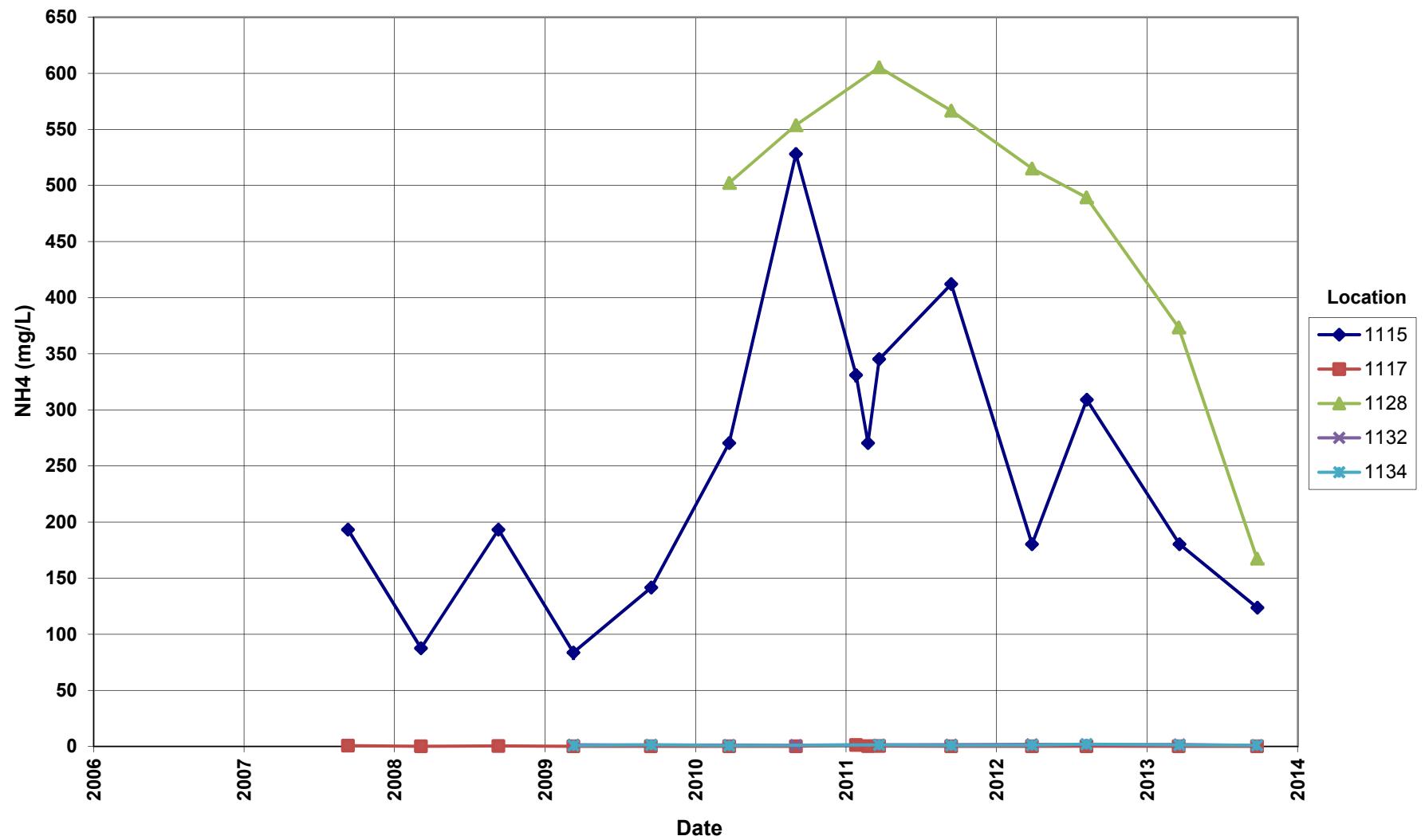
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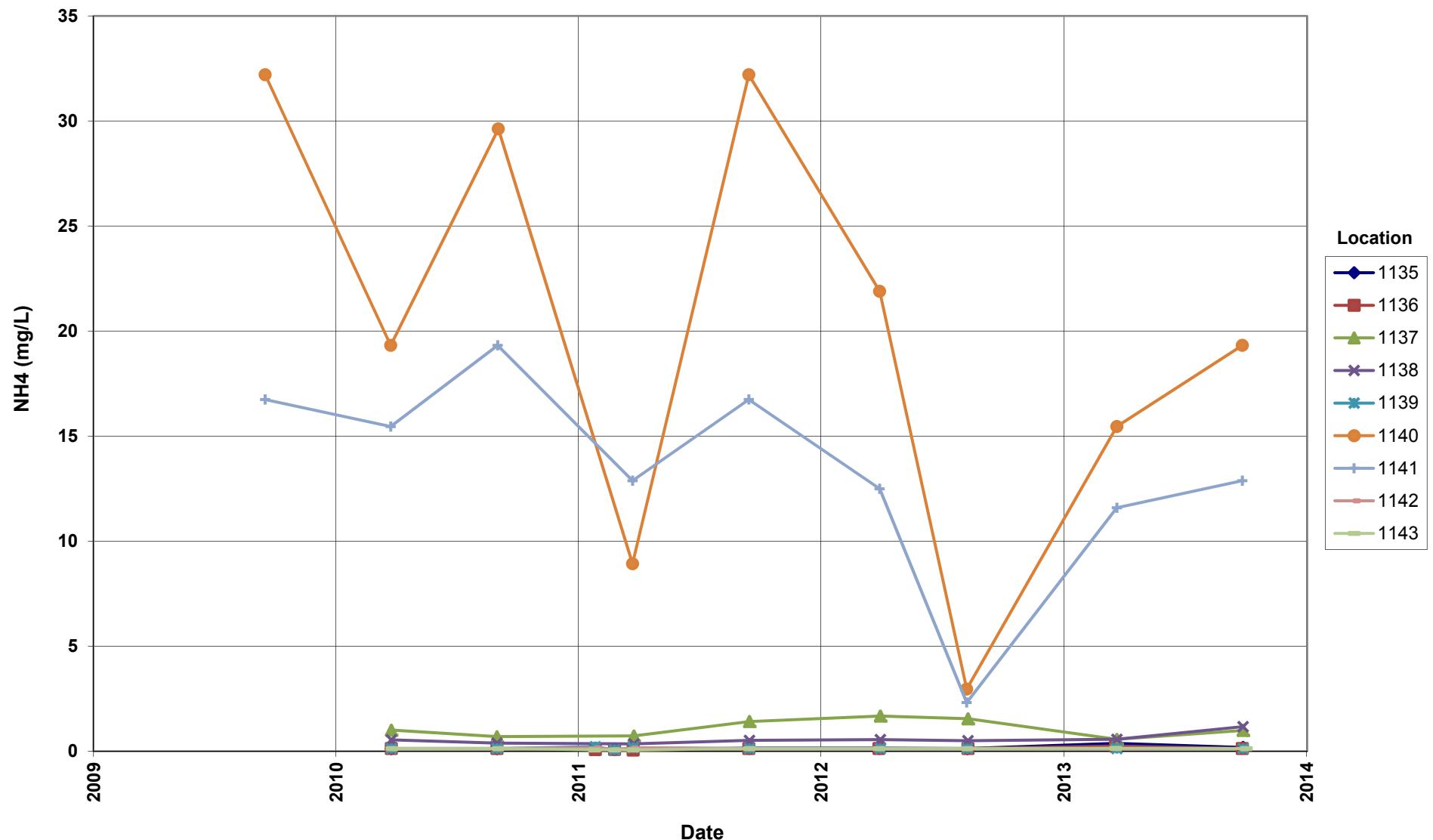
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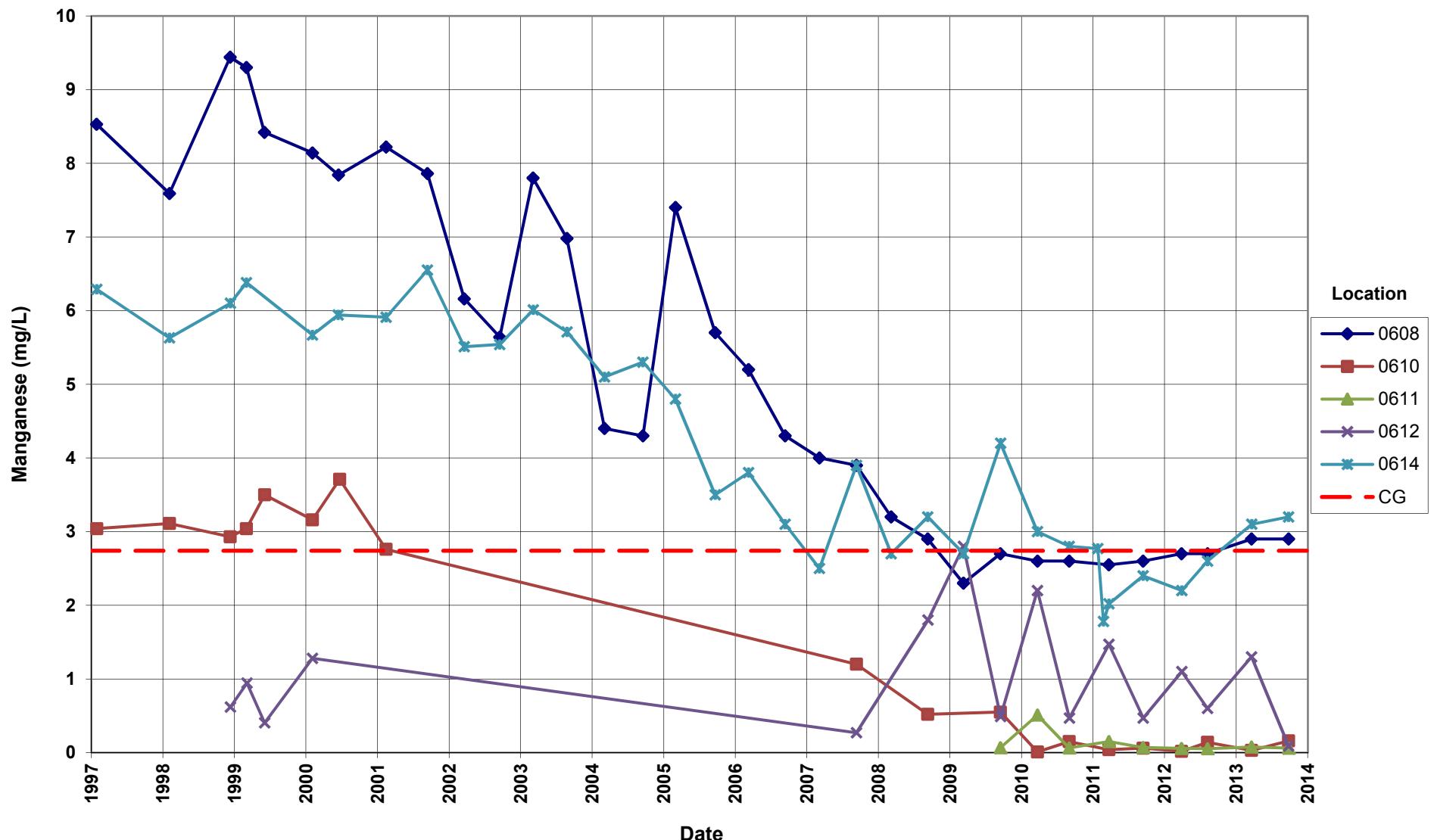
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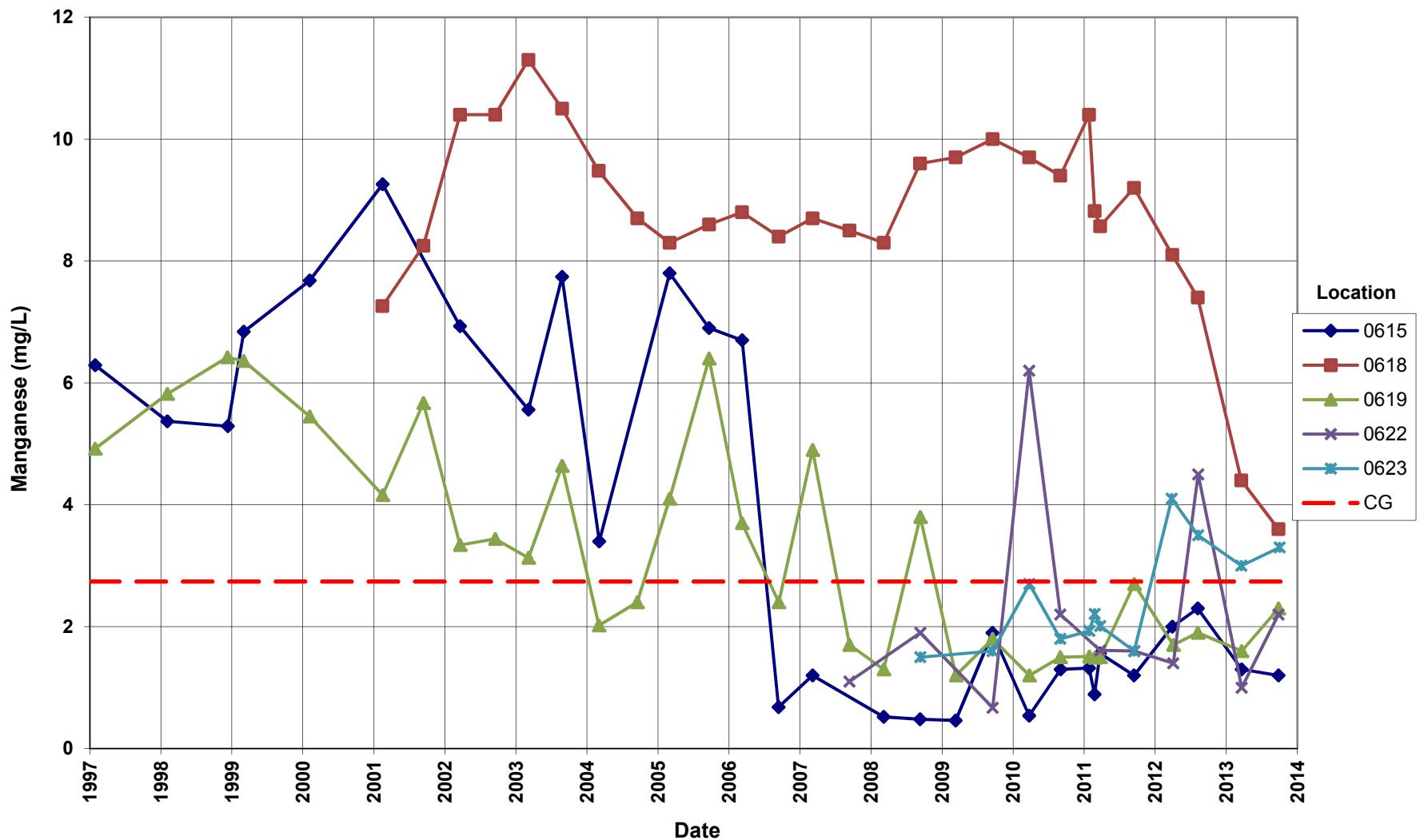
### Shiprock Disposal Site (Floodplain) Ammonium Concentration



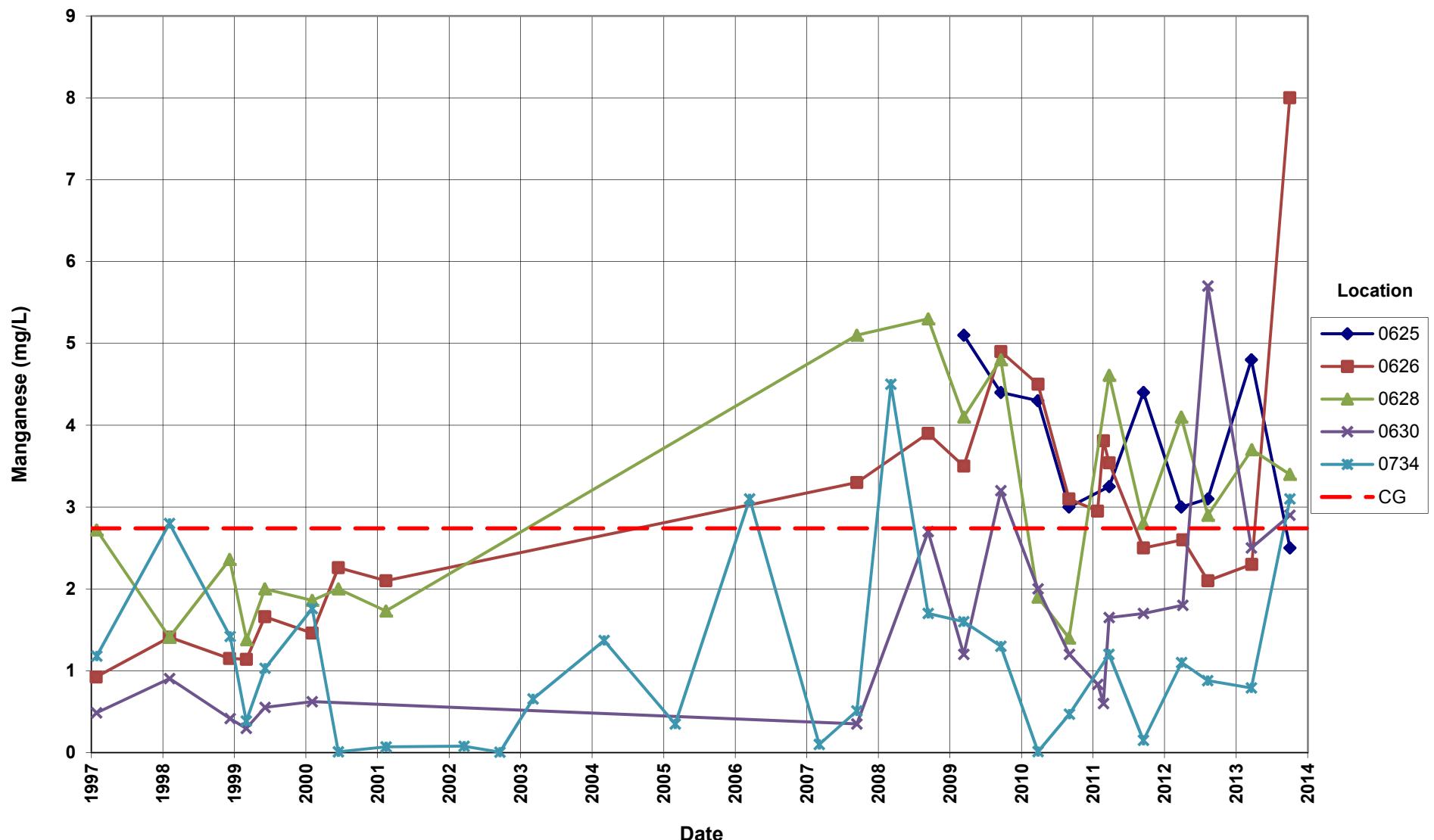
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
 Cleanup Goal (CG) = 2.74 mg/L



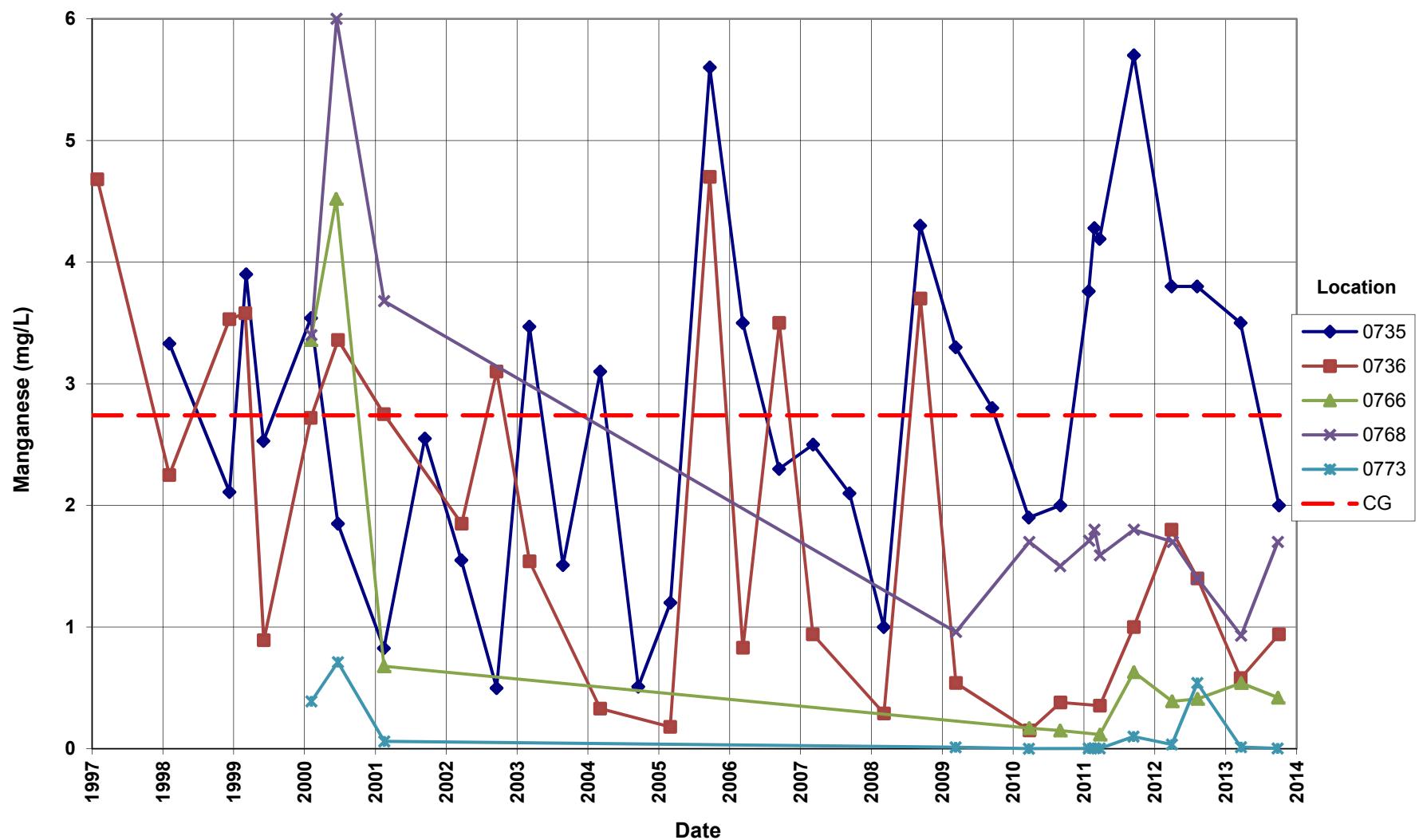
**Shiprock Disposal Site (Floodplain)**  
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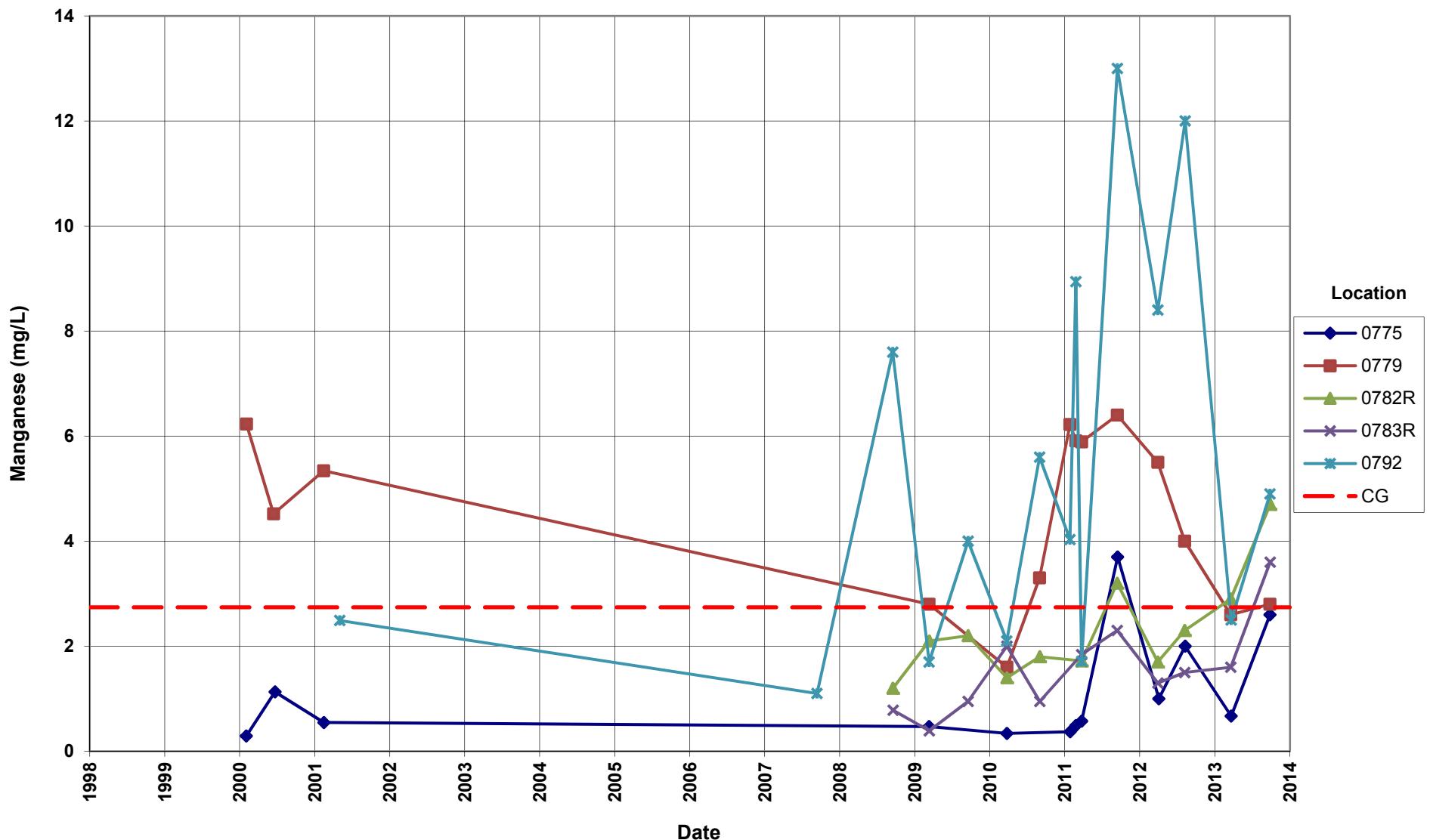
**Shiprock Disposal Site (Floodplain)**  
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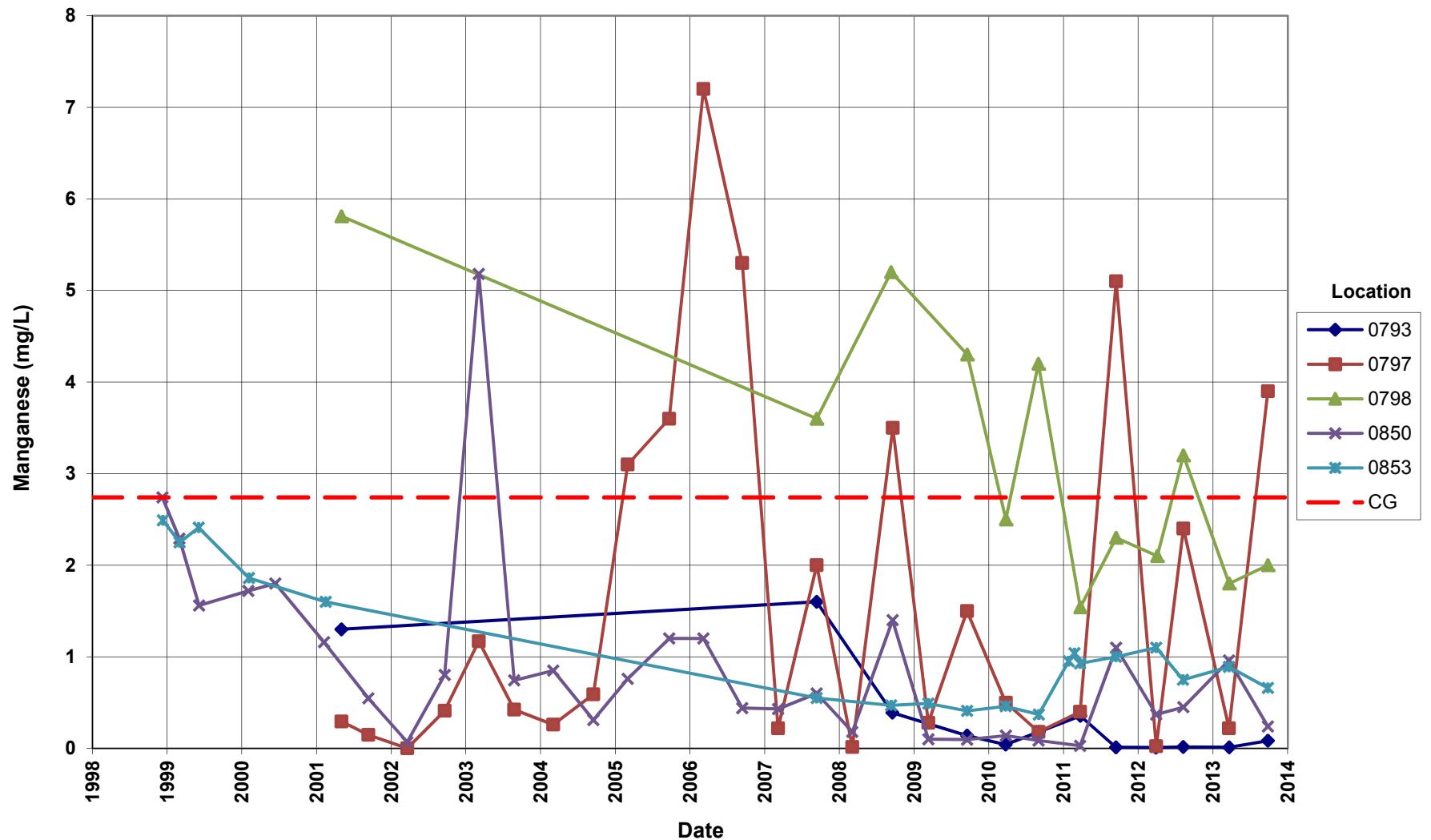
**Shiprock Disposal Site (Floodplain)**  
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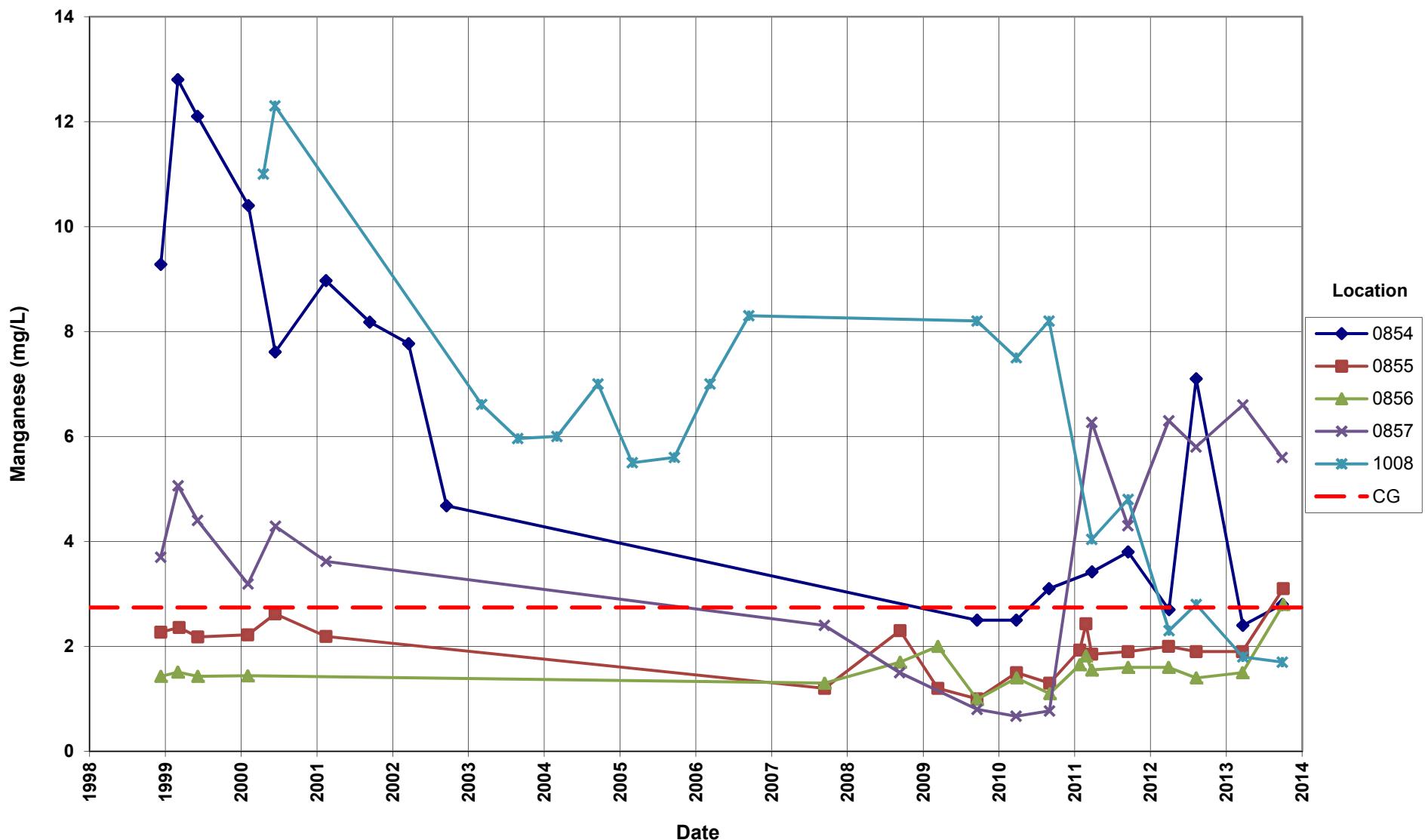
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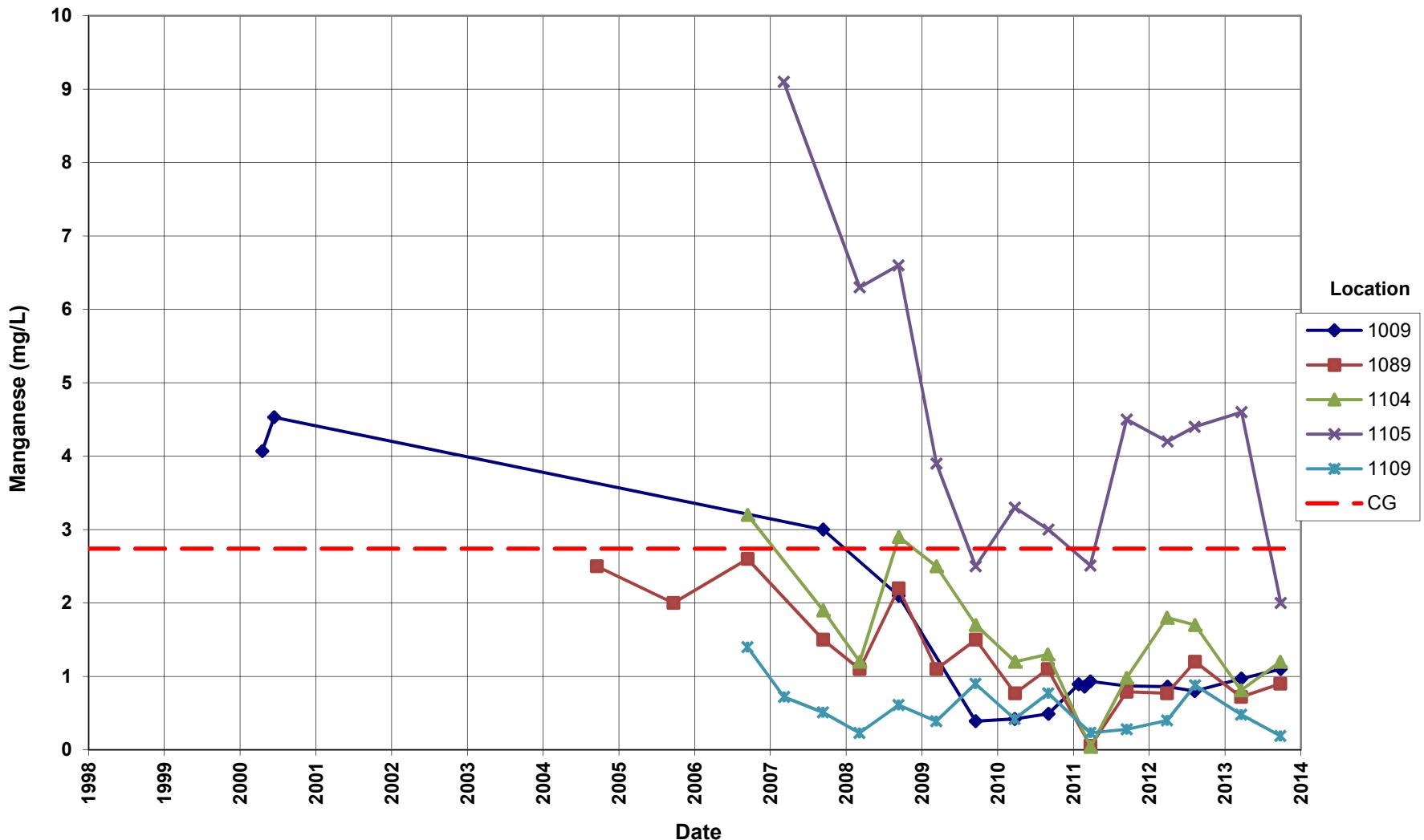
**Shiprock Disposal Site (Floodplain)**  
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 Cleanup Goal (CG) = 2.74 mg/L



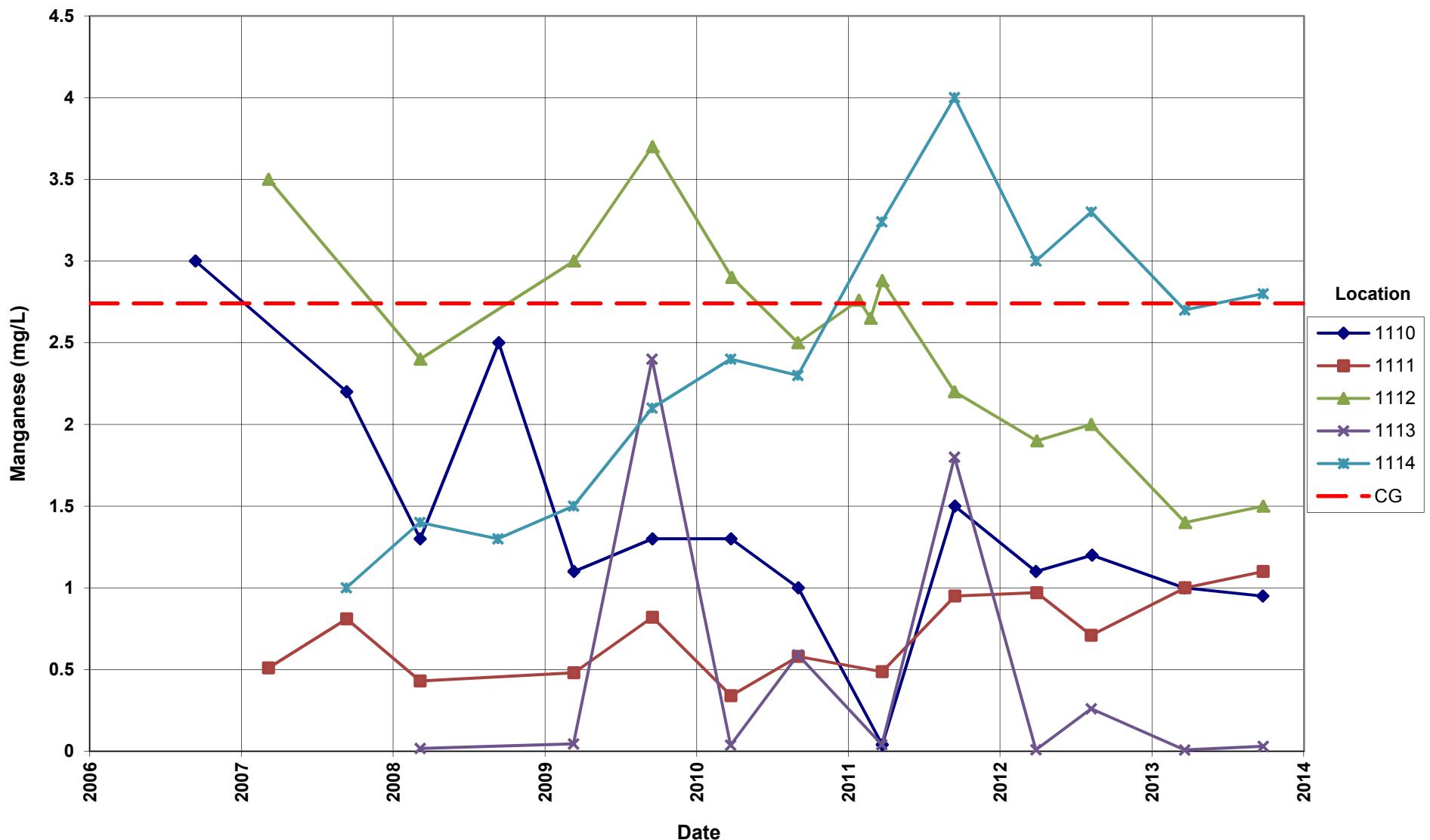
**Shiprock Disposal Site (Floodplain)**  
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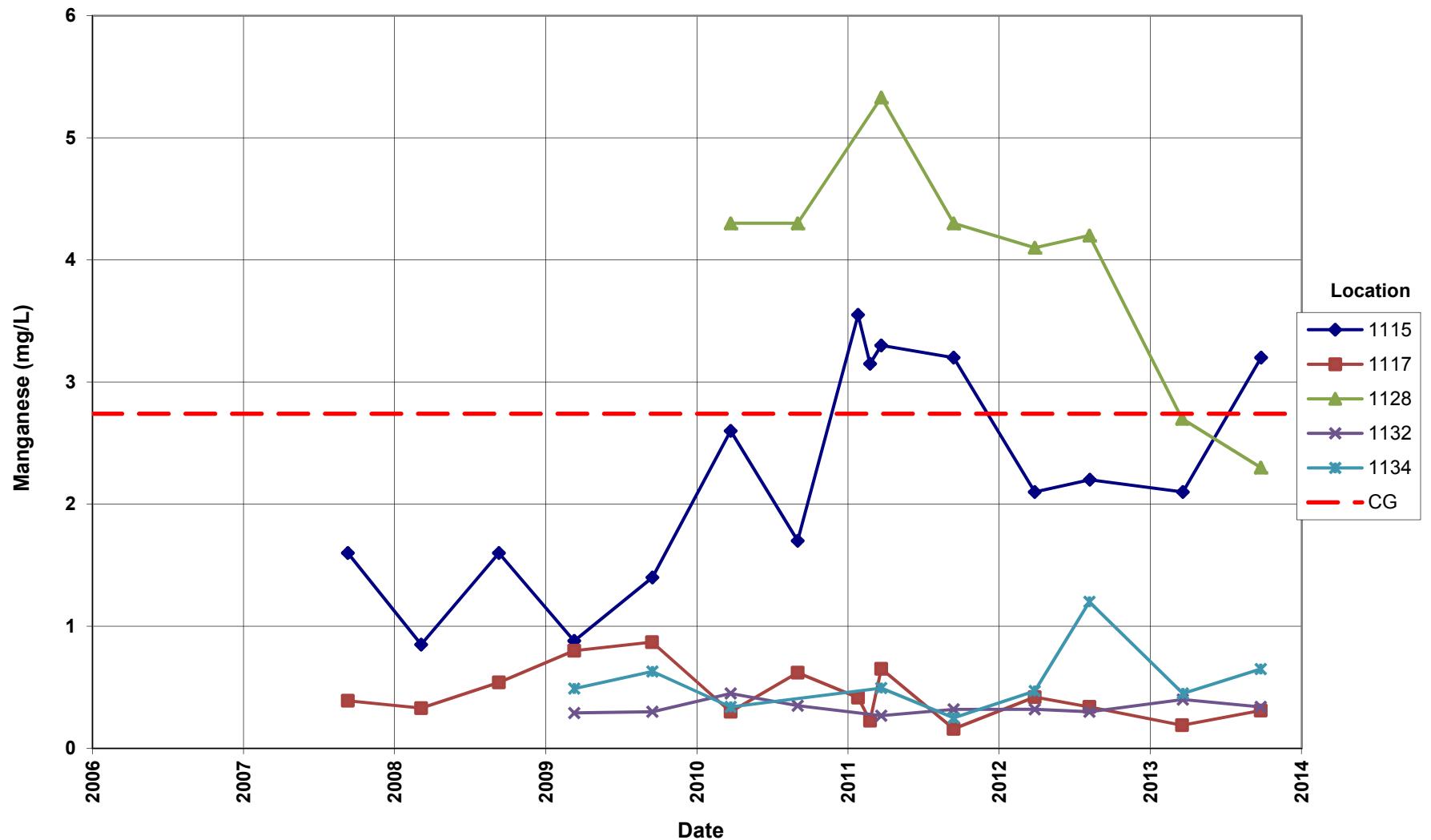
**Shiprock Disposal Site (Floodplain)**  
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Cleanup Goal (CG) = 2.74 mg/L



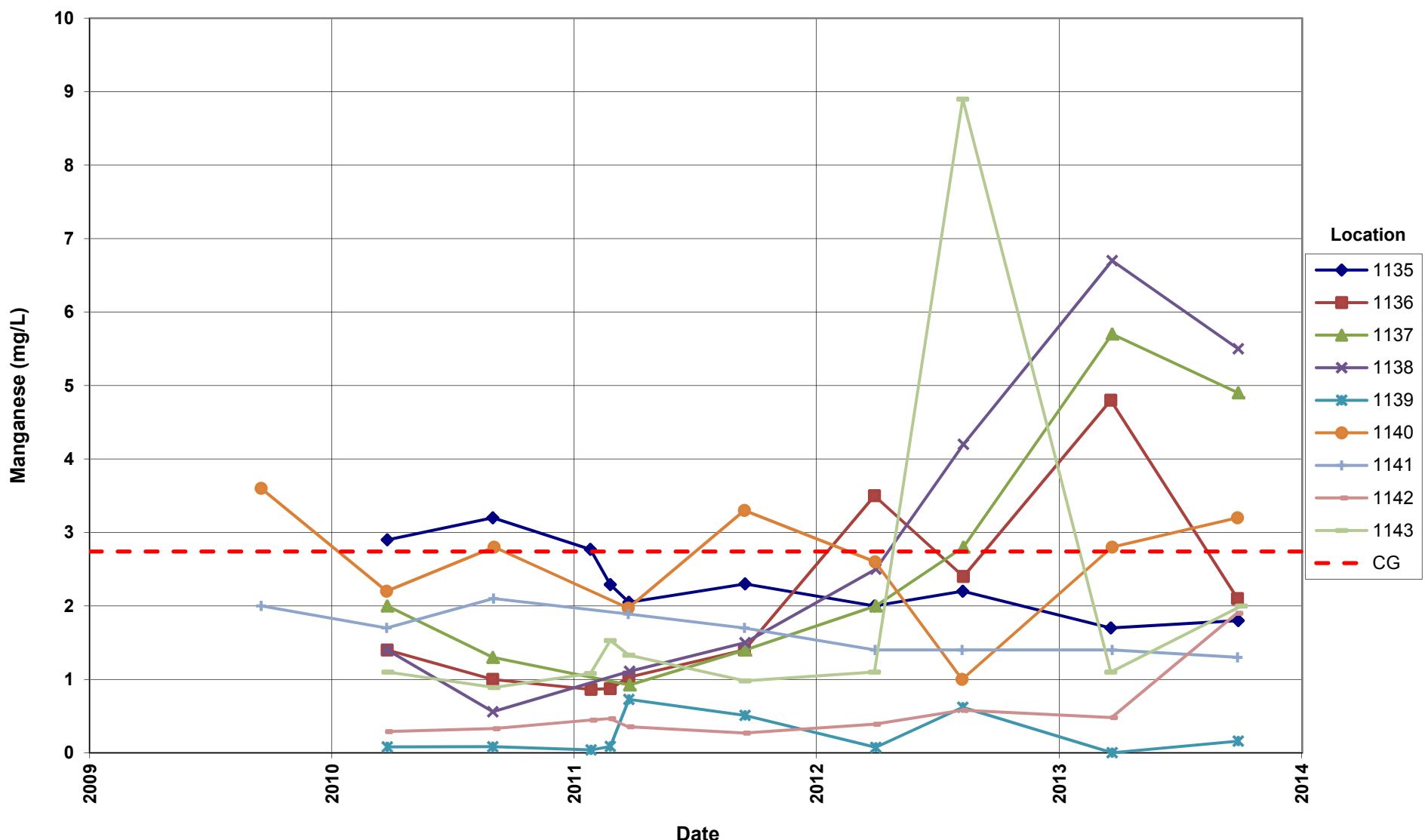
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L



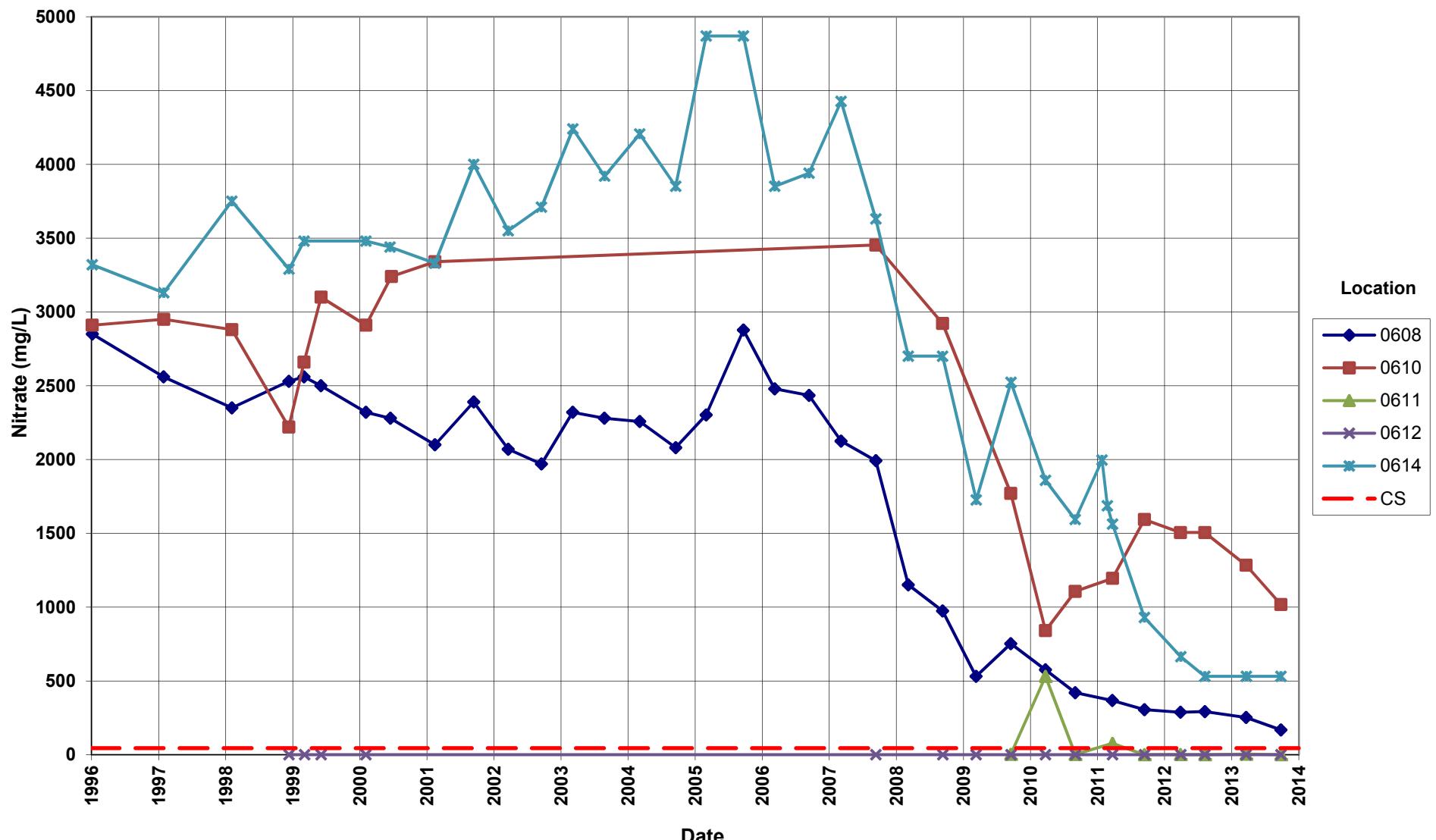
**Shiprock Disposal Site (Floodplain)**  
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Cleanup Goal (CG) = 2.74 mg/L



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**Manganese Concentration**  
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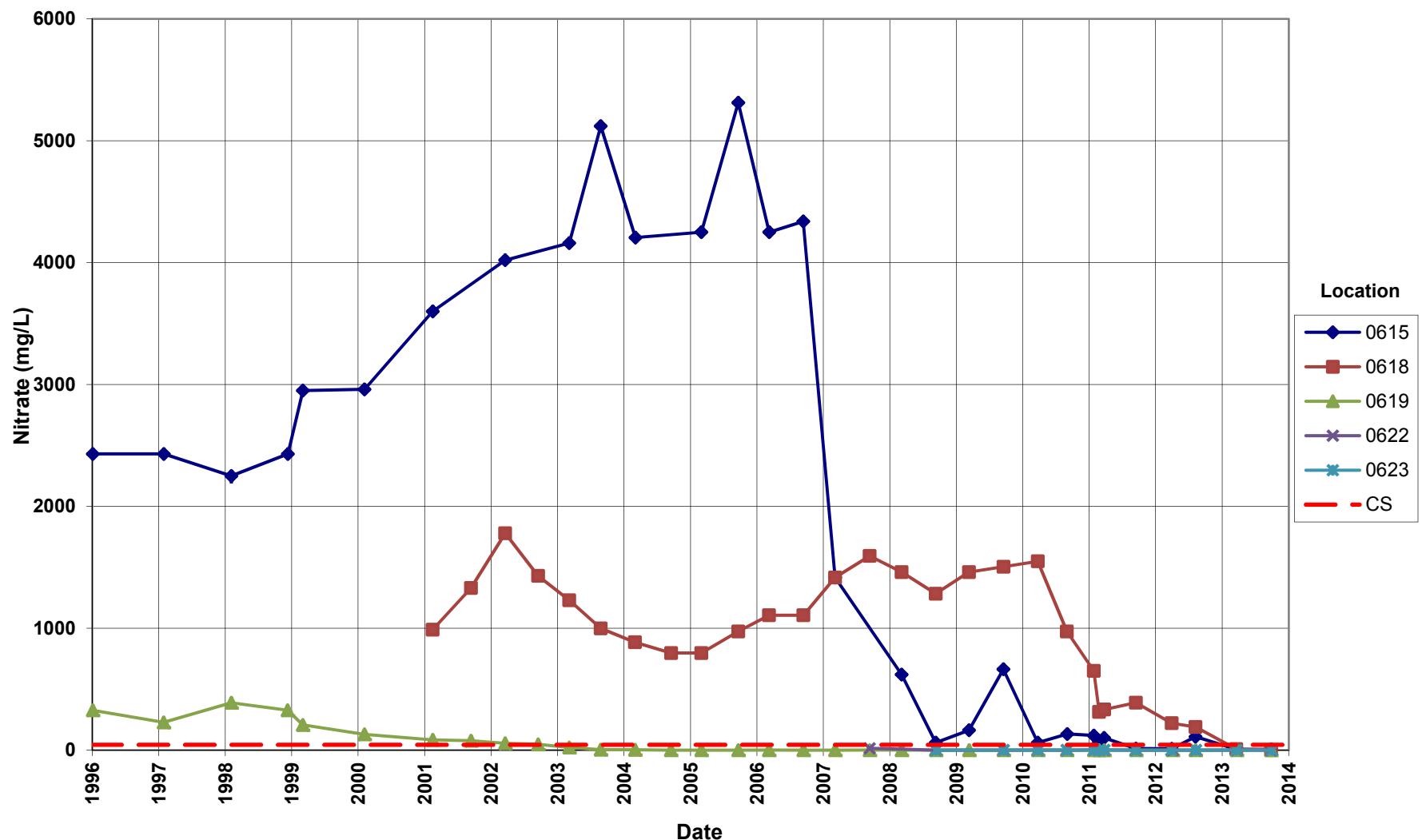


**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
 Compliance Standard (CS) = 44 mg/L

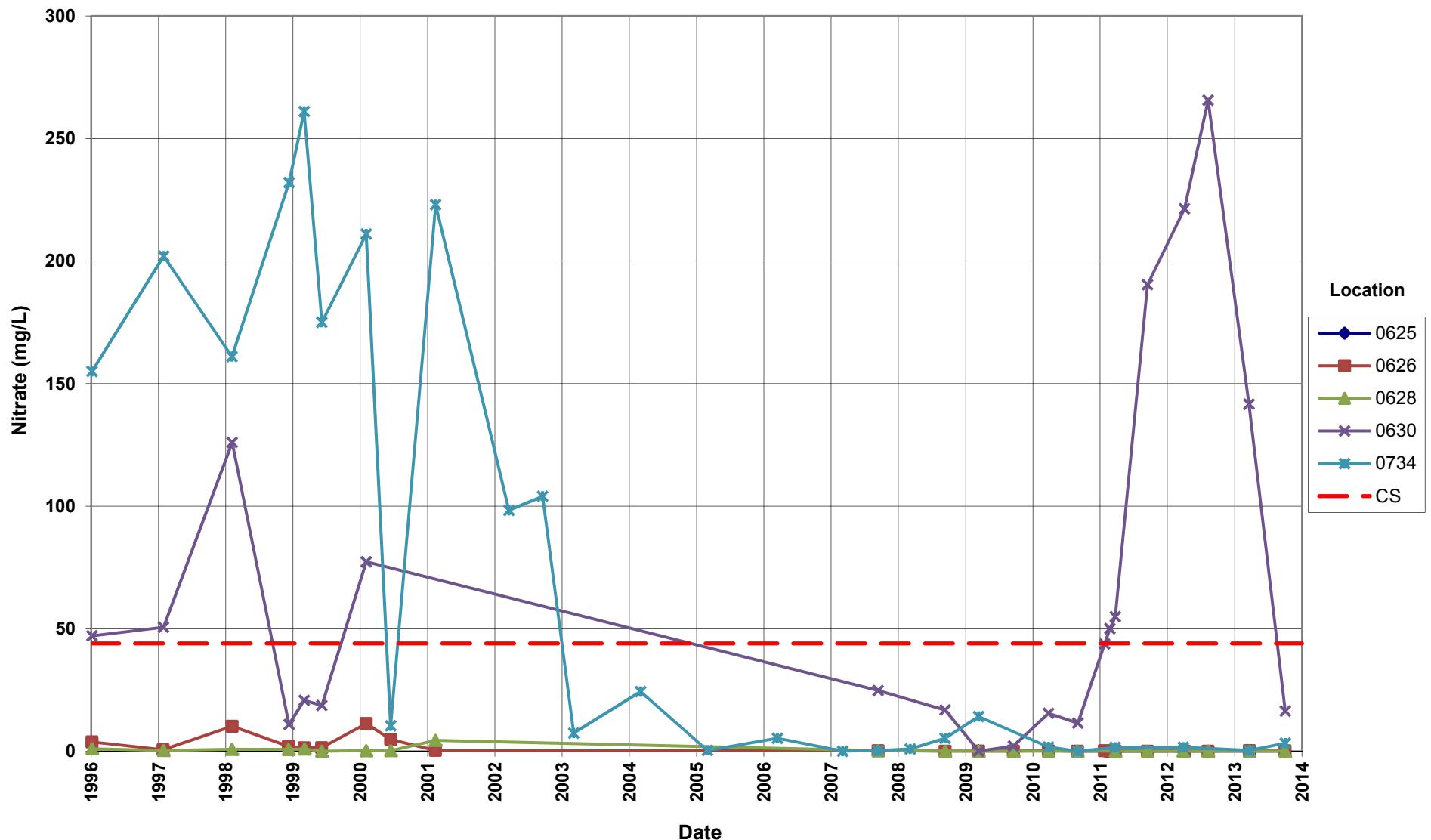


### Shiprock Disposal Site (Floodplain) Nitrate Concentration

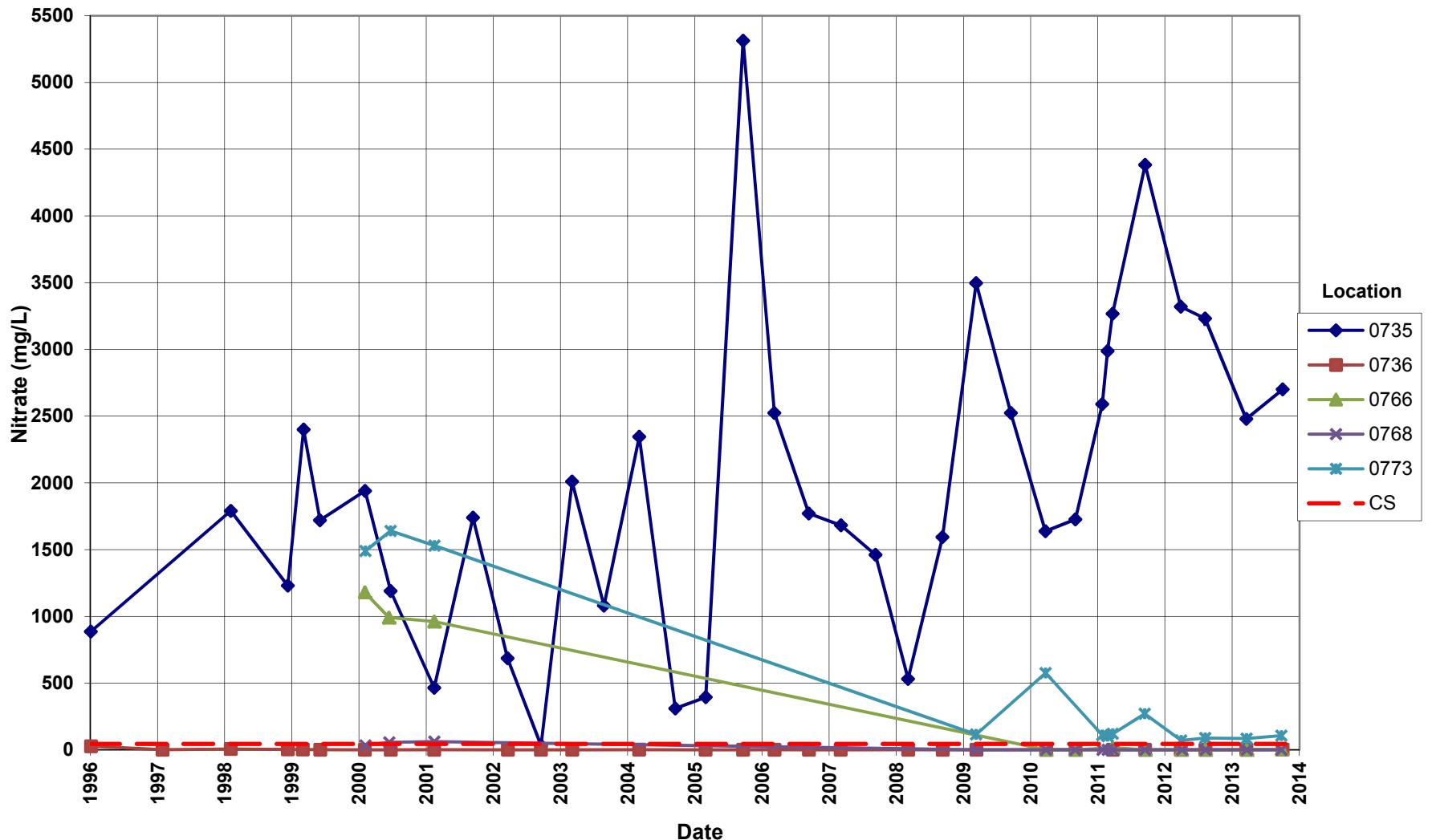
Compliance Standard (CS) = 44 mg/L



**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
Compliance Standard (CS) = 44 mg/L

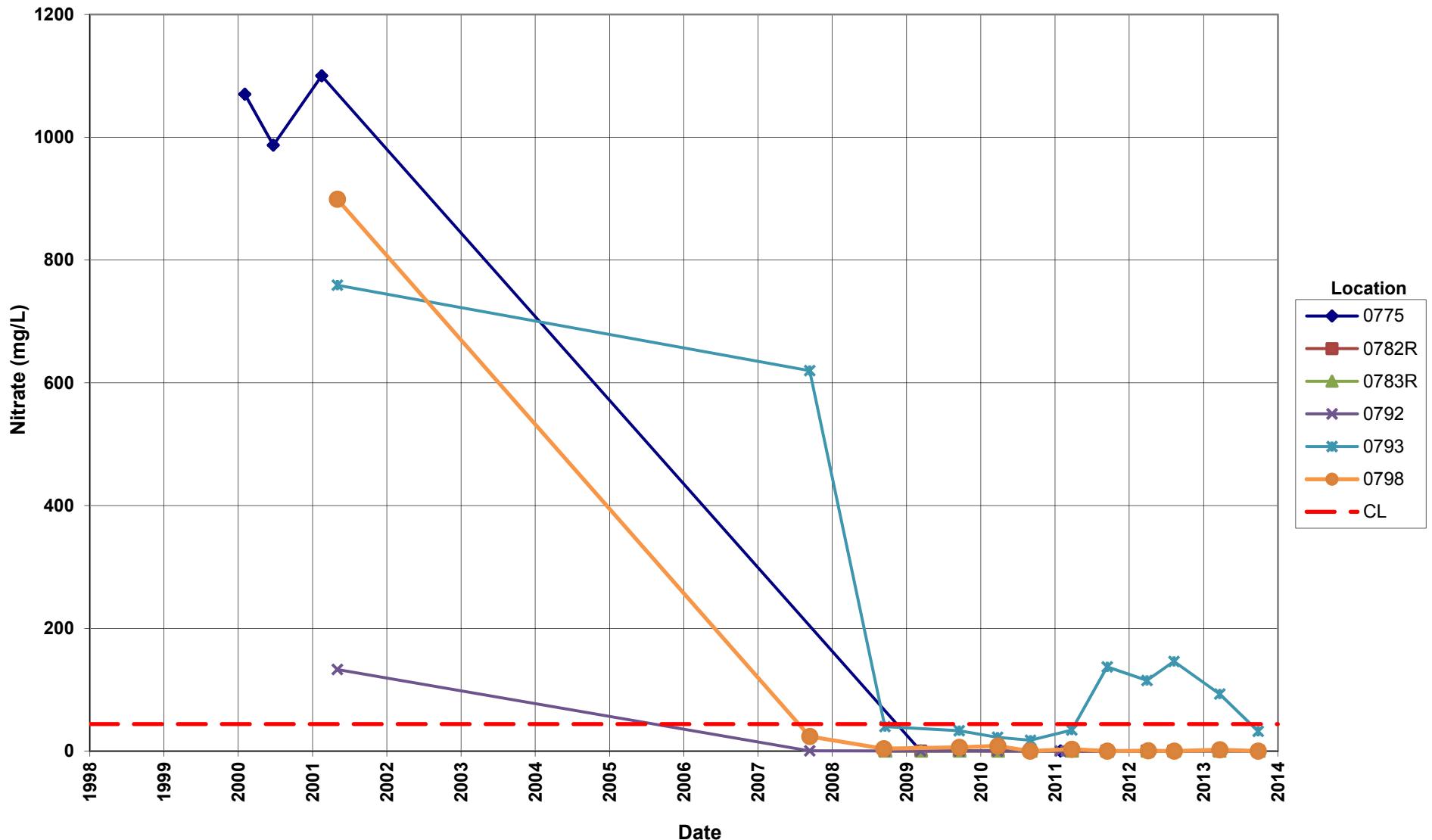


**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
Compliance Standard (CS) = 44 mg/L

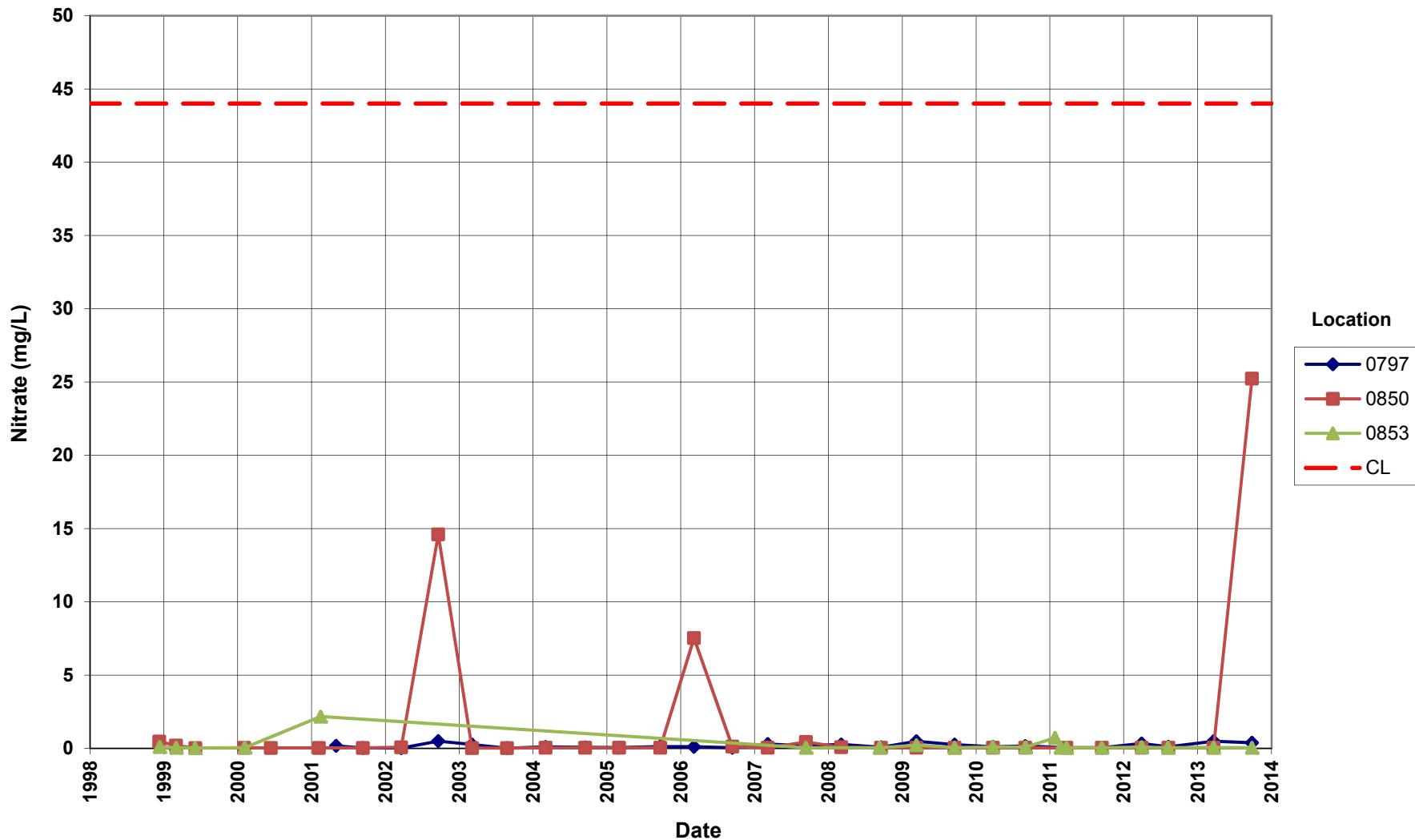


**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**

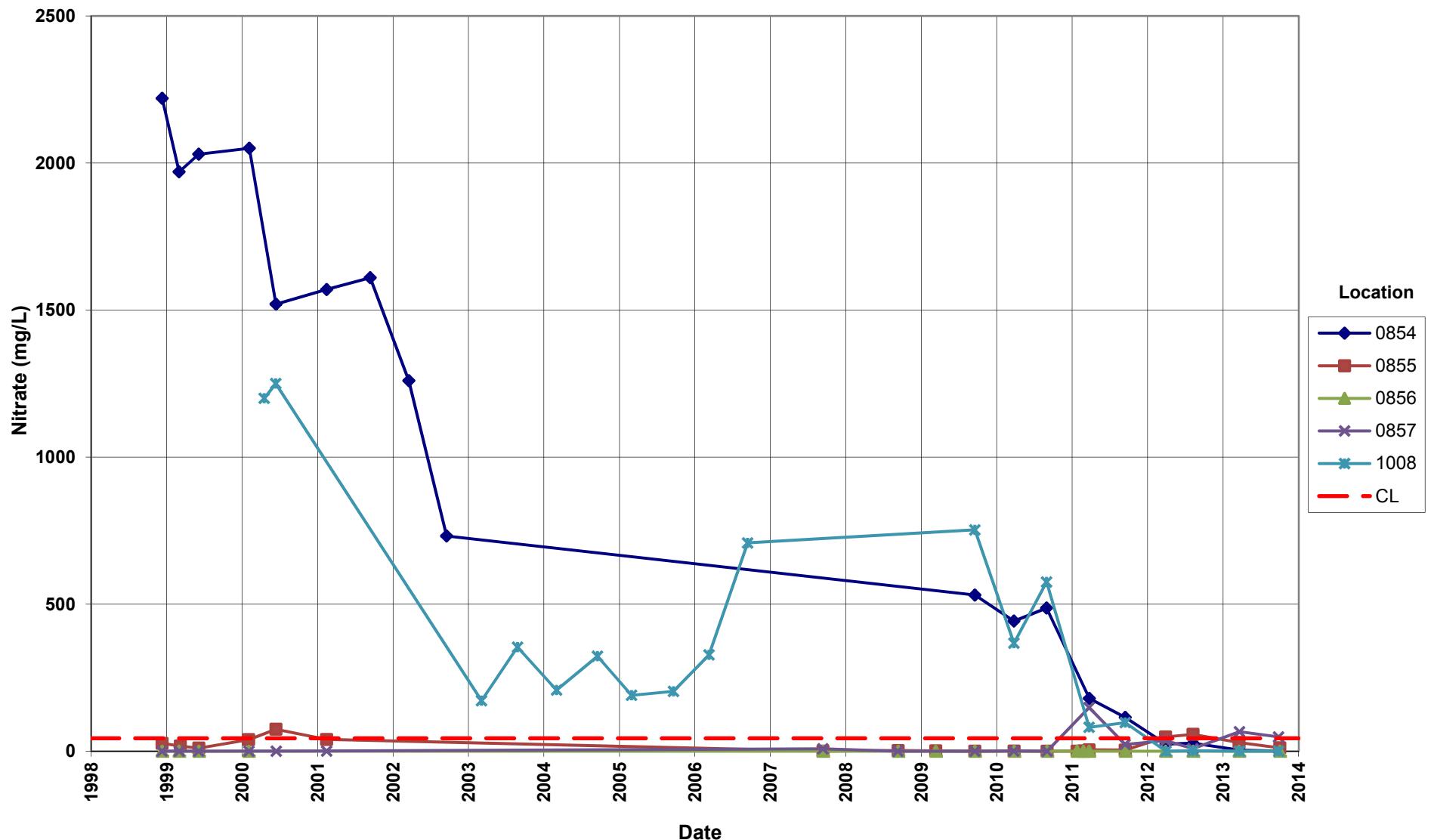
Compliance Standard (CS) = 44 mg/L



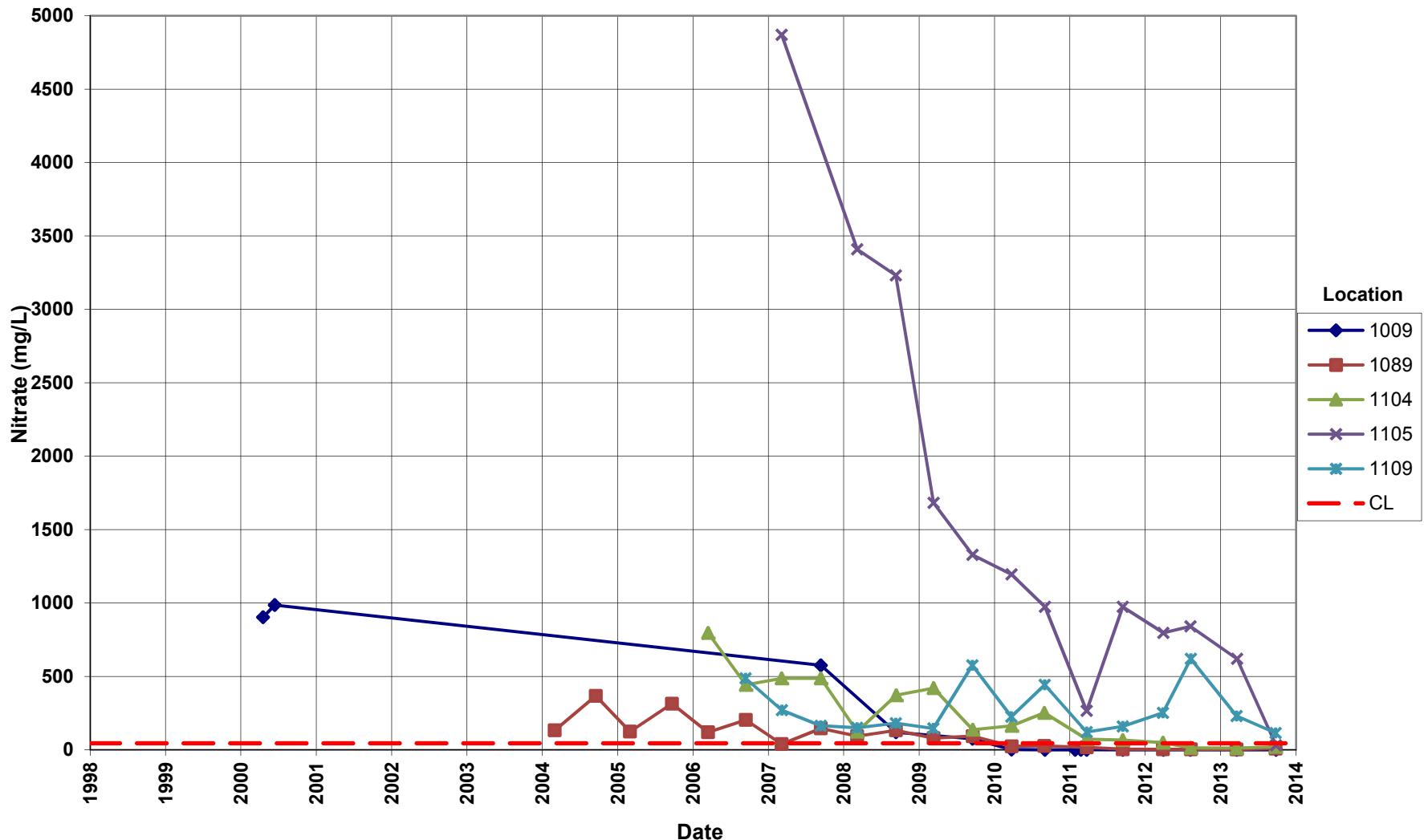
**Shiprock Disposal Site (Floodplain)**  
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Compliance Standard (CS) = 44 mg/L



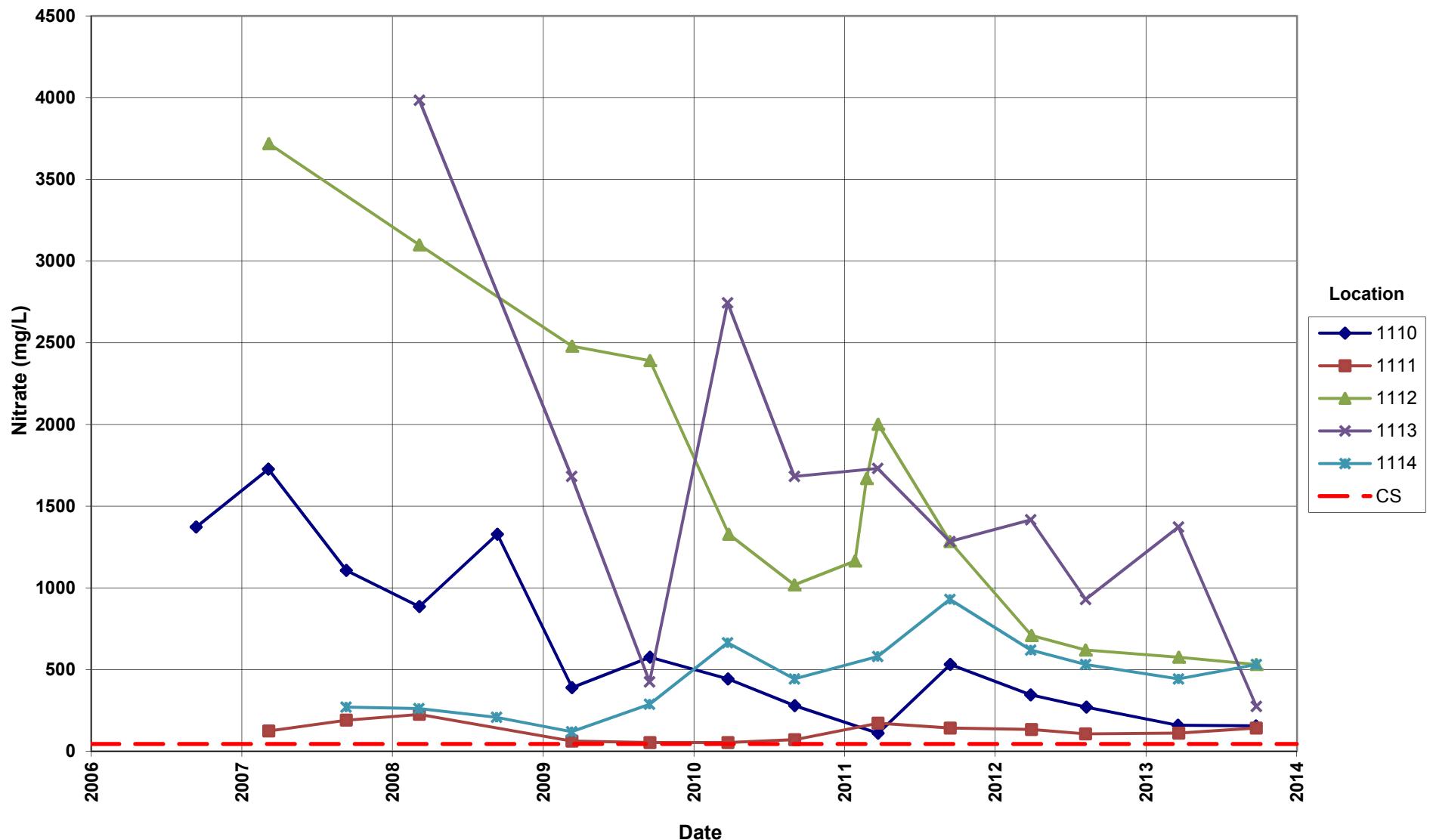
**Shiprock Disposal Site (Floodplain)**  
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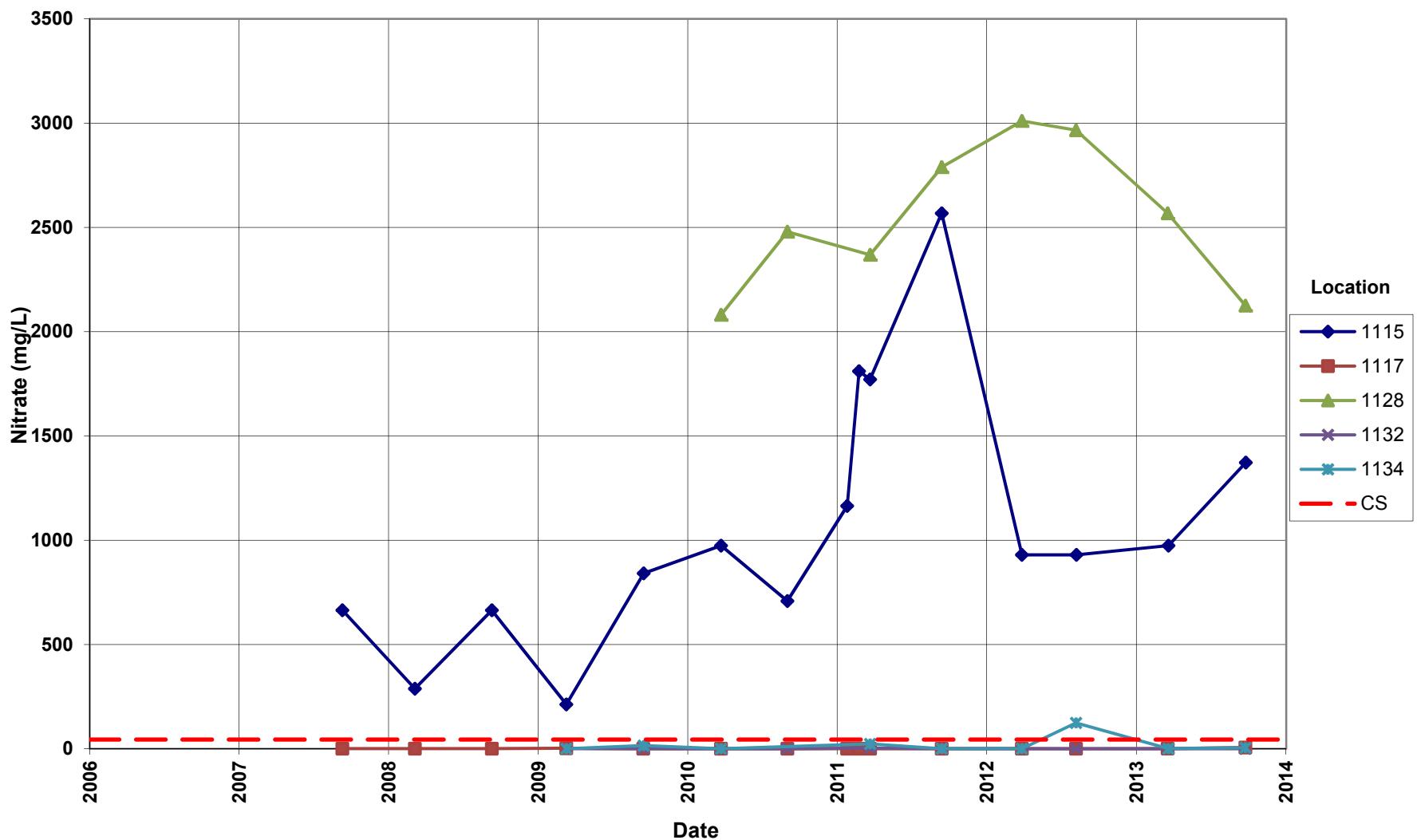


**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
Compliance Standard (CS) = 44 mg/L

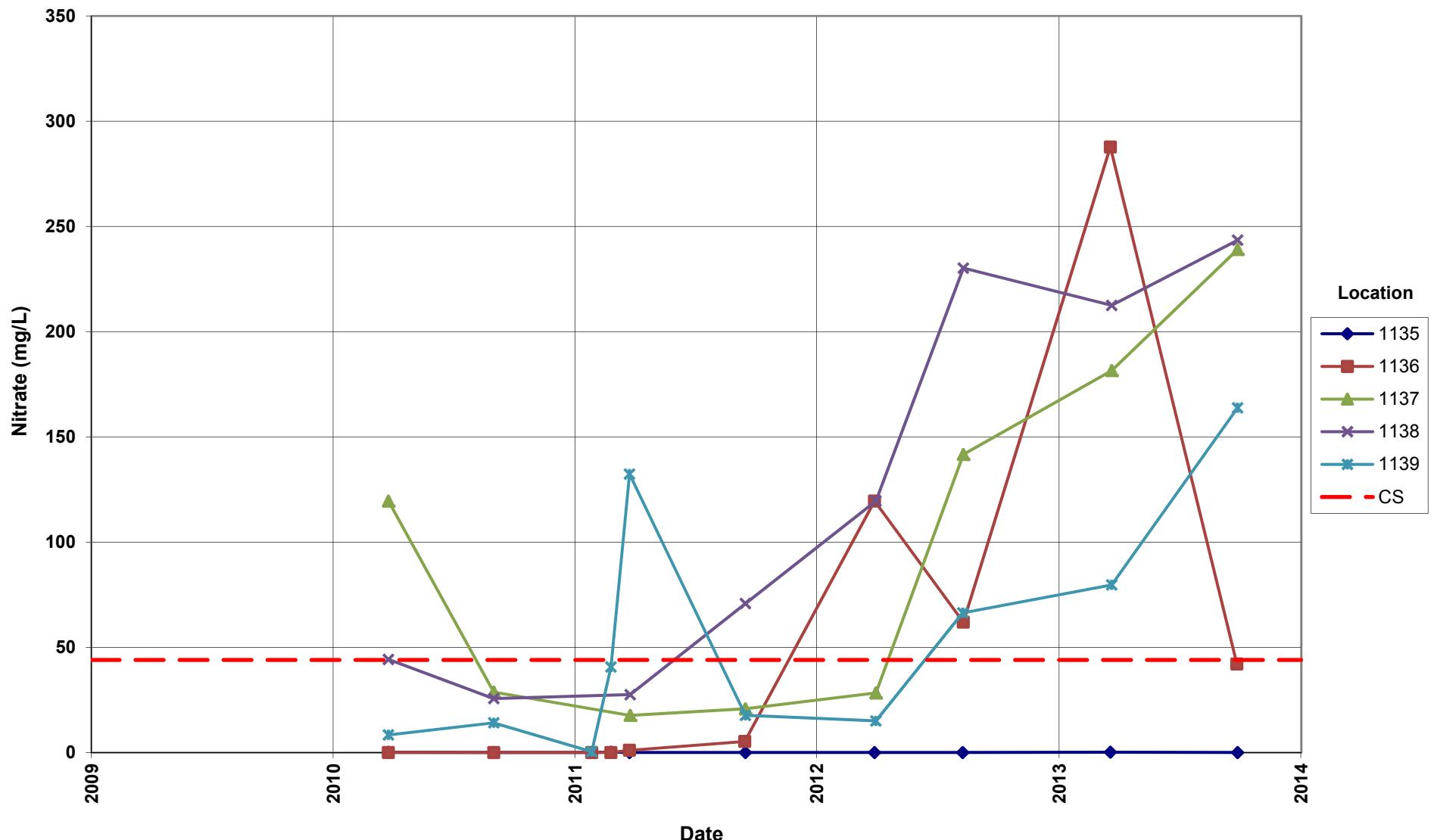


### Shiprock Disposal Site (Floodplain) Nitrate Concentration

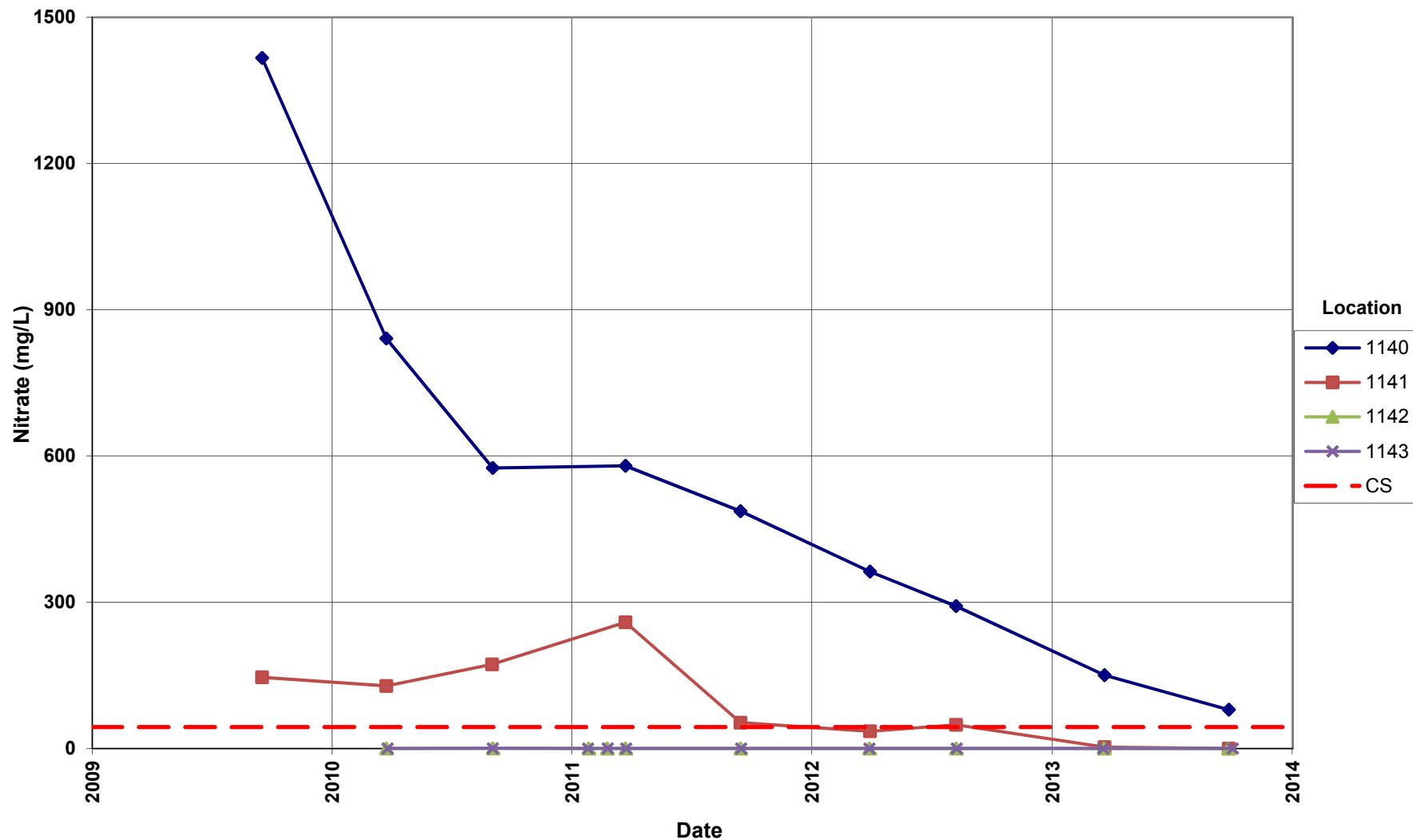
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**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
Compliance Standard (CS) = 44 mg/L

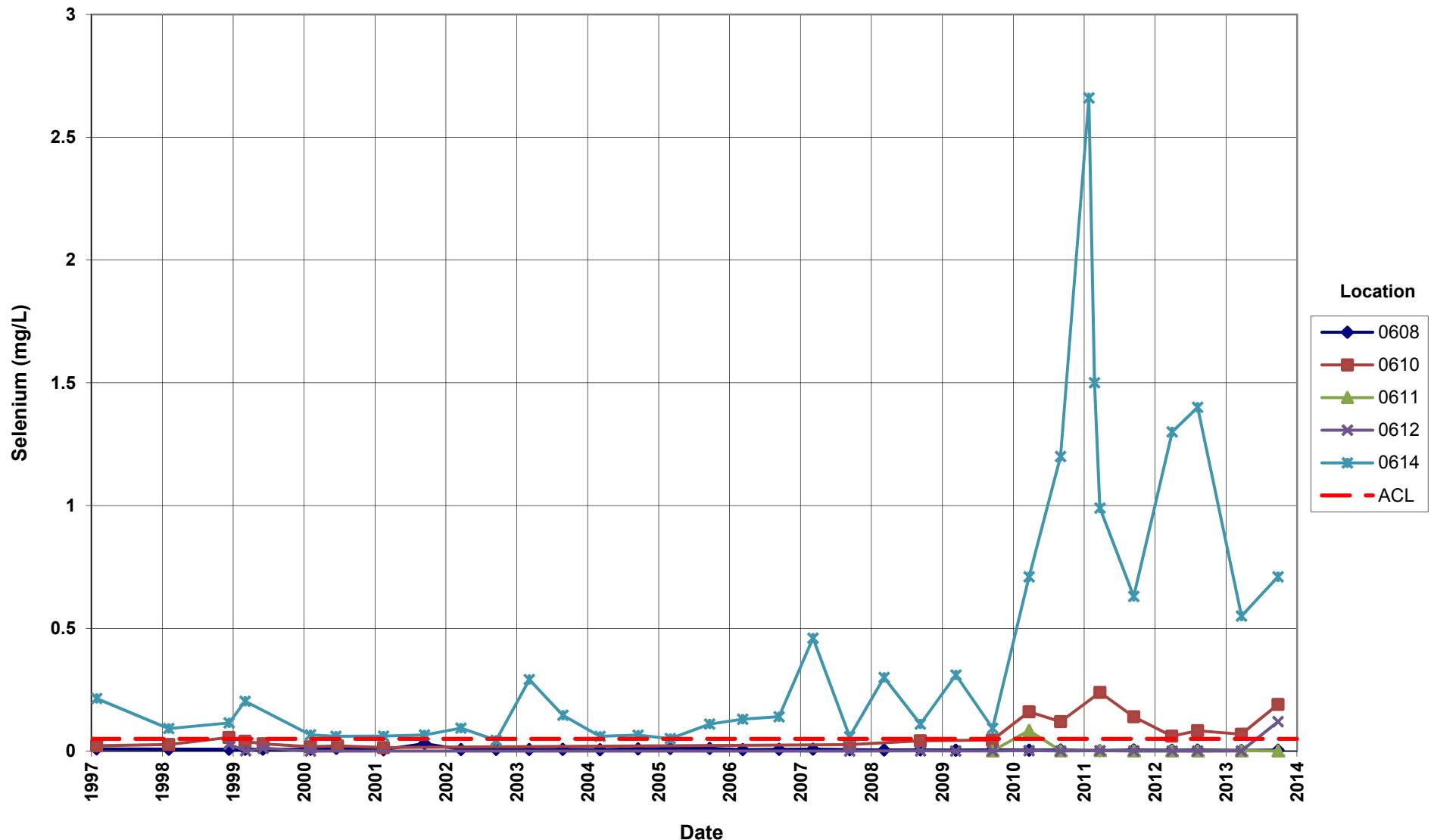


**Shiprock Disposal Site (Floodplain)**  
**Nitrate Concentration**  
Compliance Standard (CS) = 44 mg/L

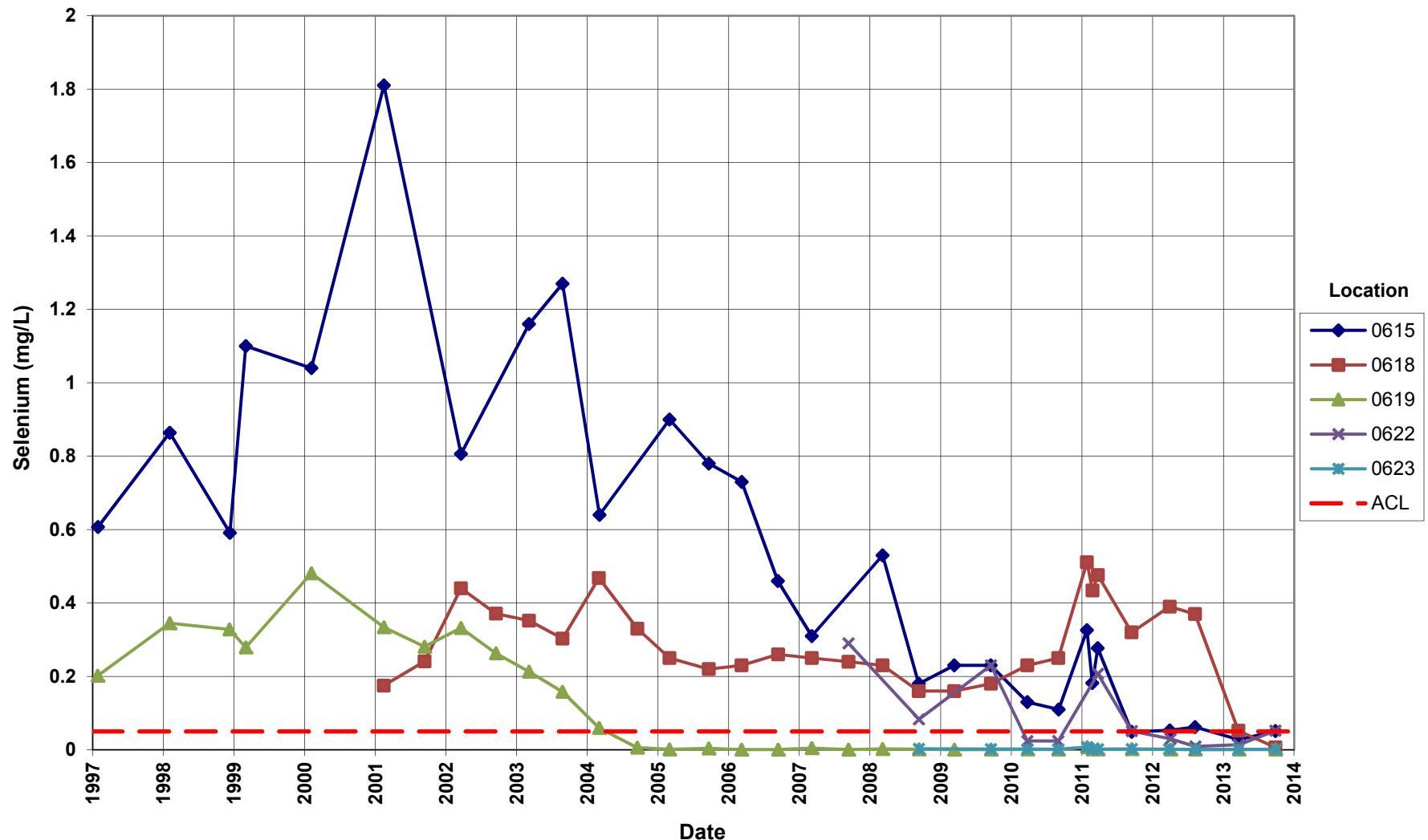


## Shiprock Disposal Site (Floodplain) Selenium Concentration

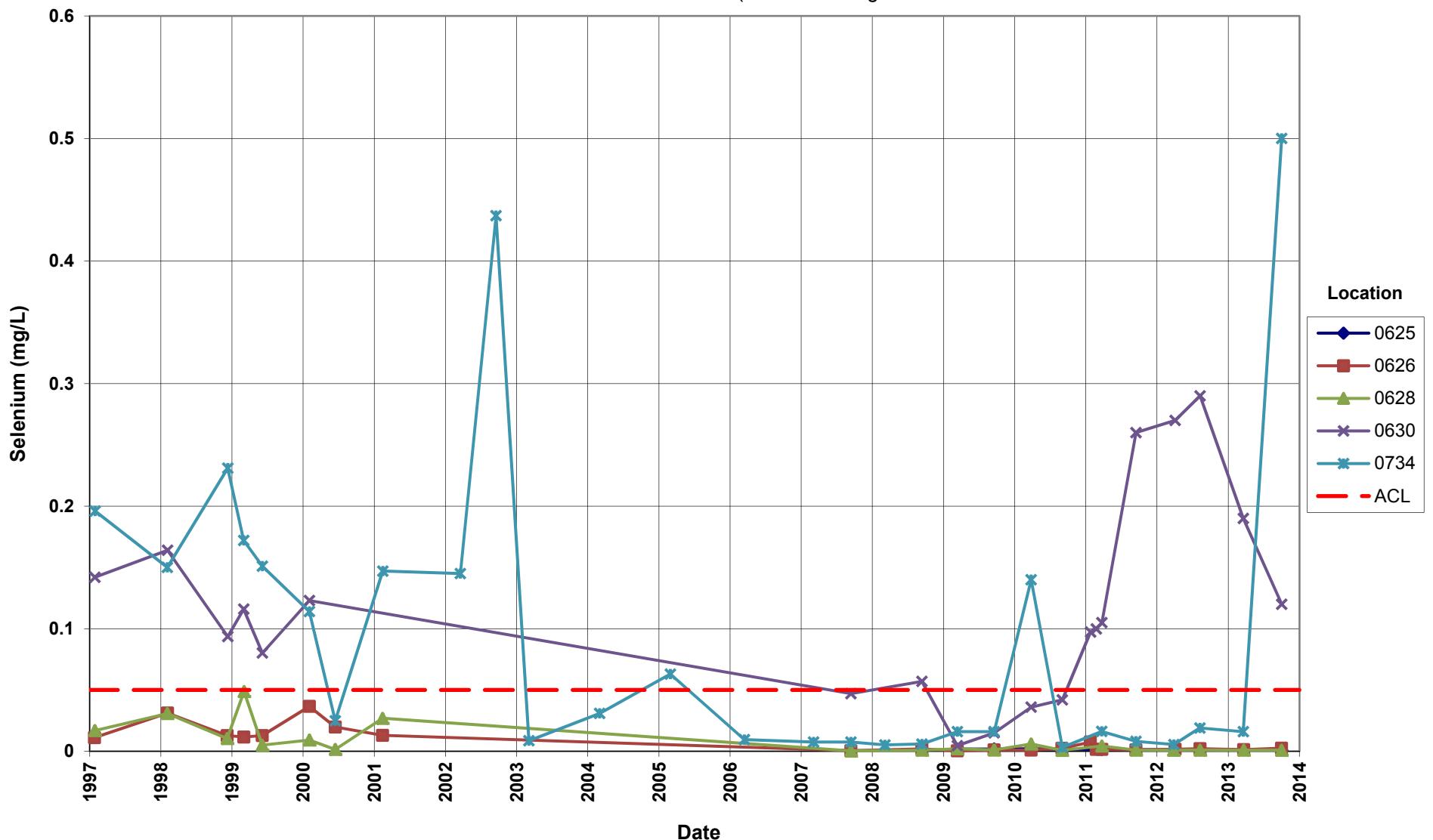
Alternate Concentration Limit (ACL = 0.05 mg/L)



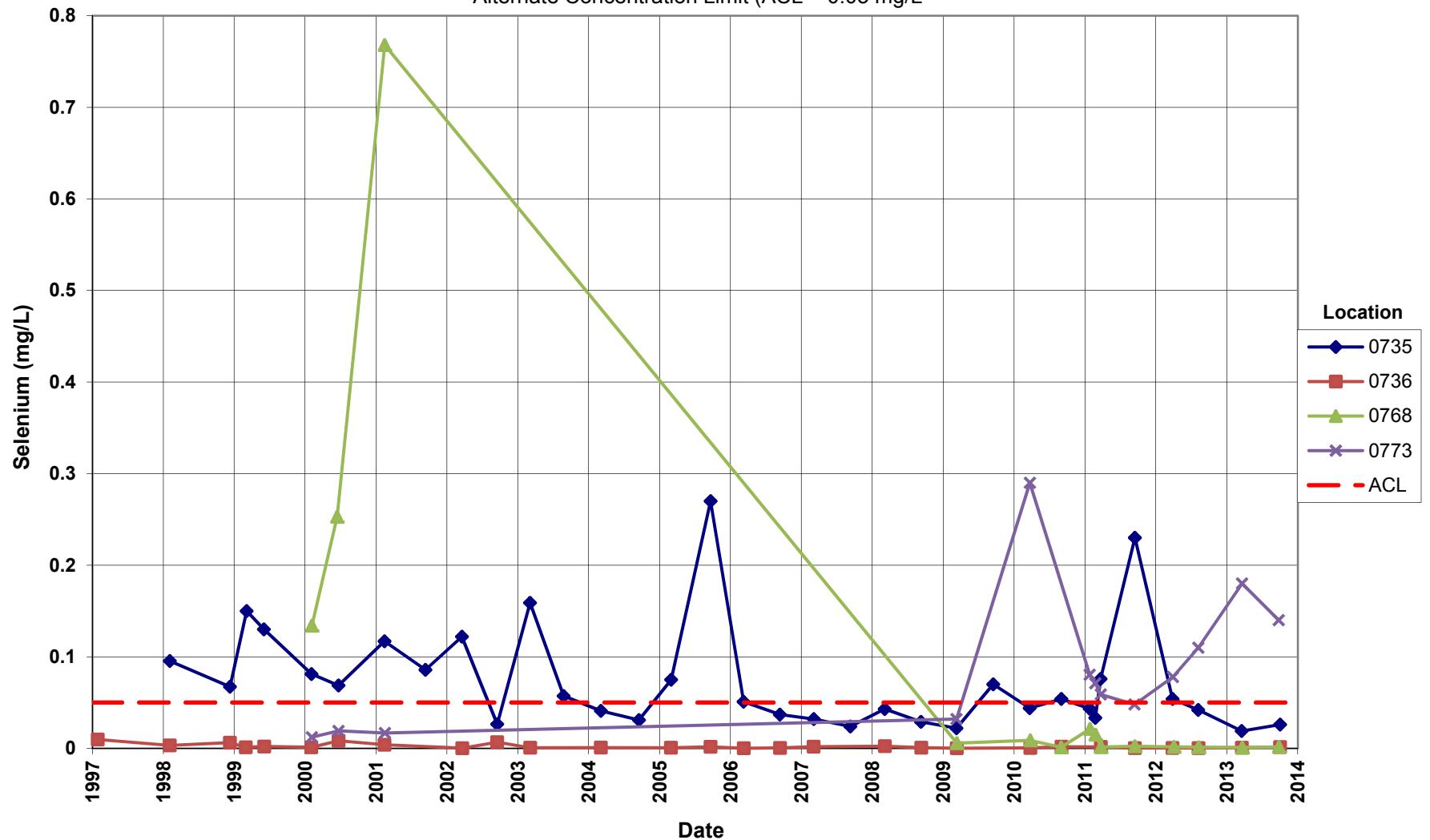
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)



**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)

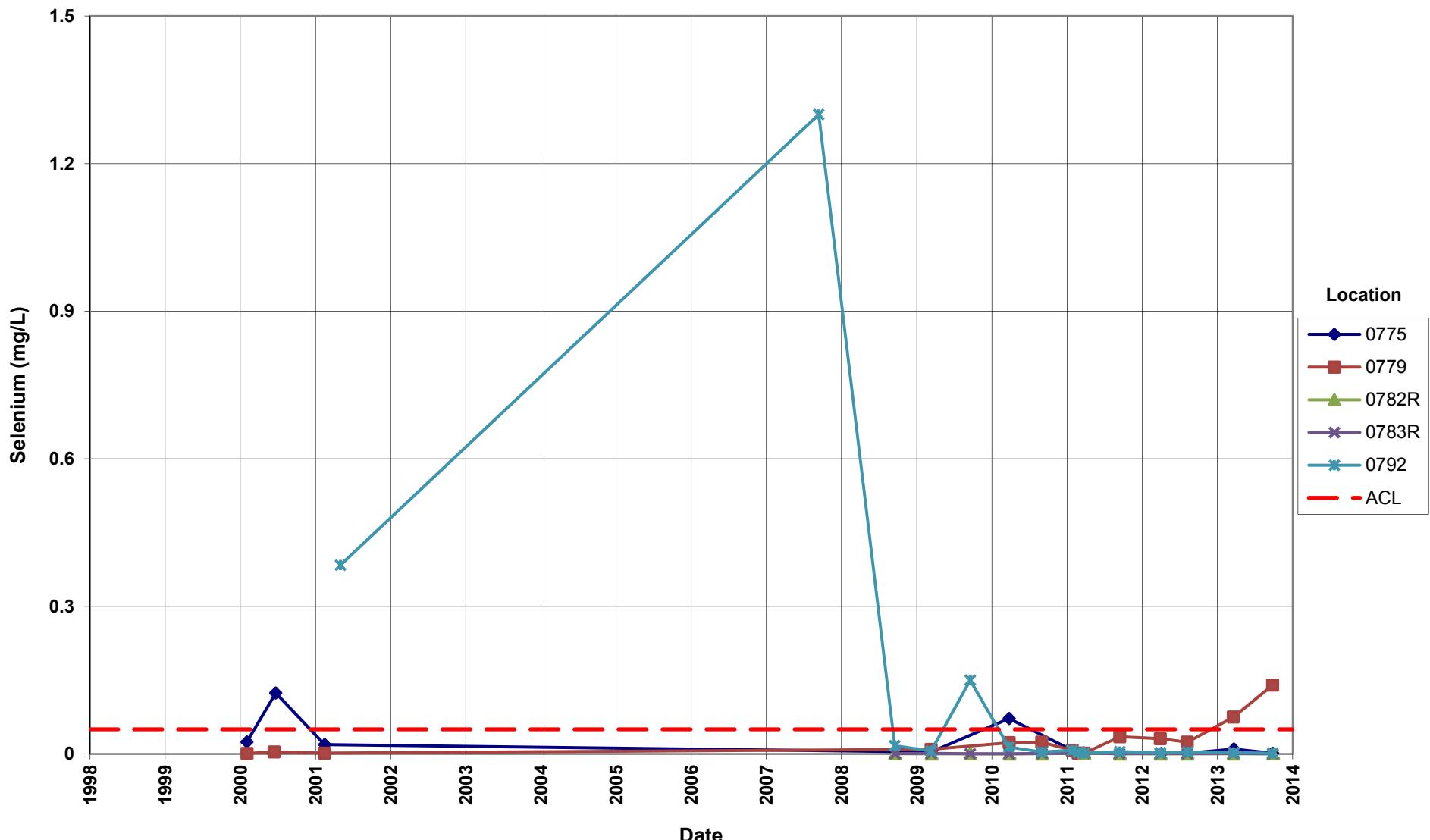


**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)

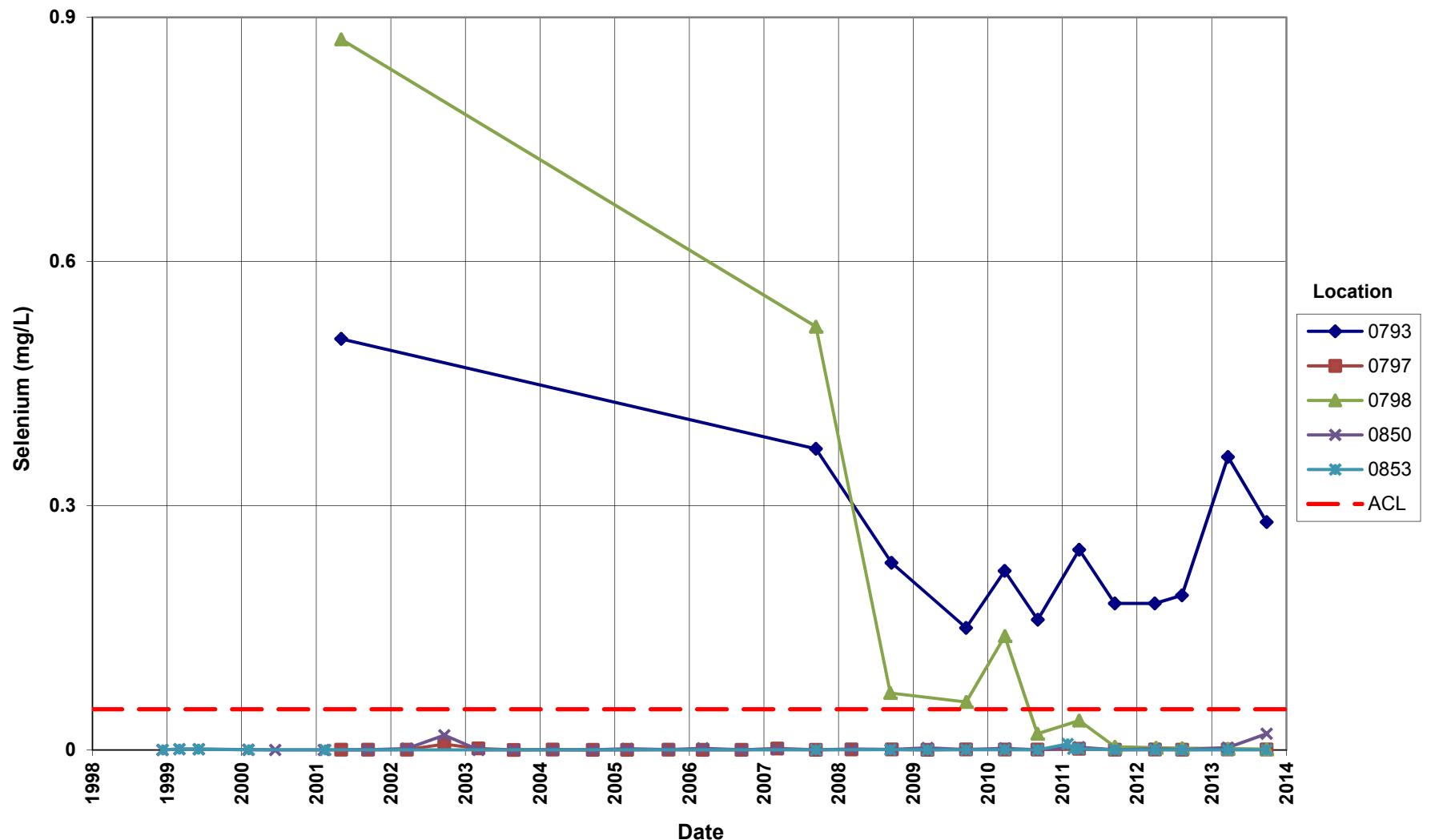


## Shiprock Disposal Site (Floodplain) Selenium Concentration

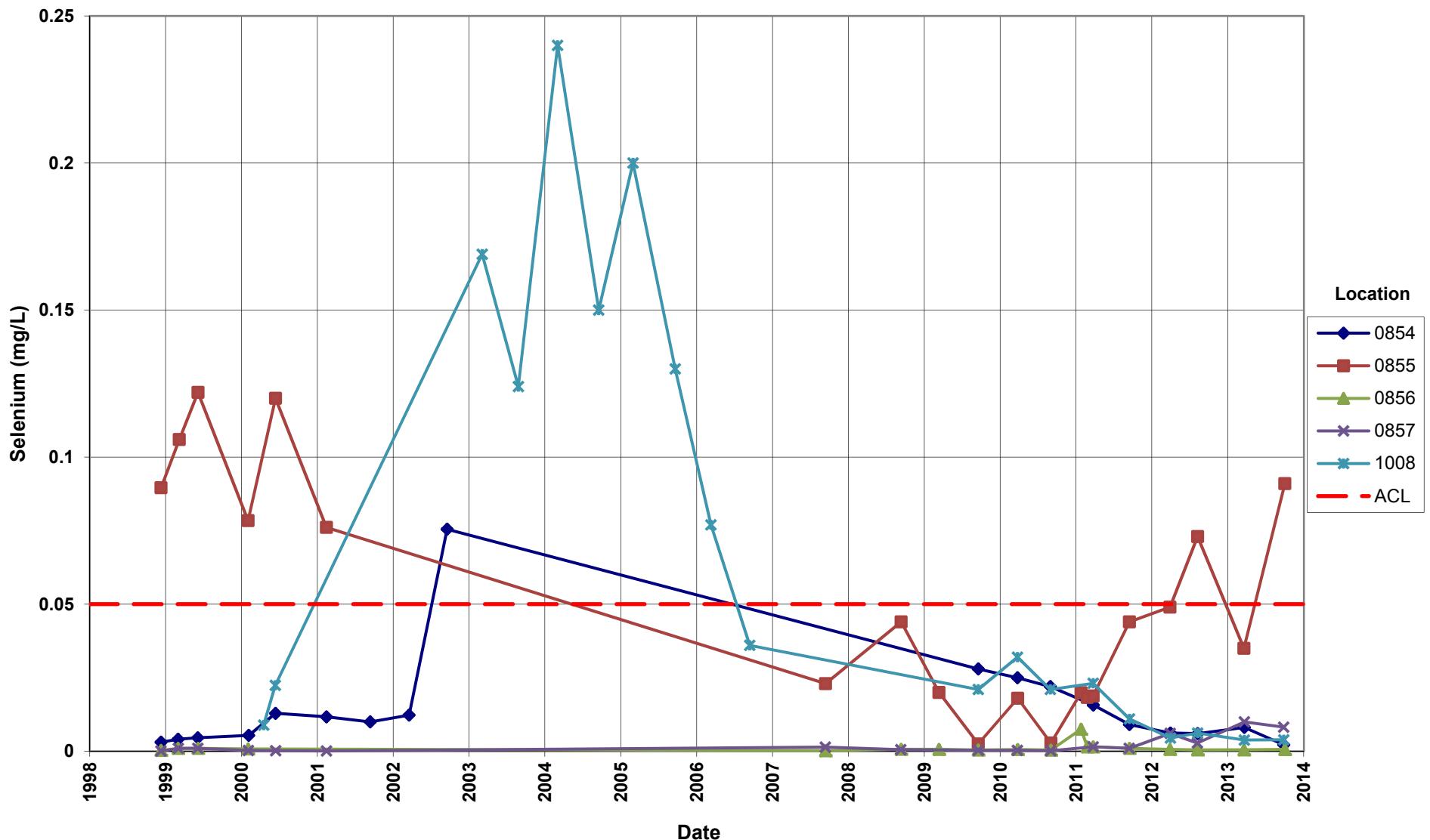
Alternate Concentration Limit (ACL = 0.05 mg/L)



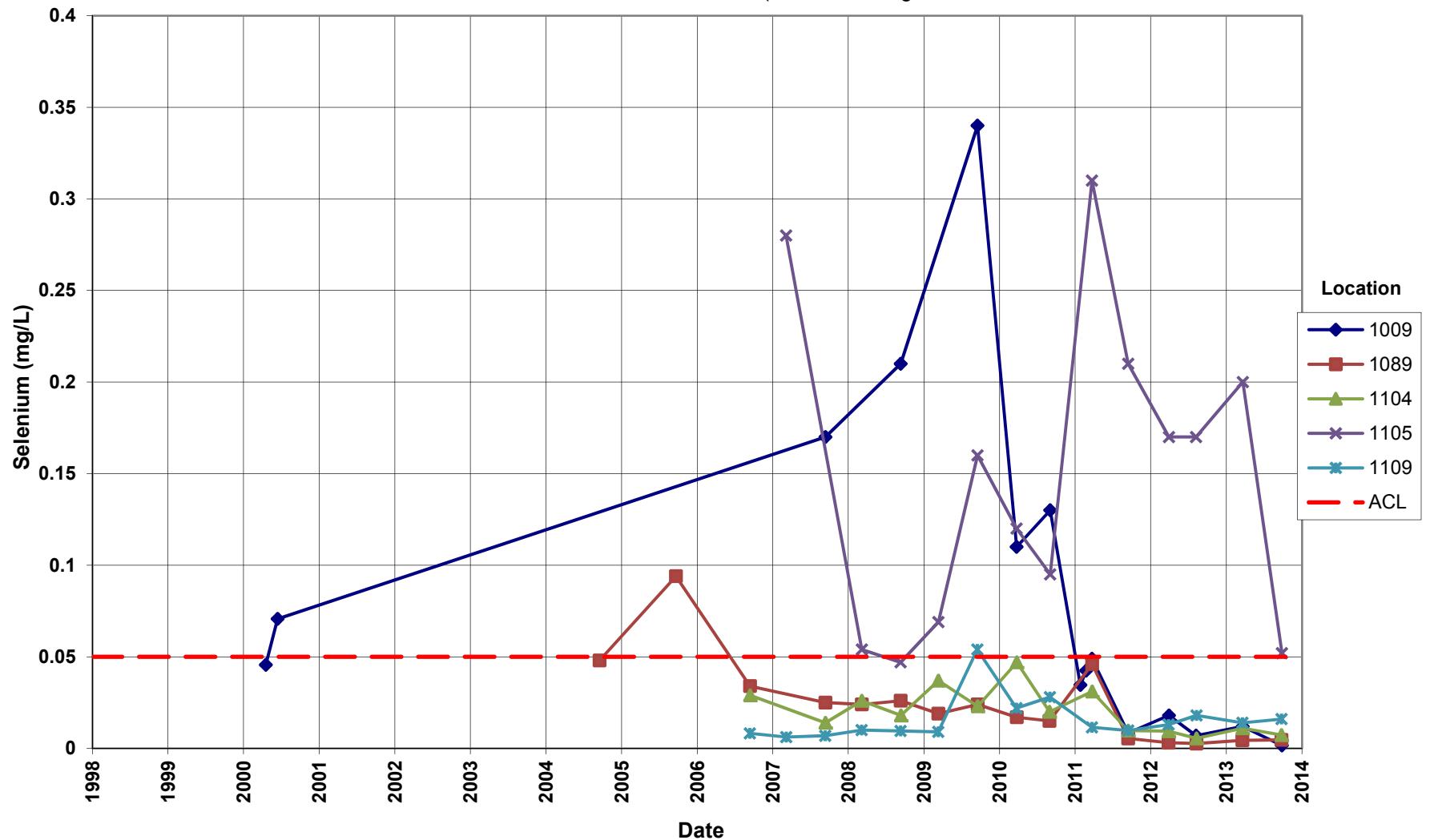
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)



**Shiprock Disposal Site (Floodplain)**  
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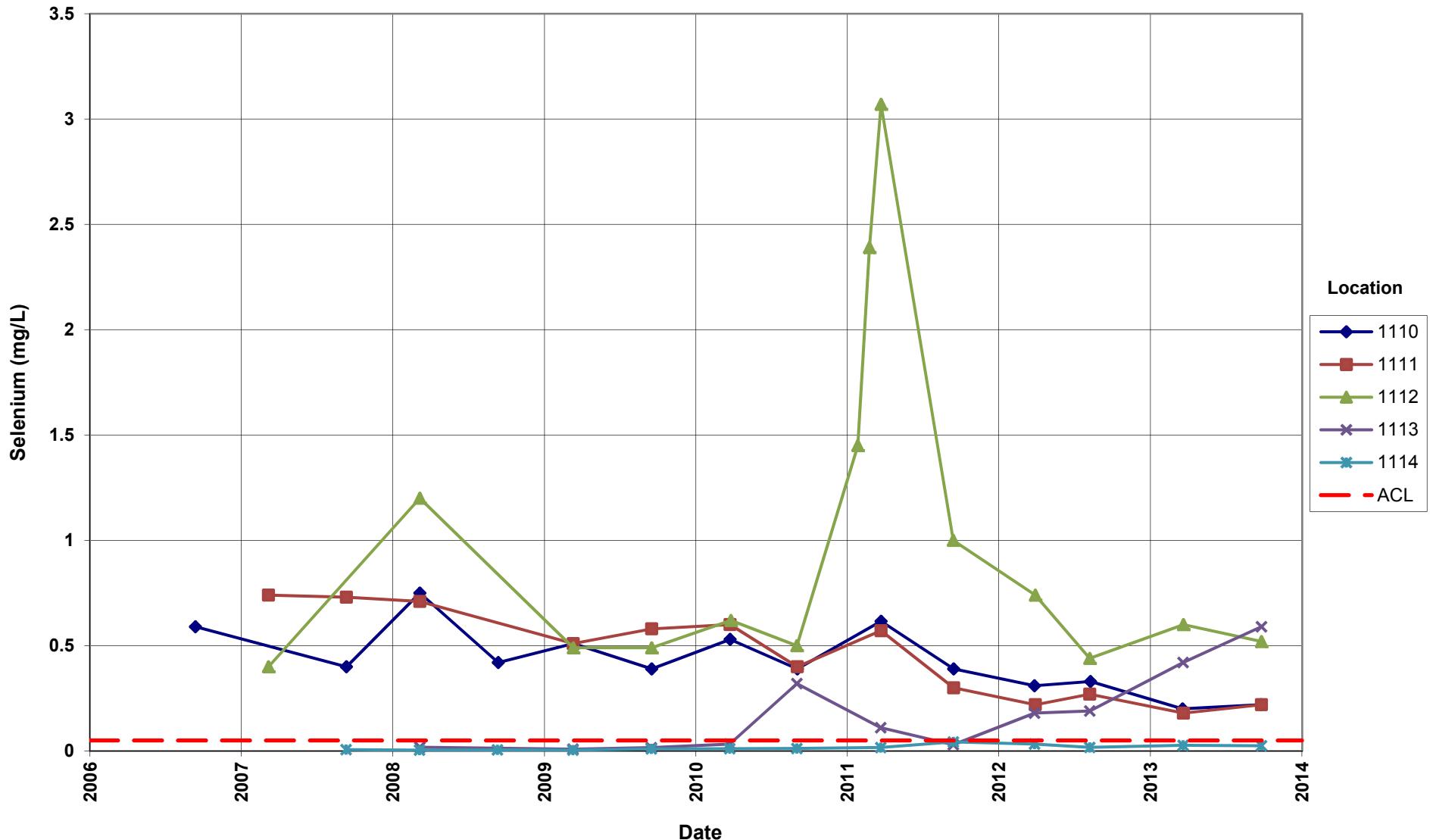


**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)

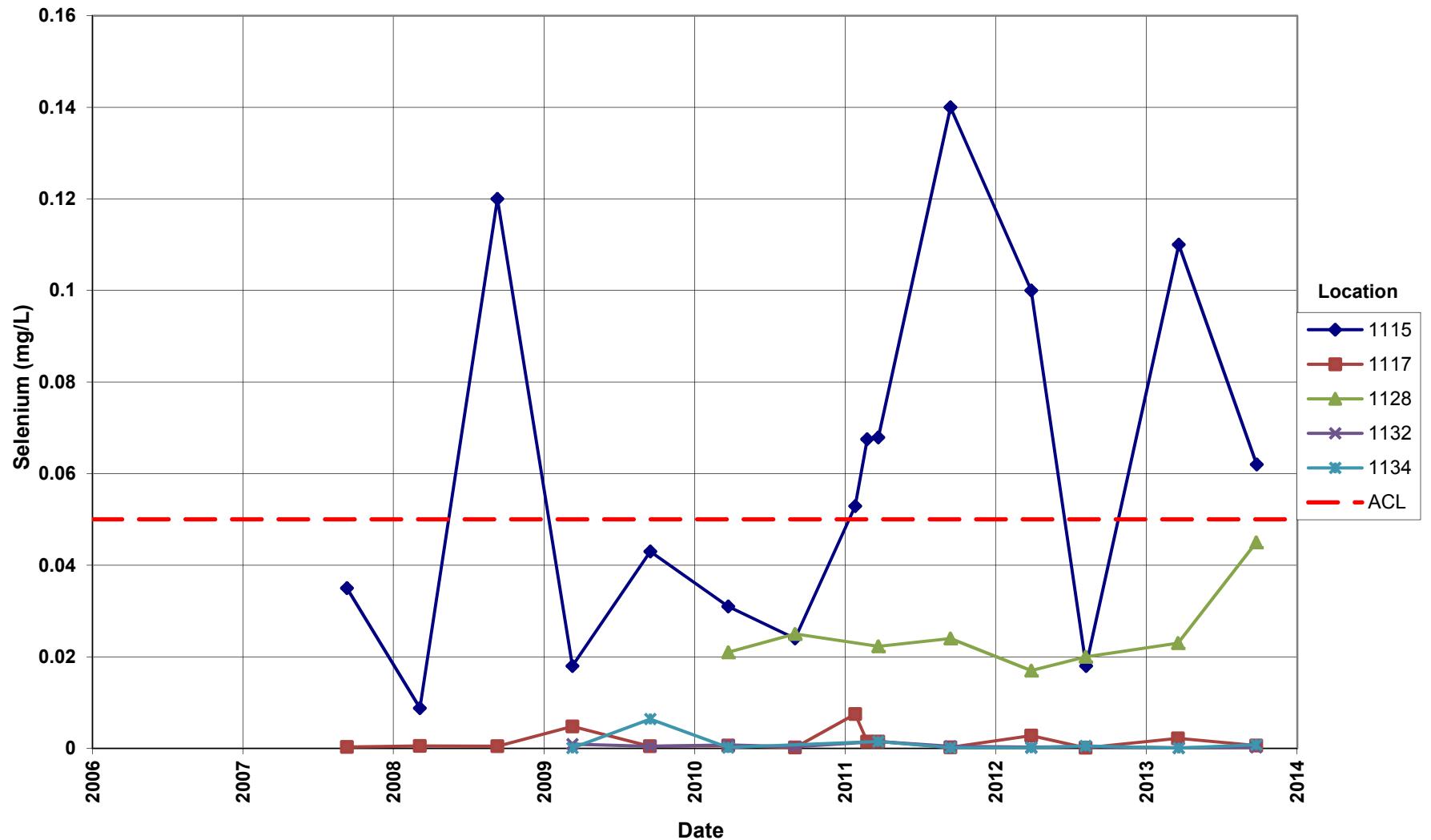


## Shiprock Disposal Site (Floodplain) Selenium Concentration

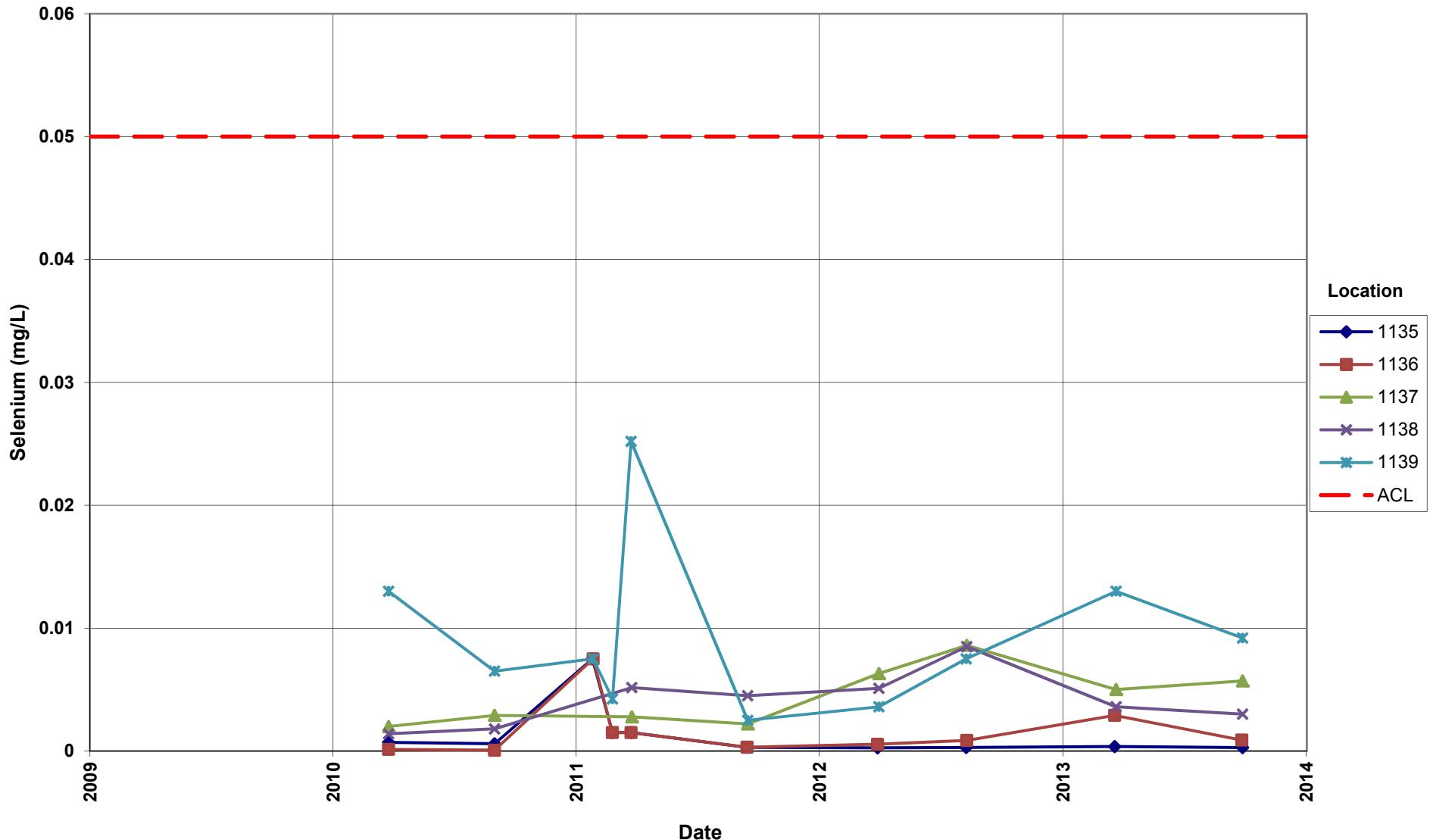
Alternate Concentration Limit (ACL = 0.05 mg/L)



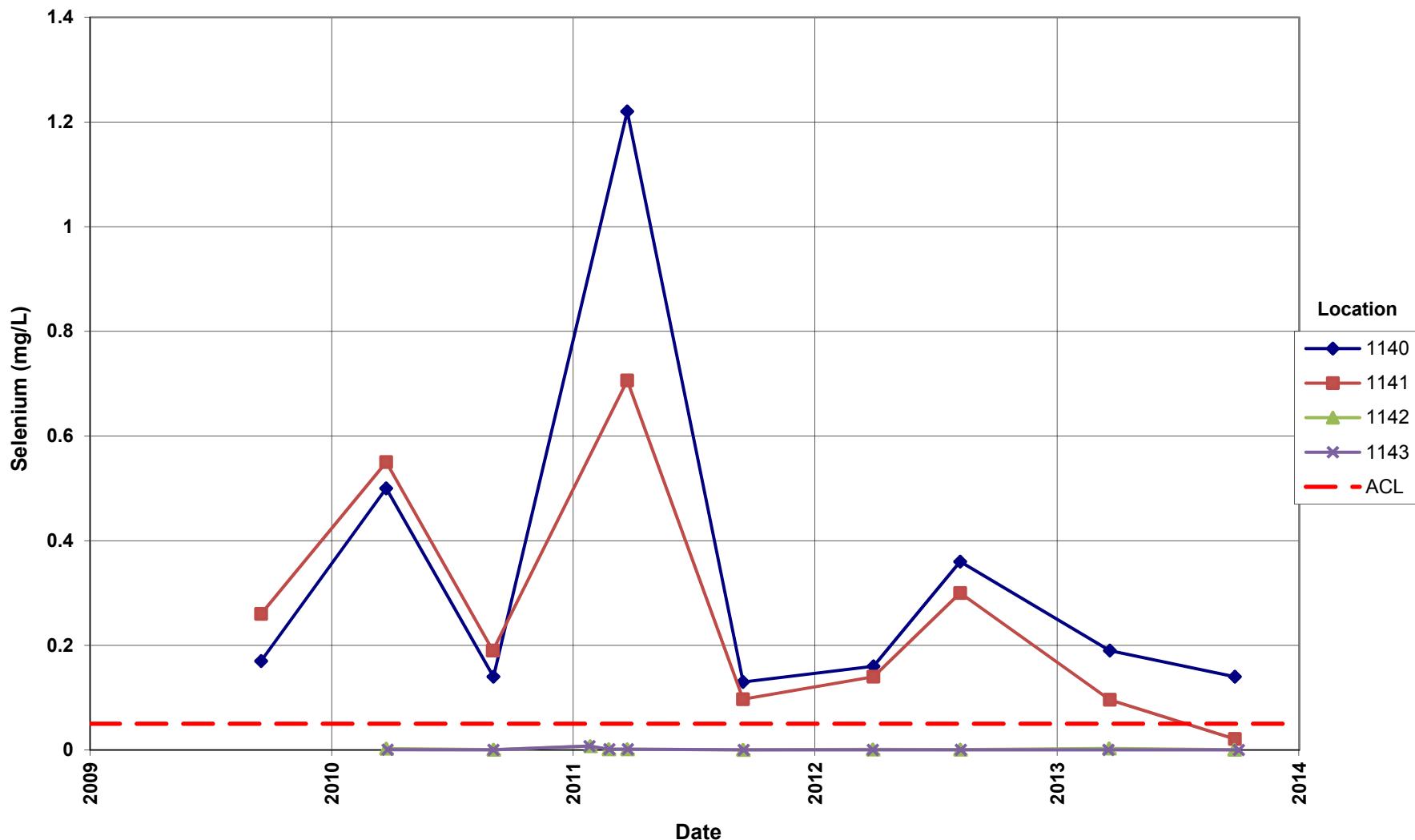
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)



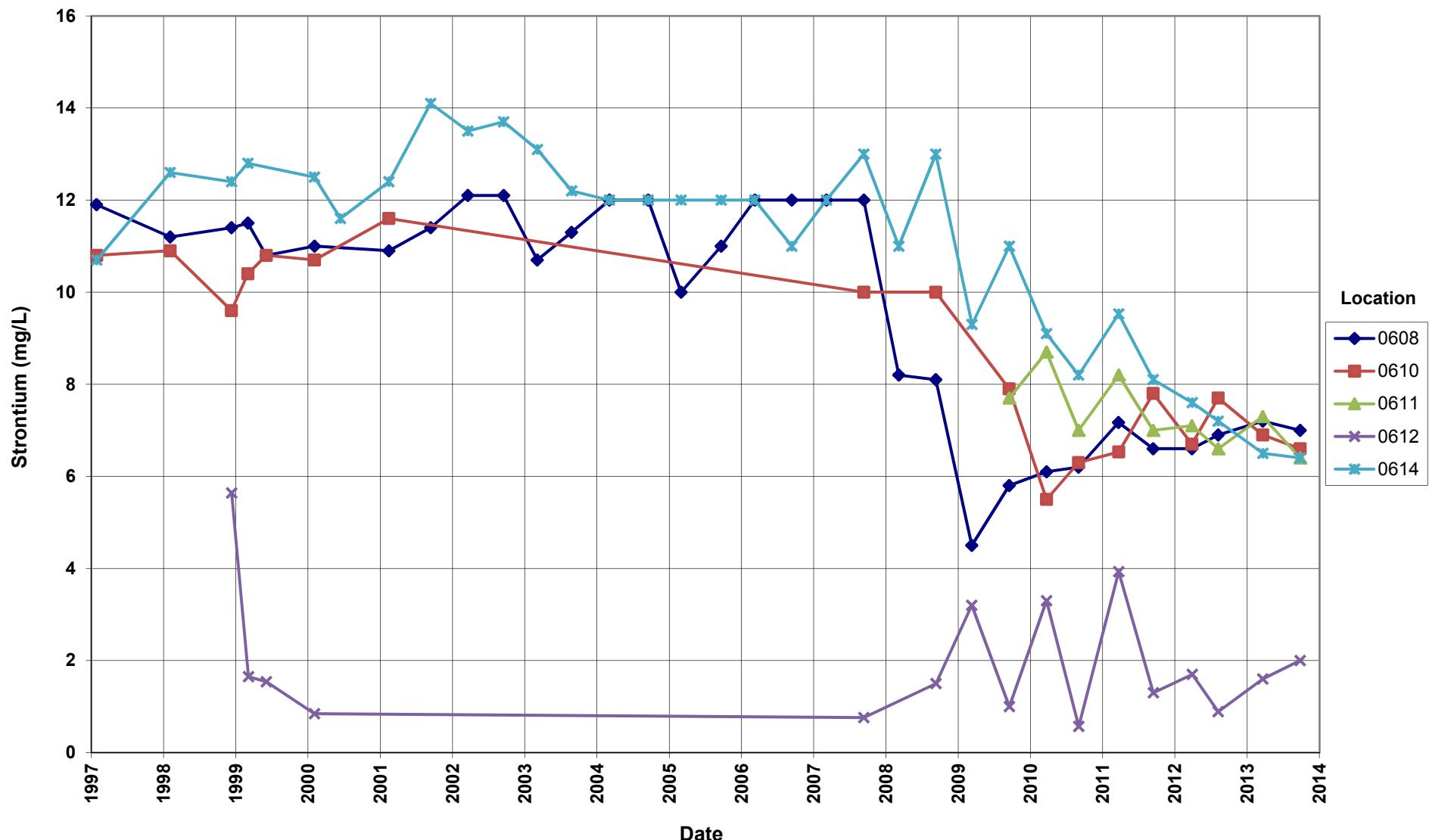
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)



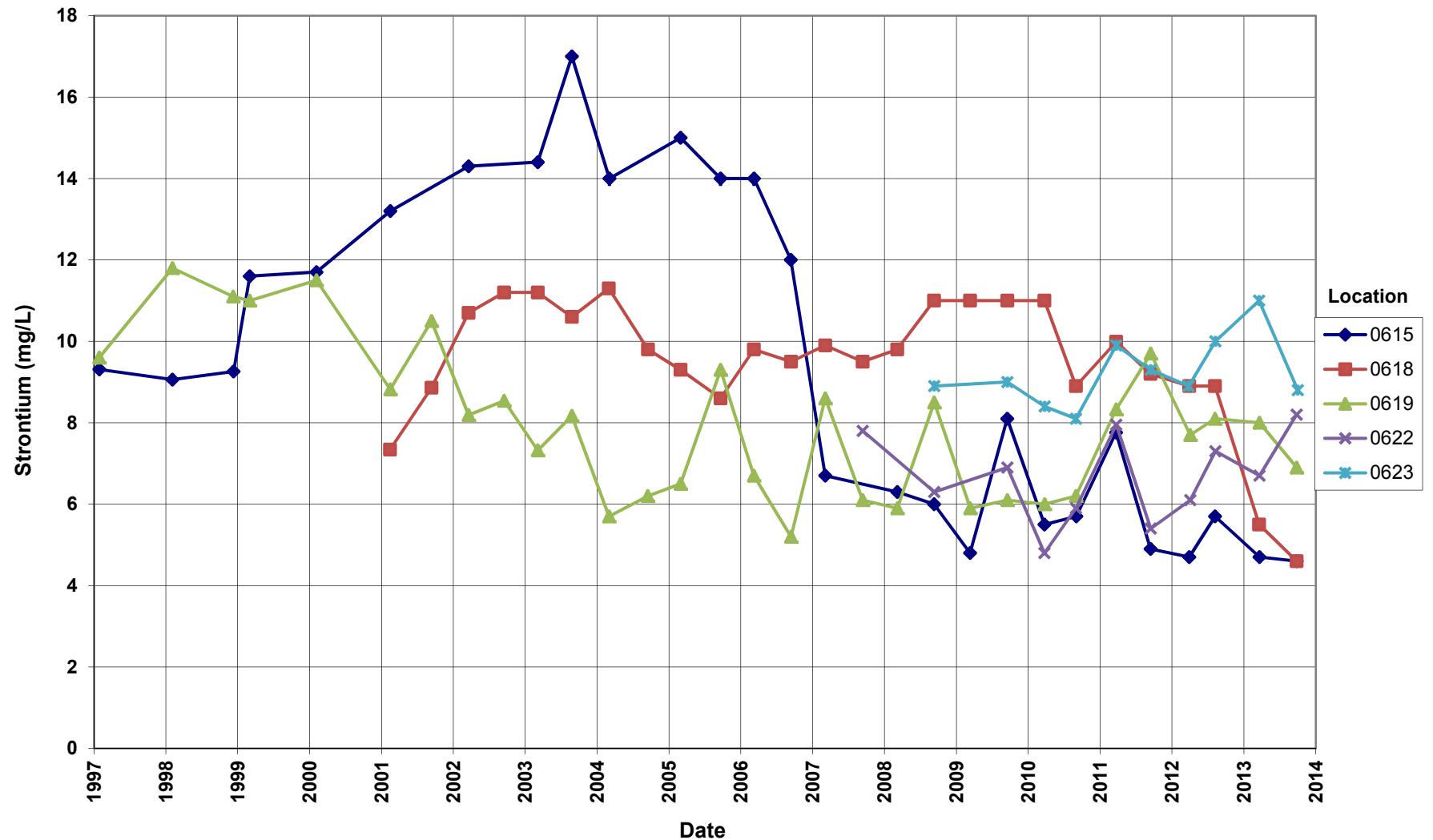
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Alternate Concentration Limit (ACL = 0.05 mg/L)



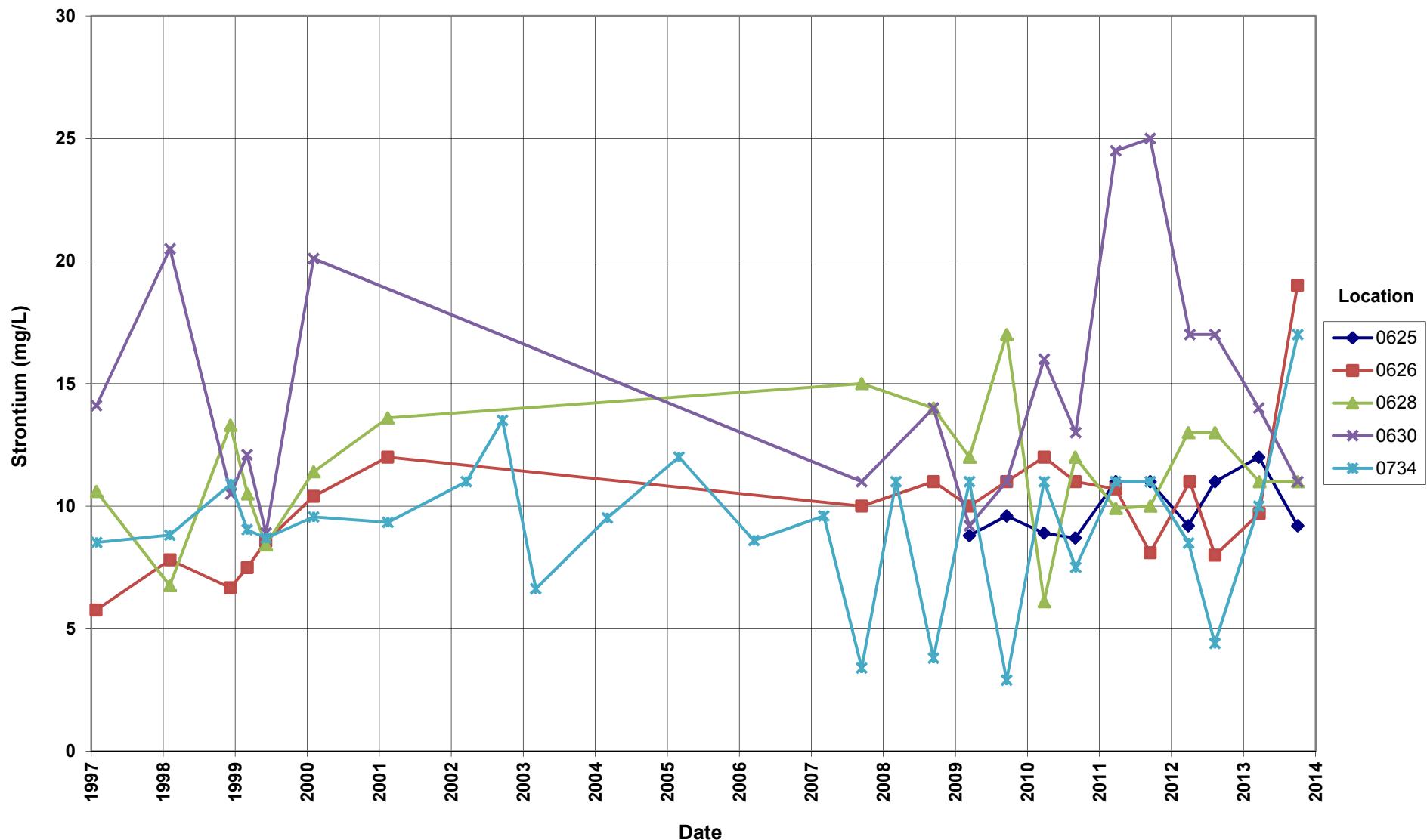
## Shiprock Disposal Site (Floodplain) Strontium Concentration



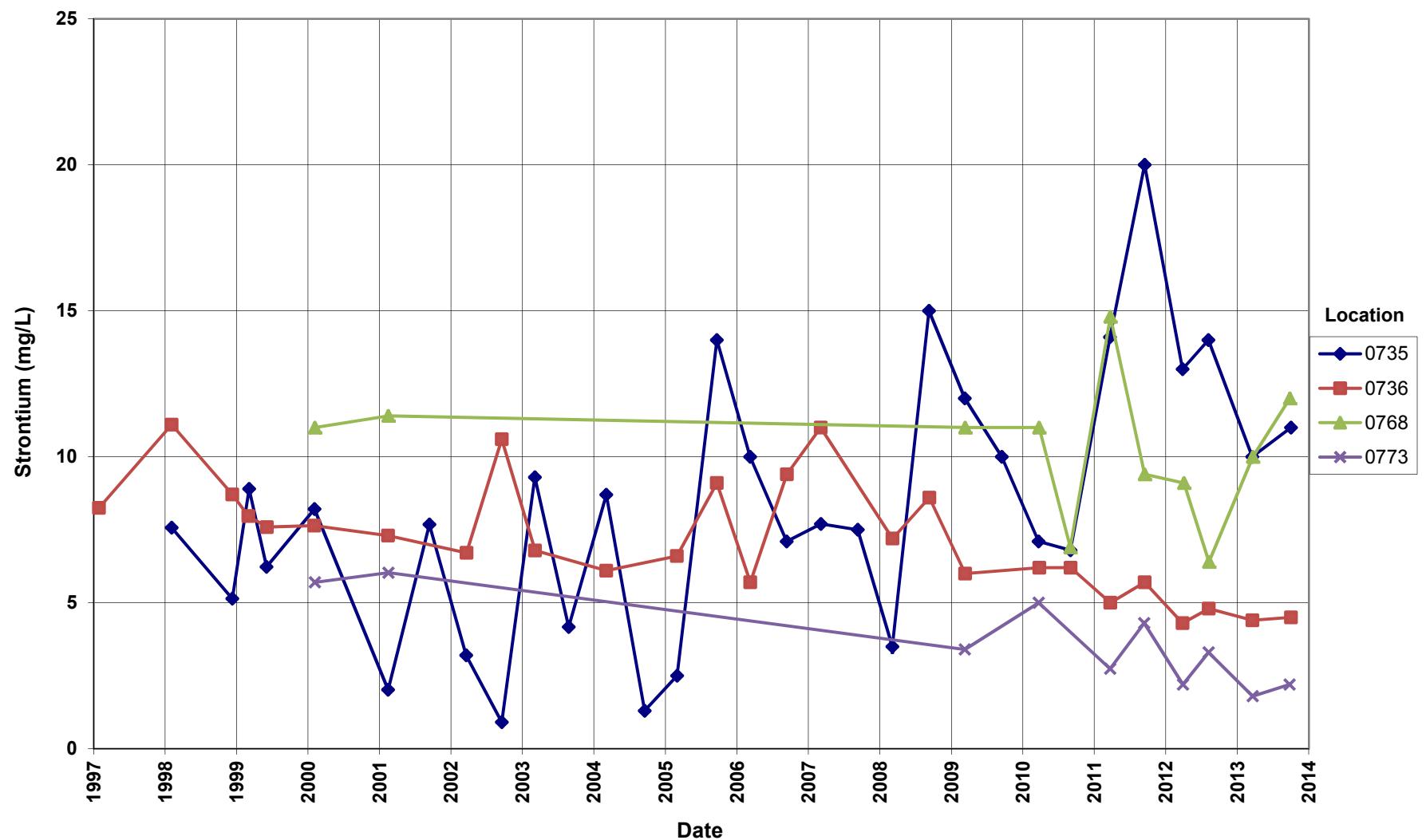
### Shiprock Disposal Site (Floodplain) Strontium Concentration



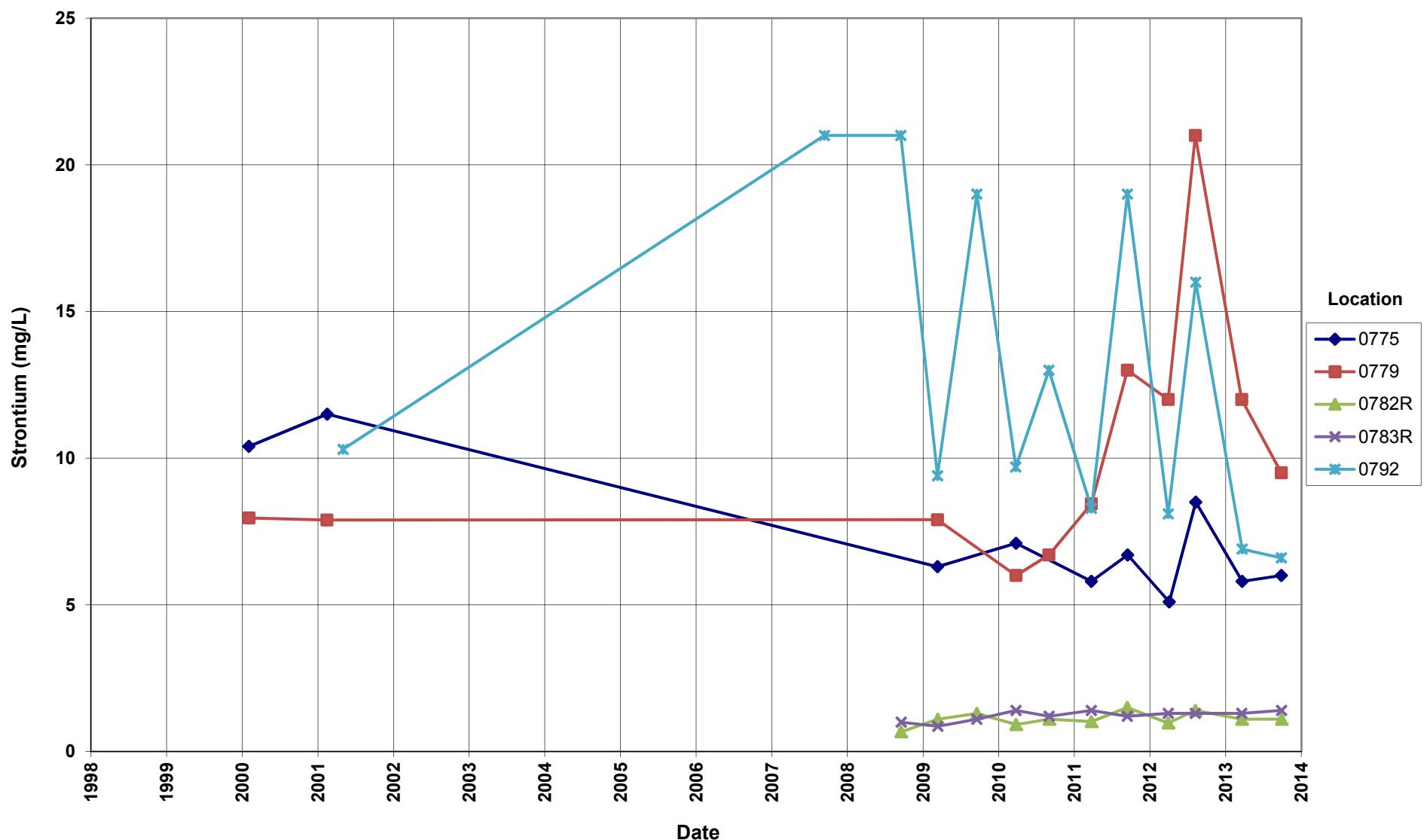
## Shiprock Disposal Site (Floodplain) Strontium Concentration



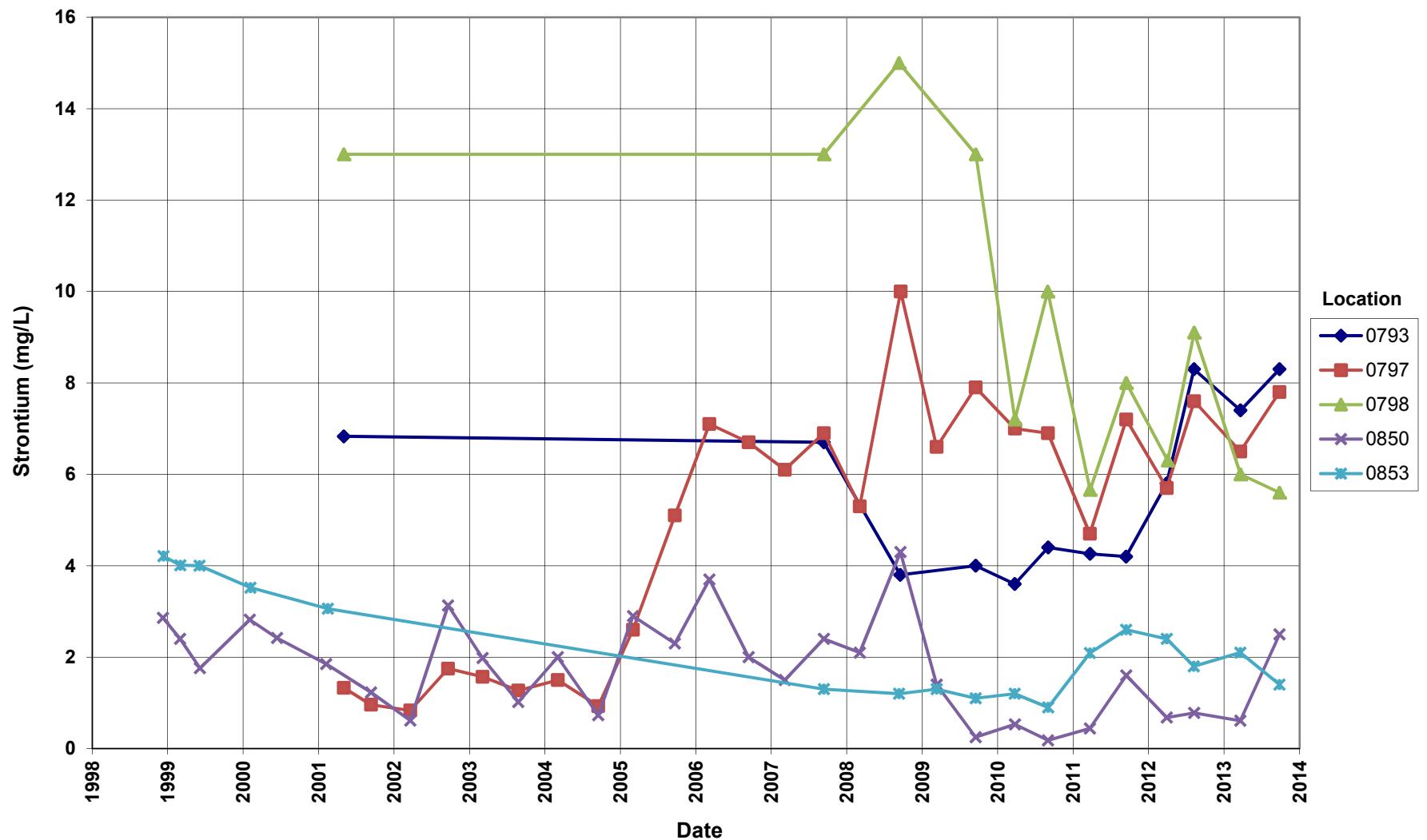
### Shiprock Disposal Site (Floodplain) Strontium Concentration



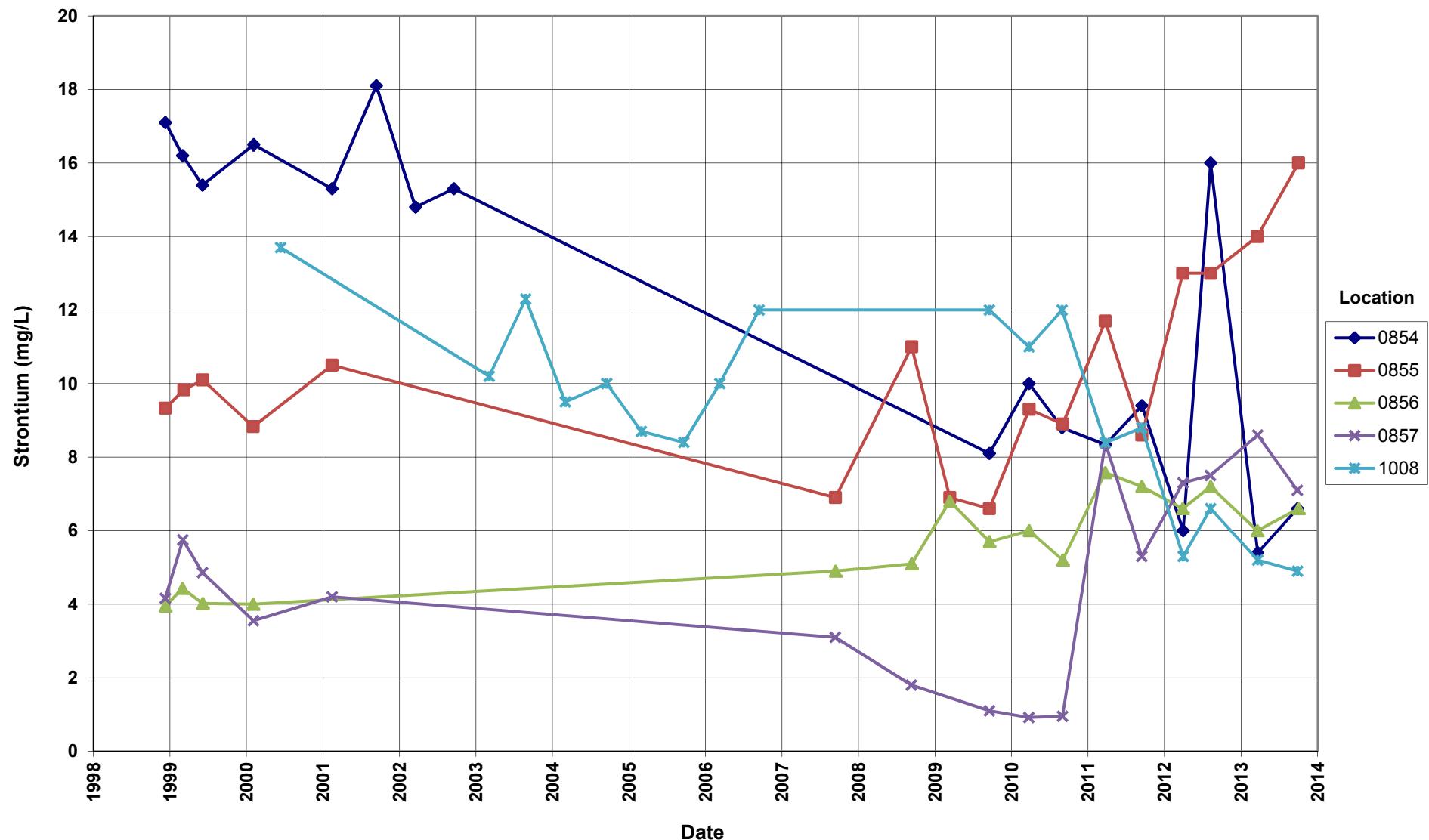
### Shiprock Disposal Site (Floodplain) Strontium Concentration



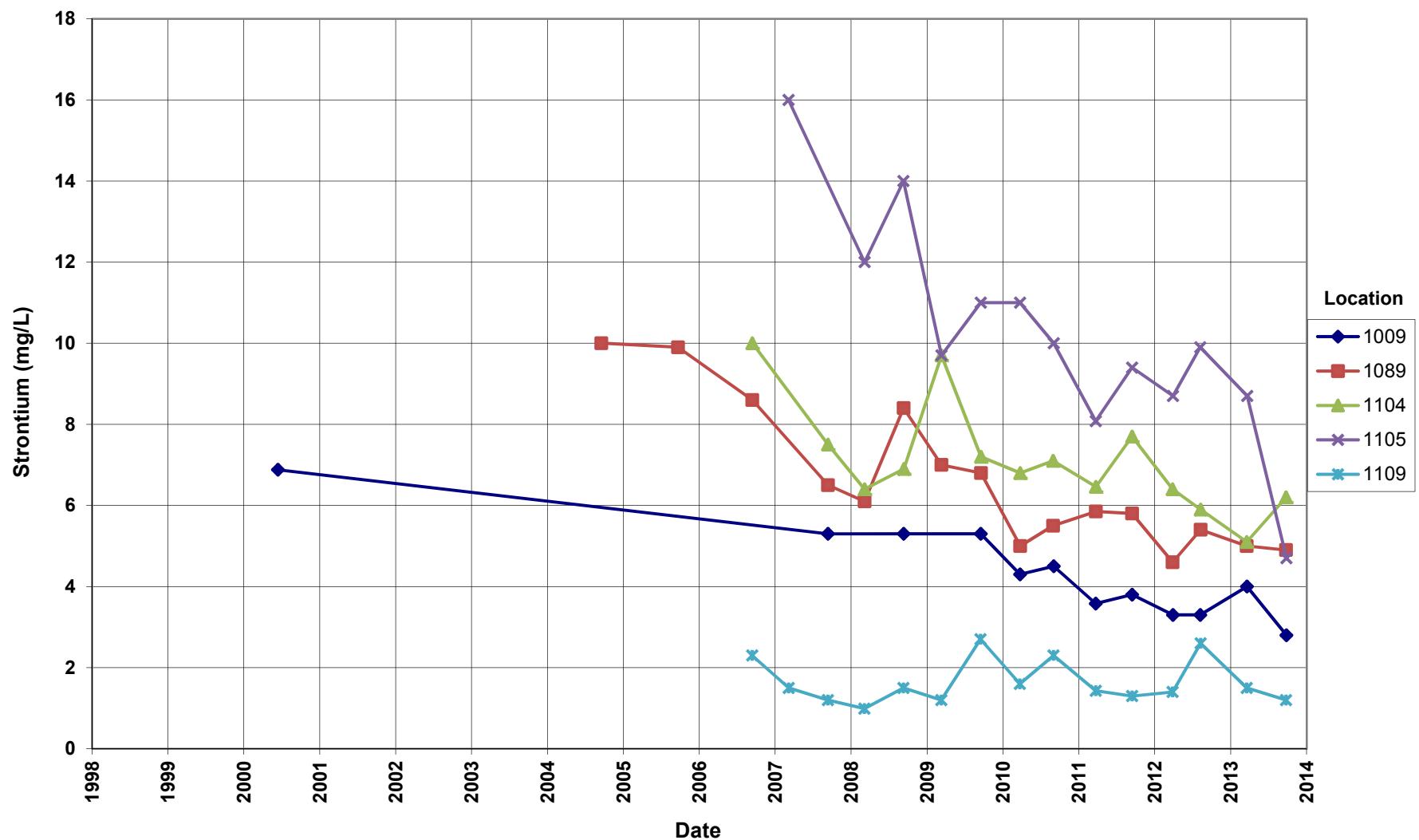
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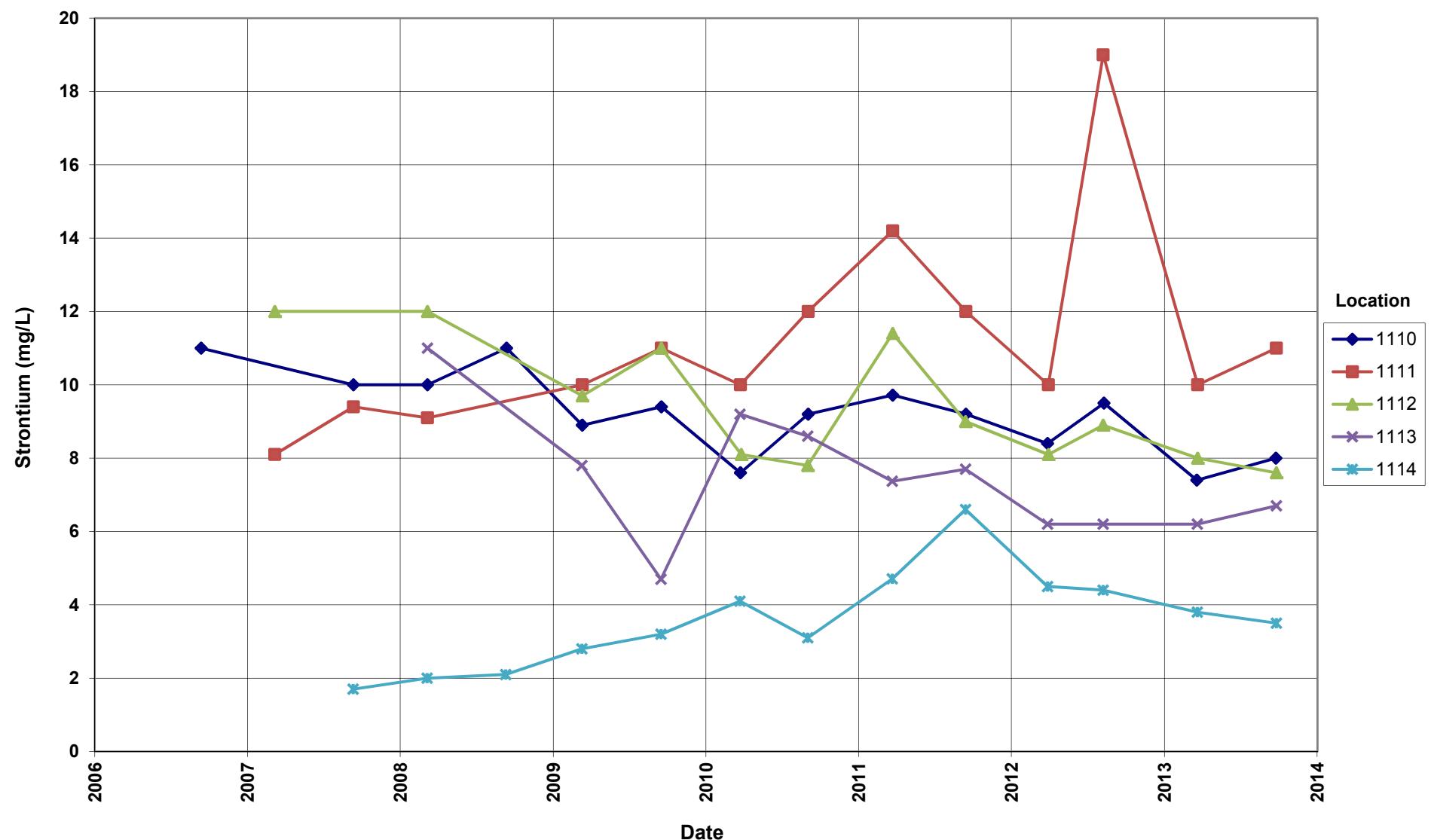
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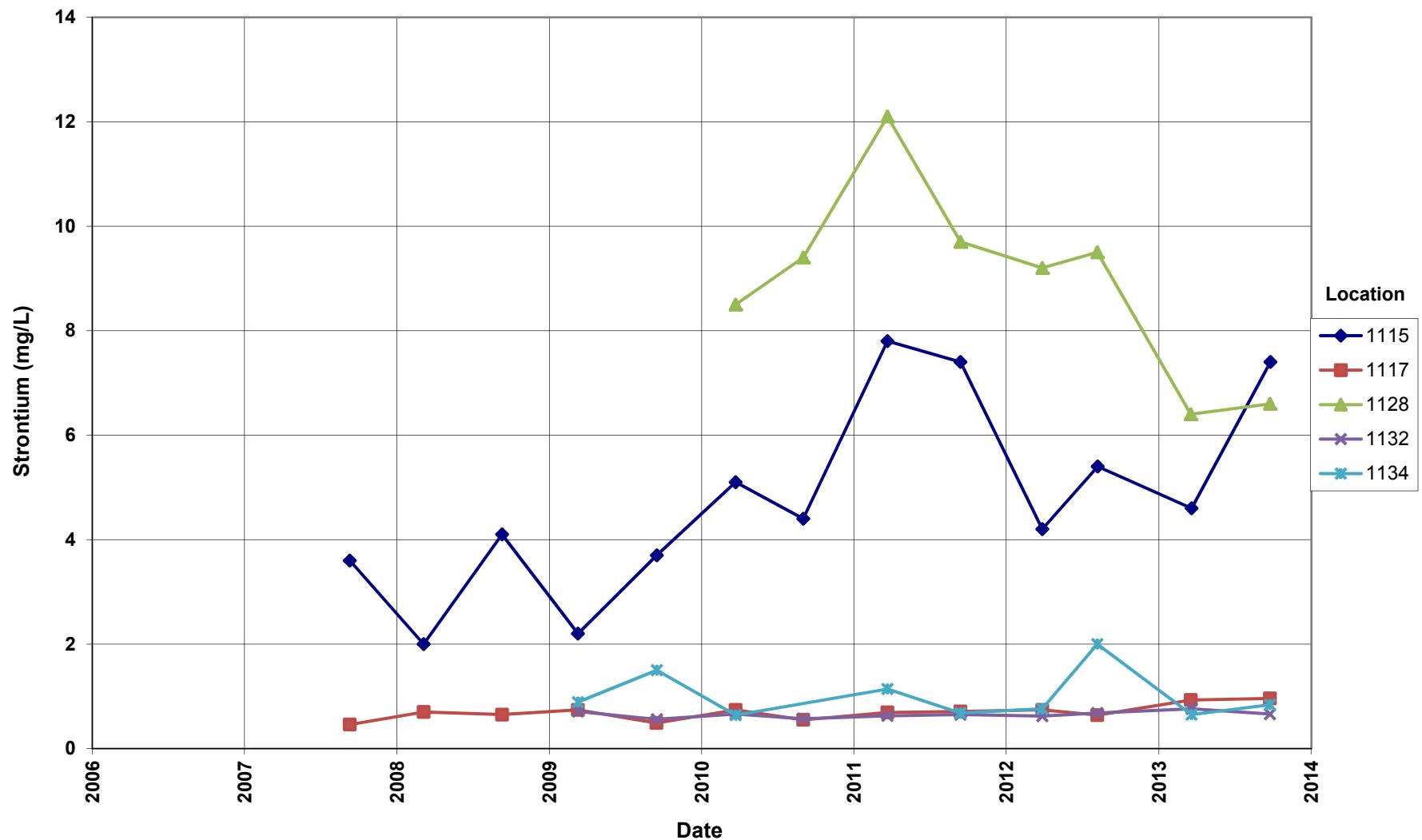
### Shiprock Disposal Site (Floodplain) Strontium Concentration



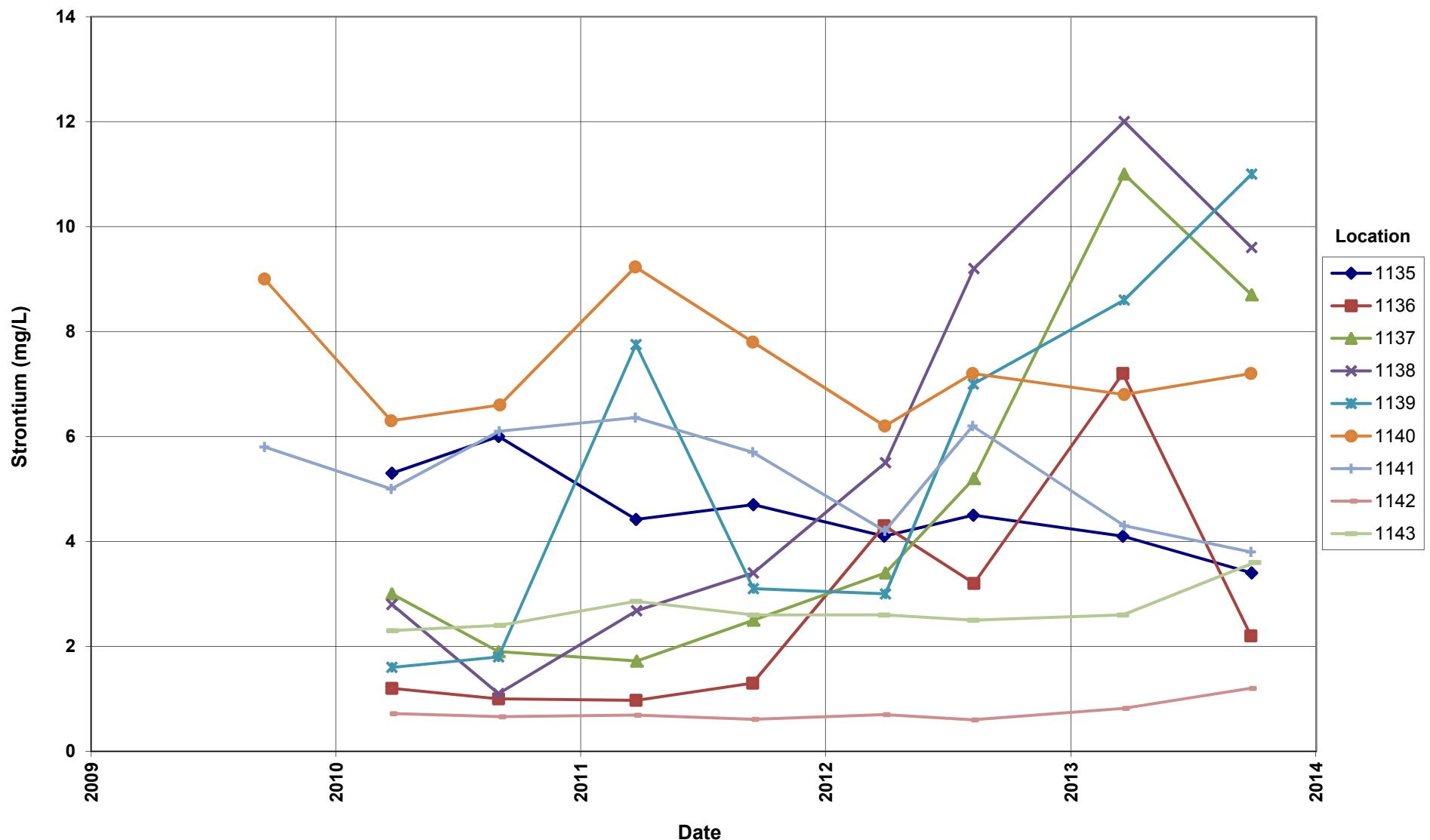
### Shiprock Disposal Site (Floodplain) Strontium Concentration



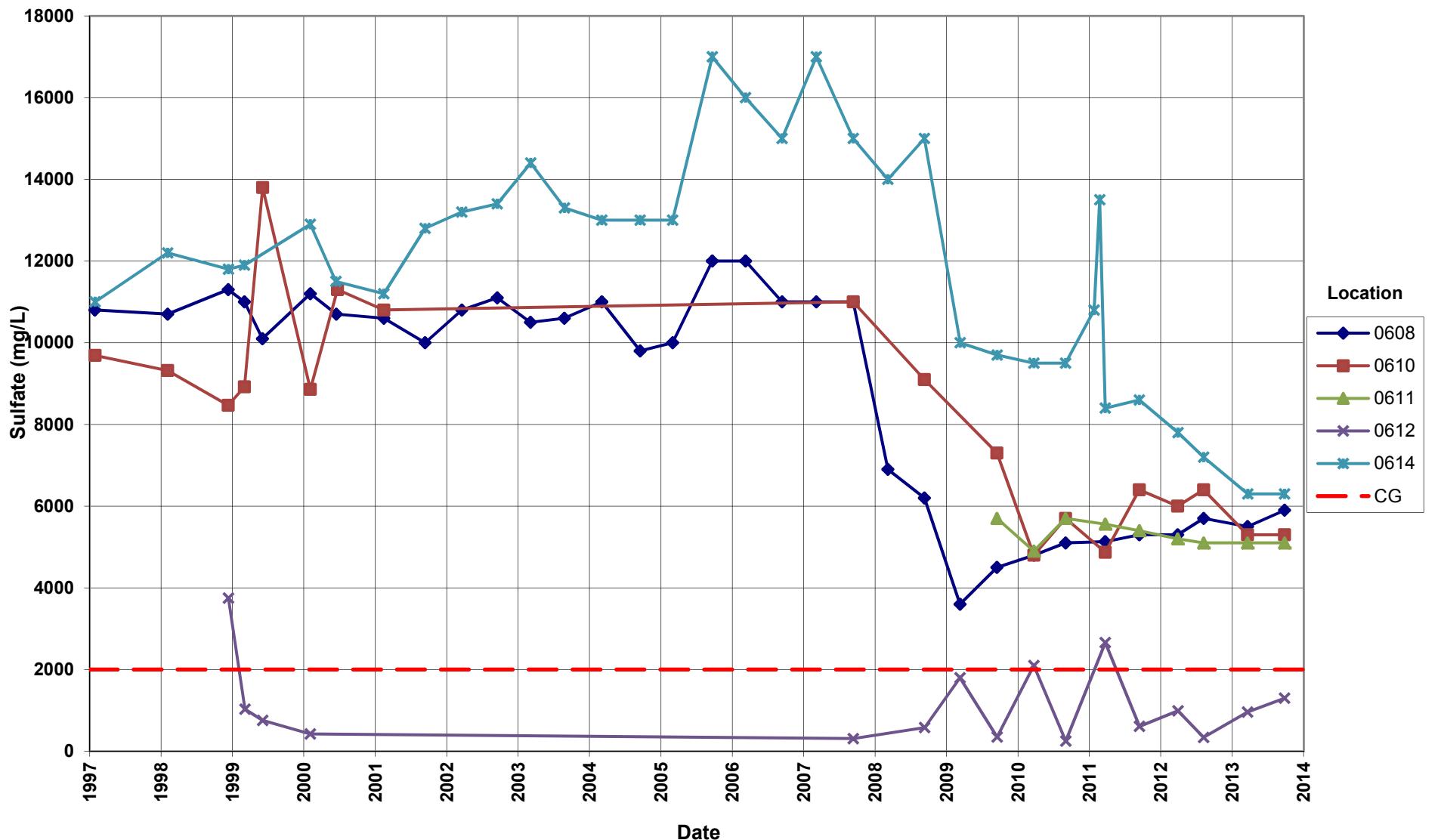
### Shiprock Disposal Site (Floodplain) Strontium Concentration



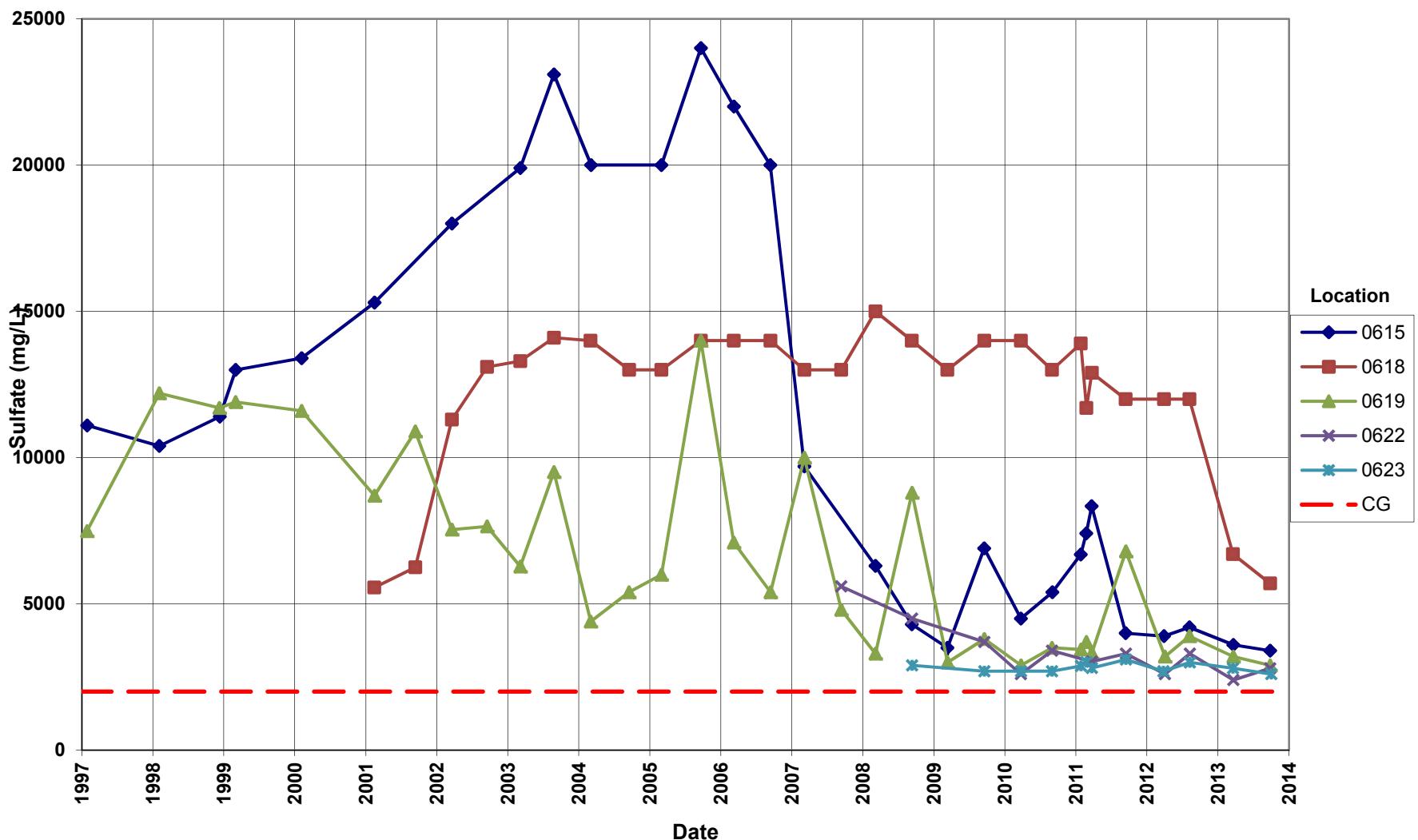
## Shiprock Disposal Site (Floodplain) Strontium Concentration



**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L

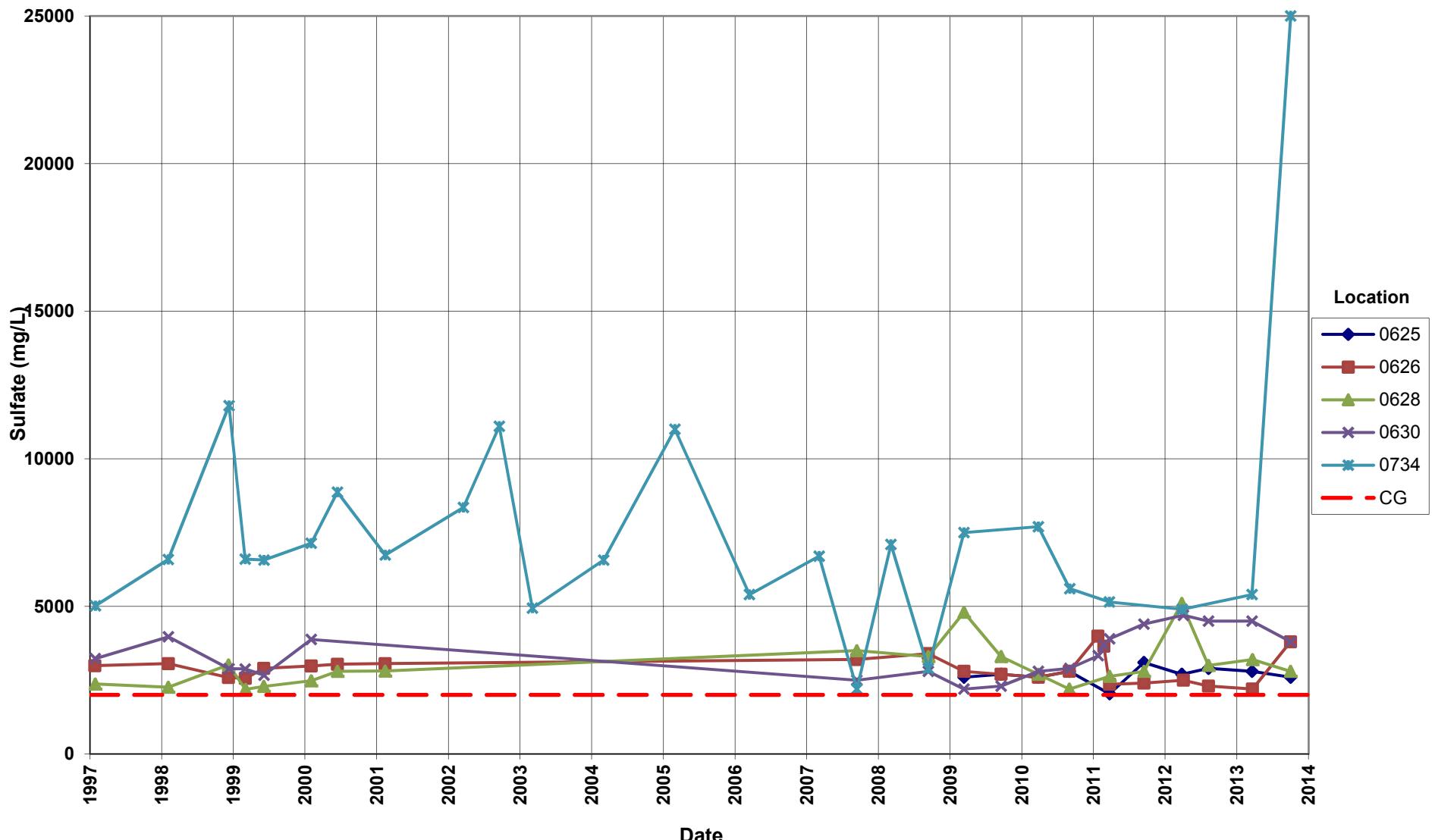


**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L



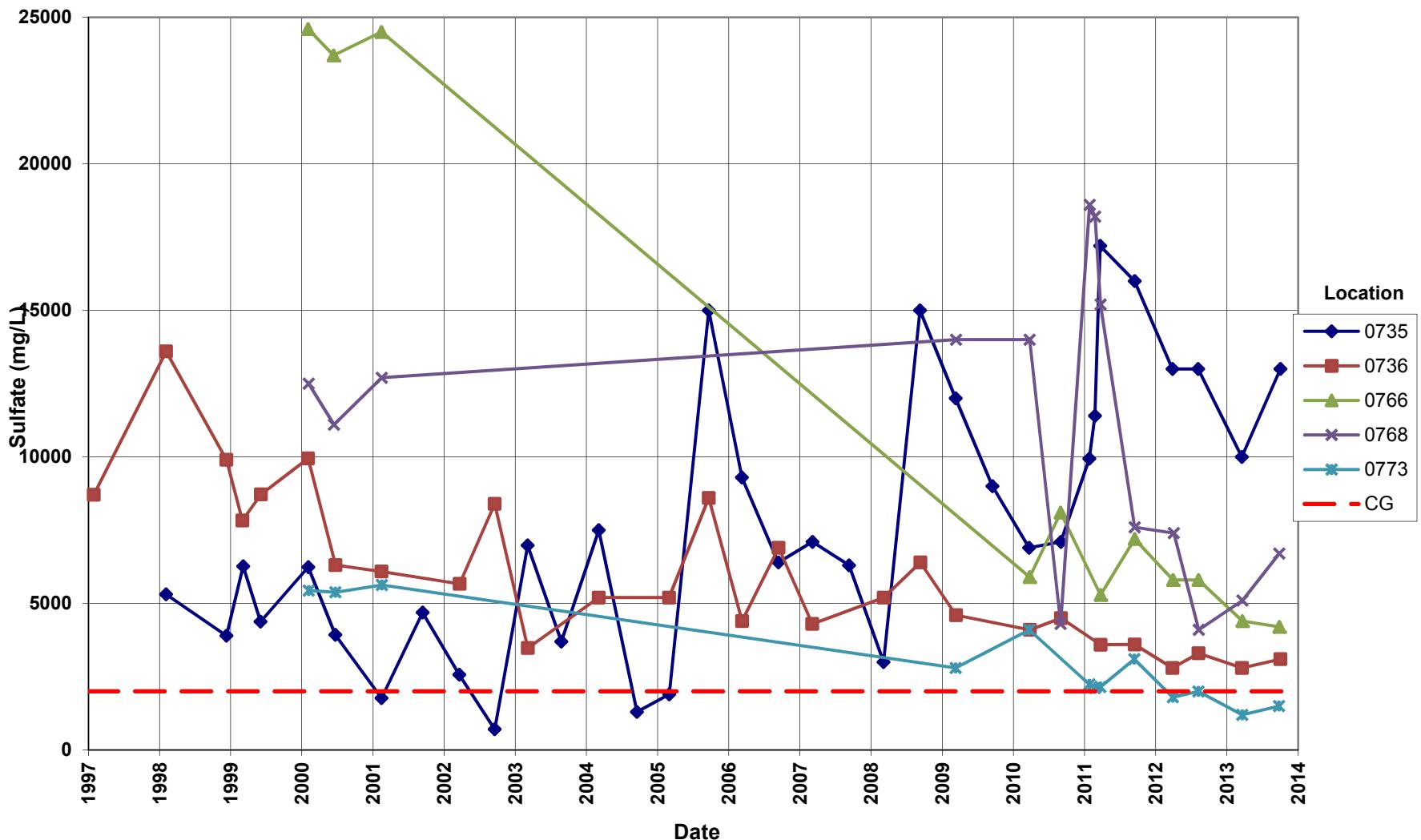
### Shiprock Disposal Site (Floodplain) Sulfate Concentration

Cleanup Goal (CG) = 2000 mg/L

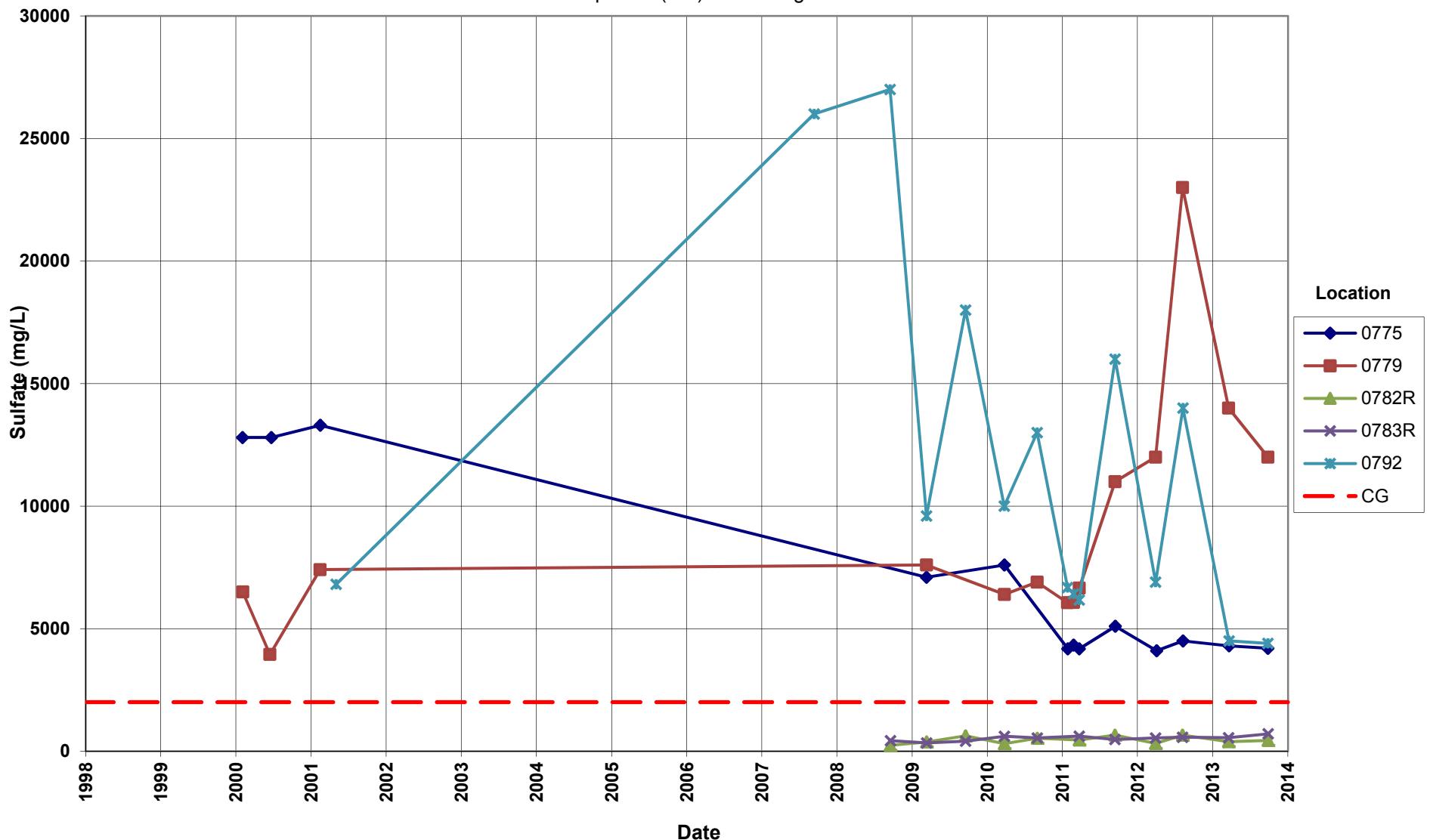


### Shiprock Disposal Site (Floodplain) Sulfate Concentration

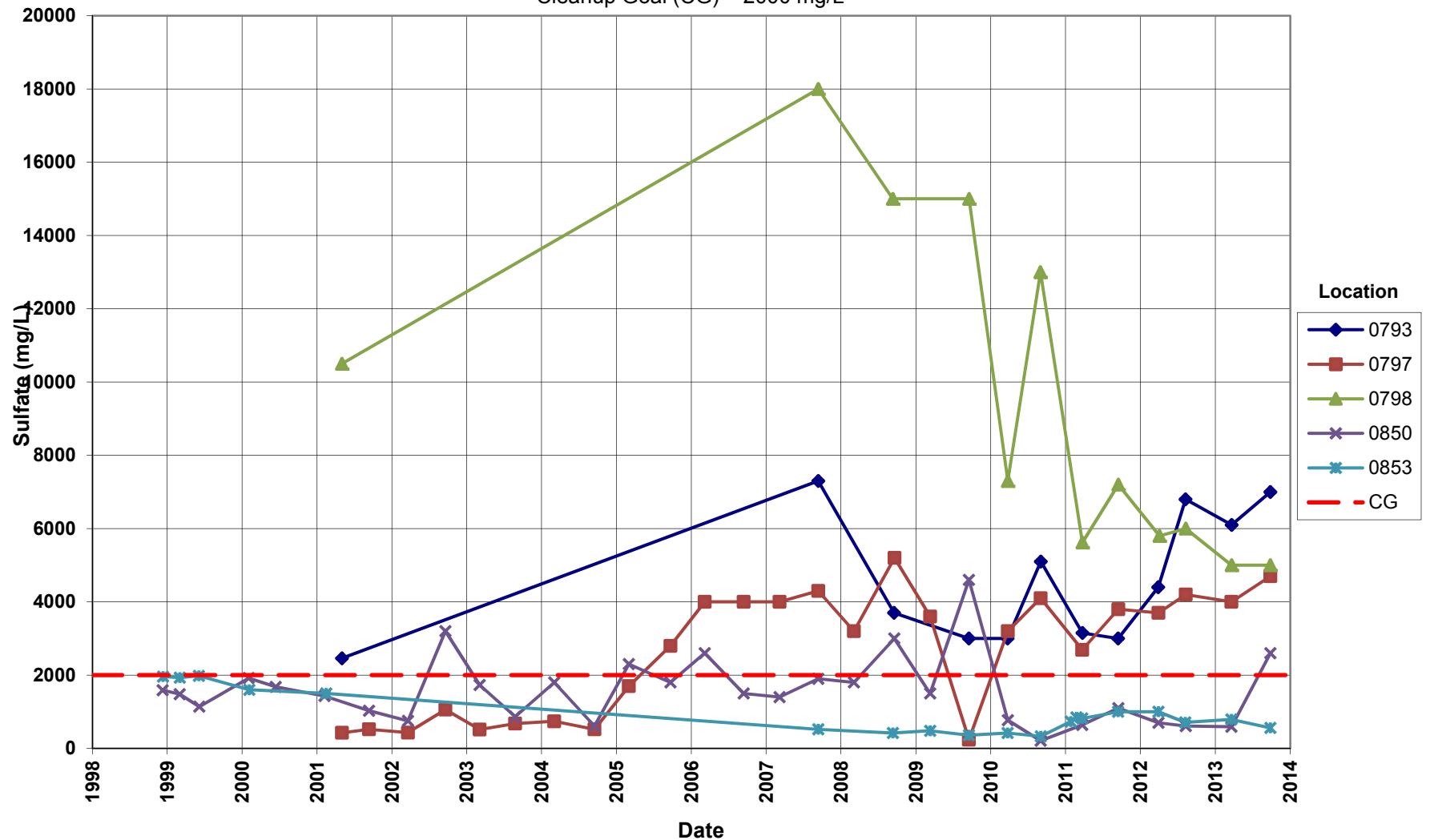
Cleanup Goal (CG) = 2000 mg/L



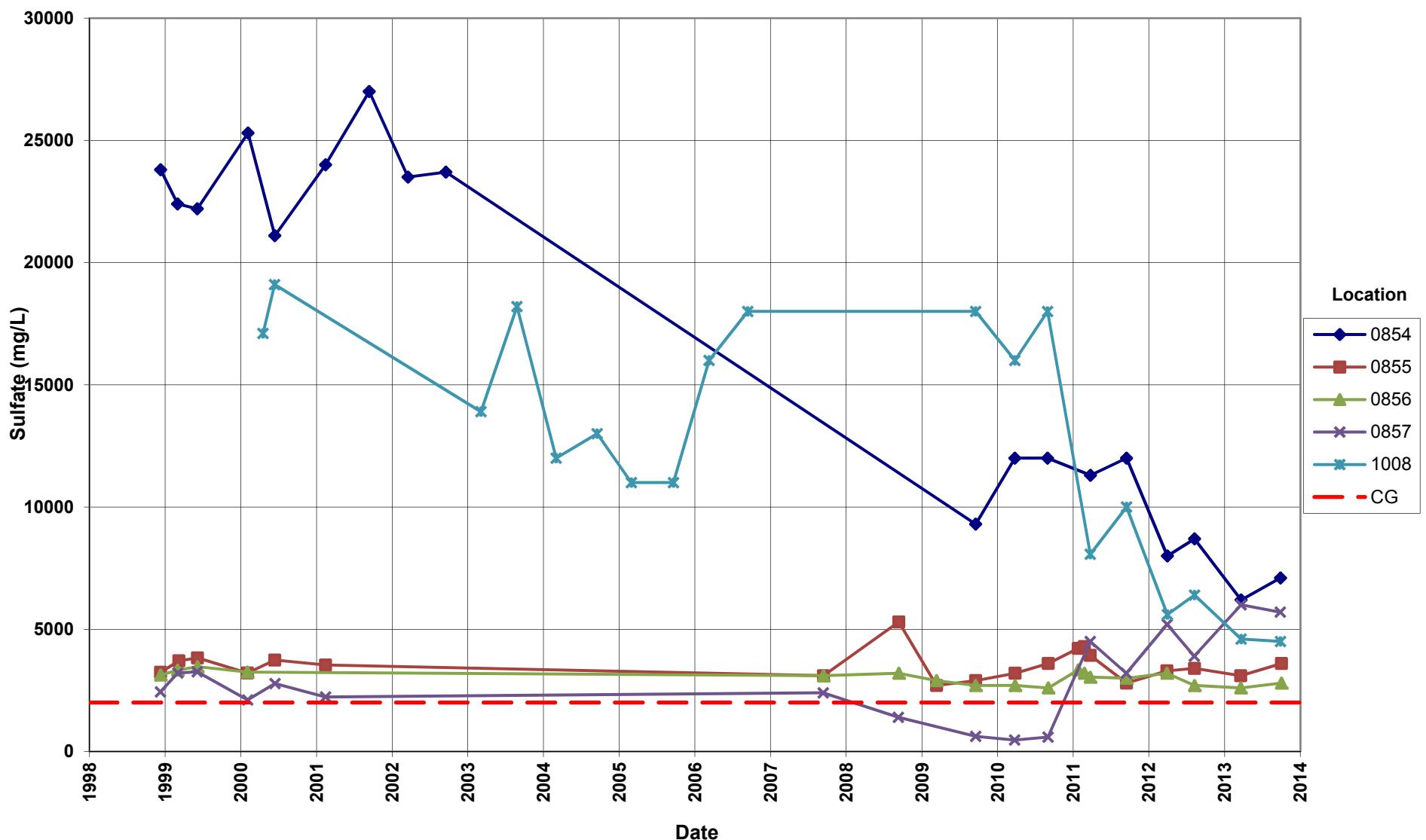
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2000 mg/L



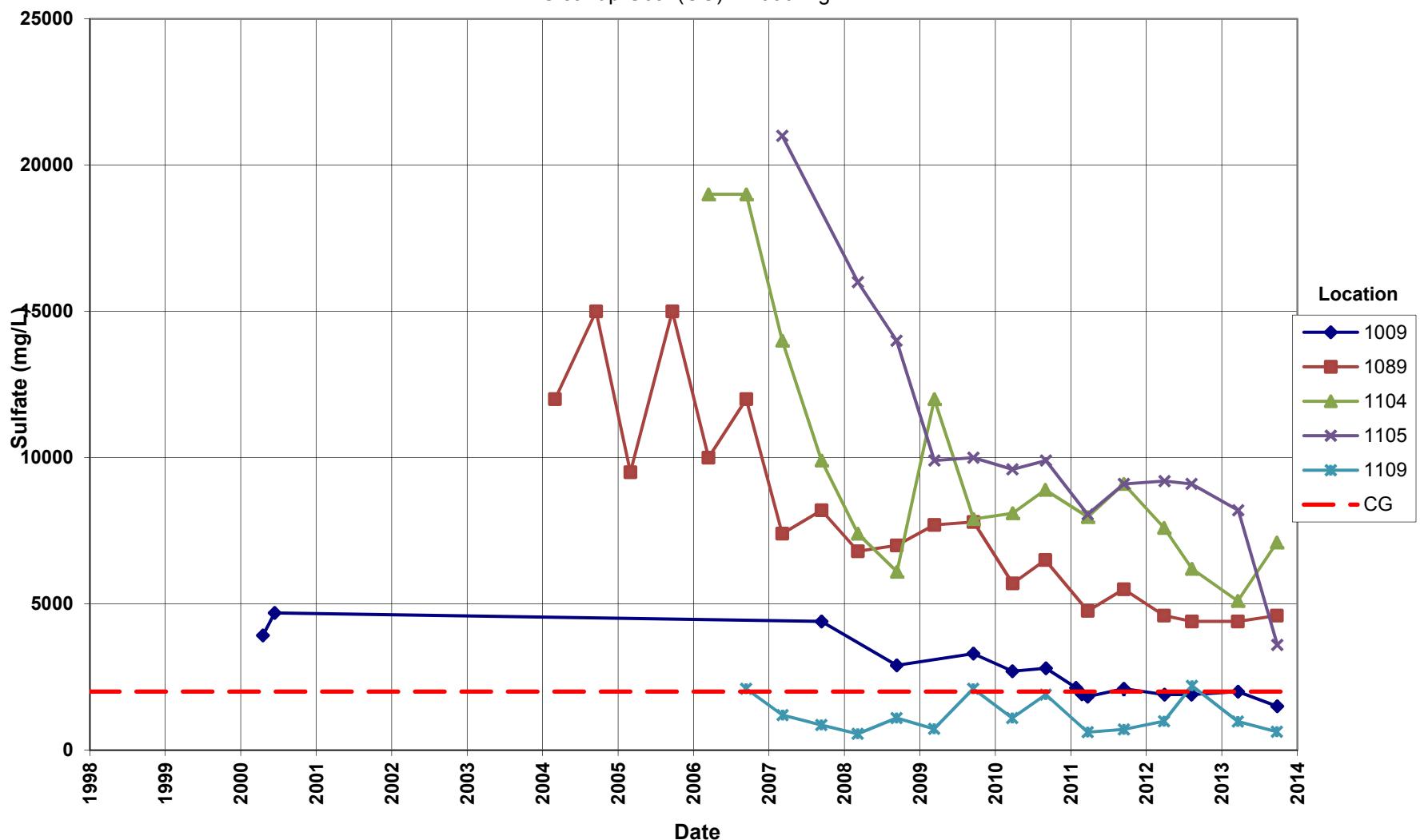
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L



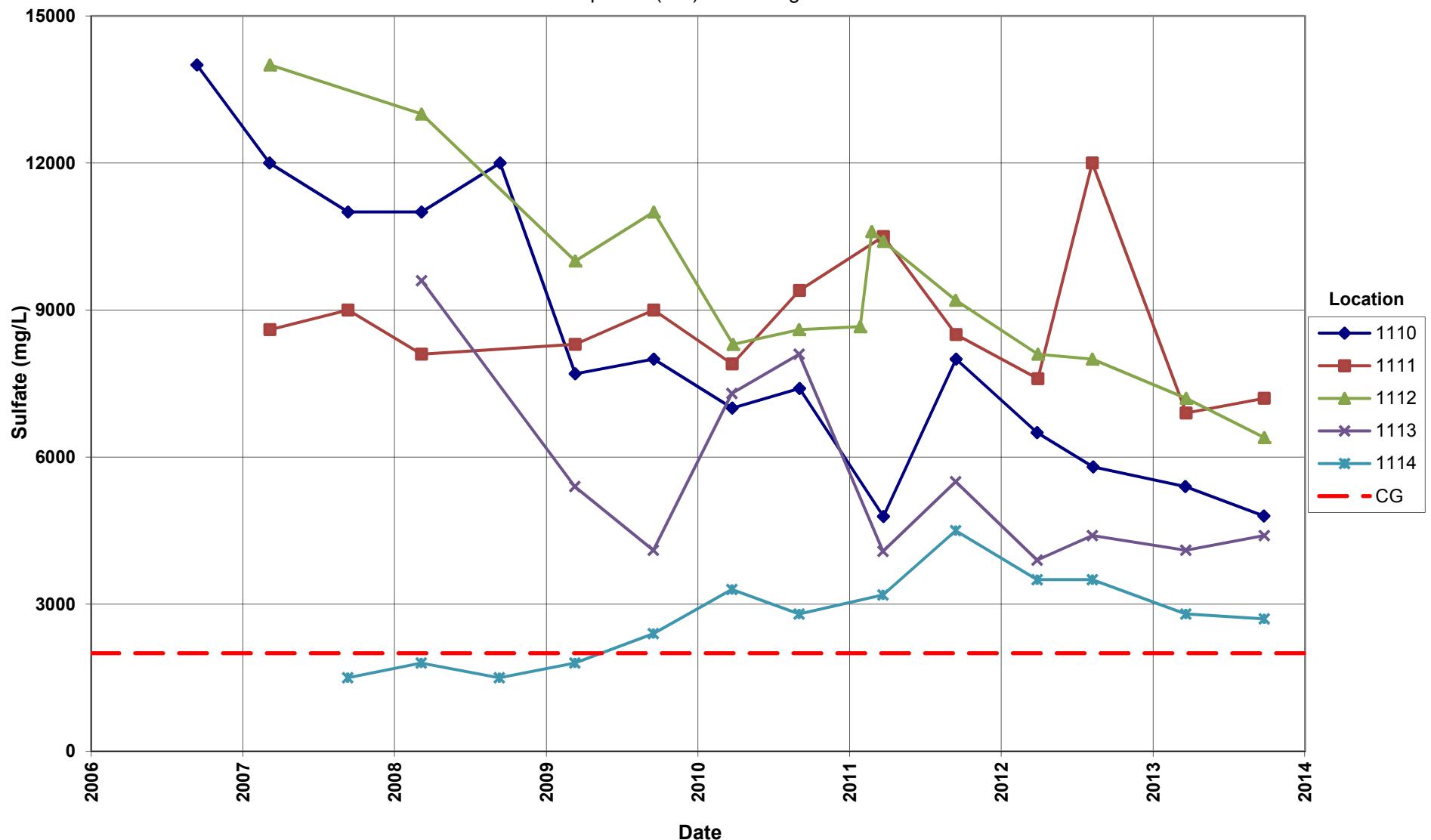
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L



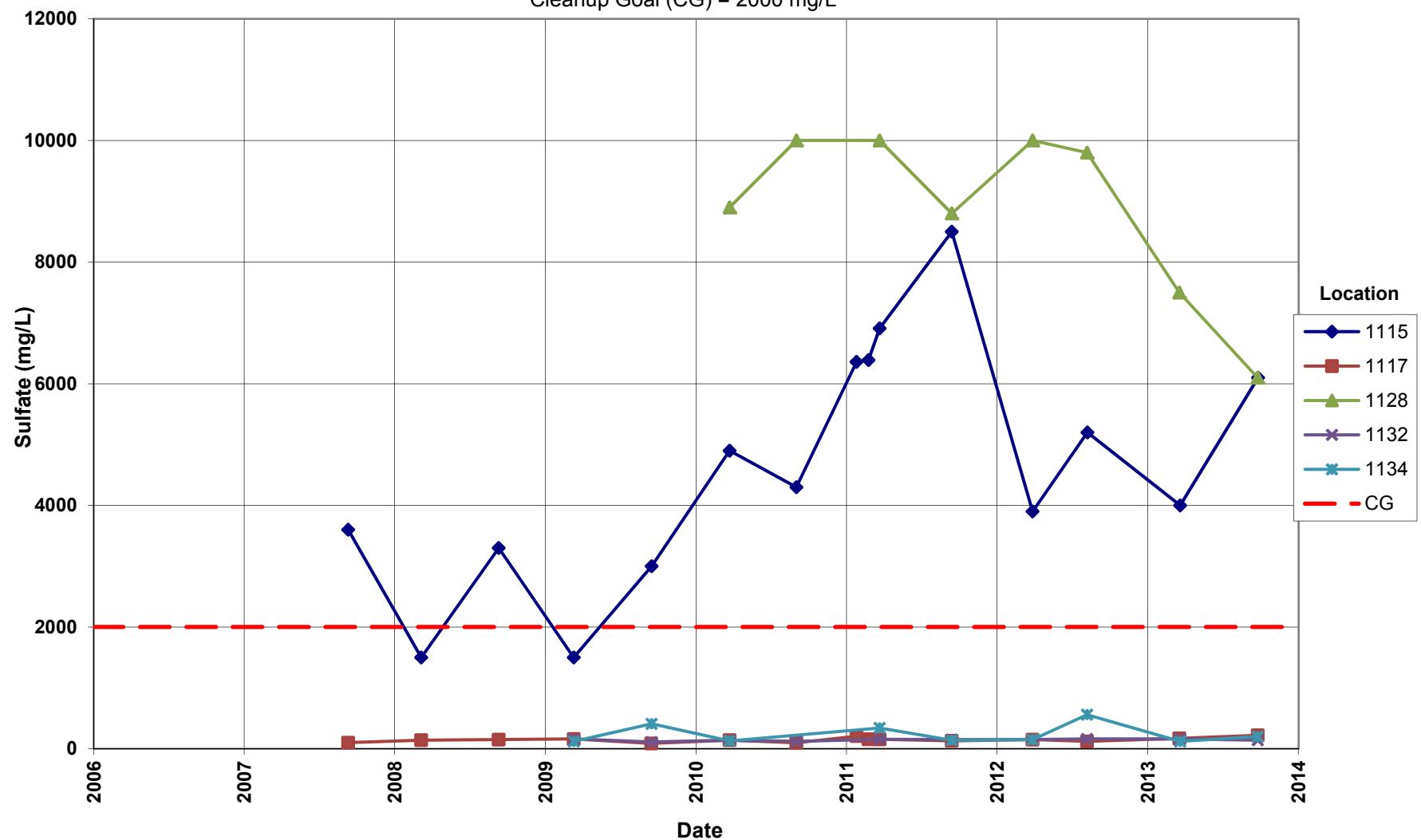
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L



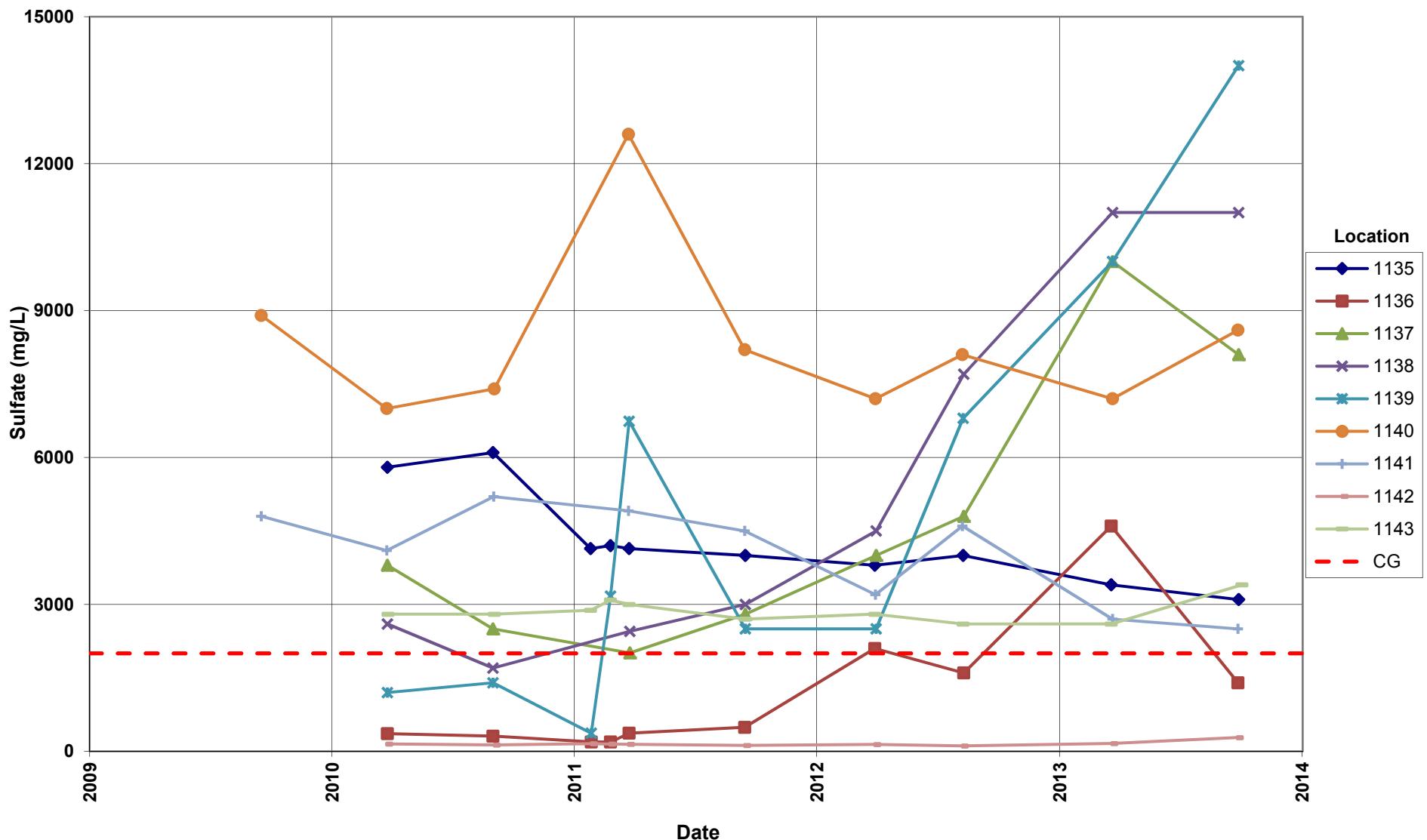
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2000 mg/L



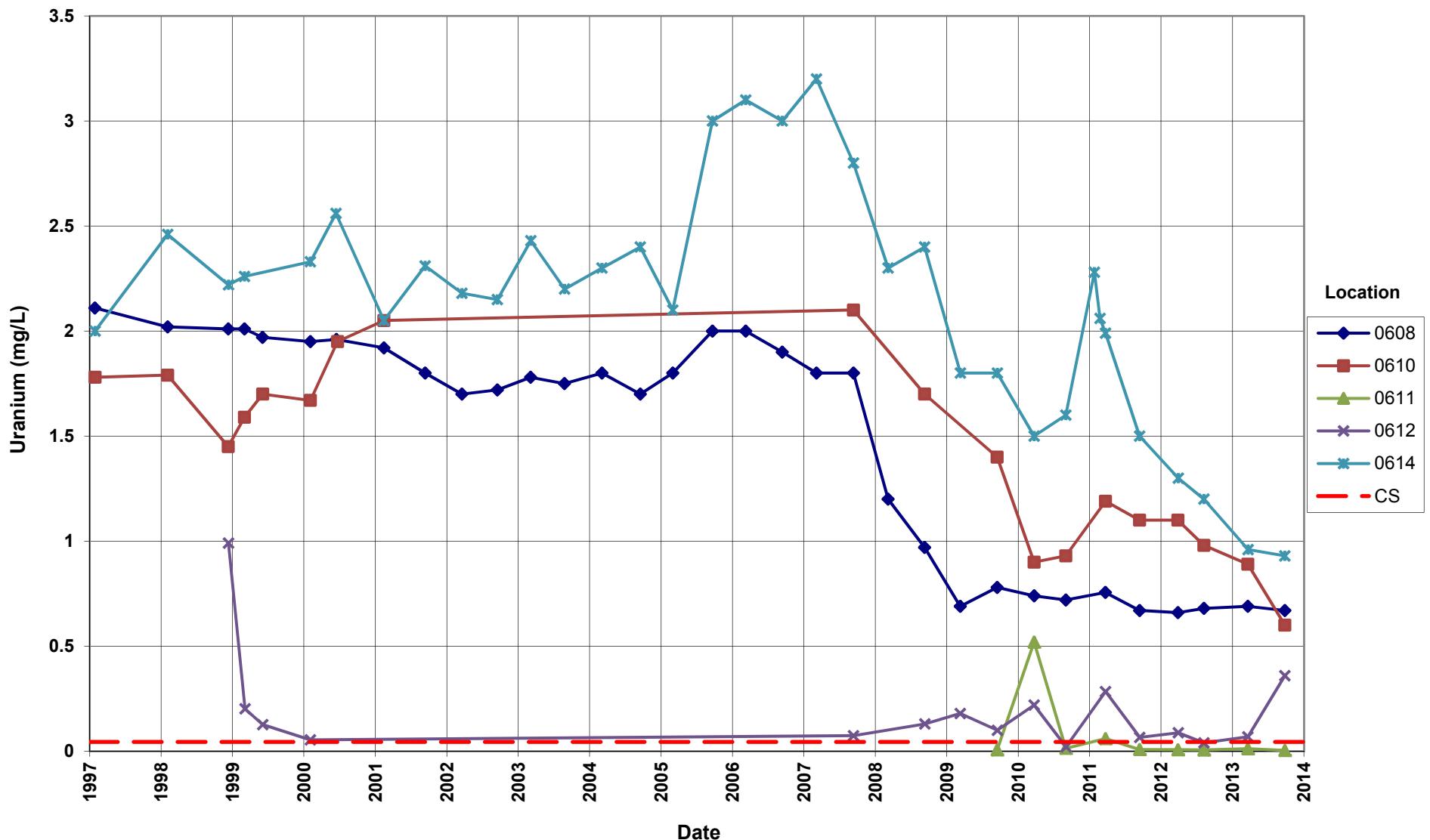
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2000 mg/L



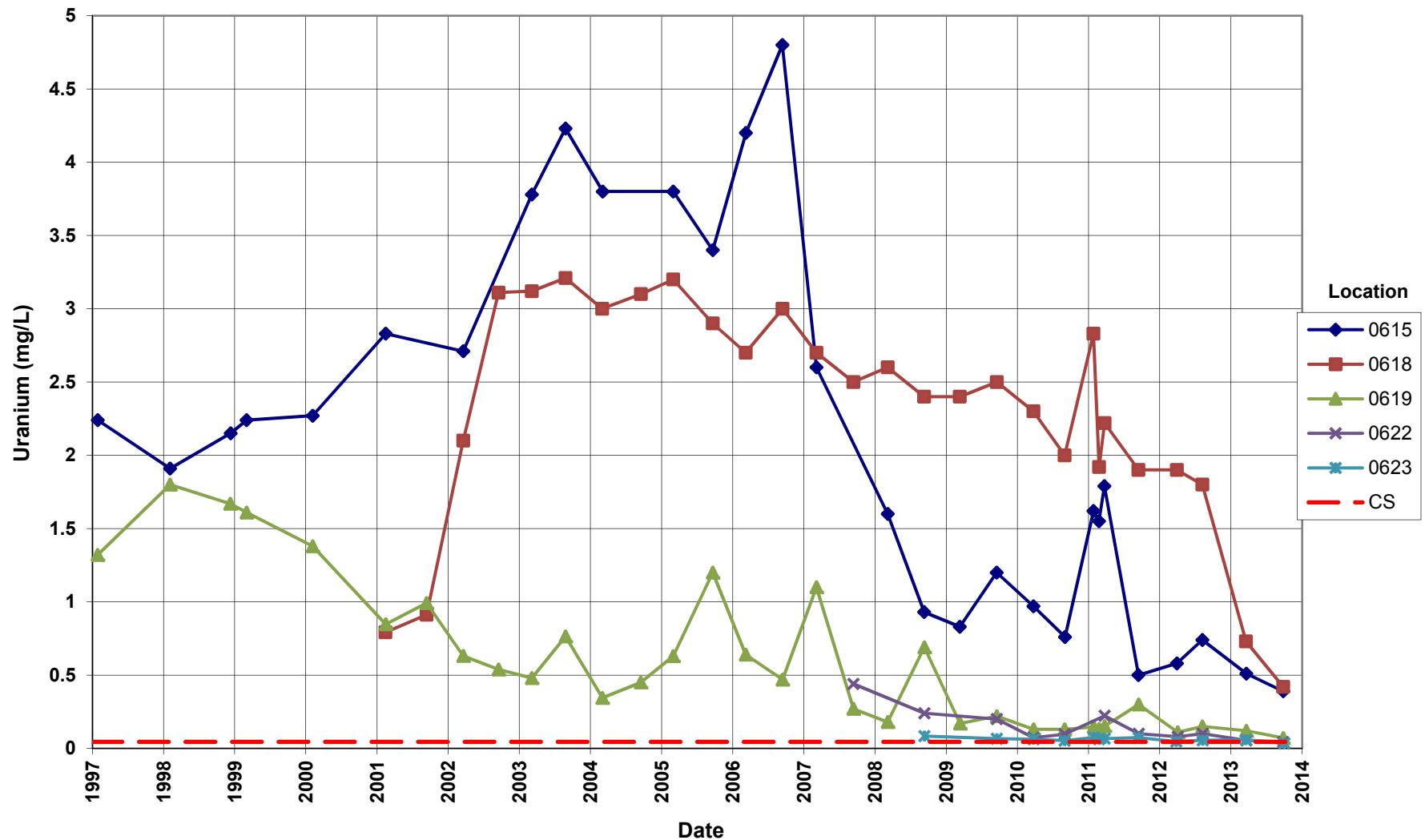
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2000 mg/L



**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
 Compliance Standard (CS) = 0.044 mg/L

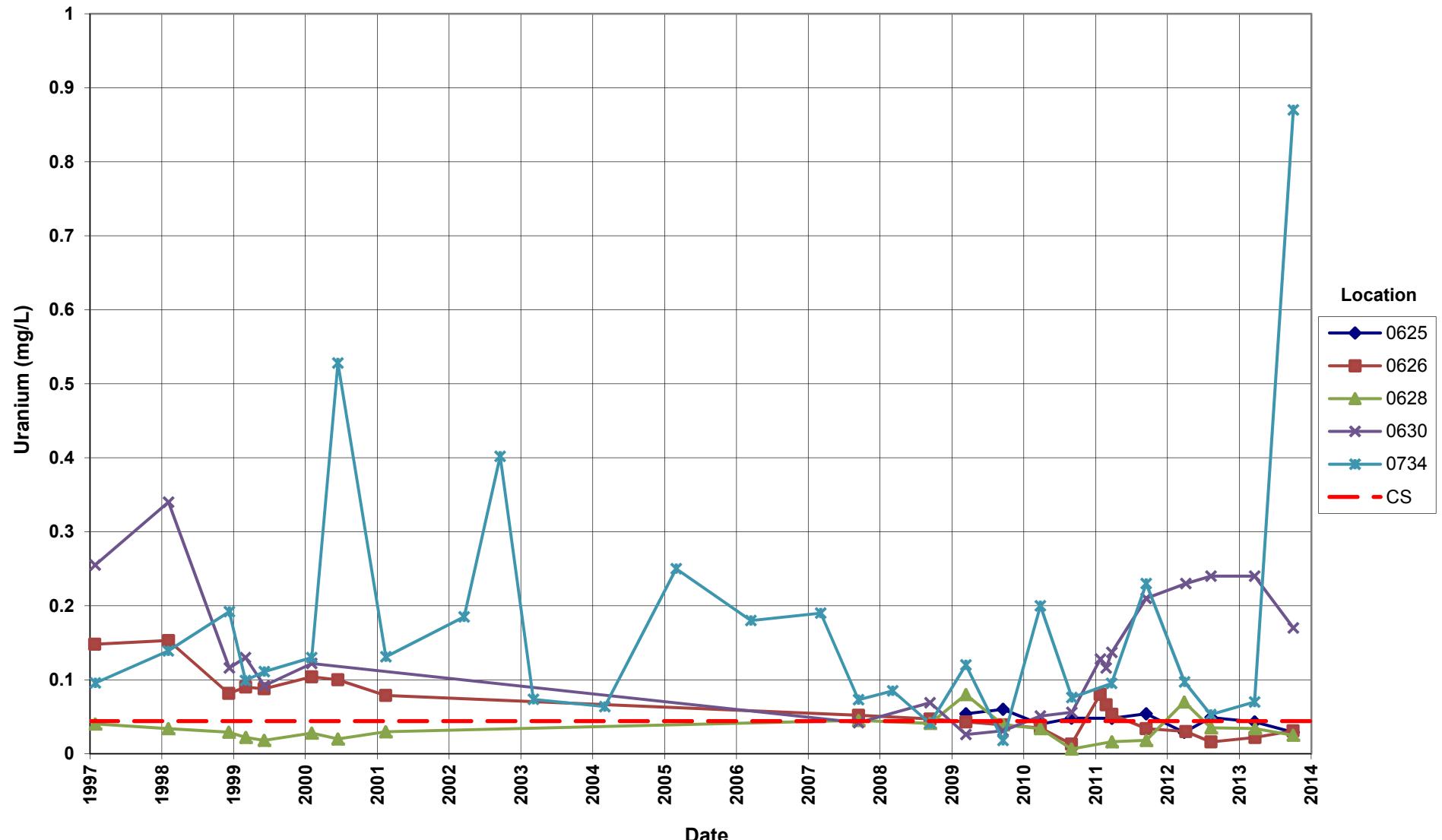


**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
 Compliance Standard (CS) = 0.044 mg/L

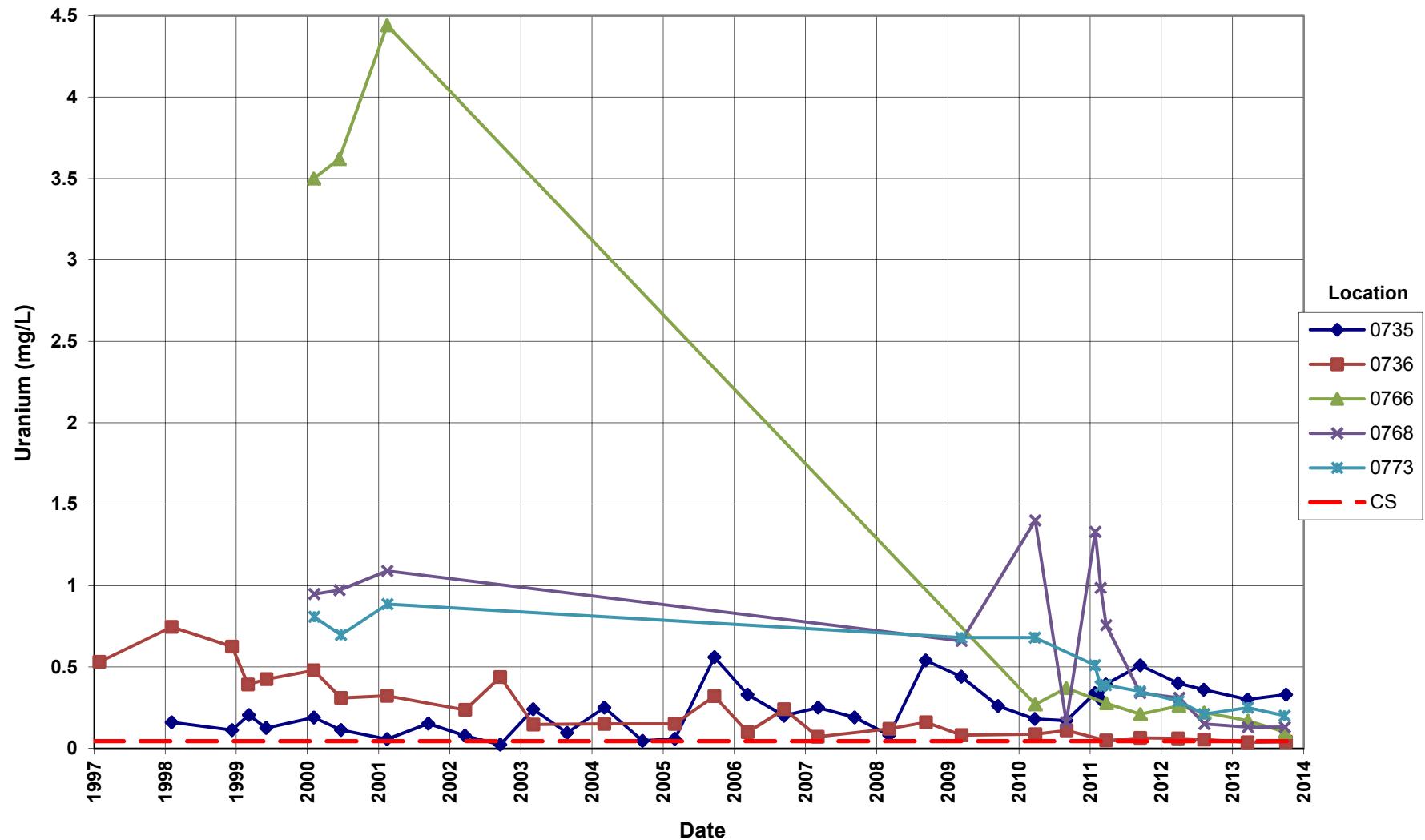


### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L

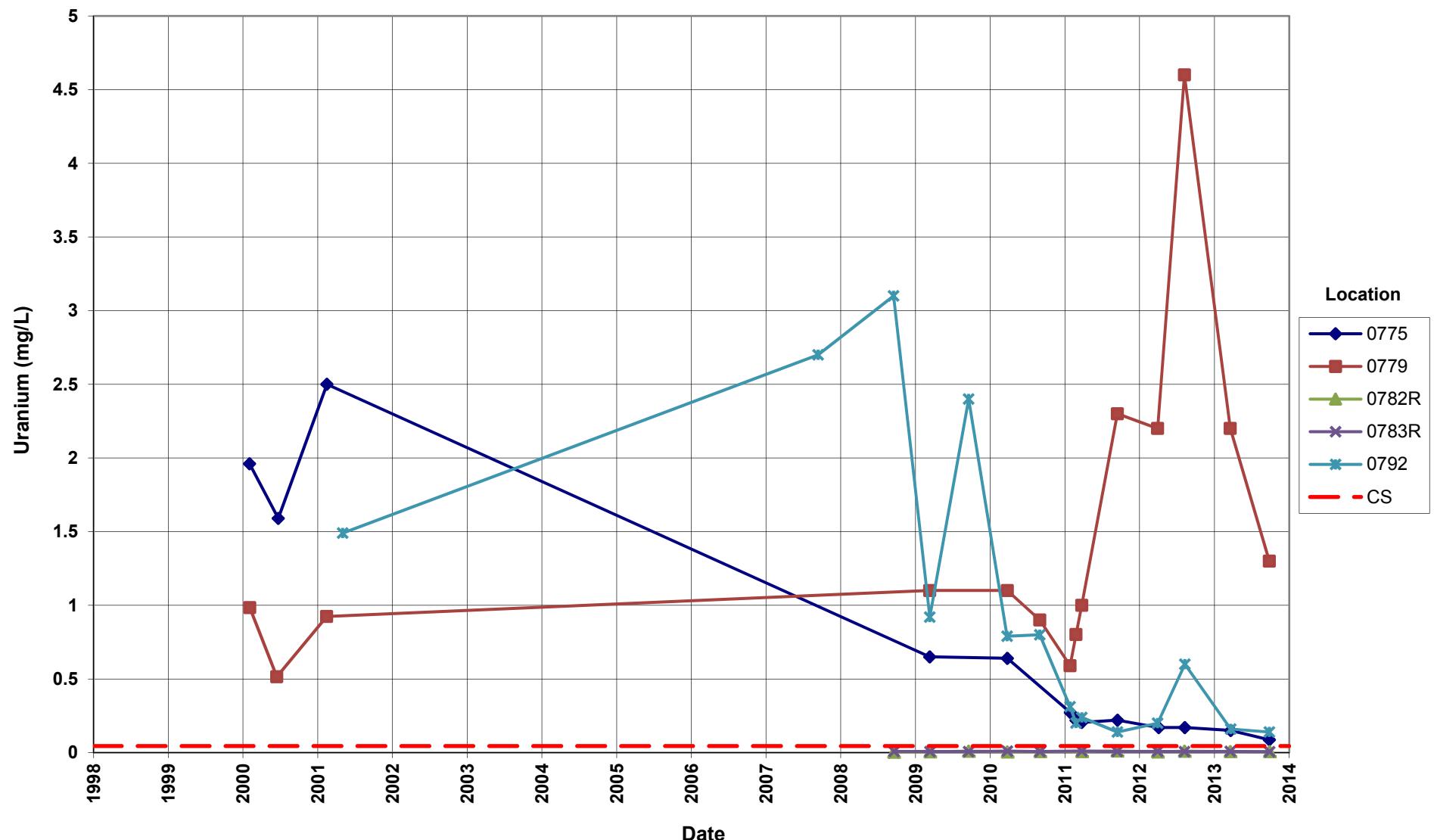


**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L

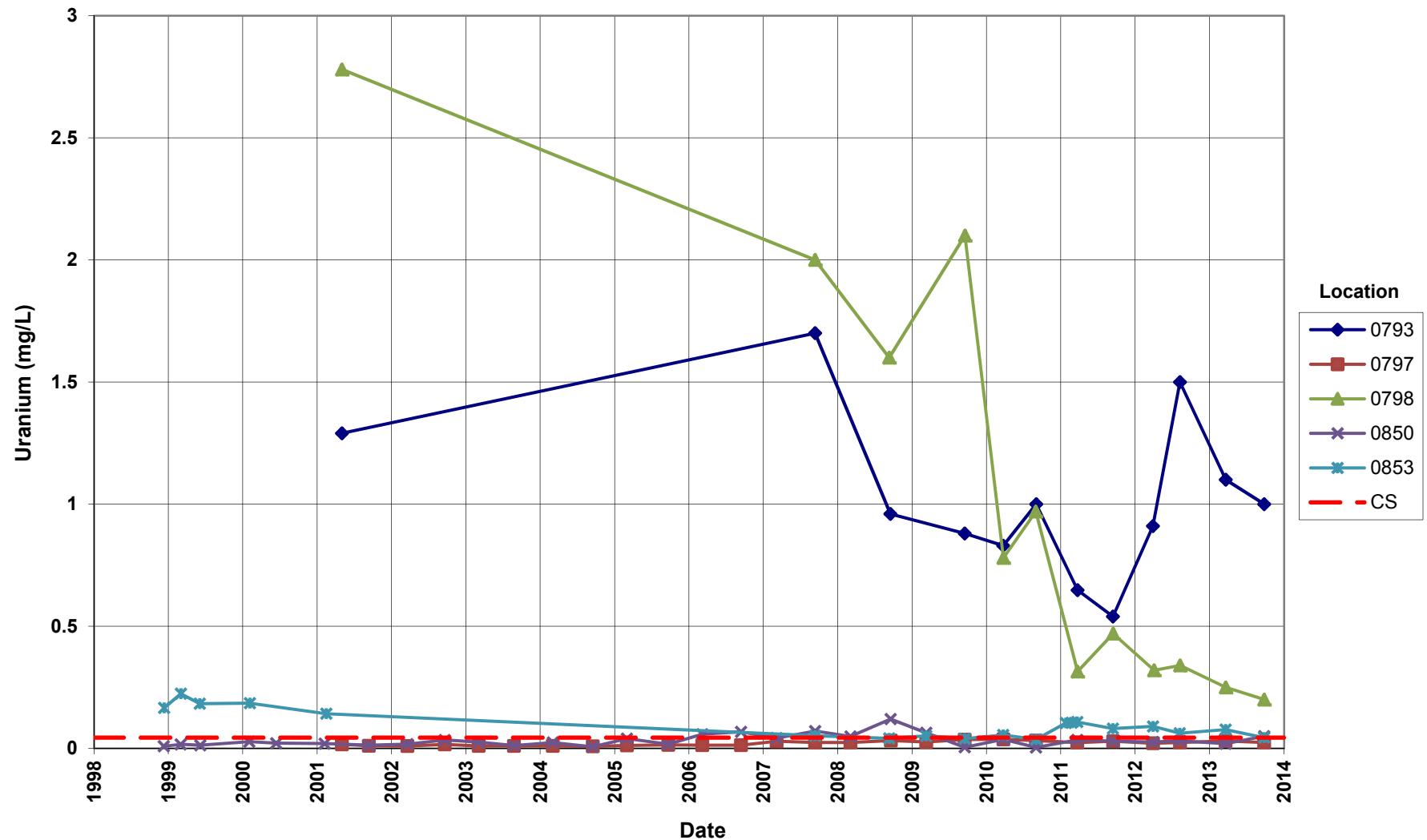


### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L

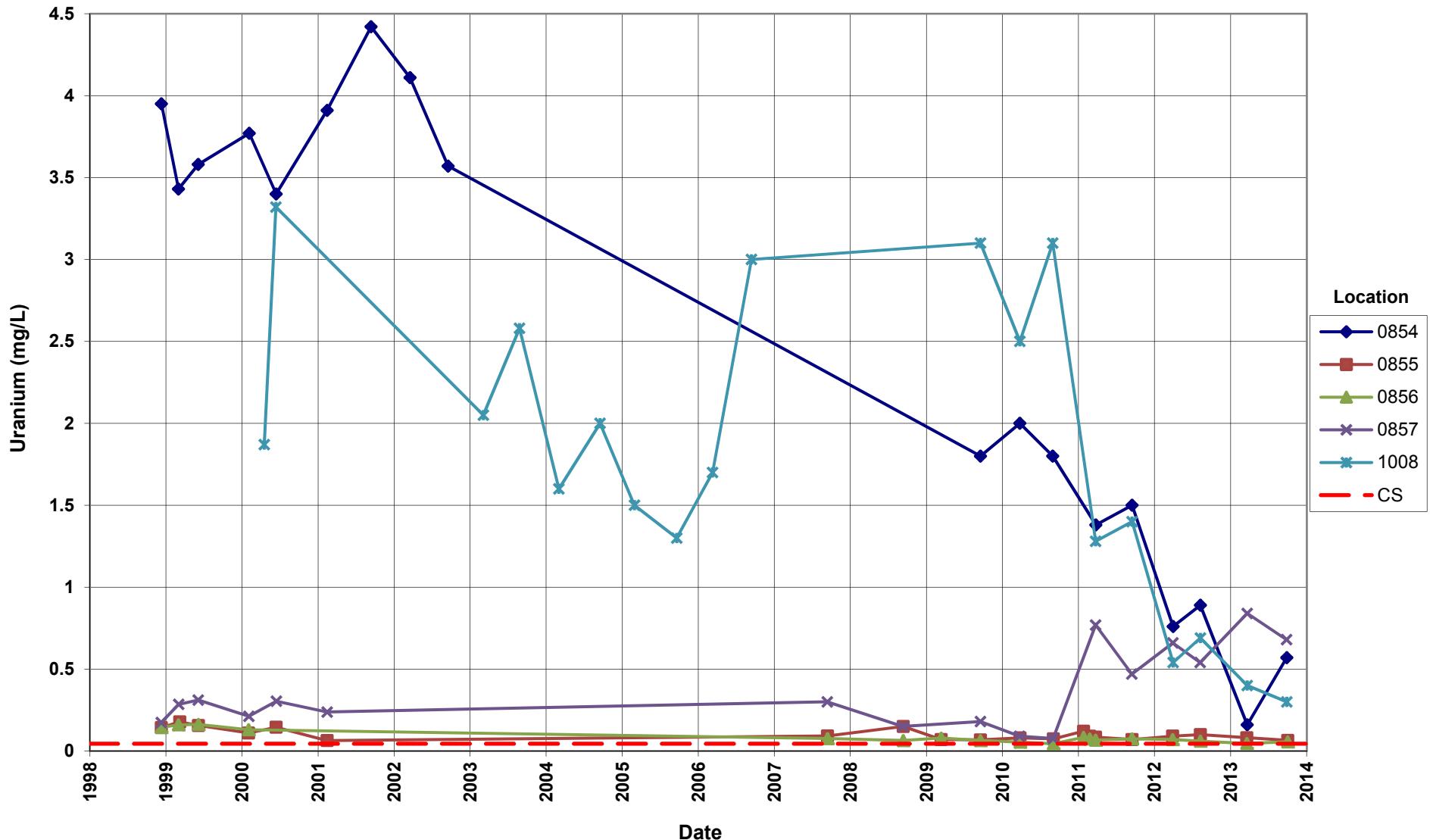


**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L

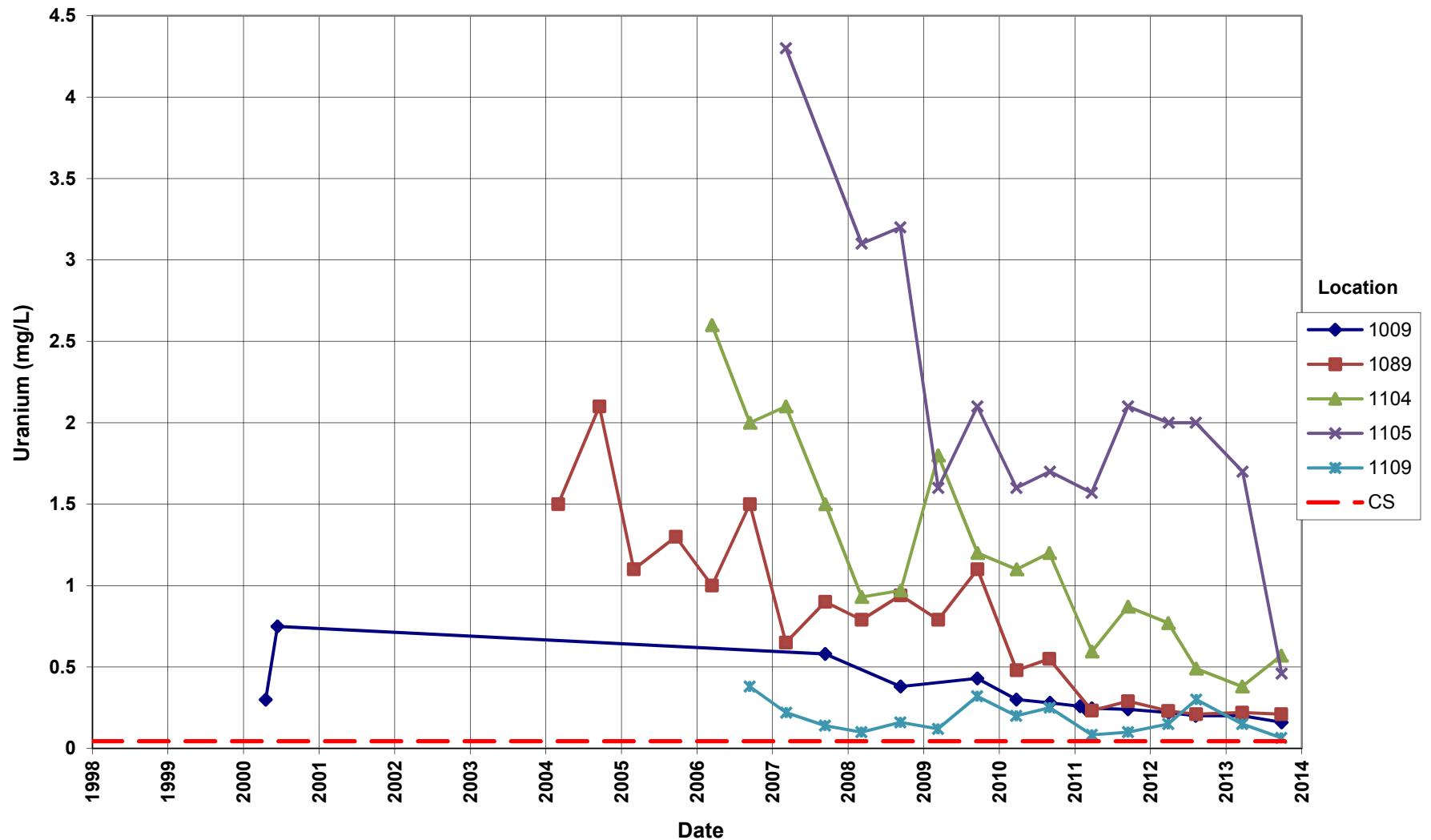


### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L

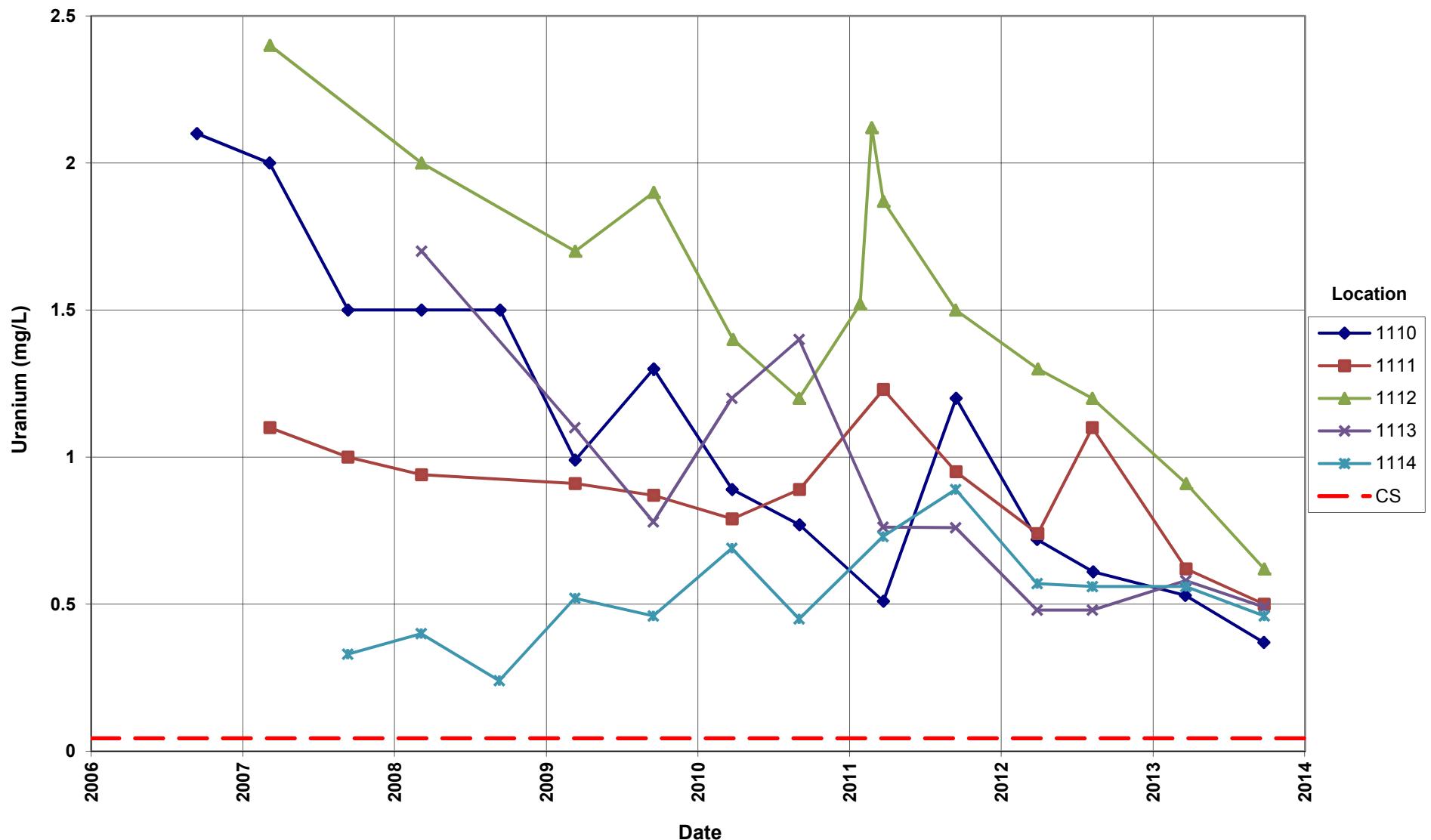


**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L

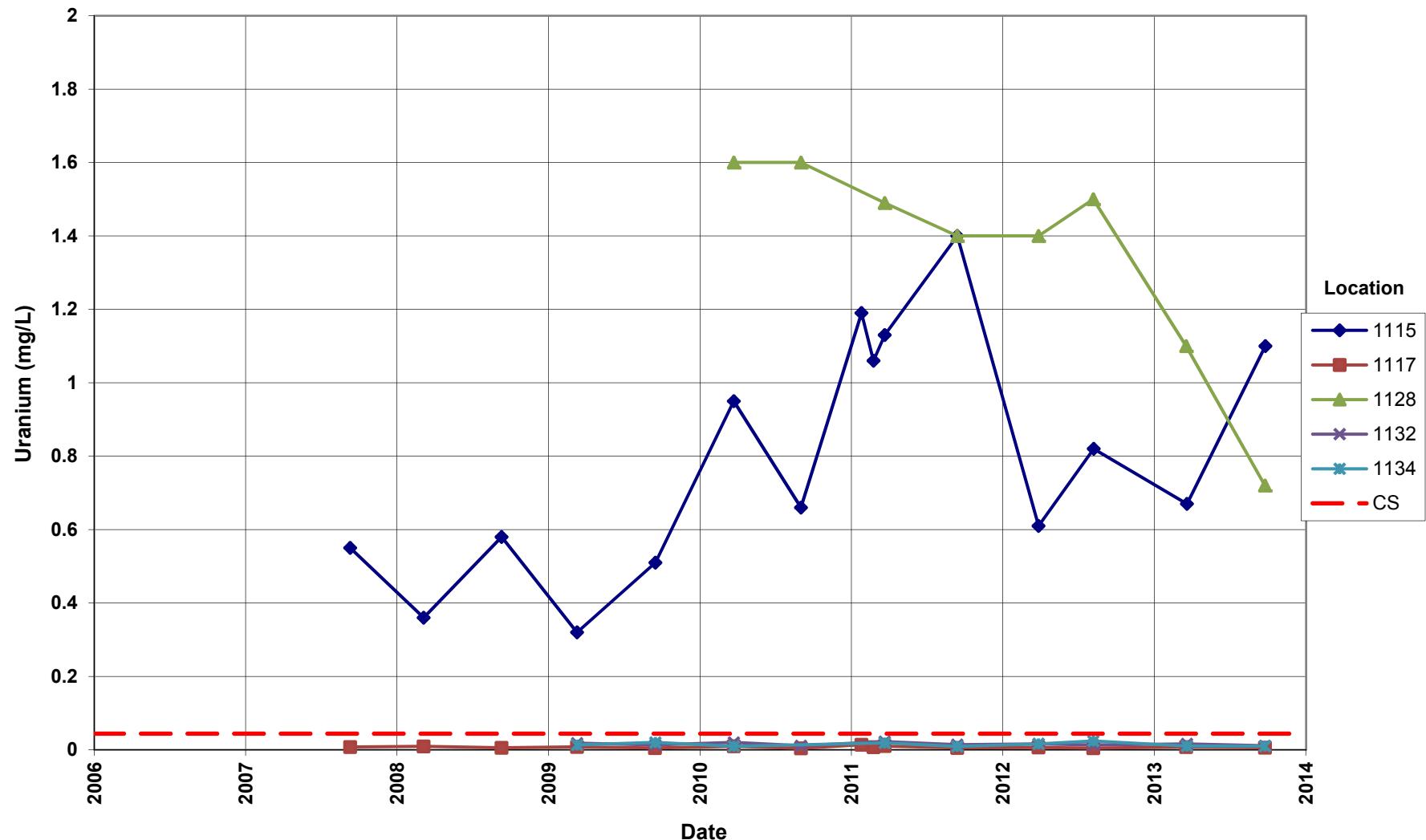


### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L

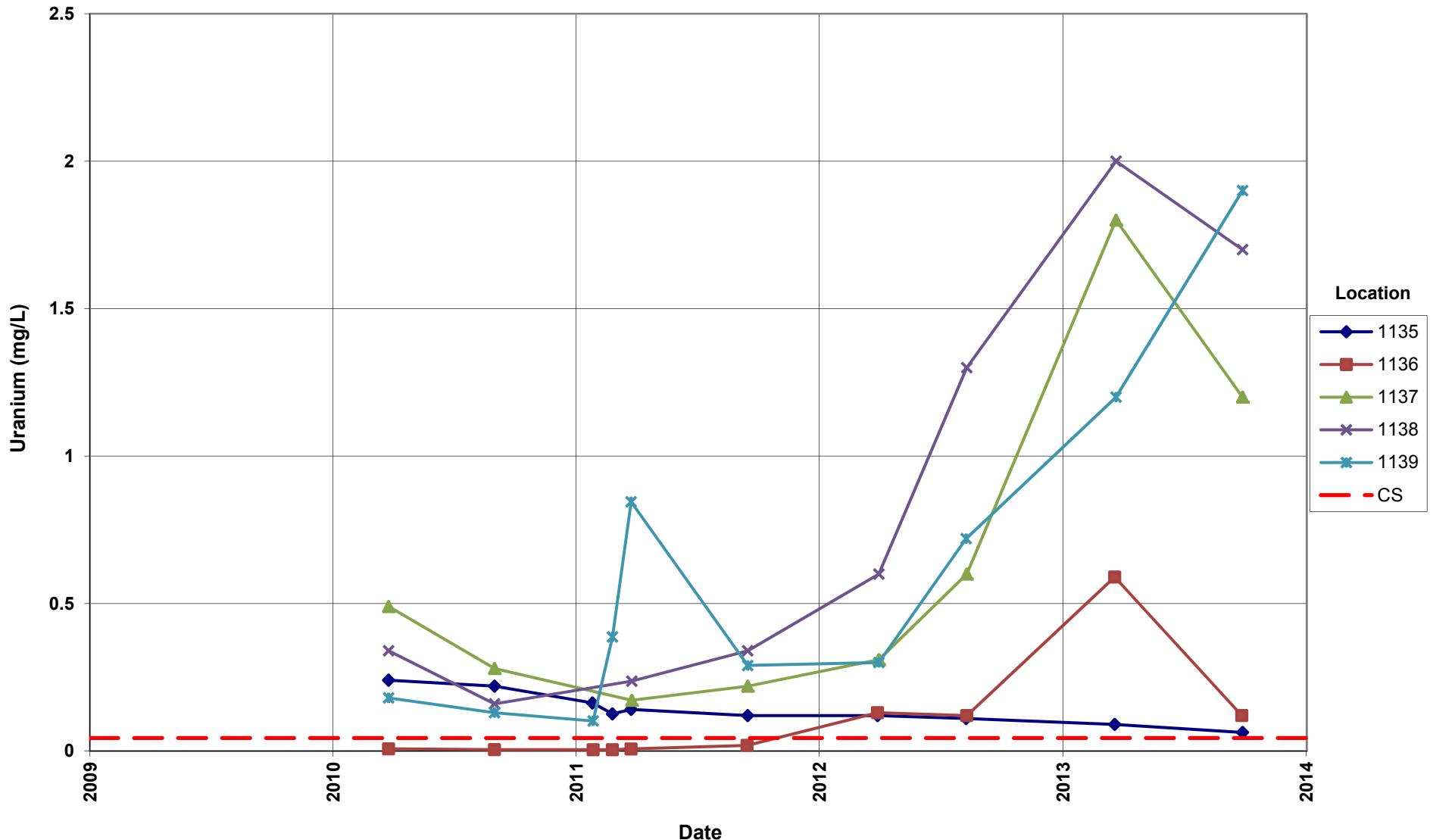


**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L



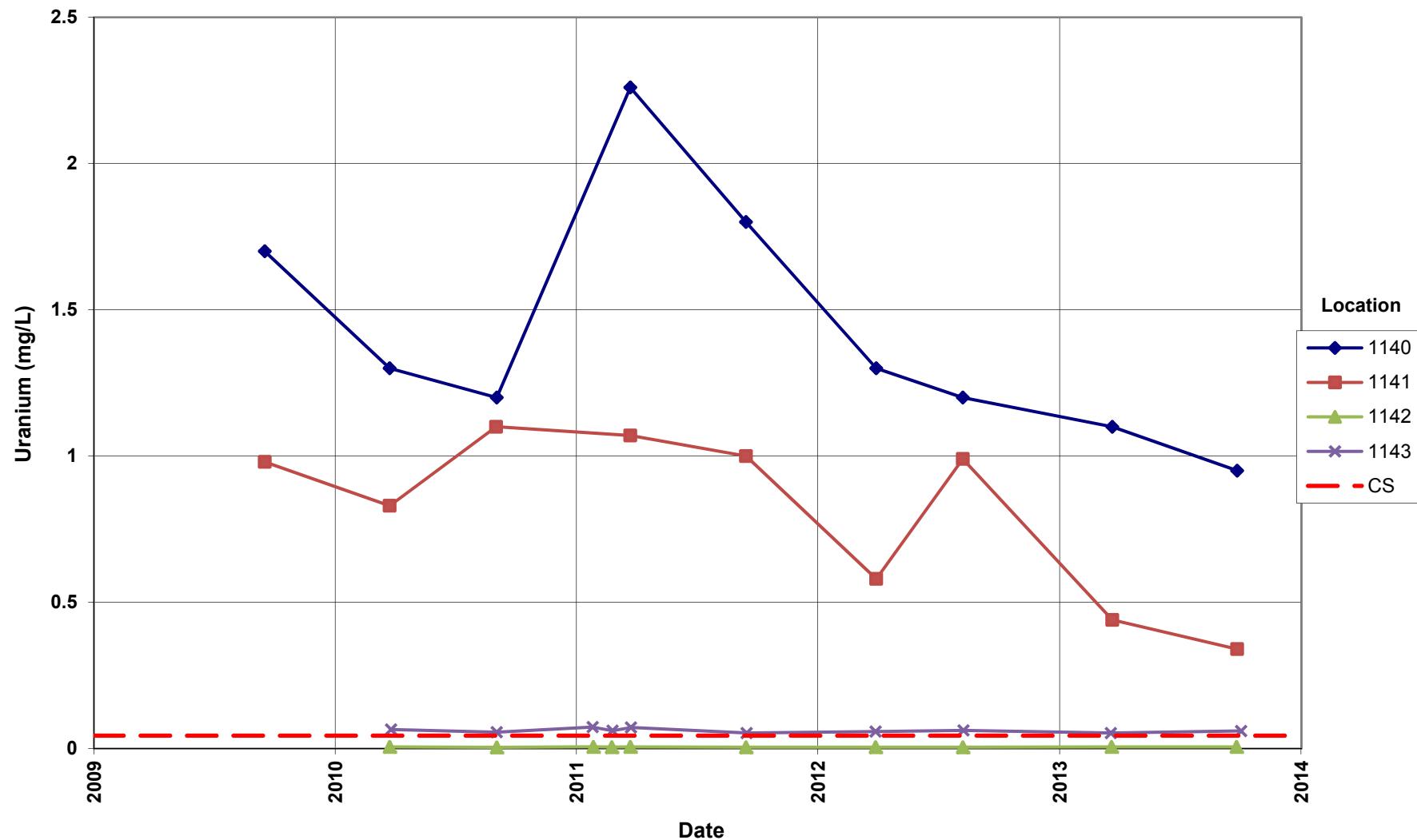
### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L



### Shiprock Disposal Site (Floodplain) Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L



**Attachment 3**  
**Sampling and Analysis Work Order**

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*established 1959*

Task Order LM-501  
Control Number 13-0792

August 28, 2013

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

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)  
September 2013 Environmental Sampling at Shiprock, New Mexico, Disposal  
Site—Revised

REFERENCE: Task Order LM00-501-02-119-402, Shiprock, New Mexico, Disposal Site

Dear Ms. Steckley:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, New Mexico. This letter has been revised to add four additional wells and remove one surface location. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Shiprock site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of September 23, 2013.

Samples collected at the following SHP01 (floodplain) locations will be both filtered and unfiltered: 0501, 0897, 0898, 0899, 0940, 0956, 0965, 1203, and 1205.

The following lists show the monitoring wells (along with associated zone of completion) and surface locations scheduled for sampling during this event.

#### **MONITORING WELLS**

##### **Floodplain**

608 Km	623 Al	768 Al	798 Al	1009 Al	1113 Al	1136 Al
610 Al	625 Al	773 Al	850 Al	1089 Al	1114 Al	1137 Al
611 Al/Km	626 Al	775 Al	853 Al	1104 Al	1115 Al	1138 Al
612 Al	628 Al	779 Al	854 Al	1105 Al	1117 Al	1139 Al
614 Al	630 Al	782R Al	855 Al	1109 Nr	1128 Al	1140 Al
615 Al	734 Al	783R Al	856 Al	1110 Nr	1132 Al	1141 Al
618 Al	735 Al	792 Al	857 Al	1111 Al	1134 Al	1142 Al
619 Al	736 Al	793 Al	1008 Al	1112 Al	1135 Al	1143 Al
622 Al	766 Al	797 Al				

Deborah Steckley  
Control Number 13-0792  
Page 2

**Terrace**

600 Km	731 Al/Km	821 Km	832 Al/Km	1002 Km	1060 Al/Km	1088 Nr
602 Km	812 Al/Km	822 Km	833 Al	1003 Km	1068 Al	1091 Al
603 Al/Km	813 Al/Km	823 Km	835 Al	1004 Km	1069 Al/Km	1092 Al
604 Km	814 Al/Km	824 Km	836 Al	1007 Al/Km	1070 Al/Km	1093R Al
648 Ju	815 Al/Km	825 Km	837 Al	1011 Al/Km	1071 Al/Km	1095 Al
725 Al/Km	816 Al/Km	826 Al/Km	838 Al	1048 Al/Km	1073 Al	1096 Al
726 Km	817 Km	827 Al/Km	841 Al	1049 Al/Km	1074 Al/Km	1120 Al
727 Km	818 Al	828 Al/Km	843 Al	1057 Al/Km	1078 Al/Km	1122 Al
728 Al/Km	819 Km	829 Km	844 Al/Km	1058 Km	1079 Al	DM7 Km
730 Al	820 Km	830 Km	848 Al/Km	1059 Km	1087 Nr	MW1 Km

\*NOTE: Al = Alluvium; Ju = Jurassic Morrison Formation; Km = Mancos Shale; Nr = No recovery of data for classifying

**SURFACE LOCATIONS**

**Floodplain**

501	897	899	956	1118	1203	1205
655	898	940	965			

**Terrace**

662	949	1215	1218	1219	1220	1221
889						

Water levels will be collected from additional (non-sampled) wells as shown in the attachment. All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*.

Please contact me at (970) 248-6652 if you have any questions.

Sincerely,



David Miller  
Site Lead

DM/lcg/lb

Enclosures (3)

cc: (electronic)

Christina Pennal, DOE  
Steve Donivan, Stoller  
Lauren Goodknight, Stoller  
David Miller, Stoller  
EDD Delivery  
rc-grandjunction  
File: SHP 410.02(A)

## Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b><i>Monitoring Wells</i></b>						
<b>FLOODPLAIN - SHP01</b>						
608		X				Low flow
610		X				
611		X				
612		X				
614		X				Low flow
615		X				Low flow
617					X	Data logger only
618		X				Low flow
619		X				Low flow
622		X				
623		X				
625		X				
626		X				
628		X				
630		X				
734		X				Low flow
735		X				Low flow
736		X				Low flow; data logger
766		X				
768		X				
773		X				
775		X				
779		X				
782R		X				
783R		X				
792		X				
793		X				
797		X				Low flow
798		X				
850		X				Low flow
853		X				
854		X				Data logger
855		X				
856		X				
857		X				Data logger
862					X	WLs only
863					X	WLs only
1000					X	WLs only
1001					X	WLs only

## Sampling Frequencies for Locations at Shiprock, New Mexico (continued)

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>FLOODPLAIN - SHP01</b>						
1008		X				Data logger
1009		X				
1062					X	WLs only
1089		X				U, SO4, N as NO <sub>3</sub> only at vault
1104		X				U, SO4, N as NO <sub>3</sub> only at vault
1105		X				
1109		X				Trench 2; U, SO4, N as NO <sub>3</sub> only at vault
1110		X				Trench 1; U, SO4, N as NO <sub>3</sub> only at vault
1111		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1112		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1113		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1114		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1115		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1117		X				Well point; U, SO4, N as NO <sub>3</sub> only. Purge 1 casing vol then sample
1128		X				
1132		X				
1134		X				
1135		X				
1136		X				
1137		X				
1138		X				
1139		X				
1140		X				
1141		X				
1142		X				
1143		X				
<b>TERRACE - SHP02</b>						
600		X				
602		X				Data logger
603		X				
604		X				Data logger
648				Odd year		Measure flow rate semiannually; sample biennially; next in 2013
725		X				Data logger
726		X				
727		X				

## Sampling Frequencies for Locations at Shiprock, New Mexico (continued)

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>TERRACE - SHP02</b>						
728		X				Data logger
730		X				Data logger
731		X				Data logger
800					X	WLs only
801					X	WLs only
802					X	WLs only
803					X	WLs only
812		X				
813		X				Data logger
814		X				
815		X				
816		X				
817		X				Low flow
818		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
819		X				Data logger
820		X				
821		X				
822		X				
823		X				
824		X				
825		X				
826		X				Data logger
827		X				Data logger
828		X				Data logger
829		X				
830		X				Data logger
832		X				
833		X				
835		X				Low flow; data logger
836		X				Low flow; data logger
837		X				Data logger
838		X				Low flow
841		X				Low flow; data logger
843		X				Data logger
844		X				
848		X				Data logger
1002		X				
1003		X				
1004		X				

## Sampling Frequencies for Locations at Shiprock, New Mexico (continued)

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>TERRACE - SHP02</b>						
1007		X				
1011		X				
1048		X				
1049		X				
1057		X				
1058		X				
1059		X				
1060		X				
1067					X	WL only; Bob Lee Wash
1068		X				Bob Lee Wash
1069		X				Bob Lee Wash; data logger
1070		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1071		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1073		X				Data logger
1074		X				
1078		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1079		X				Low flow
1087		X				SUMP-Bob Lee Wash
1088		X				SUMP-Many Devils Wash
1091		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1092		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1093R		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1095		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1096		X				Ext. well; U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1120		X				
1122		X				
MW1		X				
DM7		X				
<b>Surface Locations</b>						
<b>FLOODPLAIN - SHP01</b>						
501		X				East of disposal cell
655		X				Drainage channel
897		X				Just below mouth of Many Devils Wash
898		X				San Juan River upgradient
899		X				
940		X				Just NE of 1004, San Juan River
956		X				San Juan River at intake
965		X				San Juan River about 1500' below dist. Channel
1118		X				Seep sump (423/426) U, SO <sub>4</sub> , N as NO <sub>3</sub> only at vault
1203		X				East of disposal cell
1205		X				San Juan River E of well 853

## Sampling Frequencies for Locations at Shiprock, New Mexico (continued)

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>TERRACE - SHP02</b>						
662		X				Lower Bob Lee Wash
885					X	Upper Bob Lee Wash; water level
889		X				Many Devils Wash
949		X				
1215		X				
1218		X				
1219		X				
1220		X				
1221		X				

Sampling conducted in March and September

**Notes:** All San Juan River locations will have both filtered and unfiltered samples collected

## Constituent Sampling Breakdown

Site	Shiprock				
Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Approx. No. Samples/yr	256	38			
<b>Field Measurements</b>					
Alkalinity	X	X			
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X	X			
Temperature	X	X			
<b>Laboratory Measurements</b>					
Aluminum					
Ammonia as N (NH3-N)	X	X	0.1	EPA 350.1	WCH-A-005
Calcium	X	X	5	SW-846 6010	LMM-01
Chloride	X	X	0.5	SW-846 9056	MIS-A-039
Chromium					
Gross Alpha					
Gross Beta					
Iron					
Lead					
Magnesium	X	X	5	SW-846 6010	LMM-01
Manganese	X	X	0.005	SW-846 6010	LMM-01
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO <sub>3</sub> +NO <sub>2</sub> )-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium	X	X	1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium	X	X	1	SW-846 6010	LMM-01
Strontium	X	X	0.2	SW-846 6010	LMM-01
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
<b>Total No. of Analytes</b>	12	12			

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

## **Attachment 4**

## **Trip Report**

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## *Memorandum*

DATE: October 23, 2013

TO: David Miller

FROM: David Atkinson, Environmental Monitoring Operations

SUBJECT: Sampling Trip Report

**Site:** Shiprock, NM, Floodplain (SHP01) and Terrace (SHP02)

**Dates of Sampling Event:** September 23–27 and September 30–October 3, 2013

**Team Members:** Jeff Price, Dan Sellers, Joe Treviño, Lauren Goodknight, and David Atkinson

**Number of Locations Sampled:** 116 monitoring well locations were sampled and 17 surface water locations. Additionally, 11 quality control samples were collected (10 duplicates and 1 equipment blank).

	<b>Locations That Were Sampled</b>	<b>Planned Locations</b>
SHP01 monitoring wells	59	59
SHP02 monitoring wells	57	69
SHP01 surface locations	11	11
SHP02 surface locations	6	8

**Locations Not Sampled/Reason:** The following locations were not sampled because they were dry: SHP02-DM7, 0821, 0823, 0829, 0832, 0949, 1002, 1003, 1004, 1011, 1060, 1120, 1122, and 1218.

### **Location Specific Information:**

<b>Location</b>	<b>Comments</b>
0848	Checked in at High School office to make sure the maintenance yard gate was unlocked
898	Surface location 0898 was collected at a previously identified surface location (location 0888) due to safety concerns. Future samples will be collected at location 0888 in place of 0898.
1069	Partial sample taken due to insufficient water (metals only).
0822	Tried to use dedicated bladder pump but could not get any water, pulled pump and sampled using a disposable bailer.

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

False Sample ID	Ticket Number	True ID	Sample Date	Sample Time	QC Sample Type
2215	LKW 389	0655	10/2/2013	15:30	Rinsate/Equipment Blank
2210	LKW 390	1118	9/24/2013	13:30	Duplicate
2211	LKW 391	1089	9/24/2013	13:45	Duplicate
2810	LKW 443	1095	9/24/2013	11:00	Duplicate
2811	LKW 444	1093R	9/24/2013	11:30	Duplicate
2319	LKW 453	1078	9/24/2013	9:00	Duplicate
2320	LKW 454	1071	9/24/2013	9:30	Duplicate
2466	LKW 459	0818	9/24/2013	9:45	Duplicate
2467	LKW 460	1070	9/24/2013	10:00	Duplicate
2468	LKW 461	1096	9/24/2013	10:15	Duplicate
2534	LKW 479	1088	9/24/2013	10:30	Duplicate

**RIN Number Assigned:** All SHP01 (Floodplain) samples were assigned to RIN 13095615, and all SHP02 (Terrace) samples were assigned to RIN 13095616.

**Sample Shipment:** Samples were shipped to ALS Laboratory Group in Fort Collins, CO from Grand Junction, CO on October 8, 2013.

**Water Level Measurements:** Water levels were measured at all monitoring wells. Data loggers were downloaded at 12 monitoring well locations.

**Well Inspection Summary:** N/A

**Field Variance:** None.

**Equipment:** All equipment functioned properly.

**Site Issues:** None.

**Corrective Action Required/Taken:** None.

(DA/lcg)

cc: (electronic)

Deborah Steckley, DOE  
David Miller, Stoller  
Steve Donivan, Stoller  
EDD Delivery