

# Data Validation Package

---

**March 2016  
Groundwater and Surface Water  
Sampling at the  
Shiprock, New Mexico, Disposal Site**

**July 2016**

This page intentionally left blank

# **Contents**

Sampling Event Summary .....	1
Shiprock, New Mexico, Disposal Site Planned Sampling Map.....	5
Data Assessment Summary.....	7
Water Sampling Field Activities Verification Checklist .....	9
Laboratory Performance Assessment .....	11
Sampling Quality Control Assessment .....	35
Certification .....	41

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

Potential Outliers Report

## **Attachment 2—Data Presentation**

Groundwater Quality Data Floodplain Locations  
Groundwater Quality Data Terrace Locations  
Surface Water Quality Data Floodplain Locations  
Surface Water Quality Data Terrace Locations  
Equipment Blank Data  
Static Water Level Data Floodplain Locations  
Static Water Level Data Terrace Locations  
Time-Concentration Graphs Floodplain Groundwater Locations

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

## **Attachment 4—Trip Report**

This page intentionally left blank

# Sampling Event Summary

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

**Sampling Period:** March 21–24, 2016

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). Samples were submitted for analyses identified by a requisition index number (RIN). Samples from floodplain locations were submitted under RIN 16037686 and from terrace locations under RIN 16037687.

Terrace locations are monitored to determine the progress of remediation and the extent of contamination. Floodplain locations are monitored to determine the progress of the natural flushing process.

As identified in the *Final Ground Water Compliance Action Plan for Remediation at the Shiprock, New Mexico, UMTRA Site* (July 2002), the contaminants of concern monitored at the Shiprock disposal site are ammonium, manganese, nitrate, selenium, strontium, sulfate, and uranium. Water quality parameters calcium, chloride, magnesium, potassium, and sodium are also monitored as stated in the plan. Because of the analytical methodologies employed, ammonium and nitrate data collected since 2004 are reported as “Ammonia Total as N” and “Nitrate+Nitrite as N.” These are conservative estimates for the true ammonium and nitrate concentrations because both ammonia and ammonium are included in the Ammonia Total as N analysis and both nitrate and nitrite are included in the Nitrate+Nitrite as N analysis. Floodplain wells with contaminant concentrations that exceeded compliance standards and cleanup goals presented in the plan are listed in Table 1. Time-concentration graphs (2005 to present, where available) for the contaminants of concern in these wells are also included in this report.

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

Location	Manganese (mg/L)	Nitrate/Nitrite as N (mg/L)	Selenium (mg/L)	Sulfate (mg/L)	Uranium (mg/L)
Standard / Goal <sup>a</sup>	2.74	10 <sup>b</sup>	0.05	2000	0.044
0608		18		6600	0.59
0610		260	0.26	5400	0.82
0611				5500	
0612					0.14
0614		67	1.2	5300	0.78
0615				6100	0.59
0618				5300	0.38
0619				2700	0.054
0622				2500	0.049
0623				2400	

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

Location	Manganese (mg/L)	Nitrate/Nitrite as N (mg/L)	Selenium (mg/L)	Sulfate (mg/L)	Uranium (mg/L)
Standard / Goal <sup>a</sup>	2.74	10 <sup>b</sup>	0.05	2000	0.044
0625				2300	
0626				2200	
0628	2.9			3700	
0630		19	0.14	4500	0.19
0735	3.7	680	0.15	11000	0.28
0736				2700	
0766				4500	0.15
0768				4200	0.13
0773			0.11		0.21
0775				3900	0.12
0779			0.058	9900	0.88
0783R	3				
0792				3900	0.058
0793				5300	0.45
0797				4000	
0798				3900	0.12
0850				2400	0.057
0853					0.081
0854				5400	0.36
0855				3700	0.074
0856				3100	0.071
0857	4.1	20	0.081	6500	0.77
1008				4100	0.15
1009					0.17
1089				4600	0.21
1104				4600	0.2
1105	3.2			5600	0.56
1111		18	0.15	6400	0.48
1112		150	0.93	6600	0.82
1113		310	0.33	3900	0.49
1114		93	0.073	2600	0.49
1115		57	0.061		0.25
1118		34	0.11	6200	0.36
1128		350		4600	0.45
1135				3000	0.067
1136	5	12		9200	0.88
1137	3.8			10000	1.1
1138	3.5			9900	0.96

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

Location	Manganese (mg/L)	Nitrate/Nitrite as N (mg/L)	Selenium (mg/L)	Sulfate (mg/L)	Uranium (mg/L)
<b>Standard / Goal<sup>a</sup></b>	<b>2.74</b>	<b>10<sup>b</sup></b>	<b>0.05</b>	<b>2000</b>	<b>0.044</b>
1139				10000	0.64
1140				5900	0.35
1141				2400	0.37
1143				2600	0.052

<sup>a</sup> Compliance standards (uranium, nitrate, selenium) and cleanup goals (manganese, sulfate) are listed in *Final Ground Water Compliance Action Plan (GCAP) for Remediation at the Shiprock, New Mexico, UMTRA Site* (July 2002), approved by the U.S. Nuclear Regulatory Commission

<sup>b</sup> Ten mg/L of Nitrate-N is equivalent to 44 mg/L of Nitrate (GCAP Table 3-1).

mg/L = milligrams per liter

Both filtered and unfiltered samples from the river locations were submitted. River location analyte concentrations of filtered and unfiltered samples were compared to the maximum concentrations previously observed for location 0967, which is upstream from the site on the San Juan River and is used for background versus site comparisons. With the exception of selenium in the filtered sample for location 0897, all results were below the historical maximums.

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

Location	Ammonia Total as N (mg/L)	Manganese (mg/L)	Nitrate/Nitrite as N (mg/L)	Selenium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Uranium (mg/L)
<b>Background<sup>a</sup></b>	<b>0.1</b>	<b>9.0</b>	<b>1.2</b>	<b>0.023</b>	<b>3.5</b>	<b>290</b>	<b>0.034</b>
0501	ND <sup>b</sup>	0.098	0.43	0.0009	0.84	150	0.0018
0897	ND <sup>b</sup>	0.13	0.44	0.0014	0.78	140	0.0017
0899	ND <sup>b</sup>	0.48	0.46	ND <sup>b</sup>	0.81	150	0.00095
0940	ND <sup>b</sup>	0.064	0.47	0.0025	0.77	150	0.0021
0956	ND <sup>b</sup>	0.12	0.46	0.00089	0.78	150	0.0017
0965	ND <sup>b</sup>	0.14	0.46	0.0012	0.77	150	0.0018
0967	ND <sup>b</sup>	0.52	0.43	0.00099	0.8	140	0.0019
1203	ND <sup>b</sup>	0.15	0.46	ND <sup>b</sup>	0.77	150	0.0018
1205	ND <sup>b</sup>	0.17	0.47	0.0008	0.8	150	0.0018

<sup>a</sup> Background maximum concentration observed prior to March 2016 for background location 0967.

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

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

Location	Ammonia Total as N (mg/L)	Manganese (mg/L)	Nitrate/Nitrite as N (mg/L)	Selenium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Uranium (mg/L)
Background <sup>a</sup>	0.1	0.22	1.2	0.0017	1.0	280	0.0041
0501	ND <sup>b</sup>	0.003	0.45	0.0012	0.83	150	0.0015
0897	ND <sup>b</sup>	0.0028	0.44	0.002	0.74	140	0.0024
0899	ND <sup>b</sup>	0.0031	0.46	ND <sup>b</sup>	0.74	150	0.0013
0940	ND <sup>b</sup>	0.0063	0.52	ND <sup>b</sup>	0.74	150	0.0019
0956	ND <sup>b</sup>	0.0025	0.46	0.00069	0.76	150	0.0016
0965	ND <sup>b</sup>	0.0025	0.45	ND <sup>b</sup>	0.75	150	0.0015
0967	ND <sup>b</sup>	0.0029	0.42	ND <sup>b</sup>	0.73	140	0.0015
1203	ND <sup>b</sup>	0.007	0.46	ND <sup>b</sup>	0.74	150	0.0017
1205	ND <sup>b</sup>	0.0044	0.47	0.00082	0.76	150	0.0016

<sup>a</sup> Background maximum concentration observed prior to March 2016 for background location 0967.

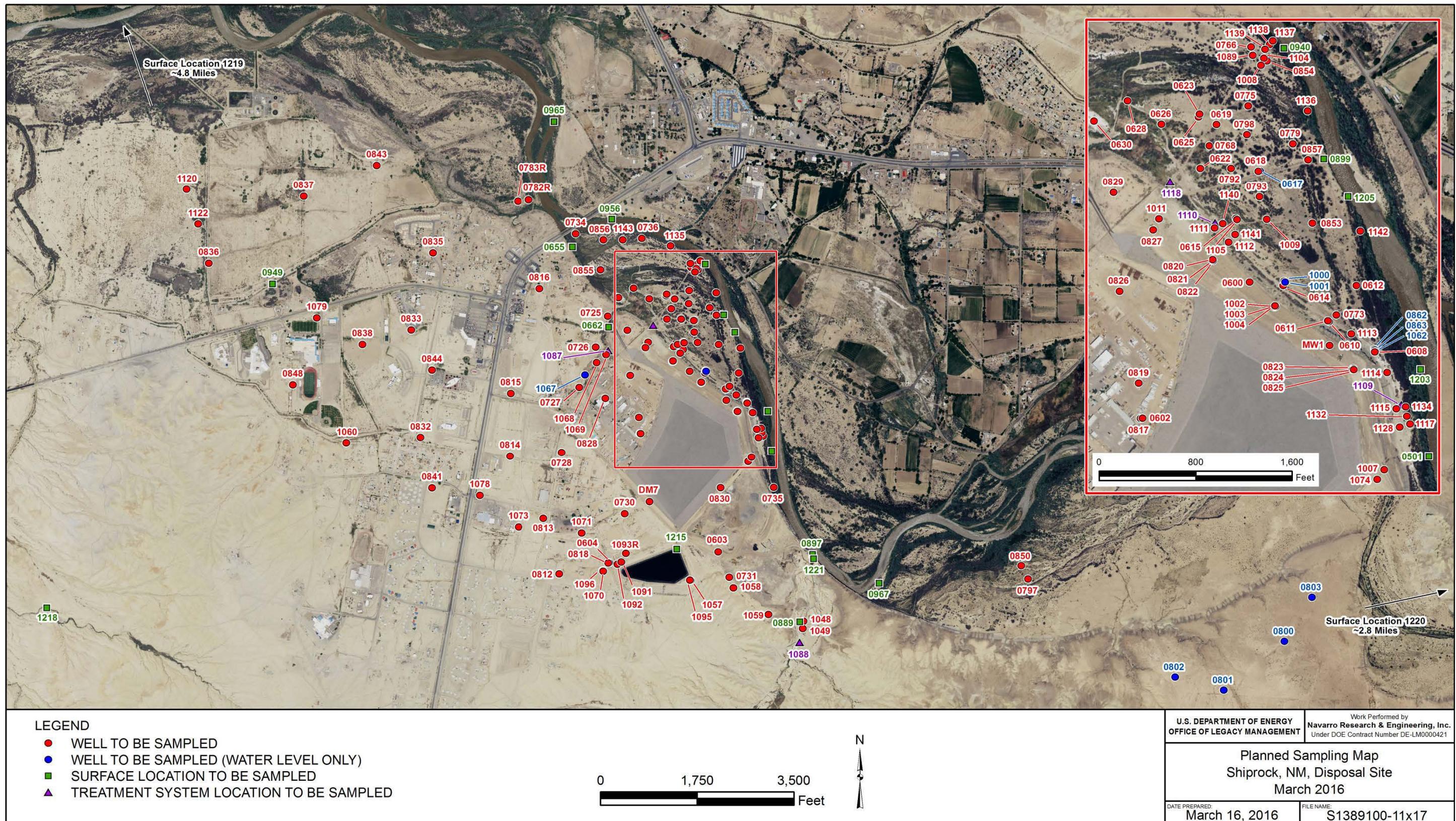
<sup>b</sup> ND = Not Detected.



David Miller, Site Lead  
Navarro Research and Engineering, Inc.

9/15/16

Date



Shiprock, New Mexico, Disposal Site Planned Sampling Map

This page intentionally left blank

# **Data Assessment Summary**

This page intentionally left blank

## Water Sampling Field Activities Verification Checklist

Project	Shiprock, New Mexico	Date(s) of Water Sampling	March 21–24, 2016
Date(s) of Verification	July 9, 2016	Name of Verifier	Gretchen Baer
		Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?		Yes	Work Order letter dated February 24, 2016.
List any Program Directives or other documents, SOPs, instructions.			15 locations could not be sampled because they were dry or non-functional. Two locations could not be sampled because of access restrictions.
2. Were the sampling locations specified in the planning documents sampled?		No	
3. Were field equipment calibrations conducted as specified in the above-named documents?		Yes	Calibrations were performed on March 16 & 18, 2016.
4. Was an operational check of the field equipment conducted daily?		Yes	Fifteen operational checks were performed.
Did the operational checks meet criteria?		No	The pH checks for an instrument was slightly below acceptance limits on 3 days; associated pH results have been qualified.
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?		Yes	
6. Were wells categorized correctly?		Yes	
7. Were the following conditions met when purging a Category I well:		Yes	
Was one pump/tubing volume purged prior to sampling?		Yes	
Did the water level stabilize prior to sampling?		Yes	
Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?		Yes	
Was the flow rate less than 500 mL/min?		Yes	

## Water Sampling Field Activities Verification Checklist (continued)

	<u>Response (Yes, No, NA)</u>	<u>Comments</u>
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	Ten duplicate samples were collected.
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 for the 10 locations sampled with non-dedicated equipment.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	VOC samples were not collected.
12. Were the true identities of the QC samples documented?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
19. Were water levels measured at the locations specified in the planning documents?	Yes	

## Laboratory Performance Assessment

### General Information

Report Number (RIN): 16037686  
Sample Event: March 21–24, 2016  
Site(s): Shiprock Disposal Site (Floodplain), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1603493  
Analysis: Metals and Wet Chemistry  
Validator: Gretchen Baer  
Review Date: June 13, 2016

This validation was performed according “Standard Practice for Validation of Environmental Data” found in Appendix A of *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated, <http://energy.gov/lm/downloads/sampling-and-analysis-plan-us-department-energy-office-legacy-management-sites>). The procedure was applied at Level 3, Data Validation.

This validation includes the evaluation of data quality indicators (DQIs) associated with the data. DQIs are the quantitative and qualitative descriptors that are used to interpret the degree of acceptability or utility of data. Indicators of data quality include the analysis of laboratory control samples to assess accuracy; duplicates and replicates to assess precision; and interference check samples to assess bias (see Figure 1 through Figure 3, Data Validation Worksheets). The DQIs comparability, completeness, and sensitivity are also evaluated in the sections to follow.

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 4.

*Table 4. Analytes and Methods*

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	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 + Nitrite as N, NO <sub>3</sub> +NO <sub>2</sub> -N	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 5. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

*Table 5. Data Qualifiers*

Sample Number	Location	Analyte	Flag	Reason
1603493-39	0899	Selenium	U	Less than 5 times the calibration blank
1603493-41	0940	Selenium	J	Laboratory replicate range > PQL
1603493-41	0940	Uranium	J	Serial dilution result
1603493-41	0940	Selenium	U	Less than 5 times the calibration blank
1603493-62	1130	Uranium	J	Serial dilution result
1603493-77	1205	Uranium	J	Serial dilution result
1603493-79	Equipment Blank	Uranium	U	Less than 5 times the calibration blank
1603493-79	Equipment Blank	Manganese	U	Less than 5 times the calibration blank
1603493-81	1205 Duplicate	Uranium	J	Serial dilution result

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 82 water samples on March 29, 2016, 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 0.4 °C and 0.8 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

### Detection and Quantitation Limits

A method detection limit (MDL) is defined in 40 CFR 136 as 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 MDLs reported by the laboratory were compared to the required MDLs to assess the sensitivity of the analyses and found to be in compliance with contractual requirements.

The practical quantitation limit (PQL) for an analyte, defined as 5 times the MDL, is the lowest concentration that can be quantitatively measured, and is used when evaluating laboratory method performance in the sections below.

### Laboratory Instrument Calibration

Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for the analytes of interest. Initial Calibration Verification (ICV) demonstrates that the instrument is capable of

acceptable performance at the beginning of the analytical run. Continuing Calibration Verification (CCV) demonstrates that the initial calibration is still valid by checking the performance of the instrument on a continuing basis. Initial and continuing calibration standards must be prepared from independent sources to ensure the validity of the calibration. All laboratory instrument calibrations and calibration verifications were performed correctly in accordance with the cited methods.

*Method EPA 350.1*

Calibrations were performed for ammonia as N on April 6, 7, and 8, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

*Method EPA 353.2*

Calibrations were performed for nitrate + nitrite as N April 7, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

*Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed April 5 and 6, 2016, using three 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

*Method SW-846 6020A*

Calibrations for selenium and uranium were performed April 5, 8, 11, 13, and June 24, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. 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 March 17, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met 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 with the exception of one continuing calibration blank for ammonia as N, nitrate + nitrite as N, and sulfate. The samples bracketed by these blanks either contained more than 10 times the concentration that was detected in the blank or were reanalyzed with an acceptable blank. In cases where the blank concentration exceeds the MDL, associated sample results that are greater than the MDL but less than 5 times the blank concentration are qualified with a “U” flag as not detected.

## Inductively Coupled Plasma Interference Check Sample Analysis

Interference check samples are analyzed to verify the instrumental interelement and background correction factors and assess any bias due to interelement interferences. Interference check samples were analyzed at the required frequency with all results meeting the acceptance criteria.

## Matrix Spike Analysis

Matrix spikes are aliquots of environmental samples to which known concentration of analyte has been added before analysis. Matrix spike and matrix-spike duplicate (MS/MSD) analysis is used to assess the performance of the method by measuring the effects of interferences caused by the sample matrix and reflects the bias of the method for the particular matrix in question. 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.

## Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The relative percent difference for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria with the exception of the range between results for selenium at location 0940. The associated result is qualified with a “J” flag as an estimated value.

## Laboratory Control Samples

Laboratory control samples (LCS) 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 LCS results were acceptable for all analyses.

## 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. Evaluated serial dilution

data were acceptable with the exception of some dilution results for uranium. The associated results are qualified with a "J" flag as estimated values.

#### 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

Environmental water should be electrically neutral. Expressed in milliequivalents per liter (meq/L), the sum of the anions should equal the sum of the cations. The anion/cation balance is calculated as the difference between the anions and cations, divided by the sum of the anions and cations. The anion/cation balance can be used to identify potential errors in the analytical results. Typically, a charge balance of less than 10 percent is considered acceptable. When a charge balance is greater than 10 percent, the associated data are closely examined for error. If no errors are found, the results are considered to be acceptable. Table 6 shows the total anion and cation results from this event and the charge balance.

*Table 6. Comparison of Major Anions and Cations*

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0501	Surface Water	5.9	5.8	0.6
0608	Groundwater	128.4	151.8	8.4
0610	Groundwater	131.3	141.7	3.8
0611	Groundwater	117.1	140.3	9.0
0612	Groundwater	42.5	46.7	4.7
0614	Groundwater	113.7	126.6	5.4
0615	Groundwater	124.2	143.0	7.0
0618	Groundwater	106.1	120.5	6.3
0619	Groundwater	54.8	64.7	8.3
0622	Groundwater	52.1	59.6	6.7
0623	Groundwater	52.6	58.6	5.5
0625	Groundwater	50.4	55.8	5.1
0626	Groundwater	47.1	51.0	3.9
0628	Groundwater	75.2	85.7	6.5
0630	Groundwater	97.8	111.7	6.6
0655	Surface Water	77.8	84.7	4.3
0735	Groundwater	303.6	312.0	1.4
0736	Groundwater	57.5	62.8	4.4
0766	Groundwater	89.3	103.9	7.6

*Table 6 (continued). Comparison of Major Anions and Cations*

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0768	Groundwater	86.5	99.4	6.9
0773	Groundwater	23.7	23.8	0.2
0775	Groundwater	84.6	90.0	3.1
0779	Groundwater	211.9	228.0	3.7
0782R	Groundwater	11.6	11.3	1.5
0783R	Groundwater	29.1	32.4	5.3
0792	Groundwater	84.4	89.7	3.1
0793	Groundwater	101.9	120.7	8.5
0797	Groundwater	86.1	95.3	5.1
0798	Groundwater	79.8	90.6	6.4
0850	Groundwater	59.2	62.9	3.0
0853	Groundwater	20.8	21.9	2.5
0854	Groundwater	109.2	125.0	6.7
0855	Groundwater	75.9	88.2	7.5
0856	Groundwater	69.3	73.4	2.9
0857	Groundwater	137.7	154.7	5.8
0897	Surface Water	5.6	5.3	3.0
0899	Surface Water	5.7	5.8	0.9
0940	Surface Water	5.7	5.8	1.6
0956	Surface Water	5.7	6.1	4.1
0965	Surface Water	5.7	5.5	1.6
0967	Surface Water	5.6	4.7	8.8
1008	Groundwater	82.6	95.5	7.2
1009	Groundwater	33.2	36.8	5.1
1089	Groundwater	90.8	107.0	8.2
1104	Groundwater	89.5	107.3	9.0
1105	Groundwater	118.0	130.6	5.0
1111	Groundwater	136.9	157.5	7.0
1112	Groundwater	145.0	162.7	5.8
1113	Groundwater	101.3	112.4	5.2
1114	Groundwater	66.2	71.0	3.5
1115	Groundwater	39.5	43.7	5.1
1117	Groundwater	6.9	7.1	1.6
1118	Groundwater	127.4	149.4	8.0
1128	Groundwater	116.9	135.1	7.2
1130	Groundwater	6.2	6.5	2.1
1132	Groundwater	6.6	7.1	3.7
1134	Groundwater	9.5	10.2	3.4
1135	Groundwater	61.0	69.8	6.8
1136	Groundwater	170.1	215.1	11.7
1137	Groundwater	180.1	233.6	12.9
1138	Groundwater	177.9	240.5	15.0

*Table 6 (continued). Comparison of Major Anions and Cations*

<b>Location</b>	<b>Location Type</b>	<b>Cations (meq/L)</b>	<b>Anions (meq/L)</b>	<b>Charge Balance (%)</b>
1139	Groundwater	181.8	228.8	11.4
1140	Groundwater	108.2	135.3	11.2
1141	Groundwater	48.4	58.1	9.1
1142	Groundwater	6.0	6.2	2.3
1143	Groundwater	56.1	61.3	4.4
1203	Surface Water	5.6	5.6	0.7
1205	Surface Water	5.6	5.6	0.1

Locations 1136, 1137, 1138, 1139, and 1140 had charge balances greater than 10 percent. There were no analytical errors identified during the review of the laboratory data. All other charge balances were below 10 percent.

#### Electronic Data Deliverable (EDD) File

A revised EDD file arrived on July 7, 2016, in response to Request for Information #16-5233. The revision included corrections to some uranium results. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## SAMPLE MANAGEMENT SYSTEM

### General Data Validation Report

RIN: 16037686 Lab Code: PAR Validator: Gretchen Baer Validation Date: 6/10/2016

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

All analyses were completed within the applicable holding times.

Detection Limits

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

Field/Trip Blanks

There was 1 trip/equipment blank evaluated.

Field Duplicates

There were 4 duplicates evaluated.

*Figure 1. General Validation Worksheet (Floodplain Locations)*

## SAMPLE MANAGEMENT SYSTEM

### Metals Data Validation Worksheet

RIN: 16037686

Lab Code: PAR

Date Due: 4/26/2016

Matrix: Water

Site Code: SHP01

Date Completed: 4/18/2016

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	04/06/2016	0.0000	1.0000	OK	OK	OK	97.0	99.0	99.0	0.0	101.0	2.0	102.0
Calcium	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	107.0	98.0	102.0	1.0	100.0	0.0	121.0
Calcium	ICP/ES	04/06/2016			OK	OK	OK	99.0	94.0	91.0	1.0	101.0	2.0	108.0
Calcium	ICP/ES	04/06/2016			OK	OK	OK	99.0	89.0	90.0	0.0		1.0	
Calcium	ICP/ES	04/06/2016			OK	OK	OK	100.0	103.0	82.0	2.0	97.0	0.0	99.0
Magnesium	ICP/ES	04/06/2016			OK	OK	OK	102.0	102.0	103.0	1.0	100.0	1.0	100.0
Magnesium	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	111.0	107.0	108.0	1.0	102.0	1.0	101.0
Magnesium	ICP/ES	04/06/2016	0.0000	1.0000	OK	OK	OK	104.0	99.0	100.0	1.0	101.0	2.0	107.0
Magnesium	ICP/ES	04/06/2016			OK	OK	OK	106.0	101.0	101.0	0.0		0.0	
Magnesium	ICP/ES	04/06/2016			OK	OK	OK	107.0	97.0	92.0	0.0	95.0	1.0	100.0
Manganese	ICP/ES	04/06/2016	0.0000	1.0000	OK	OK	OK	99.0	102.0	98.0	2.0	95.0	5.0	113.0
Manganese	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	104.0	96.0	98.0	2.0	99.0		112.0
Manganese	ICP/ES	04/06/2016			OK	OK	OK	101.0	90.0	82.0	1.0			
Manganese	ICP/ES	04/06/2016			OK	OK	OK	100.0	94.0	94.0	0.0	86.0	3.0	115.0
Manganese	ICP/ES	04/06/2016			OK	OK	OK	100.0	90.0	88.0	1.0	85.0	5.0	109.0
Potassium	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	103.0	106.0	107.0	2.0			
Potassium	ICP/ES	04/06/2016			OK	OK	OK	108.0	106.0	108.0	2.0			92.0

**SAMPLE MANAGEMENT SYSTEM****Metals Data Validation Worksheet**RIN: 16037686Lab Code: PARDate Due: 4/26/2016Matrix: WaterSite Code: SHP01Date Completed: 4/18/2016

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								
Potassium	ICP/ES	04/06/2016			OK	OK	OK	103.0	106.0	106.0	0.0			98.0
Potassium	ICP/ES	04/06/2016			OK	OK	OK	103.0	107.0	107.0	0.0		1.0	101.0
Potassium	ICP/ES	04/06/2016	0.0000	1.0000	OK	OK	OK	108.0	103.0	109.0	3.0		1.0	104.0
Sodium	ICP/ES	04/06/2016			OK	OK	OK	103.0	105.0	104.0	0.0		3.0	
Sodium	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	104.0	104.0	107.0	1.0		2.0	106.0
Sodium	ICP/ES	04/06/2016			OK	OK	OK	109.0			3.0		1.0	102.0
Sodium	ICP/ES	04/06/2016			OK	OK	OK	109.0	107.0	111.0	2.0		0.0	98.0
Sodium	ICP/ES	04/06/2016	0.0000	1.0000	OK	OK	OK	104.0	103.0	103.0	0.0		7.0	103.0
Strontium	ICP/ES	04/06/2016			OK	OK	OK	99.0	93.0	90.0	1.0	113.0	3.0	112.0
Strontium	ICP/ES	04/05/2016	0.0000	1.0000	OK	OK	OK	109.0	103.0	103.0	0.0	101.0	4.0	99.0
Strontium	ICP/ES	04/06/2016			OK	OK	OK	102.0	97.0	107.0	1.0	105.0	1.0	104.0
Strontium	ICP/ES	04/06/2016			OK	OK	OK	101.0	98.0	98.0	0.0		3.0	
Strontium	ICP/ES	04/06/2016	0.0000	1.0000	OK	OK	OK	96.0	99.0	103.0	1.0	107.0	0.0	103.0
Selenium	ICP/MS	04/13/2016	0.0000	1.0000	OK	OK		115.0	117.0	1.0				112.0
Selenium	ICP/MS	04/05/2016	0.0000	1.0000	OK	OK	OK	106.0	104.0	105.0	1.0	99.0		97.0
Selenium	ICP/MS	04/08/2016	0.0000	1.0000	OK	OK	OK	97.0	103.0	104.0	1.0	96.0	4.0	102.0
Selenium	ICP/MS	04/11/2016	0.0000	1.0000	OK	OK	OK	98.0	98.0	104.0	6.0			116.0

## SAMPLE MANAGEMENT SYSTEM

Page 3 of 3

### Metals Data Validation Worksheet

RIN: 16037686

Lab Code: PAR

Date Due: 4/26/2016

Matrix: Water

Site Code: SHP01

Date Completed: 4/18/2016

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								
Selenium	ICP/MS	04/11/2016			OK	OK	OK	92.0	102.0	108.0	5.0	97.0		
Selenium	ICP/MS	04/11/2016			OK	OK	OK	102.0				105.0		
Uranium	ICP/MS	06/24/2016	0.0000	1.0000	OK	OK	OK	100.0	117.0	116.0	0.0	100.0	3.0	130.0
Uranium	ICP/MS	04/05/2016	0.0000	1.0000	OK	OK	OK	102.0	104.0	105.0	1.0	103.0	4.0	100.0
Uranium	ICP/MS	04/08/2016	0.0000	1.0000	OK	OK	OK	93.0	100.0	100.0	1.0	96.0	4.0	110.0
Uranium	ICP/MS	04/11/2016	0.0000	1.0000	OK	OK	OK	101.0			2.0		22.0	100.0
Uranium	ICP/MS	04/11/2016			OK	OK	OK	99.0	101.0	106.0	4.0	104.0	30.0	
Uranium	ICP/MS	04/11/2016			OK	OK	OK	100.0	98.0	109.0	7.0	97.0	15.0	90.0

Figure 2. Metals Validation Worksheet (Floodplain Locations)

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

RIN: 16037686

Lab Code: PAR

Date Due: 4/26/2016

Matrix: Water

Site Code: SHP01

Date Completed: 4/18/2016

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R <sup>2</sup>	CCV	CCB						
AMMONIA AS N	04/06/2016	0.000	1.0000	OK	OK	OK	99	86	86	1	
AMMONIA AS N	04/07/2016	0.000	1.0000	OK	OK	OK	97	96	97	1	
AMMONIA AS N	04/07/2016	0.000	1.0000	OK	OK	OK	101	92	92	1	
AMMONIA AS N	04/08/2016	0.000	1.0000	OK	OK	OK	100	96	93	4	
AMMONIA AS N	04/08/2016			OK	OK	OK	100				
CHLORIDE	03/17/2016										
CHLORIDE	03/31/2016			OK	OK	OK	102				
CHLORIDE	03/31/2016			OK	OK	OK	102				
CHLORIDE	04/01/2016			OK	OK	OK	106				
CHLORIDE	04/01/2016			OK	OK	OK	105				
CHLORIDE	04/01/2016			OK	OK	OK	105				
CHLORIDE	04/02/2016			OK	OK			101	101	0	
CHLORIDE	04/02/2016			OK	OK			105	105	0	
CHLORIDE	04/03/2016			OK	OK			104	104	1	
CHLORIDE	04/15/2016			OK	OK			103	101	2	

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

RIN: 16037686

Lab Code: PAR

Date Due: 4/26/2016

Matrix: Water

Site Code: SHP01

Date Completed: 4/18/2016

Analyte	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB					
Nitrate+Nitrite as N	04/07/2016	0.000	1.0000	OK	OK	OK	101	106	106	0
Nitrate+Nitrite as N	04/07/2016			OK	OK	OK	100	105	106	1
Nitrate+Nitrite as N	04/07/2016			OK	OK	OK	103	99	102	2
Nitrate+Nitrite as N	04/07/2016			OK	OK	OK	100	108	106	2
Nitrate+Nitrite as N	04/07/2016			OK	OK	OK	100	104	103	0
Sulfate	03/17/2016									
SULFATE	03/31/2016			OK	OK	OK	102			
SULFATE	03/31/2016			OK	OK	OK	102			
SULFATE	04/01/2016			OK	OK	OK	105			
SULFATE	04/01/2016			OK	OK	OK	105			
SULFATE	04/01/2016			OK	OK	OK	104			
SULFATE	04/02/2016			OK	OK			99	99	0
SULFATE	04/02/2016			OK	OK			105	106	0
SULFATE	04/03/2016			OK	OK			104	105	1
SULFATE	04/15/2016			OK	OK			106	102	2

Figure 3. Wet Chemistry Validation Worksheet (Floodplain Locations)

## General Information

Report Number (RIN): 16037687  
Sample Event: March 21–24, 2016  
Site(s): Shiprock Disposal Site (Terrace), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1603496  
Analysis: Metals and Wet Chemistry  
Validator: Gretchen Baer  
Review Date: June 14, 2016

This validation was performed according “Standard Practice for Validation of Environmental Data” found in Appendix A of *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated, <http://energy.gov/lm/downloads/sampling-and-analysis-plan-us-department-energy-office-legacy-management-sites>). The procedure was applied at Level 3, Data Validation.

This validation includes the evaluation of data quality indicators (DQIs) associated with the data. DQIs are the quantitative and qualitative descriptors that are used to interpret the degree of acceptability or utility of data. Indicators of data quality include the analysis of laboratory control samples to assess accuracy; duplicates and replicates to assess precision; and interference check samples to assess bias (see Figure 4 through Figure 6, Data Validation Worksheets). The DQIs comparability, completeness, and sensitivity are also evaluated in the sections to follow.

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 7.

*Table 7. Analytes and Methods*

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH3-N	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 + Nitrite as N, NO <sub>3</sub> +NO <sub>2</sub> -N	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 8. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

*Table 8. Data Qualifiers*

<b>Sample Number</b>	<b>Location</b>	<b>Analyte</b>	<b>Flag</b>	<b>Reason</b>
1603496-1	0600	Selenium	U	Less than 5 times the calibration blank
1603496-5	0662	Uranium	U	Less than 5 times the calibration blank
1603496-7	0726	Selenium	J	Matrix spike recovery
1603496-14	0817	Selenium	U	Less than 5 times the calibration blank
1603496-15	0818	Selenium	J	Field duplicate result
1603496-24	0832	Selenium	J	Serial dilution result
1603496-26	0835	Selenium	U	Less than 5 times the calibration blank
1603496-45	1078	Selenium	J	Field duplicate result
1603496-51	1095	Manganese	J	Serial dilution result
1603496-56	1078 Duplicate	Selenium	J	Field duplicate result
1603496-57	0818 Duplicate	Selenium	J	Field duplicate result

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 60 water samples on March 29, 2016, 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 3.2 °C and 2.5 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

### Detection and Quantitation Limits

A method detection limit (MDL) is defined in 40 CFR 136 as 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 MDLs reported by the laboratory were compared to the required MDLs to assess the sensitivity of the analyses and found to be in compliance with contractual requirements.

The practical quantitation limit (PQL) for an analyte, defined as 5 times the MDL, is the lowest concentration that can be quantitatively measured, and is used when evaluating laboratory method performance in the sections below.

## Laboratory Instrument Calibration

Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for the analytes of interest. Initial Calibration Verification (ICV) demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical run. Continuing Calibration Verification (CCV) demonstrates that the initial calibration is still valid by checking the performance of the instrument on a continuing basis. Initial and continuing calibration standards must be prepared from independent sources to ensure the validity of the calibration. All laboratory instrument calibrations and calibration verifications were performed correctly in accordance with the cited methods.

### *Method EPA 350.1*

Calibrations were performed for ammonia as N on April 11 and 12, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

### *Method EPA 353.2*

Calibrations were performed for nitrate + nitrite as N April 13, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

### *Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed April 11, 12, and 14, 2016, using three 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed April 13, 14, 21, 25, and June 24, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. 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 March 17, 2016, 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 as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met 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 with the exception of some continuing calibration blanks for ammonia as N and selenium. The samples bracketed by these blanks either contained more than 10 times the concentration that was detected in the blank or were reanalyzed with an acceptable blank. In cases where the blank concentration exceeds the MDL, associated sample results that are greater than the MDL but less than 5 times the blank concentration are qualified with a “U” flag as not detected.

### Inductively Coupled Plasma Interference Check Sample Analysis

Interference check samples are analyzed to verify the instrumental interelement and background correction factors and assess any bias due to interelement interferences. Interference check samples were analyzed at the required frequency with all results meeting the acceptance criteria.

### Matrix Spike Analysis

Matrix spikes are aliquots of environmental samples to which a known concentration of analyte has been added before analysis. Matrix spike and matrix-spike duplicate (MS/MSD) analysis is used to assess the performance of the method by measuring the effects of interferences caused by the sample matrix and reflects the bias of the method for the particular matrix in question. 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 with the following exception. A spike recovery for selenium was above the acceptance range. Associated results are qualified with a “J” flag (estimated).

### Laboratory Replicate Analysis

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

### Laboratory Control Samples

Laboratory control samples (LCS) 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 LCS results were acceptable for all analyses.

## 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. Evaluated serial dilution data were acceptable with the exception of some dilution results for manganese and selenium. The associated results are qualified with a "J" flag as estimated values.

## 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

Environmental water should be electrically neutral. Expressed in milliequivalents per liter (meq/L), the sum of the anions should equal the sum of the cations. The anion/cation balance is calculated as the difference between the anions and cations, divided by the sum of the anions and cations. The anion/cation balance can be used to identify potential errors in the analytical results. Typically, a charge balance of less than 10 percent is considered acceptable. When a charge balance is greater than 10 percent, the associated data are closely examined for error. If no errors are found, the results are considered to be acceptable. Table 9 shows the total anion and cation results from this event and the charge balance.

*Table 9. Comparison of Major Anions and Cations*

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0600	Groundwater	237.2	303.3	12.2
0602	Groundwater	445.1	504.5	6.3
0603	Groundwater	219.1	220.6	0.3
0604	Groundwater	384.8	448.5	7.7
0662	Surface Water	44.5	44.7	0.2
0725	Groundwater	57.8	60.7	2.5
0726	Groundwater	111.0	124.9	5.9
0728	Groundwater	116.3	122.1	2.4
0730	Groundwater	47.2	49.5	2.4
0731	Groundwater	83.3	88.3	2.9
0813	Groundwater	400.3	415.9	1.9
0814	Groundwater	364.2	416.1	6.7
0816	Groundwater	50.5	49.5	1.0
0817	Groundwater	314.1	332.7	2.9
0818	Groundwater	343.1	399.4	7.6

Table 9 (continued). Comparison of Major Anions and Cations

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0819	Groundwater	281.6	344.2	10.0
0820	Groundwater	355.3	381.1	3.5
0822	Groundwater	287.3	343.8	9.0
0824	Groundwater	299.4	343.3	6.8
0826	Groundwater	236.2	262.3	5.2
0827	Groundwater	173.6	198.7	6.7
0828	Groundwater	51.3	55.2	3.6
0830	Groundwater	39.5	39.7	0.3
0832	Groundwater	136.9	157.8	7.1
0833	Groundwater	99.1	106.4	3.6
0835	Groundwater	6.3	6.6	2.2
0836	Groundwater	72.4	73.8	0.9
0837	Groundwater	66.9	69.5	1.9
0838	Groundwater	96.5	101.6	2.6
0841	Groundwater	288.6	379.1	13.6
0843	Groundwater	41.5	43.7	2.6
0844	Groundwater	248.9	291.9	8.0
0848	Groundwater	382.9	445.9	7.6
0889	Surface Water	542.3	679.2	11.2
1007	Groundwater	310.1	354.4	6.7
1049	Groundwater	425.2	508.5	8.9
1057	Groundwater	202.0	232.0	6.9
1058	Groundwater	155.4	175.4	6.1
1059	Groundwater	213.3	256.6	9.2
1068	Groundwater	106.1	117.2	5.0
1070	Groundwater	384.9	441.9	6.9
1071	Groundwater	330.0	417.3	11.7
1073	Groundwater	318.7	374.1	8.0
1074	Groundwater	295.2	313.7	3.0
1078	Groundwater	311.5	384.6	10.5
1079	Groundwater	99.1	106.5	3.6
1087	Groundwater	130.3	148.5	6.5
1091	Groundwater	367.1	465.1	11.8
1092	Groundwater	356.4	472.3	14.0
1093R	Groundwater	292.1	330.3	6.1
1095	Groundwater	240.0	262.0	4.4
1096	Groundwater	359.2	438.1	9.9
1215	Surface Water	875.4	1015.9	7.4
1219	Surface Water	49.0	52.2	3.2
1221	Surface Water	824.2	939.2	6.5
MW1	Groundwater	212.6	290.3	15.4

Locations 0600, 0819, 0841, 0889, 1071, 1078, 1091, 1092, and MW1 had charge balances greater than 10 percent. There were no analytical errors identified during the review of the laboratory data. All other charge balances were below 10 percent.

#### Electronic Data Deliverable (EDD) File

A revised EDD file arrived on July 7, 2016, in response to Request for Information #16-5233. The revision included corrections to some selenium results. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## SAMPLE MANAGEMENT SYSTEM

### General Data Validation Report

RIN: 16037687 Lab Code: PAR Validator: Gretchen Baer Validation Date: 6/10/2016  
Project: Shiprock Monitoring Analysis Type:  Metals  General Chem  Rad  Organics  
# of Samples: 60 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 4 duplicates evaluated.

*Figure 4. General Validation Worksheet (Terrace Locations)*

## SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

RIN: 16037687Lab Code: PARDate Due: 4/26/2016Matrix: WaterSite Code: SHP01Date Completed: 5/4/2016

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	04/11/2016	0.0000	1.0000	OK	OK	OK	102.0			1.0	103.0	5.0	102.0
Calcium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	102.0			2.0	100.0	2.0	108.0
Calcium	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	101.0			0.0	102.0	1.0	107.0
Magnesium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	108.0			0.0	100.0	2.0	102.0
Magnesium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	108.0			1.0	101.0	2.0	111.0
Magnesium	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	107.0			0.0	100.0	7.0	110.0
Manganese	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	107.0	97.0	96.0	0.0	101.0		121.0
Manganese	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	105.0	100.0	99.0	1.0	100.0	4.0	109.0
Manganese	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	104.0			2.0	101.0	13.0	118.0
Potassium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	107.0	109.0	113.0	2.0		2.0	108.0
Potassium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	109.0	109.0	110.0	1.0		2.0	97.0
Potassium	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	106.0	116.0	106.0	2.0		1.0	108.0
Selenium	ICP/MS	04/13/2016	0.0000	1.0000	OK	OK	OK	102.0				105.0	0.0	101.0
Selenium	ICP/MS	04/14/2016	0.0000	1.0000	OK	OK	OK	109.0	160.0	182.0	7.0	102.0	4.0	73.0
Selenium	ICP/MS	04/22/2016	0.0000	1.0000	OK	OK			115.0	113.0	1.0	105.0	12.0	83.0
Selenium	ICP/MS	04/26/2016	0.0000	1.0000	OK	OK	OK	105.0	113.0	96.0	6.0	98.0		110.0
Selenium	ICP/MS	06/24/2016	0.0000	1.0000	OK	OK	OK	108.0				104.0		98.0

**SAMPLE MANAGEMENT SYSTEM****Metals Data Validation Worksheet**RIN: 16037687Lab Code: PARDate Due: 4/26/2016Matrix: WaterSite Code: SHP01Date Completed: 5/4/2016

Analyte	Method Type	Date Analyzed	CALIBRATION			Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R	
			Int.	R^2	CCV									
Sodium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	108.0			2.0		8.0	104.0
Sodium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	110.0			1.0		10.0	112.0
Sodium	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	108.0			3.0		7.0	105.0
Strontium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	106.0			1.0	107.0	1.0	102.0
Strontium	ICP/ES	04/11/2016	0.0000	1.0000	OK	OK	OK	104.0	109.0	101.0	1.0	106.0	5.0	102.0
Strontium	ICP/ES	04/12/2016	0.0000	1.0000	OK	OK	OK	102.0	106.0	88.0	1.0	113.0	0.0	107.0
Uranium	ICP/MS	04/13/2016	0.0000	1.0000	OK	OK	OK	108.0	86.0	106.0	6.0	104.0	2.0	90.0
Uranium	ICP/MS	04/14/2016	0.0000	1.0000	OK	OK	OK	105.0	106.0	120.0	2.0		3.0	120.0
Uranium	ICP/MS	04/14/2016	0.0000	1.0000	OK	OK	OK	102.0			6.0		0.0	120.0

Figure 5. Metals Validation Worksheet (Terrace Locations)

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

RIN: 16037687

Lab Code: PAR

Date Due: 4/26/2016

Matrix: Water

Site Code: SHP01

Date Completed: 5/4/2016

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R <sup>2</sup>	CCV	CCB						
AMMONIA AS N	04/11/2016	0.000	1.0000	OK	OK	OK	107				
AMMONIA AS N	04/12/2016	0.000	1.0000	OK	OK	OK	97	106	98	2	
AMMONIA AS N	04/12/2016	0.000	1.0000	OK	OK	OK	100	95	97	1	
CHLORIDE	03/17/2016	0.000	1.0000								
CHLORIDE	04/05/2016			OK	OK	OK	102	102	102	0	
CHLORIDE	04/05/2016			OK	OK	OK	100	102	100	1	
CHLORIDE	04/05/2016			OK	OK	OK	101	100	102	1	
Nitrate+Nitrite as N	04/13/2016	0.000	1.0000	OK	OK	OK	104	113	110	2	
Nitrate+Nitrite as N	04/13/2016			OK	OK	OK	104	112	108	2	
Nitrate+Nitrite as N	04/13/2016			OK	OK	OK	104	108	109	0	
Sulfate	03/17/2016	0.000	1.0000								
SULFATE	04/05/2016			OK	OK	OK	102	99	100	0	
SULFATE	04/05/2016			OK	OK	OK	103	106	105	0	
SULFATE	04/05/2016			OK	OK	OK	102	100	99	0	

Figure 6. Wet Chemistry Validation Worksheet (Terrace Locations)

## **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 0797 and 0850, and terrace wells 0600, 0602, 0604, 0730, 0814, 0817, 0819, 0820, 0822, 0824, 0826, 0827, 0828, 1007, 1058, 1059, 1068, 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.

A filtered sample and a non-filtered sample were collected at San Juan River locations 0501, 0897, 0899, 0940, 0956, 0965, 0967, 1203, and 1205. Only non-filtered samples were collected at all other surface water locations as per the Shiprock program directive.

At locations sampled with Sonde E on March 21, 23, and 24, 2016, the pH results are qualified with a “J” flag as estimated because the associated daily operational check results for the pH sensor were below the acceptance criteria.

### Equipment Blank Assessment

Equipment blanks (Figure 7) are prepared and analyzed to document contamination attributable to the sample collection process. An equipment blank was collected after decontamination of non-dedicated tubing used to collect surface water samples at ten locations. Strontium was detected in the equipment blank at a concentration slightly above the detection limit. All strontium sample results were greater than 5 times the equipment blank, so no further qualification is required. (Manganese and uranium were also detected in the blank by the laboratory, but these results have been qualified during data validation with a “U” flag as not detected.) The equipment blank results indicate adequate decontamination of the sampling equipment.

### Field Duplicate Assessment

Field duplicate samples (Figure 8 and Figure 9) 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 relative percent difference (RPD) for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results, the range should be no greater than the PQL. Duplicate samples were collected from floodplain locations 0857, 1134, 1142, and 1205 and terrace locations 0818, 1078, 1093R, and 1096. The duplicate results met the acceptance criteria for all analytes with the following exceptions. The selenium results for terrace locations 0818 and 1078 did not meet the acceptance criteria. The associated sample and duplicate results are qualified with a “J” flag as estimated values.

**SAMPLE MANAGEMENT SYSTEM**  
**Validation Report: Equipment/Trip Blanks**

Page 1 of 1

RIN: 16037686 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 6/10/2016

---

**Blank Data**

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1603493-79	SW6010	Strontium	0.55	J	0.26	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1603493-1	OEY 396	0501	830	1		
1603493-2	OEY 407	0501	840	1		
1603493-37	OEY 387	0897	740	1		
1603493-38	OEY 419	0897	780	1		
1603493-39	OEY 388	0899	740	1		
1603493-40	OEY 420	0899	810	1		
1603493-43	OEY 390	0956	760	1		
1603493-44	OEY 424	0956	780	1		
1603493-45	OEY 392	0965	750	1		
1603493-46	OEY 425	0965	770	1		
1603493-47	OEY 456	0967	730	1		
1603493-48	OEY 458	0967	800	1		
1603493-74	OEY 393	1203	740	1		
1603493-75	OEY 426	1203	770	1		
1603493-76	OEY 386	1205	760	1		
1603493-77	OEY 394	1205	800	1		

---

*Figure 7. Field Blanks Validation Worksheet*

**SAMPLE MANAGEMENT SYSTEM**  
**Validation Report: Field Duplicates**

Page 1 of 2

RIN: 16037686 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 6/10/2016

---

**Duplicate: 2210**

**Sample: 1134**

**Sample Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	1.1			1	1.1			1	0		MG/L
Calcium	87000			1	87000			1	0		UG/L
CHLORIDE	25			5	25			5	0		MG/L
Magnesium	23000			1	23000			1	0		UG/L
Manganese	910			1	940			1	3.24		UG/L
Nitrate+Nitrite as N	0.043			1	0.049			1			MG/L
Potassium	3000			1	3000			1	0		UG/L
Selenium	0.66	U		10	0.66	U		10			UG/L
Sodium	71000			1	71000			1	0		UG/L
Strontium	1000			1	1000			1	0		UG/L
SULFATE	270			5	270			5	0		MG/L
Uranium	17			10	17			10	0		UG/L

**Duplicate: 2215**

**Sample: 1142**

**Sample Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	0.1	U		1	0.1	U		1			MG/L
Calcium	61000			1	63000			1	3.23		UG/L
CHLORIDE	16			2	15			2	6.45		MG/L
Magnesium	12000			1	12000			1	0		UG/L
Manganese	310			1	270			1	13.79		UG/L
Nitrate+Nitrite as N	0.028			1	0.027			1			MG/L
Potassium	2500			1	2300			1	8.33		UG/L
Selenium	0.66	U		10	0.66	U		10			UG/L
Sodium	42000			1	40000			1	4.88		UG/L
Strontium	710			1	700			1	1.42		UG/L
SULFATE	160			2	160			2	0		MG/L
Uranium	5.9			10	5.5			10	7.02		UG/L

**Duplicate: 2592**

**Sample: 1205**

**Sample Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	0.1	U		1	0.1	U		1			MG/L
Calcium	67000			1	66000			1	1.50		UG/L
CHLORIDE	15			2	15			2	0		MG/L
Magnesium	12000			1	12000			1	0		UG/L
Manganese	170			1	170			1	0		UG/L

**SAMPLE MANAGEMENT SYSTEM**  
**Validation Report: Field Duplicates**

Page 2 of 2

RIN: 16037686      Lab Code: PAR      Project: Shiprock Monitoring      Validation Date: 6/10/2016

---

Duplicate: 2592

Sample: 1205

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Nitrate+Nitrite as N	0.47		1	0.47			2	0	MG/L		
Potassium	2900		1	3300			1	12.90	UG/L		
Selenium	0.8	J	10	1.2			10		UG/L		
Sodium	34000		1	35000			1	2.90	UG/L		
Strontium	800		1	780			1	2.53	UG/L		
SULFATE	150		2	150			2	0	MG/L		
Uranium	1.8		10	2	E		10	10.53	UG/L		

Duplicate: 2824

Sample: 0857

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIA AS N	11		25	13			25		MG/L		
Calcium	500000		5	480000			5	4.08	UG/L		
CHLORIDE	280		100	280			100	0	MG/L		
Magnesium	660000		5	640000			5	3.08	UG/L		
Manganese	4100		5	4200			5	2.41	UG/L		
Nitrate+Nitrite as N	20		100	19			50	5.13	MG/L		
Potassium	39000		5	40000			5	2.53	UG/L		
Selenium	81		10	96			10	16.95	UG/L		
Sodium	1300000		5	1200000			5	8.00	UG/L		
Strontium	7000		5	7200			5	2.82	UG/L		
SULFATE	6500		100	6500			100	0	MG/L		
Uranium	770		10	860			10	11.04	UG/L		

*Figure 8. Field Duplicates Validation Worksheet (Floodplain Locations)*

**SAMPLE MANAGEMENT SYSTEM**  
**Validation Report: Field Duplicates**

Page 1 of 2

RIN: 16037687 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 6/10/2016

---

**Duplicate: 2319**

**Sample: 1078**

**Sample**                                   **Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	1.2			1	1.3			1	8.00		MG/L
Calcium	430000			10	440000			10	2.30		UG/L
CHLORIDE	1100			500	1100			500	0		MG/L
Magnesium	970000			10	1000000			10	3.05		UG/L
Manganese	56			10	65			10	14.88		UG/L
Nitrate+Nitrite as N	440			1000	420			1000	4.65		MG/L
Potassium	46000			10	46000			10	0		UG/L
Selenium	3100			10	2400			10	25.45		UG/L
Sodium	4800000			10	4700000			10	2.11		UG/L
Strontium	9000			10	9300			10	3.28		UG/L
SULFATE	15000			500	15000			500	0		MG/L
Uranium	110			10	110			10	0		UG/L

**Duplicate: 2320**

**Sample: 0818**

**Sample**                                   **Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	47			25	49			25	4.17		MG/L
Calcium	470000			10	480000			10	2.11		UG/L
CHLORIDE	1100			500	1100			500	0		MG/L
Magnesium	1600000			10	1700000			10	6.06		UG/L
Manganese	530			10	540			10	1.87		UG/L
Nitrate+Nitrite as N	630			1000	570			1000	10.00		MG/L
Potassium	67000			10	67000			10	0		UG/L
Selenium	3400			10	2100			10	47.27		UG/L
Sodium	4200000			10	4200000			10	0		UG/L
Strontium	13000			10	12000			10	8.00		UG/L
SULFATE	15000			500	16000			500	6.45		MG/L
Uranium	110			10	120			10	8.70		UG/L

**Duplicate: 2665**

**Sample: 1096**

**Sample**                                   **Duplicate**

Analyte	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	4.3			1	4.4			1	2.30		MG/L
Calcium	420000			10	440000			10	4.65		UG/L
CHLORIDE	1100			500	1100			500	0		MG/L
Magnesium	970000			10	1000000			10	3.05		UG/L
Manganese	120			10	120			10	0		UG/L

## SAMPLE MANAGEMENT SYSTEM

Page 2 of 2

### Validation Report: Field Duplicates

RIN: 16037687 Lab Code: PAR Project: Shiprock Monitoring Validation Date: 6/10/2016

---

Duplicate: 2665

Sample: 1096

Analyte	Sample			Duplicate			RPD	RER	Units	
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution		
Nitrate+Nitrite as N	540			1000	540			1000	0	MG/L
Potassium	51000			10	51000			10	0	UG/L
Selenium	2100			10	2300			10	9.09	UG/L
Sodium	5900000			50	6200000			50	4.96	UG/L
Strontium	8700			10	9200			10	5.59	UG/L
SULFATE	17000			500	17000			500	0	MG/L
Uranium	81			10	86			10	5.99	UG/L

Duplicate: 2811

Sample: 1093R

Analyte	Sample			Duplicate			RPD	RER	Units	
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution		
AMMONIA AS N	380			300	400			300	5.13	MG/L
Calcium	770000			10	770000			5	0	UG/L
CHLORIDE	710			200	720			200	1.40	MG/L
Magnesium	1700000			10	1700000			5	0	UG/L
Manganese	23000			10	24000			5	4.26	UG/L
Nitrate+Nitrite as N	1900			5000	1800			5000	5.41	MG/L
Potassium	150000			10	150000			5	0	UG/L
Selenium	510			10	530			10	3.85	UG/L
Sodium	1900000			10	1800000			5	5.41	UG/L
Strontium	9400			10	9900			5	5.18	UG/L
SULFATE	7900			200	8000			200	1.26	MG/L
Uranium	110			10	110			10	0	UG/L

*Figure 9. Field Duplicates Validation Worksheet (Terrace Locations)*

## Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the environmental 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 7-26-2016  
Stephen Donivan Date

Data Validation Lead: Gretchen Baer 9-26-16  
Gretchen Baer Date

This page intentionally left blank

# **Attachment 1**

## **Assessment of Anomalous Data**

This page intentionally left blank

## **Potential Outliers Report**

This page intentionally left blank

## Potential Outliers Report

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

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

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

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

Unfiltered surface water samples are expected to exhibit high variability in the results due to the nonhomogeneous nature of the samples and were not evaluated for outliers.

Twelve analytical results were identified as potential outliers (see the Data Validation Outliers Reports on the following pages). 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.

This page intentionally left blank

**Data Validation Outliers Report - No Field Parameters****Comparison: Historical Data Beginning 1/1/2006 for Filtered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0850	0001	03/24/2016	Magnesium	74.0	FQ		63.0	F		3.30	B	F	9	0	No
SHP01	0940	0001	03/23/2016	Selenium	0.00470	UJ		0.00150	U		0.00024			21	3	Yes
SHP01	0967	0001	03/24/2016	Manganese	0.00290	J		0.220			0.00360	J		6	0	No

**STATISTICAL TESTS:**

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

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

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

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

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0608	N001	03/23/2016	Ammonia Total as N	38.0	F	180	F	41.0	F	18	0	No
SHP01	0608	N001	03/23/2016	Chloride	290	F	274	JF	120	F	18	0	No
SHP01	0608	N001	03/23/2016	Potassium	43.0	F	130	F	45.0	F	18	0	NA
SHP01	0608	N001	03/23/2016	Uranium	0.590	F	1.20	F	0.640	F	18	0	NA
SHP01	0614	N001	03/24/2016	Ammonia Total as N	13.0	F	79.0	F	15.0	F	19	0	No
SHP01	0614	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	67.0	F	610	F	83.0	F	19	0	No
SHP01	0614	N001	03/24/2016	Potassium	58.0	F	210	F	63.0	F	19	0	No
SHP01	0614	N001	03/24/2016	Sodium	850	F	2460	F	890	F	19	0	No
SHP01	0618	N001	03/23/2016	Manganese	2.50	F	10.4	E	2.60	F	19	0	NA
SHP01	0618	N001	03/23/2016	Potassium	39.0	F	150	F	40.0	F	19	0	No
SHP01	0618	N001	03/23/2016	Uranium	0.380	F	2.83	F	0.420	F	19	0	NA
SHP01	0619	N001	03/23/2016	Calcium	180	F	410	F	220	F	19	0	No
SHP01	0619	N001	03/23/2016	Magnesium	65.0	F	530	F	82.0	F	19	0	NA
SHP01	0619	N001	03/23/2016	Potassium	14.0	F	76.0	F	15.0	B	19	0	NA
SHP01	0619	N001	03/23/2016	Sodium	920	F	2600	F	960	F	19	0	NA
SHP01	0619	N001	03/23/2016	Strontium	5.30	F	9.90	F	5.90	F	17	0	No
SHP01	0619	N001	03/23/2016	Sulfate	2700	F	8800	F	2900	F	19	0	NA

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0619	N001	03/23/2016	Uranium	0.0540	F	0.690	F	0.0710	F	19	0	NA
SHP01	0622	N001	03/24/2016	Magnesium	42.0	F	250	F	46.0	F	14	0	No
SHP01	0622	N001	03/24/2016	Potassium	11.0	F	42.0	F	12.0	F	14	0	No
SHP01	0622	N001	03/24/2016	Strontium	9.80	F	8.60	F	4.80	F	14	0	No
SHP01	0623	N001	03/23/2016	Calcium	180	F	292	F	200	F	16	0	No
SHP01	0623	N001	03/23/2016	Magnesium	38.0	F	68.7	F	43.0	F	16	0	No
SHP01	0623	N001	03/23/2016	Sodium	920	F	1160	F	940	F	16	0	No
SHP01	0623	N001	03/23/2016	Strontium	7.60	F	11.0	F	8.10	F	13	0	No
SHP01	0623	N001	03/23/2016	Sulfate	2400	F	3100	F	2600	F	16	0	No
SHP01	0623	N001	03/23/2016	Uranium	0.0320	F	0.0746	F	0.0340	F	16	0	No
SHP01	0625	N001	03/23/2016	Calcium	170	F	280	F	200	F	14	0	No
SHP01	0625	N001	03/23/2016	Magnesium	34.0	F	59.0	F	40.0	F	14	0	No
SHP01	0625	N001	03/23/2016	Manganese	0.880	F	5.10	F	1.80	F	14	0	No
SHP01	0625	N001	03/23/2016	Nitrate + Nitrite as Nitrogen	0.0540	F	0.0450	F	0.01000	U	14	6	NA
SHP01	0625	N001	03/23/2016	Potassium	9.60	F	17.0	F	9.69	JF	14	0	No
SHP01	0625	N001	03/23/2016	Sodium	890	F	1190	F	920	F	14	0	NA
SHP01	0625	N001	03/23/2016	Strontium	7.80	F	12.0	F	8.70	F	14	0	No

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0625	N001	03/23/2016	Uranium	0.0230	F	0.0600	F	0.0290	F	14	0	No	
SHP01	0626	N001	03/24/2016	Magnesium	21.0	F	66.9	F	22.0	F	17	0	No	
SHP01	0628	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	0.0370	F	0.0170	F	0.01000	U	F	16	11	NA
SHP01	0736	N001	03/22/2016	Calcium	230	F	530	F	270	F	16	0	No	
SHP01	0768	N001	03/23/2016	Manganese	0.710	F	1.80	F	0.930	F	16	0	NA	
SHP01	0773	N001	03/24/2016	Calcium	110	F	490	F	150	F	15	0	No	
SHP01	0773	N001	03/24/2016	Chloride	40.0	F	190	F	52.0	F	15	0	No	
SHP01	0773	N001	03/24/2016	Magnesium	110	F	530	F	160	F	15	0	No	
SHP01	0773	N001	03/24/2016	Potassium	14.0	F	66.0	F	16.0	F	15	0	No	
SHP01	0773	N001	03/24/2016	Sodium	200	F	700	F	220	F	15	0	No	
SHP01	0773	N001	03/24/2016	Strontium	1.20	F	5.10	F	1.80	F	13	0	No	
SHP01	0773	N001	03/24/2016	Sulfate	830	F	4100	F	1200	F	15	0	No	
SHP01	0775	N001	03/24/2016	Potassium	24.0	F	79.0	F	27.0	F	14	0	NA	
SHP01	0783R	N001	03/22/2016	Calcium	210	F	170	F	71.0	F	15	0	No	
SHP01	0783R	N001	03/22/2016	Chloride	48.0	F	38.0	F	14.0	F	15	0	No	
SHP01	0783R	N001	03/22/2016	Magnesium	71.0	F	53.0	F	25.0	F	15	0	No	
SHP01	0783R	N001	03/22/2016	Sodium	290	F	250	F	100.0	F	15	0	No	

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0783R	N001	03/22/2016	Strontium	2.50	F	2.20	F	0.860	F	15	0	No	
SHP01	0783R	N001	03/22/2016	Sulfate	1300	F	920	F	340	F	15	0	No	
SHP01	0783R	N001	03/22/2016	Uranium	0.0170	F	0.0104	E	F	0.00600	F	15	0	Yes
SHP01	0792	N001	03/22/2016	Magnesium	120	F	2100	F	130	F	18	0	No	
SHP01	0792	N001	03/22/2016	Potassium	26.0	F	230	F	28.0	F	18	0	No	
SHP01	0792	N001	03/22/2016	Uranium	0.0580	F	3.10	F	0.0760	F	18	0	NA	
SHP01	0793	N001	03/23/2016	Magnesium	380	F	1000	F	400	F	14	0	No	
SHP01	0793	N001	03/23/2016	Manganese	0.850	F	0.570	F	0.00930	B	F	14	1	No
SHP01	0797	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	0.180	FQ	0.130	FQ	0.01000	U	FQ	16	2	No
SHP01	0797	N001	03/24/2016	Uranium	0.0160	FQ	0.0370	FQ	0.0190	FQ	16	0	No	
SHP01	0798	N001	03/24/2016	Calcium	290	F	610	F	350	F	14	0	No	
SHP01	0798	N001	03/24/2016	Magnesium	150	F	1600	F	190	F	14	0	No	
SHP01	0798	N001	03/24/2016	Sodium	1200	F	4800	F	1300	F	14	0	No	
SHP01	0798	N001	03/24/2016	Strontium	3.70	F	15.0	F	4.50	F	14	0	No	
SHP01	0798	N001	03/24/2016	Sulfate	3900	F	15000	F	4100	F	14	0	NA	
SHP01	0798	N001	03/24/2016	Uranium	0.120	F	2.10	F	0.160	F	14	0	No	
SHP01	0854	N001	03/23/2016	Ammonia Total as N	0.830	F	8.90	F	2.90	F	13	0	No	

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	0854	N001	03/23/2016	Manganese	0.820	F	7.10	F	2.20	F	13	0	Yes
SHP01	0854	N001	03/23/2016	Potassium	39.0	F	170	F	40.0	F	13	0	No
SHP01	0856	N001	03/22/2016	Chloride	98.0	F	94.1		68.0	F	18	0	No
SHP01	0857	N002	03/23/2016	Chloride	280	F	240	F	17.0	F	14	0	No
SHP01	0857	N001	03/23/2016	Chloride	280	F	240	F	17.0	F	14	0	No
SHP01	1008	N001	03/23/2016	Calcium	360	F	440	F	390	F	15	0	Yes
SHP01	1008	N001	03/23/2016	Magnesium	140	F	2300	F	150	F	15	0	NA
SHP01	1008	N001	03/23/2016	Manganese	1.20	F	8.20	F	1.30	F	15	0	NA
SHP01	1008	N001	03/23/2016	Potassium	29.0	F	160	F	30.0	F	15	0	No
SHP01	1008	N001	03/23/2016	Selenium	0.00230	F	0.0320	F	0.00250	F	15	0	NA
SHP01	1008	N001	03/23/2016	Strontium	4.20	F	12.0	F	4.40	F	15	0	NA
SHP01	1008	N001	03/23/2016	Uranium	0.150	F	3.10	F	0.170	F	15	0	NA
SHP01	1104	N001	03/22/2016	Potassium	28.0		93.0		40.0		16	0	No
SHP01	1104	N001	03/22/2016	Selenium	0.00200		0.0470		0.00260		16	0	No
SHP01	1104	N001	03/22/2016	Strontium	4.80		9.70		4.90		16	0	No
SHP01	1105	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	0.140	F	770	F	0.180	F	19	0	NA
SHP01	1105	N001	03/24/2016	Potassium	45.0	F	180	F	56.0	F	18	0	No

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	1105	N001	03/24/2016	Selenium	0.0170	F	0.310	F	0.0470	F	18	0	No
SHP01	1111	N001	03/24/2016	Selenium	0.150	F	0.710	F	0.160	F	16	0	No
SHP01	1111	N001	03/24/2016	Strontium	8.20	F	19.0	F	8.80	F	16	0	NA
SHP01	1113	N001	03/24/2016	Potassium	61.0	F	230	F	65.0	F	11	0	No
SHP01	1114	N001	03/23/2016	Potassium	27.0	F	84.0	F	29.0	F	17	0	No
SHP01	1115	N001	03/22/2016	Ammonia Total as N	50.0	F	410	F	65.0	F	20	0	No
SHP01	1115	N001	03/22/2016	Calcium	120	F	480	F	130	F	20	0	No
SHP01	1115	N001	03/22/2016	Magnesium	180	F	1300	F	200	F	20	0	No
SHP01	1115	N001	03/22/2016	Manganese	0.820	F	4.60	F	0.850	F	20	0	NA
SHP01	1115	N001	03/22/2016	Potassium	27.0	F	180	F	30.0	F	20	0	No
SHP01	1115	N001	03/22/2016	Strontium	1.90	F	9.30	F	2.00	F	17	0	No
SHP01	1115	N001	03/22/2016	Uranium	0.250	F	1.40	F	0.310	F	20	0	No
SHP01	1118	N001	03/22/2016	Uranium	0.360		0.717		0.380		14	0	No
SHP01	1128	N001	03/21/2016	Ammonia Total as N	49.0	F	470	F	130	F	15	0	NA
SHP01	1128	N001	03/21/2016	Calcium	300	F	510	F	330	F	15	0	NA
SHP01	1128	N001	03/21/2016	Magnesium	600	F	1850	F	920	F	15	0	Yes
SHP01	1128	N001	03/21/2016	Manganese	2.10	F	5.33	F	2.30	F	15	0	NA

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	1128	N001	03/21/2016	Nitrate + Nitrite as Nitrogen	350	F	690	F	470	F	15	0	Yes	
SHP01	1128	N001	03/21/2016	Potassium	45.0	F	195	F	110	F	15	0	No	
SHP01	1128	N001	03/21/2016	Sodium	1100	F	2040	F	1400	F	15	0	No	
SHP01	1128	N001	03/21/2016	Strontium	4.30	F	12.1	F	6.40	F	15	0	Yes	
SHP01	1128	N001	03/21/2016	Sulfate	4600	F	10000	F	6100	F	15	0	NA	
SHP01	1128	N001	03/21/2016	Uranium	0.450	F	1.60	F	0.720	F	15	0	NA	
SHP01	1132	N001	03/22/2016	Ammonia Total as N	0.620	F	1.40	F	0.660	F	16	0	NA	
SHP01	1132	N001	03/22/2016	Selenium	0.00220	F	0.00150	UN	F	0.000059	B	16	2	No
SHP01	1136	N001	03/23/2016	Ammonia Total as N	8.50	F	8.20	F	0.0411	J	UF	16	7	NA
SHP01	1137	N001	03/23/2016	Nitrate + Nitrite as Nitrogen	3.50	F	54.0	F	3.99	F	13	0	No	
SHP01	1137	N001	03/23/2016	Selenium	0.0120	F	0.01000	F	0.00200	F	14	0	No	
SHP01	1138	N001	03/23/2016	Nitrate + Nitrite as Nitrogen	1.30	F	55.0	F	5.10	F	13	0	No	
SHP01	1139	N001	03/23/2016	Nitrate + Nitrite as Nitrogen	0.0620	F	37.0	F	0.0990	J	F	13	0	No
SHP01	1139	N001	03/23/2016	Selenium	0.001	F	0.0252	N	F	0.00140	F	13	1	No
SHP01	1140	N001	03/24/2016	Magnesium	320	F	1640	F	490	F	14	0	No	
SHP01	1140	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	0.0510	F	320	F	0.280	F	14	0	No	
SHP01	1140	N001	03/24/2016	Potassium	42.0	F	120	FJ	50.0	F	14	0	No	

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037686

Report Date: 7/9/2016

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	1140	N001	03/24/2016	Selenium	0.00550	F		1.22	N	F	0.0190	F		14	0	Yes
SHP01	1140	N001	03/24/2016	Strontium	5.20	F		9.23	F		5.60	F		14	0	No
SHP01	1140	N001	03/24/2016	Sulfate	5900	F		12600	F		6500	F		14	0	No
SHP01	1140	N001	03/24/2016	Uranium	0.350	F		2.26	F		0.540	F		14	0	No
SHP01	1141	N001	03/24/2016	Calcium	290	F		610	F		350	F		13	0	No
SHP01	1141	N001	03/24/2016	Magnesium	210	F		700	F		220	F		13	0	No
SHP01	1141	N001	03/24/2016	Selenium	0.0130	F		0.706	N	F	0.0180	F		13	0	No
SHP01	1141	N001	03/24/2016	Strontium	3.30	F		6.36	F		3.50	F		13	0	No
SHP01	1143	N001	03/22/2016	Calcium	160	F		242	F		170	F		14	0	No

**STATISTICAL TESTS:**

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

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

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

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

NA: Data are not normally or lognormally distributed.

**Data Validation Outliers Report - No Field Parameters****Comparison: Historical Data Beginning 1/1/2006 for Filtered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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	0604	0001	03/22/2016	Ammonia Total as N	8.20	FQ	5.94	FQ	0.130	FQ	9	0	No	
SHP02	0604	0001	03/22/2016	Sulfate	14000	FQ	13000	FQ	10800	FQ	9	0	NA	
SHP02	1068	0001	03/23/2016	Ammonia Total as N	7.70	FQ	120	FQ	12.0	FQ	12	0	No	
SHP02	1068	0001	03/23/2016	Chloride	210	FQ	330	FQ	220	FQ	10	0	No	
SHP02	1068	0001	03/23/2016	Potassium	31.0	FQ	97.0	FQ	32.5	FQ	14	0	No	
SHP02	1068	0001	03/23/2016	Sodium	820	FQ	1400	FQ	880	FQ	14	0	No	
SHP02	1068	0001	03/23/2016	Sulfate	4300	FQ	8000	FQ	4400	FQ	10	0	No	
SHP02	1092	0001	03/23/2016	Sulfate	18000		16000		5300		13	0	No	

**STATISTICAL TESTS:**

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

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

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

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

NA: Data are not normally or lognormally distributed.

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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	0602	N001	03/22/2016	Ammonia Total as N	57.0	FQ	380	F	61.0	FQ	14	0	NA			
SHP02	0602	N001	03/22/2016	Chloride	3000	FQ	2500	FQ	990	FQ	14	0	No			
SHP02	0602	N001	03/22/2016	Nitrate + Nitrite as Nitrogen	49.0	FQ	38.0	FQ	5.17	FQ	14	0	No			
SHP02	0602	N001	03/22/2016	Sodium	7300	FQ	6700	FQ	3100	F	14	0	No			
SHP02	0602	N001	03/22/2016	Strontium	22.0	FQ	21.0	FQ	11.0	FQ	14	0	No			
SHP02	0602	N001	03/22/2016	Sulfate	20000	FQ	19000	FQ	15100	FQ	14	0	No			
SHP02	0602	N001	03/22/2016	Uranium	0.430	FQ	0.680	F	0.440	FQ	14	0	No			
SHP02	0603	N001	03/24/2016	Magnesium	750	F	700	F	510	F	16	0	NA			
SHP02	0603	N001	03/24/2016	Sodium	770	F	727	F	520	F	16	0	No			
SHP02	0603	N001	03/24/2016	Strontium	6.40	F	6.00	F	3.20	F	16	0	No			
SHP02	0726	N001	03/23/2016	Manganese	0.720	F	0.610	F	0.270	F	14	0	No			
SHP02	0726	N001	03/23/2016	Selenium	0.150	N	FJ	0.130	F	0.00180	F	14	0	No		
SHP02	0731	N001	03/24/2016	Potassium	31.0	F	52.0	F	32.0	F	16	0	No			
SHP02	0731	N001	03/24/2016	Sodium	630	F	1180	F	650	F	16	0	No			
SHP02	0816	N001	03/24/2016	Manganese	0.00300	J	F	0.00290	J	F	0.00052	U	F	13	6	No
SHP02	0816	N001	03/24/2016	Sodium	810	F	790	F	320	FQ	13	0	No			
SHP02	0817	N001	03/22/2016	Uranium	8.30	FQ	8.20	FQ	3.80	FQ	13	0	No			

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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			
SHP02	0818	N001	03/22/2016	Ammonia Total as N	47.0		240		49.0		23	0	NA		
SHP02	0818	N002	03/22/2016	Nitrate + Nitrite as Nitrogen	570		1400		600		23	0	No		
SHP02	0818	N001	03/22/2016	Selenium	3.40	J	2.90		1.80		23	0	Yes		
SHP02	0822	N001	03/24/2016	Chloride	8300	FQ	7700	FQ	6000	FQ	6	0	No		
SHP02	0822	N001	03/24/2016	Magnesium	61.0	FQ	90.0	FQ	62.0	FQ	6	0	No		
SHP02	0822	N001	03/24/2016	Manganese	0.340	FQ	0.480	FQ	0.350	FQ	6	0	No		
SHP02	0822	N001	03/24/2016	Nitrate + Nitrite as Nitrogen	0.01000	U	FQ	14.0	FQ	0.0130	FQ	6	0	No	
SHP02	0822	N001	03/24/2016	Potassium	34.0	FQ	100.0	FQJ	39.0	FQ	6	0	No		
SHP02	0822	N001	03/24/2016	Sodium	6300	FQ	5900	FQ	5100	FQ	6	0	NA		
SHP02	0824	N001	03/24/2016	Sodium	6500	FQ	6400	FQ	4100	FQ	11	0	No		
SHP02	0826	N001	03/22/2016	Magnesium	1600	FQ	3000	FQ	1800	FQ	13	0	No		
SHP02	0826	N001	03/22/2016	Nitrate + Nitrite as Nitrogen	4.40	FQ	125	FQ	14.0	FQ	13	0	No		
SHP02	0826	N001	03/22/2016	Uranium	1.10	FQ	3.80	FQ	1.40	E	FQJ	13	0	No	
SHP02	0830	N001	03/23/2016	Strontium	0.220	F	0.440	F	0.228	F	17	0	No		
SHP02	0835	N001	03/21/2016	Selenium	0.00097	J	UF	0.458	E	F	0.00160	F	16	0	NA
SHP02	0836	N001	03/22/2016	Nitrate + Nitrite as Nitrogen	65.0	F	64.0	F	14.0	F	17	0	No		
SHP02	0836	N001	03/22/2016	Selenium	0.470	F	0.460	F	0.0990	F	17	0	No		

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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	0836	N001	03/22/2016	Sodium	520	F	480	F	320	F	17	0	NA	
SHP02	0837	N001	03/22/2016	Manganese	2.10	F	4.90	F	2.80	F	15	0	Yes	
SHP02	0837	N001	03/22/2016	Selenium	0.800	F	0.580	F	0.110	F	15	0	No	
SHP02	0838	N001	03/23/2016	Nitrate + Nitrite as Nitrogen	79.0	F	590	F	87.0	F	16	0	No	
SHP02	0838	N001	03/23/2016	Selenium	0.190	F	4.71	E	0.200	F	16	0	NA	
SHP02	0838	N001	03/23/2016	Strontium	5.70	F	13.4	F	6.20	F	16	0	No	
SHP02	0841	N001	03/21/2016	Nitrate + Nitrite as Nitrogen	440	F	920	F	480	F	16	0	No	
SHP02	0841	N001	03/21/2016	Potassium	44.0	F	100.0	F	47.9	F	16	0	No	
SHP02	0841	N001	03/21/2016	Selenium	2.30	F	4.00	F	2.60	F	16	0	No	
SHP02	0841	N001	03/21/2016	Sodium	4700	F	7010	F	4900	F	16	0	No	
SHP02	0844	N001	03/23/2016	Magnesium	1500	F	2200	F	1600	F	16	0	No	
SHP02	0848	N001	03/22/2016	Ammonia Total as N	12.0	F	10.00	F	2.60	F	15	0	NA	
SHP02	0848	N001	03/22/2016	Chloride	1400	F	1300	F	1000	F	15	0	No	
SHP02	1007	N001	03/23/2016	Magnesium	2100	FQ	2600	FQ	2200	FQ	9	0	No	
SHP02	1007	N001	03/23/2016	Selenium	0.0210	FQ	0.366	E	0.0340	FQ	9	0	No	
SHP02	1049	N001	03/24/2016	Calcium	430	F	420	F	380	FQ	9	0	No	
SHP02	1049	N001	03/24/2016	Chloride	1700	F	1630	F	1300	F	9	0	No	

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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	1049	N001	03/24/2016	Selenium	1.10	F		1.40	F		1.20	F		9	0	NA
SHP02	1049	N001	03/24/2016	Sodium	6800	F		6780	F		6000	F		9	0	No
SHP02	1049	N001	03/24/2016	Sulfate	20000	F		19000	F		15000	F		9	0	No
SHP02	1057	N001	03/23/2016	Potassium	140	F		279			150	F		12	0	No
SHP02	1057	N001	03/23/2016	Selenium	0.0220	F		0.273	E	J	0.0350	F		12	0	No
SHP02	1058	N001	03/23/2016	Sulfate	5900	FQ		5800	FQ		4900	FQ		14	0	No
SHP02	1070	N001	03/23/2016	Calcium	450			430			350			20	0	No
SHP02	1071	N001	03/22/2016	Sulfate	16000			14000			3600			16	0	NA
SHP02	1091	N001	03/23/2016	Chloride	1500			1400			927			13	0	No
SHP02	1091	N001	03/23/2016	Sulfate	17000			16000			10000			13	0	No
SHP02	1095	N001	03/23/2016	Ammonia Total as N	380			980			400	J		20	0	NA
SHP02	1095	N001	03/23/2016	Selenium	0.0900			0.300			0.0960			20	0	No
SHP02	1096	N002	03/23/2016	Calcium	440			430			360			21	0	No
SHP02	1096	N002	03/23/2016	Sodium	6200			6000			4100			21	0	No
SHP02	1096	N001	03/23/2016	Sulfate	17000			15000			13000			21	0	NA
SHP02	1096	N002	03/23/2016	Sulfate	17000			15000			13000			21	0	NA
SHP02	1219	N001	03/22/2016	Manganese	0.1000			0.0400	U	J	0.00190	B		9	3	Yes

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

**Comparison: Historical Data Beginning 1/1/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 16037687

Report Date: 7/9/2016

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	1219	N001	03/22/2016	Nitrate + Nitrite as Nitrogen	0.110			22.0			1.80			9 0 No
SHP02	1219	N001	03/22/2016	Selenium	0.00790			0.120			0.0170			9 0 No
SHP02	1219	N001	03/22/2016	Sulfate	2200			2100			1790			9 0 No
SHP02	1221	N001	03/24/2016	Ammonia Total as N	0.280			0.200			0.1000	U		8 6 NA
SHP02	1221	N001	03/24/2016	Chloride	3100			2400			530			8 0 No
SHP02	1221	N001	03/24/2016	Magnesium	2300			2100			380			8 0 No
SHP02	1221	N001	03/24/2016	Sodium	14000			9700			2300			8 0 Yes
SHP02	1221	N001	03/24/2016	Sulfate	37000			30000			7000			8 0 No
SHP02	1221	N001	03/24/2016	Uranium	0.280			0.240			0.0520			8 0 NA
SHP02	MW1	N001	03/24/2016	Calcium	140	FQ	130	FQ	64.0	FQ	8	0		NA
SHP02	MW1	N001	03/24/2016	Chloride	6100	FQ	5700	FQ	4500	FQ	8	0		No
SHP02	MW1	N001	03/24/2016	Magnesium	58.0	FQ	56.0	FQ	32.0	FQ	8	0		No
SHP02	MW1	N001	03/24/2016	Sulfate	4300	FQ	4100	FQ	1900	FQ	8	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.

This page intentionally left blank

**Attachment 2**

**Data Presentation**

This page intentionally left blank

## **Groundwater Quality Data**

### **Floodplain Locations**

This page intentionally left blank

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

REPORT DATE: 7/10/2016

Location: 0608 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	10	-	15	247	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	10	-	15	38	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	10	-	15	340	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	10	-	15	290	F	#	20	
Magnesium	mg/L	03/23/2016	N001	10	-	15	460	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	10	-	15	2.3	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	10	-	15	18	F	#	1	
Oxidation Reduction Potential	mV	03/23/2016	N001	10	-	15	226.9	F	#		
pH	s.u.	03/23/2016	N001	10	-	15	7.39	F	#		
Potassium	mg/L	03/23/2016	N001	10	-	15	43	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	10	-	15	0.0036	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	10	-	15	1600	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	10	-	15	9049	F	#		
Strontium	mg/L	03/23/2016	N001	10	-	15	7.7	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	10	-	15	6600	F	#	50	
Temperature	C	03/23/2016	N001	10	-	15	9.49	F	#		
Turbidity	NTU	03/23/2016	N001	10	-	15	3.27	F	#		
Uranium	mg/L	03/23/2016	N001	10	-	15	0.59	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0610 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				4	-	9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4	-	9	224	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4	-	9	0.79	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	4	-	9	500	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	4	-	9	220	F	#	20	
Magnesium	mg/L	03/24/2016	N001	4	-	9	750	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	4	-	9	0.039	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4	-	9	260	F	#	10	
Oxidation Reduction Potential	mV	03/24/2016	N001	4	-	9	156.9	F	#		
pH	s.u.	03/24/2016	N001	4	-	9	7.27	F	#		
Potassium	mg/L	03/24/2016	N001	4	-	9	73	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	4	-	9	0.26	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4	-	9	980	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	4	-	9	8404	F	#		
Strontium	mg/L	03/24/2016	N001	4	-	9	6.9	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	4	-	9	5400	F	#	50	
Temperature	C	03/24/2016	N001	4	-	9	11.1	F	#		
Turbidity	NTU	03/24/2016	N001	4	-	9	1.56	F	#		
Uranium	mg/L	03/24/2016	N001	4	-	9	0.82	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0611 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	9.5	-	14.5	557		F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	9.5	-	14.5	1.9		F	#	0.1	
Calcium	mg/L	03/24/2016	N001	9.5	-	14.5	180		F	#	0.12	
Chloride	mg/L	03/24/2016	N001	9.5	-	14.5	520		F	#	20	
Magnesium	mg/L	03/24/2016	N001	9.5	-	14.5	91		F	#	0.15	
Manganese	mg/L	03/24/2016	N001	9.5	-	14.5	0.066		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	9.5	-	14.5	0.31		F	#	0.05	
Oxidation Reduction Potential	mV	03/24/2016	N001	9.5	-	14.5	155.4		F	#		
pH	s.u.	03/24/2016	N001	9.5	-	14.5	7.3		F	#		
Potassium	mg/L	03/24/2016	N001	9.5	-	14.5	11		F	#	0.26	
Selenium	mg/L	03/24/2016	N001	9.5	-	14.5	0.0014		F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	9.5	-	14.5	2300		F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	9.5	-	14.5	9757		F	#		
Strontium	mg/L	03/24/2016	N001	9.5	-	14.5	7.4		F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	9.5	-	14.5	5500		F	#	50	
Temperature	C	03/24/2016	N001	9.5	-	14.5	11.29		F	#		
Turbidity	NTU	03/24/2016	N001	9.5	-	14.5	4.4		F	#		
Uranium	mg/L	03/24/2016	N001	9.5	-	14.5	0.0089		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	5	-	10	367		F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	5	-	10	0.76		F	#	0.1	
Arsenic	mg/L	03/23/2016	0001	5	-	10	0.0004	J	F	#	0.00012	
Arsenic	mg/L	03/23/2016	0002	5	-	10	0.00031	J	F	#	0.00012	
Arsenic	mg/L	03/23/2016	N002	5	-	10	0.00044	J	F	#	0.00012	
Cadmium	mg/L	03/23/2016	0001	5	-	10	0.000055	U	F	#	0.000055	
Cadmium	mg/L	03/23/2016	0002	5	-	10	0.000055	U	F	#	0.000055	
Cadmium	mg/L	03/23/2016	N002	5	-	10	0.000055	U	F	#	0.000055	
Calcium	mg/L	03/23/2016	0001	5	-	10	180		F	#	0.024	
Calcium	mg/L	03/23/2016	0002	5	-	10	180		F	#	0.024	
Calcium	mg/L	03/23/2016	N001	5	-	10	180		F	#	0.024	
Calcium	mg/L	03/23/2016	N002	5	-	10	180		F	#	0.024	
Chloride	mg/L	03/23/2016	N001	5	-	10	140		F	#	10	
Copper	mg/L	03/23/2016	0001	5	-	10	0.0022	U	F	#	0.0022	
Copper	mg/L	03/23/2016	0002	5	-	10	0.0022	U	F	#	0.0022	
Copper	mg/L	03/23/2016	N002	5	-	10	0.0022	U	F	#	0.0022	
Lead	mg/L	03/23/2016	0001	5	-	10	0.00013	U	F	#	0.00013	
Lead	mg/L	03/23/2016	0002	5	-	10	0.00015	J	F	#	0.00013	

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

REPORT DATE: 7/10/2016

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Lead	mg/L	03/23/2016	N002	5	-	10	0.00013	U	F	#	0.00013	
Magnesium	mg/L	03/23/2016	0001	5	-	10	170		F	#	0.03	
Magnesium	mg/L	03/23/2016	0002	5	-	10	170		F	#	0.03	
Magnesium	mg/L	03/23/2016	N001	5	-	10	170		F	#	0.03	
Magnesium	mg/L	03/23/2016	N002	5	-	10	170		F	#	0.03	
Manganese	mg/L	03/23/2016	0001	5	-	10	1.2		F	#	0.00024	
Manganese	mg/L	03/23/2016	0002	5	-	10	1.2		F	#	0.00024	
Manganese	mg/L	03/23/2016	N001	5	-	10	1.2		F	#	0.00024	
Manganese	mg/L	03/23/2016	N002	5	-	10	1.2		F	#	0.00024	
Mercury	mg/L	03/23/2016	0001	5	-	10	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/23/2016	0002	5	-	10	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/23/2016	N002	5	-	10	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	5	-	10	0.011		F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	5	-	10	-170.2		F	#		
pH	s.u.	03/23/2016	N001	5	-	10	7.39		F	#		
Potassium	mg/L	03/23/2016	0001	5	-	10	9.8		F	#	0.052	
Potassium	mg/L	03/23/2016	0002	5	-	10	10		F	#	0.052	
Potassium	mg/L	03/23/2016	N001	5	-	10	9.8		F	#	0.052	

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

REPORT DATE: 7/10/2016

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Potassium	mg/L	03/23/2016	N002	5	-	10	9.6		F	#	0.052	
Selenium	mg/L	03/23/2016	0001	5	-	10	0.0012		F	#	0.00066	
Selenium	mg/L	03/23/2016	0002	5	-	10	0.0014		F	#	0.00066	
Selenium	mg/L	03/23/2016	N001	5	-	10	0.001		F	#	0.00066	
Selenium	mg/L	03/23/2016	N002	5	-	10	0.0014		F	#	0.00066	
Silver	mg/L	03/23/2016	0001	5	-	10	0.00003	J	F	#	0.000028	
Silver	mg/L	03/23/2016	0002	5	-	10	0.000028	U	F	#	0.000028	
Silver	mg/L	03/23/2016	N002	5	-	10	0.000028	U	F	#	0.000028	
Sodium	mg/L	03/23/2016	0001	5	-	10	430		F	#	0.047	
Sodium	mg/L	03/23/2016	0002	5	-	10	450		F	#	0.047	
Sodium	mg/L	03/23/2016	N001	5	-	10	440		F	#	0.047	
Sodium	mg/L	03/23/2016	N002	5	-	10	410		F	#	0.047	
Specific Conductance	umhos /cm	03/23/2016	N001	5	-	10	3319		F	#		
Strontium	mg/L	03/23/2016	0001	5	-	10	2.7		F	#	0.00026	
Strontium	mg/L	03/23/2016	0002	5	-	10	2.6		F	#	0.00026	
Strontium	mg/L	03/23/2016	N001	5	-	10	2.6		F	#	0.00026	
Strontium	mg/L	03/23/2016	N002	5	-	10	2.6		F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	5	-	10	1700		F	#	25	

---

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

REPORT DATE: 7/10/2016

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Temperature	C	03/23/2016	N001	5	-	10	9.64		F	#		
Turbidity	NTU	03/23/2016	N001	5	-	10	5.22		F	#		
Uranium	mg/L	03/23/2016	0001	5	-	10	0.15		F	#	0.000012	
Uranium	mg/L	03/23/2016	0002	5	-	10	0.15		F	#	0.000012	
Uranium	mg/L	03/23/2016	N001	5	-	10	0.14		F	#	0.000012	
Uranium	mg/L	03/23/2016	N002	5	-	10	0.14		F	#	0.000012	
Zinc	mg/L	03/23/2016	0001	5	-	10	0.0046	U	F	#	0.0046	
Zinc	mg/L	03/23/2016	0002	5	-	10	0.0046	U	F	#	0.0046	
Zinc	mg/L	03/23/2016	N002	5	-	10	0.0046	U	F	#	0.0046	

---

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

REPORT DATE: 7/10/2016

Location: 0614 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	10	-	15	348	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	10	-	15	13	F	#	2.5	
Calcium	mg/L	03/24/2016	N001	10	-	15	480	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	10	-	15	160	F	#	20	
Magnesium	mg/L	03/24/2016	N001	10	-	15	610	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	10	-	15	1.6	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	10	-	15	67	F	#	1	
Oxidation Reduction Potential	mV	03/24/2016	N001	10	-	15	160.5	F	#		
pH	s.u.	03/24/2016	N001	10	-	15	7.23	F	#		
Potassium	mg/L	03/24/2016	N001	10	-	15	58	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	10	-	15	1.2	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	10	-	15	850	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	10	-	15	7142	F	#		
Strontium	mg/L	03/24/2016	N001	10	-	15	6.3	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	10	-	15	5300	F	#	50	
Temperature	C	03/24/2016	N001	10	-	15	10.68	F	#		
Turbidity	NTU	03/24/2016	N001	10	-	15	1.46	F	#		
Uranium	mg/L	03/24/2016	N001	10	-	15	0.78	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0615 WELL S of floodplain fence, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				4.5	-	9.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4.5	-	9.5	556	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4.5	-	9.5	1.3	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	4.5	-	9.5	440	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	4.5	-	9.5	170	F	#	20	
Magnesium	mg/L	03/24/2016	N001	4.5	-	9.5	590	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	4.5	-	9.5	2.4	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4.5	-	9.5	0.54	F	#	0.05	
Oxidation Reduction Potential	mV	03/24/2016	N001	4.5	-	9.5	87	F	#		
pH	s.u.	03/24/2016	N001	4.5	-	9.5	7.22	F	#		
Potassium	mg/L	03/24/2016	N001	4.5	-	9.5	52	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	4.5	-	9.5	0.0081	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4.5	-	9.5	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	4.5	-	9.5	8112	F	#		
Strontium	mg/L	03/24/2016	N001	4.5	-	9.5	6.5	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	4.5	-	9.5	6100	F	#	50	
Temperature	C	03/24/2016	N001	4.5	-	9.5	11.85	F	#		
Turbidity	NTU	03/24/2016	N001	4.5	-	9.5	3.28	F	#		
Uranium	mg/L	03/24/2016	N001	4.5	-	9.5	0.59	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
Parameter	Units	Date	ID	Min	Max	Step	Result	Lab	Data	QA	
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	11	-	16	350	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	11	-	16	14	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	11	-	16	440	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	11	-	16	110	F	#	20	
Magnesium	mg/L	03/23/2016	N001	11	-	16	310	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	11	-	16	2.5	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	11	-	16	0.07	F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	11	-	16	52.1	F	#		
pH	s.u.	03/23/2016	N001	11	-	16	7.22	F	#		
Potassium	mg/L	03/23/2016	N001	11	-	16	39	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	11	-	16	0.0015	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	11	-	16	1300	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	11	-	16	7401	F	#		
Strontium	mg/L	03/23/2016	N001	11	-	16	4.8	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	11	-	16	5300	F	#	50	
Temperature	C	03/23/2016	N001	11	-	16	12.74	F	#		
Turbidity	NTU	03/23/2016	N001	11	-	16	2.39	F	#		
Uranium	mg/L	03/23/2016	N001	11	-	16	0.38	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0619 WELL Center of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				8	-	13		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	8	-	13	314	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	8	-	13	0.19	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	8	-	13	180	F	#	0.024	
Chloride	mg/L	03/23/2016	N001	8	-	13	78	F	#	10	
Magnesium	mg/L	03/23/2016	N001	8	-	13	65	F	#	0.03	
Manganese	mg/L	03/23/2016	N001	8	-	13	0.98	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	8	-	13	0.044	F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	8	-	13	67.1	F	#		
pH	s.u.	03/23/2016	N001	8	-	13	7.43	F	#		
Potassium	mg/L	03/23/2016	N001	8	-	13	14	F	#	0.052	
Selenium	mg/L	03/23/2016	N001	8	-	13	0.0011	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	8	-	13	920	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	8	-	13	5022	F	#		
Strontium	mg/L	03/23/2016	N001	8	-	13	5.3	F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	8	-	13	2700	F	#	25	
Temperature	C	03/23/2016	N001	8	-	13	13.75	F	#		
Turbidity	NTU	03/23/2016	N001	8	-	13	1.93	F	#		
Uranium	mg/L	03/23/2016	N001	8	-	13	0.054	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				5	-	10		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	5	-	10	273	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	5	-	10	0.1	U	F	#	0.1
Calcium	mg/L	03/24/2016	N001	5	-	10	180	F	#		0.024
Chloride	mg/L	03/24/2016	N001	5	-	10	75	F	#		10
Magnesium	mg/L	03/24/2016	N001	5	-	10	42	F	#		0.03
Manganese	mg/L	03/24/2016	N001	5	-	10	0.24	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	5	-	10	0.022	F	#		0.01
Oxidation Reduction Potential	mV	03/24/2016	N001	5	-	10	139.3	F	#		
pH	s.u.	03/24/2016	N001	5	-	10	7.46	F	#		
Potassium	mg/L	03/24/2016	N001	5	-	10	11	F	#		0.052
Selenium	mg/L	03/24/2016	N001	5	-	10	0.025	F	#		0.00066
Sodium	mg/L	03/24/2016	N001	5	-	10	900	F	#		0.23
Specific Conductance	umhos /cm	03/24/2016	N001	5	-	10	4331	F	#		
Strontium	mg/L	03/24/2016	N001	5	-	10	9.8	F	#		0.00026
Sulfate	mg/L	03/24/2016	N001	5	-	10	2500	F	#		25
Temperature	C	03/24/2016	N001	5	-	10	9.02	F	#		
Turbidity	NTU	03/24/2016	N001	5	-	10	1.66	F	#		
Uranium	mg/L	03/24/2016	N001	5	-	10	0.049	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0623 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	10	-	15	332	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	10	-	15	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	10	-	15	180	F	#		0.024
Chloride	mg/L	03/23/2016	N001	10	-	15	72	F	#		10
Magnesium	mg/L	03/23/2016	N001	10	-	15	38	F	#		0.03
Manganese	mg/L	03/23/2016	N001	10	-	15	2	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	10	-	15	0.013	F	#		0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	10	-	15	76	F	#		
pH	s.u.	03/23/2016	N001	10	-	15	7.27	F	#		
Potassium	mg/L	03/23/2016	N001	10	-	15	10	F	#		0.052
Selenium	mg/L	03/23/2016	N001	10	-	15	0.00066	U	F	#	0.00066
Sodium	mg/L	03/23/2016	N001	10	-	15	920	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	10	-	15	4357	F	#		
Strontium	mg/L	03/23/2016	N001	10	-	15	7.6	F	#		0.00026
Sulfate	mg/L	03/23/2016	N001	10	-	15	2400	F	#		25
Temperature	C	03/23/2016	N001	10	-	15	13.38	F	#		
Turbidity	NTU	03/23/2016	N001	10	-	15	3.41	F	#		
Uranium	mg/L	03/23/2016	N001	10	-	15	0.032	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0625 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	4.5	-	9.5	295		F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	4.5	-	9.5	0.1	U	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	4.5	-	9.5	170		F	#	0.024	
Chloride	mg/L	03/23/2016	N001	4.5	-	9.5	72		F	#	10	
Magnesium	mg/L	03/23/2016	N001	4.5	-	9.5	34		F	#	0.03	
Manganese	mg/L	03/23/2016	N001	4.5	-	9.5	0.88		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	4.5	-	9.5	0.054		F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	4.5	-	9.5	92.8		F	#		
pH	s.u.	03/23/2016	N001	4.5	-	9.5	7.27		F	#		
Potassium	mg/L	03/23/2016	N001	4.5	-	9.5	9.6		F	#	0.052	
Selenium	mg/L	03/23/2016	N001	4.5	-	9.5	0.00086	J	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	4.5	-	9.5	890		F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	4.5	-	9.5	4270		F	#		
Strontium	mg/L	03/23/2016	N001	4.5	-	9.5	7.8		F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	4.5	-	9.5	2300		F	#	25	
Temperature	C	03/23/2016	N001	4.5	-	9.5	12.14		F	#		
Turbidity	NTU	03/23/2016	N001	4.5	-	9.5	4.98		F	#		
Uranium	mg/L	03/23/2016	N001	4.5	-	9.5	0.023		F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				9.5	-	14.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	9.5	-	14.5	165	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	9.5	-	14.5	0.1	U	F	#	0.1
Calcium	mg/L	03/24/2016	N001	9.5	-	14.5	160	F	#		0.024
Chloride	mg/L	03/24/2016	N001	9.5	-	14.5	66	F	#		10
Magnesium	mg/L	03/24/2016	N001	9.5	-	14.5	21	F	#		0.03
Manganese	mg/L	03/24/2016	N001	9.5	-	14.5	1.1	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	9.5	-	14.5	0.012	F	#		0.01
Oxidation Reduction Potential	mV	03/24/2016	N001	9.5	-	14.5	113.6	F	#		
pH	s.u.	03/24/2016	N001	9.5	-	14.5	7.59	F	#		
Potassium	mg/L	03/24/2016	N001	9.5	-	14.5	8.8	F	#		0.052
Selenium	mg/L	03/24/2016	N001	9.5	-	14.5	0.00095	J	F	#	0.00066
Sodium	mg/L	03/24/2016	N001	9.5	-	14.5	850	F	#		0.23
Specific Conductance	umhos /cm	03/24/2016	N001	9.5	-	14.5	3903	F	#		
Strontium	mg/L	03/24/2016	N001	9.5	-	14.5	8.5	F	#		0.00026
Sulfate	mg/L	03/24/2016	N001	9.5	-	14.5	2200	F	#		25
Temperature	C	03/24/2016	N001	9.5	-	14.5	9.6	F	#		
Turbidity	NTU	03/24/2016	N001	9.5	-	14.5	3.27	F	#		
Uranium	mg/L	03/24/2016	N001	9.5	-	14.5	0.013	F	#		0.000012

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6	-	10		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	6	-	10	290	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	6	-	10	0.1	U	F	#	0.1
Calcium	mg/L	03/24/2016	N001	6	-	10	260	F	#		0.12
Chloride	mg/L	03/24/2016	N001	6	-	10	100	F	#		20
Magnesium	mg/L	03/24/2016	N001	6	-	10	61	F	#		0.15
Manganese	mg/L	03/24/2016	N001	6	-	10	2.9	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	6	-	10	0.037	F	#		0.01
Oxidation Reduction Potential	mV	03/24/2016	N001	6	-	10	76.1	F	#		
pH	s.u.	03/24/2016	N001	6	-	10	7.36	F	#		
Potassium	mg/L	03/24/2016	N001	6	-	10	15	F	#		0.26
Selenium	mg/L	03/24/2016	N001	6	-	10	0.0045	F	#		0.00066
Sodium	mg/L	03/24/2016	N001	6	-	10	1300	F	#		0.23
Specific Conductance	umhos /cm	03/24/2016	N001	6	-	10	6054	F	#		
Strontium	mg/L	03/24/2016	N001	6	-	10	9.8	F	#		0.0013
Sulfate	mg/L	03/24/2016	N001	6	-	10	3700	F	#		50
Temperature	C	03/24/2016	N001	6	-	10	9.43	F	#		
Turbidity	NTU	03/24/2016	N001	6	-	10	9.77	F	#		
Uranium	mg/L	03/24/2016	N001	6	-	10	0.041	F	#		0.000012

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				5	-	10		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	5	-	10	566	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	5	-	10	0.1	U	F	#	0.1
Calcium	mg/L	03/24/2016	N001	5	-	10	320	F	#		0.12
Chloride	mg/L	03/24/2016	N001	5	-	10	190	F	#		20
Magnesium	mg/L	03/24/2016	N001	5	-	10	300	F	#		0.15
Manganese	mg/L	03/24/2016	N001	5	-	10	1.1	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	5	-	10	19	F	#		1
Oxidation Reduction Potential	mV	03/24/2016	N001	5	-	10	123.7	F	#		
pH	s.u.	03/24/2016	N001	5	-	10	7.11	F	#		
Potassium	mg/L	03/24/2016	N001	5	-	10	13	F	#		0.26
Selenium	mg/L	03/24/2016	N001	5	-	10	0.14	F	#		0.00066
Sodium	mg/L	03/24/2016	N001	5	-	10	1300	F	#		0.23
Specific Conductance	umhos /cm	03/24/2016	N001	5	-	10	7024	F	#		
Strontium	mg/L	03/24/2016	N001	5	-	10	13	F	#		0.0013
Sulfate	mg/L	03/24/2016	N001	5	-	10	4500	F	#		50
Temperature	C	03/24/2016	N001	5	-	10	8.7	F	#		
Turbidity	NTU	03/24/2016	N001	5	-	10	1.78	F	#		
Uranium	mg/L	03/24/2016	N001	5	-	10	0.19	F	#		0.000012

---

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

REPORT DATE: 7/10/2016

Location: 0735 WELL SE end of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	3	-	8	862		F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	3	-	8	19		F	#	2.5	
Arsenic	mg/L	03/21/2016	0001	3	-	8	0.00067	J	F	#	0.00012	
Arsenic	mg/L	03/21/2016	N002	3	-	8	0.00076	J	F	#	0.00012	
Cadmium	mg/L	03/21/2016	0001	3	-	8	0.00051		F	#	0.000055	
Cadmium	mg/L	03/21/2016	N002	3	-	8	0.00046		F	#	0.000055	
Calcium	mg/L	03/21/2016	0001	3	-	8	470		F	#	0.24	
Calcium	mg/L	03/21/2016	N001	3	-	8	490		F	#	0.24	
Calcium	mg/L	03/21/2016	N002	3	-	8	460		F	#	0.24	
Chloride	mg/L	03/21/2016	N001	3	-	8	610		F	#	50	
Copper	mg/L	03/21/2016	0001	3	-	8	0.022	U	F	#	0.022	
Copper	mg/L	03/21/2016	N002	3	-	8	0.022	U	F	#	0.022	
Lead	mg/L	03/21/2016	0001	3	-	8	0.00022	J	F	#	0.00013	
Lead	mg/L	03/21/2016	N002	3	-	8	0.00023	J	F	#	0.00013	
Magnesium	mg/L	03/21/2016	0001	3	-	8	1300		F	#	0.3	
Magnesium	mg/L	03/21/2016	N001	3	-	8	1400		F	#	0.3	
Magnesium	mg/L	03/21/2016	N002	3	-	8	1300		F	#	0.3	
Manganese	mg/L	03/21/2016	0001	3	-	8	3.6		F	#	0.0024	

---

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

REPORT DATE: 7/10/2016

Location: 0735 WELL SE end of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Manganese	mg/L	03/21/2016	N001	3	-	8	3.7		F	#	0.0024	
Manganese	mg/L	03/21/2016	N002	3	-	8	3.6		F	#	0.0024	
Mercury	mg/L	03/21/2016	0001	3	-	8	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/21/2016	N002	3	-	8	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	3	-	8	680		F	#	10	
Oxidation Reduction Potential	mV	03/21/2016	N001	3	-	8	265.6		F	#		
pH	s.u.	03/21/2016	N001	3	-	8	6.99		F	#		
Potassium	mg/L	03/21/2016	0001	3	-	8	53		F	#	0.52	
Potassium	mg/L	03/21/2016	N001	3	-	8	56		F	#	0.52	
Potassium	mg/L	03/21/2016	N002	3	-	8	54		F	#	0.52	
Selenium	mg/L	03/21/2016	0001	3	-	8	0.14		F	#	0.00066	
Selenium	mg/L	03/21/2016	N001	3	-	8	0.15		F	#	0.00066	
Selenium	mg/L	03/21/2016	N002	3	-	8	0.14		F	#	0.00066	
Silver	mg/L	03/21/2016	0001	3	-	8	0.000028	U	F	#	0.000028	
Silver	mg/L	03/21/2016	N002	3	-	8	0.000028	U	F	#	0.000028	
Sodium	mg/L	03/21/2016	0001	3	-	8	3400		F	#	0.47	
Sodium	mg/L	03/21/2016	N001	3	-	8	3700		F	#	0.47	
Sodium	mg/L	03/21/2016	N002	3	-	8	3600		F	#	0.47	

---

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

REPORT DATE: 7/10/2016

Location: 0735 WELL SE end of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				3	-	8		Lab	Data		
Specific Conductance	umhos /cm	03/21/2016	N001	3	-	8	18807		F	#	
Strontium	mg/L	03/21/2016	0001	3	-	8	12		F	#	0.0026
Strontium	mg/L	03/21/2016	N001	3	-	8	13		F	#	0.0026
Strontium	mg/L	03/21/2016	N002	3	-	8	12		F	#	0.0026
Sulfate	mg/L	03/21/2016	N001	3	-	8	11000		F	#	120
Temperature	C	03/21/2016	N001	3	-	8	10.53		F	#	
Turbidity	NTU	03/21/2016	N001	3	-	8	4.64		F	#	
Uranium	mg/L	03/21/2016	0001	3	-	8	0.26		F	#	0.000012
Uranium	mg/L	03/21/2016	N001	3	-	8	0.28		F	#	0.000012
Uranium	mg/L	03/21/2016	N002	3	-	8	0.26		F	#	0.000012
Zinc	mg/L	03/21/2016	0001	3	-	8	0.15	J	F	#	0.046
Zinc	mg/L	03/21/2016	N002	3	-	8	0.14	J	F	#	0.046

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

REPORT DATE: 7/10/2016

Location: 0736 WELL N part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				3	-	5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	3	-	5	218	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	3	-	5	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	3	-	5	230	F	#		0.024
Chloride	mg/L	03/22/2016	N001	3	-	5	78	F	#		10
Magnesium	mg/L	03/22/2016	N001	3	-	5	41	F	#		0.03
Manganese	mg/L	03/22/2016	N001	3	-	5	0.13	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	3	-	5	0.033	F	#		0.01
Oxidation Reduction Potential	mV	03/22/2016	N001	3	-	5	43.5	F	#		
pH	s.u.	03/22/2016	N001	3	-	5	7.5	F	#		
Potassium	mg/L	03/22/2016	N001	3	-	5	13	F	#		0.052
Selenium	mg/L	03/22/2016	N001	3	-	5	0.00089	J	F	#	0.00066
Sodium	mg/L	03/22/2016	N001	3	-	5	970	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	3	-	5	4734	F	#		
Strontium	mg/L	03/22/2016	N001	3	-	5	3.9	F	#		0.00026
Sulfate	mg/L	03/22/2016	N001	3	-	5	2700	F	#		25
Temperature	C	03/22/2016	N001	3	-	5	12.04	F	#		
Turbidity	NTU	03/22/2016	N001	3	-	5	3.97	F	#		
Uranium	mg/L	03/22/2016	N001	3	-	5	0.034	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0766 WELL NE part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6.25	-	8.75		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	6.25	-	8.75	327	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	6.25	-	8.75	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	6.25	-	8.75	340	F	#		0.12
Chloride	mg/L	03/23/2016	N001	6.25	-	8.75	130	F	#		20
Magnesium	mg/L	03/23/2016	N001	6.25	-	8.75	180	F	#		0.15
Manganese	mg/L	03/23/2016	N001	6.25	-	8.75	0.59	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	6.25	-	8.75	0.053	F	#		0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	6.25	-	8.75	-41.7	F	#		
pH	s.u.	03/23/2016	N001	6.25	-	8.75	7.47	F	#		
Potassium	mg/L	03/23/2016	N001	6.25	-	8.75	32	F	#		0.26
Selenium	mg/L	03/23/2016	N001	6.25	-	8.75	0.00075	J	F	#	0.00066
Sodium	mg/L	03/23/2016	N001	6.25	-	8.75	1300	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	6.25	-	8.75	7663	F	#		
Strontium	mg/L	03/23/2016	N001	6.25	-	8.75	5.1	F	#		0.0013
Sulfate	mg/L	03/23/2016	N001	6.25	-	8.75	4500	F	#		50
Temperature	C	03/23/2016	N001	6.25	-	8.75	12.38	F	#		
Turbidity	NTU	03/23/2016	N001	6.25	-	8.75	4.06	F	#		
Uranium	mg/L	03/23/2016	N001	6.25	-	8.75	0.15	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0768 WELL Center of floodplain, N of floodplain fence

Parameter	Units	Sample Date	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	03/23/2016	N001	4.58	-	7.08	442	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	4.58	-	7.08	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	4.58	-	7.08	320	F	#		0.12
Chloride	mg/L	03/23/2016	N001	4.58	-	7.08	110	F	#		20
Magnesium	mg/L	03/23/2016	N001	4.58	-	7.08	160	F	#		0.15
Manganese	mg/L	03/23/2016	N001	4.58	-	7.08	0.71	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	4.58	-	7.08	0.017	F	#		0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	4.58	-	7.08	-43.2	F	#		
pH	s.u.	03/23/2016	N001	4.58	-	7.08	7.54	F	#		
Potassium	mg/L	03/23/2016	N001	4.58	-	7.08	26	F	#		0.26
Selenium	mg/L	03/23/2016	N001	4.58	-	7.08	0.0054	F	#		0.00066
Sodium	mg/L	03/23/2016	N001	4.58	-	7.08	1300	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	4.58	-	7.08	7464	F	#		
Strontium	mg/L	03/23/2016	N001	4.58	-	7.08	7.6	F	#		0.0013
Sulfate	mg/L	03/23/2016	N001	4.58	-	7.08	4200	F	#		50
Temperature	C	03/23/2016	N001	4.58	-	7.08	12.27	F	#		
Turbidity	NTU	03/23/2016	N001	4.58	-	7.08	2.11	F	#		
Uranium	mg/L	03/23/2016	N001	4.58	-	7.08	0.13	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0773 WELL SE part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				4	-	6.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4	-	6.5	237	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4	-	6.5	0.63	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	4	-	6.5	110	F	#	0.024	
Chloride	mg/L	03/24/2016	N001	4	-	6.5	40	F	#	4	
Magnesium	mg/L	03/24/2016	N001	4	-	6.5	110	F	#	0.03	
Manganese	mg/L	03/24/2016	N001	4	-	6.5	0.022	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4	-	6.5	8.8	F	#	0.5	
Oxidation Reduction Potential	mV	03/24/2016	N001	4	-	6.5	133.1	F	#		
pH	s.u.	03/24/2016	N001	4	-	6.5	7.42	F	#		
Potassium	mg/L	03/24/2016	N001	4	-	6.5	14	F	#	0.052	
Selenium	mg/L	03/24/2016	N001	4	-	6.5	0.11	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4	-	6.5	200	F	#	0.047	
Specific Conductance	umhos /cm	03/24/2016	N001	4	-	6.5	1895	F	#		
Strontium	mg/L	03/24/2016	N001	4	-	6.5	1.2	F	#	0.00026	
Sulfate	mg/L	03/24/2016	N001	4	-	6.5	830	F	#	10	
Temperature	C	03/24/2016	N001	4	-	6.5	12.29	F	#		
Turbidity	NTU	03/24/2016	N001	4	-	6.5	2.35	F	#		
Uranium	mg/L	03/24/2016	N001	4	-	6.5	0.21	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0775 WELL Center of floodplain, just S of drainage ditch

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4.25	-	6.75	299		F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4.25	-	6.75	0.1	U	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	4.25	-	6.75	420		F	#	0.12	
Chloride	mg/L	03/24/2016	N001	4.25	-	6.75	98		F	#	20	
Magnesium	mg/L	03/24/2016	N001	4.25	-	6.75	130		F	#	0.15	
Manganese	mg/L	03/24/2016	N001	4.25	-	6.75	0.97		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4.25	-	6.75	0.25		F	#	0.05	
Oxidation Reduction Potential	mV	03/24/2016	N001	4.25	-	6.75	141.9		F	#		
pH	s.u.	03/24/2016	N001	4.25	-	6.75	7.44		F	#		
Potassium	mg/L	03/24/2016	N001	4.25	-	6.75	24		F	#	0.26	
Selenium	mg/L	03/24/2016	N001	4.25	-	6.75	0.0054		F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4.25	-	6.75	1200		F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	4.25	-	6.75	6201		F	#		
Strontium	mg/L	03/24/2016	N001	4.25	-	6.75	5.5		F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	4.25	-	6.75	3900		F	#	50	
Temperature	C	03/24/2016	N001	4.25	-	6.75	11.25		F	#		
Turbidity	NTU	03/24/2016	N001	4.25	-	6.75	3.23		F	#		
Uranium	mg/L	03/24/2016	N001	4.25	-	6.75	0.12		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0779 WELL E part of floodplain, just N of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	9.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	7	-	9.5	638	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	7	-	9.5	1.1	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	7	-	9.5	390	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	7	-	9.5	300	F	#	50	
Magnesium	mg/L	03/23/2016	N001	7	-	9.5	830	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	7	-	9.5	1.9	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	7	-	9.5	8.9	F	#	0.5	
Oxidation Reduction Potential	mV	03/23/2016	N001	7	-	9.5	25.7	F	#		
pH	s.u.	03/23/2016	N001	7	-	9.5	7.39	F	#		
Potassium	mg/L	03/23/2016	N001	7	-	9.5	84	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	7	-	9.5	0.058	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	7	-	9.5	2800	F	#	0.47	
Specific Conductance	umhos /cm	03/23/2016	N001	7	-	9.5	14098	F	#		
Strontium	mg/L	03/23/2016	N001	7	-	9.5	8.6	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	7	-	9.5	9900	F	#	120	
Temperature	C	03/23/2016	N001	7	-	9.5	11.6	F	#		
Turbidity	NTU	03/23/2016	N001	7	-	9.5	2.82	F	#		
Uranium	mg/L	03/23/2016	N001	7	-	9.5	0.88	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	4.71	-	9.46	190		F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	4.71	-	9.46	0.1	U	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	4.71	-	9.46	100		F	#	0.024	
Chloride	mg/L	03/22/2016	N001	4.71	-	9.46	21		F	#	2	
Magnesium	mg/L	03/22/2016	N001	4.71	-	9.46	21		F	#	0.03	
Manganese	mg/L	03/22/2016	N001	4.71	-	9.46	2.3		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	4.71	-	9.46	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	4.71	-	9.46	-21.6		F	#		
pH	s.u.	03/22/2016	N001	4.71	-	9.46	7.29		F	#		
Potassium	mg/L	03/22/2016	N001	4.71	-	9.46	2.7		F	#	0.052	
Selenium	mg/L	03/22/2016	N001	4.71	-	9.46	0.00066	U	F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	4.71	-	9.46	110		F	#	0.047	
Specific Conductance	umhos /cm	03/22/2016	N001	4.71	-	9.46	1016		F	#		
Strontium	mg/L	03/22/2016	N001	4.71	-	9.46	1.1		F	#	0.00026	
Sulfate	mg/L	03/22/2016	N001	4.71	-	9.46	330		F	#	5	
Temperature	C	03/22/2016	N001	4.71	-	9.46	12.2		F	#		
Turbidity	NTU	03/22/2016	N001	4.71	-	9.46	8.09		F	#		
Uranium	mg/L	03/22/2016	N001	4.71	-	9.46	0.0054		F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	4.38	-	9.38	200		F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	4.38	-	9.38	0.1	U	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	4.38	-	9.38	210		F	#	0.024	
Chloride	mg/L	03/22/2016	N001	4.38	-	9.38	48		F	#	4	
Magnesium	mg/L	03/22/2016	N001	4.38	-	9.38	71		F	#	0.03	
Manganese	mg/L	03/22/2016	N001	4.38	-	9.38	3		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	4.38	-	9.38	0.011		F	#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	4.38	-	9.38	31.8		F	#		
pH	s.u.	03/22/2016	N001	4.38	-	9.38	7.34		F	#		
Potassium	mg/L	03/22/2016	N001	4.38	-	9.38	5.4		F	#	0.052	
Selenium	mg/L	03/22/2016	N001	4.38	-	9.38	0.00077	J	F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	4.38	-	9.38	290		F	#	0.047	
Specific Conductance	umhos /cm	03/22/2016	N001	4.38	-	9.38	2521		F	#		
Strontium	mg/L	03/22/2016	N001	4.38	-	9.38	2.5		F	#	0.00026	
Sulfate	mg/L	03/22/2016	N001	4.38	-	9.38	1300		F	#	10	
Temperature	C	03/22/2016	N001	4.38	-	9.38	13.54		F	#		
Turbidity	NTU	03/22/2016	N001	4.38	-	9.38	5.68		F	#		
Uranium	mg/L	03/22/2016	N001	4.38	-	9.38	0.017		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0792 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6	-	8		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	6	-	8	289	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	6	-	8	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	6	-	8	430	F	#		0.12
Chloride	mg/L	03/22/2016	N001	6	-	8	97	F	#		20
Magnesium	mg/L	03/22/2016	N001	6	-	8	120	F	#		0.15
Manganese	mg/L	03/22/2016	N001	6	-	8	1.9	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	6	-	8	0.032	F	#		0.01
Oxidation Reduction Potential	mV	03/22/2016	N001	6	-	8	24.7	F	#		
pH	s.u.	03/22/2016	N001	6	-	8	7.5	F	#		
Potassium	mg/L	03/22/2016	N001	6	-	8	26	F	#		0.26
Selenium	mg/L	03/22/2016	N001	6	-	8	0.0051	F	#		0.00066
Sodium	mg/L	03/22/2016	N001	6	-	8	1200	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	6	-	8	6152	F	#		
Strontium	mg/L	03/22/2016	N001	6	-	8	7.4	F	#		0.0013
Sulfate	mg/L	03/22/2016	N001	6	-	8	3900	F	#		50
Temperature	C	03/22/2016	N001	6	-	8	12	F	#		
Turbidity	NTU	03/22/2016	N001	6	-	8	2.08	F	#		
Uranium	mg/L	03/22/2016	N001	6	-	8	0.058	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0793 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				5.2	-	7.2		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	5.2	-	7.2	345	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	5.2	-	7.2	3.6	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	5.2	-	7.2	340	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	5.2	-	7.2	120	F	#	20	
Magnesium	mg/L	03/23/2016	N001	5.2	-	7.2	380	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	5.2	-	7.2	0.85	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	5.2	-	7.2	0.51	F	#	0.05	
Oxidation Reduction Potential	mV	03/23/2016	N001	5.2	-	7.2	74	F	#		
pH	s.u.	03/23/2016	N001	5.2	-	7.2	7.31	F	#		
Potassium	mg/L	03/23/2016	N001	5.2	-	7.2	43	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	5.2	-	7.2	0.017	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	5.2	-	7.2	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	5.2	-	7.2	7471	F	#		
Strontium	mg/L	03/23/2016	N001	5.2	-	7.2	4.5	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	5.2	-	7.2	5300	F	#	50	
Temperature	C	03/23/2016	N001	5.2	-	7.2	11.17	F	#		
Turbidity	NTU	03/23/2016	N001	5.2	-	7.2	2.44	F	#		
Uranium	mg/L	03/23/2016	N001	5.2	-	7.2	0.45	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0797 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7.3	-	9.3		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7.3	-	9.3	262	FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	7.3	-	9.3	0.1	U	FQ	#	0.1
Calcium	mg/L	03/24/2016	N001	7.3	-	9.3	280	FQ	#	0.12	
Chloride	mg/L	03/24/2016	N001	7.3	-	9.3	240	FQ	#	20	
Magnesium	mg/L	03/24/2016	N001	7.3	-	9.3	80	FQ	#	0.15	
Manganese	mg/L	03/24/2016	N001	7.3	-	9.3	0.13	FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7.3	-	9.3	0.18	FQ	#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	7.3	-	9.3	125.2	FQ	#		
pH	s.u.	03/24/2016	N001	7.3	-	9.3	7.88	FQ	#		
Potassium	mg/L	03/24/2016	N001	7.3	-	9.3	7.4	FQ	#	0.26	
Selenium	mg/L	03/24/2016	N001	7.3	-	9.3	0.0014	FQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	7.3	-	9.3	1500	FQ	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	7.3	-	9.3	7608	FQ	#		
Strontium	mg/L	03/24/2016	N001	7.3	-	9.3	5.3	FQ	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	7.3	-	9.3	4000	FQ	#	50	
Temperature	C	03/24/2016	N001	7.3	-	9.3	13.59	FQ	#		
Turbidity	NTU	03/24/2016	N001	7.3	-	9.3	5.79	FQ	#		
Uranium	mg/L	03/24/2016	N001	7.3	-	9.3	0.016	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0798 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7.1	-	9.1		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7.1	-	9.1	313	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	7.1	-	9.1	0.47	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	7.1	-	9.1	290	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	7.1	-	9.1	110	F	#	20	
Magnesium	mg/L	03/24/2016	N001	7.1	-	9.1	150	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	7.1	-	9.1	0.52	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7.1	-	9.1	0.57	F	#	0.1	
Oxidation Reduction Potential	mV	03/24/2016	N001	7.1	-	9.1	200.2	F	#		
pH	s.u.	03/24/2016	N001	7.1	-	9.1	7.39	F	#		
Potassium	mg/L	03/24/2016	N001	7.1	-	9.1	26	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	7.1	-	9.1	0.0011	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	7.1	-	9.1	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	7.1	-	9.1	6184	F	#		
Strontium	mg/L	03/24/2016	N001	7.1	-	9.1	3.7	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	7.1	-	9.1	3900	F	#	50	
Temperature	C	03/24/2016	N001	7.1	-	9.1	10.56	F	#		
Turbidity	NTU	03/24/2016	N001	7.1	-	9.1	1.83	F	#		
Uranium	mg/L	03/24/2016	N001	7.1	-	9.1	0.12	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	5.6	-	15.4	393		FQ	#		
Ammonia Total as N	mg/L	03/24/2016	0001	5.6	-	15.4	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/24/2016	0001	5.6	-	15.4	250		FQ	#	0.12	
Chloride	mg/L	03/24/2016	0001	5.6	-	15.4	180		FQ	#	10	
Magnesium	mg/L	03/24/2016	0001	5.6	-	15.4	74		FQ	#	0.15	
Manganese	mg/L	03/24/2016	0001	5.6	-	15.4	0.096		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	0001	5.6	-	15.4	0.033		FQ	#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	5.6	-	15.4	112.6		FQ	#		
pH	s.u.	03/24/2016	N001	5.6	-	15.4	7.31		FQ	#		
Potassium	mg/L	03/24/2016	0001	5.6	-	15.4	4.2	J	FQ	#	0.26	
Selenium	mg/L	03/24/2016	0001	5.6	-	15.4	0.002		FQ	#	0.00066	
Sodium	mg/L	03/24/2016	0001	5.6	-	15.4	930		FQ	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	5.6	-	15.4	4947		FQ	#		
Strontium	mg/L	03/24/2016	0001	5.6	-	15.4	3.7		FQ	#	0.0013	
Sulfate	mg/L	03/24/2016	0001	5.6	-	15.4	2400		FQ	#	25	
Temperature	C	03/24/2016	N001	5.6	-	15.4	14.11		FQ	#		
Turbidity	NTU	03/24/2016	N001	5.6	-	15.4	28.3		FQ	#		
Uranium	mg/L	03/24/2016	0001	5.6	-	15.4	0.057		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0853 WELL S of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	10	-	15	225	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	10	-	15	15	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	10	-	15	180	F	#	0.024	
Chloride	mg/L	03/23/2016	N001	10	-	15	33	F	#	4	
Magnesium	mg/L	03/23/2016	N001	10	-	15	58	F	#	0.03	
Manganese	mg/L	03/23/2016	N001	10	-	15	0.88	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	10	-	15	0.021	F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	10	-	15	33.8	F	#		
pH	s.u.	03/23/2016	N001	10	-	15	7.3	F	#		
Potassium	mg/L	03/23/2016	N001	10	-	15	12	F	#	0.052	
Selenium	mg/L	03/23/2016	N001	10	-	15	0.00066	U	F	#	0.00066
Sodium	mg/L	03/23/2016	N001	10	-	15	130	F	#	0.047	
Specific Conductance	umhos /cm	03/23/2016	N001	10	-	15	1719	F	#		
Strontium	mg/L	03/23/2016	N001	10	-	15	1.9	F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	10	-	15	790	F	#	10	
Temperature	C	03/23/2016	N001	10	-	15	11.67	F	#		
Turbidity	NTU	03/23/2016	N001	10	-	15	7.55	F	#		
Uranium	mg/L	03/23/2016	N001	10	-	15	0.081	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0854 WELL NE part of floodplain

Parameter	Units	Sample Date	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	03/23/2016	N001	9.05	-	11.55	410	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	9.05	-	11.55	0.83	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	9.05	-	11.55	380	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	9.05	-	11.55	150	F	#	20	
Magnesium	mg/L	03/23/2016	N001	9.05	-	11.55	290	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	9.05	-	11.55	0.82	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	9.05	-	11.55	2	F	#	0.1	
Oxidation Reduction Potential	mV	03/23/2016	N001	9.05	-	11.55	133.4	F	#		
pH	s.u.	03/23/2016	N001	9.05	-	11.55	7.29	F	#		
Potassium	mg/L	03/23/2016	N001	9.05	-	11.55	39	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	9.05	-	11.55	0.0073	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	9.05	-	11.55	1500	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	9.05	-	11.55	8548	F	#		
Strontium	mg/L	03/23/2016	N001	9.05	-	11.55	5.1	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	9.05	-	11.55	5400	F	#	50	
Temperature	C	03/23/2016	N001	9.05	-	11.55	12.33	F	#		
Turbidity	NTU	03/23/2016	N001	9.05	-	11.55	4.31	F	#		
Uranium	mg/L	03/23/2016	N001	9.05	-	11.55	0.36	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0855 WELL NW part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	4.9	-	14.9	379		F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	4.9	-	14.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	4.9	-	14.9	370		F	#	0.12	
Chloride	mg/L	03/22/2016	N001	4.9	-	14.9	120		F	#	20	
Magnesium	mg/L	03/22/2016	N001	4.9	-	14.9	110		F	#	0.15	
Manganese	mg/L	03/22/2016	N001	4.9	-	14.9	2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	4.9	-	14.9	3.4		F	#	0.1	
Oxidation Reduction Potential	mV	03/22/2016	N001	4.9	-	14.9	164.3		F	#		
pH	s.u.	03/22/2016	N001	4.9	-	14.9	7.15		F	#		
Potassium	mg/L	03/22/2016	N001	4.9	-	14.9	11		F	#	0.26	
Selenium	mg/L	03/22/2016	N001	4.9	-	14.9	0.033		F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	4.9	-	14.9	1100		F	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	4.9	-	14.9	6153		F	#		
Strontium	mg/L	03/22/2016	N001	4.9	-	14.9	13		F	#	0.0013	
Sulfate	mg/L	03/22/2016	N001	4.9	-	14.9	3700		F	#	50	
Temperature	C	03/22/2016	N001	4.9	-	14.9	7.07		F	#		
Turbidity	NTU	03/22/2016	N001	4.9	-	14.9	4.19		F	#		
Uranium	mg/L	03/22/2016	N001	4.9	-	14.9	0.074		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0856 WELL NW part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				18.8	-	23.8		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	18.8	-	23.8	305	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	18.8	-	23.8	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	18.8	-	23.8	240	F	#		0.12
Chloride	mg/L	03/22/2016	N001	18.8	-	23.8	98	F	#		20
Magnesium	mg/L	03/22/2016	N001	18.8	-	23.8	56	F	#		0.15
Manganese	mg/L	03/22/2016	N001	18.8	-	23.8	1.7	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	18.8	-	23.8	0.019	F	#		0.01
Oxidation Reduction Potential	mV	03/22/2016	N001	18.8	-	23.8	111.7	F	#		
pH	s.u.	03/22/2016	N001	18.8	-	23.8	7.46	F	#		
Potassium	mg/L	03/22/2016	N001	18.8	-	23.8	13	F	#		0.26
Selenium	mg/L	03/22/2016	N001	18.8	-	23.8	0.00066	U	F	#	0.00066
Sodium	mg/L	03/22/2016	N001	18.8	-	23.8	1200	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	18.8	-	23.8	5381	F	#		
Strontium	mg/L	03/22/2016	N001	18.8	-	23.8	8.6	F	#		0.0013
Sulfate	mg/L	03/22/2016	N001	18.8	-	23.8	3100	F	#		50
Temperature	C	03/22/2016	N001	18.8	-	23.8	11.38	F	#		
Turbidity	NTU	03/22/2016	N001	18.8	-	23.8	1.95	F	#		
Uranium	mg/L	03/22/2016	N001	18.8	-	23.8	0.071	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0857 WELL Near E end of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				13.2	-	18.2		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	13.2	-	18.2	503	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	13.2	-	18.2	11	F	#	2.5	
Ammonia Total as N	mg/L	03/23/2016	N002	13.2	-	18.2	13	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	13.2	-	18.2	500	F	#	0.12	
Calcium	mg/L	03/23/2016	N002	13.2	-	18.2	480	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	13.2	-	18.2	280	F	#	20	
Chloride	mg/L	03/23/2016	N002	13.2	-	18.2	280	F	#	20	
Magnesium	mg/L	03/23/2016	N001	13.2	-	18.2	660	F	#	0.15	
Magnesium	mg/L	03/23/2016	N002	13.2	-	18.2	640	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	13.2	-	18.2	4.1	F	#	0.0012	
Manganese	mg/L	03/23/2016	N002	13.2	-	18.2	4.2	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	13.2	-	18.2	20	F	#	1	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	13.2	-	18.2	19	F	#	0.5	
Oxidation Reduction Potential	mV	03/23/2016	N001	13.2	-	18.2	78.9	F	#		
pH	s.u.	03/23/2016	N001	13.2	-	18.2	7.1	F	#		
Potassium	mg/L	03/23/2016	N001	13.2	-	18.2	39	F	#	0.26	
Potassium	mg/L	03/23/2016	N002	13.2	-	18.2	40	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	13.2	-	18.2	0.081	F	#	0.00066	

---

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

REPORT DATE: 7/10/2016

Location: 0857 WELL Near E end of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Step		Lab	Data		
Selenium	mg/L	03/23/2016	N002	13.2	-	18.2	0.096	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	13.2	-	18.2	1300	F	#	0.23	
Sodium	mg/L	03/23/2016	N002	13.2	-	18.2	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	13.2	-	18.2	8782	F	#		
Strontium	mg/L	03/23/2016	N001	13.2	-	18.2	7	F	#	0.0013	
Strontium	mg/L	03/23/2016	N002	13.2	-	18.2	7.2	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	13.2	-	18.2	6500	F	#	50	
Sulfate	mg/L	03/23/2016	N002	13.2	-	18.2	6500	F	#	50	
Temperature	C	03/23/2016	N001	13.2	-	18.2	12.98	F	#		
Turbidity	NTU	03/23/2016	N001	13.2	-	18.2	2.45	F	#		
Uranium	mg/L	03/23/2016	N001	13.2	-	18.2	0.77	F	#	0.000012	
Uranium	mg/L	03/23/2016	N002	13.2	-	18.2	0.86	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1008 WELL NE part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6.9	-	16.9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	6.9	-	16.9	351	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	6.9	-	16.9	1.8	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	6.9	-	16.9	360	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	6.9	-	16.9	110	F	#	20	
Magnesium	mg/L	03/23/2016	N001	6.9	-	16.9	140	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	6.9	-	16.9	1.2	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	6.9	-	16.9	0.087	F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	6.9	-	16.9	96.2	F	#		
pH	s.u.	03/23/2016	N001	6.9	-	16.9	7.3	F	#		
Potassium	mg/L	03/23/2016	N001	6.9	-	16.9	29	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	6.9	-	16.9	0.0023	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	6.9	-	16.9	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	6.9	-	16.9	6728	F	#		
Strontium	mg/L	03/23/2016	N001	6.9	-	16.9	4.2	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	6.9	-	16.9	4100	F	#	50	
Temperature	C	03/23/2016	N001	6.9	-	16.9	11.44	F	#		
Turbidity	NTU	03/23/2016	N001	6.9	-	16.9	2.46	F	#		
Uranium	mg/L	03/23/2016	N001	6.9	-	16.9	0.15	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1009 WELL Center of floodplain, S of floodplain fence

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	Detection Limit	Uncertainty
				7.4	-	17.4			Data	QA	
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	7.4	-	17.4	228		F	#	
Ammonia Total as N	mg/L	03/23/2016	N001	7.4	-	17.4	11		F	#	2.5
Calcium	mg/L	03/23/2016	N001	7.4	-	17.4	250		F	#	0.024
Chloride	mg/L	03/23/2016	N001	7.4	-	17.4	34		F	#	4
Magnesium	mg/L	03/23/2016	N001	7.4	-	17.4	120		F	#	0.03
Manganese	mg/L	03/23/2016	N001	7.4	-	17.4	0.88		F	#	0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	7.4	-	17.4	0.18		F	#	0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	7.4	-	17.4	46.7		F	#	
pH	s.u.	03/23/2016	N001	7.4	-	17.4	7.19		F	#	
Potassium	mg/L	03/23/2016	N001	7.4	-	17.4	18		F	#	0.052
Selenium	mg/L	03/23/2016	N001	7.4	-	17.4	0.0034		F	#	0.00066
Sodium	mg/L	03/23/2016	N001	7.4	-	17.4	220		F	#	0.047
Specific Conductance	umhos /cm	03/23/2016	N001	7.4	-	17.4	2520		F	#	
Strontium	mg/L	03/23/2016	N001	7.4	-	17.4	2.7		F	#	0.00026
Sulfate	mg/L	03/23/2016	N001	7.4	-	17.4	1500		F	#	10
Temperature	C	03/23/2016	N001	7.4	-	17.4	12.67		F	#	
Turbidity	NTU	03/23/2016	N001	7.4	-	17.4	2.83		F	#	
Uranium	mg/L	03/23/2016	N001	7.4	-	17.4	0.17		F	#	0.000012

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

REPORT DATE: 7/10/2016

Location: 1089 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				4.8	-	14.8		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	4.8	-	14.8	390		#		
Ammonia Total as N	mg/L	03/22/2016	N001	4.8	-	14.8	0.37		#	0.1	
Calcium	mg/L	03/22/2016	N001	4.8	-	14.8	340		#	0.12	
Chloride	mg/L	03/22/2016	N001	4.8	-	14.8	120		#	20	
Magnesium	mg/L	03/22/2016	N001	4.8	-	14.8	200		#	0.15	
Manganese	mg/L	03/22/2016	N001	4.8	-	14.8	1.8		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	4.8	-	14.8	0.83		#	0.05	
Oxidation Reduction Potential	mV	03/22/2016	N001	4.8	-	14.8	195		#		
pH	s.u.	03/22/2016	N001	4.8	-	14.8	7.38		#		
Potassium	mg/L	03/22/2016	N001	4.8	-	14.8	29		#	0.26	
Selenium	mg/L	03/22/2016	N001	4.8	-	14.8	0.003		#	0.00066	
Sodium	mg/L	03/22/2016	N001	4.8	-	14.8	1300		#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	4.8	-	14.8	7075		#		
Strontium	mg/L	03/22/2016	N001	4.8	-	14.8	4.9		#	0.0013	
Sulfate	mg/L	03/22/2016	N001	4.8	-	14.8	4600		#	50	
Temperature	C	03/22/2016	N001	4.8	-	14.8	12.25		#		
Turbidity	NTU	03/22/2016	N001	4.8	-	14.8	1.99		#		
Uranium	mg/L	03/22/2016	N001	4.8	-	14.8	0.21		#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1104 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10	-	15		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	10	-	15	388		#		
Ammonia Total as N	mg/L	03/22/2016	N001	10	-	15	0.39		#	0.1	
Calcium	mg/L	03/22/2016	N001	10	-	15	330		#	0.12	
Chloride	mg/L	03/22/2016	N001	10	-	15	130		#	20	
Magnesium	mg/L	03/22/2016	N001	10	-	15	190		#	0.15	
Manganese	mg/L	03/22/2016	N001	10	-	15	0.86		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	10	-	15	0.87		#	0.05	
Oxidation Reduction Potential	mV	03/22/2016	N001	10	-	15	204.2		#		
pH	s.u.	03/22/2016	N001	10	-	15	7.69		#		
Potassium	mg/L	03/22/2016	N001	10	-	15	28		#	0.26	
Selenium	mg/L	03/22/2016	N001	10	-	15	0.002		#	0.00066	
Sodium	mg/L	03/22/2016	N001	10	-	15	1300		#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	10	-	15	7185		#		
Strontium	mg/L	03/22/2016	N001	10	-	15	4.8		#	0.0013	
Sulfate	mg/L	03/22/2016	N001	10	-	15	4600		#	50	
Temperature	C	03/22/2016	N001	10	-	15	11.75		#		
Turbidity	NTU	03/22/2016	N001	10	-	15	3.96		#		
Uranium	mg/L	03/22/2016	N001	10	-	15	0.2		#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1105 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				4.5	-	14.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4.5	-	14.5	486	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4.5	-	14.5	7.4	F	#	2.5	
Calcium	mg/L	03/24/2016	N001	4.5	-	14.5	410	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	4.5	-	14.5	150	F	#	20	
Magnesium	mg/L	03/24/2016	N001	4.5	-	14.5	530	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	4.5	-	14.5	3.2	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4.5	-	14.5	0.14	F	#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	4.5	-	14.5	93.6	F	#		
pH	s.u.	03/24/2016	N001	4.5	-	14.5	7.2	F	#		
Potassium	mg/L	03/24/2016	N001	4.5	-	14.5	45	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	4.5	-	14.5	0.017	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4.5	-	14.5	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	4.5	-	14.5	7648	F	#		
Strontium	mg/L	03/24/2016	N001	4.5	-	14.5	5.2	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	4.5	-	14.5	5600	F	#	50	
Temperature	C	03/24/2016	N001	4.5	-	14.5	12.78	F	#		
Turbidity	NTU	03/24/2016	N001	4.5	-	14.5	3.9	F	#		
Uranium	mg/L	03/24/2016	N001	4.5	-	14.5	0.56	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1111 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7	-	12	782	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	7	-	12	0.41	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	7	-	12	340	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	7	-	12	260	F	#	20	
Magnesium	mg/L	03/24/2016	N001	7	-	12	650	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	7	-	12	0.64	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7	-	12	18	F	#	0.5	
Oxidation Reduction Potential	mV	03/24/2016	N001	7	-	12	115.7	F	#		
pH	s.u.	03/24/2016	N001	7	-	12	7.11	F	#		
Potassium	mg/L	03/24/2016	N001	7	-	12	39	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	7	-	12	0.15	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	7	-	12	1500	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	7	-	12	9204	F	#		
Strontium	mg/L	03/24/2016	N001	7	-	12	8.2	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	7	-	12	6400	F	#	50	
Temperature	C	03/24/2016	N001	7	-	12	11.78	F	#		
Turbidity	NTU	03/24/2016	N001	7	-	12	4.09	F	#		
Uranium	mg/L	03/24/2016	N001	7	-	12	0.48	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1112 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7	-	12	418	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	7	-	12	26	F	#	2.5	
Calcium	mg/L	03/24/2016	N001	7	-	12	440	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	7	-	12	220	F	#	20	
Magnesium	mg/L	03/24/2016	N001	7	-	12	760	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	7	-	12	1.8	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7	-	12	150	F	#	5	
Oxidation Reduction Potential	mV	03/24/2016	N001	7	-	12	136.4	F	#		
pH	s.u.	03/24/2016	N001	7	-	12	7.11	F	#		
Potassium	mg/L	03/24/2016	N001	7	-	12	76	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	7	-	12	0.93	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	7	-	12	1300	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	7	-	12	9484	F	#		
Strontium	mg/L	03/24/2016	N001	7	-	12	7	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	7	-	12	6600	F	#	50	
Temperature	C	03/24/2016	N001	7	-	12	10.79	F	#		
Turbidity	NTU	03/24/2016	N001	7	-	12	2.62	F	#		
Uranium	mg/L	03/24/2016	N001	7	-	12	0.82	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1113 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7	-	12	184		F	#	
Ammonia Total as N	mg/L	03/24/2016	N001	7	-	12	0.4		F	#	0.1
Calcium	mg/L	03/24/2016	N001	7	-	12	500		F	#	0.12
Chloride	mg/L	03/24/2016	N001	7	-	12	190		F	#	20
Magnesium	mg/L	03/24/2016	N001	7	-	12	490		F	#	0.15
Manganese	mg/L	03/24/2016	N001	7	-	12	0.022	J	F	#	0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7	-	12	310		F	#	10
Oxidation Reduction Potential	mV	03/24/2016	N001	7	-	12	159.8		F	#	
pH	s.u.	03/24/2016	N001	7	-	12	7.39		F	#	
Potassium	mg/L	03/24/2016	N001	7	-	12	61		F	#	0.26
Selenium	mg/L	03/24/2016	N001	7	-	12	0.33		F	#	0.00066
Sodium	mg/L	03/24/2016	N001	7	-	12	790		F	#	0.23
Specific Conductance	umhos /cm	03/24/2016	N001	7	-	12	7261		F	#	
Strontium	mg/L	03/24/2016	N001	7	-	12	5.3		F	#	0.0013
Sulfate	mg/L	03/24/2016	N001	7	-	12	3900		F	#	50
Temperature	C	03/24/2016	N001	7	-	12	8.26		F	#	
Turbidity	NTU	03/24/2016	N001	7	-	12	5.45		F	#	
Uranium	mg/L	03/24/2016	N001	7	-	12	0.49		F	#	0.000012

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

REPORT DATE: 7/10/2016

Location: 1114 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	7	-	12	357	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	7	-	12	52	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	7	-	12	260	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	7	-	12	110	F	#	10	
Magnesium	mg/L	03/23/2016	N001	7	-	12	360	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	7	-	12	2.2	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	7	-	12	93	F	#	5	
Oxidation Reduction Potential	mV	03/23/2016	N001	7	-	12	239.9	F	#		
pH	s.u.	03/23/2016	N001	7	-	12	7.19	F	#		
Potassium	mg/L	03/23/2016	N001	7	-	12	27	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	7	-	12	0.073	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	7	-	12	440	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	7	-	12	4620	F	#		
Strontium	mg/L	03/23/2016	N001	7	-	12	3.3	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	7	-	12	2600	F	#	25	
Temperature	C	03/23/2016	N001	7	-	12	7.82	F	#		
Turbidity	NTU	03/23/2016	N001	7	-	12	2.23	F	#		
Uranium	mg/L	03/23/2016	N001	7	-	12	0.49	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1115 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	7	-	12	328	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	7	-	12	50	F	#	2.5	
Calcium	mg/L	03/22/2016	N001	7	-	12	120	F	#	0.024	
Chloride	mg/L	03/22/2016	N001	7	-	12	66	F	#	4	
Magnesium	mg/L	03/22/2016	N001	7	-	12	180	F	#	0.03	
Manganese	mg/L	03/22/2016	N001	7	-	12	0.82	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	7	-	12	57	F	#	1	
Oxidation Reduction Potential	mV	03/22/2016	N001	7	-	12	110.8	F	#		
pH	s.u.	03/22/2016	N001	7	-	12	7.18	F	#		
Potassium	mg/L	03/22/2016	N001	7	-	12	27	F	#	0.052	
Selenium	mg/L	03/22/2016	N001	7	-	12	0.061	F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	7	-	12	330	F	#	0.047	
Specific Conductance	umhos /cm	03/22/2016	N001	7	-	12	3236	F	#		
Strontium	mg/L	03/22/2016	N001	7	-	12	1.9	F	#	0.00026	
Sulfate	mg/L	03/22/2016	N001	7	-	12	1500	F	#	10	
Temperature	C	03/22/2016	N001	7	-	12	12.86	F	#		
Turbidity	NTU	03/22/2016	N001	7	-	12	1.88	F	#		
Uranium	mg/L	03/22/2016	N001	7	-	12	0.25	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	7	-	12	139	F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	7	-	12	0.1	U	F	#	0.1
Arsenic	mg/L	03/21/2016	0001	7	-	12	0.00015	J	F	#	0.00012
Arsenic	mg/L	03/21/2016	N002	7	-	12	0.00035	J	F	#	0.00012
Cadmium	mg/L	03/21/2016	0001	7	-	12	0.000055	U	F	#	0.000055
Cadmium	mg/L	03/21/2016	N002	7	-	12	0.00008	J	F	#	0.000055
Calcium	mg/L	03/21/2016	0001	7	-	12	81	F	#	0.024	
Calcium	mg/L	03/21/2016	N001	7	-	12	74	F	#	0.024	
Calcium	mg/L	03/21/2016	N002	7	-	12	80	F	#	0.024	
Chloride	mg/L	03/21/2016	N001	7	-	12	18	F	#	0.4	
Copper	mg/L	03/21/2016	0001	7	-	12	0.0022	U	F	#	0.0022
Copper	mg/L	03/21/2016	N002	7	-	12	0.0026	J	F	#	0.0022
Lead	mg/L	03/21/2016	0001	7	-	12	0.00013	U	F	#	0.00013
Lead	mg/L	03/21/2016	N002	7	-	12	0.00021	J	F	#	0.00013
Magnesium	mg/L	03/21/2016	0001	7	-	12	14	F	#	0.03	
Magnesium	mg/L	03/21/2016	N001	7	-	12	13	F	#	0.03	
Magnesium	mg/L	03/21/2016	N002	7	-	12	14	F	#	0.03	
Manganese	mg/L	03/21/2016	0001	7	-	12	0.17	F	#	0.00024	

---

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

REPORT DATE: 7/10/2016

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Manganese	mg/L	03/21/2016	N001	7	-	12	0.2		F	#	0.00024	
Manganese	mg/L	03/21/2016	N002	7	-	12	0.18		F	#	0.00024	
Mercury	mg/L	03/21/2016	0001	7	-	12	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/21/2016	N002	7	-	12	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	7	-	12	0.47		F	#	0.01	
Oxidation Reduction Potential	mV	03/21/2016	N001	7	-	12	120.8		F	#		
pH	s.u.	03/21/2016	N001	7	-	12	7.39		F	#		
Potassium	mg/L	03/21/2016	0001	7	-	12	2.4		F	#	0.052	
Potassium	mg/L	03/21/2016	N001	7	-	12	2.4		F	#	0.052	
Potassium	mg/L	03/21/2016	N002	7	-	12	2.4		F	#	0.052	
Selenium	mg/L	03/21/2016	0001	7	-	12	0.0068		F	#	0.00066	
Selenium	mg/L	03/21/2016	N001	7	-	12	0.0065		F	#	0.00066	
Selenium	mg/L	03/21/2016	N002	7	-	12	0.0068		F	#	0.00066	
Silver	mg/L	03/21/2016	0001	7	-	12	0.000028	U	F	#	0.000028	
Silver	mg/L	03/21/2016	N002	7	-	12	0.000028	U	F	#	0.000028	
Sodium	mg/L	03/21/2016	0001	7	-	12	46		F	#	0.047	
Sodium	mg/L	03/21/2016	N001	7	-	12	46		F	#	0.047	
Sodium	mg/L	03/21/2016	N002	7	-	12	47		F	#	0.047	

---

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

REPORT DATE: 7/10/2016

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7	-	12		Lab	Data		
Specific Conductance	umhos /cm	03/21/2016	N001	7	-	12	606	F	#		
Strontium	mg/L	03/21/2016	0001	7	-	12	0.97	F	#	0.00026	
Strontium	mg/L	03/21/2016	N001	7	-	12	0.86	F	#	0.00026	
Strontium	mg/L	03/21/2016	N002	7	-	12	0.98	F	#	0.00026	
Sulfate	mg/L	03/21/2016	N001	7	-	12	180	F	#	1	
Temperature	C	03/21/2016	N001	7	-	12	10.72	F	#		
Turbidity	NTU	03/21/2016	N001	7	-	12	5.95	F	#		
Uranium	mg/L	03/21/2016	0001	7	-	12	0.007	F	#	0.000012	
Uranium	mg/L	03/21/2016	N001	7	-	12	0.0079	F	#	0.000012	
Uranium	mg/L	03/21/2016	N002	7	-	12	0.007	F	#	0.000012	
Zinc	mg/L	03/21/2016	0001	7	-	12	0.0071	J	FJ	#	0.0046
Zinc	mg/L	03/21/2016	N002	7	-	12	0.008	J	FJ	#	0.0046

**General Water Quality Data by Location (USEE105) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**

**REPORT DATE: 7/10/2016**

**Location: 1118 TREATMENT SYSTEM Sump - seep vault**

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	0	-	0	558		#			
Ammonia Total as N	mg/L	03/22/2016	N001	0	-	0	0.1	U	#	0.1		
Calcium	mg/L	03/22/2016	N001	0	-	0	390		#	0.12		
Chloride	mg/L	03/22/2016	N001	0	-	0	240		#	20		
Magnesium	mg/L	03/22/2016	N001	0	-	0	560		#	0.15		
Manganese	mg/L	03/22/2016	N001	0	-	0	0.0098	J	#	0.0012		
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	0	-	0	34		#	1		
Oxidation Reduction Potential	mV	03/22/2016	N001	0	-	0	166.1		#			
pH	s.u.	03/22/2016	N001	0	-	0	7.74		#			
Potassium	mg/L	03/22/2016	N001	0	-	0	30		#	0.26		
Selenium	mg/L	03/22/2016	N001	0	-	0	0.11		#	0.00066		
Sodium	mg/L	03/22/2016	N001	0	-	0	1400		#	0.23		
Specific Conductance	umhos /cm	03/22/2016	N001	0	-	0	9445		#			
Strontium	mg/L	03/22/2016	N001	0	-	0	8.8		#	0.0013		
Sulfate	mg/L	03/22/2016	N001	0	-	0	6200		#	50		
Temperature	C	03/22/2016	N001	0	-	0	8.74		#			
Turbidity	NTU	03/22/2016	N001	0	-	0	3.9		#			
Uranium	mg/L	03/22/2016	N001	0	-	0	0.36		#	0.000012		

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

REPORT DATE: 7/10/2016

Location: 1128 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Avg		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	6.81	-	11.81	378	F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	6.81	-	11.81	49	F	#	2.5	
Calcium	mg/L	03/21/2016	N001	6.81	-	11.81	300	F	#	0.12	
Chloride	mg/L	03/21/2016	N001	6.81	-	11.81	240	F	#	20	
Magnesium	mg/L	03/21/2016	N001	6.81	-	11.81	600	F	#	0.15	
Manganese	mg/L	03/21/2016	N001	6.81	-	11.81	2.1	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	6.81	-	11.81	350	F	#	10	
Oxidation Reduction Potential	mV	03/21/2016	N001	6.81	-	11.81	111.3	F	#		
pH	s.u.	03/21/2016	N001	6.81	-	11.81	6.93	F	#		
Potassium	mg/L	03/21/2016	N001	6.81	-	11.81	45	F	#	0.26	
Selenium	mg/L	03/21/2016	N001	6.81	-	11.81	0.036	F	#	0.00066	
Sodium	mg/L	03/21/2016	N001	6.81	-	11.81	1100	F	#	0.23	
Specific Conductance	umhos /cm	03/21/2016	N001	6.81	-	11.81	8773	F	#		
Strontium	mg/L	03/21/2016	N001	6.81	-	11.81	4.3	F	#	0.0013	
Sulfate	mg/L	03/21/2016	N001	6.81	-	11.81	4600	F	#	50	
Temperature	C	03/21/2016	N001	6.81	-	11.81	12.93	F	#		
Turbidity	NTU	03/21/2016	N001	6.81	-	11.81	3.51	F	#		
Uranium	mg/L	03/21/2016	N001	6.81	-	11.81	0.45	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1130 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	4.43	-	9.43	133		F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	4.43	-	9.43	0.33		F	#	0.1	
Arsenic	mg/L	03/21/2016	0001	4.43	-	9.43	0.00032	J	F	#	0.00012	
Arsenic	mg/L	03/21/2016	N002	4.43	-	9.43	0.00037	J	F	#	0.00012	
Cadmium	mg/L	03/21/2016	0001	4.43	-	9.43	0.000055	U	F	#	0.000055	
Cadmium	mg/L	03/21/2016	N002	4.43	-	9.43	0.000055	U	F	#	0.000055	
Calcium	mg/L	03/21/2016	0001	4.43	-	9.43	68		F	#	0.024	
Calcium	mg/L	03/21/2016	N001	4.43	-	9.43	62		F	#	0.024	
Calcium	mg/L	03/21/2016	N002	4.43	-	9.43	68		F	#	0.024	
Chloride	mg/L	03/21/2016	N001	4.43	-	9.43	16		F	#	0.4	
Copper	mg/L	03/21/2016	0001	4.43	-	9.43	0.0022	U	F	#	0.0022	
Copper	mg/L	03/21/2016	N002	4.43	-	9.43	0.0022	U	F	#	0.0022	
Lead	mg/L	03/21/2016	0001	4.43	-	9.43	0.00013	U	F	#	0.00013	
Lead	mg/L	03/21/2016	N002	4.43	-	9.43	0.00025	J	F	#	0.00013	
Magnesium	mg/L	03/21/2016	0001	4.43	-	9.43	13		F	#	0.03	
Magnesium	mg/L	03/21/2016	N001	4.43	-	9.43	12		F	#	0.03	
Magnesium	mg/L	03/21/2016	N002	4.43	-	9.43	13		F	#	0.03	
Manganese	mg/L	03/21/2016	0001	4.43	-	9.43	0.68		F	#	0.00024	

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

REPORT DATE: 7/10/2016

Location: 1130 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Manganese	mg/L	03/21/2016	N001	4.43	-	9.43	0.86		F	#	0.00024	
Manganese	mg/L	03/21/2016	N002	4.43	-	9.43	0.8		F	#	0.00024	
Mercury	mg/L	03/21/2016	0001	4.43	-	9.43	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/21/2016	N002	4.43	-	9.43	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	4.43	-	9.43	0.09		F	#	0.01	
Oxidation Reduction Potential	mV	03/21/2016	N001	4.43	-	9.43	-82.2		F	#		
pH	s.u.	03/21/2016	N001	4.43	-	9.43	7.61		F	#		
Potassium	mg/L	03/21/2016	0001	4.43	-	9.43	2.2		F	#	0.052	
Potassium	mg/L	03/21/2016	N001	4.43	-	9.43	2.4		F	#	0.052	
Potassium	mg/L	03/21/2016	N002	4.43	-	9.43	2.3		F	#	0.052	
Selenium	mg/L	03/21/2016	0001	4.43	-	9.43	0.00066	U	F	#	0.00066	
Selenium	mg/L	03/21/2016	N001	4.43	-	9.43	0.00093	J	F	#	0.00066	
Selenium	mg/L	03/21/2016	N002	4.43	-	9.43	0.00075	J	F	#	0.00066	
Silver	mg/L	03/21/2016	0001	4.43	-	9.43	0.000028	U	F	#	0.000028	
Silver	mg/L	03/21/2016	N002	4.43	-	9.43	0.00003	J	F	#	0.000028	
Sodium	mg/L	03/21/2016	0001	4.43	-	9.43	44		F	#	0.047	
Sodium	mg/L	03/21/2016	N001	4.43	-	9.43	46		F	#	0.047	
Sodium	mg/L	03/21/2016	N002	4.43	-	9.43	45		F	#	0.047	

---

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

REPORT DATE: 7/10/2016

Location: 1130 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Specific Conductance	umhos /cm	03/21/2016	N001	4.43	-	9.43	553		F	#		
Strontium	mg/L	03/21/2016	0001	4.43	-	9.43	0.85		F	#	0.00026	
Strontium	mg/L	03/21/2016	N001	4.43	-	9.43	0.76		F	#	0.00026	
Strontium	mg/L	03/21/2016	N002	4.43	-	9.43	0.85		F	#	0.00026	
Sulfate	mg/L	03/21/2016	N001	4.43	-	9.43	160		F	#	1	
Temperature	C	03/21/2016	N001	4.43	-	9.43	8.41		F	#		
Turbidity	NTU	03/21/2016	N001	4.43	-	9.43	4.53		F	#		
Uranium	mg/L	03/21/2016	0001	4.43	-	9.43	0.0047		F	#	0.000012	
Uranium	mg/L	03/21/2016	N001	4.43	-	9.43	0.0049	E	FJ	#	0.000012	
Uranium	mg/L	03/21/2016	N002	4.43	-	9.43	0.005		F	#	0.000012	
Zinc	mg/L	03/21/2016	0001	4.43	-	9.43	0.0046	U	F	#	0.0046	
Zinc	mg/L	03/21/2016	N002	4.43	-	9.43	0.0053	J	FJ	#	0.0046	

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

REPORT DATE: 7/10/2016

Location: 1132 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6.07	-	11.07		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	6.07	-	11.07	130	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	6.07	-	11.07	0.62	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	6.07	-	11.07	58	F	#	0.024	
Chloride	mg/L	03/22/2016	N001	6.07	-	11.07	19	F	#	0.4	
Magnesium	mg/L	03/22/2016	N001	6.07	-	11.07	17	F	#	0.03	
Manganese	mg/L	03/22/2016	N001	6.07	-	11.07	0.3	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	6.07	-	11.07	0.03	F	#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	6.07	-	11.07	83.7	F	#		
pH	s.u.	03/22/2016	N001	6.07	-	11.07	7.61	F	#		
Potassium	mg/L	03/22/2016	N001	6.07	-	11.07	2.5	F	#	0.052	
Selenium	mg/L	03/22/2016	N001	6.07	-	11.07	0.0022	F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	6.07	-	11.07	50	F	#	0.047	
Specific Conductance	umhos /cm	03/22/2016	N001	6.07	-	11.07	594	F	#		
Strontium	mg/L	03/22/2016	N001	6.07	-	11.07	0.71	F	#	0.00026	
Sulfate	mg/L	03/22/2016	N001	6.07	-	11.07	190	F	#	1	
Temperature	C	03/22/2016	N001	6.07	-	11.07	10.84	F	#		
Turbidity	NTU	03/22/2016	N001	6.07	-	11.07	7.55	F	#		
Uranium	mg/L	03/22/2016	N001	6.07	-	11.07	0.012	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1134 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				8.16	-	13.16		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	8.16	-	13.16	192	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	8.16	-	13.16	1.1	F	#	0.1	
Ammonia Total as N	mg/L	03/22/2016	N002	8.16	-	13.16	1.1	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	8.16	-	13.16	87	F	#	0.024	
Calcium	mg/L	03/22/2016	N002	8.16	-	13.16	87	F	#	0.024	
Chloride	mg/L	03/22/2016	N001	8.16	-	13.16	25	F	#	1	
Chloride	mg/L	03/22/2016	N002	8.16	-	13.16	25	F	#	1	
Magnesium	mg/L	03/22/2016	N001	8.16	-	13.16	23	F	#	0.03	
Magnesium	mg/L	03/22/2016	N002	8.16	-	13.16	23	F	#	0.03	
Manganese	mg/L	03/22/2016	N001	8.16	-	13.16	0.91	F	#	0.00024	
Manganese	mg/L	03/22/2016	N002	8.16	-	13.16	0.94	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	8.16	-	13.16	0.043	F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N002	8.16	-	13.16	0.049	F	#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	8.16	-	13.16	47.7	F	#		
pH	s.u.	03/22/2016	N001	8.16	-	13.16	7.39	F	#		
Potassium	mg/L	03/22/2016	N001	8.16	-	13.16	3	F	#	0.052	
Potassium	mg/L	03/22/2016	N002	8.16	-	13.16	3	F	#	0.052	
Selenium	mg/L	03/22/2016	N001	8.16	-	13.16	0.00066	U	F	#	0.00066

---

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

REPORT DATE: 7/10/2016

Location: 1134 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data						
Selenium	mg/L	03/22/2016	N002	8.16	-	13.16	0.00066	U	F	#	0.00066
Sodium	mg/L	03/22/2016	N001	8.16	-	13.16	71		F	#	0.047
Sodium	mg/L	03/22/2016	N002	8.16	-	13.16	71		F	#	0.047
Specific Conductance	umhos /cm	03/22/2016	N001	8.16	-	13.16	833		F	#	
Strontium	mg/L	03/22/2016	N001	8.16	-	13.16	1		F	#	0.00026
Strontium	mg/L	03/22/2016	N002	8.16	-	13.16	1		F	#	0.00026
Sulfate	mg/L	03/22/2016	N001	8.16	-	13.16	270		F	#	2.5
Sulfate	mg/L	03/22/2016	N002	8.16	-	13.16	270		F	#	2.5
Temperature	C	03/22/2016	N001	8.16	-	13.16	11.44		F	#	
Turbidity	NTU	03/22/2016	N001	8.16	-	13.16	1.92		F	#	
Uranium	mg/L	03/22/2016	N001	8.16	-	13.16	0.017		F	#	0.000012
Uranium	mg/L	03/22/2016	N002	8.16	-	13.16	0.017		F	#	0.000012

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

REPORT DATE: 7/10/2016

Location: 1135 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6.39	-	11.39		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	6.39	-	11.39	246	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	6.39	-	11.39	0.2	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	6.39	-	11.39	260	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	6.39	-	11.39	86	F	#	10	
Magnesium	mg/L	03/23/2016	N001	6.39	-	11.39	75	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	6.39	-	11.39	1.7	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	6.39	-	11.39	0.024	F	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	6.39	-	11.39	54.5	F	#		
pH	s.u.	03/23/2016	N001	6.39	-	11.39	7.38	F	#		
Potassium	mg/L	03/23/2016	N001	6.39	-	11.39	17	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	6.39	-	11.39	0.00066	U	F	#	0.00066
Sodium	mg/L	03/23/2016	N001	6.39	-	11.39	950	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	6.39	-	11.39	4814	F	#		
Strontium	mg/L	03/23/2016	N001	6.39	-	11.39	3.1	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	6.39	-	11.39	3000	F	#	25	
Temperature	C	03/23/2016	N001	6.39	-	11.39	11.1	F	#		
Turbidity	NTU	03/23/2016	N001	6.39	-	11.39	8.99	F	#		
Uranium	mg/L	03/23/2016	N001	6.39	-	11.39	0.067	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1136 WELL

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	Detection Limit	Uncertainty
				Lab	Data	QA				
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	6.29	-	11.29	668	F #		
Ammonia Total as N	mg/L	03/23/2016	N001	6.29	-	11.29	8.5	F #	2.5	
Arsenic	mg/L	03/23/2016	0001	6.29	-	11.29	0.00082	J F #	0.00012	
Arsenic	mg/L	03/23/2016	N002	6.29	-	11.29	0.00087	J F #	0.00012	
Cadmium	mg/L	03/23/2016	0001	6.29	-	11.29	0.0003	J F #	0.000055	
Cadmium	mg/L	03/23/2016	N002	6.29	-	11.29	0.00031	F #	0.000055	
Calcium	mg/L	03/23/2016	0001	6.29	-	11.29	510	F #	0.12	
Calcium	mg/L	03/23/2016	N001	6.29	-	11.29	460	F #	0.12	
Calcium	mg/L	03/23/2016	N002	6.29	-	11.29	500	F #	0.12	
Chloride	mg/L	03/23/2016	N001	6.29	-	11.29	330	F #	50	
Copper	mg/L	03/23/2016	0001	6.29	-	11.29	0.011	U F #	0.011	
Copper	mg/L	03/23/2016	N002	6.29	-	11.29	0.012	J F #	0.011	
Lead	mg/L	03/23/2016	0001	6.29	-	11.29	0.0005	J F #	0.00013	
Lead	mg/L	03/23/2016	N002	6.29	-	11.29	0.00059	F #	0.00013	
Magnesium	mg/L	03/23/2016	0001	6.29	-	11.29	910	F #	0.15	
Magnesium	mg/L	03/23/2016	N001	6.29	-	11.29	820	F #	0.15	
Magnesium	mg/L	03/23/2016	N002	6.29	-	11.29	900	F #	0.15	
Manganese	mg/L	03/23/2016	0001	6.29	-	11.29	5.1	F #	0.0012	

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

REPORT DATE: 7/10/2016

Location: 1136 WELL

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Manganese	mg/L	03/23/2016	N001	6.29	-	11.29	5		F	#	0.0012	
Manganese	mg/L	03/23/2016	N002	6.29	-	11.29	5.1		F	#	0.0012	
Mercury	mg/L	03/23/2016	0001	6.29	-	11.29	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/23/2016	N002	6.29	-	11.29	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	6.29	-	11.29	12		F	#	0.5	
Oxidation Reduction Potential	mV	03/23/2016	N001	6.29	-	11.29	82.6		F	#		
pH	s.u.	03/23/2016	N001	6.29	-	11.29	7.17		F	#		
Potassium	mg/L	03/23/2016	0001	6.29	-	11.29	24		F	#	0.26	
Potassium	mg/L	03/23/2016	N001	6.29	-	11.29	25		F	#	0.26	
Potassium	mg/L	03/23/2016	N002	6.29	-	11.29	24		F	#	0.26	
Selenium	mg/L	03/23/2016	0001	6.29	-	11.29	0.012		F	#	0.00066	
Selenium	mg/L	03/23/2016	N001	6.29	-	11.29	0.011		F	#	0.00066	
Selenium	mg/L	03/23/2016	N002	6.29	-	11.29	0.012		F	#	0.00066	
Silver	mg/L	03/23/2016	0001	6.29	-	11.29	0.000028	U	F	#	0.000028	
Silver	mg/L	03/23/2016	N002	6.29	-	11.29	0.000028	U	F	#	0.000028	
Sodium	mg/L	03/23/2016	0001	6.29	-	11.29	1900		F	#	0.23	
Sodium	mg/L	03/23/2016	N001	6.29	-	11.29	1800		F	#	0.23	
Sodium	mg/L	03/23/2016	N002	6.29	-	11.29	1900		F	#	0.23	

---

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

REPORT DATE: 7/10/2016

Location: 1136 WELL

Parameter	Units	Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Specific Conductance	umhos /cm	03/23/2016	N001	6.29	-	11.29	11649		F	#		
Strontium	mg/L	03/23/2016	0001	6.29	-	11.29	8.6		F	#	0.0013	
Strontium	mg/L	03/23/2016	N001	6.29	-	11.29	7.7		F	#	0.0013	
Strontium	mg/L	03/23/2016	N002	6.29	-	11.29	8.5		F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	6.29	-	11.29	9200		F	#	120	
Temperature	C	03/23/2016	N001	6.29	-	11.29	9.85		F	#		
Turbidity	NTU	03/23/2016	N001	6.29	-	11.29	4.69		F	#		
Uranium	mg/L	03/23/2016	0001	6.29	-	11.29	0.91		F	#	0.000012	
Uranium	mg/L	03/23/2016	N001	6.29	-	11.29	0.88		F	#	0.000012	
Uranium	mg/L	03/23/2016	N002	6.29	-	11.29	0.95		F	#	0.000012	
Zinc	mg/L	03/23/2016	0001	6.29	-	11.29	0.28		F	#	0.023	
Zinc	mg/L	03/23/2016	N002	6.29	-	11.29	0.27		F	#	0.023	

---

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

REPORT DATE: 7/10/2016

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	9.4	-	14.4	750		F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	9.4	-	14.4	0.88		F	#	0.1	
Arsenic	mg/L	03/23/2016	0001	9.4	-	14.4	0.00073	J	F	#	0.00012	
Arsenic	mg/L	03/23/2016	N002	9.4	-	14.4	0.00091	J	F	#	0.00012	
Cadmium	mg/L	03/23/2016	0001	9.4	-	14.4	0.00026	J	F	#	0.000055	
Cadmium	mg/L	03/23/2016	N002	9.4	-	14.4	0.00019	J	F	#	0.000055	
Calcium	mg/L	03/23/2016	0001	9.4	-	14.4	390		F	#	0.12	
Calcium	mg/L	03/23/2016	N001	9.4	-	14.4	370		F	#	0.12	
Calcium	mg/L	03/23/2016	N002	9.4	-	14.4	410		F	#	0.12	
Chloride	mg/L	03/23/2016	N001	9.4	-	14.4	360		F	#	50	
Copper	mg/L	03/23/2016	0001	9.4	-	14.4	0.011	U	F	#	0.011	
Copper	mg/L	03/23/2016	N002	9.4	-	14.4	0.013	J	F	#	0.011	
Lead	mg/L	03/23/2016	0001	9.4	-	14.4	0.00013	U	F	#	0.00013	
Lead	mg/L	03/23/2016	N002	9.4	-	14.4	0.00013	U	F	#	0.00013	
Magnesium	mg/L	03/23/2016	0001	9.4	-	14.4	920		F	#	0.15	
Magnesium	mg/L	03/23/2016	N001	9.4	-	14.4	840		F	#	0.15	
Magnesium	mg/L	03/23/2016	N002	9.4	-	14.4	950		F	#	0.15	
Manganese	mg/L	03/23/2016	0001	9.4	-	14.4	3.8		F	#	0.0012	

---

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

REPORT DATE: 7/10/2016

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Manganese	mg/L	03/23/2016	N001	9.4	-	14.4	3.8		F	#	0.0012	
Manganese	mg/L	03/23/2016	N002	9.4	-	14.4	4		F	#	0.0012	
Mercury	mg/L	03/23/2016	0001	9.4	-	14.4	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	03/23/2016	N002	9.4	-	14.4	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	9.4	-	14.4	3.5		F	#	0.5	
Oxidation Reduction Potential	mV	03/23/2016	N001	9.4	-	14.4	203.8		F	#		
pH	s.u.	03/23/2016	N001	9.4	-	14.4	7.42		F	#		
Potassium	mg/L	03/23/2016	0001	9.4	-	14.4	39		F	#	0.26	
Potassium	mg/L	03/23/2016	N001	9.4	-	14.4	40		F	#	0.26	
Potassium	mg/L	03/23/2016	N002	9.4	-	14.4	41		F	#	0.26	
Selenium	mg/L	03/23/2016	0001	9.4	-	14.4	0.012		F	#	0.00066	
Selenium	mg/L	03/23/2016	N001	9.4	-	14.4	0.012		F	#	0.00066	
Selenium	mg/L	03/23/2016	N002	9.4	-	14.4	0.012		F	#	0.00066	
Silver	mg/L	03/23/2016	0001	9.4	-	14.4	0.000028	U	F	#	0.000028	
Silver	mg/L	03/23/2016	N002	9.4	-	14.4	0.000028	U	F	#	0.000028	
Sodium	mg/L	03/23/2016	0001	9.4	-	14.4	2100		F	#	0.23	
Sodium	mg/L	03/23/2016	N001	9.4	-	14.4	2100		F	#	0.23	
Sodium	mg/L	03/23/2016	N002	9.4	-	14.4	2200		F	#	0.23	

---

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

REPORT DATE: 7/10/2016

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	Detection Limit	Uncertainty
				Min	Max	Step	Lab Data	QA		
Specific Conductance	umhos /cm	03/23/2016	N001	9.4	-	14.4	13107	F #		
Strontium	mg/L	03/23/2016	0001	9.4	-	14.4	7.9	F #	0.0013	
Strontium	mg/L	03/23/2016	N001	9.4	-	14.4	7.1	F #	0.0013	
Strontium	mg/L	03/23/2016	N002	9.4	-	14.4	8.1	F #	0.0013	
Sulfate	mg/L	03/23/2016	N001	9.4	-	14.4	10000	F #	120	
Temperature	C	03/23/2016	N001	9.4	-	14.4	10.23	F #		
Turbidity	NTU	03/23/2016	N001	9.4	-	14.4	6.88	F #		
Uranium	mg/L	03/23/2016	0001	9.4	-	14.4	1.1	F #	0.00012	
Uranium	mg/L	03/23/2016	N001	9.4	-	14.4	1.1	F #	0.00012	
Uranium	mg/L	03/23/2016	N002	9.4	-	14.4	1.1	F #	0.00012	
Zinc	mg/L	03/23/2016	0001	9.4	-	14.4	0.023	U F #	0.023	
Zinc	mg/L	03/23/2016	N002	9.4	-	14.4	0.023	U F #	0.023	

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

REPORT DATE: 7/10/2016

Location: 1138 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				8.09	-	13.09		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	8.09	-	13.09	1290	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	8.09	-	13.09	3.5	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	8.09	-	13.09	330	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	8.09	-	13.09	300	F	#	50	
Magnesium	mg/L	03/23/2016	N001	8.09	-	13.09	780	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	8.09	-	13.09	3.5	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	8.09	-	13.09	1.3	F	#	0.05	
Oxidation Reduction Potential	mV	03/23/2016	N001	8.09	-	13.09	201.6	F	#		
pH	s.u.	03/23/2016	N001	8.09	-	13.09	7.2	F	#		
Potassium	mg/L	03/23/2016	N001	8.09	-	13.09	46	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	8.09	-	13.09	0.0021	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	8.09	-	13.09	2200	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	8.09	-	13.09	13121	F	#		
Strontium	mg/L	03/23/2016	N001	8.09	-	13.09	6.6	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	8.09	-	13.09	9900	F	#	120	
Temperature	C	03/23/2016	N001	8.09	-	13.09	11.12	F	#		
Turbidity	NTU	03/23/2016	N001	8.09	-	13.09	1.72	F	#		
Uranium	mg/L	03/23/2016	N001	8.09	-	13.09	0.96	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1139 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				6.19	-	11.19		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	6.19	-	11.19	618	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	6.19	-	11.19	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	6.19	-	11.19	430	F	#		0.12
Chloride	mg/L	03/23/2016	N001	6.19	-	11.19	290	F	#		50
Magnesium	mg/L	03/23/2016	N001	6.19	-	11.19	660	F	#		0.15
Manganese	mg/L	03/23/2016	N001	6.19	-	11.19	0.17	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	6.19	-	11.19	0.062	F	#		0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	6.19	-	11.19	29	F	#		
pH	s.u.	03/23/2016	N001	6.19	-	11.19	7.36	F	#		
Potassium	mg/L	03/23/2016	N001	6.19	-	11.19	59	F	#		0.26
Selenium	mg/L	03/23/2016	N001	6.19	-	11.19	0.001	F	#		0.00066
Sodium	mg/L	03/23/2016	N001	6.19	-	11.19	2400	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	6.19	-	11.19	13673	F	#		
Strontium	mg/L	03/23/2016	N001	6.19	-	11.19	7.6	F	#		0.0013
Sulfate	mg/L	03/23/2016	N001	6.19	-	11.19	10000	F	#		120
Temperature	C	03/23/2016	N001	6.19	-	11.19	11.79	F	#		
Turbidity	NTU	03/23/2016	N001	6.19	-	11.19	9.28	F	#		
Uranium	mg/L	03/23/2016	N001	6.19	-	11.19	0.64	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 1140 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7.6	-	12.6		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	7.6	-	12.6	398	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	7.6	-	12.6	4.2	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	7.6	-	12.6	390	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	7.6	-	12.6	160	F	#	20	
Magnesium	mg/L	03/24/2016	N001	7.6	-	12.6	320	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	7.6	-	12.6	2.2	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	7.6	-	12.6	0.051	F	#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	7.6	-	12.6	43.4	F	#		
pH	s.u.	03/24/2016	N001	7.6	-	12.6	7.24	F	#		
Potassium	mg/L	03/24/2016	N001	7.6	-	12.6	42	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	7.6	-	12.6	0.0055	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	7.6	-	12.6	1400	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	7.6	-	12.6	8093	F	#		
Strontium	mg/L	03/24/2016	N001	7.6	-	12.6	5.2	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	7.6	-	12.6	5900	F	#	50	
Temperature	C	03/24/2016	N001	7.6	-	12.6	11.7	F	#		
Turbidity	NTU	03/24/2016	N001	7.6	-	12.6	4.94	F	#		
Uranium	mg/L	03/24/2016	N001	7.6	-	12.6	0.35	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1141 WELL

Parameter	Units	Sample Date	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	03/24/2016	N001	5.6	-	10.6	320	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	5.6	-	10.6	10	F	#	2.5	
Calcium	mg/L	03/24/2016	N001	5.6	-	10.6	290	F	#	0.024	
Chloride	mg/L	03/24/2016	N001	5.6	-	10.6	60	F	#	10	
Magnesium	mg/L	03/24/2016	N001	5.6	-	10.6	210	F	#	0.03	
Manganese	mg/L	03/24/2016	N001	5.6	-	10.6	1.4	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	5.6	-	10.6	0.043	F	#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	5.6	-	10.6	107.5	F	#		
pH	s.u.	03/24/2016	N001	5.6	-	10.6	7.27	F	#		
Potassium	mg/L	03/24/2016	N001	5.6	-	10.6	26	F	#	0.052	
Selenium	mg/L	03/24/2016	N001	5.6	-	10.6	0.013	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	5.6	-	10.6	350	F	#	0.047	
Specific Conductance	umhos /cm	03/24/2016	N001	5.6	-	10.6	3669	F	#		
Strontium	mg/L	03/24/2016	N001	5.6	-	10.6	3.3	F	#	0.00026	
Sulfate	mg/L	03/24/2016	N001	5.6	-	10.6	2400	F	#	25	
Temperature	C	03/24/2016	N001	5.6	-	10.6	12.03	F	#		
Turbidity	NTU	03/24/2016	N001	5.6	-	10.6	2.97	F	#		
Uranium	mg/L	03/24/2016	N001	5.6	-	10.6	0.37	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	9	-	14	122		F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	9	-	14	0.1	U	F	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	9	-	14	0.1	U	F	#	0.1	
Arsenic	mg/L	03/23/2016	0001	9	-	14	0.00029	J	F	#	0.00012	
Arsenic	mg/L	03/23/2016	N003	9	-	14	0.00032	J	F	#	0.00012	
Cadmium	mg/L	03/23/2016	0001	9	-	14	0.000055	U	F	#	0.000055	
Cadmium	mg/L	03/23/2016	N003	9	-	14	0.00007	J	F	#	0.000055	
Calcium	mg/L	03/23/2016	0001	9	-	14	69		F	#	0.024	
Calcium	mg/L	03/23/2016	N001	9	-	14	61		F	#	0.024	
Calcium	mg/L	03/23/2016	N002	9	-	14	63		F	#	0.024	
Calcium	mg/L	03/23/2016	N003	9	-	14	68		F	#	0.024	
Chloride	mg/L	03/23/2016	N001	9	-	14	16		F	#	0.4	
Chloride	mg/L	03/23/2016	N002	9	-	14	15		F	#	0.4	
Copper	mg/L	03/23/2016	0001	9	-	14	0.0022	U	F	#	0.0022	
Copper	mg/L	03/23/2016	N003	9	-	14	0.0022	U	F	#	0.0022	
Lead	mg/L	03/23/2016	0001	9	-	14	0.00013	U	F	#	0.00013	
Lead	mg/L	03/23/2016	N003	9	-	14	0.00013	U	F	#	0.00013	
Magnesium	mg/L	03/23/2016	0001	9	-	14	13		F	#	0.03	

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

REPORT DATE: 7/10/2016

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				9	-	14		Lab	Data		
Magnesium	mg/L	03/23/2016	N001	9	-	14	12		F	#	0.03
Magnesium	mg/L	03/23/2016	N002	9	-	14	12		F	#	0.03
Magnesium	mg/L	03/23/2016	N003	9	-	14	13		F	#	0.03
Manganese	mg/L	03/23/2016	0001	9	-	14	0.16		F	#	0.00024
Manganese	mg/L	03/23/2016	N001	9	-	14	0.31		F	#	0.00024
Manganese	mg/L	03/23/2016	N002	9	-	14	0.27		F	#	0.00024
Manganese	mg/L	03/23/2016	N003	9	-	14	0.29		F	#	0.00024
Mercury	mg/L	03/23/2016	0001	9	-	14	0.0000029	U	F	#	0.0000029
Mercury	mg/L	03/23/2016	N003	9	-	14	0.0000029	U	F	#	0.0000029
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	9	-	14	0.028		F	#	0.01
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	9	-	14	0.027		F	#	0.01
Oxidation Reduction Potential	mV	03/23/2016	N001	9	-	14	-69.2		F	#	
pH	s.u.	03/23/2016	N001	9	-	14	7.7		F	#	
Potassium	mg/L	03/23/2016	0001	9	-	14	2.3		F	#	0.052
Potassium	mg/L	03/23/2016	N001	9	-	14	2.5		F	#	0.052
Potassium	mg/L	03/23/2016	N002	9	-	14	2.3		F	#	0.052
Potassium	mg/L	03/23/2016	N003	9	-	14	2.3		F	#	0.052
Selenium	mg/L	03/23/2016	0001	9	-	14	0.00066	U	F	#	0.00066

---

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

REPORT DATE: 7/10/2016

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data	QA					
Selenium	mg/L	03/23/2016	N001	9	-	14	0.00066	U	F	#	0.00066
Selenium	mg/L	03/23/2016	N002	9	-	14	0.00066	U	F	#	0.00066
Selenium	mg/L	03/23/2016	N003	9	-	14	0.00066	U	F	#	0.00066
Silver	mg/L	03/23/2016	0001	9	-	14	0.000028	U	F	#	0.000028
Silver	mg/L	03/23/2016	N003	9	-	14	0.000028	U	F	#	0.000028
Sodium	mg/L	03/23/2016	0001	9	-	14	40	F	#	0.047	
Sodium	mg/L	03/23/2016	N001	9	-	14	42	F	#	0.047	
Sodium	mg/L	03/23/2016	N002	9	-	14	40	F	#	0.047	
Sodium	mg/L	03/23/2016	N003	9	-	14	41	F	#	0.047	
Specific Conductance	umhos /cm	03/23/2016	N001	9	-	14	534	F	#		
Strontium	mg/L	03/23/2016	0001	9	-	14	0.77	F	#	0.00026	
Strontium	mg/L	03/23/2016	N001	9	-	14	0.71	F	#	0.00026	
Strontium	mg/L	03/23/2016	N002	9	-	14	0.7	F	#	0.00026	
Strontium	mg/L	03/23/2016	N003	9	-	14	0.79	F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	9	-	14	160	F	#	1	
Sulfate	mg/L	03/23/2016	N002	9	-	14	160	F	#	1	
Temperature	C	03/23/2016	N001	9	-	14	9.53	F	#		
Turbidity	NTU	03/23/2016	N001	9	-	14	1.91	F	#		

---

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

REPORT DATE: 7/10/2016

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Uranium	mg/L	03/23/2016	0001	9	-	14	0.0055		F	#	0.000012	
Uranium	mg/L	03/23/2016	N001	9	-	14	0.0059		F	#	0.000012	
Uranium	mg/L	03/23/2016	N002	9	-	14	0.0055		F	#	0.000012	
Uranium	mg/L	03/23/2016	N003	9	-	14	0.0054		F	#	0.000012	
Zinc	mg/L	03/23/2016	0001	9	-	14	0.0046	U	F	#	0.0046	
Zinc	mg/L	03/23/2016	N003	9	-	14	0.0046	U	F	#	0.0046	

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

REPORT DATE: 7/10/2016

Location: 1143 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				8.3	-	13.3		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	8.3	-	13.3	236	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	8.3	-	13.3	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	8.3	-	13.3	160	F	#		0.024
Chloride	mg/L	03/22/2016	N001	8.3	-	13.3	85	F	#		5
Magnesium	mg/L	03/22/2016	N001	8.3	-	13.3	51	F	#		0.03
Manganese	mg/L	03/22/2016	N001	8.3	-	13.3	1.3	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	8.3	-	13.3	0.027	F	#		0.01
Oxidation Reduction Potential	mV	03/22/2016	N001	8.3	-	13.3	63.9	F	#		
pH	s.u.	03/22/2016	N001	8.3	-	13.3	7.51	F	#		
Potassium	mg/L	03/22/2016	N001	8.3	-	13.3	12	F	#		0.052
Selenium	mg/L	03/22/2016	N001	8.3	-	13.3	0.00066	U	F	#	0.00066
Sodium	mg/L	03/22/2016	N001	8.3	-	13.3	1000	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	8.3	-	13.3	4674	F	#		
Strontium	mg/L	03/22/2016	N001	8.3	-	13.3	2.6	F	#		0.00026
Sulfate	mg/L	03/22/2016	N001	8.3	-	13.3	2600	F	#		50
Temperature	C	03/22/2016	N001	8.3	-	13.3	9.78	F	#		
Turbidity	NTU	03/22/2016	N001	8.3	-	13.3	4.13	F	#		
Uranium	mg/L	03/22/2016	N001	8.3	-	13.3	0.052	F	#		0.000012

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.

This page intentionally left blank

## **Groundwater Quality Data**

### **Terrace Locations**

This page intentionally left blank

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

REPORT DATE: 7/10/2016

Location: 0600 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	29	-	48.8	1378		FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	29	-	48.8	24		FQ	#	2.5	
Calcium	mg/L	03/24/2016	N001	29	-	48.8	260		FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	29	-	48.8	1300		FQ	#	40	
Magnesium	mg/L	03/24/2016	N001	29	-	48.8	260		FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	29	-	48.8	0.25		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	29	-	48.8	140		FQ	#	5	
Oxidation Reduction Potential	mV	03/24/2016	N001	29	-	48.8	35		FQ	#		
pH	s.u.	03/24/2016	N001	29	-	48.8	6.88		FQJ	#		
Potassium	mg/L	03/24/2016	N001	29	-	48.8	35		FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	29	-	48.8	0.004		UFQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	29	-	48.8	4600		FQ	#	0.47	
Specific Conductance	umhos /cm	03/24/2016	N001	29	-	48.8	19347		FQ	#		
Strontium	mg/L	03/24/2016	N001	29	-	48.8	8.1		FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	29	-	48.8	11000		FQ	#	100	
Temperature	C	03/24/2016	N001	29	-	48.8	14.72		FQ	#		
Turbidity	NTU	03/24/2016	N001	29	-	48.8	3.27		FQ	#		
Uranium	mg/L	03/24/2016	N001	29	-	48.8	0.87		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	27	-	47	0		FQ	#		
Ammonia Total as N	mg/L	03/22/2016	N001	27	-	47	57		FQ	#	2.5	
Calcium	mg/L	03/22/2016	N001	27	-	47	450		FQ	#	0.24	
Chloride	mg/L	03/22/2016	N001	27	-	47	3000		FQ	#	100	
Magnesium	mg/L	03/22/2016	N001	27	-	47	1200		FQ	#	0.3	
Manganese	mg/L	03/22/2016	N001	27	-	47	0.67		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	27	-	47	49		FQ	#	1	
Oxidation Reduction Potential	mV	03/22/2016	N001	27	-	47	339.7		FQ	#		
pH	s.u.	03/22/2016	N001	27	-	47	4.03		FQ	#		
Potassium	mg/L	03/22/2016	N001	27	-	47	74		FQ	#	0.52	
Selenium	mg/L	03/22/2016	N001	27	-	47	0.0054		FQ	#	0.00066	
Sodium	mg/L	03/22/2016	N001	27	-	47	7300		FQ	#	2.3	
Specific Conductance	umhos /cm	03/22/2016	N001	27	-	47	26660		FQ	#		
Strontium	mg/L	03/22/2016	N001	27	-	47	22		FQ	#	0.0026	
Sulfate	mg/L	03/22/2016	N001	27	-	47	20000		FQ	#	250	
Temperature	C	03/22/2016	N001	27	-	47	12.93		FQ	#		
Turbidity	NTU	03/22/2016	N001	27	-	47	8.25		FQ	#		
Uranium	mg/L	03/22/2016	N001	27	-	47	0.43		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0603 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	25.9	-	35.9	98		F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	25.9	-	35.9	840		F	#	30	
Calcium	mg/L	03/24/2016	N001	25.9	-	35.9	1200		F	#	0.12	
Chloride	mg/L	03/24/2016	N001	25.9	-	35.9	190		F	#	10	
Magnesium	mg/L	03/24/2016	N001	25.9	-	35.9	750		F	#	0.15	
Manganese	mg/L	03/24/2016	N001	25.9	-	35.9	52		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	25.9	-	35.9	2200		F	#	50	
Oxidation Reduction Potential	mV	03/24/2016	N001	25.9	-	35.9	208.2		F	#		
pH	s.u.	03/24/2016	N001	25.9	-	35.9	6.11		FJ	#		
Potassium	mg/L	03/24/2016	N001	25.9	-	35.9	150		F	#	0.26	
Selenium	mg/L	03/24/2016	N001	25.9	-	35.9	0.082		F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	25.9	-	35.9	770		F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	25.9	-	35.9	17656		F	#		
Strontium	mg/L	03/24/2016	N001	25.9	-	35.9	6.4		F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	25.9	-	35.9	2700		F	#	25	
Temperature	C	03/24/2016	N001	25.9	-	35.9	15.6		F	#		
Turbidity	NTU	03/24/2016	N001	25.9	-	35.9	4.18		F	#		
Uranium	mg/L	03/24/2016	N001	25.9	-	35.9	0.007		F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0604 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	0001	62.7	-	72.7	898		FQ	#		
Ammonia Total as N	mg/L	03/22/2016	0001	62.7	-	72.7	8.2		FQ	#	2.5	
Calcium	mg/L	03/22/2016	0001	62.7	-	72.7	520		FQ	#	0.24	
Chloride	mg/L	03/22/2016	0001	62.7	-	72.7	2400		FQ	#	100	
Chlorine, Total Residual	mg/L	03/22/2016	N001	62.7	-	72.7	0		FQ	#		
Magnesium	mg/L	03/22/2016	0001	62.7	-	72.7	1900		FQ	#	0.3	
Manganese	mg/L	03/22/2016	0001	62.7	-	72.7	0.84		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	0001	62.7	-	72.7	1000		FQ	#	50	
Oxidation Reduction Potential	mV	03/22/2016	N001	62.7	-	72.7	210		FQ	#		
pH	s.u.	03/22/2016	N001	62.7	-	72.7	6.82		FQ	#		
Potassium	mg/L	03/22/2016	0001	62.7	-	72.7	58		FQ	#	0.52	
Selenium	mg/L	03/22/2016	0001	62.7	-	72.7	0.82		FQ	#	0.00066	
Sodium	mg/L	03/22/2016	0001	62.7	-	72.7	4600		FQ	#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	62.7	-	72.7	24640		FQ	#		
Strontium	mg/L	03/22/2016	0001	62.7	-	72.7	19		FQ	#	0.0026	
Sulfate	mg/L	03/22/2016	0001	62.7	-	72.7	14000		FQ	#	250	

---

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

REPORT DATE: 7/10/2016

Location: 0604 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/22/2016	N001	62.7	-	72.7	17.6	FQ	#		
Turbidity	NTU	03/22/2016	N001	62.7	-	72.7	44	FQ	#		
Uranium	mg/L	03/22/2016	0001	62.7	-	72.7	0.096	FQ	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0725 WELL West side, lower Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7.5	-	17.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	7.5	-	17.5	210	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	7.5	-	17.5	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	7.5	-	17.5	250	F	#		0.024
Chloride	mg/L	03/23/2016	N001	7.5	-	17.5	73	F	#		10
Chlorine, Total Residual	mg/L	03/23/2016	N001	7.5	-	17.5	0	F	#		
Magnesium	mg/L	03/23/2016	N001	7.5	-	17.5	74	F	#		0.03
Manganese	mg/L	03/23/2016	N001	7.5	-	17.5	0.049	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	7.5	-	17.5	4.9	F	#		0.1
Oxidation Reduction Potential	mV	03/23/2016	N001	7.5	-	17.5	125	F	#		
pH	s.u.	03/23/2016	N001	7.5	-	17.5	7.25	FJ	#		
Potassium	mg/L	03/23/2016	N001	7.5	-	17.5	9.3	F	#		0.052
Selenium	mg/L	03/23/2016	N001	7.5	-	17.5	0.024	F	#		0.00066
Sodium	mg/L	03/23/2016	N001	7.5	-	17.5	890	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	7.5	-	17.5	4698	F	#		
Strontium	mg/L	03/23/2016	N001	7.5	-	17.5	11	F	#		0.00026
Sulfate	mg/L	03/23/2016	N001	7.5	-	17.5	2600	F	#		25

---

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

REPORT DATE: 7/10/2016

Location: 0725 WELL West side, lower Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Step		Lab	Data		
Temperature	C	03/23/2016	N001	7.5	-	17.5	10.96	F	#		
Turbidity	NTU	03/23/2016	N001	7.5	-	17.5	1.67	F	#		
Uranium	mg/L	03/23/2016	N001	7.5	-	17.5	0.074	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0726 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				27.2	-	37.2		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	27.2	-	37.2	490	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	27.2	-	37.2	0.76	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	27.2	-	37.2	370	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	27.2	-	37.2	290	F	#	20	
Magnesium	mg/L	03/23/2016	N001	27.2	-	37.2	320	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	27.2	-	37.2	0.72	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	27.2	-	37.2	39	F	#	1	
Oxidation Reduction Potential	mV	03/23/2016	N001	27.2	-	37.2	208.6	F	#		
pH	s.u.	03/23/2016	N001	27.2	-	37.2	7.03	FJ	#		
Potassium	mg/L	03/23/2016	N001	27.2	-	37.2	30	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	27.2	-	37.2	0.15	N	FJ	#	0.00066
Sodium	mg/L	03/23/2016	N001	27.2	-	37.2	1500	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	27.2	-	37.2	9198	F	#		
Strontium	mg/L	03/23/2016	N001	27.2	-	37.2	6.7	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	27.2	-	37.2	5000	F	#	50	
Temperature	C	03/23/2016	N001	27.2	-	37.2	15.59	F	#		
Turbidity	NTU	03/23/2016	N001	27.2	-	37.2	2.61	F	#		
Uranium	mg/L	03/23/2016	N001	27.2	-	37.2	0.022	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0728 WELL W of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				17	-	27		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	17	-	27	424	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	17	-	27	96	F	#	2.5	
Calcium	mg/L	03/23/2016	N001	17	-	27	490	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	17	-	27	30	F	#	20	
Chlorine, Total Residual	mg/L	03/23/2016	N001	17	-	27	0.14	F	#		
Magnesium	mg/L	03/23/2016	N001	17	-	27	650	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	17	-	27	1.1	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	17	-	27	4.6	F	#	0.1	
Oxidation Reduction Potential	mV	03/23/2016	N001	17	-	27	184.8	F	#		
pH	s.u.	03/23/2016	N001	17	-	27	6.81	FJ	#		
Potassium	mg/L	03/23/2016	N001	17	-	27	70	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	17	-	27	0.0048	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	17	-	27	680	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	17	-	27	7184	F	#		
Strontium	mg/L	03/23/2016	N001	17	-	27	6.6	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	17	-	27	5400	F	#	50	

---

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

REPORT DATE: 7/10/2016

Location: 0728 WELL W of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/23/2016	N001	17	-	27	14.9	F	#		
Turbidity	NTU	03/23/2016	N001	17	-	27	2.1	F	#		
Uranium	mg/L	03/23/2016	N001	17	-	27	0.23	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0730 WELL Just SW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	0001	26.93	-	36.93	44		FQ	#		
Ammonia Total as N	mg/L	03/24/2016	0001	26.93	-	36.93	43		FQ	#	2.5	
Calcium	mg/L	03/24/2016	0001	26.93	-	36.93	620		FQ	#	0.12	
Chloride	mg/L	03/24/2016	0001	26.93	-	36.93	16		FQ	#	10	
Magnesium	mg/L	03/24/2016	0001	26.93	-	36.93	120		FQ	#	0.03	
Manganese	mg/L	03/24/2016	0001	26.93	-	36.93	21		FQ	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	0001	26.93	-	36.93	120		FQ	#	5	
Oxidation Reduction Potential	mV	03/24/2016	N001	26.93	-	36.93	277.4		FQ	#		
pH	s.u.	03/24/2016	N001	26.93	-	36.93	4.67		FQJ	#		
Potassium	mg/L	03/24/2016	0001	26.93	-	36.93	16		FQ	#	0.052	
Selenium	mg/L	03/24/2016	0001	26.93	-	36.93	0.015		FQ	#	0.00066	
Sodium	mg/L	03/24/2016	0001	26.93	-	36.93	65		FQ	#	0.047	
Specific Conductance	umhos /cm	03/24/2016	N001	26.93	-	36.93	3438		FQ	#		
Strontium	mg/L	03/24/2016	0001	26.93	-	36.93	2.7		FQ	#	0.00026	
Sulfate	mg/L	03/24/2016	0001	26.93	-	36.93	1900		FQ	#	25	
Temperature	C	03/24/2016	N001	26.93	-	36.93	13.7		FQ	#		
Turbidity	NTU	03/24/2016	N001	26.93	-	36.93	1000		FQ	#		
Uranium	mg/L	03/24/2016	0001	26.93	-	36.93	0.0051		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0731 WELL SE of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				17	-	27		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	17	-	27	212	F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	17	-	27	20	F	#	2.5	
Calcium	mg/L	03/24/2016	N001	17	-	27	480	F	#	0.12	
Chloride	mg/L	03/24/2016	N001	17	-	27	83	F	#	20	
Magnesium	mg/L	03/24/2016	N001	17	-	27	360	F	#	0.15	
Manganese	mg/L	03/24/2016	N001	17	-	27	0.076	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	17	-	27	65	F	#	1	
Oxidation Reduction Potential	mV	03/24/2016	N001	17	-	27	131.4	F	#		
pH	s.u.	03/24/2016	N001	17	-	27	6.95	FJ	#		
Potassium	mg/L	03/24/2016	N001	17	-	27	31	F	#	0.26	
Selenium	mg/L	03/24/2016	N001	17	-	27	0.039	F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	17	-	27	630	F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	17	-	27	6140	F	#		
Strontium	mg/L	03/24/2016	N001	17	-	27	6.7	F	#	0.0013	
Sulfate	mg/L	03/24/2016	N001	17	-	27	3700	F	#	50	
Temperature	C	03/24/2016	N001	17	-	27	15.54	F	#		
Turbidity	NTU	03/24/2016	N001	17	-	27	2.26	F	#		
Uranium	mg/L	03/24/2016	N001	17	-	27	0.02	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0813 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				40.8	-	50.8		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	40.8	-	50.8	850	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	40.8	-	50.8	44	F	#	2.5	
Calcium	mg/L	03/22/2016	N001	40.8	-	50.8	670	F	#	0.24	
Chloride	mg/L	03/22/2016	N001	40.8	-	50.8	940	F	#	40	
Chlorine, Total Residual	mg/L	03/22/2016	N001	40.8	-	50.8	0	F	#		
Magnesium	mg/L	03/22/2016	N001	40.8	-	50.8	2800	F	#	0.3	
Manganese	mg/L	03/22/2016	N001	40.8	-	50.8	1.1	F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	40.8	-	50.8	2300	F	#	50	
Oxidation Reduction Potential	mV	03/22/2016	N001	40.8	-	50.8	173.4	F	#		
pH	s.u.	03/22/2016	N001	40.8	-	50.8	6.64	F	#		
Potassium	mg/L	03/22/2016	N001	40.8	-	50.8	100	F	#	0.52	
Selenium	mg/L	03/22/2016	N001	40.8	-	50.8	0.17	F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	40.8	-	50.8	3000	F	#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	40.8	-	50.8	24919	F	#		
Strontium	mg/L	03/22/2016	N001	40.8	-	50.8	19	F	#	0.0026	
Sulfate	mg/L	03/22/2016	N001	40.8	-	50.8	10000	F	#	100	

---

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

REPORT DATE: 7/10/2016

Location: 0813 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/22/2016	N001	40.8	-	50.8	16.29	F	#		
Turbidity	NTU	03/22/2016	N001	40.8	-	50.8	3.42	F	#		
Uranium	mg/L	03/22/2016	N001	40.8	-	50.8	0.091	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				23.8	-	33.8		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	23.8	-	33.8	568	FQ	#		
Ammonia Total as N	mg/L	03/22/2016	N001	23.8	-	33.8	52	FQ	#	2.5	
Calcium	mg/L	03/22/2016	N001	23.8	-	33.8	470	FQ	#	0.24	
Chloride	mg/L	03/22/2016	N001	23.8	-	33.8	1200	FQ	#	100	
Magnesium	mg/L	03/22/2016	N001	23.8	-	33.8	2000	FQ	#	0.3	
Manganese	mg/L	03/22/2016	N001	23.8	-	33.8	1.4	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	23.8	-	33.8	820	FQ	#	50	
Oxidation Reduction Potential	mV	03/22/2016	N001	23.8	-	33.8	250.6	FQ	#		
pH	s.u.	03/22/2016	N001	23.8	-	33.8	6.87	FQ	#		
Potassium	mg/L	03/22/2016	N001	23.8	-	33.8	100	FQ	#	0.52	
Selenium	mg/L	03/22/2016	N001	23.8	-	33.8	2.3	FQ	#	0.00066	
Sodium	mg/L	03/22/2016	N001	23.8	-	33.8	3900	FQ	#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	23.8	-	33.8	12372	FQ	#		
Strontium	mg/L	03/22/2016	N001	23.8	-	33.8	14	FQ	#	0.0026	
Sulfate	mg/L	03/22/2016	N001	23.8	-	33.8	15000	FQ	#	250	
Temperature	C	03/22/2016	N001	23.8	-	33.8	15.2	FQ	#		
Turbidity	NTU	03/22/2016	N001	23.8	-	33.8	5.9	FQ	#		
Uranium	mg/L	03/22/2016	N001	23.8	-	33.8	0.082	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0816 WELL N of artesian well 648

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	20.1	-	25.1	148		F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	20.1	-	25.1	0.1	U	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	20.1	-	25.1	100		F	#	0.024	
Chloride	mg/L	03/24/2016	N001	20.1	-	25.1	68		F	#	10	
Magnesium	mg/L	03/24/2016	N001	20.1	-	25.1	120		F	#	0.03	
Manganese	mg/L	03/24/2016	N001	20.1	-	25.1	0.003	J	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	20.1	-	25.1	12		F	#	0.5	
Oxidation Reduction Potential	mV	03/24/2016	N001	20.1	-	25.1	80.4		F	#		
pH	s.u.	03/24/2016	N001	20.1	-	25.1	7.72		FJ	#		
Potassium	mg/L	03/24/2016	N001	20.1	-	25.1	12		F	#	0.052	
Selenium	mg/L	03/24/2016	N001	20.1	-	25.1	0.015		F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	20.1	-	25.1	810		F	#	0.23	
Specific Conductance	umhos /cm	03/24/2016	N001	20.1	-	25.1	4123		F	#		
Strontium	mg/L	03/24/2016	N001	20.1	-	25.1	2.3		F	#	0.00026	
Sulfate	mg/L	03/24/2016	N001	20.1	-	25.1	2100		F	#	25	
Temperature	C	03/24/2016	N001	20.1	-	25.1	12.77		F	#		
Turbidity	NTU	03/24/2016	N001	20.1	-	25.1	6.72		F	#		
Uranium	mg/L	03/24/2016	N001	20.1	-	25.1	0.014		F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	21.6	-	31.62	0		FQ	#		
Ammonia Total as N	mg/L	03/22/2016	N001	21.6	-	31.62	1100		FQ	#	30	
Calcium	mg/L	03/22/2016	N001	21.6	-	31.62	470		FQ	#	0.12	
Chloride	mg/L	03/22/2016	N001	21.6	-	31.62	630		FQ	#	100	
Magnesium	mg/L	03/22/2016	N001	21.6	-	31.62	1700		FQ	#	0.15	
Manganese	mg/L	03/22/2016	N001	21.6	-	31.62	2.5		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	21.6	-	31.62	620		FQ	#	10	
Oxidation Reduction Potential	mV	03/22/2016	N001	21.6	-	31.62	339.7		FQ	#		
pH	s.u.	03/22/2016	N001	21.6	-	31.62	4.03		FQ	#		
Potassium	mg/L	03/22/2016	N001	21.6	-	31.62	260		FQ	#	0.26	
Selenium	mg/L	03/22/2016	N001	21.6	-	31.62	0.0041		UFQ	#	0.00066	
Sodium	mg/L	03/22/2016	N001	21.6	-	31.62	1500		FQ	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	21.6	-	31.62	19812		FQ	#		
Strontium	mg/L	03/22/2016	N001	21.6	-	31.62	12		FQ	#	0.0013	
Sulfate	mg/L	03/22/2016	N001	21.6	-	31.62	13000		FQ	#	250	
Temperature	C	03/22/2016	N001	21.6	-	31.62	12.93		FQ	#		
Turbidity	NTU	03/22/2016	N001	21.6	-	31.62	4.92		FQ	#		
Uranium	mg/L	03/22/2016	N001	21.6	-	31.62	8.3		FQ	#	0.00012	

---

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

REPORT DATE: 7/10/2016

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				52	-	61.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	52	-	61.5	554		#		
Ammonia Total as N	mg/L	03/22/2016	N001	52	-	61.5	47		#	2.5	
Ammonia Total as N	mg/L	03/22/2016	N002	52	-	61.5	49		#	2.5	
Calcium	mg/L	03/22/2016	N001	52	-	61.5	470		#	0.24	
Calcium	mg/L	03/22/2016	N002	52	-	61.5	480		#	0.24	
Chloride	mg/L	03/22/2016	N001	52	-	61.5	1100		#	100	
Chloride	mg/L	03/22/2016	N002	52	-	61.5	1100		#	100	
Magnesium	mg/L	03/22/2016	N001	52	-	61.5	1600		#	0.3	
Magnesium	mg/L	03/22/2016	N002	52	-	61.5	1700		#	0.3	
Manganese	mg/L	03/22/2016	N001	52	-	61.5	0.53		#	0.0024	
Manganese	mg/L	03/22/2016	N002	52	-	61.5	0.54		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	52	-	61.5	630		#	10	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N002	52	-	61.5	570		#	10	
Oxidation Reduction Potential	mV	03/22/2016	N001	52	-	61.5	206.4		#		
pH	s.u.	03/22/2016	N001	52	-	61.5	6.91		#		
Potassium	mg/L	03/22/2016	N001	52	-	61.5	67		#	0.52	
Potassium	mg/L	03/22/2016	N002	52	-	61.5	67		#	0.52	
Selenium	mg/L	03/22/2016	N001	52	-	61.5	3.4	J	#	0.00066	

---

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

REPORT DATE: 7/10/2016

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				52	-	61.5		Lab	Data		
Selenium	mg/L	03/22/2016	N002	52	-	61.5	2.1	J	#	0.00066	
Sodium	mg/L	03/22/2016	N001	52	-	61.5	4200		#	0.47	
Sodium	mg/L	03/22/2016	N002	52	-	61.5	4200		#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	52	-	61.5	21943		#		
Strontium	mg/L	03/22/2016	N001	52	-	61.5	13		#	0.0026	
Strontium	mg/L	03/22/2016	N002	52	-	61.5	12		#	0.0026	
Sulfate	mg/L	03/22/2016	N001	52	-	61.5	15000		#	250	
Sulfate	mg/L	03/22/2016	N002	52	-	61.5	16000		#	250	
Temperature	C	03/22/2016	N001	52	-	61.5	16.02		#		
Turbidity	NTU	03/22/2016	N001	52	-	61.5	3.96		#		
Uranium	mg/L	03/22/2016	N001	52	-	61.5	0.11		#	0.000012	
Uranium	mg/L	03/22/2016	N002	52	-	61.5	0.12		#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Step		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	15.67	-	25.67	1348	FQ	#		
Ammonia Total as N	mg/L	03/22/2016	N001	15.67	-	25.67	480	FQ	#	30	
Calcium	mg/L	03/22/2016	N001	15.67	-	25.67	460	FQ	#	0.12	
Chloride	mg/L	03/22/2016	N001	15.67	-	25.67	820	FQ	#	100	
Magnesium	mg/L	03/22/2016	N001	15.67	-	25.67	1400	FQ	#	0.15	
Manganese	mg/L	03/22/2016	N001	15.67	-	25.67	1.9	FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	15.67	-	25.67	37	FQ	#	1	
Oxidation Reduction Potential	mV	03/22/2016	N001	15.67	-	25.67	161.1	FQ	#		
pH	s.u.	03/22/2016	N001	15.67	-	25.67	6.43	FQ	#		
Potassium	mg/L	03/22/2016	N001	15.67	-	25.67	180	FQ	#	0.26	
Selenium	mg/L	03/22/2016	N001	15.67	-	25.67	0.052	FQ	#	0.00066	
Sodium	mg/L	03/22/2016	N001	15.67	-	25.67	2400	FQ	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	15.67	-	25.67	19070	FQ	#		
Strontium	mg/L	03/22/2016	N001	15.67	-	25.67	10	FQ	#	0.0013	
Sulfate	mg/L	03/22/2016	N001	15.67	-	25.67	14000	FQ	#	250	
Temperature	C	03/22/2016	N001	15.67	-	25.67	16.71	FQ	#		
Turbidity	NTU	03/22/2016	N001	15.67	-	25.67	6.65	FQ	#		
Uranium	mg/L	03/22/2016	N001	15.67	-	25.67	1.6	FQ	#	0.00012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	149	-	151.5	632		FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	149	-	151.5	0.86		FQ	#	0.1	
Calcium	mg/L	03/24/2016	N001	149	-	151.5	240		FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	149	-	151.5	9700		FQ	#	400	
Magnesium	mg/L	03/24/2016	N001	149	-	151.5	88		FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	149	-	151.5	0.32		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	149	-	151.5	74		FQ	#	1	
Oxidation Reduction Potential	mV	03/24/2016	N001	149	-	151.5	240		FQ	#		
pH	s.u.	03/24/2016	N001	149	-	151.5	6.49		FQJ	#		
Potassium	mg/L	03/24/2016	N001	149	-	151.5	24		FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	149	-	151.5	0.0071		FQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	149	-	151.5	7700		FQ	#	2.3	
Specific Conductance	umhos /cm	03/24/2016	N001	149	-	151.5	28395		FQ	#		
Strontium	mg/L	03/24/2016	N001	149	-	151.5	23		FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	149	-	151.5	4300		FQ	#	50	
Temperature	C	03/24/2016	N001	149	-	151.5	13.15		FQ	#		
Turbidity	NTU	03/24/2016	N001	149	-	151.5	9.75		FQ	#		
Uranium	mg/L	03/24/2016	N001	149	-	151.5	0.11		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

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	03/24/2016	N001	199	-	201.5	488	FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	199	-	201.5	0.96	FQ	#	0.1	
Calcium	mg/L	03/24/2016	N001	199	-	201.5	140	FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	199	-	201.5	8300	FQ	#	100	
Magnesium	mg/L	03/24/2016	N001	199	-	201.5	61	FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	199	-	201.5	0.34	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	199	-	201.5	0.01	U	FQ	#	0.01
Oxidation Reduction Potential	mV	03/24/2016	N001	199	-	201.5	-40.1	FQ	#		
pH	s.u.	03/24/2016	N001	199	-	201.5	7.21	FQJ	#		
Potassium	mg/L	03/24/2016	N001	199	-	201.5	34	FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	199	-	201.5	0.00069	J	FQ	#	0.00066
Sodium	mg/L	03/24/2016	N001	199	-	201.5	6300	FQ	#	2.3	
Specific Conductance	umhos /cm	03/24/2016	N001	199	-	201.5	24310	FQ	#		
Strontium	mg/L	03/24/2016	N001	199	-	201.5	16	FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	199	-	201.5	4800	FQ	#	50	
Temperature	C	03/24/2016	N001	199	-	201.5	15.16	FQ	#		
Turbidity	NTU	03/24/2016	N001	199	-	201.5	4.79	FQ	#		
Uranium	mg/L	03/24/2016	N001	199	-	201.5	0.04	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	198.5	-	201	334		FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	198.5	-	201	2.9		FQ	#	0.1	
Calcium	mg/L	03/24/2016	N001	198.5	-	201	170		FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	198.5	-	201	7800		FQ	#	100	
Magnesium	mg/L	03/24/2016	N001	198.5	-	201	77		FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	198.5	-	201	0.42		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	198.5	-	201	29		FQ	#	0.5	
Oxidation Reduction Potential	mV	03/24/2016	N001	198.5	-	201	-73.7		FQ	#		
pH	s.u.	03/24/2016	N001	198.5	-	201	7.36		FQJ	#		
Potassium	mg/L	03/24/2016	N001	198.5	-	201	48		FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	198.5	-	201	0.0015		FQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	198.5	-	201	6500		FQ	#	2.3	
Specific Conductance	umhos /cm	03/24/2016	N001	198.5	-	201	25885		FQ	#		
Strontium	mg/L	03/24/2016	N001	198.5	-	201	18		FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	198.5	-	201	5500		FQ	#	50	
Temperature	C	03/24/2016	N001	198.5	-	201	15.58		FQ	#		
Turbidity	NTU	03/24/2016	N001	198.5	-	201	9.15		FQ	#		
Uranium	mg/L	03/24/2016	N001	198.5	-	201	0.17		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	10	-	20	1128		FQ	#		
Ammonia Total as N	mg/L	03/22/2016	N001	10	-	20	87		FQ	#	2.5	
Calcium	mg/L	03/22/2016	N001	10	-	20	430		FQ	#	0.12	
Chloride	mg/L	03/22/2016	N001	10	-	20	370		FQ	#	40	
Magnesium	mg/L	03/22/2016	N001	10	-	20	1600		FQ	#	0.15	
Manganese	mg/L	03/22/2016	N001	10	-	20	2.6		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	10	-	20	4.4		FQ	#	0.5	
Oxidation Reduction Potential	mV	03/22/2016	N001	10	-	20	220.8		FQ	#		
pH	s.u.	03/22/2016	N001	10	-	20	6.53		FQ	#		
Potassium	mg/L	03/22/2016	N001	10	-	20	110		FQ	#	0.26	
Selenium	mg/L	03/22/2016	N001	10	-	20	0.0071		FQ	#	0.00066	
Sodium	mg/L	03/22/2016	N001	10	-	20	1700		FQ	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	10	-	20	14408		FQ	#		
Strontium	mg/L	03/22/2016	N001	10	-	20	10		FQ	#	0.0013	
Sulfate	mg/L	03/22/2016	N001	10	-	20	11000		FQ	#	100	
Temperature	C	03/22/2016	N001	10	-	20	15.92		FQ	#		
Turbidity	NTU	03/22/2016	N001	10	-	20	4.99		FQ	#		
Uranium	mg/L	03/22/2016	N001	10	-	20	1.1		FQ	#	0.00012	

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

REPORT DATE: 7/10/2016

Location: 0827 WELL Just NW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				19.9	-	29.9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	19.9	-	29.9	1260	FQ	#		
Ammonia Total as N	mg/L	03/23/2016	N001	19.9	-	29.9	2.7	FQ	#	0.1	
Calcium	mg/L	03/23/2016	N001	19.9	-	29.9	460	FQ	#	0.12	
Chloride	mg/L	03/23/2016	N001	19.9	-	29.9	420	FQ	#	40	
Chlorine, Total Residual	mg/L	03/23/2016	N001	19.9	-	29.9	0	FQ	#		
Magnesium	mg/L	03/23/2016	N001	19.9	-	29.9	970	FQ	#	0.15	
Manganese	mg/L	03/23/2016	N001	19.9	-	29.9	0.25	FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	19.9	-	29.9	18	FQ	#	1	
Oxidation Reduction Potential	mV	03/23/2016	N001	19.9	-	29.9	104.4	FQ	#		
pH	s.u.	03/23/2016	N001	19.9	-	29.9	6.56	FQJ	#		
Potassium	mg/L	03/23/2016	N001	19.9	-	29.9	32	FQ	#	0.26	
Selenium	mg/L	03/23/2016	N001	19.9	-	29.9	0.016	FQ	#	0.00066	
Sodium	mg/L	03/23/2016	N001	19.9	-	29.9	1600	FQ	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	19.9	-	29.9	14835	FQ	#		
Strontium	mg/L	03/23/2016	N001	19.9	-	29.9	10	FQ	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	19.9	-	29.9	7700	FQ	#	100	

---

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

REPORT DATE: 7/10/2016

Location: 0827 WELL Just NW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Temperature	C	03/23/2016	N001	19.9	-	29.9	14.94		FQ	#		
Turbidity	NTU	03/23/2016	N001	19.9	-	29.9	5		FQ	#		
Uranium	mg/L	03/23/2016	N001	19.9	-	29.9	1		FQ	#	0.00012	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	0001	5.3	-	15.3	956		FQ	#		
Ammonia Total as N	mg/L	03/23/2016	0001	5.3	-	15.3	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/23/2016	0001	5.3	-	15.3	250		FQ	#	0.024	
Chloride	mg/L	03/23/2016	0001	5.3	-	15.3	160		FQ	#	10	
Chlorine, Total Residual	mg/L	03/23/2016	N001	5.3	-	15.3	0.11		FQ	#		
Magnesium	mg/L	03/23/2016	0001	5.3	-	15.3	240		FQ	#	0.03	
Manganese	mg/L	03/23/2016	0001	5.3	-	15.3	0.35		FQ	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	5.3	-	15.3	4.4		FQ	#	0.1	
Potassium	mg/L	03/23/2016	0001	5.3	-	15.3	12		FQ	#	0.052	
Selenium	mg/L	03/23/2016	0001	5.3	-	15.3	0.0074		FQ	#	0.00066	
Sodium	mg/L	03/23/2016	0001	5.3	-	15.3	430		FQ	#	0.047	
Strontium	mg/L	03/23/2016	0001	5.3	-	15.3	3.7		FQ	#	0.00026	
Sulfate	mg/L	03/23/2016	0001	5.3	-	15.3	1500		FQ	#	25	
Temperature	C	03/23/2016	N001	5.3	-	15.3	12.38		FQ	#		
Uranium	mg/L	03/23/2016	0001	5.3	-	15.3	0.54		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0830 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				7.7	-	17.7		Lab	Data		
Ammonia Total as N	mg/L	03/23/2016	N001	7.7	-	17.7	0.19	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	7.7	-	17.7	580	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	7.7	-	17.7	59	F	#	10	
Chlorine, Total Residual	mg/L	03/23/2016	N001	7.7	-	17.7	0	F	#		
Magnesium	mg/L	03/23/2016	N001	7.7	-	17.7	47	F	#	0.03	
Manganese	mg/L	03/23/2016	N001	7.7	-	17.7	2.2	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	7.7	-	17.7	37	F	#	0.5	
Oxidation Reduction Potential	mV	03/23/2016	N001	7.7	-	17.7	367.3	F	#		
pH	s.u.	03/23/2016	N001	7.7	-	17.7	3.91	FJ	#		
Potassium	mg/L	03/23/2016	N001	7.7	-	17.7	4.6	F	#	0.052	
Selenium	mg/L	03/23/2016	N001	7.7	-	17.7	0.022	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	7.7	-	17.7	150	F	#	0.047	
Specific Conductance	umhos /cm	03/23/2016	N001	7.7	-	17.7	2789	F	#		
Strontium	mg/L	03/23/2016	N001	7.7	-	17.7	0.22	F	#	0.00026	
Sulfate	mg/L	03/23/2016	N001	7.7	-	17.7	1700	F	#	25	
Temperature	C	03/23/2016	N001	7.7	-	17.7	12.43	F	#		
Turbidity	NTU	03/23/2016	N001	7.7	-	17.7	1.91	F	#		
Uranium	mg/L	03/23/2016	N001	7.7	-	17.7	0.0038	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0832 WELL SW corner of Multipurpose Center tract, W of US Hwy 491, flush mount.

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	0001	21.1	-	31.1	270		FQ	#		
Ammonia Total as N	mg/L	03/22/2016	0001	21.1	-	31.1	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/22/2016	0001	21.1	-	31.1	400		FQ	#	0.12	
Chloride	mg/L	03/22/2016	0001	21.1	-	31.1	53		FQ	#	40	
Magnesium	mg/L	03/22/2016	0001	21.1	-	31.1	620		FQ	#	0.15	
Manganese	mg/L	03/22/2016	0001	21.1	-	31.1	0.058		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	0001	21.1	-	31.1	14		FQ	#	1	
Oxidation Reduction Potential	mV	03/22/2016	N001	21.1	-	31.1	155.4		FQ	#		
pH	s.u.	03/22/2016	N001	21.1	-	31.1	7.45		FQ	#		
Potassium	mg/L	03/22/2016	0001	21.1	-	31.1	21		FQ	#	0.26	
Selenium	mg/L	03/22/2016	0001	21.1	-	31.1	0.18	E	J FQ	#	0.00066	
Sodium	mg/L	03/22/2016	0001	21.1	-	31.1	1500		FQ	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	21.1	-	31.1	9762		FQ	#		
Strontium	mg/L	03/22/2016	0001	21.1	-	31.1	6.4		FQ	#	0.0013	
Sulfate	mg/L	03/22/2016	0001	21.1	-	31.1	7200		FQ	#	100	
Temperature	C	03/22/2016	N001	21.1	-	31.1	16.28		FQ	#		
Turbidity	NTU	03/22/2016	N001	21.1	-	31.1	12.8		FQ	#		
Uranium	mg/L	03/22/2016	0001	21.1	-	31.1	0.047		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 0833 WELL Just NE of Dine College tract

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				24.9	-	34.9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	24.9	-	34.9	381	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	24.9	-	34.9	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	24.9	-	34.9	430	F	#		0.12
Chloride	mg/L	03/22/2016	N001	24.9	-	34.9	200	F	#		20
Chlorine, Total Residual	mg/L	03/22/2016	N001	24.9	-	34.9	0	F	#		
Magnesium	mg/L	03/22/2016	N001	24.9	-	34.9	460	F	#		0.15
Manganese	mg/L	03/22/2016	N001	24.9	-	34.9	0.081	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	24.9	-	34.9	80	F	#		1
Oxidation Reduction Potential	mV	03/22/2016	N001	24.9	-	34.9	219.2	F	#		
pH	s.u.	03/22/2016	N001	24.9	-	34.9	7.12	F	#		
Potassium	mg/L	03/22/2016	N001	24.9	-	34.9	19	F	#		0.26
Selenium	mg/L	03/22/2016	N001	24.9	-	34.9	0.26	F	#		0.00066
Sodium	mg/L	03/22/2016	N001	24.9	-	34.9	900	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	24.9	-	34.9	7209	F	#		
Strontium	mg/L	03/22/2016	N001	24.9	-	34.9	5.3	F	#		0.0013
Sulfate	mg/L	03/22/2016	N001	24.9	-	34.9	4200	F	#		50

---

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

REPORT DATE: 7/10/2016

Location: 0833 WELL Just NE of Dine College tract

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/22/2016	N001	24.9	-	34.9	15.14	F	#		
Turbidity	NTU	03/22/2016	N001	24.9	-	34.9	4.92	F	#		
Uranium	mg/L	03/22/2016	N001	24.9	-	34.9	0.065	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				21.9	-	31.9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	21.9	-	31.9	138	F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	21.9	-	31.9	0.1	U	F	#	0.1
Calcium	mg/L	03/21/2016	N001	21.9	-	31.9	61	F	#		0.024
Chloride	mg/L	03/21/2016	N001	21.9	-	31.9	23	F	#		1
Chlorine, Total Residual	mg/L	03/21/2016	N001	21.9	-	31.9	0	F	#		
Magnesium	mg/L	03/21/2016	N001	21.9	-	31.9	22	F	#		0.03
Manganese	mg/L	03/21/2016	N001	21.9	-	31.9	0.027	F	#		0.00024
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	21.9	-	31.9	0.36	F	#		0.01
Oxidation Reduction Potential	mV	03/21/2016	N001	21.9	-	31.9	131.8	F	#		
pH	s.u.	03/21/2016	N001	21.9	-	31.9	7.8	F	#		
Potassium	mg/L	03/21/2016	N001	21.9	-	31.9	2	F	#		0.052
Selenium	mg/L	03/21/2016	N001	21.9	-	31.9	0.00097	J	UF	#	0.00066
Sodium	mg/L	03/21/2016	N001	21.9	-	31.9	31	F	#		0.047
Specific Conductance	umhos /cm	03/21/2016	N001	21.9	-	31.9	562	F	#		
Strontium	mg/L	03/21/2016	N001	21.9	-	31.9	0.69	F	#		0.00026
Sulfate	mg/L	03/21/2016	N001	21.9	-	31.9	150	F	#		2.5

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/21/2016	N001	21.9	-	31.9	14.8	F	#		
Turbidity	NTU	03/21/2016	N001	21.9	-	31.9	9.33	F	#		
Uranium	mg/L	03/21/2016	N001	21.9	-	31.9	0.0033	F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	26.8	-	36.8	298		F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	26.8	-	36.8	0.1	U	F	#	0.1	
Calcium	mg/L	03/22/2016	N001	26.8	-	36.8	530		F	#	0.12	
Chloride	mg/L	03/22/2016	N001	26.8	-	36.8	100		F	#	10	
Magnesium	mg/L	03/22/2016	N001	26.8	-	36.8	280		F	#	0.15	
Manganese	mg/L	03/22/2016	N001	26.8	-	36.8	0.49		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	26.8	-	36.8	65		F	#	1	
Oxidation Reduction Potential	mV	03/22/2016	N001	26.8	-	36.8	180.7		F	#		
pH	s.u.	03/22/2016	N001	26.8	-	36.8	6.97		F	#		
Potassium	mg/L	03/22/2016	N001	26.8	-	36.8	6.5		F	#	0.26	
Selenium	mg/L	03/22/2016	N001	26.8	-	36.8	0.47		F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	26.8	-	36.8	520		F	#	0.23	
Specific Conductance	umhos /cm	03/22/2016	N001	26.8	-	36.8	5077		F	#		
Strontium	mg/L	03/22/2016	N001	26.8	-	36.8	6.9		F	#	0.0013	
Sulfate	mg/L	03/22/2016	N001	26.8	-	36.8	2900		F	#	25	
Temperature	C	03/22/2016	N001	26.8	-	36.8	15.6		F	#		
Turbidity	NTU	03/22/2016	N001	26.8	-	36.8	8.94		F	#		
Uranium	mg/L	03/22/2016	N001	26.8	-	36.8	0.048		F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				17	-	27.1		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	17	-	27.1	297	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	17	-	27.1	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	17	-	27.1	570	F	#		0.12
Chloride	mg/L	03/22/2016	N001	17	-	27.1	150	F	#		10
Magnesium	mg/L	03/22/2016	N001	17	-	27.1	240	F	#		0.15
Manganese	mg/L	03/22/2016	N001	17	-	27.1	2.1	F	#		0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	17	-	27.1	73	F	#		1
Oxidation Reduction Potential	mV	03/22/2016	N001	17	-	27.1	192.2	F	#		
pH	s.u.	03/22/2016	N001	17	-	27.1	6.89	F	#		
Potassium	mg/L	03/22/2016	N001	17	-	27.1	11	F	#		0.26
Selenium	mg/L	03/22/2016	N001	17	-	27.1	0.8	F	#		0.00066
Sodium	mg/L	03/22/2016	N001	17	-	27.1	420	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	17	-	27.1	4751	F	#		
Strontium	mg/L	03/22/2016	N001	17	-	27.1	6.4	F	#		0.0013
Sulfate	mg/L	03/22/2016	N001	17	-	27.1	2600	F	#		25
Temperature	C	03/22/2016	N001	17	-	27.1	14.63	F	#		
Turbidity	NTU	03/22/2016	N001	17	-	27.1	2.36	F	#		
Uranium	mg/L	03/22/2016	N001	17	-	27.1	0.029	F	#		0.000012

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

REPORT DATE: 7/10/2016

Location: 0838 WELL W part of Dine College tract

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				21.9	-	31.9		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	21.9	-	31.9	290	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	21.9	-	31.9	0.1	U	F	#	0.1
Calcium	mg/L	03/23/2016	N001	21.9	-	31.9	450	F	#		0.12
Chloride	mg/L	03/23/2016	N001	21.9	-	31.9	170	F	#		20
Magnesium	mg/L	03/23/2016	N001	21.9	-	31.9	440	F	#		0.15
Manganese	mg/L	03/23/2016	N001	21.9	-	31.9	0.0098	J	F	#	0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	21.9	-	31.9	79	F	#		1
Oxidation Reduction Potential	mV	03/23/2016	N001	21.9	-	31.9	201.5	F	#		
pH	s.u.	03/23/2016	N001	21.9	-	31.9	7.22	F	#		
Potassium	mg/L	03/23/2016	N001	21.9	-	31.9	14	F	#		0.26
Selenium	mg/L	03/23/2016	N001	21.9	-	31.9	0.19	F	#		0.00066
Sodium	mg/L	03/23/2016	N001	21.9	-	31.9	860	F	#		0.23
Specific Conductance	umhos /cm	03/23/2016	N001	21.9	-	31.9	6744	F	#		
Strontium	mg/L	03/23/2016	N001	21.9	-	31.9	5.7	F	#		0.0013
Sulfate	mg/L	03/23/2016	N001	21.9	-	31.9	4100	F	#		50
Temperature	C	03/23/2016	N001	21.9	-	31.9	13.75	F	#		
Turbidity	NTU	03/23/2016	N001	21.9	-	31.9	3.57	F	#		
Uranium	mg/L	03/23/2016	N001	21.9	-	31.9	0.078	F	#		0.000012

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	42	-	52	713		F	#		
Ammonia Total as N	mg/L	03/21/2016	N001	42	-	52	0.1	U	F	#	0.1	
Calcium	mg/L	03/21/2016	N001	42	-	52	440		F	#	0.24	
Chloride	mg/L	03/21/2016	N001	42	-	52	750		F	#	100	
Chlorine, Total Residual	mg/L	03/21/2016	N001	42	-	52	0.05		F	#		
Magnesium	mg/L	03/21/2016	N001	42	-	52	740		F	#	0.3	
Manganese	mg/L	03/21/2016	N001	42	-	52	0.043	J	F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	42	-	52	440		F	#	10	
Oxidation Reduction Potential	mV	03/21/2016	N001	42	-	52	140.9		F	#		
pH	s.u.	03/21/2016	N001	42	-	52	7.13		F	#		
Potassium	mg/L	03/21/2016	N001	42	-	52	44		F	#	0.52	
Selenium	mg/L	03/21/2016	N001	42	-	52	2.3		F	#	0.00066	
Sodium	mg/L	03/21/2016	N001	42	-	52	4700		F	#	0.47	
Specific Conductance	umhos /cm	03/21/2016	N001	42	-	52	21806		F	#		
Strontium	mg/L	03/21/2016	N001	42	-	52	8.4		F	#	0.0026	
Sulfate	mg/L	03/21/2016	N001	42	-	52	15000		F	#	250	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				42	-	52		Lab	Data		
Temperature	C	03/21/2016	N001	42	-	52	16.57	F	#		
Turbidity	NTU	03/21/2016	N001	42	-	52	7.27	F	#		
Uranium	mg/L	03/21/2016	N001	42	-	52	0.093	F	#	0.000012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	11.9	-	21.9	247		F	#		
Ammonia Total as N	mg/L	03/22/2016	0001	11.9	-	21.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/22/2016	0001	11.9	-	21.9	340		F	#	0.024	
Chloride	mg/L	03/22/2016	0001	11.9	-	21.9	75		F	#	10	
Magnesium	mg/L	03/22/2016	0001	11.9	-	21.9	120		F	#	0.03	
Manganese	mg/L	03/22/2016	0001	11.9	-	21.9	0.64		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	0001	11.9	-	21.9	18		F	#	0.5	
Oxidation Reduction Potential	mV	03/22/2016	N001	11.9	-	21.9	138.3		F	#		
pH	s.u.	03/22/2016	N001	11.9	-	21.9	7.11		F	#		
Potassium	mg/L	03/22/2016	0001	11.9	-	21.9	8.3		F	#	0.052	
Selenium	mg/L	03/22/2016	0001	11.9	-	21.9	0.34		F	#	0.00066	
Sodium	mg/L	03/22/2016	0001	11.9	-	21.9	330		F	#	0.047	
Specific Conductance	umhos /cm	03/22/2016	N001	11.9	-	21.9	3336		F	#		
Strontium	mg/L	03/22/2016	0001	11.9	-	21.9	3.9		F	#	0.00026	
Sulfate	mg/L	03/22/2016	0001	11.9	-	21.9	1700		F	#	25	
Temperature	C	03/22/2016	N001	11.9	-	21.9	14.33		F	#		
Turbidity	NTU	03/22/2016	N001	11.9	-	21.9	144		F	#		
Uranium	mg/L	03/22/2016	0001	11.9	-	21.9	0.022		F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	28.91	-	38.91	643		F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	28.91	-	38.91	0.1	U	F	#	0.1	
Calcium	mg/L	03/23/2016	N001	28.91	-	38.91	480		F	#	0.12	
Chloride	mg/L	03/23/2016	N001	28.91	-	38.91	960		F	#	40	
Magnesium	mg/L	03/23/2016	N001	28.91	-	38.91	1500		F	#	0.15	
Manganese	mg/L	03/23/2016	N001	28.91	-	38.91	0.011	J	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	28.91	-	38.91	700		F	#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	28.91	-	38.91	171.4		F	#		
pH	s.u.	03/23/2016	N001	28.91	-	38.91	7.54		F	#		
Potassium	mg/L	03/23/2016	N001	28.91	-	38.91	48		F	#	0.26	
Selenium	mg/L	03/23/2016	N001	28.91	-	38.91	1.5		F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	28.91	-	38.91	2300		F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	28.91	-	38.91	18389		F	#		
Strontium	mg/L	03/23/2016	N001	28.91	-	38.91	12		F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	28.91	-	38.91	9700		F	#	100	
Temperature	C	03/23/2016	N001	28.91	-	38.91	14.65		F	#		
Turbidity	NTU	03/23/2016	N001	28.91	-	38.91	3.3		F	#		
Uranium	mg/L	03/23/2016	N001	28.91	-	38.91	0.16		F	#	0.000012	

---

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

REPORT DATE: 7/10/2016

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	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	45	-	142.58	1580		F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	45	-	142.58	12		F	#	2.5	
Calcium	mg/L	03/22/2016	N001	45	-	142.58	390		F	#	0.24	
Chloride	mg/L	03/22/2016	N001	45	-	142.58	1400		F	#	100	
Magnesium	mg/L	03/22/2016	N001	45	-	142.58	480		F	#	0.3	
Manganese	mg/L	03/22/2016	N001	45	-	142.58	2.5		F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	45	-	142.58	0.012		F	#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	45	-	142.58	-35.3		F	#		
pH	s.u.	03/22/2016	N001	45	-	142.58	6.89		F	#		
Potassium	mg/L	03/22/2016	N001	45	-	142.58	29		F	#	0.52	
Selenium	mg/L	03/22/2016	N001	45	-	142.58	0.056		F	#	0.00066	
Sodium	mg/L	03/22/2016	N001	45	-	142.58	7400		F	#	2.3	
Specific Conductance	umhos /cm	03/22/2016	N001	45	-	142.58	26413		F	#		
Strontium	mg/L	03/22/2016	N001	45	-	142.58	21		F	#	0.0026	
Sulfate	mg/L	03/22/2016	N001	45	-	142.58	18000		F	#	250	
Temperature	C	03/22/2016	N001	45	-	142.58	17.62		F	#		
Turbidity	NTU	03/22/2016	N001	45	-	142.58	5.21		F	#		
Uranium	mg/L	03/22/2016	N001	45	-	142.58	0.015		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1007 WELL Just E of disposal cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				36.8	-	46.3		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	36.8	-	46.3	1420	FQ	#		
Ammonia Total as N	mg/L	03/23/2016	N001	36.8	-	46.3	15	FQ	#	2.5	
Calcium	mg/L	03/23/2016	N001	36.8	-	46.3	490	FQ	#	0.24	
Chloride	mg/L	03/23/2016	N001	36.8	-	46.3	570	FQ	#	40	
Chlorine, Total Residual	mg/L	03/23/2016	N001	36.8	-	46.3	0	FQ	#		
Magnesium	mg/L	03/23/2016	N001	36.8	-	46.3	2100	FQ	#	0.3	
Manganese	mg/L	03/23/2016	N001	36.8	-	46.3	1.4	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	36.8	-	46.3	550	FQ	#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	36.8	-	46.3	155.5	FQ	#		
pH	s.u.	03/23/2016	N001	36.8	-	46.3	6.62	FQJ	#		
Potassium	mg/L	03/23/2016	N001	36.8	-	46.3	110	FQ	#	0.52	
Selenium	mg/L	03/23/2016	N001	36.8	-	46.3	0.021	FQ	#	0.00066	
Sodium	mg/L	03/23/2016	N001	36.8	-	46.3	2500	FQ	#	0.47	
Specific Conductance	umhos /cm	03/23/2016	N001	36.8	-	46.3	17914	FQ	#		
Strontium	mg/L	03/23/2016	N001	36.8	-	46.3	12	FQ	#	0.0026	
Sulfate	mg/L	03/23/2016	N001	36.8	-	46.3	13000	FQ	#	100	

---

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

REPORT DATE: 7/10/2016

Location: 1007 WELL Just E of disposal cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/23/2016	N001	36.8	-	46.3	15.5	FQ	#		
Turbidity	NTU	03/23/2016	N001	36.8	-	46.3	9.25	FQ	#		
Uranium	mg/L	03/23/2016	N001	36.8	-	46.3	2.3	FQ	#	0.00012	

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	4.3	-	9.3	566		F	#		
Ammonia Total as N	mg/L	03/24/2016	N001	4.3	-	9.3	0.1	U	F	#	0.1	
Calcium	mg/L	03/24/2016	N001	4.3	-	9.3	430		F	#	0.24	
Chloride	mg/L	03/24/2016	N001	4.3	-	9.3	1700		F	#	100	
Magnesium	mg/L	03/24/2016	N001	4.3	-	9.3	1300		F	#	0.3	
Manganese	mg/L	03/24/2016	N001	4.3	-	9.3	0.0024	U	F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	4.3	-	9.3	460		F	#	10	
Oxidation Reduction Potential	mV	03/24/2016	N001	4.3	-	9.3	129		F	#		
pH	s.u.	03/24/2016	N001	4.3	-	9.3	7.46		F	#		
Potassium	mg/L	03/24/2016	N001	4.3	-	9.3	32		F	#	0.52	
Selenium	mg/L	03/24/2016	N001	4.3	-	9.3	1.1		F	#	0.00066	
Sodium	mg/L	03/24/2016	N001	4.3	-	9.3	6800		F	#	2.3	
Specific Conductance	umhos /cm	03/24/2016	N001	4.3	-	9.3	27626		F	#		
Strontium	mg/L	03/24/2016	N001	4.3	-	9.3	9.4		F	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	4.3	-	9.3	20000		F	#	250	
Temperature	C	03/24/2016	N001	4.3	-	9.3	13.78		F	#		
Turbidity	NTU	03/24/2016	N001	4.3	-	9.3	5.74		F	#		
Uranium	mg/L	03/24/2016	N001	4.3	-	9.3	0.14		F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1057 WELL SE part of radon cover borrow pit

Parameter	Units	Sample Date	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	03/23/2016	N001	36.66	-	41.66	226	F	#		
Ammonia Total as N	mg/L	03/23/2016	N001	36.66	-	41.66	180	F	#	10	
Calcium	mg/L	03/23/2016	N001	36.66	-	41.66	690	F	#	0.12	
Chloride	mg/L	03/23/2016	N001	36.66	-	41.66	280	F	#	20	
Magnesium	mg/L	03/23/2016	N001	36.66	-	41.66	1200	F	#	0.15	
Manganese	mg/L	03/23/2016	N001	36.66	-	41.66	12	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	36.66	-	41.66	1500	F	#	50	
Oxidation Reduction Potential	mV	03/23/2016	N001	36.66	-	41.66	262.9	F	#		
pH	s.u.	03/23/2016	N001	36.66	-	41.66	6.22	FJ	#		
Potassium	mg/L	03/23/2016	N001	36.66	-	41.66	140	F	#	0.26	
Selenium	mg/L	03/23/2016	N001	36.66	-	41.66	0.022	F	#	0.00066	
Sodium	mg/L	03/23/2016	N001	36.66	-	41.66	1200	F	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	36.66	-	41.66	14578	F	#		
Strontium	mg/L	03/23/2016	N001	36.66	-	41.66	9	F	#	0.0013	
Sulfate	mg/L	03/23/2016	N001	36.66	-	41.66	5400	F	#	50	
Temperature	C	03/23/2016	N001	36.66	-	41.66	12.18	F	#		
Turbidity	NTU	03/23/2016	N001	36.66	-	41.66	6.1	F	#		
Uranium	mg/L	03/23/2016	N001	36.66	-	41.66	0.029	F	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1058 WELL Just S of NECA gravel pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				41.7	-	51.2		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	41.7	-	51.2	514	FQ	#		
Ammonia Total as N	mg/L	03/23/2016	N001	41.7	-	51.2	4	FQ	#	0.1	
Calcium	mg/L	03/23/2016	N001	41.7	-	51.2	250	FQ	#	0.24	
Chloride	mg/L	03/23/2016	N001	41.7	-	51.2	1500	FQ	#	20	
Chlorine, Total Residual	mg/L	03/23/2016	N001	41.7	-	51.2	0.01	FQ	#		
Magnesium	mg/L	03/23/2016	N001	41.7	-	51.2	140	FQ	#	0.3	
Manganese	mg/L	03/23/2016	N001	41.7	-	51.2	0.17	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	41.7	-	51.2	0.097	FQ	#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	41.7	-	51.2	-88.9	FQ	#		
pH	s.u.	03/23/2016	N001	41.7	-	51.2	7.22	FQJ	#		
Potassium	mg/L	03/23/2016	N001	41.7	-	51.2	15	FQ	#	0.52	
Selenium	mg/L	03/23/2016	N001	41.7	-	51.2	0.00066	U	FQ	#	0.00066
Sodium	mg/L	03/23/2016	N001	41.7	-	51.2	3000	FQ	#	0.47	
Specific Conductance	umhos /cm	03/23/2016	N001	41.7	-	51.2	12882	FQ	#		
Strontium	mg/L	03/23/2016	N001	41.7	-	51.2	11	FQ	#	0.0026	
Sulfate	mg/L	03/23/2016	N001	41.7	-	51.2	5900	FQ	#	50	

---

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

REPORT DATE: 7/10/2016

Location: 1058 WELL Just S of NECA gravel pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab	Data		
Temperature	C	03/23/2016	N001	41.7	-	51.2	14.61	FQ	#		
Turbidity	NTU	03/23/2016	N001	41.7	-	51.2	8.22	FQ	#		
Uranium	mg/L	03/23/2016	N001	41.7	-	51.2	0.0056	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1059 WELL Mesa Verde cactus preserve

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				39.5	-	49		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	39.5	-	49	578	FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	39.5	-	49	1.6	FQ	#	0.1	
Calcium	mg/L	03/24/2016	N001	39.5	-	49	310	FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	39.5	-	49	840	FQ	#	40	
Magnesium	mg/L	03/24/2016	N001	39.5	-	49	330	FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	39.5	-	49	0.076	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	39.5	-	49	330	FQ	#	10	
Oxidation Reduction Potential	mV	03/24/2016	N001	39.5	-	49	107	FQ	#		
pH	s.u.	03/24/2016	N001	39.5	-	49	7.18	FQ	#		
Potassium	mg/L	03/24/2016	N001	39.5	-	49	21	FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	39.5	-	49	0.0026	FQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	39.5	-	49	3900	FQ	#	0.47	
Specific Conductance	umhos /cm	03/24/2016	N001	39.5	-	49	17467	FQ	#		
Strontium	mg/L	03/24/2016	N001	39.5	-	49	16	FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	39.5	-	49	9500	FQ	#	100	
Temperature	C	03/24/2016	N001	39.5	-	49	16.3	FQ	#		
Turbidity	NTU	03/24/2016	N001	39.5	-	49	3.53	FQ	#		
Uranium	mg/L	03/24/2016	N001	39.5	-	49	0.06	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1068 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	0001	6.95	-	8.95	444		FQ	#		
Ammonia Total as N	mg/L	03/23/2016	0001	6.95	-	8.95	7.7		FQ	#	2.5	
Calcium	mg/L	03/23/2016	0001	6.95	-	8.95	360		FQ	#	0.12	
Chloride	mg/L	03/23/2016	0001	6.95	-	8.95	210		FQ	#	20	
Magnesium	mg/L	03/23/2016	0001	6.95	-	8.95	620		FQ	#	0.15	
Manganese	mg/L	03/23/2016	0001	6.95	-	8.95	0.9		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	6.95	-	8.95	180		FQ	#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	6.95	-	8.95	206.3		FQ	#		
pH	s.u.	03/23/2016	N001	6.95	-	8.95	6.99		FQJ	#		
Potassium	mg/L	03/23/2016	0001	6.95	-	8.95	31		FQ	#	0.26	
Selenium	mg/L	03/23/2016	0001	6.95	-	8.95	0.049		FQ	#	0.00066	
Sodium	mg/L	03/23/2016	0001	6.95	-	8.95	820		FQ	#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	6.95	-	8.95	7233		FQ	#		
Strontium	mg/L	03/23/2016	0001	6.95	-	8.95	6		FQ	#	0.0013	
Sulfate	mg/L	03/23/2016	0001	6.95	-	8.95	4300		FQ	#	50	
Temperature	C	03/23/2016	N001	6.95	-	8.95	11.24		FQ	#		
Turbidity	NTU	03/23/2016	N001	6.95	-	8.95	183		FQ	#		
Uranium	mg/L	03/23/2016	0001	6.95	-	8.95	0.68		FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1070 WELL

Parameter	Units	Sample Date	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	03/23/2016	N001	52.5	-	62	706		#		
Ammonia Total as N	mg/L	03/23/2016	N001	52.5	-	62	3.3		#	0.1	
Calcium	mg/L	03/23/2016	N001	52.5	-	62	450		#	0.24	
Chloride	mg/L	03/23/2016	N001	52.5	-	62	1200		#	100	
Magnesium	mg/L	03/23/2016	N001	52.5	-	62	1000		#	0.3	
Manganese	mg/L	03/23/2016	N001	52.5	-	62	0.2		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	52.5	-	62	560		#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	52.5	-	62	224.6		#		
pH	s.u.	03/23/2016	N001	52.5	-	62	7.37	J	#		
Potassium	mg/L	03/23/2016	N001	52.5	-	62	52		#	0.52	
Selenium	mg/L	03/23/2016	N001	52.5	-	62	2.8		#	0.00066	
Sodium	mg/L	03/23/2016	N001	52.5	-	62	6400		#	2.3	
Specific Conductance	umhos /cm	03/23/2016	N001	52.5	-	62	23603		#		
Strontium	mg/L	03/23/2016	N001	52.5	-	62	9.4		#	0.0026	
Sulfate	mg/L	03/23/2016	N001	52.5	-	62	17000		#	250	
Temperature	C	03/23/2016	N001	52.5	-	62	15.56		#		
Turbidity	NTU	03/23/2016	N001	52.5	-	62	8.22		#		
Uranium	mg/L	03/23/2016	N001	52.5	-	62	0.081		#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1071 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				36.5	-	46		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	36.5	-	46	586		#		
Ammonia Total as N	mg/L	03/22/2016	N001	36.5	-	46	110		#	2.5	
Calcium	mg/L	03/22/2016	N001	36.5	-	46	440		#	0.24	
Chloride	mg/L	03/22/2016	N001	36.5	-	46	1100		#	100	
Magnesium	mg/L	03/22/2016	N001	36.5	-	46	1300		#	0.3	
Manganese	mg/L	03/22/2016	N001	36.5	-	46	0.95		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	36.5	-	46	580		#	10	
Oxidation Reduction Potential	mV	03/22/2016	N001	36.5	-	46	217.7		#		
pH	s.u.	03/22/2016	N001	36.5	-	46	7		#		
Potassium	mg/L	03/22/2016	N001	36.5	-	46	62		#	0.52	
Selenium	mg/L	03/22/2016	N001	36.5	-	46	3		#	0.00066	
Sodium	mg/L	03/22/2016	N001	36.5	-	46	4400		#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	36.5	-	46	22546		#		
Strontium	mg/L	03/22/2016	N001	36.5	-	46	11		#	0.0026	
Sulfate	mg/L	03/22/2016	N001	36.5	-	46	16000		#	250	
Temperature	C	03/22/2016	N001	36.5	-	46	15.25		#		
Turbidity	NTU	03/22/2016	N001	36.5	-	46	6.53		#		
Uranium	mg/L	03/22/2016	N001	36.5	-	46	0.14		#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1073 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/21/2016	N001	40.5	-	50	122		FQ	#		
Ammonia Total as N	mg/L	03/21/2016	N001	40.5	-	50	28		FQ	#	1	
Calcium	mg/L	03/21/2016	N001	40.5	-	50	530		FQ	#	0.24	
Chloride	mg/L	03/21/2016	N001	40.5	-	50	1200		FQ	#	40	
Chlorine, Total Residual	mg/L	03/21/2016	N001	40.5	-	50	0		FQ	#		
Magnesium	mg/L	03/21/2016	N001	40.5	-	50	1800		FQ	#	0.3	
Manganese	mg/L	03/21/2016	N001	40.5	-	50	0.61		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N001	40.5	-	50	940		FQ	#	10	
Oxidation Reduction Potential	mV	03/21/2016	N001	40.5	-	50	227.5		FQ	#		
pH	s.u.	03/21/2016	N001	40.5	-	50	5.41		FQJ	#		
Potassium	mg/L	03/21/2016	N001	40.5	-	50	110		FQ	#	0.52	
Selenium	mg/L	03/21/2016	N001	40.5	-	50	2.6		FQ	#	0.00066	
Sodium	mg/L	03/21/2016	N001	40.5	-	50	3200		FQ	#	0.47	
Specific Conductance	umhos /cm	03/21/2016	N001	40.5	-	50	19824		FQ	#		
Strontium	mg/L	03/21/2016	N001	40.5	-	50	10		FQ	#	0.0026	
Sulfate	mg/L	03/21/2016	N001	40.5	-	50	13000		FQ	#	100	

---

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

REPORT DATE: 7/10/2016

Location: 1073 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Step		Lab	Data		
Temperature	C	03/21/2016	N001	40.5	-	50	15.91	FQ	#		
Turbidity	NTU	03/21/2016	N001	40.5	-	50	6.19	FQ	#		
Uranium	mg/L	03/21/2016	N001	40.5	-	50	0.06	FQ	#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1074 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				27	-	36.5		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	27	-	36.5	1260	FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	27	-	36.5	6.6	FQ	#	1	
Calcium	mg/L	03/24/2016	N001	27	-	36.5	580	FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	27	-	36.5	1200	FQ	#	40	
Magnesium	mg/L	03/24/2016	N001	27	-	36.5	2000	FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	27	-	36.5	1.6	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	27	-	36.5	1000	FQ	#	10	
Oxidation Reduction Potential	mV	03/24/2016	N001	27	-	36.5	102.8	FQ	#		
pH	s.u.	03/24/2016	N001	27	-	36.5	6.69	FQJ	#		
Potassium	mg/L	03/24/2016	N001	27	-	36.5	38	FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	27	-	36.5	0.4	FQ	#	0.0066	
Sodium	mg/L	03/24/2016	N001	27	-	36.5	2300	FQ	#	0.47	
Specific Conductance	umhos /cm	03/24/2016	N001	27	-	36.5	18400	FQ	#		
Strontium	mg/L	03/24/2016	N001	27	-	36.5	12	FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	27	-	36.5	8800	FQ	#	100	
Temperature	C	03/24/2016	N001	27	-	36.5	16.36	FQ	#		
Turbidity	NTU	03/24/2016	N001	27	-	36.5	5.93	FQ	#		
Uranium	mg/L	03/24/2016	N001	27	-	36.5	1.9	FQ	#	0.00012	

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

REPORT DATE: 7/10/2016

Location: 1078 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				35.5	-	45		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	35.5	-	45	490		#		
Ammonia Total as N	mg/L	03/22/2016	N001	35.5	-	45	1.2		#	0.1	
Ammonia Total as N	mg/L	03/22/2016	N002	35.5	-	45	1.3		#	0.1	
Calcium	mg/L	03/22/2016	N001	35.5	-	45	430		#	0.24	
Calcium	mg/L	03/22/2016	N002	35.5	-	45	440		#	0.24	
Chloride	mg/L	03/22/2016	N001	35.5	-	45	1100		#	100	
Chloride	mg/L	03/22/2016	N002	35.5	-	45	1100		#	100	
Chlorine, Total Residual	mg/L	03/22/2016	N001	35.5	-	45	0		#		
Magnesium	mg/L	03/22/2016	N001	35.5	-	45	970		#	0.3	
Magnesium	mg/L	03/22/2016	N002	35.5	-	45	1000		#	0.3	
Manganese	mg/L	03/22/2016	N001	35.5	-	45	0.056		#	0.0024	
Manganese	mg/L	03/22/2016	N002	35.5	-	45	0.065		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	35.5	-	45	440		#	10	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N002	35.5	-	45	420		#	10	
Oxidation Reduction Potential	mV	03/22/2016	N001	35.5	-	45	146		#		
pH	s.u.	03/22/2016	N001	35.5	-	45	7.16		#		
Potassium	mg/L	03/22/2016	N001	35.5	-	45	46		#	0.52	
Potassium	mg/L	03/22/2016	N002	35.5	-	45	46		#	0.52	

---

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

REPORT DATE: 7/10/2016

Location: 1078 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/22/2016	N001	35.5	-	45	3.1		J	#	0.00066	
Selenium	mg/L	03/22/2016	N002	35.5	-	45	2.4		J	#	0.00066	
Sodium	mg/L	03/22/2016	N001	35.5	-	45	4800			#	0.47	
Sodium	mg/L	03/22/2016	N002	35.5	-	45	4700			#	0.47	
Specific Conductance	umhos /cm	03/22/2016	N001	35.5	-	45	21070			#		
Strontium	mg/L	03/22/2016	N001	35.5	-	45	9			#	0.0026	
Strontium	mg/L	03/22/2016	N002	35.5	-	45	9.3			#	0.0026	
Sulfate	mg/L	03/22/2016	N001	35.5	-	45	15000			#	250	
Sulfate	mg/L	03/22/2016	N002	35.5	-	45	15000			#	250	
Temperature	C	03/22/2016	N001	35.5	-	45	16.8			#		
Turbidity	NTU	03/22/2016	N001	35.5	-	45	5.02			#		
Uranium	mg/L	03/22/2016	N001	35.5	-	45	0.11			#	0.000012	
Uranium	mg/L	03/22/2016	N002	35.5	-	45	0.11			#	0.000012	

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

REPORT DATE: 7/10/2016

Location: 1079 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				10.5	-	20		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	10.5	-	20	330	F	#		
Ammonia Total as N	mg/L	03/22/2016	N001	10.5	-	20	0.1	U	F	#	0.1
Calcium	mg/L	03/22/2016	N001	10.5	-	20	600	F	#		0.12
Chloride	mg/L	03/22/2016	N001	10.5	-	20	310	F	#		20
Magnesium	mg/L	03/22/2016	N001	10.5	-	20	380	F	#		0.15
Manganese	mg/L	03/22/2016	N001	10.5	-	20	0.012	J	F	#	0.0012
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	10.5	-	20	110	F	#		1
Oxidation Reduction Potential	mV	03/22/2016	N001	10.5	-	20	143.2	F	#		
pH	s.u.	03/22/2016	N001	10.5	-	20	6.84	F	#		
Potassium	mg/L	03/22/2016	N001	10.5	-	20	11	F	#		0.26
Selenium	mg/L	03/22/2016	N001	10.5	-	20	0.36	F	#		0.00066
Sodium	mg/L	03/22/2016	N001	10.5	-	20	860	F	#		0.23
Specific Conductance	umhos /cm	03/22/2016	N001	10.5	-	20	7068	F	#		
Strontium	mg/L	03/22/2016	N001	10.5	-	20	7.5	F	#		0.0013
Sulfate	mg/L	03/22/2016	N001	10.5	-	20	4000	F	#		50
Temperature	C	03/22/2016	N001	10.5	-	20	14.81	F	#		
Turbidity	NTU	03/22/2016	N001	10.5	-	20	5.37	F	#		
Uranium	mg/L	03/22/2016	N001	10.5	-	20	0.048	F	#		0.000012

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	0	-	0	412		#			
Ammonia Total as N	mg/L	03/22/2016	N001	0	-	0	81		#	2.5		
Calcium	mg/L	03/22/2016	N001	0	-	0	420		#	0.12		
Chloride	mg/L	03/22/2016	N001	0	-	0	230		#	20		
Magnesium	mg/L	03/22/2016	N001	0	-	0	770		#	0.15		
Manganese	mg/L	03/22/2016	N001	0	-	0	0.78		#	0.0012		
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	0	-	0	270		#	10		
Oxidation Reduction Potential	mV	03/22/2016	N001	0	-	0	197.8		#			
pH	s.u.	03/22/2016	N001	0	-	0	6.94		#			
Potassium	mg/L	03/22/2016	N001	0	-	0	71		#	0.26		
Selenium	mg/L	03/22/2016	N001	0	-	0	0.044		#	0.00066		
Sodium	mg/L	03/22/2016	N001	0	-	0	880		#	0.23		
Specific Conductance	umhos /cm	03/22/2016	N001	0	-	0	8616		#			
Strontium	mg/L	03/22/2016	N001	0	-	0	6.9		#	0.0013		
Sulfate	mg/L	03/22/2016	N001	0	-	0	5500		#	50		
Temperature	C	03/22/2016	N001	0	-	0	12.47		#			
Turbidity	NTU	03/22/2016	N001	0	-	0	3.86		#			
Uranium	mg/L	03/22/2016	N001	0	-	0	0.4		#	0.000012		

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

REPORT DATE: 7/10/2016

Location: 1091 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	03/23/2016	N001	33	-	43	906		#		
Ammonia Total as N	mg/L	03/23/2016	N001	33	-	43	0.1	U	#	0.1	
Calcium	mg/L	03/23/2016	N001	33	-	43	470		#	0.24	
Chloride	mg/L	03/23/2016	N001	33	-	43	1500		#	100	
Magnesium	mg/L	03/23/2016	N001	33	-	43	2200		#	0.3	
Manganese	mg/L	03/23/2016	N001	33	-	43	1.2		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	33	-	43	710		#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	33	-	43	276.2		#		
pH	s.u.	03/23/2016	N001	33	-	43	7.4	J	#		
Potassium	mg/L	03/23/2016	N001	33	-	43	58		#	0.52	
Selenium	mg/L	03/23/2016	N001	33	-	43	0.7		#	0.00066	
Sodium	mg/L	03/23/2016	N001	33	-	43	3700		#	0.47	
Specific Conductance	umhos /cm	03/23/2016	N001	33	-	43	22450		#		
Strontium	mg/L	03/23/2016	N001	33	-	43	13		#	0.0026	
Sulfate	mg/L	03/23/2016	N001	33	-	43	17000		#	250	
Temperature	C	03/23/2016	N001	33	-	43	11.42		#		
Turbidity	NTU	03/23/2016	N001	33	-	43	3.56		#		
Uranium	mg/L	03/23/2016	N001	33	-	43	0.1		#	0.000012	

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

REPORT DATE: 7/10/2016

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	03/23/2016	0001	33	-	43	834		#		
Ammonia Total as N	mg/L	03/23/2016	0001	33	-	43	20		#	1	
Calcium	mg/L	03/23/2016	0001	33	-	43	450		#	0.24	
Chloride	mg/L	03/23/2016	0001	33	-	43	1600		#	100	
Magnesium	mg/L	03/23/2016	0001	33	-	43	1800		#	0.3	
Manganese	mg/L	03/23/2016	0001	33	-	43	3.3		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	33	-	43	500		#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	33	-	43	281.2		#		
pH	s.u.	03/23/2016	N001	33	-	43	6.99	J	#		
Potassium	mg/L	03/23/2016	0001	33	-	43	61		#	0.52	
Selenium	mg/L	03/23/2016	0001	33	-	43	0.66		#	0.00066	
Sodium	mg/L	03/23/2016	0001	33	-	43	4200		#	0.47	
Specific Conductance	umhos /cm	03/23/2016	N001	33	-	43	22588		#		
Strontium	mg/L	03/23/2016	0001	33	-	43	12		#	0.0026	
Sulfate	mg/L	03/23/2016	0001	33	-	43	18000		#	250	
Temperature	C	03/23/2016	N001	33	-	43	10.36		#		
Turbidity	NTU	03/23/2016	N001	33	-	43	34		#		
Uranium	mg/L	03/23/2016	0001	33	-	43	0.095		#	0.000012	

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

REPORT DATE: 7/10/2016

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	03/23/2016	N001	34	-	38	508		#		
Ammonia Total as N	mg/L	03/23/2016	N001	34	-	38	380		#	30	
Ammonia Total as N	mg/L	03/23/2016	N002	34	-	38	400		#	30	
Calcium	mg/L	03/23/2016	N001	34	-	38	770		#	0.24	
Calcium	mg/L	03/23/2016	N002	34	-	38	770		#	0.12	
Chloride	mg/L	03/23/2016	N001	34	-	38	710		#	40	
Chloride	mg/L	03/23/2016	N002	34	-	38	720		#	40	
Chlorine, Total Residual	mg/L	03/23/2016	N001	34	-	38	0		#		
Magnesium	mg/L	03/23/2016	N001	34	-	38	1700		#	0.3	
Magnesium	mg/L	03/23/2016	N002	34	-	38	1700		#	0.15	
Manganese	mg/L	03/23/2016	N001	34	-	38	23		#	0.0024	
Manganese	mg/L	03/23/2016	N002	34	-	38	24		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	34	-	38	1900		#	50	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	34	-	38	1800		#	50	
Oxidation Reduction Potential	mV	03/23/2016	N001	34	-	38	266.4		#		
pH	s.u.	03/23/2016	N001	34	-	38	6.96	J	#		
Potassium	mg/L	03/23/2016	N001	34	-	38	150		#	0.52	
Potassium	mg/L	03/23/2016	N002	34	-	38	150		#	0.26	

---

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

REPORT DATE: 7/10/2016

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		
Selenium	mg/L	03/23/2016	N001	34	-	38	0.51		#	0.00066	
Selenium	mg/L	03/23/2016	N002	34	-	38	0.53		#	0.00066	
Sodium	mg/L	03/23/2016	N001	34	-	38	1900		#	0.47	
Sodium	mg/L	03/23/2016	N002	34	-	38	1800		#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	34	-	38	21006		#		
Strontium	mg/L	03/23/2016	N001	34	-	38	9.4		#	0.0026	
Strontium	mg/L	03/23/2016	N002	34	-	38	9.9		#	0.0013	
Sulfate	mg/L	03/23/2016	N001	34	-	38	7900		#	100	
Sulfate	mg/L	03/23/2016	N002	34	-	38	8000		#	100	
Temperature	C	03/23/2016	N001	34	-	38	9.31		#		
Turbidity	NTU	03/23/2016	N001	34	-	38	6.4		#		
Uranium	mg/L	03/23/2016	N001	34	-	38	0.11		#	0.000012	
Uranium	mg/L	03/23/2016	N002	34	-	38	0.11		#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1095 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				39	-	49		Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	39	-	49	320		#		
Ammonia Total as N	mg/L	03/23/2016	N001	39	-	49	380		#	30	
Calcium	mg/L	03/23/2016	N001	39	-	49	840		#	0.12	
Chloride	mg/L	03/23/2016	N001	39	-	49	330		#	20	
Chlorine, Total Residual	mg/L	03/23/2016	N001	39	-	49	0		#		
Magnesium	mg/L	03/23/2016	N001	39	-	49	1400		#	0.15	
Manganese	mg/L	03/23/2016	N001	39	-	49	32	J	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	39	-	49	1700		#	50	
Oxidation Reduction Potential	mV	03/23/2016	N001	39	-	49	263.9		#		
pH	s.u.	03/23/2016	N001	39	-	49	6.81	J	#		
Potassium	mg/L	03/23/2016	N001	39	-	49	130		#	0.26	
Selenium	mg/L	03/23/2016	N001	39	-	49	0.09		#	0.00066	
Sodium	mg/L	03/23/2016	N001	39	-	49	1200		#	0.23	
Specific Conductance	umhos /cm	03/23/2016	N001	39	-	49	17005		#		
Strontium	mg/L	03/23/2016	N001	39	-	49	8.9		#	0.0013	
Sulfate	mg/L	03/23/2016	N001	39	-	49	6000		#	50	

---

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

REPORT DATE: 7/10/2016

Location: 1095 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	Detection Limit	Uncertainty
				Min	Max	Interv		Lab Data	QA	
Temperature	C	03/23/2016	N001	39	-	49	12.93	#		
Turbidity	NTU	03/23/2016	N001	39	-	49	2.5	#		
Uranium	mg/L	03/23/2016	N001	39	-	49	0.053	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1096 WELL

Parameter	Units	Sample Date	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	03/23/2016	N001	57.5	-	66.5	730		#		
Ammonia Total as N	mg/L	03/23/2016	N001	57.5	-	66.5	4.3		#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	57.5	-	66.5	4.4		#	0.1	
Calcium	mg/L	03/23/2016	N001	57.5	-	66.5	420		#	0.24	
Calcium	mg/L	03/23/2016	N002	57.5	-	66.5	440		#	0.24	
Chloride	mg/L	03/23/2016	N001	57.5	-	66.5	1100		#	100	
Chloride	mg/L	03/23/2016	N002	57.5	-	66.5	1100		#	100	
Chlorine, Total Residual	mg/L	03/23/2016	N001	57.5	-	66.5	0.09		#		
Magnesium	mg/L	03/23/2016	N001	57.5	-	66.5	970		#	0.3	
Magnesium	mg/L	03/23/2016	N002	57.5	-	66.5	1000		#	0.3	
Manganese	mg/L	03/23/2016	N001	57.5	-	66.5	0.12		#	0.0024	
Manganese	mg/L	03/23/2016	N002	57.5	-	66.5	0.12		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	57.5	-	66.5	540		#	10	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	57.5	-	66.5	540		#	10	
Oxidation Reduction Potential	mV	03/23/2016	N001	57.5	-	66.5	236.3		#		
pH	s.u.	03/23/2016	N001	57.5	-	66.5	6.99	J	#		
Potassium	mg/L	03/23/2016	N001	57.5	-	66.5	51		#	0.52	
Potassium	mg/L	03/23/2016	N002	57.5	-	66.5	51		#	0.52	

---

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

REPORT DATE: 7/10/2016

Location: 1096 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers	QA	Detection Limit	Uncertainty
				Min	Max	Interv		Lab Data			
Selenium	mg/L	03/23/2016	N001	57.5	-	66.5	2.1		#	0.00066	
Selenium	mg/L	03/23/2016	N002	57.5	-	66.5	2.3		#	0.00066	
Sodium	mg/L	03/23/2016	N001	57.5	-	66.5	5900		#	2.3	
Sodium	mg/L	03/23/2016	N002	57.5	-	66.5	6200		#	2.3	
Specific Conductance	umhos /cm	03/23/2016	N001	57.5	-	66.5	21843		#		
Strontium	mg/L	03/23/2016	N001	57.5	-	66.5	8.7		#	0.0026	
Strontium	mg/L	03/23/2016	N002	57.5	-	66.5	9.2		#	0.0026	
Sulfate	mg/L	03/23/2016	N001	57.5	-	66.5	17000		#	250	
Sulfate	mg/L	03/23/2016	N002	57.5	-	66.5	17000		#	250	
Temperature	C	03/23/2016	N001	57.5	-	66.5	13.72		#		
Turbidity	NTU	03/23/2016	N001	57.5	-	66.5	2.4		#		
Uranium	mg/L	03/23/2016	N001	57.5	-	66.5	0.081		#	0.000012	
Uranium	mg/L	03/23/2016	N002	57.5	-	66.5	0.086		#	0.000012	

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

REPORT DATE: 7/10/2016

Location: MW1 WELL Just N of disposal cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	-	1428	FQ	#		
Ammonia Total as N	mg/L	03/24/2016	N001	-	0.63	FQ	#	0.1	
Calcium	mg/L	03/24/2016	N001	-	140	FQ	#	0.24	
Chloride	mg/L	03/24/2016	N001	-	6100	FQ	#	100	
Magnesium	mg/L	03/24/2016	N001	-	58	FQ	#	0.3	
Manganese	mg/L	03/24/2016	N001	-	0.19	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	-	1.3	FQ	#	0.05	
Oxidation Reduction Potential	mV	03/24/2016	N001	-	111.8	FQ	#		
pH	s.u.	03/24/2016	N001	-	6.85	FQJ	#		
Potassium	mg/L	03/24/2016	N001	-	18	FQ	#	0.52	
Selenium	mg/L	03/24/2016	N001	-	0.001	FQ	#	0.00066	
Sodium	mg/L	03/24/2016	N001	-	4600	FQ	#	0.47	
Specific Conductance	umhos /cm	03/24/2016	N001	-	19965	FQ	#		
Strontium	mg/L	03/24/2016	N001	-	12	FQ	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	-	4300	FQ	#	50	
Temperature	C	03/24/2016	N001	-	16.12	FQ	#		
Turbidity	NTU	03/24/2016	N001	-	4.66	FQ	#		
Uranium	mg/L	03/24/2016	N001	-	0.015	FQ	#	0.000012	

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**

### **Floodplain Locations**

This page intentionally left blank

---

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

REPORT DATE: 7/10/2016

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	03/21/2016	0001	111		#		
Ammonia Total as N	mg/L	03/21/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/21/2016	N002	0.1	U	#	0.1	
Calcium	mg/L	03/21/2016	0001	68		#	0.024	
Calcium	mg/L	03/21/2016	N002	70		#	0.024	
Chloride	mg/L	03/21/2016	0001	15		#	0.4	
Chloride	mg/L	03/21/2016	N002	15		#	0.4	
Magnesium	mg/L	03/21/2016	0001	11		#	0.03	
Magnesium	mg/L	03/21/2016	N002	12		#	0.03	
Manganese	mg/L	03/21/2016	0001	0.003	J	#	0.00024	
Manganese	mg/L	03/21/2016	N002	0.098		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	0001	0.45		#	0.05	
Nitrate + Nitrite as Nitrogen	mg/L	03/21/2016	N002	0.43		#	0.05	
Oxidation Reduction Potential	mV	03/21/2016	N001	132.8		#		
pH	s.u.	03/21/2016	N001	8.31		#		
Potassium	mg/L	03/21/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/21/2016	N002	3		#	0.052	
Selenium	mg/L	03/21/2016	0001	0.0012		#	0.00066	

---

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

REPORT DATE: 7/10/2016

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		
Selenium	mg/L	03/21/2016	N002	0.0009	J	#	0.00066	
Sodium	mg/L	03/21/2016	0001	34		#	0.047	
Sodium	mg/L	03/21/2016	N002	36		#	0.047	
Specific Conductance	umhos/cm	03/21/2016	N001	502		#		
Strontium	mg/L	03/21/2016	0001	0.83		#	0.00026	
Strontium	mg/L	03/21/2016	N002	0.84		#	0.00026	
Sulfate	mg/L	03/21/2016	0001	150		#	1	
Sulfate	mg/L	03/21/2016	N002	150		#	1	
Temperature	C	03/21/2016	N001	13.86		#		
Turbidity	NTU	03/21/2016	N001	34.2		#		
Uranium	mg/L	03/21/2016	0001	0.0015		#	0.000012	
Uranium	mg/L	03/21/2016	N002	0.0018		#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0655 SURFACE LOCATION Ditch in NW end of floodplain

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
				Lab	Data			
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	325		#		
Ammonia Total as N	mg/L	03/22/2016	N001	0.1	U	#	0.1	
Calcium	mg/L	03/22/2016	N001	320		#	0.12	
Chloride	mg/L	03/22/2016	N001	110		#	20	
Magnesium	mg/L	03/22/2016	N001	110		#	0.15	
Manganese	mg/L	03/22/2016	N001	0.21		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	2.1		#	0.05	
Oxidation Reduction Potential	mV	03/22/2016	N001	136.2		#		
pH	s.u.	03/22/2016	N001	7.81		#		
Potassium	mg/L	03/22/2016	N001	11		#	0.26	
Selenium	mg/L	03/22/2016	N001	0.013		#	0.00066	
Sodium	mg/L	03/22/2016	N001	1200		#	0.23	
Specific Conductance	umhos/cm	03/22/2016	N001	5974		#		
Strontium	mg/L	03/22/2016	N001	12		#	0.0013	
Sulfate	mg/L	03/22/2016	N001	3600		#	50	
Temperature	C	03/22/2016	N001	8.18		#		
Turbidity	NTU	03/22/2016	N001	7.38		#		
Uranium	mg/L	03/22/2016	N001	0.042		#	0.000012	

---

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

REPORT DATE: 7/10/2016

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	03/24/2016	0001	96		#		
Ammonia Total as N	mg/L	03/24/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/24/2016	N002	0.1	U	#	0.1	
Calcium	mg/L	03/24/2016	0001	64		#	0.024	
Calcium	mg/L	03/24/2016	N002	67		#	0.024	
Chloride	mg/L	03/24/2016	0001	15		#	0.4	
Chloride	mg/L	03/24/2016	N002	15		#	0.4	
Magnesium	mg/L	03/24/2016	0001	11		#	0.03	
Magnesium	mg/L	03/24/2016	N002	12		#	0.03	
Manganese	mg/L	03/24/2016	0001	0.0028	J	#	0.00024	
Manganese	mg/L	03/24/2016	N002	0.13		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	0001	0.44		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N002	0.44		#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	165.1		#		
pH	s.u.	03/24/2016	N001	8.25		#		
Potassium	mg/L	03/24/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/24/2016	N002	2.9		#	0.052	
Selenium	mg/L	03/24/2016	0001	0.002		#	0.00066	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Result	Qualifiers	Detection Limit	Uncertainty
					Lab Data	QA	
Selenium	mg/L	03/24/2016	N002	0.0014	#	0.00066	
Sodium	mg/L	03/24/2016	0001	33	#	0.047	
Sodium	mg/L	03/24/2016	N002	34	#	0.047	
Specific Conductance	umhos/cm	03/24/2016	N001	764	#		
Strontium	mg/L	03/24/2016	0001	0.74	#	0.00026	
Strontium	mg/L	03/24/2016	N002	0.78	#	0.00026	
Sulfate	mg/L	03/24/2016	0001	140	#	1	
Sulfate	mg/L	03/24/2016	N002	140	#	1	
Temperature	C	03/24/2016	N001	11.11	#		
Turbidity	NTU	03/24/2016	N001	38.6	#		
Uranium	mg/L	03/24/2016	0001	0.0024	#	0.000012	
Uranium	mg/L	03/24/2016	N002	0.0017	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	0001	109		#		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	0002	108		#		
Ammonia Total as N	mg/L	03/23/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	0.1	U	#	0.1	
Arsenic	mg/L	03/24/2016	0002	0.0019		#	0.00012	
Arsenic	mg/L	03/24/2016	0003	0.00063	J	#	0.00012	
Cadmium	mg/L	03/24/2016	0002	0.00009	J	#	0.000055	
Cadmium	mg/L	03/24/2016	0003	0.00007	J	#	0.000055	
Calcium	mg/L	03/23/2016	0001	64		#	0.024	
Calcium	mg/L	03/23/2016	N002	74		#	0.024	
Calcium	mg/L	03/24/2016	0002	73		#	0.024	
Calcium	mg/L	03/24/2016	0003	69		#	0.024	
Chloride	mg/L	03/23/2016	0001	15		#	0.4	
Chloride	mg/L	03/23/2016	N002	15		#	0.4	
Copper	mg/L	03/24/2016	0002	0.0059	J	#	0.0022	
Copper	mg/L	03/24/2016	0003	0.0022	U	#	0.0022	
Lead	mg/L	03/24/2016	0002	0.0063		#	0.00013	
Lead	mg/L	03/24/2016	0003	0.00014	J	#	0.00013	

---

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

REPORT DATE: 7/10/2016

Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Magnesium	mg/L	03/23/2016	0001	11		#	0.03	
Magnesium	mg/L	03/23/2016	N002	13		#	0.03	
Magnesium	mg/L	03/24/2016	0002	12		#	0.03	
Magnesium	mg/L	03/24/2016	0003	11		#	0.03	
Manganese	mg/L	03/23/2016	0001	0.0031	J	#	0.00024	
Manganese	mg/L	03/23/2016	N002	0.48		#	0.00024	
Manganese	mg/L	03/24/2016	0002	0.25		#	0.00024	
Manganese	mg/L	03/24/2016	0003	0.0031	J	#	0.00024	
Mercury	mg/L	03/24/2016	0002	0.0000029	U	#	0.0000029	
Mercury	mg/L	03/24/2016	0003	0.0000029	U	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	0.46		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	0.46		#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	46.4		#		
Oxidation Reduction Potential	mV	03/24/2016	0002	108.9		#		
pH	s.u.	03/23/2016	N001	8.35		#		
pH	s.u.	03/24/2016	0002	8.18		#		
Potassium	mg/L	03/23/2016	0001	2.2		#	0.052	
Potassium	mg/L	03/23/2016	N002	3.3		#	0.052	

---

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

REPORT DATE: 7/10/2016

Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Potassium	mg/L	03/24/2016	0002	2.9		#	0.052	
Potassium	mg/L	03/24/2016	0003	2.2		#	0.052	
Selenium	mg/L	03/23/2016	0001	0.00091	J	U	#	0.00066
Selenium	mg/L	03/23/2016	N002	0.00066	U		#	0.00066
Selenium	mg/L	03/24/2016	0002	0.0012		#	0.00066	
Selenium	mg/L	03/24/2016	0003	0.00079	J		#	0.00066
Silver	mg/L	03/24/2016	0002	0.00005	J		#	0.000028
Silver	mg/L	03/24/2016	0003	0.00003	J		#	0.000028
Sodium	mg/L	03/23/2016	0001	34		#	0.047	
Sodium	mg/L	03/23/2016	N002	35		#	0.047	
Sodium	mg/L	03/24/2016	0002	31		#	0.047	
Sodium	mg/L	03/24/2016	0003	31		#	0.047	
Specific Conductance	umhos/cm	03/23/2016	N001	502		#		
Specific Conductance	umhos/cm	03/24/2016	0002	495		#		
Strontium	mg/L	03/23/2016	0001	0.74		#	0.00026	
Strontium	mg/L	03/23/2016	N002	0.81		#	0.00026	
Strontium	mg/L	03/24/2016	0002	0.84		#	0.00026	
Strontium	mg/L	03/24/2016	0003	0.81		#	0.00026	

---

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

REPORT DATE: 7/10/2016

Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Sulfate	mg/L	03/23/2016	0001	150		#	1	
Sulfate	mg/L	03/23/2016	N002	150		#	1	
Temperature	C	03/23/2016	N001	10.56		#		
Temperature	C	03/24/2016	0002	5.55		#		
Turbidity	NTU	03/23/2016	N001	53.8		#		
Turbidity	NTU	03/24/2016	0002	43.4		#		
Uranium	mg/L	03/23/2016	0001	0.0013		#	0.000012	
Uranium	mg/L	03/23/2016	N002	0.00095		#	0.000012	
Uranium	mg/L	03/24/2016	0002	0.002		#	0.000012	
Uranium	mg/L	03/24/2016	0003	0.0016		#	0.000012	
Zinc	mg/L	03/24/2016	0002	0.036	J	#	0.0046	
Zinc	mg/L	03/24/2016	0003	0.0046	U	#	0.0046	

---

---

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

REPORT DATE: 7/10/2016

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	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	113		#		
Ammonia Total as N	mg/L	03/23/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	0.1	U	#	0.1	
Arsenic	mg/L	03/23/2016	0002	0.001		#	0.00012	
Arsenic	mg/L	03/23/2016	0003	0.00074	J	#	0.00012	
Cadmium	mg/L	03/23/2016	0002	0.00009	J	#	0.000055	
Cadmium	mg/L	03/23/2016	0003	0.000055	U	#	0.000055	
Calcium	mg/L	03/23/2016	0001	63		#	0.024	
Calcium	mg/L	03/23/2016	0002	69		#	0.024	
Calcium	mg/L	03/23/2016	0003	68		#	0.024	
Calcium	mg/L	03/23/2016	N002	64		#	0.024	
Chloride	mg/L	03/23/2016	0001	15		#	0.4	
Chloride	mg/L	03/23/2016	N002	15		#	0.4	
Copper	mg/L	03/23/2016	0002	0.0033	J	#	0.0022	
Copper	mg/L	03/23/2016	0003	0.0022	U	#	0.0022	
Lead	mg/L	03/23/2016	0002	0.0023		#	0.00013	
Lead	mg/L	03/23/2016	0003	0.00013	U	#	0.00013	
Magnesium	mg/L	03/23/2016	0001	11		#	0.03	

---

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

REPORT DATE: 7/10/2016

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	QA	Detection Limit	Uncertainty
					Lab	Data		
Magnesium	mg/L	03/23/2016	0002	12		#	0.03	
Magnesium	mg/L	03/23/2016	0003	12		#	0.03	
Magnesium	mg/L	03/23/2016	N002	12		#	0.03	
Manganese	mg/L	03/23/2016	0001	0.0063		#	0.00024	
Manganese	mg/L	03/23/2016	0002	0.064		#	0.00024	
Manganese	mg/L	03/23/2016	0003	0.007		#	0.00024	
Manganese	mg/L	03/23/2016	N002	0.064		#	0.00024	
Mercury	mg/L	03/23/2016	0002	0.0000029	U	#	0.0000029	
Mercury	mg/L	03/23/2016	0003	0.0000029	U	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	0.52		#	0.02	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	0.47		#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	165.5		#		
pH	s.u.	03/23/2016	N001	8.27		#		
Potassium	mg/L	03/23/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/23/2016	0002	2.7		#	0.052	
Potassium	mg/L	03/23/2016	0003	2.2		#	0.052	
Potassium	mg/L	03/23/2016	N002	2.7		#	0.052	
Selenium	mg/L	03/23/2016	0001	0.0047	UJ	#	0.00066	

---

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

REPORT DATE: 7/10/2016

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	QA	Detection Limit	Uncertainty
					Lab	Data		
Selenium	mg/L	03/23/2016	0002	0.00066	U	#	0.00066	
Selenium	mg/L	03/23/2016	0003	0.00082	J	#	0.00066	
Selenium	mg/L	03/23/2016	N002	0.0025		#	0.00066	
Silver	mg/L	03/23/2016	0002	0.00006	J	#	0.000028	
Silver	mg/L	03/23/2016	0003	0.000028	U	#	0.000028	
Sodium	mg/L	03/23/2016	0001	35		#	0.047	
Sodium	mg/L	03/23/2016	0002	36		#	0.047	
Sodium	mg/L	03/23/2016	0003	35		#	0.047	
Sodium	mg/L	03/23/2016	N002	37		#	0.047	
Specific Conductance	umhos/cm	03/23/2016	N001	694		#		
Strontium	mg/L	03/23/2016	0001	0.74		#	0.00026	
Strontium	mg/L	03/23/2016	0002	0.87		#	0.00026	
Strontium	mg/L	03/23/2016	0003	0.85		#	0.00026	
Strontium	mg/L	03/23/2016	N002	0.77		#	0.00026	
Sulfate	mg/L	03/23/2016	0001	150		#	1	
Sulfate	mg/L	03/23/2016	N002	150		#	1	
Temperature	C	03/23/2016	N001	9.59		#		
Turbidity	NTU	03/23/2016	N001	44.8		#		

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Uranium	mg/L	03/23/2016	0001	0.0019	E	J	#	0.000012	
Uranium	mg/L	03/23/2016	0002	0.0023			#	0.000012	
Uranium	mg/L	03/23/2016	0003	0.0021			#	0.000012	
Uranium	mg/L	03/23/2016	N002	0.0021			#	0.000012	
Zinc	mg/L	03/23/2016	0002	0.016		J	#	0.0046	
Zinc	mg/L	03/23/2016	0003	0.0046	U		#	0.0046	

---

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

REPORT DATE: 7/10/2016

Location: 0956 SURFACE LOCATION N bank of San Juan River at intake structure

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	128		#		
Ammonia Total as N	mg/L	03/23/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	0.1	U	#	0.1	
Calcium	mg/L	03/23/2016	0001	63		#	0.024	
Calcium	mg/L	03/23/2016	N002	67		#	0.024	
Chloride	mg/L	03/23/2016	0001	15		#	0.4	
Chloride	mg/L	03/23/2016	N002	15		#	0.4	
Magnesium	mg/L	03/23/2016	0001	11		#	0.03	
Magnesium	mg/L	03/23/2016	N002	11		#	0.03	
Manganese	mg/L	03/23/2016	0001	0.0025	J	#	0.00024	
Manganese	mg/L	03/23/2016	N002	0.12		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	0.46		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	0.46		#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	102.1		#		
pH	s.u.	03/23/2016	N001	8.46		#		
Potassium	mg/L	03/23/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/23/2016	N002	2.9		#	0.052	
Selenium	mg/L	03/23/2016	0001	0.00069	J	#	0.00066	

---

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

REPORT DATE: 7/10/2016

Location: 0956 SURFACE LOCATION N bank of San Juan River at intake structure

Parameter	Units	Sample Date	ID	Result	Qualifiers	Detection Limit	Uncertainty
					Lab Data	QA	
Selenium	mg/L	03/23/2016	N002	0.00089	J	#	0.00066
Sodium	mg/L	03/23/2016	0001	35		#	0.047
Sodium	mg/L	03/23/2016	N002	34		#	0.047
Specific Conductance	umhos/cm	03/23/2016	N001	581		#	
Strontium	mg/L	03/23/2016	0001	0.76		#	0.00026
Strontium	mg/L	03/23/2016	N002	0.78		#	0.00026
Sulfate	mg/L	03/23/2016	0001	150		#	1
Sulfate	mg/L	03/23/2016	N002	150		#	1
Temperature	C	03/23/2016	N001	7.31		#	
Turbidity	NTU	03/23/2016	N001	54.3		#	
Uranium	mg/L	03/23/2016	0001	0.0016		#	0.000012
Uranium	mg/L	03/23/2016	N002	0.0017		#	0.000012

---

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

REPORT DATE: 7/10/2016

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	95		#		
Ammonia Total as N	mg/L	03/23/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	0.1	U	#	0.1	
Calcium	mg/L	03/23/2016	0001	64		#	0.024	
Calcium	mg/L	03/23/2016	N002	68		#	0.024	
Chloride	mg/L	03/23/2016	0001	15		#	0.4	
Chloride	mg/L	03/23/2016	N002	15		#	0.4	
Magnesium	mg/L	03/23/2016	0001	11		#	0.03	
Magnesium	mg/L	03/23/2016	N002	12		#	0.03	
Manganese	mg/L	03/23/2016	0001	0.0025	J	#	0.00024	
Manganese	mg/L	03/23/2016	N002	0.14		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	0.45		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	0.46		#	0.01	
Oxidation Reduction Potential	mV	03/23/2016	N001	186.6		#		
pH	s.u.	03/23/2016	N001	8.22		#		
Potassium	mg/L	03/23/2016	0001	2.2		#	0.052	
Potassium	mg/L	03/23/2016	N002	2.9		#	0.052	
Selenium	mg/L	03/23/2016	0001	0.00066	U	#	0.00066	

---

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

REPORT DATE: 7/10/2016

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Selenium	mg/L	03/23/2016	N002	0.0012		#	0.00066	
Sodium	mg/L	03/23/2016	0001	34		#	0.047	
Sodium	mg/L	03/23/2016	N002	35		#	0.047	
Specific Conductance	umhos/cm	03/23/2016	N001	568		#		
Strontium	mg/L	03/23/2016	0001	0.75		#	0.00026	
Strontium	mg/L	03/23/2016	N002	0.77		#	0.00026	
Sulfate	mg/L	03/23/2016	0001	150		#	1	
Sulfate	mg/L	03/23/2016	N002	150		#	1	
Temperature	C	03/23/2016	N001	7.8		#		
Turbidity	NTU	03/23/2016	N001	61		#		
Uranium	mg/L	03/23/2016	0001	0.0015		#	0.000012	
Uranium	mg/L	03/23/2016	N002	0.0018		#	0.000012	

---

---

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

REPORT DATE: 7/10/2016

Location: 0967 SURFACE LOCATION

Parameter	Units	Date	Sample ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	66		#		
Ammonia Total as N	mg/L	03/24/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/24/2016	N002	0.1	U	#	0.1	
Arsenic	mg/L	03/24/2016	0003	0.0026		#	0.00012	
Arsenic	mg/L	03/24/2016	0004	0.00056	J	#	0.00012	
Cadmium	mg/L	03/24/2016	0003	0.0002	J	#	0.000055	
Cadmium	mg/L	03/24/2016	0004	0.000055	U	#	0.000055	
Calcium	mg/L	03/24/2016	0001	63		#	0.024	
Calcium	mg/L	03/24/2016	0003	76		#	0.024	
Calcium	mg/L	03/24/2016	0004	70		#	0.024	
Calcium	mg/L	03/24/2016	N002	74		#	0.024	
Chloride	mg/L	03/24/2016	0001	14		#	0.4	
Chloride	mg/L	03/24/2016	N002	15		#	0.4	
Chlorine, Total Residual	mg/L	03/24/2016	N001	0		#		
Copper	mg/L	03/24/2016	0003	0.0073	J	#	0.0022	
Copper	mg/L	03/24/2016	0004	0.0022	U	#	0.0022	
Lead	mg/L	03/24/2016	0003	0.01		#	0.00013	
Lead	mg/L	03/24/2016	0004	0.00013	U	#	0.00013	

---

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

REPORT DATE: 7/10/2016

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Magnesium	mg/L	03/24/2016	0001	11		#	0.03	
Magnesium	mg/L	03/24/2016	0003	13		#	0.03	
Magnesium	mg/L	03/24/2016	0004	12		#	0.03	
Magnesium	mg/L	03/24/2016	N002	12		#	0.03	
Manganese	mg/L	03/24/2016	0001	0.0029	J	#	0.00024	
Manganese	mg/L	03/24/2016	0003	0.41		#	0.00024	
Manganese	mg/L	03/24/2016	0004	0.003	J	#	0.00024	
Manganese	mg/L	03/24/2016	N002	0.52		#	0.00024	
Mercury	mg/L	03/24/2016	0003	0.0000029	U	#	0.0000029	
Mercury	mg/L	03/24/2016	0004	0.0000029	U	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	0001	0.42		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N002	0.43		#	0.01	
Oxidation Reduction Potential	mV	03/24/2016	N001	197.6		#		
pH	s.u.	03/24/2016	N001	7.52		#		
Potassium	mg/L	03/24/2016	0001	2.2		#	0.052	
Potassium	mg/L	03/24/2016	0003	3.4		#	0.052	
Potassium	mg/L	03/24/2016	0004	2.2		#	0.052	
Potassium	mg/L	03/24/2016	N002	3.2		#	0.052	

---

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

REPORT DATE: 7/10/2016

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Selenium	mg/L	03/24/2016	0001	0.00066	U	#	0.00066	
Selenium	mg/L	03/24/2016	0003	0.0014		#	0.00066	
Selenium	mg/L	03/24/2016	0004	0.00066	U	#	0.00066	
Selenium	mg/L	03/24/2016	N002	0.00099	J	#	0.00066	
Silver	mg/L	03/24/2016	0003	0.00003	J	#	0.000028	
Silver	mg/L	03/24/2016	0004	0.000028	U	#	0.000028	
Sodium	mg/L	03/24/2016	0001	33		#	0.047	
Sodium	mg/L	03/24/2016	0003	32		#	0.047	
Sodium	mg/L	03/24/2016	0004	32		#	0.047	
Sodium	mg/L	03/24/2016	N002	34		#	0.047	
Specific Conductance	umhos/cm	03/24/2016	N001	531		#		
Strontium	mg/L	03/24/2016	0001	0.73		#	0.00026	
Strontium	mg/L	03/24/2016	0003	0.89		#	0.00026	
Strontium	mg/L	03/24/2016	0004	0.86		#	0.00026	
Strontium	mg/L	03/24/2016	N002	0.8		#	0.00026	
Sulfate	mg/L	03/24/2016	0001	140		#	1	
Sulfate	mg/L	03/24/2016	N002	140		#	1	
Temperature	C	03/24/2016	N001	9.09		#		

---

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

REPORT DATE: 7/10/2016

Location: 0967 SURFACE LOCATION

Parameter	Units	Date	Sample ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Turbidity	NTU	03/24/2016	N001	82.3		#		
Uranium	mg/L	03/24/2016	0001	0.0015		#	0.000012	
Uranium	mg/L	03/24/2016	0003	0.002		#	0.000012	
Uranium	mg/L	03/24/2016	0004	0.0016		#	0.000012	
Uranium	mg/L	03/24/2016	N002	0.0019		#	0.000012	
Zinc	mg/L	03/24/2016	0003	0.056	J	#	0.0046	
Zinc	mg/L	03/24/2016	0004	0.0046	U	#	0.0046	

---

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

REPORT DATE: 7/10/2016

Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

Parameter	Units	Date	Sample ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	103		#		
Ammonia Total as N	mg/L	03/22/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/22/2016	N002	0.1	U	#	0.1	
Arsenic	mg/L	03/22/2016	0002	0.00071	J	#	0.00012	
Arsenic	mg/L	03/22/2016	N003	0.0021		#	0.00012	
Arsenic	mg/L	03/22/2016	N004	0.0022		#	0.00012	
Cadmium	mg/L	03/22/2016	0002	0.000055	U	#	0.000055	
Cadmium	mg/L	03/22/2016	N003	0.00014	J	#	0.000055	
Cadmium	mg/L	03/22/2016	N004	0.00014	J	#	0.000055	
Calcium	mg/L	03/22/2016	0001	62		#	0.024	
Calcium	mg/L	03/22/2016	0002	67		#	0.024	
Calcium	mg/L	03/22/2016	N002	66		#	0.024	
Calcium	mg/L	03/22/2016	N003	71		#	0.024	
Calcium	mg/L	03/22/2016	N004	71		#	0.024	
Chloride	mg/L	03/22/2016	0001	15		#	0.4	
Chloride	mg/L	03/22/2016	N002	15		#	0.4	
Copper	mg/L	03/22/2016	0002	0.0022	U	#	0.0022	
Copper	mg/L	03/22/2016	N003	0.0068	J	#	0.0022	

---

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

REPORT DATE: 7/10/2016

Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Copper	mg/L	03/22/2016	N004	0.0069	J	#	0.0022	
Lead	mg/L	03/22/2016	0002	0.00013	U	#	0.00013	
Lead	mg/L	03/22/2016	N003	0.0058		#	0.00013	
Lead	mg/L	03/22/2016	N004	0.0062		#	0.00013	
Magnesium	mg/L	03/22/2016	0001	11		#	0.03	
Magnesium	mg/L	03/22/2016	0002	11		#	0.03	
Magnesium	mg/L	03/22/2016	N002	12		#	0.03	
Magnesium	mg/L	03/22/2016	N003	12		#	0.03	
Magnesium	mg/L	03/22/2016	N004	12		#	0.03	
Manganese	mg/L	03/22/2016	0001	0.007		#	0.00024	
Manganese	mg/L	03/22/2016	0002	0.0061		#	0.00024	
Manganese	mg/L	03/22/2016	N002	0.15		#	0.00024	
Manganese	mg/L	03/22/2016	N003	0.17		#	0.00024	
Manganese	mg/L	03/22/2016	N004	0.19		#	0.00024	
Mercury	mg/L	03/22/2016	0002	0.0000029	U	#	0.0000029	
Mercury	mg/L	03/22/2016	N003	0.0000029	U	#	0.0000029	
Mercury	mg/L	03/22/2016	N004	0.0000029	U	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	0001	0.46		#	0.01	

---

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

REPORT DATE: 7/10/2016

Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

Parameter	Units	Date	Sample ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N002	0.46		#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	77.6		#		
pH	s.u.	03/22/2016	N001	8.37		#		
Potassium	mg/L	03/22/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/22/2016	0002	2.5		#	0.052	
Potassium	mg/L	03/22/2016	N002	3.1		#	0.052	
Potassium	mg/L	03/22/2016	N003	3.2		#	0.052	
Potassium	mg/L	03/22/2016	N004	3.3		#	0.052	
Selenium	mg/L	03/22/2016	0001	0.00066	U	#	0.00066	
Selenium	mg/L	03/22/2016	0002	0.00071	J	#	0.00066	
Selenium	mg/L	03/22/2016	N002	0.00066	U	#	0.00066	
Selenium	mg/L	03/22/2016	N003	0.001		#	0.00066	
Selenium	mg/L	03/22/2016	N004	0.00077	J	#	0.00066	
Silver	mg/L	03/22/2016	0002	0.000028	U	#	0.000028	
Silver	mg/L	03/22/2016	N003	0.00004	J	#	0.000028	
Silver	mg/L	03/22/2016	N004	0.000028	U	#	0.000028	
Sodium	mg/L	03/22/2016	0001	34		#	0.047	
Sodium	mg/L	03/22/2016	0002	36		#	0.047	

---

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

REPORT DATE: 7/10/2016

Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Sodium	mg/L	03/22/2016	N002	34		#	0.047	
Sodium	mg/L	03/22/2016	N003	35		#	0.047	
Sodium	mg/L	03/22/2016	N004	36		#	0.047	
Specific Conductance	umhos/cm	03/22/2016	N001	496		#		
Strontium	mg/L	03/22/2016	0001	0.74		#	0.00026	
Strontium	mg/L	03/22/2016	0002	0.8		#	0.00026	
Strontium	mg/L	03/22/2016	N002	0.77		#	0.00026	
Strontium	mg/L	03/22/2016	N003	0.81		#	0.00026	
Strontium	mg/L	03/22/2016	N004	0.82		#	0.00026	
Sulfate	mg/L	03/22/2016	0001	150		#	1	
Sulfate	mg/L	03/22/2016	N002	150		#	1	
Temperature	C	03/22/2016	N001	15.03		#		
Turbidity	NTU	03/22/2016	N001	34.4		#		
Uranium	mg/L	03/22/2016	0001	0.0017		#	0.000012	
Uranium	mg/L	03/22/2016	0002	0.0016		#	0.000012	
Uranium	mg/L	03/22/2016	N002	0.0018		#	0.000012	
Uranium	mg/L	03/22/2016	N003	0.002	E	J	#	0.000012
Uranium	mg/L	03/22/2016	N004	0.002			#	0.000012

---

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

REPORT DATE: 7/10/2016

Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

Parameter	Units	Sample		Result	Qualifiers		Detection Limit	Uncertainty
		Date	ID		Lab	Data		
Zinc	mg/L	03/22/2016	0002	0.0046	U	#	0.0046	
Zinc	mg/L	03/22/2016	N003	0.032	J	#	0.0046	
Zinc	mg/L	03/22/2016	N004	0.037	J	#	0.0046	

---

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

REPORT DATE: 7/10/2016

Location: 1205 SURFACE LOCATION S bank of San Juan River, S of floodplain fence

Parameter	Units	Date	Sample ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	102		#		
Ammonia Total as N	mg/L	03/23/2016	0001	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N002	0.1	U	#	0.1	
Ammonia Total as N	mg/L	03/23/2016	N003	0.1	U	#	0.1	
Calcium	mg/L	03/23/2016	0001	63		#	0.024	
Calcium	mg/L	03/23/2016	N002	67		#	0.024	
Calcium	mg/L	03/23/2016	N003	66		#	0.024	
Chloride	mg/L	03/23/2016	0001	15		#	0.4	
Chloride	mg/L	03/23/2016	N002	15		#	0.4	
Chloride	mg/L	03/23/2016	N003	15		#	0.4	
Magnesium	mg/L	03/23/2016	0001	11		#	0.03	
Magnesium	mg/L	03/23/2016	N002	12		#	0.03	
Magnesium	mg/L	03/23/2016	N003	12		#	0.03	
Manganese	mg/L	03/23/2016	0001	0.0044	J	#	0.00024	
Manganese	mg/L	03/23/2016	N002	0.17		#	0.00024	
Manganese	mg/L	03/23/2016	N003	0.17		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	0001	0.47		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N002	0.47		#	0.01	

---

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

REPORT DATE: 7/10/2016

Location: 1205 SURFACE LOCATION S bank of San Juan River, S of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N003	0.47		#	0.02	
Oxidation Reduction Potential	mV	03/23/2016	N001	11.8		#		
pH	s.u.	03/23/2016	N001	8.26		#		
Potassium	mg/L	03/23/2016	0001	2.3		#	0.052	
Potassium	mg/L	03/23/2016	N002	2.9		#	0.052	
Potassium	mg/L	03/23/2016	N003	3.3		#	0.052	
Selenium	mg/L	03/23/2016	0001	0.00082	J	#	0.00066	
Selenium	mg/L	03/23/2016	N002	0.0008	J	#	0.00066	
Selenium	mg/L	03/23/2016	N003	0.0012		#	0.00066	
Sodium	mg/L	03/23/2016	0001	34		#	0.047	
Sodium	mg/L	03/23/2016	N002	34		#	0.047	
Sodium	mg/L	03/23/2016	N003	35		#	0.047	
Specific Conductance	umhos/cm	03/23/2016	N001	498		#		
Strontium	mg/L	03/23/2016	0001	0.76		#	0.00026	
Strontium	mg/L	03/23/2016	N002	0.8		#	0.00026	
Strontium	mg/L	03/23/2016	N003	0.78		#	0.00026	
Sulfate	mg/L	03/23/2016	0001	150		#	1	
Sulfate	mg/L	03/23/2016	N002	150		#	1	

---

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

REPORT DATE: 7/10/2016

Location: 1205 SURFACE LOCATION S bank of San Juan River, S of floodplain fence

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Sulfate	mg/L	03/23/2016	N003	150		#	1	
Temperature	C	03/23/2016	N001	6.93		#		
Turbidity	NTU	03/23/2016	N001	62.7		#		
Uranium	mg/L	03/23/2016	0001	0.0016		#	0.000012	
Uranium	mg/L	03/23/2016	N002	0.0018	J	#	0.000012	
Uranium	mg/L	03/23/2016	N003	0.002	E	J	#	0.000012

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.

This page intentionally left blank

## **Surface Water Quality Data**

### **Terrace Locations**

This page intentionally left blank

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	67		#		
Ammonia Total as N	mg/L	03/23/2016	N001	0.1	U	#	0.1	
Calcium	mg/L	03/23/2016	N001	110		#	0.024	
Chloride	mg/L	03/23/2016	N001	59		#	10	
Magnesium	mg/L	03/23/2016	N001	14		#	0.03	
Manganese	mg/L	03/23/2016	N001	0.023		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	0.36		#	0.05	
Oxidation Reduction Potential	mV	03/23/2016	N001	199.2		#		
pH	s.u.	03/23/2016	N001	8.19	J	#		
Potassium	mg/L	03/23/2016	N001	8.8		#	0.052	
Selenium	mg/L	03/23/2016	N001	0.0012		#	0.00066	
Sodium	mg/L	03/23/2016	N001	860		#	0.23	
Specific Conductance	umhos/cm	03/23/2016	N001	3844		#		
Strontium	mg/L	03/23/2016	N001	11		#	0.00026	
Sulfate	mg/L	03/23/2016	N001	2000		#	25	
Temperature	C	03/23/2016	N001	17.58		#		
Turbidity	NTU	03/23/2016	N001	20.4		#		
Uranium	mg/L	03/23/2016	N001	0.00025	U	#	0.000012	

---

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

REPORT DATE: 7/10/2016

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

Parameter	Units	Sample Date	ID	Result	Qualifiers	Detection Limit	Uncertainty
				Lab	Data	QA	
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/24/2016	N001	566	#		
Ammonia Total as N	mg/L	03/24/2016	N001	0.12	#	0.1	
Calcium	mg/L	03/24/2016	N001	430	#	0.24	
Chloride	mg/L	03/24/2016	N001	2000	#	100	
Magnesium	mg/L	03/24/2016	N001	1500	#	0.3	
Manganese	mg/L	03/24/2016	N001	0.018	J	#	0.0024
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	690	#	10	
Oxidation Reduction Potential	mV	03/24/2016	N001	104.4	#		
pH	s.u.	03/24/2016	N001	8.32	#		
Potassium	mg/L	03/24/2016	N001	54	#	0.52	
Selenium	mg/L	03/24/2016	N001	1.8	#	0.00066	
Sodium	mg/L	03/24/2016	N001	9100	#	2.3	
Specific Conductance	umhos/cm	03/24/2016	N001	35719	#		
Strontium	mg/L	03/24/2016	N001	10	#	0.0026	
Sulfate	mg/L	03/24/2016	N001	27000	#	250	
Temperature	C	03/24/2016	N001	11.72	#		
Turbidity	NTU	03/24/2016	N001	220	#		
Uranium	mg/L	03/24/2016	N001	0.19	#	0.000012	

---

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

REPORT DATE: 7/10/2016

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/23/2016	N001	630		#		
Ammonia Total as N	mg/L	03/23/2016	N001	27		#	2.5	
Calcium	mg/L	03/23/2016	N001	480		#	0.24	
Chloride	mg/L	03/23/2016	N001	2500		#	400	
Chlorine, Total Residual	mg/L	03/23/2016	N001	0.04		#		
Magnesium	mg/L	03/23/2016	N001	4400		#	0.3	
Manganese	mg/L	03/23/2016	N001	0.75		#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/23/2016	N001	1400		#	50	
Oxidation Reduction Potential	mV	03/23/2016	N001	210.7		#		
pH	s.u.	03/23/2016	N001	8.34	J	#		
Potassium	mg/L	03/23/2016	N001	350		#	0.52	
Selenium	mg/L	03/23/2016	N001	2		#	0.00066	
Sodium	mg/L	03/23/2016	N001	11000		#	2.3	
Specific Conductance	umhos/cm	03/23/2016	N001	44119		#		
Strontium	mg/L	03/23/2016	N001	11		#	0.0026	
Sulfate	mg/L	03/23/2016	N001	40000		#	1000	

---

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

REPORT DATE: 7/10/2016

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Qualifiers	Detection Limit	Uncertainty
					Lab Data	QA	
Temperature	C	03/23/2016	N001	9.6	#		
Turbidity	NTU	03/23/2016	N001	9.55	#		
Uranium	mg/L	03/23/2016	N001	2.6	#	0.00012	

---

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

REPORT DATE: 7/10/2016

Location: 1219 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers	QA	Detection Limit	Uncertainty
					Lab	Data		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	03/22/2016	N001	280		#		
Ammonia Total as N	mg/L	03/22/2016	N001	0.1	U	#	0.1	
Calcium	mg/L	03/22/2016	N001	560		#	0.12	
Chloride	mg/L	03/22/2016	N001	28		#	10	
Magnesium	mg/L	03/22/2016	N001	160		#	0.03	
Manganese	mg/L	03/22/2016	N001	0.1		#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	03/22/2016	N001	0.11		#	0.01	
Oxidation Reduction Potential	mV	03/22/2016	N001	152		#		
pH	s.u.	03/22/2016	N001	7.81		#		
Potassium	mg/L	03/22/2016	N001	14		#	0.052	
Selenium	mg/L	03/22/2016	N001	0.0079		#	0.00066	
Sodium	mg/L	03/22/2016	N001	170		#	0.047	
Specific Conductance	umhos/cm	03/22/2016	N001	3269		#		
Strontium	mg/L	03/22/2016	N001	6.4		#	0.00026	
Sulfate	mg/L	03/22/2016	N001	2200		#	25	
Temperature	C	03/22/2016	N001	17.93		#		
Turbidity	NTU	03/22/2016	N001	324		#		
Uranium	mg/L	03/22/2016	N001	0.033		#	0.000012	

---

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

REPORT DATE: 7/10/2016

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	03/24/2016	N001	676	#			
Ammonia Total as N	mg/L	03/24/2016	N001	0.28	#	0.1		
Calcium	mg/L	03/24/2016	N001	480	#	0.24		
Chloride	mg/L	03/24/2016	N001	3100	#	400		
Magnesium	mg/L	03/24/2016	N001	2300	#	0.3		
Manganese	mg/L	03/24/2016	N001	0.04	J	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2016	N001	950	#	50		
Oxidation Reduction Potential	mV	03/24/2016	N001	190.9	#			
pH	s.u.	03/24/2016	N001	8.37	J	#		
Potassium	mg/L	03/24/2016	N001	74	#	0.52		
Selenium	mg/L	03/24/2016	N001	2.4	#	0.00066		
Sodium	mg/L	03/24/2016	N001	14000	#	2.3		
Specific Conductance	umhos/cm	03/24/2016	N001	43240	#			
Strontium	mg/L	03/24/2016	N001	11	#	0.0026		
Sulfate	mg/L	03/24/2016	N001	37000	#	1000		
Temperature	C	03/24/2016	N001	19.95	#			
Turbidity	NTU	03/24/2016	N001	30.7	#			
Uranium	mg/L	03/24/2016	N001	0.28	#	0.000012		

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.

This page intentionally left blank

## **Equipment Blank Data**

This page intentionally left blank

---

**BLANKS REPORT**

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

RIN: 16037686

Report Date: 7/10/2016

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab	Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	SHP01	0999	03/22/2016	N001	mg/L	0.1	U		0.1		E
Calcium	SHP01	0999	03/22/2016	N001	mg/L	0.024	U		0.024		E
Chloride	SHP01	0999	03/22/2016	N001	mg/L	0.2	U		0.2		E
Magnesium	SHP01	0999	03/22/2016	N001	mg/L	0.03	U		0.03		E
Manganese	SHP01	0999	03/22/2016	N001	mg/L	0.00028	J	U	0.00024		E
Nitrate + Nitrite as Nitrogen	SHP01	0999	03/22/2016	N001	mg/L	0.01	U		0.01		E
Potassium	SHP01	0999	03/22/2016	N001	mg/L	0.052	U		0.052		E
Selenium	SHP01	0999	03/22/2016	N001	mg/L	0.00066	U		0.00066		E
Sodium	SHP01	0999	03/22/2016	N001	mg/L	0.047	U		0.047		E
Strontium	SHP01	0999	03/22/2016	N001	mg/L	0.00055	J		0.00026		E
Sulfate	SHP01	0999	03/22/2016	N001	mg/L	0.5	U		0.5		E
Uranium	SHP01	0999	03/22/2016	N001	mg/L	0.00005	J	U	0.000012		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**

This page intentionally left blank

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 7/10/2016**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0608		4893.35	03/23/2016	08:10:36	6.35	4887	
0610		4895.7	03/24/2016	09:55:41	9.81	4885.89	
0611		4895.62	03/24/2016	09:35:54	9.67	4885.95	
0612		4893.35	03/23/2016	08:45:53	7.3	4886.05	
0614		4892.79	03/24/2016	11:05:20	7.63	4885.16	
0615		4892.23	03/24/2016	13:40:41	7.55	4884.68	
0617		4891.9	03/23/2016	08:13:00	7.12	4884.78	
0618		4891.51	03/23/2016	14:20:45	6.73	4884.78	
0619		4892.19	03/23/2016	15:35:01	7.05	4885.14	
0622		4890.06	03/24/2016	08:30:40	4.15	4885.91	
0623		4891.19	03/23/2016	15:30:27	5.82	4885.37	
0625		4891.23	03/23/2016	15:45:26	5.76	4885.47	
0626		4891.4	03/24/2016	14:55:37	5.12	4886.28	
0628		4889.87	03/24/2016	15:30:11	3.95	4885.92	
0630		4887.62	03/24/2016	16:00:29	1.6	4886.02	
0734		4886.55	03/22/2016	08:37:00			D
0735		4895.85	03/21/2016	15:40:49	6.28	4889.57	
0736		4887.99	03/22/2016	10:30:37	6.05	4881.94	
0766		4892.55	03/23/2016	14:20:26	10.64	4881.91	
0768		4892.33	03/23/2016	16:10:08	6.86	4885.47	
0773		4894.87	03/24/2016	10:30:37	8.77	4886.1	
0775		4892.2	03/24/2016	08:05:05	7.96	4884.24	
0779		4893.86	03/23/2016	13:05:44	10.04	4883.82	
0782R		4884.75	03/22/2016	13:00:13	6.57	4878.18	
0783R		4884.09	03/22/2016	12:35:20	6.46	4877.63	
0792		4891.52	03/22/2016	11:05:25	6.52	4885	
0793		4891.05	03/23/2016	11:15:06	6.49	4884.56	
0797		4908.04	03/24/2016	11:20:36	8.61	4899.43	
0798		4891.55	03/24/2016	07:35:44	7	4884.55	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 7/10/2016**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0850	B	4907.51	03/24/2016	11:00:00	8.24	4899.27	
0853		4891.41	03/23/2016	10:15:10	7.08	4884.33	
0854		4890.09	03/23/2016	15:10:01	7.48	4882.61	
0855		4888.18	03/22/2016	08:30:52	4.98	4883.2	
0856		4887.57	03/22/2016	09:30:49	6.36	4881.21	
0857		4894.02	03/23/2016	13:30:50	10.08	4883.94	
0862		4893.83	03/23/2016	08:05:00	87.93	4805.9	
0863		4893	03/23/2016	08:10:00	76.87	4816.13	
1000		4892.17	03/24/2016	10:55:00	7.51	4884.66	
1001		4892.44	03/24/2016	10:51:00	12.38	4880.06	
1008		4890.8	03/23/2016	14:40:27	7.65	4883.15	
1009		4892.1	03/23/2016	10:50:23	7.55	4884.55	
1062		4892.51	03/23/2016	07:57:00	7.87	4884.64	
1105	O	4892.4	03/24/2016	13:20:59	7.54	4884.86	
1111		4889.85	03/24/2016	14:25:21	5.44	4884.41	
1112		4890.01	03/24/2016	11:30:31	5.75	4884.26	
1113		4892	03/24/2016	09:10:38	5.51	4886.49	
1114		4892.86	03/23/2016	07:50:21	5.56	4887.3	
1115		4895.59	03/22/2016	14:30:13	8	4887.59	
1117		4896.7	03/21/2016	16:50:39	8.98	4887.72	
1128		4897.63	03/21/2016	17:55:55	10.07	4887.56	
1130		4895.36	03/21/2016	17:25:50	7.14	4888.22	
1132		4894.5	03/22/2016	15:25:14	6.76	4887.74	
1134		4895.88	03/22/2016	14:55:04	8.2	4887.68	
1135		4890.71	03/23/2016	15:00:11	8.32	4882.39	
1136		4892.47	03/23/2016	12:20:51	9.14	4883.33	
1137		4891.3	03/23/2016	12:15:03	8.91	4882.39	
1138		4891.48	03/23/2016	13:05:55	9.13	4882.35	
1139		4890.44	03/23/2016	13:55:22	8.2	4882.24	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 7/10/2016**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1140		4891.53	03/24/2016	14:05:45	6.78	4884.75	
1141		4892.48	03/24/2016	11:55:35	7.8	4884.68	
1142		4894.34	03/23/2016	09:20:03	9.55	4884.79	
1143		4888.07	03/22/2016	09:55:21	6.19	4881.88	

FLOW CODES: B BACKGROUND      C CROSS GRADIENT      D DOWNGRADIENT      F OFFSITE  
 N UNKNOWN      O ONSITE      U UPGRAIDENT

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

This page intentionally left blank

## **Static Water Level Data**

### **Terrace Locations**

This page intentionally left blank

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 7/10/2016**

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	03/24/2016	09:50:26	33.63	4922.24	
0602		4956.89	03/22/2016	08:50:16	22.04	4934.85	
0603		4978.62	03/24/2016	13:05:15	32.01	4946.61	
0604		4995.87	03/22/2016	13:30:25	56.68	4939.19	
0725		4908.58	03/23/2016	15:55:27	13.9	4894.68	
0726		4939.95	03/23/2016	17:30:52	25.65	4914.3	
0728		4964.46	03/23/2016	15:25:16	24.8	4939.66	
0730		4977.75	03/24/2016	08:10:54	36.4	4941.35	
0731		4972.15	03/24/2016	14:00:20	25.38	4946.77	
0800		4995.76	03/24/2016	09:00:00			D
0801		4995.29	03/24/2016	09:07:00			D
0802		4996.01	03/24/2016	09:10:00			D
0803		4994.4	03/24/2016	09:05:00			D
0812		5004.98	03/21/2016	17:45:44	60.95	4944.03	
0813		4984.37	03/22/2016	12:45:51	44.19	4940.18	
0814		4968.12	03/22/2016	08:15:47	32.37	4935.75	
0816		4937.92	03/24/2016	10:40:44	24.85	4913.07	
0817		4957.34	03/22/2016	09:15:25	18.75	4938.59	
0819		4955.76	03/22/2016	10:10:52	20.43	4935.33	
0820		4954.95	03/24/2016	09:00:20	148.2	4806.75	
0821		4955.46	03/24/2016	09:02:00			D
0822		4954.42	03/24/2016	09:25:49	132.37	4822.05	
0823		4957.65	03/24/2016	11:47:00			D
0824		4958.21	03/24/2016	12:10:07	194.03	4764.18	
0825		4958.68	03/24/2016	12:13:00			D
0826		4950.73	03/22/2016	09:50:42	17.31	4933.42	
0827		4946.92	03/23/2016	14:25:56	26.67	4920.25	
0828		4957.43	03/23/2016	12:05:55	19.42	4938.01	
0830		4960.77	03/23/2016	13:55:41	16.75	4944.02	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 7/10/2016**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0832		4964.65	03/22/2016	16:05:57	29.09	4935.56	
0833		4940.52	03/22/2016	08:55:31	27.29	4913.23	
0835		4930.48	03/21/2016	17:45:34	18.65	4911.83	
0836		4901.74	03/22/2016	09:30:06	32.82	4868.92	
0837		4889.54	03/22/2016	10:55:14	23.49	4866.05	
0838		4937.7	03/23/2016	08:50:57	28.36	4909.34	
0841		4984.05	03/21/2016	16:50:26	44.76	4939.29	
0843		4883.56	03/22/2016	11:40:23	15.14	4868.42	
0844		4948.46	03/23/2016	09:20:41	32.15	4916.31	
0848		4949.91	03/22/2016	14:05:53	44.18	4905.73	
1002		4957.63	03/24/2016	11:16:00			D
1003		4957.84	03/24/2016	11:18:00			D
1004		4957.61	03/24/2016	11:19:00			D
1007		4962.01	03/23/2016	15:00:51	44.28	4917.73	
1011		4945.96	03/23/2016	14:40:00			D
1048		4921.35	03/24/2016	13:53:00			D
1049		4923.89	03/24/2016	13:50:16	6.91	4916.98	
1057		4984.83	03/23/2016	10:45:52	39.73	4945.1	
1058		4973.58	03/23/2016	13:25:58	30.8	4942.78	
1059		4970.52	03/24/2016	15:15:03	23.8	4946.72	
1060		4970.62	03/22/2016	15:50:00			D
1067		4930.77	03/24/2016	14:40:00			D
1068		4927.97	03/23/2016	17:00:38	7.47	4920.5	
1069		4922.62	03/23/2016	00:00:54	5.07	4917.55	
1073		4991.43	03/21/2016	17:55:49	49.99	4941.44	
1074		4959.52	03/24/2016	12:35:23	33.2	4926.32	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 7/10/2016**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1079		4925.22	03/22/2016	15:25:34	20	4905.22	
1120		4890.98	03/22/2016	11:19:00			D
1122		4893.62	03/22/2016	11:20:00			D
DM7		4974.44	03/24/2016	08:40:01			D
MW1		4955.64	03/24/2016	11:35:52	55.09	4900.55	

FLOW CODES: B BACKGROUND  
N UNKNOWN      C CROSS GRADIENT  
O ONSITE      D DOWNGRADIENT  
U UPGRADENT      F OFFSITE

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

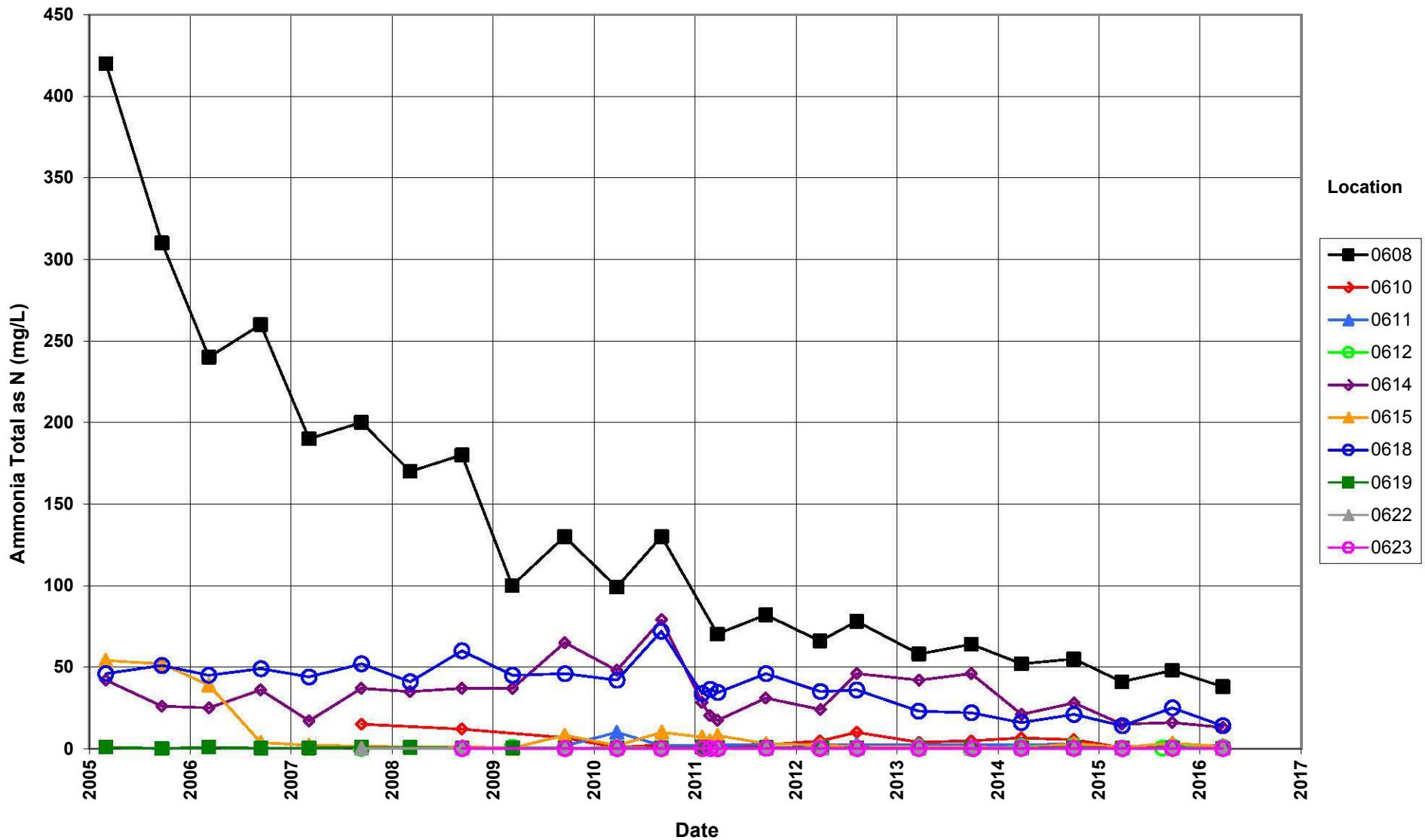
This page intentionally left blank

# **Time-Concentration Graphs**

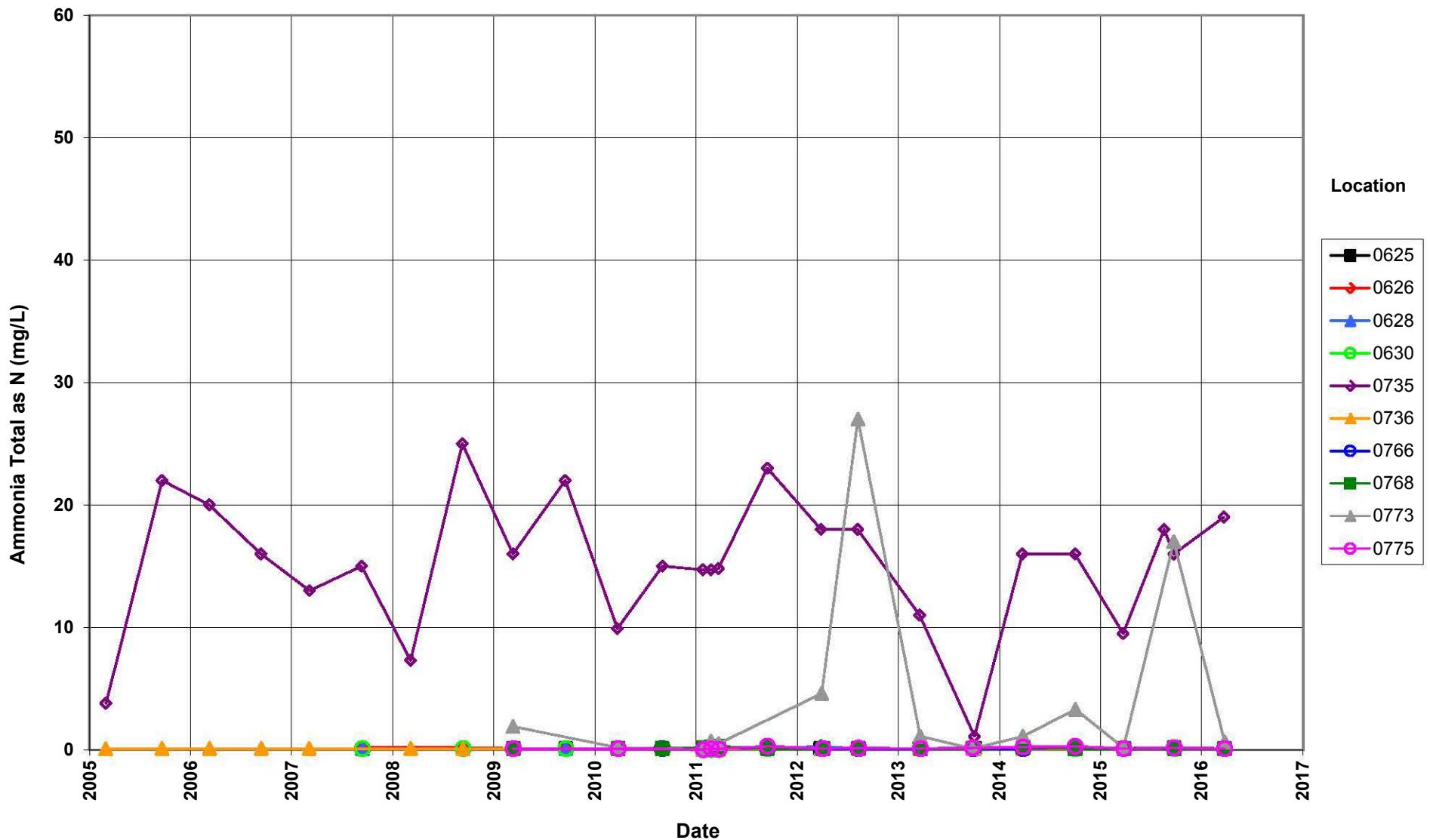
## **Floodplain Groundwater Locations**

This page intentionally left blank

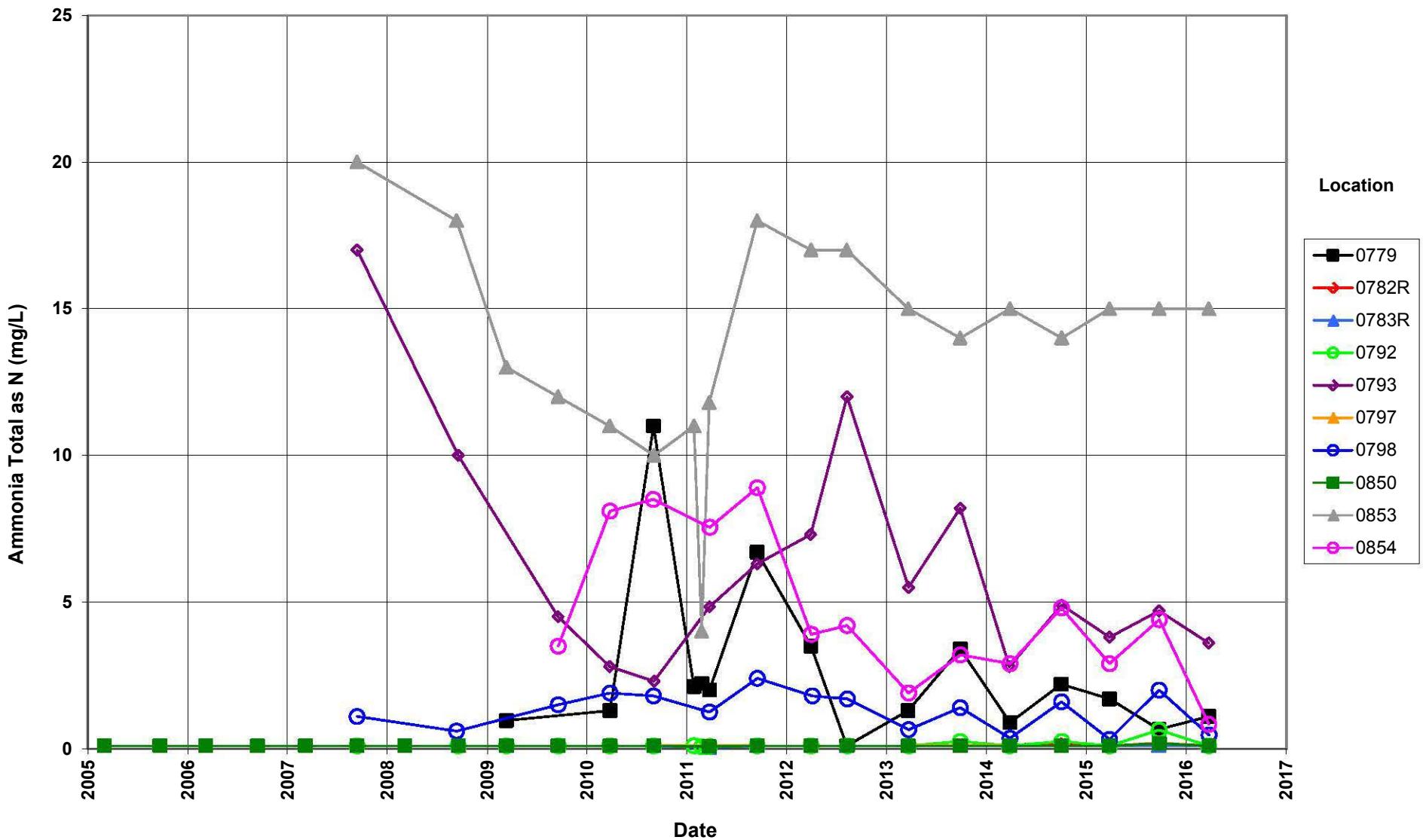
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



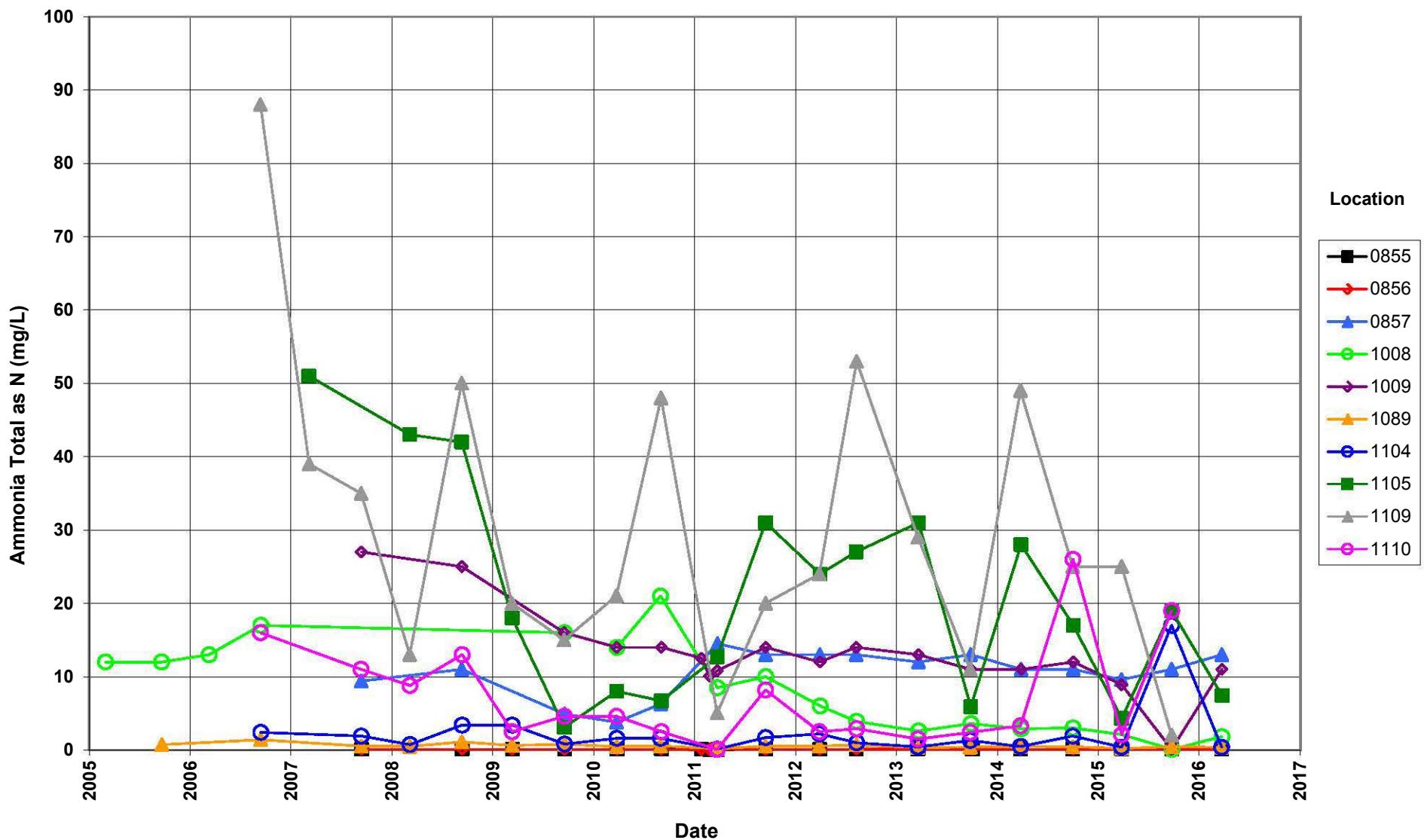
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



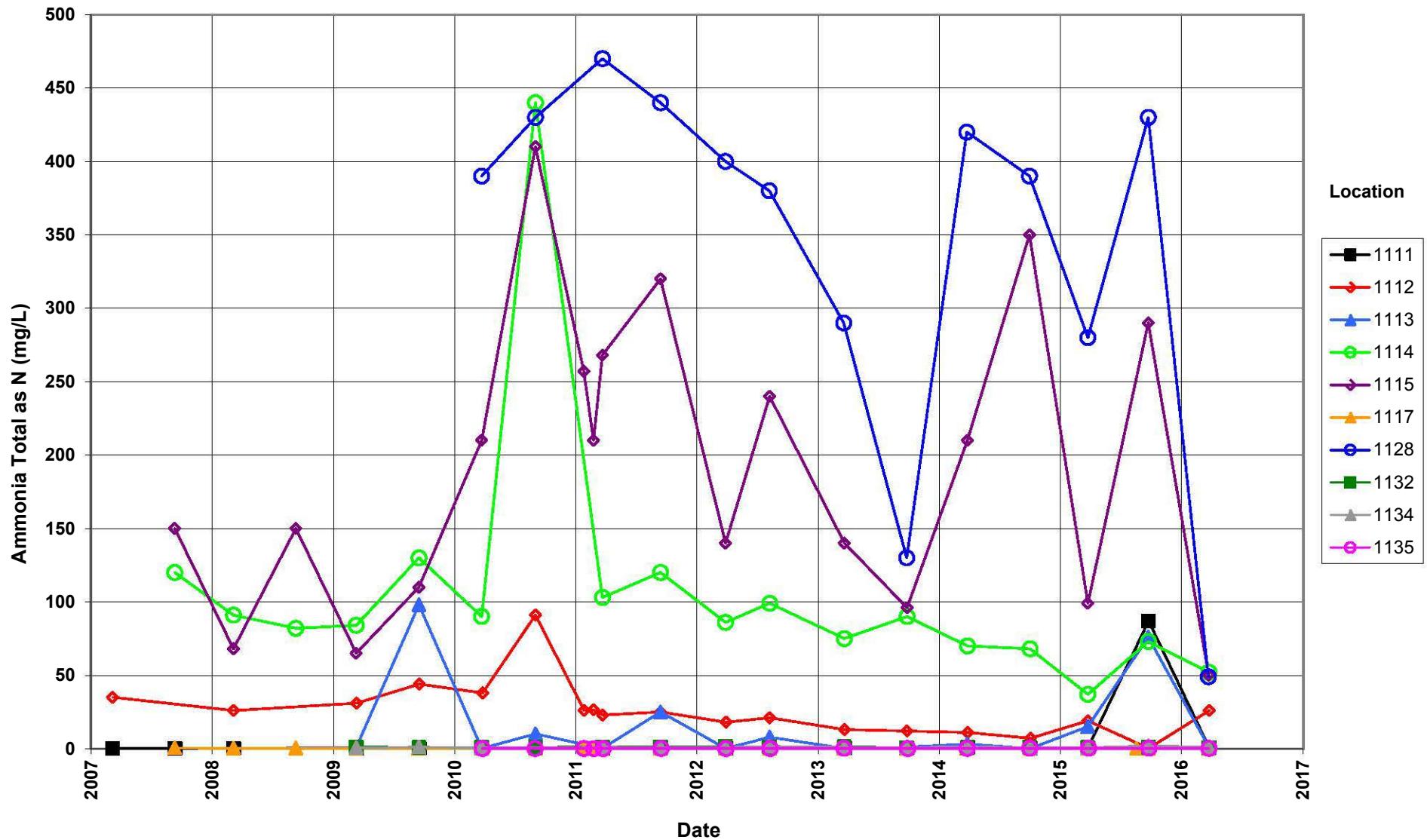
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



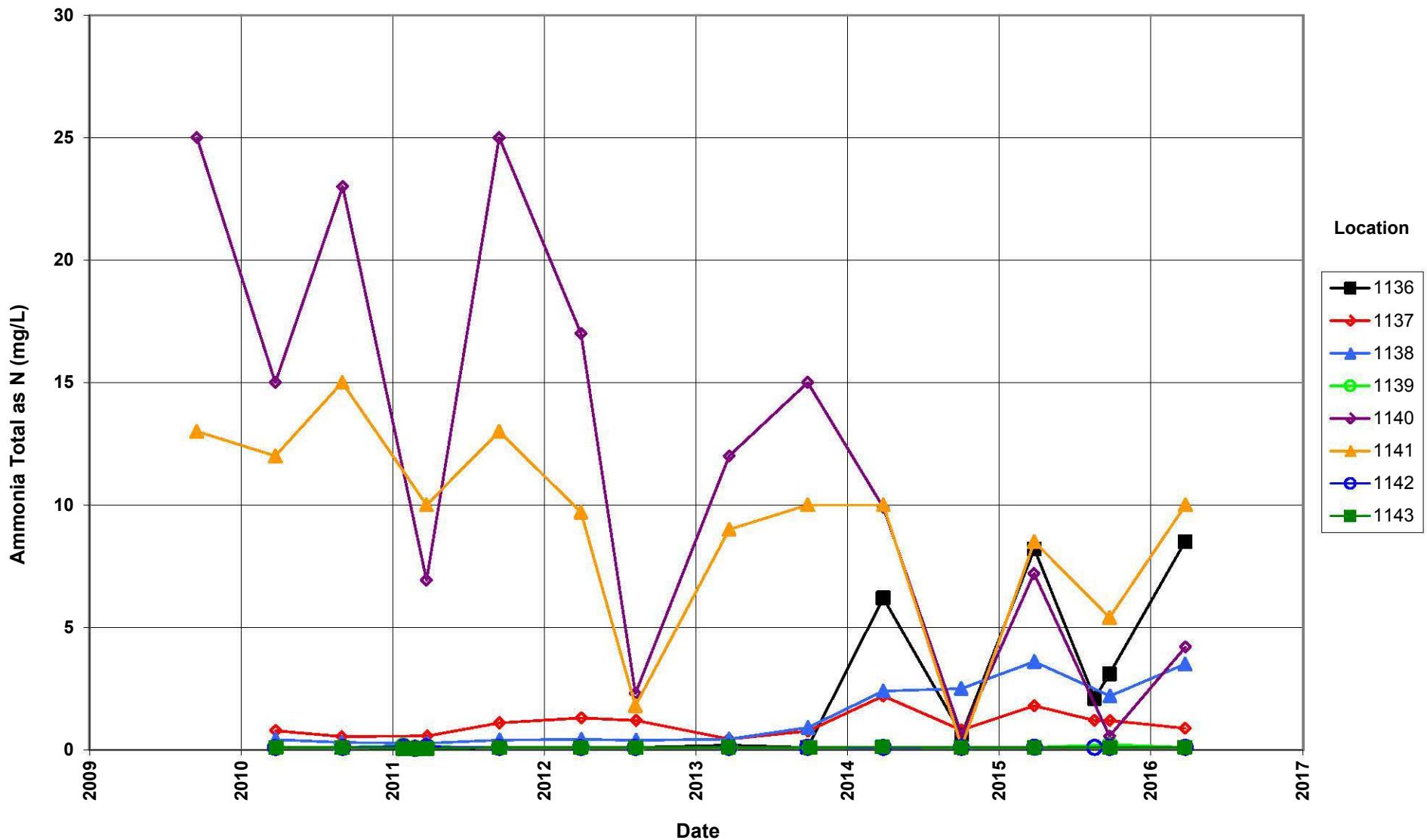
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



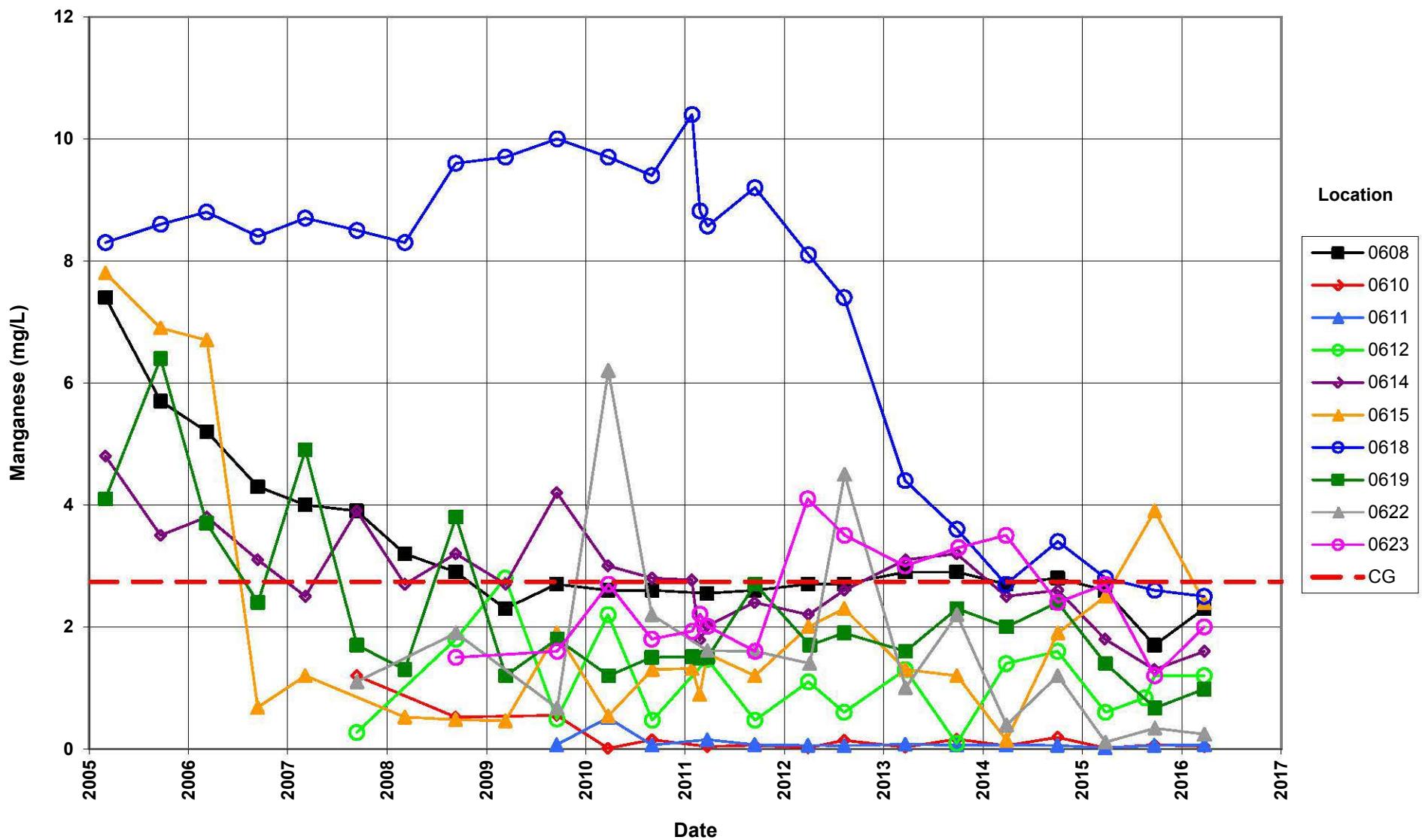
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



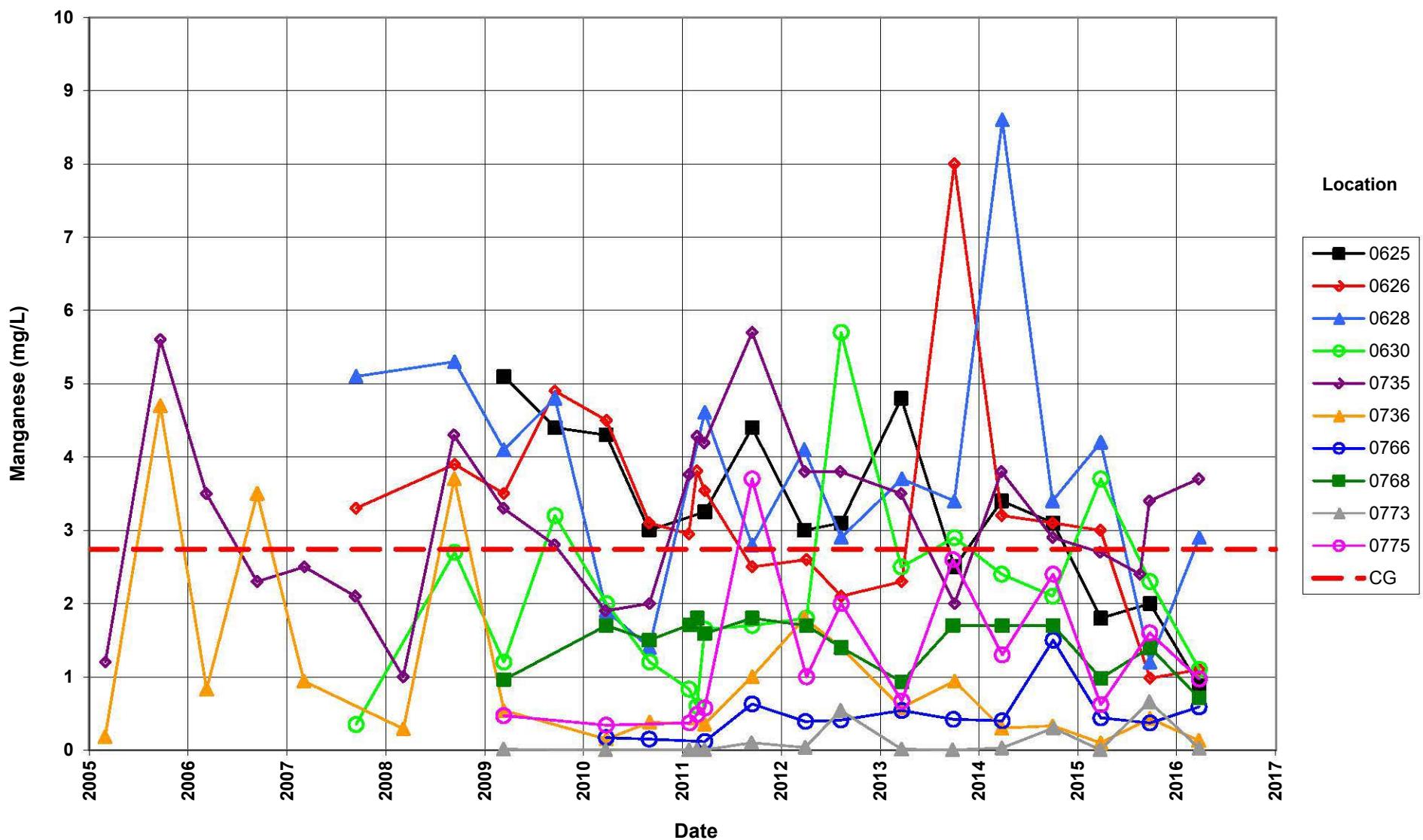
### Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



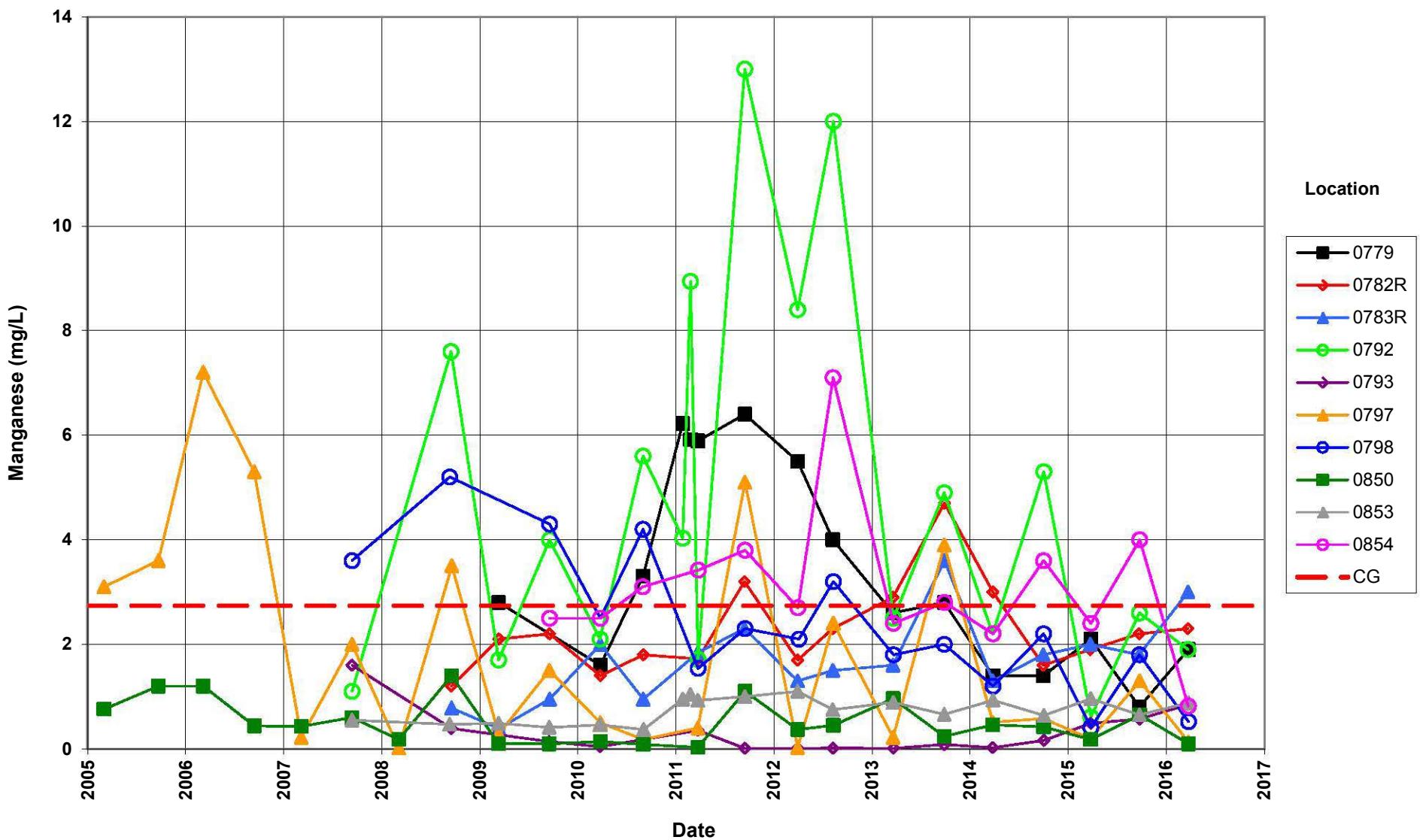
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
 Cleanup Goal (CG) = 2.74 mg/L



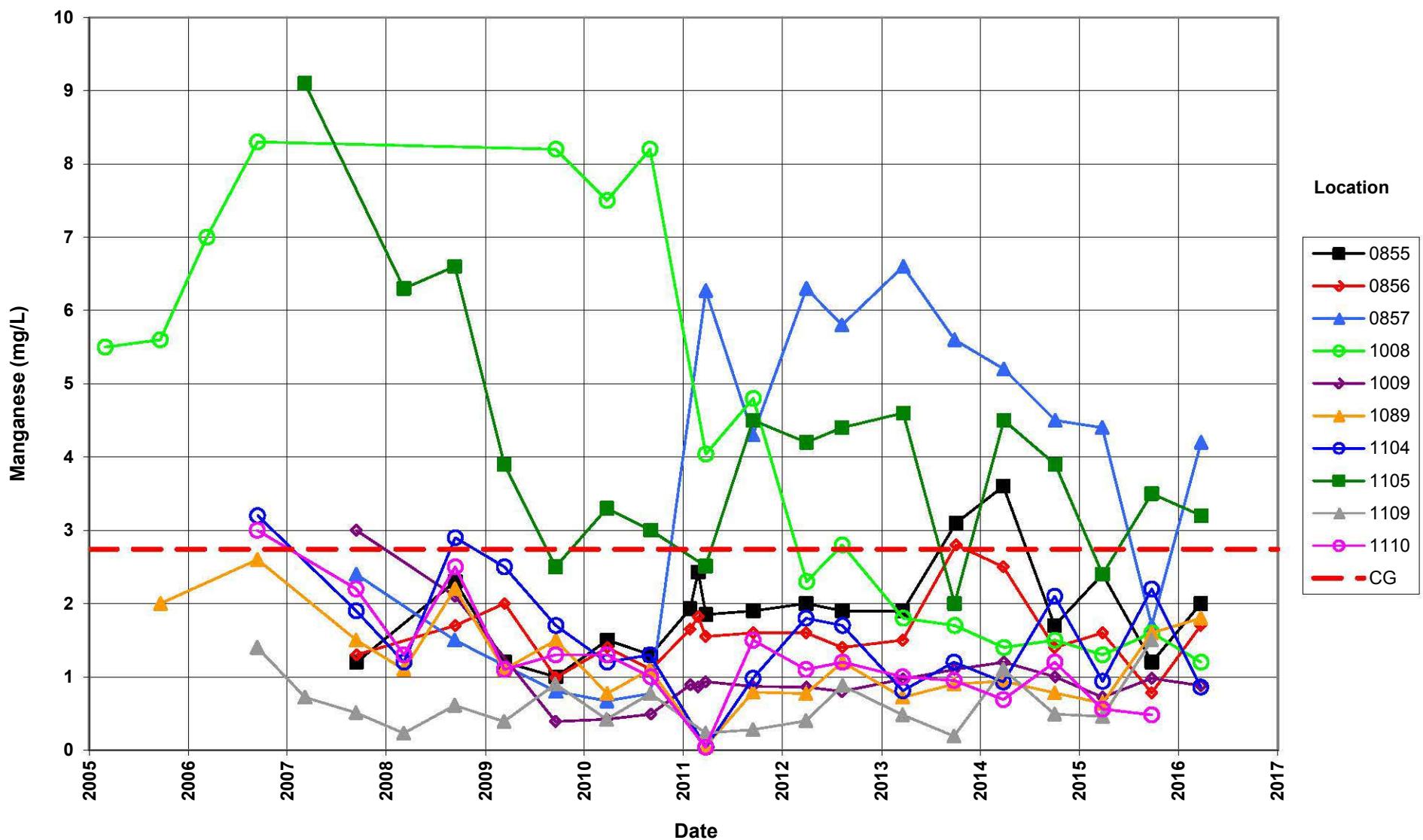
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L



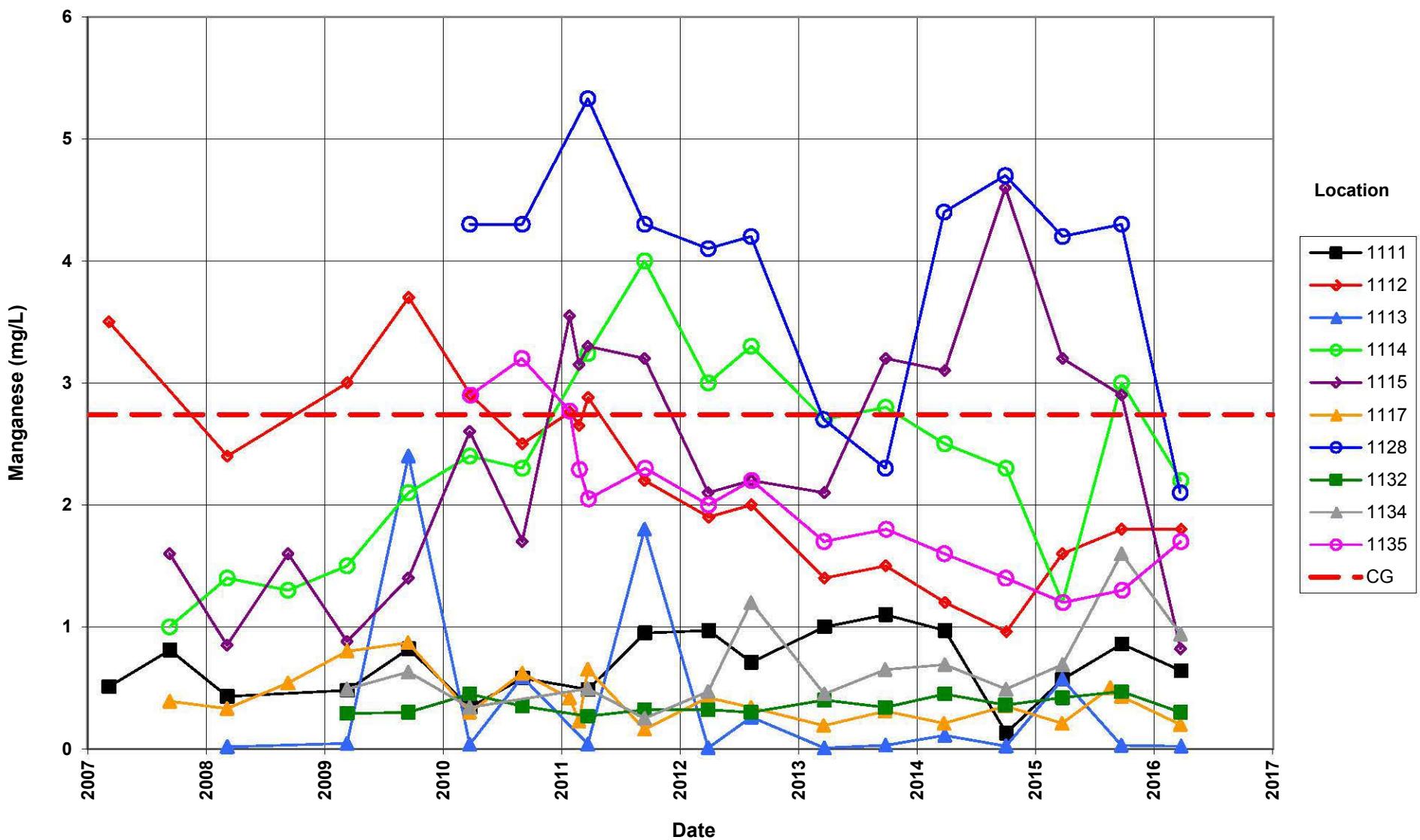
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L



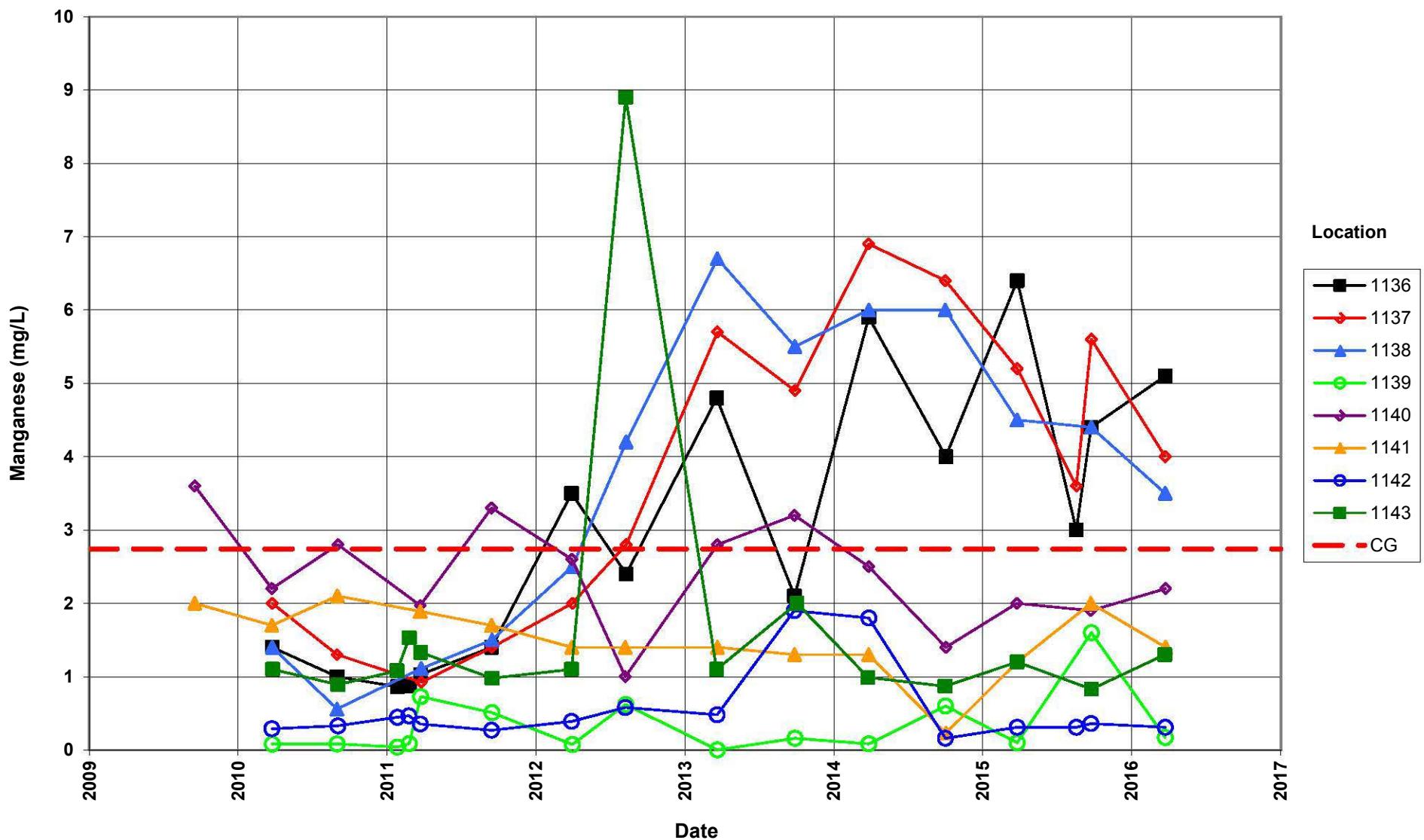
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
 Cleanup Goal (CG) = 2.74 mg/L



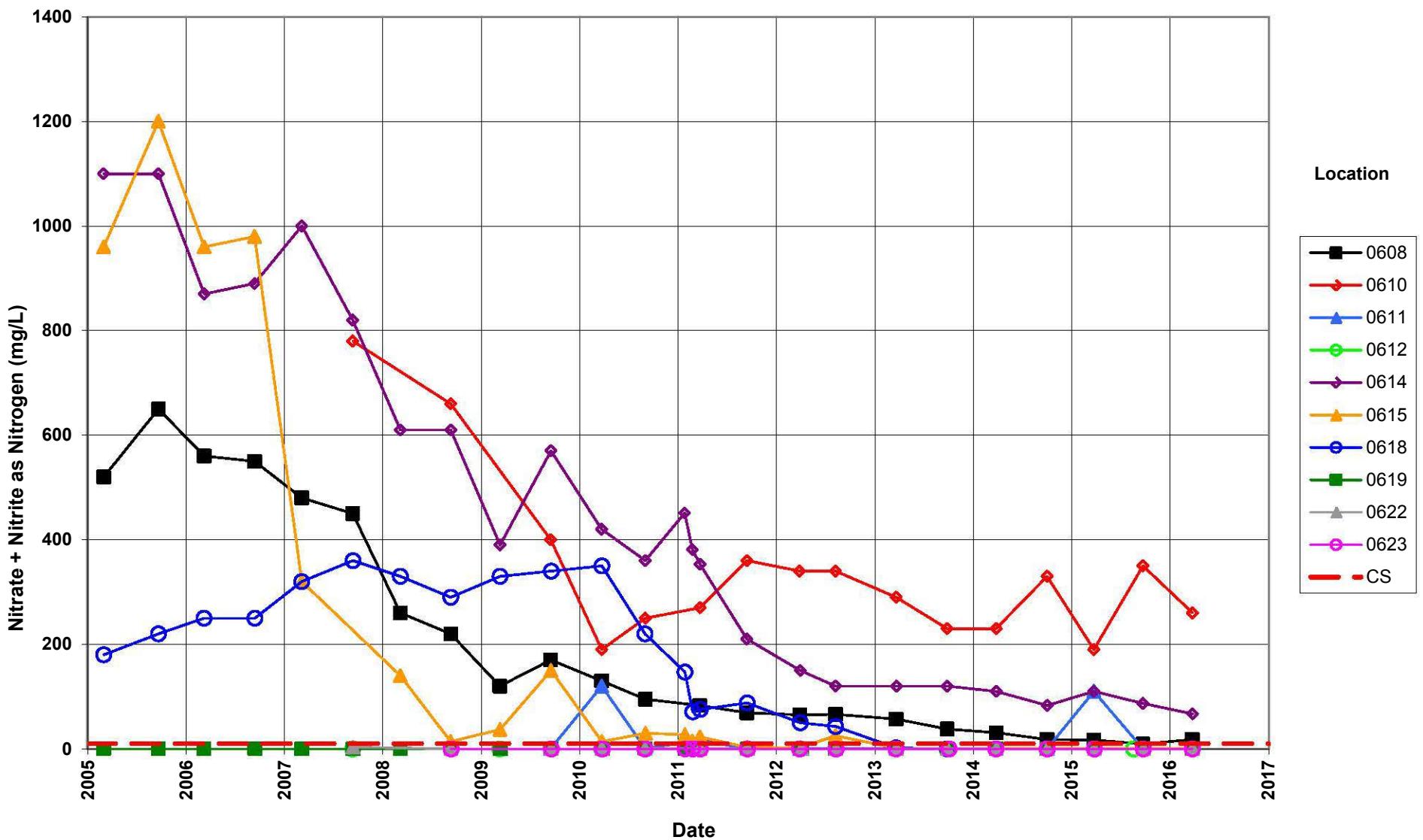
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
 Cleanup Goal (CG) = 2.74 mg/L



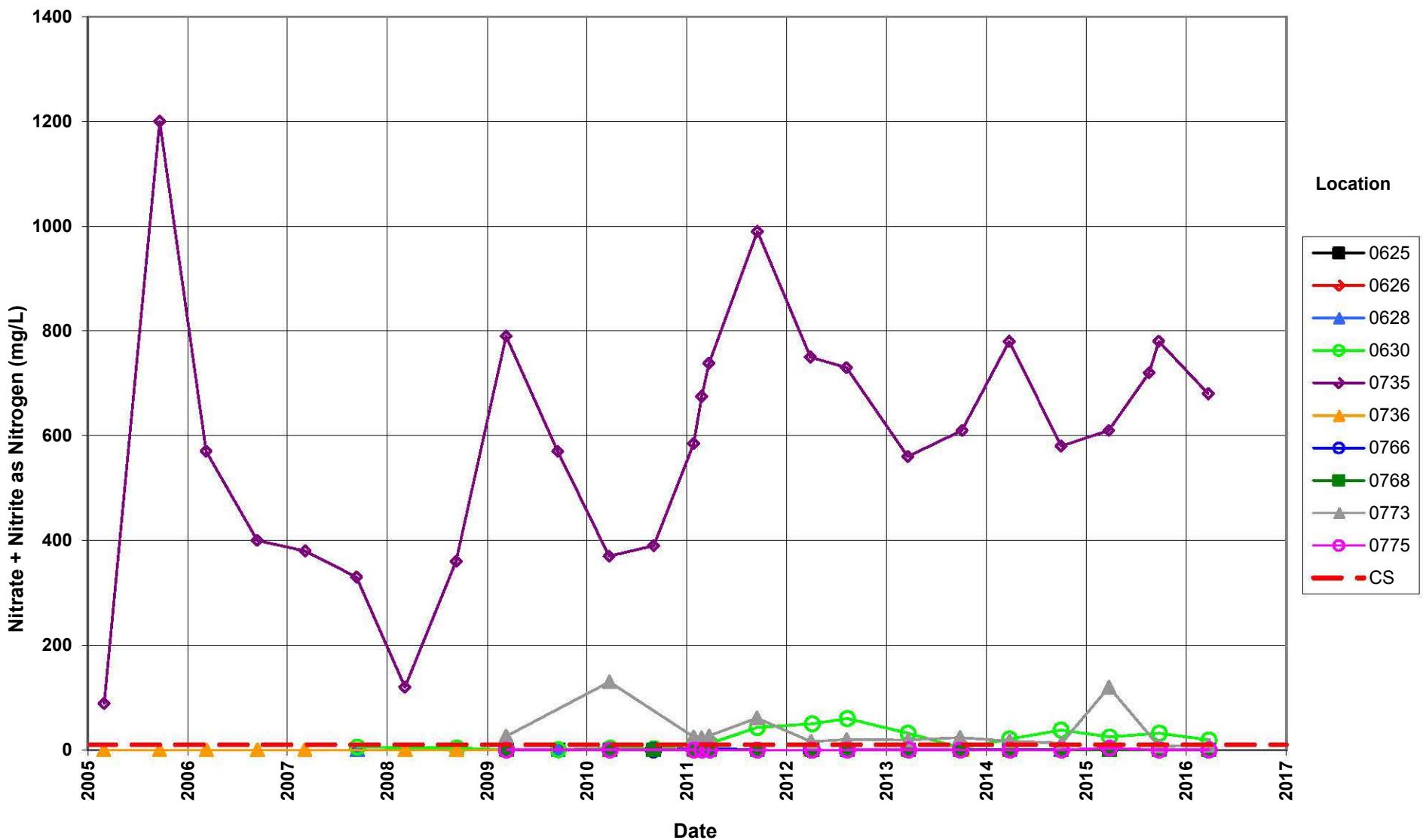
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L



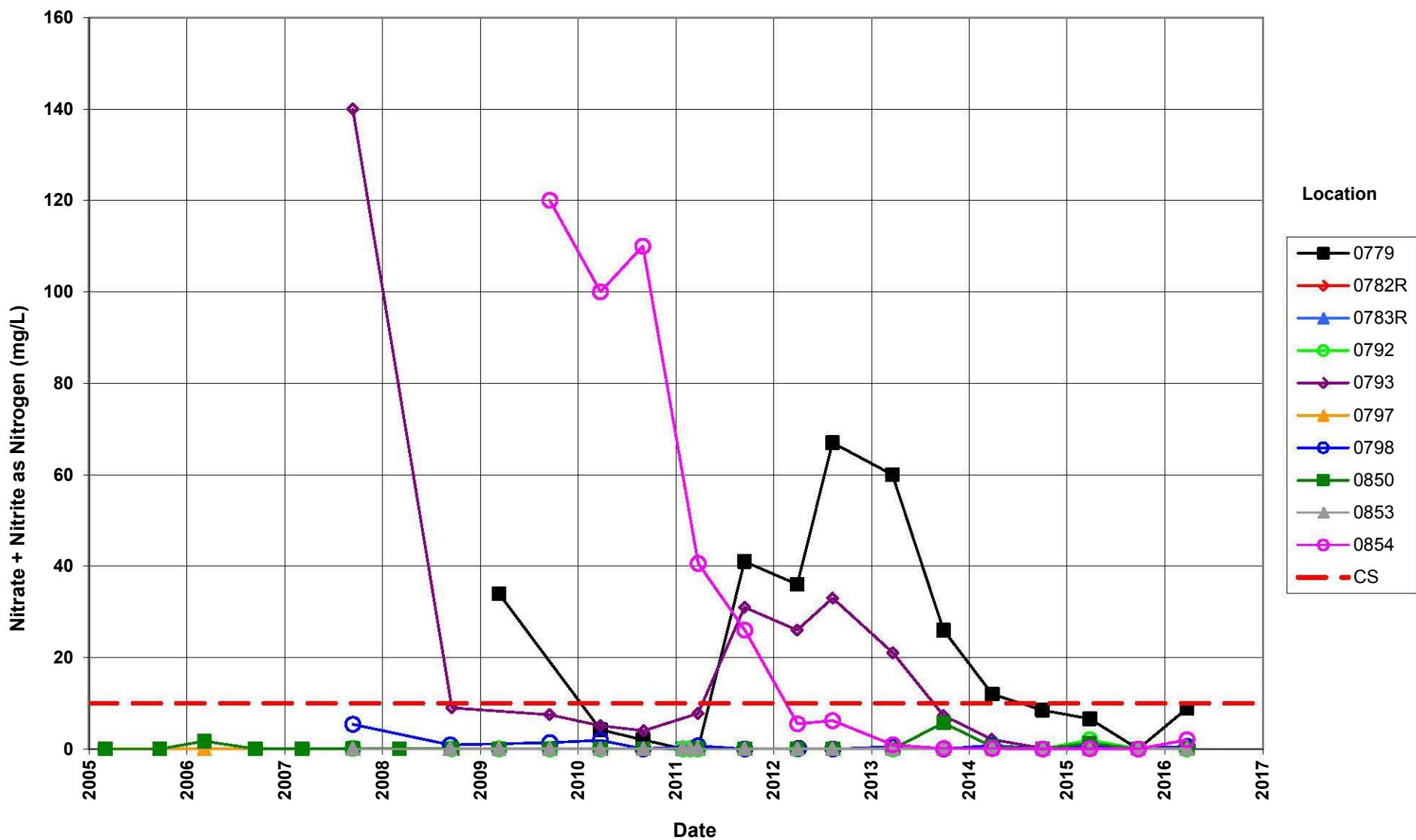
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



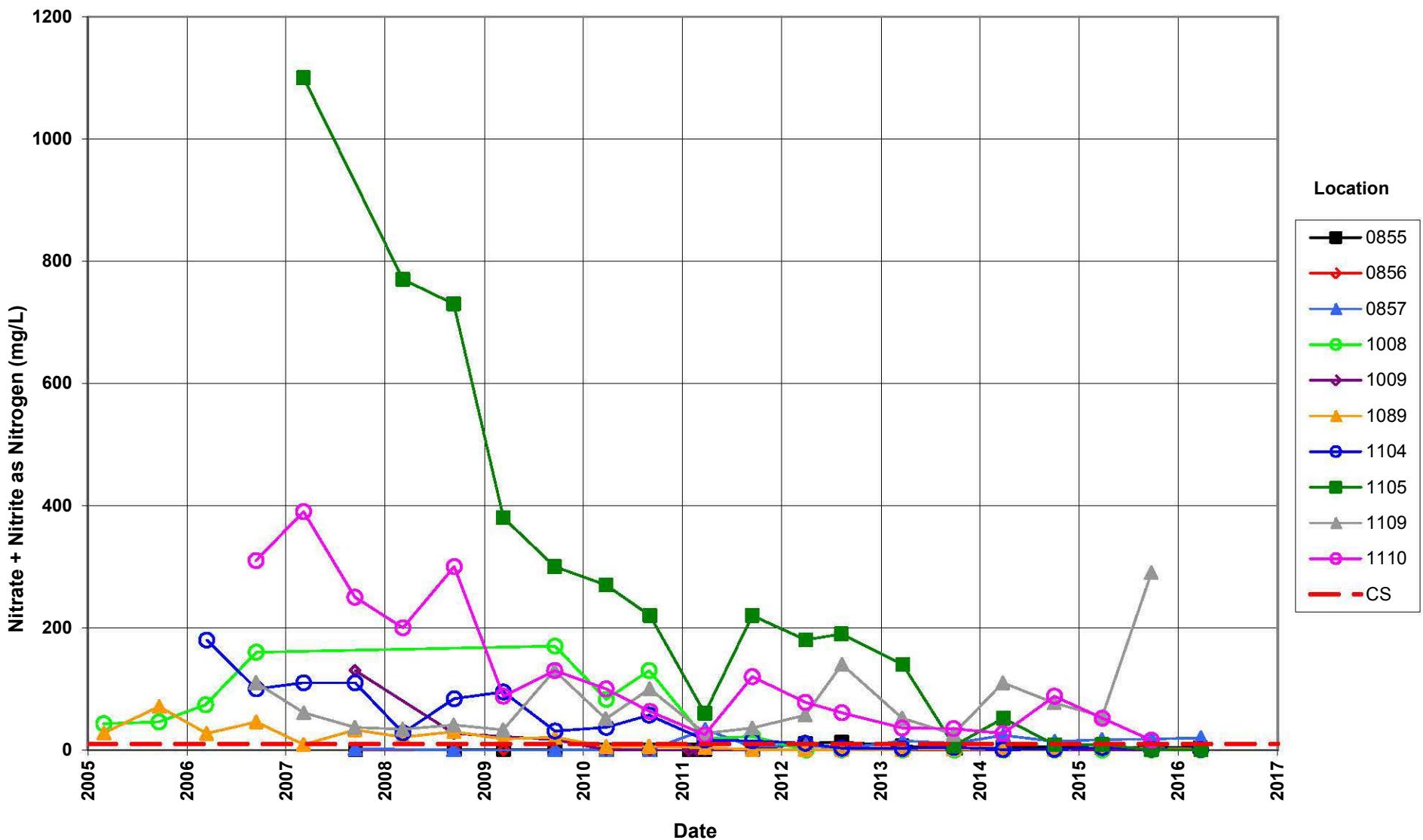
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



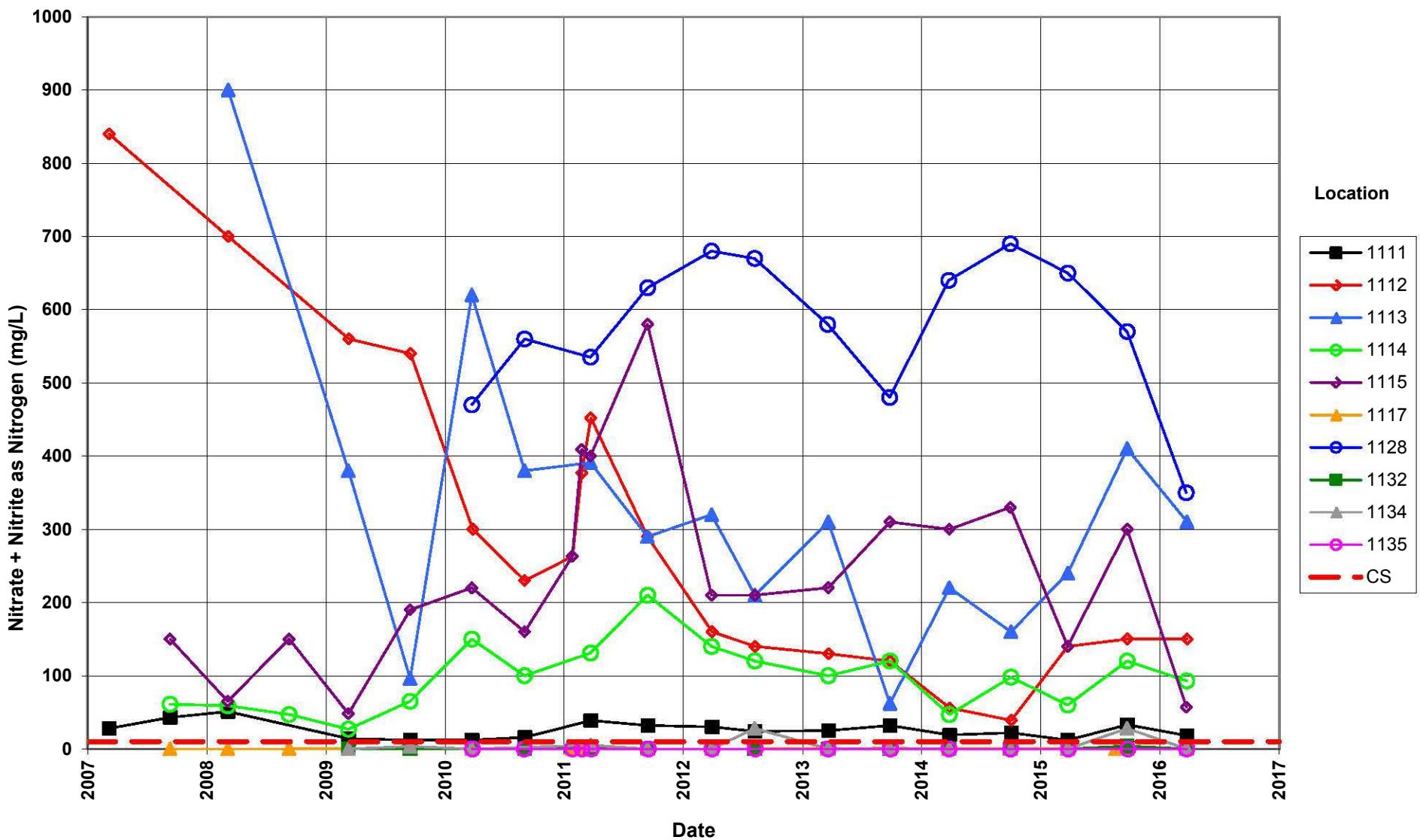
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



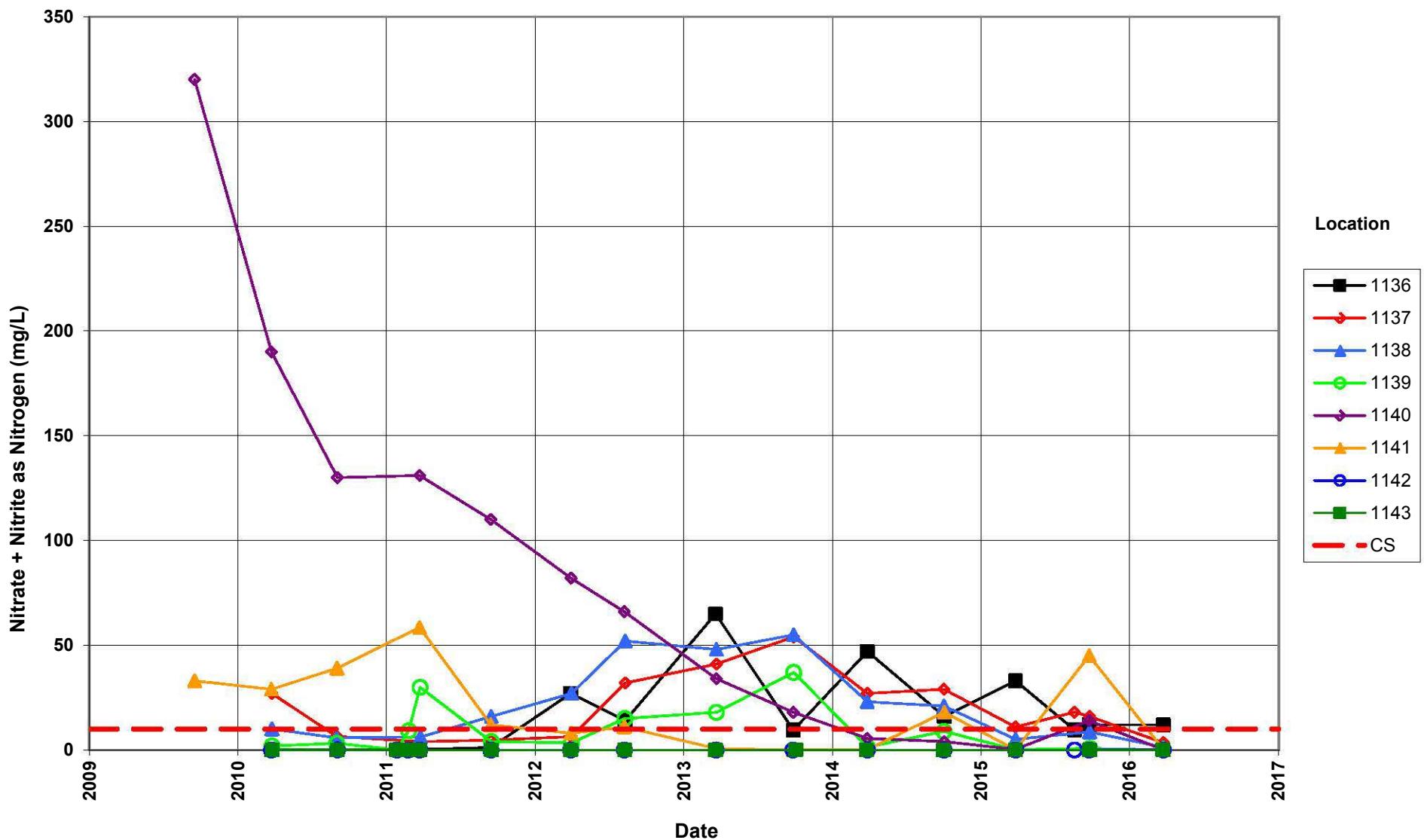
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



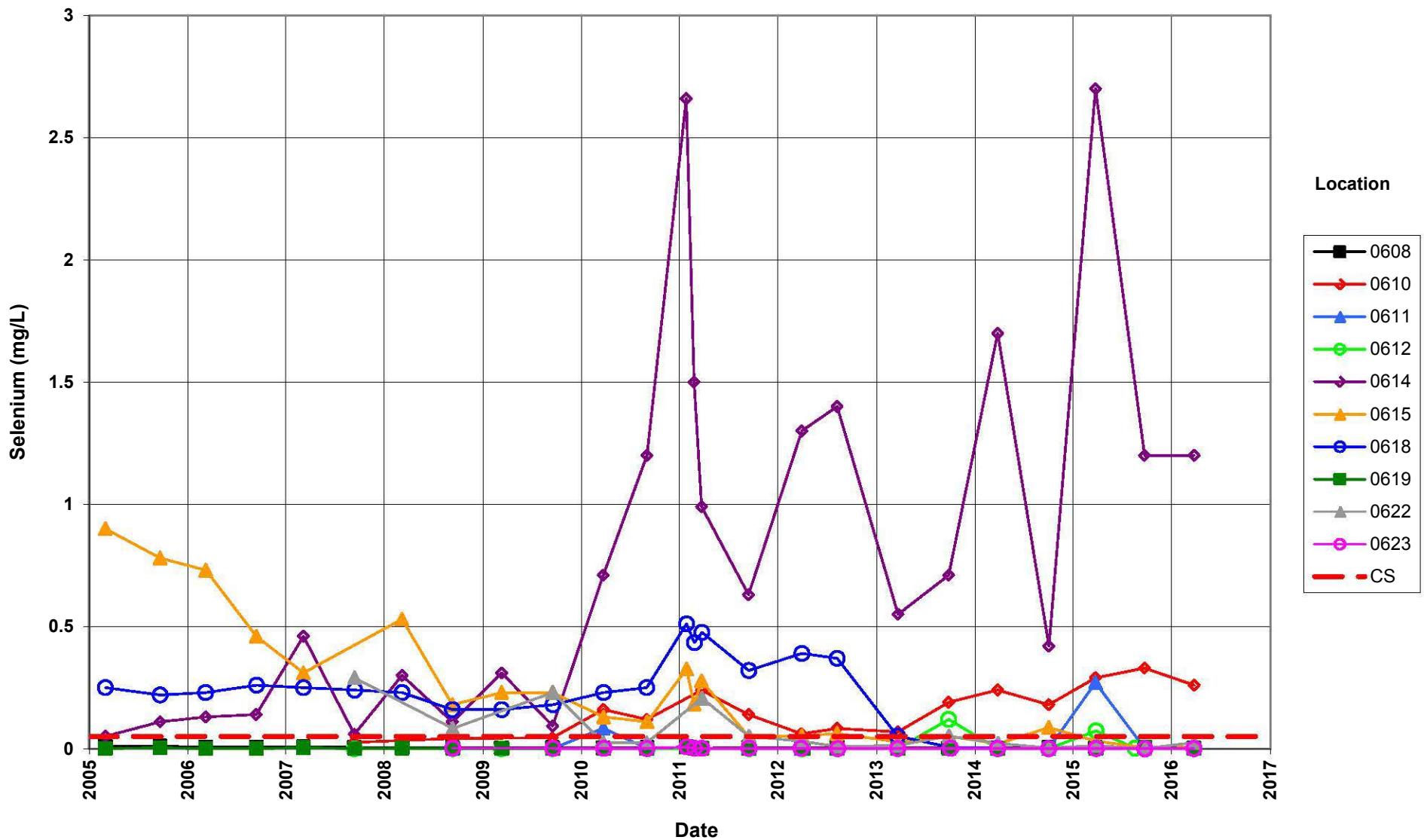
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



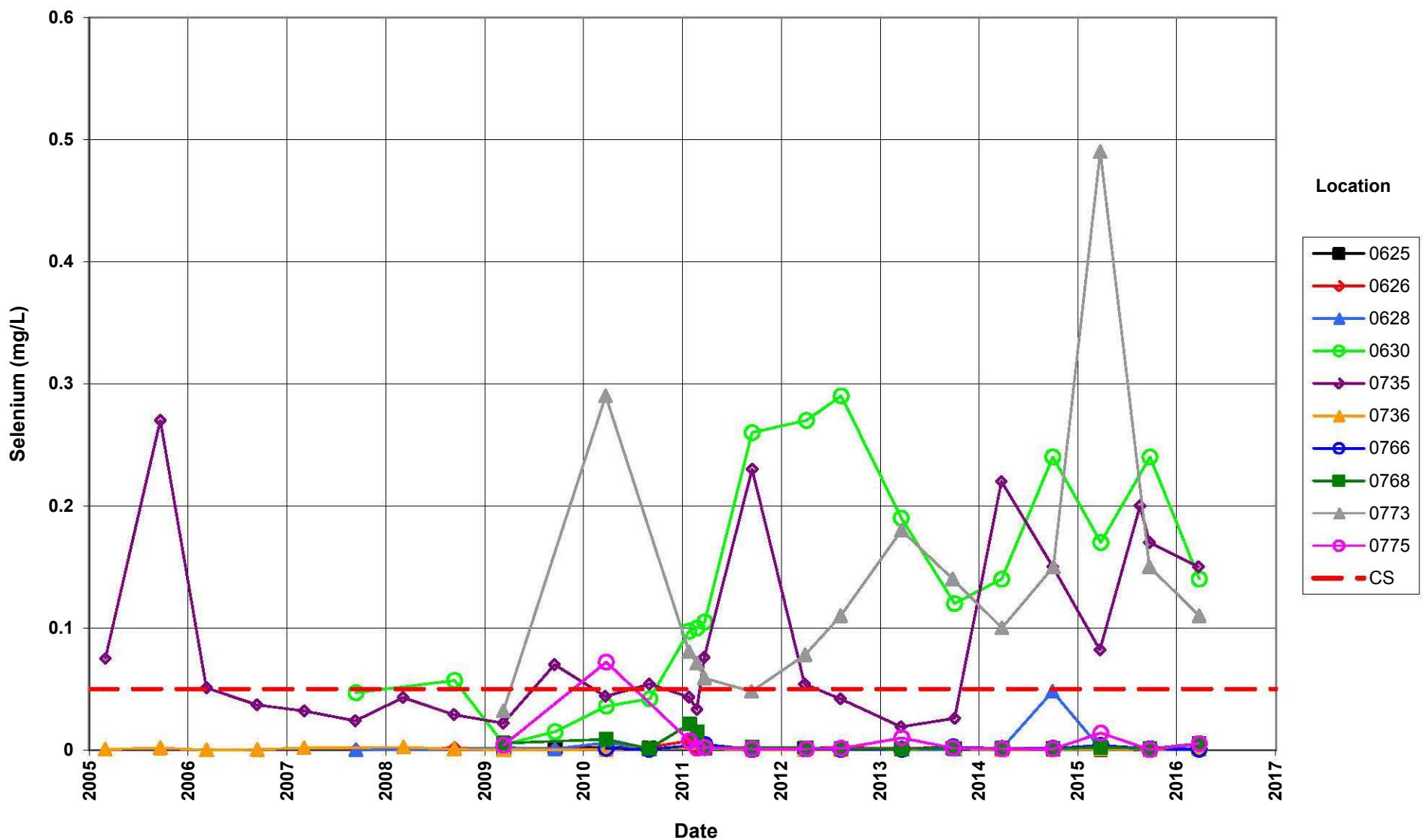
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L



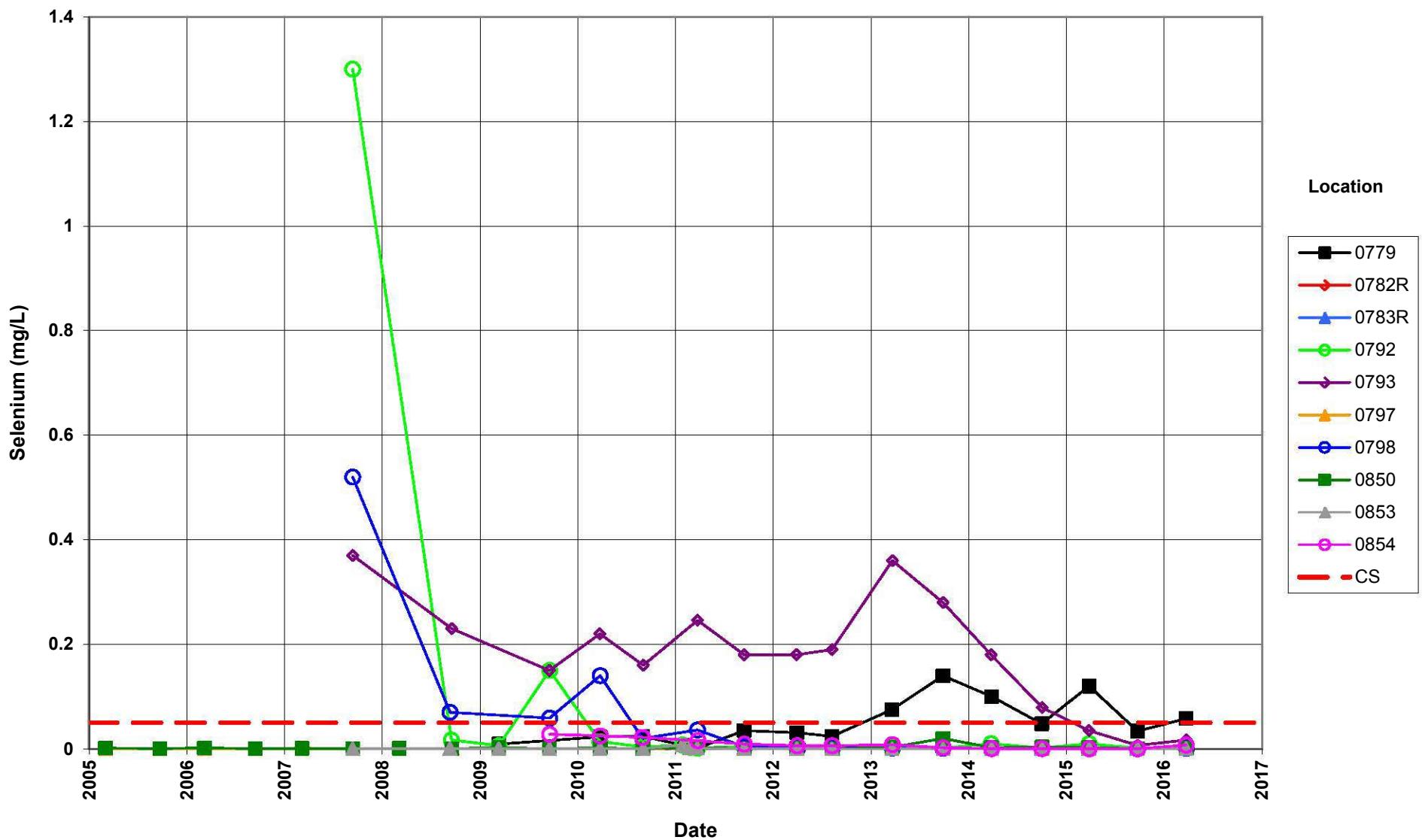
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



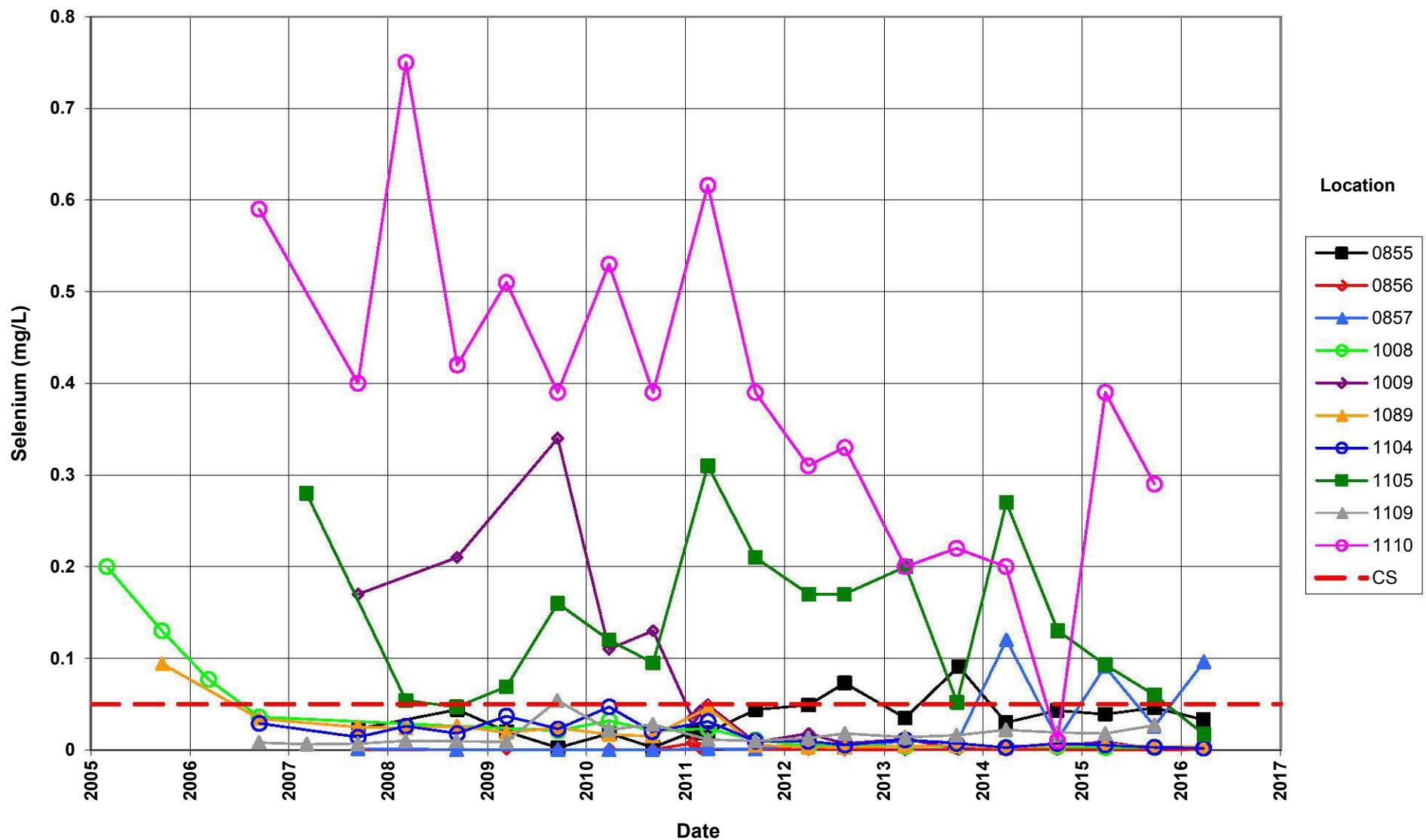
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



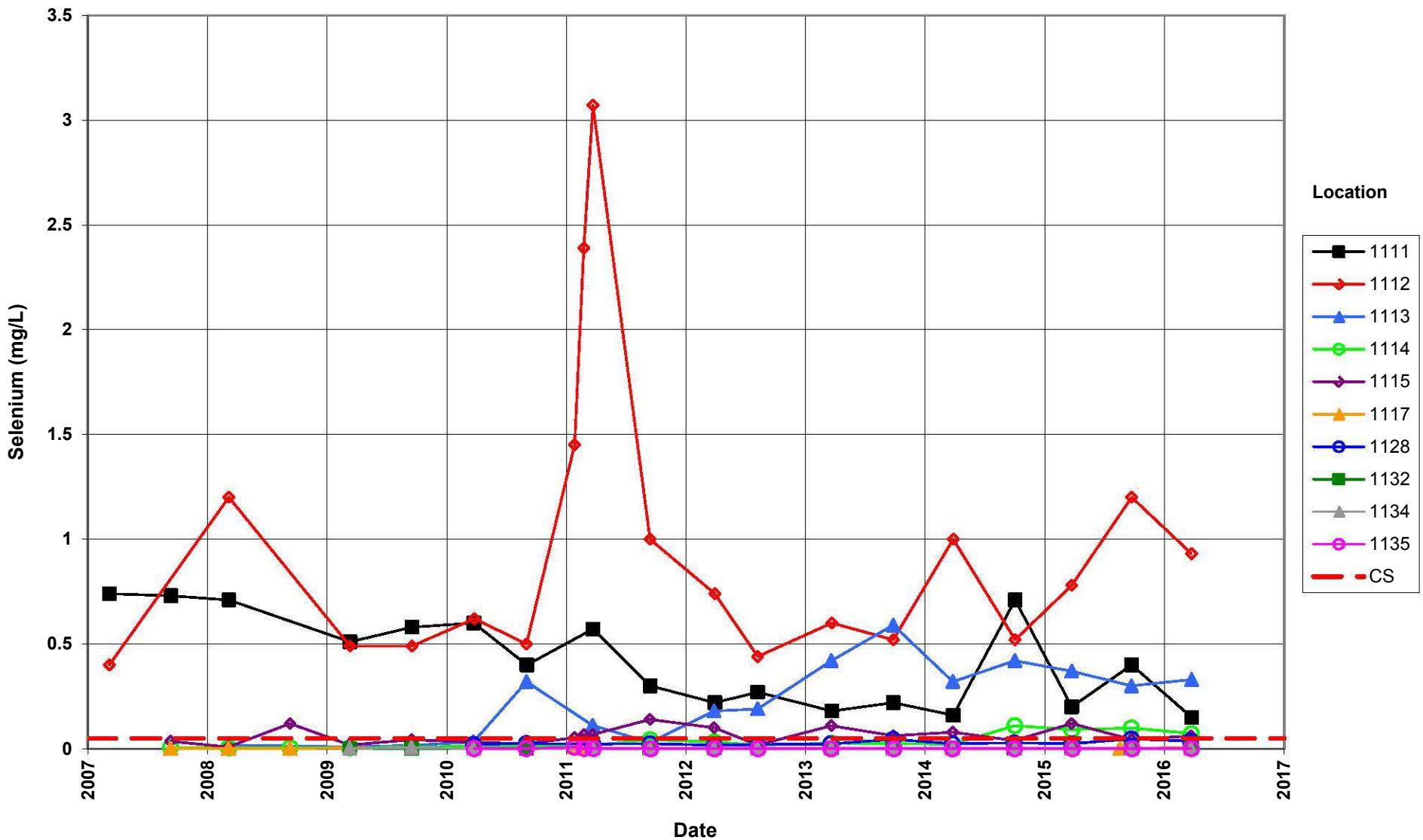
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



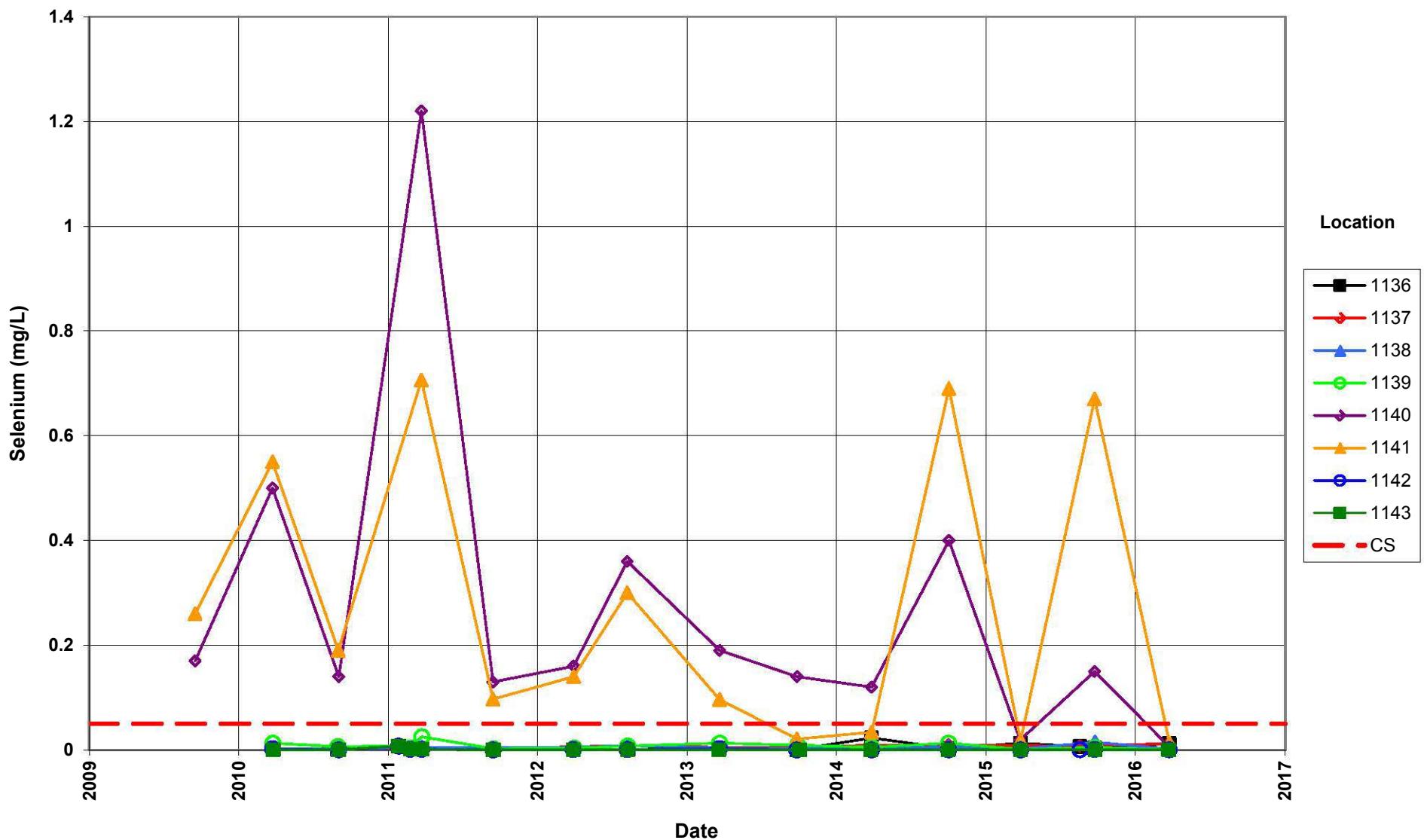
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



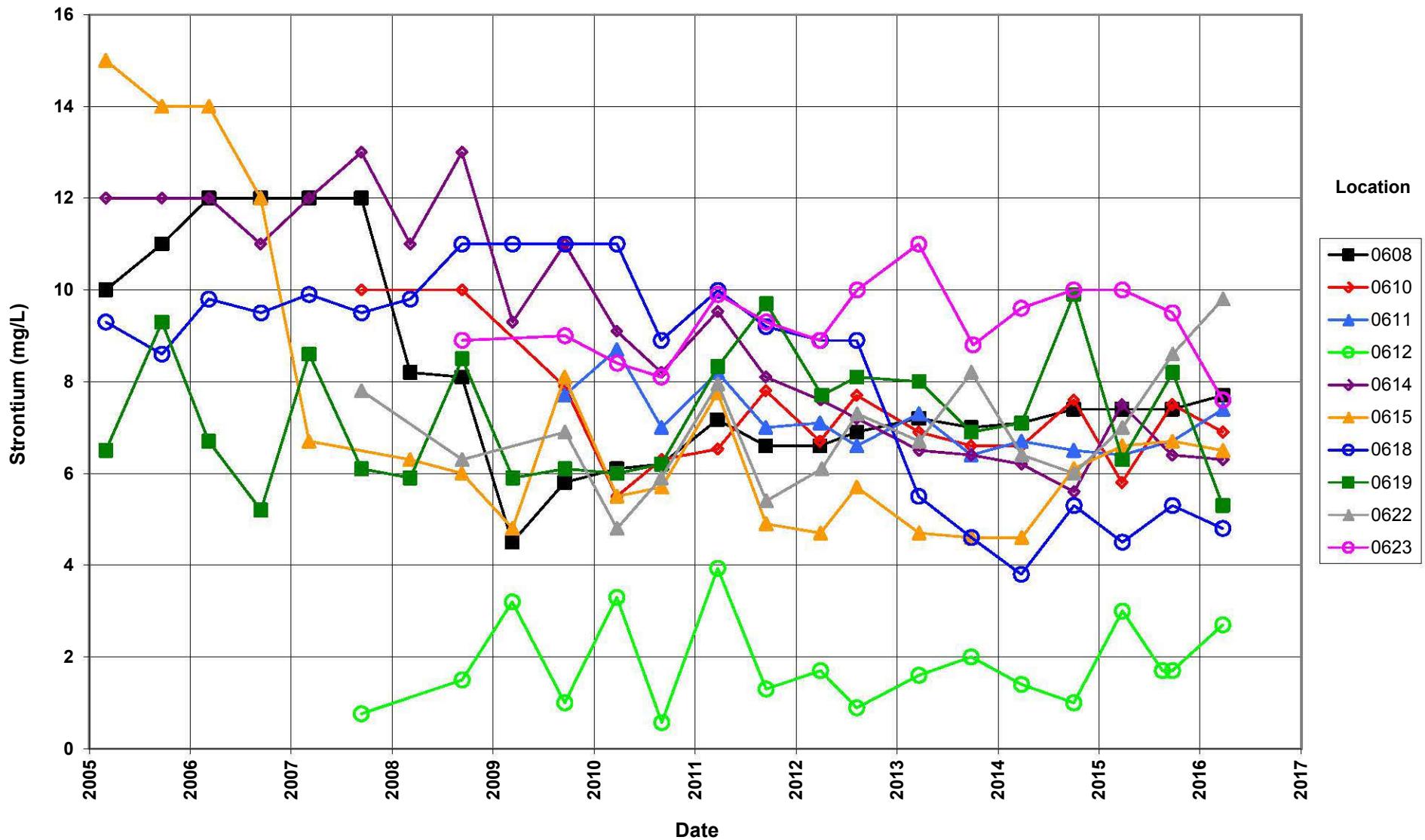
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



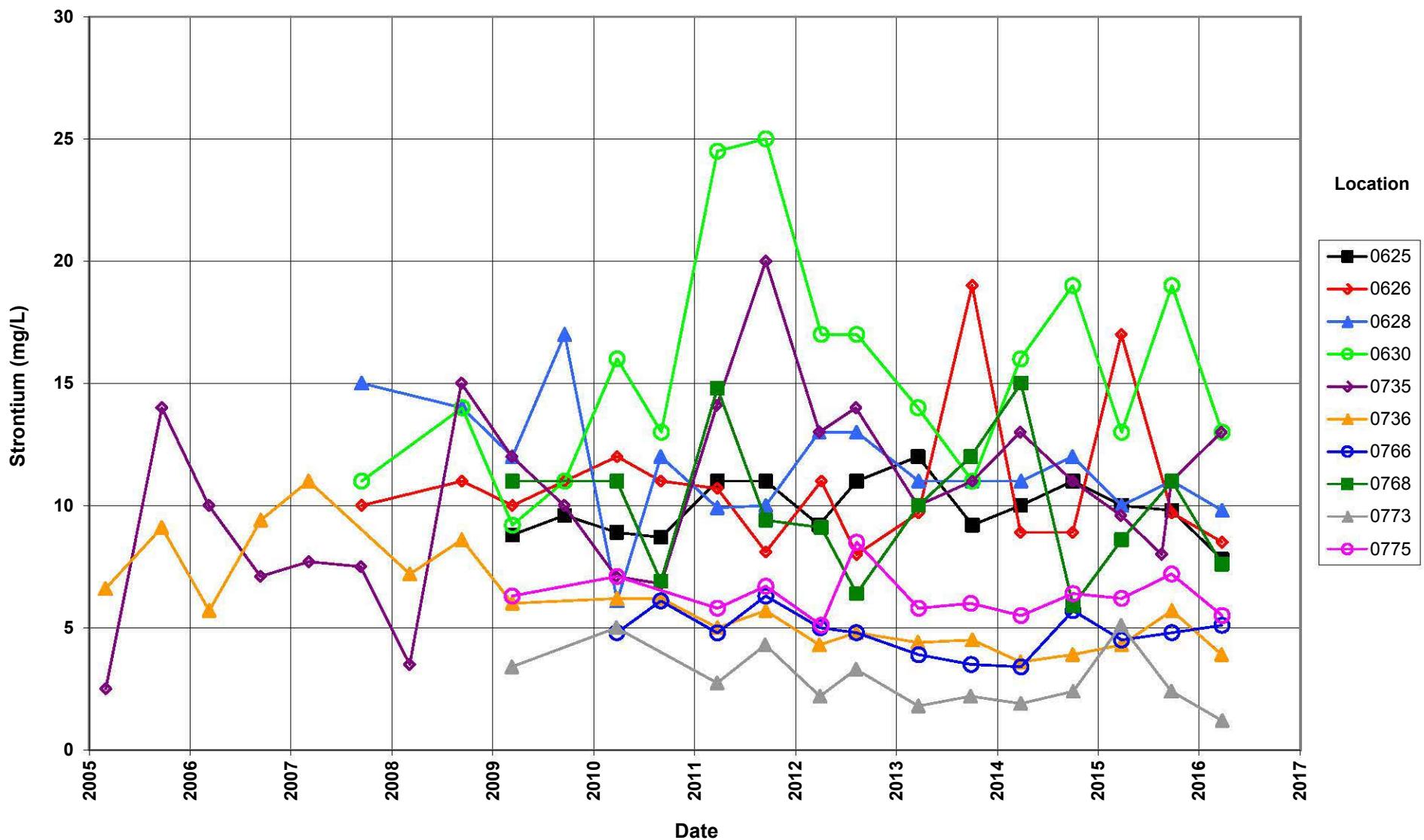
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



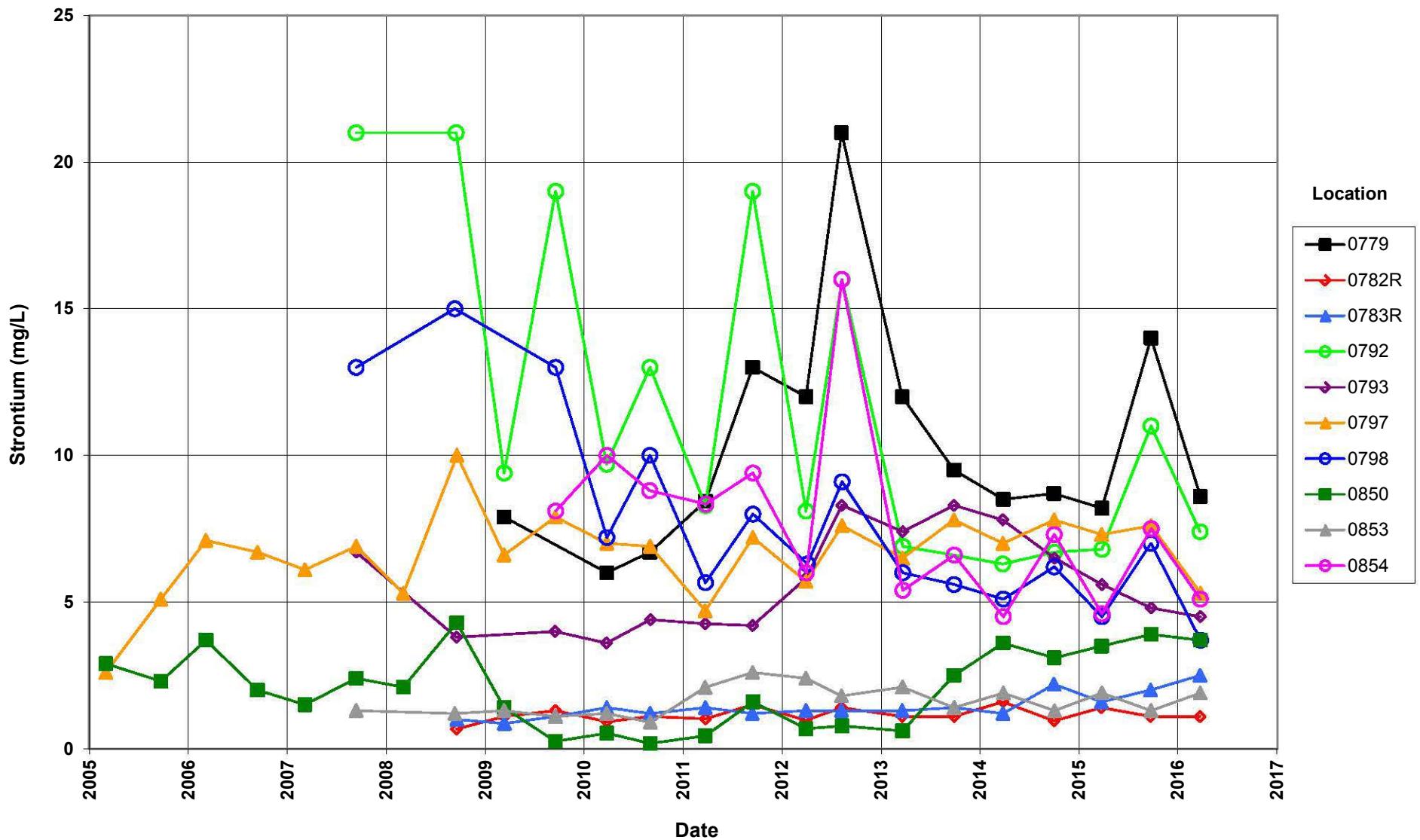
## Shiprock Disposal Site (Floodplain) Strontium Concentration



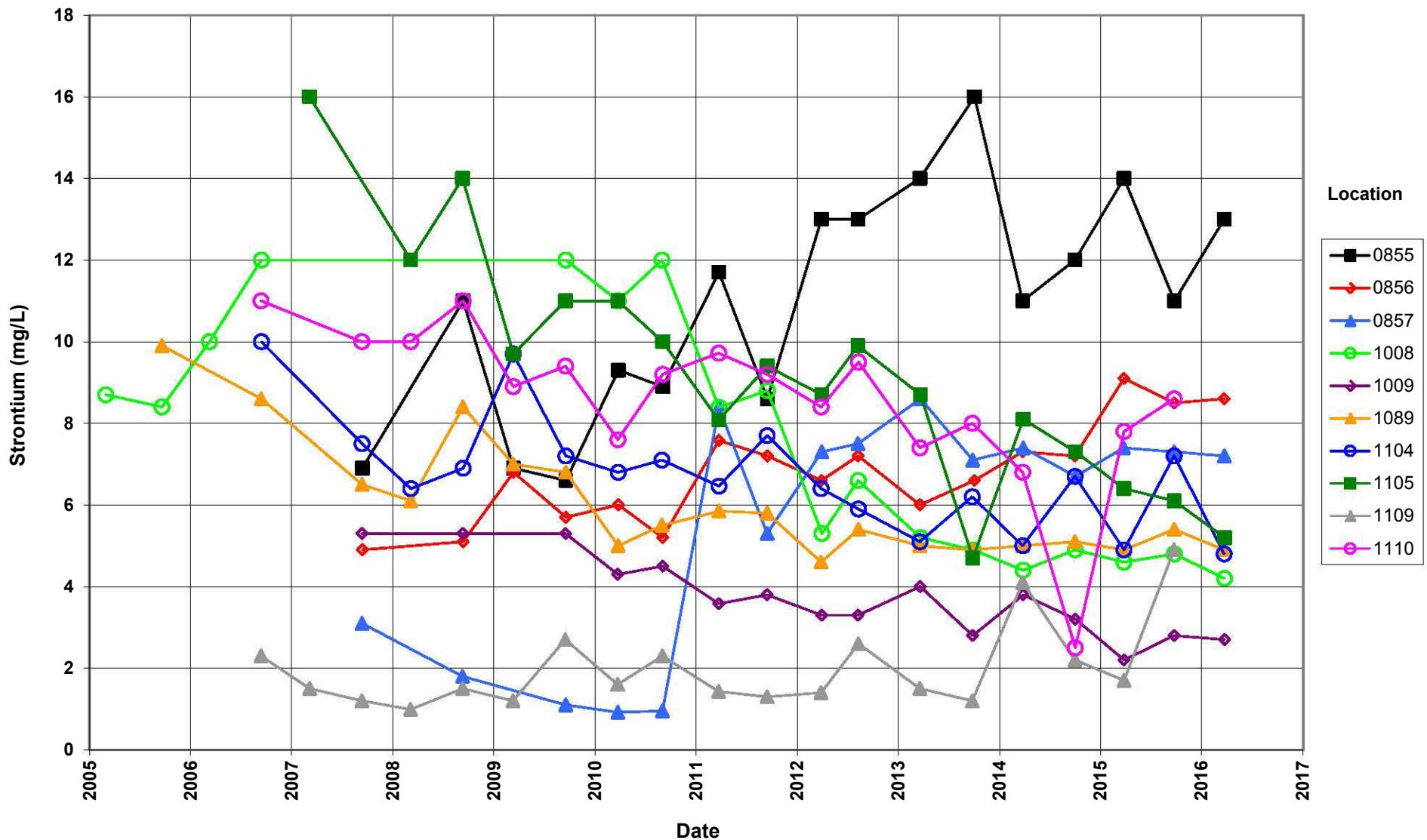
### Shiprock Disposal Site (Floodplain) Strontium Concentration



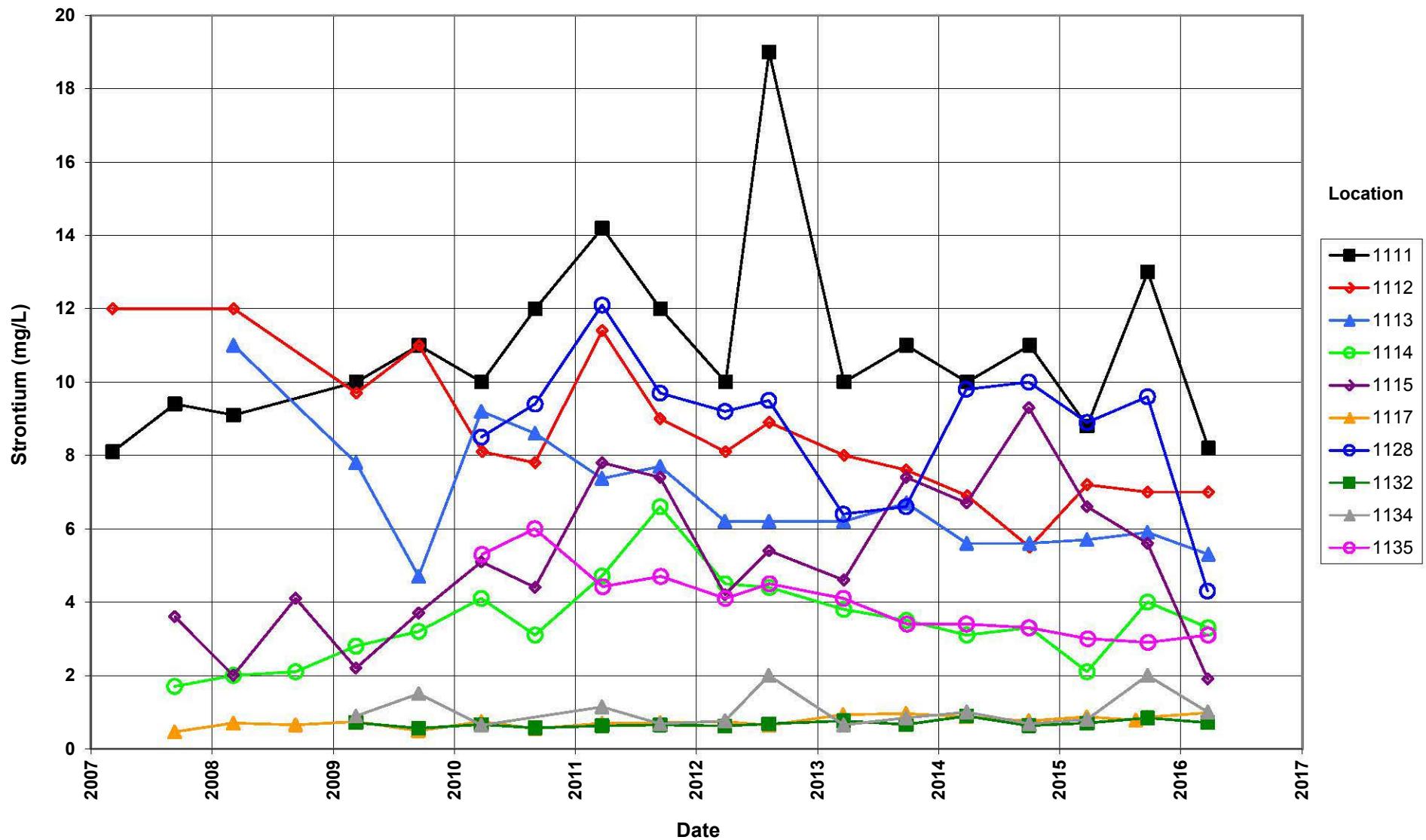
### Shiprock Disposal Site (Floodplain) Strontium Concentration



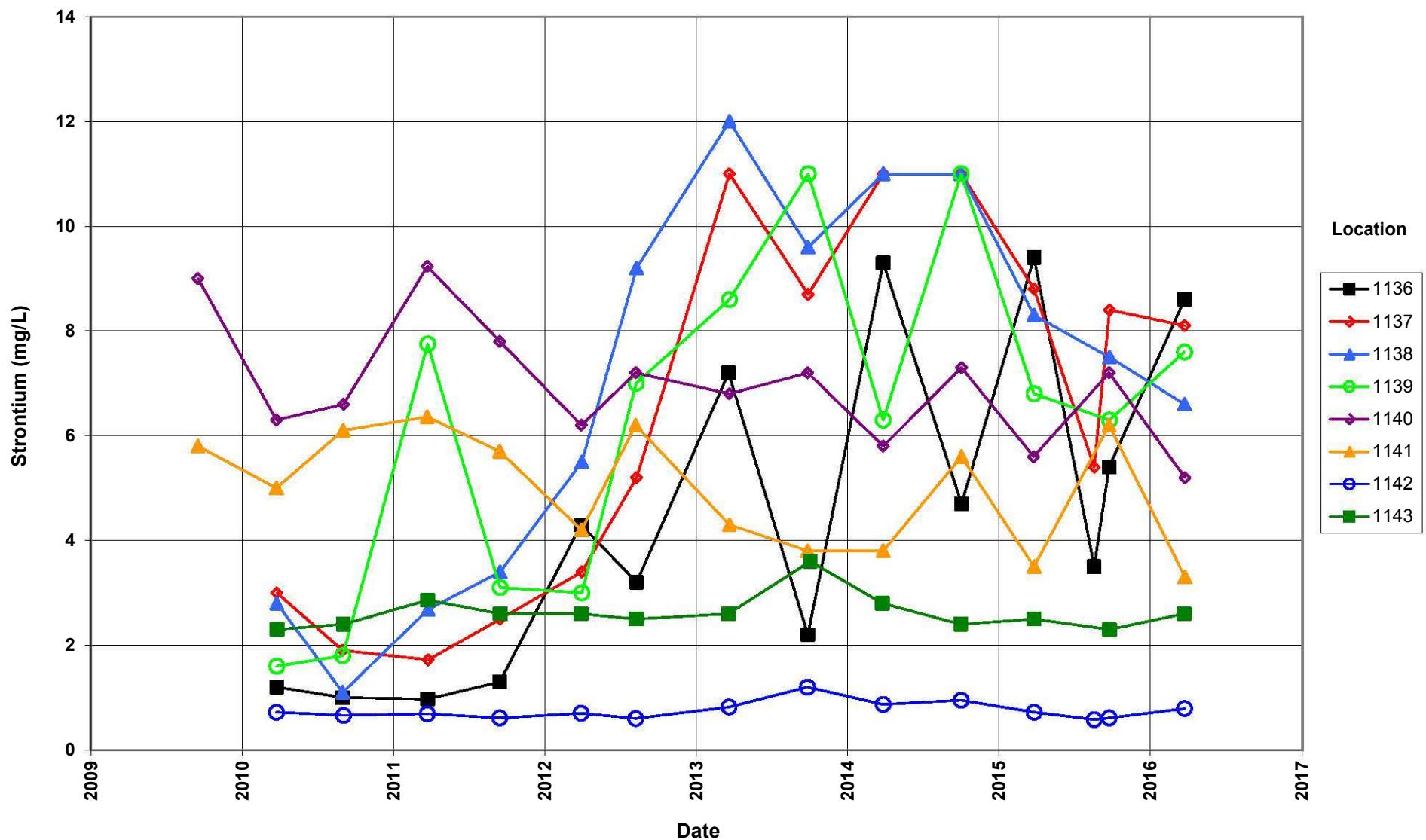
### Shiprock Disposal Site (Floodplain) Strontium Concentration



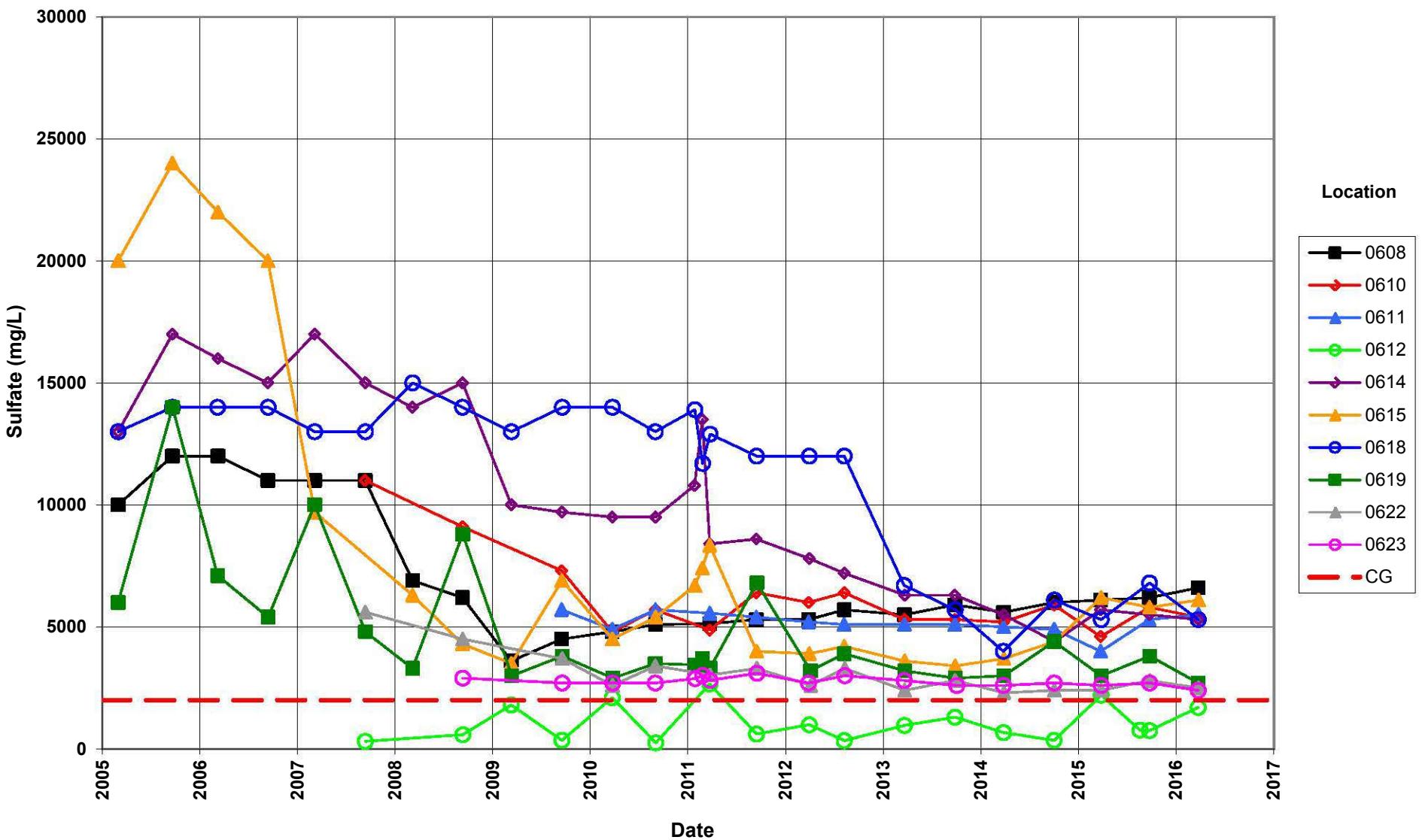
### Shiprock Disposal Site (Floodplain) Strontium Concentration



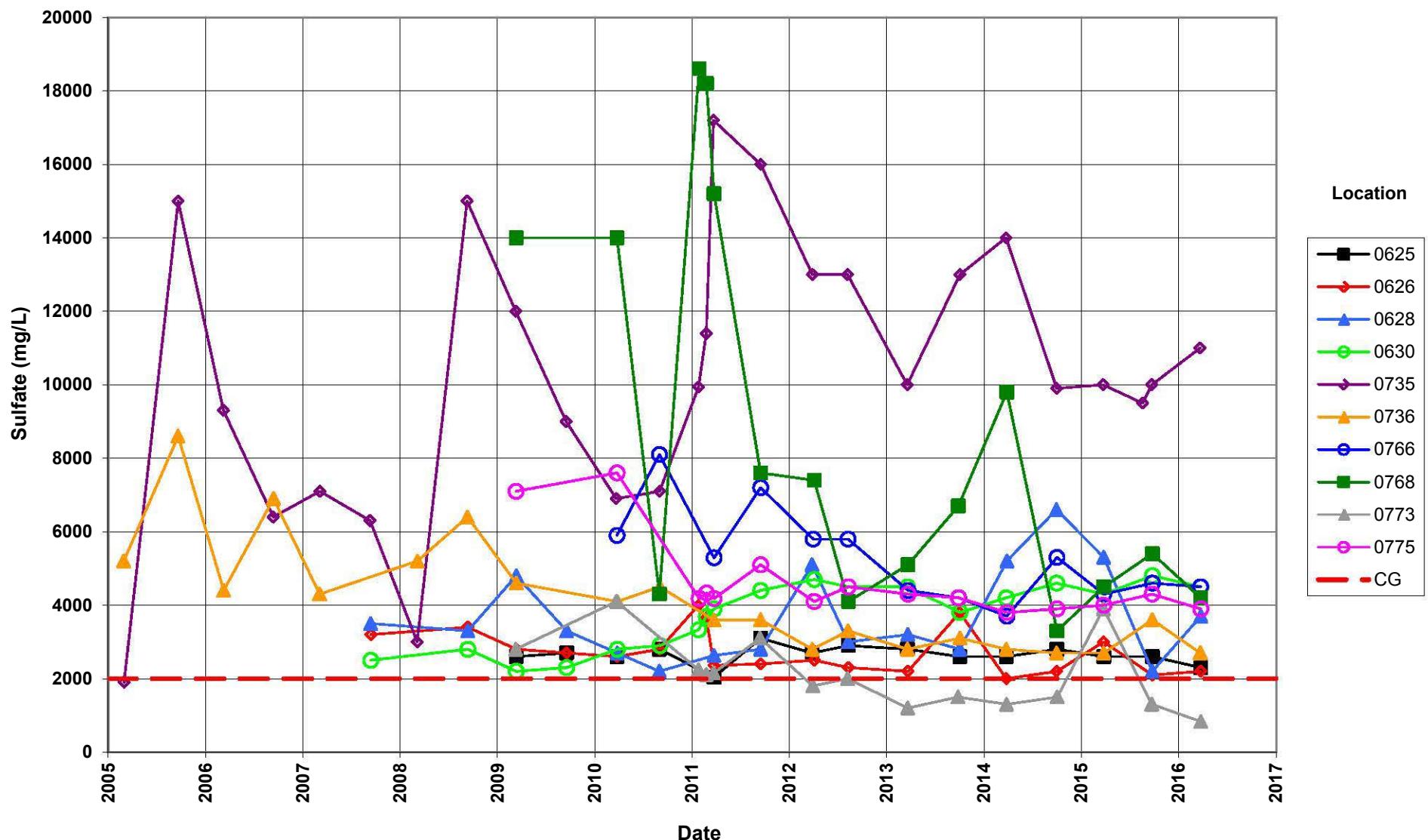
### Shiprock Disposal Site (Floodplain) Strontium Concentration



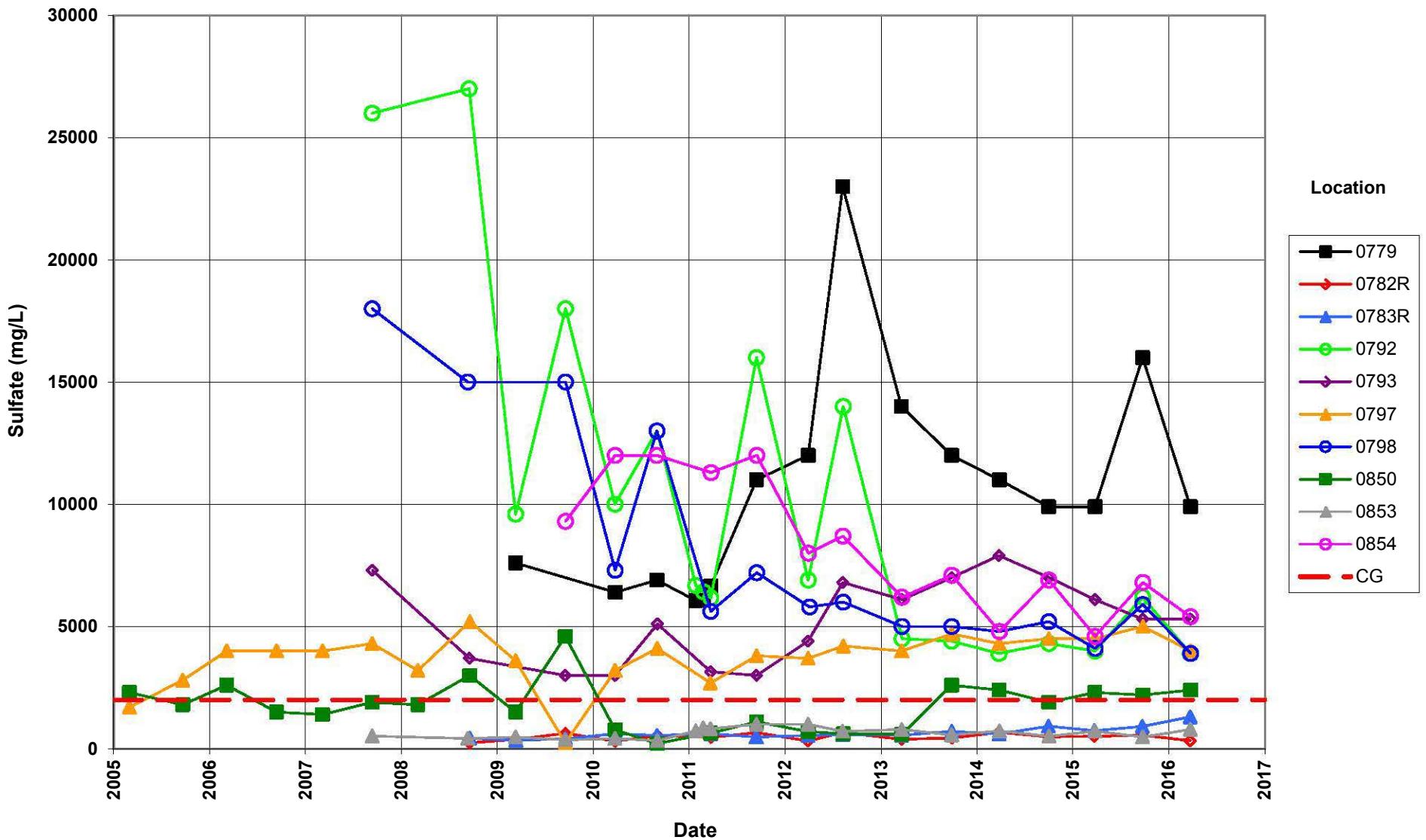
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2,000 mg/L



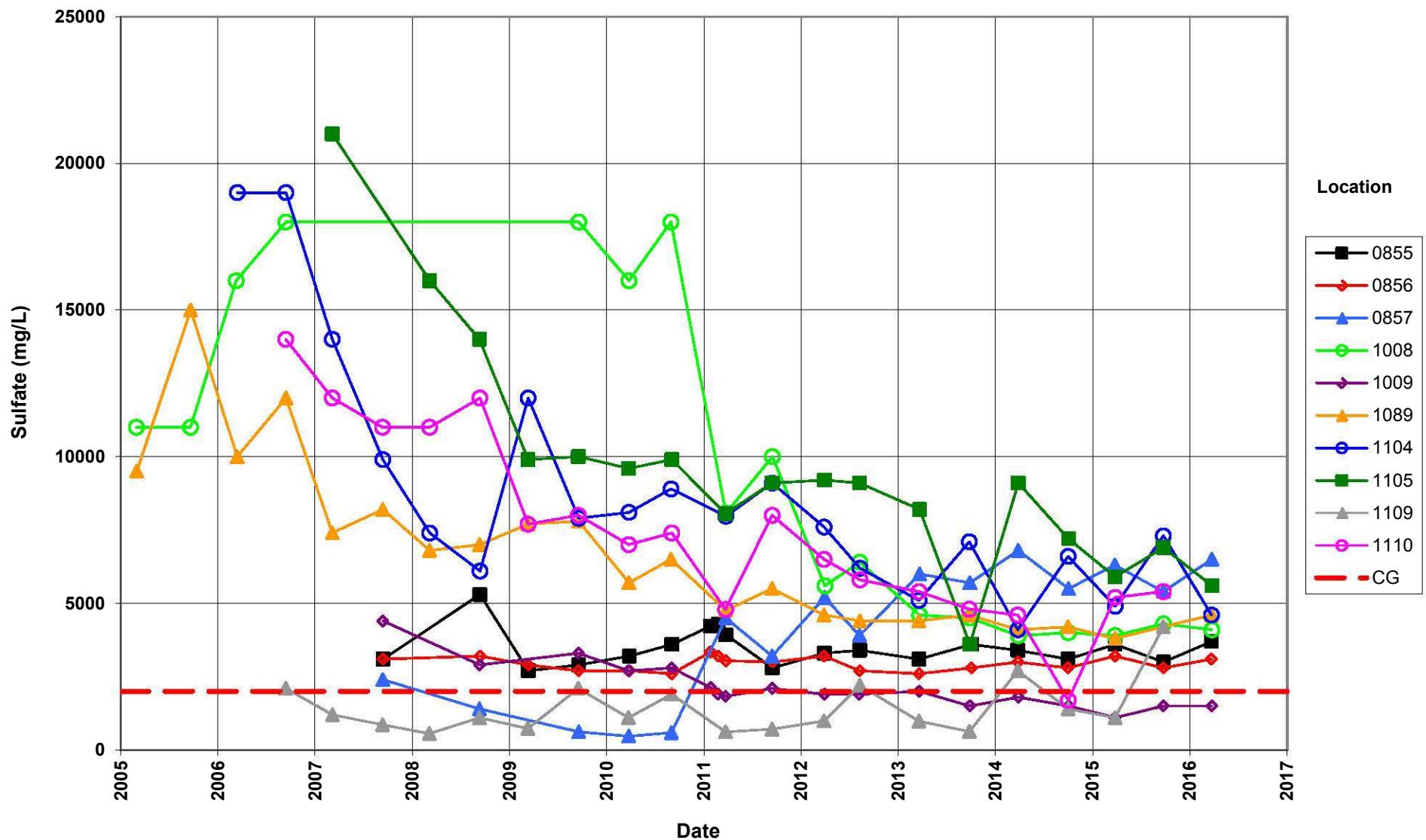
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2,000 mg/L



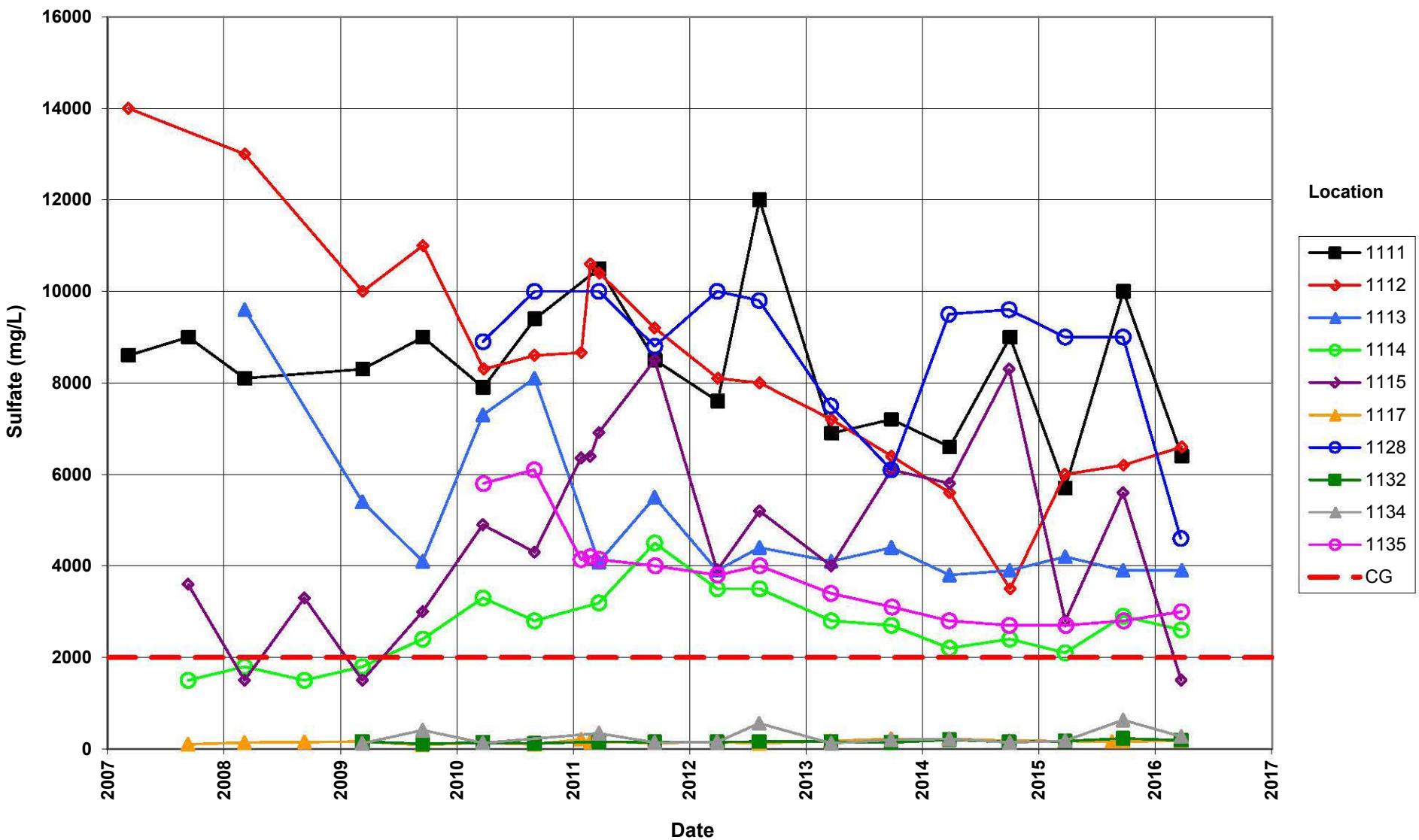
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
 Cleanup Goal (CG) = 2,000 mg/L



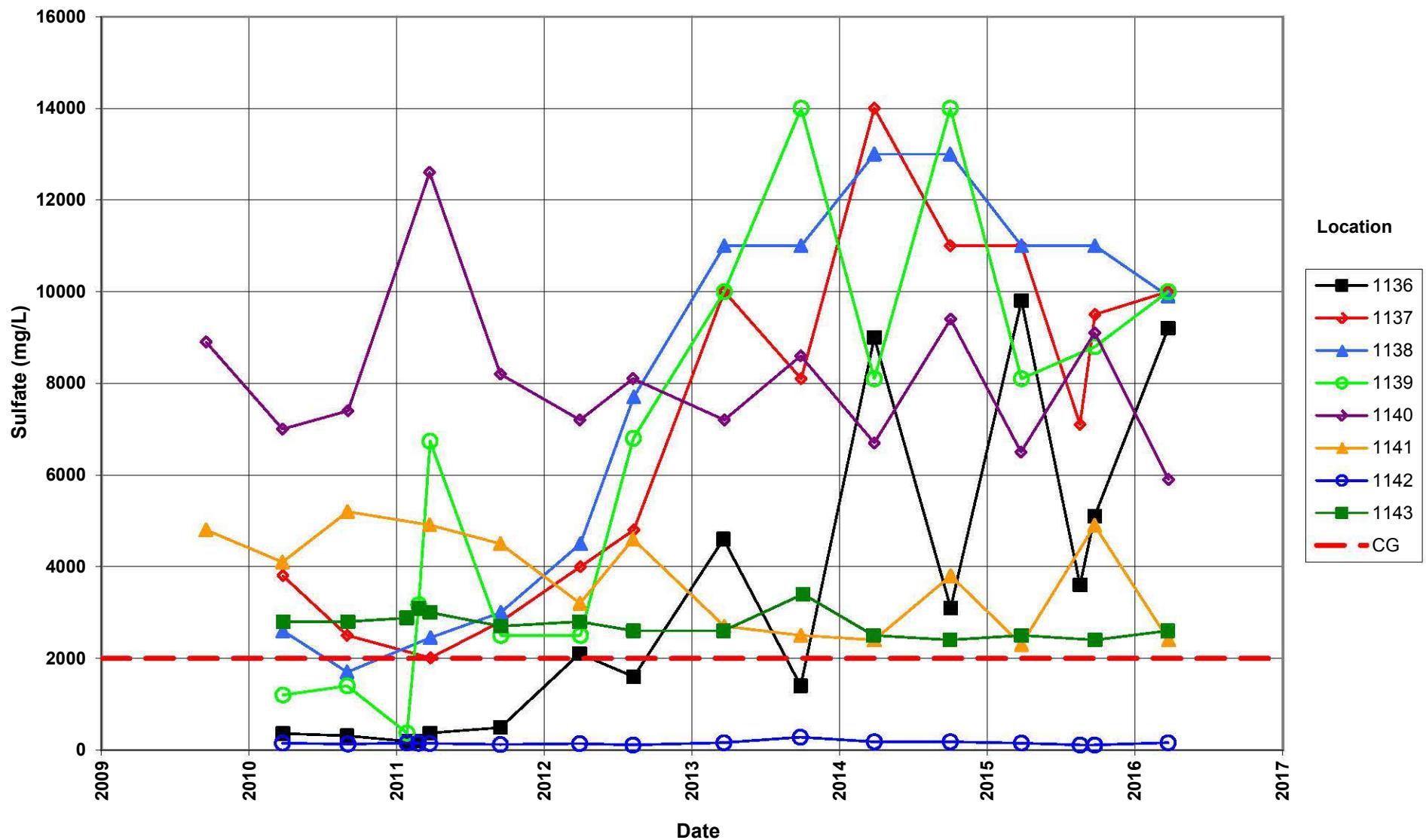
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2,000 mg/L



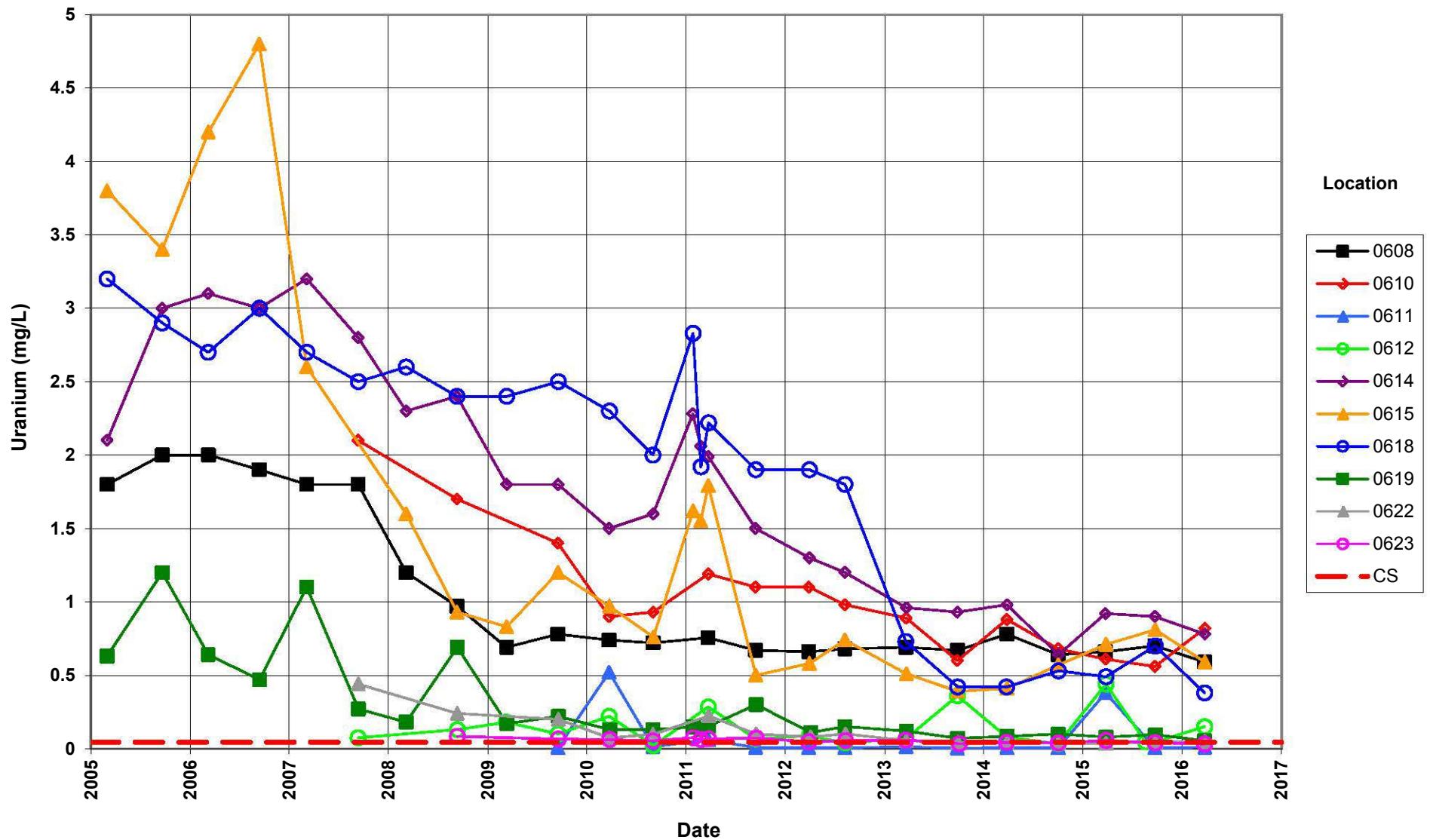
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2,000 mg/L



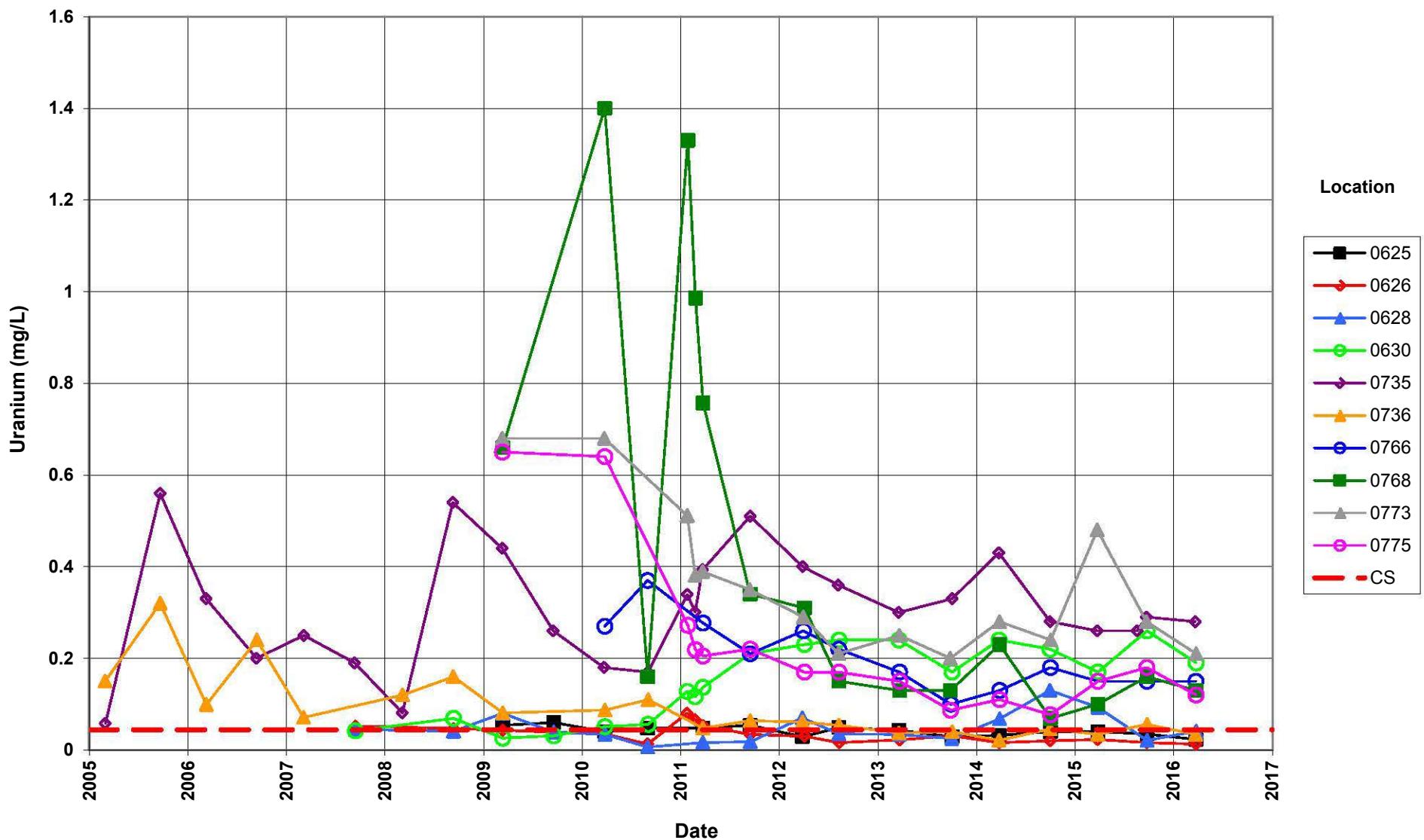
**Shiprock Disposal Site (Floodplain)**  
**Sulfate Concentration**  
Cleanup Goal (CG) = 2,000 mg/L



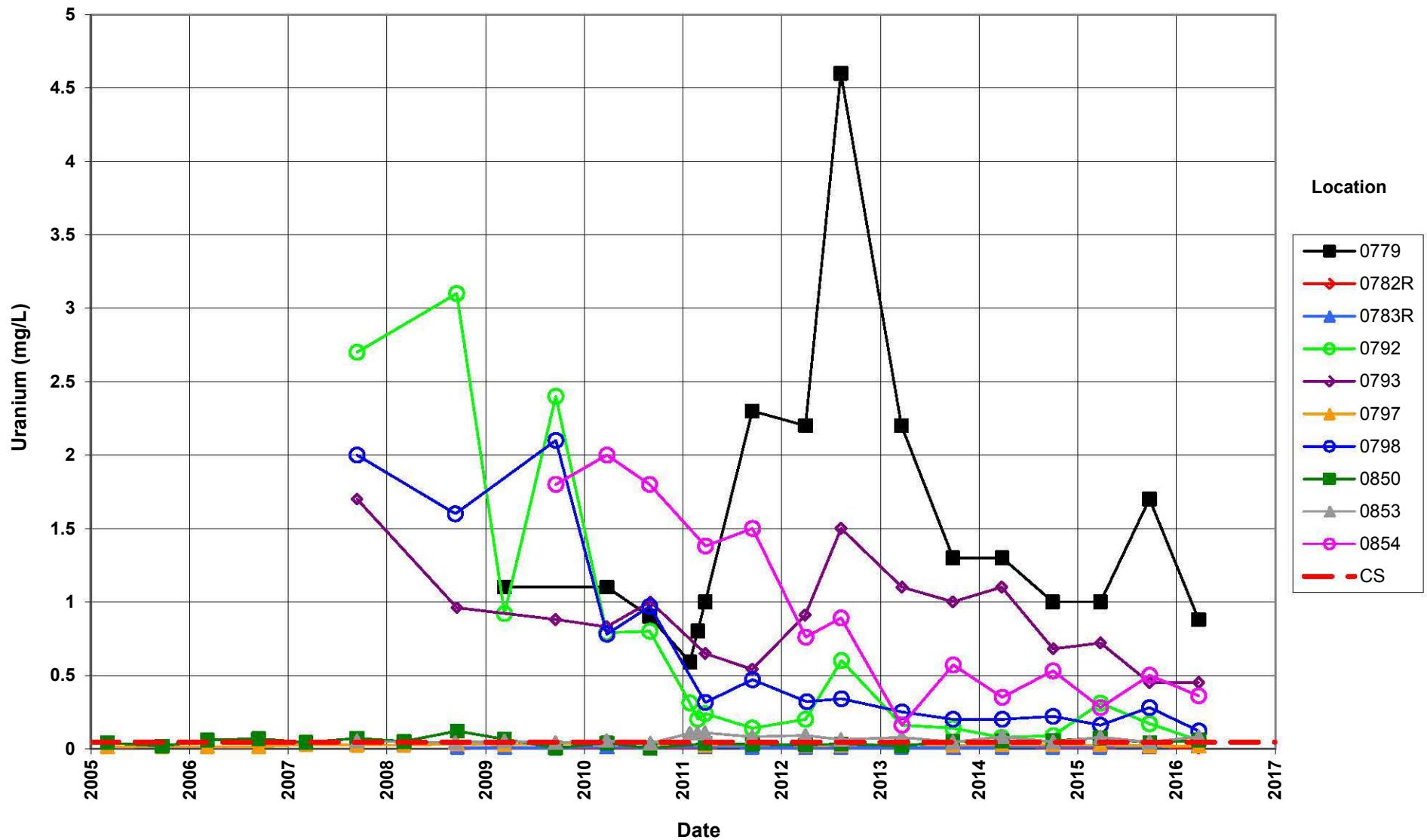
**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L



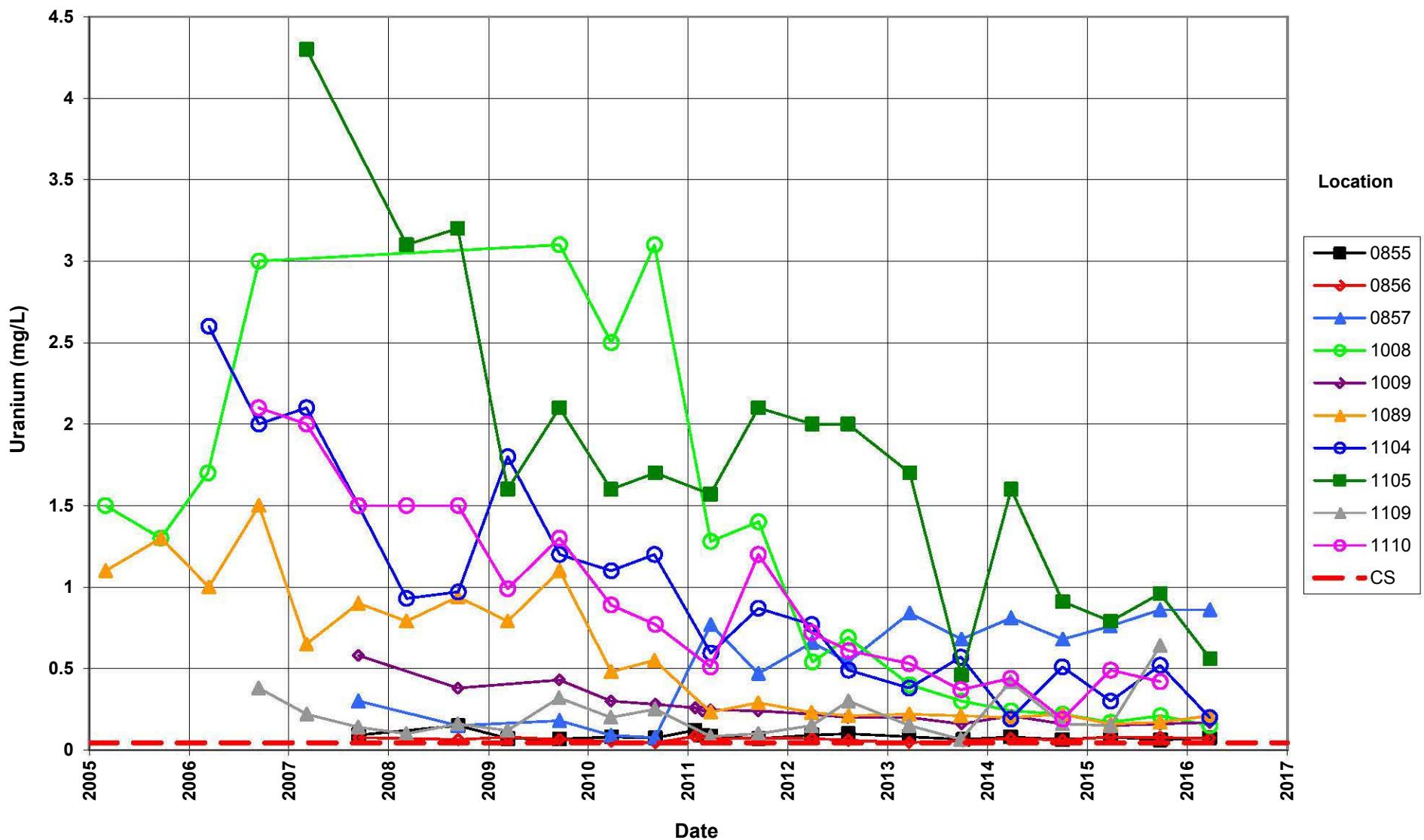
**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L



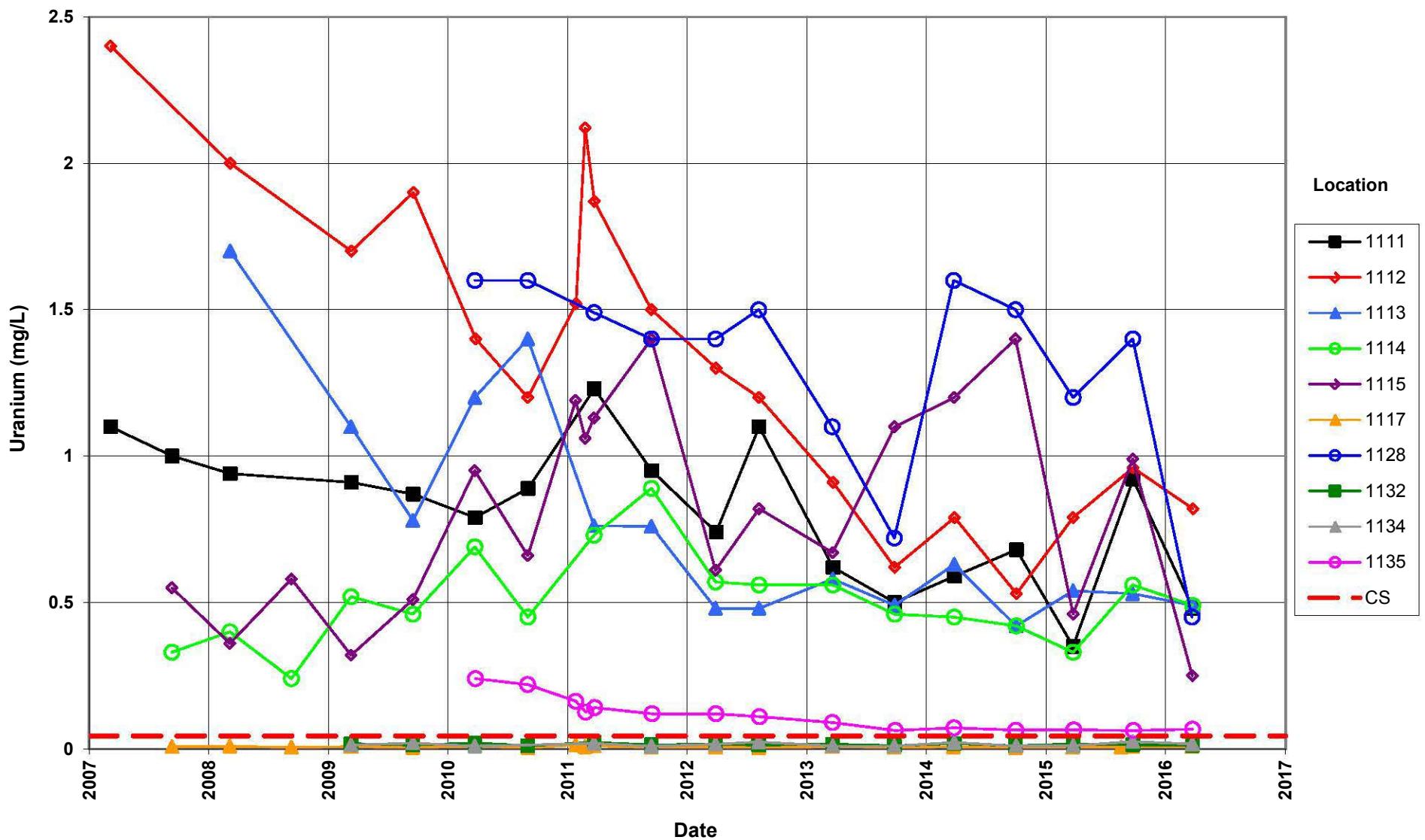
**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L



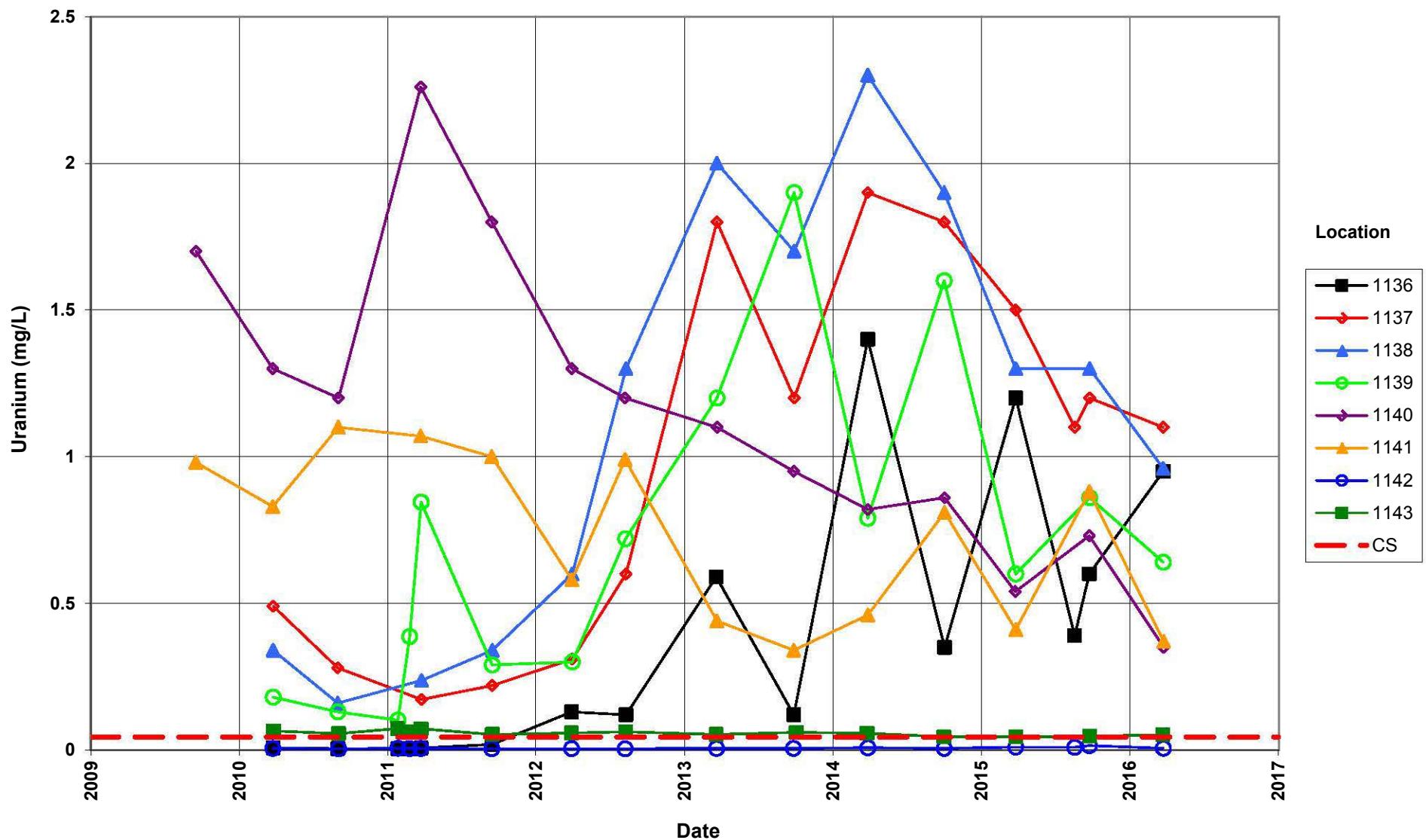
**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
 Compliance Standard (CS) = 0.044 mg/L



**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**

This page intentionally left blank



February 24, 2016

Task Assignment 103  
Control Number 16-0378

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

SUBJECT: Contract No. DE-LM0000421, Navarro Research & Engineering, Inc. (Navarro)  
Task Assignment 103 LTS&M-UMTRCA TI & TII Sites, D&D Sites, Other  
Sites, and Other  
March 2016 Environmental Sampling at the Shiprock, New Mexico, Disposal  
Site

REFERENCE: Task Assignment 103, 1-103-1-02-119, Shiprock, New Mexico, Disposal Site

Dear Mr. Kautsky:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, New Mexico. 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 March 21, 2016.

Samples collected at the following SHP01 (floodplain) locations will be both filtered and unfiltered: 0501, 0897, 0899, 0940, 0956, 0965, 0967, 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	622 Al	736 Al	792 Al	855 Al	1105 Al	1115 Al	1137 Al
610 Al	623 Al	766 Al	793 Al	856 Al	1109 Nr	1117 Al	1138 Al
611 Al/Km	625 Al	768 Al	797 Al	857 Al	1110 Nr	1128 Al	1139 Al
612 Al	626 Al	773 Al	798 Al	1008 Al	1111 Al	1132 Al	1140 Al
614 Al	628 Al	775 Al	850 Al	1009 Al	1112 Al	1134 Al	1141 Al
615 Al	630 Al	779 Al	853 Al	1089 Al	1113 Al	1135 Al	1142 Al
618 Al	734 Al	782R Al	854 Al	1104 Al	1114 Al	1136 Al	1143 Al
619 Al	735 Al	783R Al					

Mark Kautsky  
Control Number 16-0378  
Page 2

**Terrace**

600 Km	812 Al/Km	822 Km	833 Al	1003 Km	1068 Al	1091 Al
602 Km	813 Al/Km	823 Km	835 Al	1004 Km	1069 Al/Km	1092 Al
603 Al/Km	814 Al/Km	824 Km	836 Al	1007 Al/Km	1070 Al/Km	1093R Al
604 Km	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
731 Al/Km	821 Km	832 Al/Km	1002 Km	1060 Al/Km	1088 Nr	

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

**SURFACE LOCATIONS**

**Floodplain**

501	897	940	965	1118	1203	1205
655	899	956	967			

**Terrace**

662	949	1215	1218	1219	1220	1221
889						

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/bkb

Enclosures (3)

Mark Kautsky  
Control Number 16-0378  
Page 3

cc: (electronic)  
Christina Pennal, DOE  
Steve Donivan, Navarro  
Lauren Goodknight, Navarro  
David Miller, Navarro  
EDD Delivery  
rc-grand.junction  
File: SHP 400.02

## Constituent Sampling Breakdown

Site	Shiprock		Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Analyte	Groundwater	Surface Water			
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 (NO3+NO2)-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			

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

**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
1008		X				Data logger
1009		X				

**Sampling Frequencies for Locations at  
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>FLOODPLAIN - SHP01</b>						
1062					X	WLs only
1089		X				U, SO4, N as NO3 only at vault
1104		X				U, SO4, N as NO3 only at vault
1105		X				
1109		X				Trench 2; U, SO4, N as NO3 only at vault
1110		X				Trench 1; U, SO4, N as NO3 only at vault
1111		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1112		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1113		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1114		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1115		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1117		X				Well point; U, SO4, N as NO3 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
725		X				Data logger
726		X				
727		X				
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

**Sampling Frequencies for Locations at  
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>TERRACE - SHP02</b>						
812		X				
813		X				Data logger
814		X				
815		X				
816		X				
817		X				Low flow
818		X				Ext. well; U, SO4, N as NO3 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				
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, SO4, N as NO3 only at vault

**Sampling Frequencies for Locations at  
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>TERRACE - SHP02</b>						
1071		X				Ext. well; U, SO4, N as NO3 only at vault
1073		X				Data logger
1074		X				
1078		X				Ext. well; U, SO4, N as NO3 only at vault
1079		X				Low flow
1087		X				SUMP-Bob Lee Wash
1088		X				SUMP-Many Devils Wash
1091		X				Ext. well; U, SO4, N as NO3 only at vault
1092		X				Ext. well; U, SO4, N as NO3 only at vault
1093R		X				Ext. well; U, SO4, N as NO3 only at vault
1095		X				Ext. well; U, SO4, N as NO3 only at vault
1096		X				Ext. well; U, SO4, N as NO3 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
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
967		X				San Juan River upgradient
1118		X				only at vault
1203		X				East of disposal cell
1205		X				San Juan River E of well 853
<b>TERRACE - SHP02</b>						
662		X				Lower Bob Lee Wash
889		X				Many Devils Wash
949		X				
1215		X				
1218		X				
1219		X				
1220		X				
1221		X				

Sampling conducted in March and September

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

## **Attachment 4**

### **Trip Report**

This page intentionally left blank

*memo*



---

## Navarro Research and Engineering

To: David Miller  
From: Jennifer Graham  
CC: Mark Kautsky, DOE  
David Miller, Navarro  
David Dander, Navarro  
Steve Donivan, Navarro  
EDD Delivery

Date: 4/13/2016  
Re: Trip Report

---

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

**Dates of Sampling Event:** March 21-24, 2016

**Team Members:** Jennifer Graham, Gretchen Baer, Jeff Price, David Atkinson, Rob Rice, and Samantha Tigar

**Sampling Summary:** Samples were collected from 123 of the 147 locations identified on the routine environmental sampling notification letter as follows in Table 1. An additional sub set of samples was collected at 11 of the former locations, as requested in an email on 03/07/16 for the Gold King Mine Spill Project. Explanations for locations not sampled are listed in Table 2.

*Table 1: Sampled versus Planned Location Summary*

Description	Locations That Were Sampled	Planned Locations
SHP01 Monitoring wells	56	59
SHP02 Monitoring wells	51	69
SHP01 Surface locations	11	11
SHP02 Surface locations	5	8

Table 2: Locations Not Sampled/Reason

Location	Reason
SHP01 Monitoring well: 0734	Dry
SHP02 Monitoring wells: 0821, 0823, 0825, 0829, 1002, 1003, 1004, 1011, 1048, 1060, 1120, 1122, and DM17	Dry
SHP02 Monitoring well: 0727	Well previously abandoned
SHP02 Monitoring well: 0812	Well had been damaged, no sample or field measurements were collected.
SHP02 Monitoring well: 0815	No access to well
SHP02 Monitoring well: 1069	Well dewatered after field measurements were collected. No sample was collected.
SHP01 Extraction wells: 1109 and 1110	Wells not currently operating/not sampled per site lead.
SHP02 Extraction well: 1088	Well not currently operating/ not sampled per site lead.
SHP02 Surface locations: 0949 and 1218	Dry
SHP02 Surface location: 1220	No access

**Location Specific Information:**

- Location specific information is listed below in Tables 3 and 4.
- Both regular semiannual samples and special analytes were collected at select locations, along with field measurements for total chlorine. The additional analytes and field measurements were collected in accordance with *Work Plan to Investigate Potential Non-Mill-Related Water Inputs to the Terrace Alluvium at Shiprock, New Mexico*, (LMS/SHP/S13286) and the 8/18/15 Gold King Technical Task Plan. Additional analytes collected included metals (As, Cd, Cu, Hg, Pb and Zn). Field measurements for total chlorine were taken at select locations listed in Table 5. These total chlorine field measurements were collected using a manganese interference method. Measurement results are recorded in data base.
- No access was available to artesian well location 0648. The requested flow rate and total chlorine measurement were not able to be collected.
- Intake depths were collected from some of the SHP01 locations and are recorded in Table 6.

*Table 3: SHP01 Location Specific Information*

Location IDs	Comments
0612	Water has sulfur odor.
0619 and 0768	Well was not able to maintain water level stability at minimum of 100 mL/min. Water level stability was met with a flow rate of less than 100 mL/min and samples/field measurements were collected as a Cat I well. Well may need to be categorized as Cat II.
0626, 0782R, 0783R, 0855, 0856, 1142, and 1143	Purge water contained black particulates.
0655	Surface water was potentially stagnant.
0736	Data logger was removed and replaced in order to sample well. Initial water level was below recorded screened interval; however, water level stability was met and a sample was collected.
0775	Water had root particles present in purge water.
0850	Previously Cat I well; was not able to maintain water level stability, well was sampled as Cat II. Purge water contained organic particulates.

*Table 4: SHP02 Location Specific Information*

Location IDs	Comments
0730	Well dewatered during sample collection.
0843	Black particulates in water.
0848	Sample water effervesced with the addition of preservation acid.
1069	Only field measurements were collected. Well dewatered before samples could be collected.

### **Location Specific Total Chlorine Measurements:**

*Table 5: Total Chlorine Measurements (using manganese interference method)*

Location ID	Site	Total Chlorine (mg/L)
0967	SHP01	0.00
0604	SHP02	0.00
0648	SHP02	No Access
0725	SHP02	0.00
0728	SHP02	0.14
0813	SHP02	0.00
0827	SHP02	0.00
0828	SHP02	0.11
0830	SHP02	0.00
0833	SHP02	0.00
0835	SHP02	0.00
0841	SHP02	0.05
1007	SHP02	0.00
1058	SHP02	0.01
1073	SHP02	0.00
1078	SHP02	0.00
1087	SHP02	0.00

Table 5 (continued): Total Chlorine Measurements (using manganese interference method)

Location ID	Site	Total Chlorine (mg/L)
1093R	SHP02	0.00
1095	SHP02	0.00
1096	SHP02	0.09
1118 (seeps 0425 & 0426)	SHP02	Not collected per D. Dander
1215	SHP02	0.04
DTAP	SHP02	0.03

**Location Specific Sampling Depth Measurements:** Sampling depths were obtained for SHP01 because peristaltic pumps are used. Sample depths at SHP02 are fixed.

Table 6: SHP01 Sampling Depths

Location IDs	Depth of Sampling Intake Below TOC (ft)
0608	14.1
0610	10.7
0611	13.0
0612	9.4
0614	14.2
0615	8.9
0618	14.9
0622	8.7
0623	14.4
0625	9.0
0626	15.0
0628	11.1
0630	7.5
0734	7.9
0735	7.9
0773	8.8
0775	8.8
0792	9.4
0793	8.4
0798	10.7
0853	15.2
0855	12.4
0856	23.5
0857	18.1
1009	14.2
1111	8.8
1112	8.3
1113	7.3
1114	7.6
1115	11.4
1117	12.1

Table 6 (continued): SHP01 Sampling Depths

Location IDs	Depth of Sampling Intake Below TOC (ft)
1128	11.1
1134	13.0
1135	11.3
1136	12.0
1137	15.0
1138	14.1
1139	11.6
1140	10.3
1141	10.0
1143	13.3

**Requisition Index Numbers (RIN) Assigned:** Samples were assigned to RINs 16037686, 16037687, and 16037688. Field data sheets can be found in <\\crow\\SMS\\16037686\\FieldData> and <\\crow\\SMS\\16037687\\FieldData>.

**Quality Control Sample Cross Reference:** The false identifications assigned to the quality control samples are presented in Table 7.

Table 7: Quality Control Sample Cross Reference

False ID	Ticket Number	True ID	Sample Type	Associated Matrix	Associated Locations
2210	OEY 454	SHP01-1134	Duplicate	Ground Water	N/A
2211	OEY 455	----	Equipment Blank	Surface Water	SHP01-0501, 0897, 0899, 0956, 0965, 0967, 1203, 1205, SHP02-0889, 1219
2215	OEY 453	SHP01-1142	Duplicate	Ground Water	N/A
2592	OEY 457	SHP01-1205	Duplicate	Surface Water	N/A
2824	OEY 757	SHP01-0857	Duplicate	Ground Water	N/A
2319	OEY 512	SHP02-1078	Duplicate	Ground Water	N/A
2320	OEY 513	SHP02-0818	Duplicate	Ground Water	N/A
2665	OEY 519	SHP02-1096	Duplicate	Ground Water	N/A
2811	OEY 507	SHP02-1093R	Duplicate	Ground Water	N/A
2757	OEY 566	SHP01-1203	Duplicate	Surface Water	N/A
2758	OEY 567	SHP01-0612	Duplicate	Ground Water	N/A

**Sample Shipment:**

- All samples were shipped overnight via FedEx from Grand Junction to ALS Laboratory Group in Fort Collins, Colorado, on 03/28/16.

**Water Level Measurements:**

Water levels were measured in all sampled wells and in 11 additional wells. Water level data reports for these 11 wells can be found in <\\crow\\SMS\\FDCS\\WATER LEVELS>.

**Sampling Method:** Samples were collected according to the *Sampling and Analysis Plan (SAP) for the U. S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated) and Program Directive SHP-2015-01.

Total Chlorine measurements were taken using the Hach procedures manual for colorimeter model DR-890.

**Field Variance:** Turbidity requirements could not be met for Category I well SHP02-0843; samples were filtered.

**Equipment:** All equipment functioned properly. Multi-gas meters were used to verify the air quality in the vaults. Colorimeter Hach DR-890 was used to collect field measurements for total chlorine.

**Stakeholder/Regulatory/DOE:** Nothing to note.

**Institutional Controls:**

**Fences, Gates, and Locks:** All gates were left locked and in good condition.

**Signs:** No issues were observed.

**Trespassing/Site Disturbances:** None observed.

**Disposal Cell/Drainage Structure Integrity:** No issues observed.

**Safety Issues:** Air monitoring was completed prior to confined space entry. Results for all vaults indicated proper oxygen levels and no hazardous atmosphere.

**Access Issues:**

- Road access to SHP02 well 1060 is heavily eroded. Well may become inaccessible in near future without maintenance.
- SHP02 seep location 1220 had new no trespassing signs posted. Samplers did not enter the area per site lead direction.
- SHP02 wells 0648 and 0815 are located behind a locked gate with no access. Attempts to obtain access to locations were not successful.

**General Information:** Nothing to note.

**Immediate Actions Taken:**

- Locks were installed at SHP01 wells: 0775, 1111, 1112, 1113, and 1141.
- Left dedicated bailer at well SHP02-0832.
- Well SHP02-0812: Well was broken and filled with sediments. Sampling team fixed well and bailed out sediments as best as possible. Well did not recover with enough water to take samples and will need additional redevelopment.
- Air fittings at SHP02 well 0817 were repaired prior to sampling.

**Future Actions Required or Suggested:**

- Wells needing redevelopment:
  - SHP01 wells: 0619, 0768, 0782R, 0783R, 0850, 0855, 0856, 1142, and 1143
  - SHP02 wells: 0812 and 0843.