

# Data Validation Package

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WM-00058

**September 2015  
Groundwater and Surface Water  
Sampling at the  
Shiprock, New Mexico, Disposal Site**

**February 2016**



**U.S. DEPARTMENT OF  
ENERGY**

Legacy  
Management

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## **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  
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**

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# Sampling Event Summary

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

**Sampling Period:** September 22–24, 2015

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 in three groups identified by a requisition index number (RIN). Samples from floodplain locations were submitted under RIN 15097348 and from terrace locations under RIN 15097349.

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)
<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>
0608				6200	0.70
0610		350	0.33	5800	0.56
0611				5300	
0614		87	1.2	5500	0.90
0615	3.9			5800	0.81
0618				6800	0.70
0619				3800	0.095
0622				2800	0.045
0623				2700	
0625				2600	
0626				2100	
0628				2200	
0630		32	0.24	4800	0.26
0735		780	0.16	10000	0.29
0736				3600	0.056
0766				3600	0.15
0768				5400	0.16
0773			0.15		0.28
0775				4300	0.18
0779				16000	1.7
0792				6200	0.17
0793				5300	0.45
0797				5000	
0798				5900	0.28
0850				2200	
0854	4.0			6800	0.50
0855				3000	0.062
0856				2800	0.077
0857		18		5400	0.86
1008				4300	0.21
1009					0.16
1089				4200	0.17
1104				7300	0.52
1105	3.5		0.06	6900	0.96
1109		290		4200	0.64
1110		16	0.29	5400	0.42
1111		33	0.40	10000	0.92
1112		150	1.2	6200	0.96
1113		410	0.30	3900	0.53

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>
1114	3.0	120	0.10	2900	0.56
1115	2.9	300		5600	0.99
1118		69		6100	0.45
1128	4.3	570		9000	1.4
1135				2800	0.063
1136	4.1	12		5100	0.57
1137	5.2	16		9500	1.2
1138	4.4			11000	1.3
1139				8800	0.86
1140		14	0.15	9100	0.73
1141		45	0.67	4900	0.88
1143				2400	0.047

<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 Nitrate-N is equivalent to 44 mg/L Nitrate (GCAP Table 3-1).

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 to for background versus site comparisons. Analyte concentrations from background location 0967 exceeded the historic maximums for many of the contaminants measured. The concentrations observed at this location are thought to be due to activities upstream of the site.

*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>4.7</b>	<b>1.2</b>	<b>0.0039</b>	<b>2.9</b>	<b>190</b>	<b>0.012</b>
0501	ND <sup>b</sup>	0.042	0.34	0.0005	0.73	120	0.002
0897	ND <sup>b</sup>	0.050	0.31	ND <sup>b</sup>	0.78	120	0.002
0899	ND <sup>b</sup>	0.053	0.32	0.0004	0.77	120	0.002
0940	ND <sup>b</sup>	0.040	0.29	0.0012	0.69	120	0.002
0956	ND <sup>b</sup>	0.045	0.32	ND <sup>b</sup>	0.69	120	0.002
0965	ND <sup>b</sup>	0.055	0.38	0.0008	0.70	110	0.002
0967	ND <sup>b</sup>	9.0	0.63	0.023	3.2	290	0.034
1203	ND <sup>b</sup>	0.042	0.36	0.0006	0.65	120	0.002
1205	ND <sup>b</sup>	0.047	0.36	0.0004	0.69	120	0.002

<sup>a</sup> Background maximum concentration observed prior to September 2015 for background location 0967.

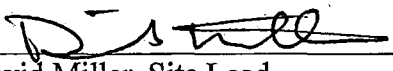
<sup>b</sup> ND = Not Detected.

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	0.022	1.2	0.0017	1.0	190	0.0032
0501	ND <sup>b</sup>	0.004	1.4	0.0006	0.75	130	0.002
0897	ND <sup>b</sup>	0.003	0.33	ND <sup>b</sup>	0.78	120	0.002
0899	ND <sup>b</sup>	0.004	0.32	ND <sup>b</sup>	0.76	120	0.002
0940	0.17	0.003	0.29	ND <sup>b</sup>	0.76	120	0.002
0956	ND <sup>b</sup>	0.004	0.32	ND <sup>b</sup>	0.68	120	0.002
0965	ND <sup>b</sup>	0.008	0.38	ND <sup>b</sup>	0.68	120	0.002
0967	ND <sup>b</sup>	0.005	0.68	0.0013	0.79	280	0.004
1203	ND <sup>b</sup>	0.002	0.37	0.0007	0.68	120	0.002
1205	ND <sup>b</sup>	0.003	0.37	0.0008	0.66	110	0.002

<sup>a</sup> Background maximum concentration observed prior to September 2015 for background location 0967.

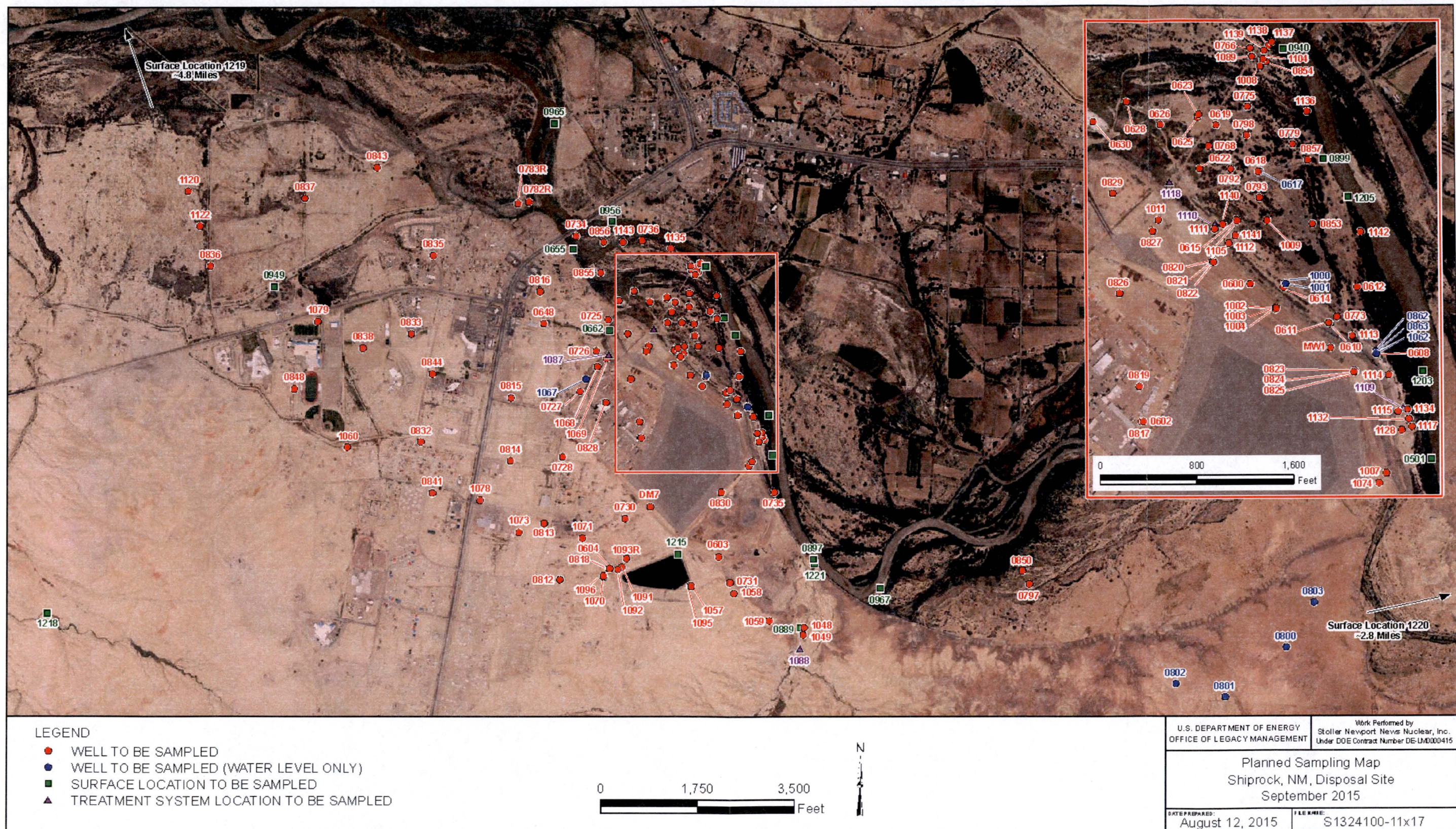
<sup>b</sup> ND = Not Detected.

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

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 Date

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Planned Sampling Map Shiprock, New Mexico, Disposal Site



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## **Data Assessment Summary**

## Water Sampling Field Activities Verification Checklist

<b>Project</b>	<u>Shiprock, New Mexico</u>	<b>Date(s) of Water Sampling</b>	<u>September 22–24, 2015</u>
<b>Date(s) of Verification</b>	<u>December 9, 2015</u>	<b>Name of Verifier</b>	<u>Stephen Donovan</u>

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List any Program Directives or other documents, SOPs, instructions.		<u>Work Order letter dated August 24, 2015.</u>
		<u>Eighteen locations were dry and not sampled.</u>
		<u>Well location SHP02-1088, was not sampled per the direction of the site lead.</u>
2. Were the sampling locations specified in the planning documents sampled?	No	<u>SHP02-0841 was not sampled because of an obstruction in the well, and was sampled at a later date.</u>
3. Were field equipment calibrations conducted as specified in the above-named documents?	Yes	<u>Calibrations were performed on September 11 and 21, 2015.</u>
4. Was an operational check of the field equipment conducted daily?	Yes	<u>Seventeen operational checks were performed.</u>
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	No	<u>An alkalinity value was not recorded for location SHP01-1132.</u>
6. Were wells categorized correctly?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	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)

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

## Laboratory Performance Assessment

### General Information

Report Number (RIN): 15097348  
Sample Event: September 22–24, 2015  
Site(s): Shiprock Disposal Site (Floodplain), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1509469  
Analysis: Metals and Wet Chemistry  
Validator: Stephen Donivan  
Review Date: December 5, 2015

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated), “Standard Practice for Validation of Environmental Data.” The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 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
1509469-1	0501	NH3-N	J	Missed holding time
1509469-2	0501	NH3-N	J	Missed holding time
1509469-3	0608	NH3-N	J	Missed holding time
1509469-4	0610	NH3-N	J	Missed holding time
1509469-5	0611	NH3-N	J	Missed holding time
1509469-5	0611	Manganese	J	Field duplicate result
1509469-7	0614	NH3-N	J	Missed holding time
1509469-14	0626	NO3+NO2-N	J	Missed holding time
1509469-16	0630	NH3-N	J	Missed holding time
1509469-17	0735	NH3-N	J	Missed holding time
1509469-18	0736	NH3-N	J	Missed holding time
1509469-19	0766	NH3-N	J	Missed holding time
1509469-20	0768	NH3-N	J	Missed holding time
1509469-21	0733	NH3-N	J	Missed holding time
1509469-22	0775	NH3-N	J	Missed holding time
1509469-23	0779	NH3-N	J	Missed holding time
1509469-24	0782R	NH3-N	J	Missed holding time
1509469-25	0783R	NH3-N	J	Missed holding time
1509469-26	0792	NH3-N	J	Missed holding time
1509469-27	0793	NH3-N	J	Missed holding time
1509469-28	0797	NH3-N	J	Missed holding time
1509469-29	0798	NH3-N	J	Missed holding time
1509469-30	0850	NH3-N	J	Missed holding time
1509469-30	0850	NO3+NO2-N	J	Missed holding time
1509469-31	0853	NH3-N	J	Missed holding time
1509469-32	0854	NH3-N	J	Missed holding time
1509469-32	0854	NO3+NO2-N	J	Missed holding time
1509469-33	0855	NH3-N	J	Missed holding time
1509469-34	0856	NH3-N	J	Missed holding time
1509469-35	0857	NH3-N	J	Missed holding time
1509469-36	0897	NH3-N	J	Missed holding time
1509469-37	0897	NH3-N	J	Missed holding time
1509469-38	0899	NH3-N	J	Missed holding time
1509469-39	0899	NH3-N	J	Missed holding time
1509469-40	0940	NH3-N	J	Missed holding time
1509469-41	0940	NH3-N	J	Missed holding time
1509469-42	0956	NH3-N	J	Missed holding time
1509469-43	0956	NH3-N	J	Missed holding time
1509469-44	0965	NH3-N	J	Missed holding time
1509469-45	0965	NH3-N	J	Missed holding time
1509469-46	0967	NH3-N	J	Missed holding time

Table 5 (continued). Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1509469-47	0967	NH3-N	J	Missed holding time
1509469-48	1008	NH3-N	J	Missed holding time
1509469-49	1009	NH3-N	J	Missed holding time
1509469-50	1089	NH3-N	J	Missed holding time
1509469-51	1104	NH3-N	J	Missed holding time
1509469-52	1105	NH3-N	J	Missed holding time
1509469-52	1105	Selenium	J	Field duplicate result
1509469-53	1109	NH3-N	J	Missed holding time
1509469-54	1110	NH3-N	J	Missed holding time
1509469-55	1111	NH3-N	J	Missed holding time
1509469-56	1112	NH3-N	J	Missed holding time
1509469-57	1113	NH3-N	J	Missed holding time
1509469-58	1114	NH3-N	J	Missed holding time
1509469-58	1114	NO3+NO2-N	J	Missed holding time
1509469-59	1115	NH3-N	J	Missed holding time
1509469-59	1115	NO3+NO2-N	J	Missed holding time
1509469-60	1117	NH3-N	J	Missed holding time
1509469-61	1118	NH3-N	J	Missed holding time
1509469-62	1128	NH3-N	J	Missed holding time
1509469-62	1128	NO3+NO2-N	J	Missed holding time
1509469-63	1130	NH3-N	J	Missed holding time
1509469-64	1132	NH3-N	J	Missed holding time
1509469-64	1132	NO3+NO2-N	J	Missed holding time
1509469-65	1134	NH3-N	J	Missed holding time
1509469-65	1134	NO3+NO2-N	J	Missed holding time
1509469-66	1135	NH3-N	J	Missed holding time
1509469-67	1136	NH3-N	J	Missed holding time
1509469-68	1137	NH3-N	J	Missed holding time
1509469-69	1138	NH3-N	J	Missed holding time
1509469-70	1139	NH3-N	J	Missed holding time
1509469-71	1140	NH3-N	J	Missed holding time
1509469-72	1141	NH3-N	J	Missed holding time
1509469-73	1142	NH3-N	J	Missed holding time
1509469-74	1143	NH3-N	J	Missed holding time
1509469-75	1203	NH3-N	J	Missed holding time
1509469-75	1203	NO3+NO2-N	J	Missed holding time
1509469-76	1203	NH3-N	J	Missed holding time
1509469-76	1203	NO3+NO2-N	J	Missed holding time
1509469-77	1205	NH3-N	J	Missed holding time
1509469-77	1205	NO3+NO2-N	J	Missed holding time
1509469-78	1205	NH3-N	J	Missed holding time
1509469-78	1205	NO3+NO2-N	J	Missed holding time

Table 5 (continued). Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1509469-79	0611 Duplicate	NH3-N	J	Missed holding time
1509469-79	0611 Duplicate	NO3+NO2-N	J	Missed holding time
1509469-80	0611 Duplicate	NH3-N	J	Missed holding time
1509469-80	0611 Duplicate	Manganese	J	Field duplicate result
1509469-80	0611 Duplicate	NO3+NO2-N	J	Missed holding time
1509469-81	1105 Duplicate	NH3-N	J	Missed holding time
1509469-81	1105 Duplicate	Selenium	J	Field duplicate result
1509469-82	1105 Duplicate	NH3-N	J	Missed holding time

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 82 water samples on September 29, 2015, 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 2.0 °C and 2.4 °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 with the following exceptions. Due to a laboratory instrument failure, most of the NH<sub>3</sub>-N and 14 NO<sub>3</sub>+NO<sub>2</sub>-N analyses were performed outside the holding time. The associated sample results are qualified with a "J" flag as estimated values.

### Detection and Quantitation Limits

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

### Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument

calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

#### *Method EPA 350.1*

Calibrations were performed for ammonia as N on October 22, 24, and 26, 2015, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with acceptable results.

#### *Method EPA 353.2*

Calibrations were performed for nitrate + nitrite as N on October 20, 21, 23, and 29, 2015, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

#### *Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 2, 5, and 6, 2015, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

#### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed October 1, 6, 7, and 14, 2015, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. 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 October 12, 2015, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

#### Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the



samples were below the PQLs for all analytes with the exception of two ammonia as N continuing calibration blanks. The samples bracketed by these blanks either contained more than 10 times the concentration of ammonia as N that was detected in the blank or were reanalyzed with an acceptable blank.

#### Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

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

#### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes.

#### 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, demonstrating acceptable laboratory precision, for all samples.

#### Laboratory Control Samples

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

#### Metals Serial Dilution

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

#### Completeness

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

#### Chromatography Peak Integration

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

## Anion/Cation Balance

Typical water samples should be electrically neutral. Expressed in meq/L (milliequivalents per liter), the sum of the cations should equal the sum of the anions. The anion/cation balance is calculated as the difference between the anions and cations, divided by the sum of the anions and cations. Table 6 shows the total anion and cation results in the samples from this event. For data validation purposes, the anion/cation balance can be useful in finding potential errors in the analytical results. 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. Comparison of Major Anions and Cations*

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0501	Surface Water	5.23	5.28	0.52
0608	Groundwater	126.63	142.21	5.80
0610	Groundwater	139.42	157.54	6.10
0611	Groundwater	114.45	136.80	8.90
0612	Groundwater	21.82	23.11	2.87
0614	Groundwater	118.63	133.04	5.72
0615	Groundwater	121.10	137.23	6.24
0618	Groundwater	132.05	154.77	7.92
0619	Groundwater	80.32	89.02	5.14
0622	Groundwater	59.67	65.70	4.81
0623	Groundwater	58.63	65.69	5.68
0625	Groundwater	58.28	62.72	3.67
0626	Groundwater	48.63	51.00	2.38
0628	Groundwater	51.56	54.83	3.07
0630	Groundwater	113.40	119.15	2.47
0735	Groundwater	266.14	296.94	5.47
0736	Groundwater	74.79	83.50	5.50
0766	Groundwater	94.39	106.27	5.92
0768	Groundwater	119.43	127.98	3.46
0773	Groundwater	39.56	36.11	4.56
0775	Groundwater	94.43	100.39	3.06
0779	Groundwater	325.48	365.54	5.80
0782R	Groundwater	15.34	15.15	0.62
0783R	Groundwater	22.77	23.56	1.71
0792	Groundwater	130.14	145.85	5.69
0793	Groundwater	113.48	121.63	3.47
0797	Groundwater	107.23	120.54	5.84
0798	Groundwater	122.15	137.08	5.76
0850	Groundwater	54.44	57.40	2.65
0853	Groundwater	14.13	15.16	3.53
0854	Groundwater	143.28	156.30	4.34

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

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0855	Groundwater	68.46	71.34	2.06
0856	Groundwater	58.35	66.90	6.82
0857	Groundwater	126.08	130.52	1.73
0897	Surface Water	5.086	5.237	1.52
0899	Surface Water	4.906	5.240	3.34
0940	Surface Water	5.024	5.376	3.43
0956	Surface Water	4.966	5.314	3.40
0965	Surface Water	4.614	5.316	7.11
0967	Surface Water	9.470	9.023	2.44
1008	Groundwater	88.32	100.59	6.49
1009	Groundwater	34.34	37.04	3.78
1089	Groundwater	88.39	99.32	5.82
1104	Groundwater	147.72	168.61	6.61
1105	Groundwater	144.31	158.55	4.70
1109	Groundwater	109.01	122.39	5.78
1110	Groundwater	120.36	130.81	4.16
1111	Groundwater	230.52	245.75	3.20
1112	Groundwater	141.02	153.80	4.33
1113	Groundwater	115.13	120.27	2.19
1114	Groundwater	78.93	81.93	1.86
1115	Groundwater	150.10	159.12	2.92
1117	Groundwater	7.56	7.60	0.28
1118	Groundwater	134.05	157.03	7.89
1128	Groundwater	255.84	255.27	0.11
1132	Groundwater	8.25	5.71	NA
1134	Groundwater	19.27	19.50	0.59
1135	Groundwater	58.61	65.51	5.55
1136	Groundwater	108.58	121.44	5.59
1137	Groundwater	198.30	223.14	5.89
1138	Groundwater	211.65	254.64	9.22
1139	Groundwater	176.53	204.97	7.46
1140	Groundwater	181.82	210.82	7.39
1141	Groundwater	107.36	119.94	5.54
1142	Groundwater	5.07	5.07	0.01
1143	Groundwater	52.30	56.46	3.82
1203	Surface Water	4.889	5.175	2.80
1205	Surface Water	4.741	5.281	5.41 (82.9)

Sample 1205 had a charge balance of 82.9 percent, a laboratory error was identified and corrected with a resulting charge balance of 5.4 percent. There are no alkalinity data for location 1132 to allow calculation of the charge balance.

### Electronic Data Deliverable (EDD) File

The original EDD file arrived on November 12, 2015; the revised file correcting laboratory errors arrived on December 3, 2015. The Sample Management System EDD validation module was used to verify that the EDD files were complete and in compliance with requirements. The module compares the contents of the files to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## SAMPLE MANAGEMENT SYSTEM

### General Data Validation Report

RIN: 15097348 Lab Code: PAR Validator: Stephen Donovan Validation Date: 12/04/2015  
Project: Shiprock Monitoring Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☐ Organics  
# of Samples: 82 Matrix: WATER Requested Analysis Completed: Yes

#### Chain of Custody

Present: OK Signed: OK Dated: OK

#### Sample

Integrity: OK Preservation: OK Temperature: OK

#### Select Quality Parameters

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

There are 87 holding time failures.

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

There were 4 duplicates evaluated.

# SAMPLE MANAGEMENT SYSTEM

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RIN: 15097348 Lab Code: PAR

## Non-Compliance Report: Holding Times

Project: Shiprock Monitoring

Validation Date: 12/04/2015

Ticket	Location	Lab Sample ID	Method Code	Holding Times			Criteria			Reported Dates		
				Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
NKT 984	D614	1509469-7	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKT 988	D735	1509469-17	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKT 989	D797	1509469-28	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKT 990	D850	1509469-30	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKT 991	I089	1509469-50	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKT 992	I205	1509469-77	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKT 993	D897	1509469-36	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKT 994	D899	1509469-38	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKT 995	D940	1509469-40	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKT 996	D956	1509469-42	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKT 997	I118	1509469-61	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKT 998	D965	1509469-44	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKT 999	I203	1509469-75	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 000	I205	1509469-78	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 001	D608	1509469-3	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 002	D501	1509469-1	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 003	I109	1509469-53	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 004	I110	1509469-54	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 005	I104	1509469-51	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 006	I105	1509469-52	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 007	I111	1509469-55	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 008	I112	1509469-56	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 009	I113	1509469-57	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 010	I114	1509469-58	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 011	I115	1509469-59	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 012	I117	1509469-60	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 013	D501	1509469-2	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 018	D630	1509469-16	WCH-A-005			29			28	09/24/2015	10/23/2015	10/24/2015
NKU 019	D782	1509469-26	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 020	D853	1509469-31	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 021	D855	1509469-33	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKU 022	D856	1509469-34	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 023	I132	1509469-64	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 024	I134	1509469-65	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 025	D897	1509469-37	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 026	D899	1509469-39	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015

# SAMPLE MANAGEMENT SYSTEM

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RIN: 15097348 Lab Code: PAR

## Non-Compliance Report: Holding Times

Project: Shiprock Monitoring

Validation Date: 12/04/2015

Ticket	Location	Lab Sample ID	Method Code	Holding Times			Criteria			Reported Dates		
				Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
NKU 027 0940		1509469-41	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 028 0782R		1509469-24	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 029 0783R		1509469-25	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 030 0956		1509469-43	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 031 0965		1509469-45	WCH-A-005			32			28	09/22/2015	10/24/2015	10/24/2015
NKU 032 1203		1509469-76	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 033 0610		1509469-4	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 034 0611		1509469-5	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 037 0793		1509469-27	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 038 0798		1509469-29	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 039 0854		1509469-32	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKU 040 0857		1509469-35	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 041 1008		1509469-48	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKU 042 1009		1509469-49	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 043 1140		1509469-71	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 044 1141		1509469-72	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 045 1128		1509469-82	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 046 0736		1509469-18	WCH-A-005			29			28	09/24/2015	10/23/2015	10/24/2015
NKU 047 0766		1509469-19	WCH-A-005			29			28	09/24/2015	10/23/2015	10/24/2015
NKU 048 0768		1509469-20	WCH-A-005			29			28	09/24/2015	10/23/2015	10/24/2015
NKU 049 0773		1509469-21	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 050 0775		1509469-22	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 051 0779		1509469-23	WCH-A-005			31			28	09/23/2015	10/24/2015	10/24/2015
NKU 052 1135		1509469-66	WCH-A-005			30			28	09/24/2015	10/24/2015	10/26/2015
NKU 053 1136		1509469-67	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 054 1137		1509469-68	WCH-A-005			30			28	09/24/2015	10/24/2015	10/26/2015
NKU 055 1138		1509469-69	WCH-A-005			30			28	09/24/2015	10/24/2015	10/26/2015
NKU 056 1139		1509469-70	WCH-A-005			30			28	09/24/2015	10/24/2015	10/26/2015
NKU 057 1142		1509469-73	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 058 1143		1509469-74	WCH-A-005			30			28	09/24/2015	10/24/2015	10/26/2015
NKU 059 2215		1509469-81	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 060 2210		1509469-79	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 061 2211		1509469-80	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKU 063 0967		1509469-46	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015
NKU 064 2592		1509469-82	WCH-A-005			31			28	09/23/2015	10/24/2015	10/26/2015
NKU 066 0967		1509469-47	WCH-A-005			30			28	09/24/2015	10/24/2015	10/24/2015

# SAMPLE MANAGEMENT SYSTEM

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RIN: 15097348 Lab Code: PAR

## Non-Compliance Report: Holding Times

Project: Shiprock Monitoring

Validation Date: 12/04/2015

Ticket	Location	Lab Sample ID	Method Code	Holding Times			Criteria			Reported Dates		
				Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
NKV 191	1130	1509469-63	WCH-A-005			32			28	09/22/2015	10/24/2015	10/26/2015
NKT 990	0850	1509469-30	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKT 992	1205	1509469-77	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKT 999	1203	1509469-75	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 000	1205	1509469-78	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 010	1114	1509469-58	WCH-A-022			37			28	09/22/2015	10/29/2015	10/29/2015
NKU 011	1115	1509469-59	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 016	0626	1509469-14	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 023	1132	1509469-64	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 024	1134	1509469-65	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 032	1203	1509469-76	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 039	0854	1509469-32	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 045	1128	1509469-62	WCH-A-022			37			28	09/22/2015	10/28/2015	10/29/2015
NKU 060	2210	1509469-79	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015
NKU 081	2211	1509469-80	WCH-A-022			31			28	09/22/2015	10/23/2015	10/23/2015



**SAMPLE MANAGEMENT SYSTEM**  
**Metals Data Validation Worksheet**

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RIN: 15097348      Lab Code: PAR      Date Due: 10/27/2015  
 Matrix: Water      Site Code: SHP01      Date Completed: 11/11/2015

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	101.0	99.0	99.0	0.0	101.0	1.0	117.0
Calcium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	101.0	100.0	100.0	0.0	99.0	2.0	91.0
Calcium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	100.0	96.0	93.0	2.0	100.0	2.0	125.0
Calcium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	102.0	100.0	97.0	1.0	99.0	0.0	115.0
Calcium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	103.0	95.0	99.0	1.0	100.0	0.0	104.0
Magnesium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	98.0	99.0	99.0	0.0	106.0	2.0	99.0
Magnesium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	97.0	101.0	100.0	1.0	108.0	1.0	84.0
Magnesium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	97.0	97.0	97.0	1.0	105.0	0.0	107.0
Magnesium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	98.0	99.0	99.0	0.0	106.0	1.0	110.0
Magnesium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	98.0	100.0	100.0	0.0	105.0	1.0	99.0
Manganese	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	105.0	106.0	107.0	1.0			105.0
Manganese	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	103.0	110.0	109.0	0.0	110.0	1.0	108.0
Manganese	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	104.0	103.0	102.0	0.0	117.0	3.0	105.0
Manganese	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	105.0	97.0	99.0	1.0	103.0	2.0	102.0
Manganese	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	108.0	101.0	102.0	1.0	101.0		106.0
Potassium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	104.0	103.0	104.0	1.0	104.0	8.0	80.0
Potassium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	102.0	108.0	109.0	1.0		3.0	86.0
Potassium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	102.0	101.0	102.0	1.0		7.0	90.0

# **SAMPLE MANAGEMENT SYSTEM**

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## **Metals Data Validation Worksheet**

**RIN:** 15097348      **Lab Code:** PAR      **Date Due:** 10/27/2015  
**Matrix:** Water      **Site Code:** SHP01      **Date Completed:** 11/11/2015

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Potassium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	102.0	105.0	105.0	0.0		3.0	102.0
Potassium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	101.0	108.0	109.0	1.0			92.0
Selenium	ICP/MS	10/01/2015	0.0000	1.0000	OK	OK	OK	106.0	104.0	100.0	5.0	102.0		
Selenium	ICP/MS	10/02/2015	0.0000	1.0000	OK	OK	OK	101.0	106.0	112.0	5.0	103.0		
Selenium	ICP/MS	10/06/2015	0.0000	1.0000	OK	OK	OK	100.0	92.0	93.0	1.0	99.0		
Selenium	ICP/MS	10/07/2015	0.0000	1.0000	OK	OK	OK	104.0	109.0	108.0	1.0	99.0		125.0
Selenium	ICP/MS	10/07/2015					OK	117.0				94.0		73.0
Selenium	ICP/MS	10/14/2015							105.0	103.0	2.0			86.0
Sodium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	102.0	97.0	99.0	1.0		3.0	96.0
Sodium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	101.0	98.0	100.0	1.0		2.0	97.0
Sodium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	100.0	95.0	96.0	1.0		2.0	96.0
Sodium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	100.0	99.0	99.0	0.0		1.0	106.0
Sodium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	102.0	99.0	100.0	1.0		3.0	98.0
Strontium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	105.0	100.0	102.0	1.0	106.0	0.0	98.0
Strontium	ICP/ES	10/02/2015	0.0000	1.0000	OK	OK	OK	104.0	108.0	109.0	0.0	112.0	1.0	102.0
Strontium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	96.0	94.0	94.0	0.0	104.0	2.0	95.0
Strontium	ICP/ES	10/05/2015	0.0000	1.0000	OK	OK	OK	98.0	92.0	95.0	2.0	95.0	2.0	91.0
Strontium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	106.0	97.0	95.0	1.0	107.0	1.0	100.0

**SAMPLE MANAGEMENT SYSTEM**  
**Metals Data Validation Worksheet**

Page 3 of 3

RIN: 15097348      Lab Code: PAR      Date Due: 10/27/2015  
 Matrix: Water      Site Code: SHP01      Date Completed: 11/11/2015

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Uranium	ICP/MS	10/01/2015	0.0000	1.0000	OK	OK	OK	106.0	108.0	109.0	1.0	106.0	3.0	
Uranium	ICP/MS	10/02/2015	0.0000	1.0000	OK	OK	OK	106.0	109.0	111.0	1.0	104.0	3.0	110.0
Uranium	ICP/MS	10/06/2015	0.0000	1.0000	OK	OK	OK	100.0	94.0	98.0	4.0	104.0	8.0	
Uranium	ICP/MS	10/07/2015	0.0000	1.0000	OK	OK	OK	103.0	120.0	119.0	1.0	104.0	7.0	130.0
Uranium	ICP/MS	10/07/2015	0.0000	1.0000	OK	OK	OK	111.0				102.0	3.0	130.0
Uranium	ICP/MS	10/28/2015							104.0	100.0	3.0			130.0

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

RIN: 15097348      Lab Code: PAR      Date Due: 10/27/2015  
 Matrix: Water      Site Code: SHP01      Date Completed: 11/11/2015

Analyte	Date Analyzed	CALIBRATION					Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB	Blank						
AMMONIA AS N	10/22/2015	0.000	1.0000	OK	OK	OK	110.00	92.0	97.0	3.00		
AMMONIA AS N	10/24/2015	0.000	1.0000	OK	OK	OK	104.00	106.0	105.0	0		
AMMONIA AS N	10/24/2015	0.000	1.0000	OK	OK	OK	103.00	107.0	100.0	7.00		
AMMONIA AS N	10/24/2015	0.000	1.0000	OK	OK	OK	106.00	91.0	90.0	1.00		
AMMONIA AS N	10/26/2015	0.000	1.0000	OK	OK	OK	106.00	77.0	79.0	1.00		
AMMONIA AS N	10/26/2015	0.000	1.0000	OK	OK	OK	103.00	84.0	82.0	0		
CHLORIDE	10/16/2015	0.000	1.0000	OK	OK	OK	106.00	105.0	104.0	0		
CHLORIDE	10/19/2015	0.000	1.0000	OK	OK	OK	100.00	97.0	97.0	0		
CHLORIDE	10/20/2015							106.0	105.0	1.00		
CHLORIDE	10/21/2015	0.000	1.0000	OK	OK	OK	103.00	105.0	105.0	0		
CHLORIDE	10/21/2015	0.000	1.0000	OK	OK	OK	104.00	103.0	104.0	1.00		
CHLORIDE	10/21/2015	0.000	1.0000	OK	OK	OK	103.00	105.0	104.0	0		
Nitrate+Nitrite as N	10/20/2015	0.000	1.0000	OK	OK	OK	99.00	87.0	93.0	2.00		
Nitrate+Nitrite as N	10/20/2015					OK	96.00					
Nitrate+Nitrite as N	10/21/2015	0.000	1.0000	OK	OK	OK	94.00	92.0	101.0	9.00		
Nitrate+Nitrite as N	10/21/2015	0.000	1.0000	OK	OK	OK	94.00	106.0	97.0	9.00		

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

RIN: 15097348

Lab Code: PAR

Date Due: 10/27/2015

Matrix: Water

Site Code: SHP01

Date Completed: 11/11/2015

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	10/21/2015	0.000	1.0000	OK	OK	OK	94.00	100.0	101.0	1.00	
Nitrate+Nitrite as N	10/23/2015	0.000	1.0000	OK	OK	OK	96.00	102.0	102.0	1.00	
Nitrate+Nitrite as N	10/23/2015	0.000	1.0000	OK	OK	OK	96.00	105.0	107.0	2.00	
Nitrate+Nitrite as N	10/29/2015					OK	92.00				
SULFATE	10/16/2015	0.000	1.0000	OK	OK	OK	105.00	104.0	102.0	0	
SULFATE	10/19/2015	0.000	1.0000	OK	OK	OK	100.00	101.0	96.0	2.00	
SULFATE	10/20/2015							109.0	108.0	1.00	
SULFATE	10/21/2015	0.000	1.0000	OK	OK	OK	101.00	113.0	112.0	0	
SULFATE	10/21/2015	0.000	1.0000	OK	OK	OK	102.00	104.0	106.0	1.00	
SULFATE	10/21/2015	0.000	1.0000	OK	OK	OK	101.00	107.0	107.0	0	
SULFATE	11/17/2015	0.000	1.0000	OK	OK	OK	96.00	103.0	104.0	0	

## General Information

Report Number (RIN): 15097349  
Sample Event: September 22–24, 2015  
Site(s): Shiprock Disposal Site (Terrace), New Mexico  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1509456  
Analysis: Metals and Wet Chemistry  
Validator: Stephen Donovan  
Review Date: December 7, 2015

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325, continually updated), “Standard Practice for Validation of Environmental Data.” The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 7.

*Table 7. 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 8. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 8. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1509456-6	0662	NH3-N	J	Missed holding time
1509456-7	0725	Selenium	J	Serial dilution result
1509456-7	0725	Uranium	J	Serial dilution result
1509456-20	0819	NO3+NO2-N	J	Missed holding time
1509456-33	0843	NO3+NO2-N	J	Matrix spike recovery
1509456-37	1007	NO3+NO2-N	J	Missed holding time
1509456-39	1049	NO3+NO2-N	J	Missed holding time
1509456-41	1058	NO3+NO2-N	J	Missed holding time
1509456-42	1059	NO3+NO2-N	J	Missed holding time
1509456-43	1068	NH3-N	J	Missed holding time
1509456-45	1071	NH3-N	J	Missed holding time
1509456-46	1073	NH3-N	J	Missed holding time
1509456-47	1074	NH3-N	J	Missed holding time
1509456-50	1087	NH3-N	J	Missed holding time
1509456-51	1091	NH3-N	J	Missed holding time
1509456-52	1092	NH3-N	J	Missed holding time
1509456-52	1092	NO3+NO2-N	J	Missed holding time
1509456-53	1093R	NH3-N	J	Missed holding time
1509456-54	1095	NH3-N	J	Missed holding time
1509456-55	1096	NH3-N	J	Missed holding time
1509456-56	1215	NH3-N	J	Missed holding time
1509456-56	1215	NO3+NO2-N	J	Missed holding time
1509456-57	1219	NH3-N	J	Missed holding time
1509456-58	1220	NH3-N	J	Missed holding time
1509456-59	1078 Duplicate	NH3-N	J	Missed holding time
1509456-60	1087 Duplicate	NH3-N	J	Missed holding time
1509456-61	0818 Duplicate	NH3-N	J	Missed holding time
1509456-62	1095 Duplicate	NH3-N	J	Missed holding time
1509456-63	MW1	NH3-N	J	Missed holding time

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 63 water samples on September 29, 2015, 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 1.8 °C and 2.4 °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 with the following exceptions. Due to a laboratory instrument failure, 17 of the NH<sub>3</sub>-N and 7 NO<sub>3</sub>+NO<sub>2</sub>-N analyses were performed outside the holding time. The associated sample results are qualified with a "J" flag as estimated values.

### Detection and Quantitation Limits

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

### Laboratory Instrument Calibration

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

#### *Method EPA 350.1*

Calibrations were performed for ammonia as N on October 5, 6, 22, 24, and 27, 2015, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with acceptable results.

#### *Method EPA 353.2*

Calibrations were performed for nitrate + nitrite as N on October 15, 20, 21, and 23, 2015, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

#### *Method SW-846 6010B*

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 6, 8, and 29, 2015, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance



criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

#### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed October 7, 8, and 14, 2015, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. 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 October 12, 2015, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

#### Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs for all analytes.

#### Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

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

#### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes with the following exception. The  $\text{NO}_3 + \text{NO}_2\text{-N}$  spike recovery for sample 0843 did not meet the acceptance criteria. The associated sample  $\text{NO}_3 + \text{NO}_2\text{-N}$  result is qualified with a "J" flag as an estimated value.

#### Laboratory Replicate Analysis

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

greater than the PQL. The replicate results met these criteria, demonstrating acceptable laboratory precision, for all samples.

### Laboratory Control Samples

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

### Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. The selenium and uranium serial dilution results associated with sample 0725 did not meet the acceptance criteria, the sample 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

Typical water samples should be electrically neutral. Expressed in meq/L (milliequivalents per liter), the sum of the cations should equal the sum of the anions. The anion/cation balance is calculated as the difference between the anions and cations, divided by the sum of the anions and cations. Table 9 shows the total anion and cation results in the samples from this event. For data validation purposes, the anion/cation balance can be useful in finding potential errors in the analytical results. 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. Comparison of Major Anions and Cations*

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0600	Groundwater	262.55	279.96	3.21
0602	Groundwater	443.46	486.90	4.67
0603	Groundwater	201.20	236.09	7.98
0604	Groundwater	371.46	428.77	7.16
0648	Groundwater	41.07	44.46	3.96
0662	Groundwater	42.37	46.17	4.29
0725	Groundwater	65.09	70.54	4.02

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

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0726	Groundwater	118.99	139.63	7.98
0727	Groundwater	239.55	268.52	5.70
0728	Groundwater	58.46	63.99	4.52
0730	Groundwater	47.65	49.95	2.35
0731	Groundwater	105.76	105.48	0.13
0812	Groundwater	504.95	559.49	5.12
0813	Groundwater	392.93	453.26	7.13
0814	Groundwater	345.86	390.61	6.08
0815	Groundwater	356.71	395.37	5.14
0816	Groundwater	49.62	51.53	1.89
0817	Groundwater	300.56	338.97	6.01
0818	Groundwater	328.62	363.33	5.02
0819	Groundwater	269.09	343.37	12.13
0822	Groundwater	270.15	307.34	6.44
0824	Groundwater	295.18	329.21	5.45
0826	Groundwater	252.46	265.83	2.58
0827	Groundwater	175.77	228.38	13.02
0828	Groundwater	49.27	50.90	1.63
0830	Groundwater	41.49	42.47	1.16
0832	Groundwater	161.12	178.58	5.14
0833	Groundwater	93.84	94.45	0.32
0835	Groundwater	5.40	4.31	11.26
0836	Groundwater	70.69	74.17	2.41
0837	Groundwater	71.00	71.53	0.37
0838	Groundwater	107.53	113.91	2.88
0843	Groundwater	40.09	39.54	0.68
0844	Groundwater	285.71	316.73	5.15
0848	Groundwater	361.71	424.82	8.02
0889	Surface Water	505.63	612.36	9.55
1007	Groundwater	308.17	360.78	7.87
1011	Groundwater	192.98	224.06	7.45
1049	Groundwater	411.31	490.45	8.78
1057	Groundwater	218.89	233.31	3.19
1058	Groundwater	160.16	177.29	5.08
1059	Groundwater	226.32	247.60	4.49
1068	Groundwater	117.48	125.59	3.34
1070	Groundwater	391.18	423.19	3.93
1071	Groundwater	337.98	365.39	3.90
1073	Groundwater	335.01	351.23	2.36
1074	Groundwater	294.21	304.12	1.66
1078	Groundwater	335.27	362.49	3.90
1079	Groundwater	113.33	121.77	3.59
1087	Groundwater	120.60	126.17	2.26

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

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
1091	Groundwater	383.09	440.06	6.92
1092	Groundwater	353.06	401.77	6.45
1093R	Groundwater	286.19	333.13	7.58
1095	Groundwater	228.30	253.00	5.13
1096	Groundwater	353.09	393.47	5.41
1215	Surface Water	1646.79	1754.76	3.17
1219	Surface Water	47.81	49.24	1.48
1220	Surface Water	34.31	36.15	2.61
MW1	Groundwater	238.10	273.97	7.01

There were no errors found associated with the charge balances that were greater than 10 percent.

#### Electronic Data Deliverable (EDD) File

The EDD file arrived on November 19, 2015. The Sample Management System EDD validation module was used to verify that the EDD files were complete and in compliance with requirements. The module compares the contents of the files to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## SAMPLE MANAGEMENT SYSTEM

### General Data Validation Report

RIN: 15097349 Lab Code: PAR Validator: Stephen Donovan Validation Date: 12/07/2015  
Project: Shiprock Monitoring Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☐ Organics  
# of Samples: 63 Matrix: WATER Requested Analysis Completed: Yes

#### Chain of Custody

Present: OK Signed: OK Dated: OK

#### Sample

Integrity: OK Preservation: OK Temperature: OK

#### Select Quality Parameters

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

There are 24 holding time failures.

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

There were 4 duplicates evaluated.

# SAMPLE MANAGEMENT SYSTEM

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RIN: 15097349 Lab Code: PAR

## Non-Compliance Report: Holding Times

Project: Shiprock Monitoring

Validation Date: 12/07/2015

Ticket	Location	Lab Sample ID	Method Code	Holding Times			Criteria			Reported Dates		
				Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
NKU 082	1073	1509456-46	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 083	1074	1509456-47	WCH-A-005			34			28	09/23/2015	10/27/2015	10/27/2015
NKU 086	1087	1509456-50	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 087	1095	1509456-54	WCH-A-005			30			28	09/23/2015	10/23/2015	10/24/2015
NKU 088	1096	1509456-55	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 100	1091	1509456-51	WCH-A-005			30			28	09/23/2015	10/23/2015	10/24/2015
NKU 101	1092	1509456-52	WCH-A-005			29			28	09/24/2015	10/23/2015	10/24/2015
NKU 108	0662	1509456-6	WCH-A-005			43			28	09/23/2015	11/05/2015	11/05/2015
NKU 112	1215	1509456-56	WCH-A-005			33			28	09/24/2015	10/27/2015	10/27/2015
NKU 114	1220	1509456-58	WCH-A-005			30			28	09/23/2015	10/23/2015	10/24/2015
NKU 120	2319	1509456-59	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 121	2320	1509456-60	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 124	1068	1509456-43	WCH-A-005			35			28	09/22/2015	10/27/2015	10/27/2015
NKU 127	1093R	1509456-53	WCH-A-005			30			28	09/23/2015	10/23/2015	10/24/2015
NKU 128	2665	1509456-61	WCH-A-005			29			28	09/22/2015	10/21/2015	10/22/2015
NKU 133	1071	1509456-45	WCH-A-005			35			28	09/22/2015	10/27/2015	10/27/2015
NKU 149	1219	1509456-57	WCH-A-005			31			28	09/22/2015	10/23/2015	10/24/2015
NKU 071	1007	1509456-37	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 074	1049	1509456-39	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 075	0819	1509456-20	WCH-A-022			32			28	09/24/2015	10/26/2015	10/26/2015
NKU 080	1059	1509456-42	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 081	1058	1509456-41	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 101	1092	1509456-52	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015
NKU 112	1215	1509456-56	WCH-A-022			29			28	09/24/2015	10/23/2015	10/23/2015

**SAMPLE MANAGEMENT SYSTEM**  
**Metals Data Validation Worksheet**

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RIN: 15097349

Lab Code: PAR

Date Due: 10/27/2015

Matrix: Water

Site Code: SHP01

Date Completed: 11/19/2015

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	103.0	109.0	98.0	2.0	100.0	1.0	104.0
Calcium	ICP/ES	10/06/2015					OK	102.0	98.0	97.0	0.0	99.0	4.0	115.0
Calcium	ICP/ES	10/06/2015					OK	103.0			1.0	99.0	4.0	106.0
Calcium	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK	OK	100.0			1.0	98.0	7.0	91.0
Magnesium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	99.0	102.0	99.0	1.0	105.0	1.0	99.0
Magnesium	ICP/ES	10/06/2015					OK	98.0	101.0	100.0	1.0	106.0	1.0	94.0
Magnesium	ICP/ES	10/06/2015					OK	99.0			0.0	107.0	4.0	108.0
Magnesium	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK	OK	96.0	102.0	103.0	0.0	101.0	3.0	115.0
Manganese	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	108.0	104.0	104.0	0.0	104.0	0.0	106.0
Manganese	ICP/ES	10/06/2015					OK	107.0	102.0	102.0	0.0	99.0	2.0	99.0
Manganese	ICP/ES	10/06/2015					OK	108.0	103.0	101.0	1.0	99.0	1.0	101.0
Manganese	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK	OK	108.0	104.0	102.0	1.0	101.0		105.0
Potassium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	101.0	106.0	106.0	0.0		4.0	92.0
Potassium	ICP/ES	10/06/2015						104.0	110.0	109.0	2.0		9.0	103.0
Potassium	ICP/ES	10/06/2015						103.0	100.0	100.0	0.0		8.0	113.0
Potassium	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK		99.0	101.0	102.0	1.0			88.0
Selenium	ICP/MS	10/07/2015	0.0000	1.0000	OK	OK	OK		81.0	91.0	9.0	99.0	7.0	73.0
Selenium	ICP/MS	10/08/2015	0.0000	1.0000	OK	OK	OK	114.0	108.0	103.0	3.0	94.0	26.0	130.0



# **SAMPLE MANAGEMENT SYSTEM**

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## **Metals Data Validation Worksheet**

**RIN:** 15097349      **Lab Code:** PAR      **Date Due:** 10/27/2015  
**Matrix:** Water      **Site Code:** SHP01      **Date Completed:** 11/19/2015

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Selenium	ICP/MS	10/08/2015						98.0	107.0	104.0	2.0			86.0
Selenium	ICP/MS	10/14/2015	0.0000	1.0000	OK	OK		101.0	104.0	101.0	3.0			97.0
Selenium	ICP/MS	10/14/2015	0.0000	1.0000	OK	OK		105.0						
Sodium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	101.0			1.0		1.0	98.0
Sodium	ICP/ES	10/06/2015					OK	105.0	104.0	101.0	2.0		1.0	115.0
Sodium	ICP/ES	10/06/2015					OK	103.0			1.0		2.0	96.0
Sodium	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK	OK	102.0	90.0	87.0	1.0		9.0	94.0
Strontium	ICP/ES	10/06/2015	0.0000	1.0000	OK	OK	OK	106.0	102.0	102.0	0.0	107.0	2.0	100.0
Strontium	ICP/ES	10/06/2015					OK	106.0	100.0	97.0	1.0	100.0	3.0	91.0
Strontium	ICP/ES	10/06/2015					OK	106.0			0.0	99.0	1.0	93.0
Strontium	ICP/ES	10/08/2015	0.0000	1.0000	OK	OK	OK	110.0	101.0	120.0	2.0	104.0	5.0	101.0
Uranium	ICP/MS	10/07/2015	0.0000	1.0000	OK	OK	OK				7.0	104.0	3.0	120.0
Uranium	ICP/MS	10/08/2015	0.0000	1.0000	OK	OK	OK	95.0	97.0	100.0	3.0	104.0	2.0	110.0
Uranium	ICP/MS	10/08/2015	0.0000	1.0000	OK	OK		95.0			6.0	106.0	18.0	130.0
Uranium	ICP/MS	10/08/2015							88.0	92.0	1.0	105.0		120.0
Uranium	ICP/MS	10/14/2015	0.0000	1.0000	OK	OK		96.0						120.0
Uranium	ICP/MS	10/14/2015						102.0						130.0



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

RIN: 15097349

Lab Code: PAR

Date Due: 10/27/2015

Matrix: Water

Site Code: SHP01

Date Completed: 11/19/2015

Analyte	Date Analyzed	CALIBRATION				Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
AMMONIA AS N	10/05/2015	0.000	1.0000	OK	OK	OK	104.00				
AMMONIA AS N	10/06/2015	0.000	1.0000	OK	OK	OK	102.00	91.0	92.0	1.00	
AMMONIA AS N	10/06/2015					OK	102.00	99.0	93.0	1.00	
AMMONIA AS N	10/22/2015	0.000	1.0000	OK	OK	OK	110.00				
AMMONIA AS N	10/24/2015	0.000	1.0000	OK	OK	OK	104.00				
AMMONIA AS N	10/27/2015	0.000	1.0000	OK	OK	OK	102.00				
AMMONIA AS N	11/05/2015	0.000	1.0000	OK	OK	OK	105.00	88.0	89.0	1.00	
CHLORIDE	10/13/2015	0.000	1.0000	OK	OK	OK	101.00	97.0	99.0	2.00	
CHLORIDE	10/14/2015			OK	OK	OK	103.00				
CHLORIDE	10/15/2015							95.0	98.0	1.00	
CHLORIDE	10/16/2015			OK	OK	OK	105.00	107.0	106.0	1.00	
CHLORIDE	10/16/2015					OK	106.00				
Nitrate+Nitrite as N	10/15/2015	0.000	1.0000	OK	OK	OK	99.00	99.0	100.0	1.00	
Nitrate+Nitrite as N	10/15/2015					OK	99.00	99.0	96.0	3.00	
Nitrate+Nitrite as N	10/20/2015	0.000	1.0000	OK	OK	OK	96.00	77.0	73.0	1.00	
Nitrate+Nitrite as N	10/20/2015					OK	96.00	94.0	96.0	2.00	

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

RIN: 15097349

Lab Code: PAR

Date Due: 10/27/2015

Matrix: Water

Site Code: SHP01

Date Completed: 11/19/2015

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
Nitrate+Nitrite as N	10/21/2015	0.000	1.0000	OK	OK	OK	94.00				
Nitrate+Nitrite as N	10/23/2015	0.000	1.0000	OK	OK	OK	96.00				
Nitrate+Nitrite as N	10/26/2015	0.000	1.0000	OK	OK	OK	95.00				
SULFATE	10/13/2015	0.000	1.0000	OK	OK	OK	100.00	96.0	98.0	1.00	
SULFATE	10/14/2015			OK	OK	OK	102.00				
SULFATE	10/15/2015							98.0	101.0	1.00	
SULFATE	10/16/2015			OK	OK	OK	103.00	106.0	105.0	0	
SULFATE	10/16/2015					OK	105.00	110.0	110.0	0	

## **Sampling Quality Control Assessment**

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

### **Sampling Protocol**

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

Floodplain wells 0773 and 0797, and terrace wells 0600, 0602, 0604, 0727, 0730, 0812, 0814, 0817, 0819, 0822, 0824, 0826, 0827, 0832, 1007, 1011, 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.

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

### **Equipment Blank Assessment**

Equipment blanks are prepared and analyzed to document contamination attributable to the sample collection process. Dedicated equipment was used to collect all samples and an equipment blank was not required.

### **Field Duplicate Assessment**

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The 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 0611, 1105, 1117, and 1140, and terrace locations 0818, 1078, 1087, and 1095. The duplicate results met the acceptance criteria for all analytes with the following exceptions. The manganese results for floodplain location 0611 and the selenium results for floodplain location 1105 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: Field Duplicates

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RIN: 15097348    Lab Code: PAR    Project: Shiprock Monitoring    Validation Date: 12/03/2015

Duplicate: 2210

Sample: 1117

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIAAS N	0.1	U		1	0.17			1			MG/L
Calcium	73000			1	71000			1	2.78		UG/L
CHLORIDE	16			5	15			10	6.45		MG/L
Magnesium	13000			1	12000			1	8.00		UG/L
Manganese	410			1	400			1	2.47		UG/L
Nitrate+Nitrite as N	0.012			1	0.13			1			MG/L
Potassium	3300			1	3400			1	2.99		UG/L
Selenium	0.32	U		10	0.32	U		10			UG/L
Sodium	63000			1	63000			1	0		UG/L
Strontium	800			1	780			1	2.53		UG/L
SULFATE	160			5	160			10	0		MG/L
Uranium	8.8			10	7.6			10	14.63		UG/L

Duplicate: 2211

Sample: 0611

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIAAS N	2.6			1	2.6			1	0		MG/L
Calcium	150000			5	150000			5	0		UG/L
CHLORIDE	520			100	490			100	5.94		MG/L
Magnesium	76000			5	76000			5	0		UG/L
Manganese	40			5	58			5	36.73		UG/L
Nitrate+Nitrite as N	0.074			1	0.064			1	14.49		MG/L
Potassium	13000			5	13000			5	0		UG/L
Selenium	1.4			10	0.67	J		10			UG/L
Sodium	2300000			5	2300000			5	0		UG/L
Strontium	6700			5	6100			5	9.38		UG/L
SULFATE	5300			100	4900			100	7.84		MG/L
Uranium	5.8			10	5			10	14.81		UG/L

Duplicate: 2215

Sample: 1105

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIAAS N	0.42			1	19			25			MG/L
Calcium	460000			5	450000			5	2.20		UG/L
CHLORIDE	180			100	170			100	5.71		MG/L
Magnesium	660000			5	650000			5	1.53		UG/L
Manganese	3500			5	3400			5	2.90		UG/L
Nitrate+Nitrite as N	0.18			1	0.19			1	5.41		MG/L

# SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

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RIN: 15097348    Lab Code: PAR    Project: Shiprock Monitoring    Validation Date: 12/03/2015

Duplicate: 2215

Sample: 1105

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Potassium	65000			5	67000			5	3.03		UG/L
Selenium	60			10	47			10	24.30		UG/L
Sodium	1500000			5	1500000			5	0		UG/L
Strontium	6100			5	6000			5	1.65		UG/L
SULFATE	6900			100	6600			100	4.44		MG/L
Uranium	960			10	800			10	18.18		UG/L

Duplicate: 2592

Sample: 1140

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
AMMONIAAS N	0.54			1	0.56			1	3.64		MG/L
Calcium	430000			5	430000			5	0		UG/L
CHLORIDE	260			100	250			100	3.92		MG/L
Magnesium	700000			5	710000			5	1.42		UG/L
Manganese	1900			5	1800			5	5.41		UG/L
Nitrate+Nitrite as N	14			50	14			50	0		MG/L
Potassium	100000			5	100000			5	0		UG/L
Selenium	150			10	140			10	6.90		UG/L
Sodium	2300000			5	2300000			5	0		UG/L
Strontium	6900			5	7200			5	4.26		UG/L
SULFATE	9100			100	8600			100	5.65		MG/L
Uranium	730			10	710			10	2.78		UG/L

# SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

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RIN: 15097349    Lab Code: PAR    Project: Shiprock Monitoring    Validation Date: 12/07/2015

Duplicate: 2319

Sample: 1078

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Ammonia as N	1.3			1	1.3			1	0		MG/L
Calcium	420000			5	400000			5	4.88		UG/L
CHLORIDE	1000			200	1000			200	0		MG/L
Magnesium	1000000			5	920000			5	8.33		UG/L
Manganese	50			5	47			5	6.19		UG/L
Nitrate+Nitrite as N	400			1000	430			1000	7.23		MG/L
Potassium	48000			5	46000			5	4.26		UG/L
Selenium	2500			10	2400			10	4.08		UG/L
Sodium	5300000			50	5100000			50	3.85		UG/L
Strontium	9700			5	9700			5	0		UG/L
SULFATE	14000			200	14000			200	0		MG/L
Uranium	120			10	110			10	8.70		UG/L

Duplicate: 2320

Sample: 1087

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Ammonia as N	74			25	74			25	0		MG/L
Calcium	370000			5	360000			5	2.74		UG/L
CHLORIDE	210			100	210			100	0		MG/L
Magnesium	710000			5	660000			5	7.30		UG/L
Manganese	730			5	730			5	0		UG/L
Nitrate+Nitrite as N	160			250	160			500	0		MG/L
Potassium	69000			5	64000			5	7.52		UG/L
Selenium	40			10	40			10	0		UG/L
Sodium	840000			5	780000			5	7.41		UG/L
Strontium	6600			5	6800			5	2.99		UG/L
SULFATE	4800			100	4800			100	0		MG/L
Uranium	320			10	310			10	3.17		UG/L

Duplicate: 2665

Sample: 0818

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Ammonia as N	56			25	50			25	11.32		MG/L
Calcium	430000			10	430000			5	0		UG/L
CHLORIDE	1000			250	1100			200	9.52		MG/L
Magnesium	1600000			10	1600000			5	0		UG/L
Manganese	490			10	510			5	4.00		UG/L
Nitrate+Nitrite as N	700			1000	600			1000	15.38		MG/L

# SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

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RIN: 15097349    Lab Code: PAR    Project: Shiprock Monitoring    Validation Date: 12/07/2015

Duplicate: 2665

Sample: 0818

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Potassium	66000			10	66000			5	0		UG/L
Selenium	1800			10	2100			10	15.38		UG/L
Sodium	3900000			10	4100000			50	5.00		UG/L
Strontium	11000			10	12000			5	8.70		UG/L
SULFATE	13000			250	14000			200	7.41		MG/L
Uranium	130			10	120			10	8.00		UG/L

Duplicate: 2811

Sample: 1095

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Ammonia as N	400			200	400			200	0		MG/L
Calcium	830000			5	840000			5	1.20		UG/L
CHLORIDE	330			100	320			100	3.08		MG/L
Magnesium	1300000			5	1400000			5	7.41		UG/L
Manganese	33000			5	33000			5	0		UG/L
Nitrate+Nitrite as N	1700			5000	1800			5000	5.71		MG/L
Potassium	130000			5	130000			5	0		UG/L
Selenium	96			10	110			10	13.59		UG/L
Sodium	1100000			5	1100000			5	0		UG/L
Strontium	8600			5	9100			5	5.65		UG/L
SULFATE	5500			100	5700			100	3.57		MG/L
Uranium	43			10	49			10	13.04		UG/L

## Certification

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

Laboratory Coordinator: Stephen Donovan 2-16-2016  
Stephen Donovan Date

Data Validation Lead: Stephen Donovan 2-16-2016  
Stephen Donovan Date



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**Attachment 1**

**Assessment of Anomalous Data**

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## **Potential Outliers Report**

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## Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers 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.

Thirteen analytical results were identified as potential outliers. Three of these results are for major cations/anions where the reported concentrations are confirmed by the cation/anion balance. There is no indication that there are errors associated with the data identified as potential outliers and the data from this event are acceptable as qualified.

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

**Comparison: Historical Data Beginning 01/01/2006 for Filtered Samples**

Laboratory: ALS Laboratory Group

RIN: 15097348

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical	Maximum		Historical	Minimum		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	0501	0001	09/22/2015	Nitrate + Nitrite as Nitrogen	1.40			1.000	N	J	0.200			18	0	Yes
SHP01	0899	0001	09/22/2015	Nitrate + Nitrite as Nitrogen	0.320			0.940			0.340			12	0	No
SHP01	0940	0001	09/22/2015	Ammonia Total as N	0.170		J	0.1000	U		0.0453	J	U	18	18	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.

**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097348  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	0501	N001	09/22/2015	Calcium	58.0			180			59.0			13	0	NA
SHP01	0501	N001	09/22/2015	Magnesium	9.30			30.0			10.00			13	0	NA
SHP01	0501	N001	09/22/2015	Manganese	0.0420			4.00			0.0540			13	0	No
SHP01	0501	N001	09/22/2015	Selenium	0.00044	J		0.00480			0.00064			13	1	NA
SHP01	0608	N001	09/22/2015	Magnesium	440		F	910		F	450		F	17	0	NA
SHP01	0608	N001	09/22/2015	Manganese	1.70		F	3.20		F	2.30		F	17	0	No
SHP01	0608	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	9.40		F	260	N	FJ	17.0		F	17	0	No
SHP01	0610	N001	09/22/2015	Selenium	0.330		F	0.290		F	0.0420		FQ	14	0	No
SHP01	0610	N001	09/22/2015	Uranium	0.560		F	1.70		FQ	0.600		F	14	0	No
SHP01	0611	N002	09/22/2015	Strontium	6.10		F	8.70		F	6.40		F	12	0	No
SHP01	0614	N001	09/22/2015	Manganese	1.30		F	4.20		F	1.78			18	0	NA
SHP01	0615	N001	09/23/2015	Manganese	3.90		F	2.50		F	0.140		F	18	0	NA
SHP01	0615	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	0.0200		F	150		F	0.250		F	18	0	No
SHP01	0615	N001	09/23/2015	Selenium	0.00490		F	0.530		F	0.0200		F	18	0	No
SHP01	0618	N001	09/23/2015	Manganese	2.60		F	10.4	E	F	2.70		F	18	0	NA
SHP01	0618	N001	09/23/2015	Selenium	0.00032	U	F	0.511	N	FJ	0.00190		F	18	0	No
SHP01	0619	N001	09/24/2015	Manganese	0.670		F	3.80		F	1.20		F	18	0	NA



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

**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 15097348

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	0622	N001	09/24/2015	Selenium	0.00150		F	0.230		F	0.00340		F	13	0	No
SHP01	0622	N001	09/24/2015	Strontium	8.60		F	8.20		F	4.80		F	13	0	No
SHP01	0623	N001	09/23/2015	Manganese	1.20		F	4.10		F	1.60		F	15	0	NA
SHP01	0625	N001	09/24/2015	Ammonia Total as N	0.150		F	0.120		F	0.0568	J	UF	13	11	NA
SHP01	0625	N001	09/24/2015	Magnesium	40.0		F	59.0		F	41.0		F	13	0	No
SHP01	0625	N001	09/24/2015	Selenium	0.00032	U	F	0.00200		F	0.00054		F	13	1	No
SHP01	0626	N001	09/24/2015	Magnesium	22.0		F	66.9		F	23.0		F	16	0	No
SHP01	0626	N001	09/24/2015	Manganese	0.980		F	8.00		F	2.10		F	16	0	NA
SHP01	0628	N001	09/24/2015	Manganese	1.20		F	8.60		F	1.30		F	15	0	No
SHP01	0628	N001	09/24/2015	Selenium	0.00032	U	F	0.0480		F	0.00058		F	15	0	NA
SHP01	0630	N001	09/24/2015	Sulfate	4800		F	4700		F	2200		F	16	0	No
SHP01	0630	N001	09/24/2015	Uranium	0.260		F	0.240		F	0.0260		F	16	0	No
SHP01	0736	N001	09/24/2015	Nitrate + Nitrite as Nitrogen	0.830		F	0.690		F	0.01000	U	F	15	2	No
SHP01	0773	N001	09/22/2015	Manganese	0.660		FQ	0.540		FQ	0.00057	U	F	14	5	No
SHP01	0773	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	7.30		FQ	130		F	13.0		FQ	14	0	NA
SHP01	0775	N001	09/23/2015	Selenium	0.00032	U	F	0.0720		F	0.00092		F	13	2	NA
SHP01	0779	N001	09/23/2015	Manganese	0.800		F	6.40		F	1.40		F	15	0	NA

**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097348  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	0782R	N001	09/22/2015	Sodium	200		F	190		F	72.0		F	14	0	No
SHP01	0783R	N001	09/22/2015	Chloride	38.0		F	36.0		F	14.0		F	14	0	No
SHP01	0783R	N001	09/22/2015	Sodium	250		F	240		F	100.0		F	14	0	No
SHP01	0792	N001	09/23/2015	Ammonia Total as N	0.640		FJ	0.250		F	0.0646	J		17	13	NA
SHP01	0792	N001	09/23/2015	Selenium	0.00110		F	0.150		F	0.00130		F	17	3	NA
SHP01	0793	N001	09/23/2015	Manganese	0.570		F	0.490		F	0.00930	B	F	13	1	No
SHP01	0793	N001	09/23/2015	Selenium	0.00660		F	0.360		F	0.0350		F	13	0	Yes
SHP01	0793	N001	09/23/2015	Uranium	0.450		F	1.50		F	0.540		F	13	0	No
SHP01	0797	N001	09/24/2015	Ammonia Total as N	0.200		FQJ	0.110		FQ	0.1000	U	F	15	14	NA
SHP01	0797	N001	09/24/2015	Chloride	320		FQ	310		FQ	17.0		FQ	15	0	No
SHP01	0797	N001	09/24/2015	Uranium	0.0190		FQ	0.0370		FQ	0.0210		FQ	15	0	No
SHP01	0798	N001	09/23/2015	Selenium	0.00034	J	F	0.140		F	0.00097		F	13	0	NA
SHP01	0850	N001	09/24/2015	Ammonia Total as N	0.180		FJ	0.1000	U	F	0.0739	J	UF	10	10	NA
SHP01	0850	N001	09/24/2015	Magnesium	69.0		F	68.0		FQ	2.50		F	10	0	No
SHP01	0854	N001	09/24/2015	Selenium	0.00035	J	F	0.0280		F	0.00036	J	F	12	0	No
SHP01	0855	N001	09/24/2015	Uranium	0.0620		F	0.150		F	0.0640		F	16	0	No
SHP01	0856	N001	09/23/2015	Manganese	0.780		F	2.80		F	0.990		F	17	0	NA



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

**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 15097348

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	0857	N001	09/23/2015	Uranium	0.860		F	0.840		F	0.0760		FQ	13	0	No
SHP01	0897	N001	09/22/2015	Magnesium	9.70			27.0			10.00			13	0	No
SHP01	0897	N001	09/22/2015	Manganese	0.0500			4.00			0.0558			13	0	No
SHP01	0897	N001	09/22/2015	Selenium	0.00032	U		0.00480			0.00069			13	1	No
SHP01	0899	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	0.320			0.940			0.340			13	0	No
SHP01	0899	N001	09/22/2015	Selenium	0.00037	J		0.00330			0.00054			13	1	No
SHP01	0940	N001	09/22/2015	Manganese	0.0400			4.50			0.0570			14	0	No
SHP01	0956	N001	09/22/2015	Manganese	0.0450			4.60			0.0657			14	0	No
SHP01	0956	N001	09/22/2015	Selenium	0.00032	U		0.00560			0.00049			14	1	No
SHP01	0965	N001	09/22/2015	Calcium	60.0			160			61.0			13	0	NA
SHP01	0965	N001	09/22/2015	Magnesium	9.60			30.0			10.00			13	0	No
SHP01	0965	N001	09/22/2015	Manganese	0.0550			3.60			0.0560			13	0	No
SHP01	0965	N001	09/22/2015	Strontium	0.700			2.10			0.720			13	0	NA
SHP01	1008	N001	09/24/2015	Ammonia Total as N	0.1000	U	FJ	21.0		F	2.10		F	14	0	No
SHP01	1008	N001	09/24/2015	Calcium	440		F	430		F	390		F	14	0	No
SHP01	1009	N001	09/23/2015	Ammonia Total as N	0.1000	U	FJ	25.0		F	8.90		F	16	0	NA
SHP01	1009	N001	09/23/2015	Selenium	0.00150		F	0.340		F	0.00160		F	16	0	No

**Data Validation Outliers Report - No Field Parameters**  
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Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1104	N001	09/23/2015	Ammonia Total as N	17.0		J	3.40			0.124			15	0	Yes
SHP01	1104	N001	09/23/2015	Calcium	520			470			330			15	0	No
SHP01	1105	N001	09/23/2015	Ammonia Total as N	0.420		FJ	43.0		F	3.10		F	16	0	No
SHP01	1105	N002	09/23/2015	Nitrate + Nitrite as Nitrogen	0.190		F	770		F	6.70		F	17	0	NA
SHP01	1105	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	0.180		F	770		F	6.70		F	17	0	NA
SHP01	1109	N001	09/23/2015	Ammonia Total as N	2.00		J	53.0			5.03			15	0	NA
SHP01	1109	N001	09/23/2015	Calcium	350			290			76.0			15	0	NA
SHP01	1109	N001	09/23/2015	Chloride	190			120			28.0			15	0	NA
SHP01	1109	N001	09/23/2015	Magnesium	640			460			73.0			15	0	NA
SHP01	1109	N001	09/23/2015	Manganese	1.50			1.10			0.190			15	0	No
SHP01	1109	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	290			140			26.0			15	0	Yes
SHP01	1109	N001	09/23/2015	Potassium	49.0			36.0			5.90			15	0	NA
SHP01	1109	N001	09/23/2015	Sodium	860			560			120			15	0	NA
SHP01	1109	N001	09/23/2015	Strontium	4.90			4.10			0.990			15	0	Yes
SHP01	1109	N001	09/23/2015	Sulfate	4200			2700			560			15	0	NA
SHP01	1109	N001	09/23/2015	Uranium	0.640			0.420			0.0650			15	0	NA
SHP01	1110	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	16.0			300		J	24.9			16	0	No



**Data Validation Outliers Report - No Field Parameters**  
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Site Code	Location Code	Sample ID	Sample Date	Analyte	Current Result	Qualifiers		Historical Maximum Result	Qualifiers		Historical Minimum Result	Qualifiers		Number of Data Points		Statistical Outlier
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	
SHP01	1111	N001	09/23/2015	Ammonia Total as N	87.0		FJ	0.740		F	0.1000	U	F	15	6	NA
SHP01	1112	N001	09/23/2015	Ammonia Total as N	0.230		FJ	91.0		F	7.10		F	17	0	Yes
SHP01	1113	N001	09/22/2015	Calcium	540		F	500		F	390		F	10	0	No
SHP01	1118	N001	09/23/2015	Ammonia Total as N	0.150		J	0.1000	U		0.0755	J	U	13	13	NA
SHP01	1118	N001	09/23/2015	Potassium	29.0			65.0			34.0			13	0	No
SHP01	1128	N001	09/22/2015	Selenium	0.0470		F	0.0450		F	0.0150		F	14	0	No
SHP01	1132	N001	09/22/2015	Calcium	74.0		F	73.0		F	44.0		F	15	0	No
SHP01	1132	N001	09/22/2015	Chloride	23.0		F	20.0		F	8.80		F	15	0	No
SHP01	1132	N001	09/22/2015	Manganese	0.470		F	0.450		F	0.268		F	15	0	No
SHP01	1132	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	3.80		FJ	0.670		F	0.01000	U	F	15	7	NA
SHP01	1132	N001	09/22/2015	Potassium	3.50		F	2.90		F	2.00		FJ	15	0	NA
SHP01	1132	N001	09/22/2015	Sodium	61.0		F	53.0		F	30.0	E	FJ	15	0	No
SHP01	1132	N001	09/22/2015	Sulfate	230		F	200		F	110		F	15	0	Yes
SHP01	1134	N001	09/22/2015	Ammonia Total as N	1.90		FJ	1.60		F	0.560		F	12	0	No
SHP01	1134	N001	09/22/2015	Calcium	200		F	190		F	55.0		F	12	0	No
SHP01	1134	N001	09/22/2015	Chloride	40.0		F	32.0		F	11.0		F	12	0	Yes
SHP01	1134	N001	09/22/2015	Magnesium	51.0		F	42.0		F	12.0		F	12	0	No

**Data Validation Outliers Report - No Field Parameters**  
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Laboratory: ALS Laboratory Group  
RIN: 15097348  
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Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum		Historical Minimum		Number of Data Points		Statistical Outlier		
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data		N	N Below Detect
SHP01	1134	N001	09/22/2015	Manganese	1.60		F	1.20		F	0.250		F	12	0	Yes
SHP01	1134	N001	09/22/2015	Potassium	5.20		F	4.90		F	1.90		F	12	0	No
SHP01	1134	N001	09/22/2015	Sodium	110		F	84.0		F	35.0		F	12	0	Yes
SHP01	1134	N001	09/22/2015	Sulfate	630		F	560		F	120		F	12	0	No
SHP01	1134	N001	09/22/2015	Uranium	0.0250		F	0.0240		F	0.00900		F	12	0	No
SHP01	1135	N001	09/24/2015	Magnesium	72.0		F	360		F	73.0		F	14	0	No
SHP01	1135	N001	09/24/2015	Strontium	2.90		F	5.30		F	3.00		F	12	0	No
SHP01	1138	N001	09/24/2015	Selenium	0.0150		F	0.00850		F	0.00140		F	12	0	Yes
SHP01	1139	N001	09/24/2015	Ammonia Total as N	0.210		FJ	0.167		F	0.0524	J		12	9	NA
SHP01	1139	N001	09/24/2015	Manganese	1.60		F	0.728		F	0.0400	UE	F	12	1	NA
SHP01	1140	N001	09/23/2015	Ammonia Total as N	0.540		FJ	25.0		F	0.600		F	12	0	No
SHP01	1140	N002	09/23/2015	Ammonia Total as N	0.560		FJ	25.0		F	0.600		F	12	0	No
SHP01	1141	N001	09/23/2015	Calcium	610		F	560		F	350		F	12	0	No
SHP01	1141	N001	09/23/2015	Chloride	150		F	140		F	45.0		F	12	0	No
SHP01	1142	N001	09/23/2015	Calcium	52.0		F	110		F	53.0		F	14	0	No
SHP01	1142	N001	09/23/2015	Magnesium	9.60		F	18.0		F	10.00		F	14	0	No
SHP01	1142	N001	09/23/2015	Strontium	0.550		F	1.20		F	0.580		F	12	0	No

# Data Validation Outliers Report - No Field Parameters

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RIN: 15097348

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1143	N001	09/24/2015	Manganese	0.830		F	8.90		F	0.870		F	13	0	NA
SHP01	1203	N001	09/22/2015	Manganese	0.0420			4.80			0.0700			14	0	No
SHP01	1205	N001	09/22/2015	Manganese	0.0470			15.0			0.0830			13	0	No
SHP01	1205	N001	09/22/2015	Selenium	0.00039	J		0.0150			0.00062			13	1	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.



**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097349  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	0600	N001	09/23/2015	Chloride	1200		FQ	2410		FQ	1300		FQ	11	0	NA
SHP02	0600	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	150		FQ	120		FQ	75.0		FQ	11	0	No
SHP02	0600	N001	09/23/2015	Strontium	7.70		FQ	8.70		FQ	7.80		FQ	11	0	No
SHP02	0603	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	2400		F	2200		F	1500		F	15	0	No
SHP02	0603	N001	09/23/2015	Selenium	0.0690		F	0.1000		F	0.0740		F	15	0	No
SHP02	0726	N001	09/22/2015	Ammonia Total as N	2.90		F	2.70		F	0.110		F	13	0	No
SHP02	0726	N001	09/22/2015	Chloride	500		F	430		F	140		F	13	0	No
SHP02	0727	N001	09/22/2015	Selenium	0.00075	J	FQ	0.00440		JFQ	0.00120		FQJ	13	1	NA
SHP02	0731	N001	09/24/2015	Selenium	0.00510		F	0.250		F	0.00910		F	15	0	NA
SHP02	0812	N001	09/22/2015	Potassium	63.0		FQ	110		JFQ	64.0		FQ	8	0	No
SHP02	0812	N001	09/22/2015	Selenium	4.70		FQ	7.00		FQ	5.30		FQ	8	0	No
SHP02	0812	N001	09/22/2015	Uranium	0.1000		FQ	0.150		FQ	0.130		FQ	8	0	No
SHP02	0813	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	3000		F	2800		F	1600		F	16	0	No
SHP02	0813	N001	09/22/2015	Selenium	0.180		F	0.150		F	0.0146	E	JF	16	0	No
SHP02	0813	N001	09/22/2015	Uranium	0.0780		F	0.152	*EN	F	0.0900		F	16	0	No
SHP02	0815	N001	09/22/2015	Ammonia Total as N	1.70		F	1.30		F	0.1000	U	F	15	5	No
SHP02	0815	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	560		F	888		F	600		F	15	0	No



**Data Validation Outliers Report - No Field Parameters**  
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RIN: 15097349  
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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	0815	N001	09/22/2015	Uranium	0.270		F	0.380		F	0.300		F	15	0	No
SHP02	0816	N001	09/24/2015	Ammonia Total as N	0.240		F	0.110		F	0.0543	J	UFQ	12	11	NA
SHP02	0816	N001	09/24/2015	Sodium	790		F	780		F	320		FQ	12	0	No
SHP02	0817	N001	09/24/2015	Ammonia Total as N	810		FQ	1400		FQ	860		F	13	0	NA
SHP02	0817	N001	09/24/2015	Selenium	0.00210		FQ	0.00620		FQ	0.00300		F	13	0	No
SHP02	0817	N001	09/24/2015	Uranium	8.20		FQ	7.50		FQ	3.80		FQ	12	0	NA
SHP02	0818	N002	09/22/2015	Nitrate + Nitrite as Nitrogen	600			1400			610			21	0	No
SHP02	0822	N001	09/23/2015	Calcium	140		FQ	170		FQ	150		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Magnesium	62.0		FQ	90.0		FQ	67.0		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Manganese	0.350		FQ	0.480		FQ	0.370		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	0.0130		FQ	14.0		FQ	1.70		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Potassium	39.0		FQ	100.0		FQJ	66.0		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Selenium	0.00032	U	FQ	0.00130		FQ	0.00076	B	FQ	5	0	No
SHP02	0822	N001	09/23/2015	Sodium	5900		FQ	5800		FQ	5100		FQ	5	0	NA
SHP02	0822	N001	09/23/2015	Strontium	15.0		FQ	17.0		FQ	16.0		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Sulfate	4700		FQ	6100		FQ	5400		FQ	5	0	No
SHP02	0822	N001	09/23/2015	Uranium	0.0370		FQ	0.0880		FQ	0.0510		FQ	5	0	No

**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097349  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	0828	N001	09/24/2015	Manganese	1.90		F	1.60		F	0.0002	B	UF	12	3	No
SHP02	0828	N001	09/24/2015	Nitrate + Nitrite as Nitrogen	1.20		F	177		F	5.00		F	12	0	No
SHP02	0828	N001	09/24/2015	Selenium	0.00450		F	0.130		F	0.00920		F	12	0	No
SHP02	0833	N001	09/22/2015	Chloride	180		F	600		F	190		F	14	0	No
SHP02	0833	N001	09/22/2015	Manganese	0.300		F	0.0700		F	0.00880	B	F	14	2	Yes
SHP02	0833	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	70.0		F	1260		F	72.0		F	14	0	No
SHP02	0833	N001	09/22/2015	Selenium	0.200		F	0.455	E	F	0.240		F	14	0	No
SHP02	0833	N001	09/22/2015	Sodium	840		F	1900		F	940		F	14	0	No
SHP02	0833	N001	09/22/2015	Strontium	4.90		F	10.00		F	5.40		F	14	0	No
SHP02	0833	N001	09/22/2015	Sulfate	3700		F	9100		F	3800		F	14	0	No
SHP02	0833	N001	09/22/2015	Uranium	0.0440		F	0.250		F	0.0600		F	14	0	No
SHP02	0835	N001	09/22/2015	Chloride	20.0		F	230		F	25.0		F	15	0	NA
SHP02	0835	N001	09/22/2015	Magnesium	19.0		F	430		F	23.0		F	15	0	NA
SHP02	0835	N001	09/22/2015	Selenium	0.00160		F	0.458	E	F	0.00200		F	15	0	NA
SHP02	0835	N001	09/22/2015	Sodium	27.0		F	957		F	30.0		F	15	0	NA
SHP02	0835	N001	09/22/2015	Strontium	0.550		F	6.30		F	0.580		F	15	0	NA
SHP02	0835	N001	09/22/2015	Sulfate	120		F	4690		JF	130		F	15	0	NA



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

**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 15097349

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	0835	N001	09/22/2015	Uranium	0.00310		F	0.0880		F	0.00360		F	15	0	NA
SHP02	0836	N001	09/22/2015	Ammonia Total as N	0.200		F	0.130		F	0.0336	J	UF	16	15	NA
SHP02	0836	N001	09/22/2015	Chloride	100.0		F	88.0		F	32.0		F	16	0	No
SHP02	0836	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	64.0		F	58.0		F	14.0		F	16	0	No
SHP02	0836	N001	09/22/2015	Sodium	480		F	450		F	320		F	16	0	NA
SHP02	0837	N001	09/22/2015	Manganese	2.80		F	4.90		F	3.70		F	14	0	No
SHP02	0837	N001	09/22/2015	Selenium	0.580		F	0.560		F	0.110		F	14	0	No
SHP02	0837	N001	09/22/2015	Sodium	430		F	421		F	240		F	14	0	No
SHP02	0837	N001	09/22/2015	Uranium	0.0230		F	0.0597	*EN	F	0.0290		F	14	0	No
SHP02	0838	N001	09/22/2015	Ammonia Total as N	0.120		F	0.1000	U	F	0.0923	J	UF	15	15	NA
SHP02	0838	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	87.0		F	590		F	110		F	15	0	No
SHP02	0838	N001	09/22/2015	Selenium	0.200		F	4.71	E	F	0.300		F	15	0	NA
SHP02	0838	N001	09/22/2015	Strontium	6.20		F	13.4		F	7.10		F	15	0	No
SHP02	0843	N001	09/22/2015	Manganese	0.960		F	6.00		F	1.04		F	14	1	No
SHP02	0844	N001	09/22/2015	Chloride	1000		F	930		F	767		F	15	0	No
SHP02	0844	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	640		F	950		F	650		F	15	0	No
SHP02	0848	N001	09/23/2015	Manganese	2.50		F	3.50		F	2.60		F	14	0	No

**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097349  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	0848	N001	09/23/2015	Uranium	0.0150		F	0.0260		F	0.0160		F	14	0	No
SHP02	1049	N001	09/24/2015	Sulfate	19000		F	18000		F	15000		F	8	0	No
SHP02	1058	N001	09/24/2015	Chloride	1600		FQ	1500		FQ	1050		FQ	13	0	No
SHP02	1058	N001	09/24/2015	Sulfate	5800		FQ	5600		FQ	4900		FQ	13	0	No
SHP02	1071	N001	09/22/2015	Manganese	0.680			60.0			0.900			15	0	NA
SHP02	1071	N001	09/22/2015	Sodium	4900			4800			1200			15	0	No
SHP02	1074	N001	09/23/2015	Chloride	1200		FQ	1100		FQ	971		FQ	13	0	NA
SHP02	1074	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	970		FQ	1500		FQ	1100		FQ	13	0	No
SHP02	1078	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	400			820			440			18	0	No
SHP02	1078	N002	09/22/2015	Nitrate + Nitrite as Nitrogen	430			820			440			18	0	No
SHP02	1079	N001	09/23/2015	Manganese	0.0700		F	0.0190		F	0.00052	U	F	18	5	No
SHP02	1087	N002	09/22/2015	Sodium	780			1400			900			20	0	No
SHP02	1087	N001	09/22/2015	Sodium	840			1400			900			20	0	No
SHP02	1087	N001	09/22/2015	Strontium	6.60			10.00			6.80			20	0	No
SHP02	1087	N002	09/22/2015	Uranium	0.310			0.760			0.380			20	0	No
SHP02	1087	N001	09/22/2015	Uranium	0.320			0.760			0.380			20	0	No
SHP02	1091	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	670			2100			700			12	0	No



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

**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**

Laboratory: ALS Laboratory Group

RIN: 15097349

Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	1091	N001	09/23/2015	Sulfate	16000			15000			10000			12	0	No
SHP02	1095	N002	09/23/2015	Ammonia Total as N	400		J	980			410			18	0	NA
SHP02	1095	N001	09/23/2015	Ammonia Total as N	400		J	980			410			18	0	NA
SHP02	1095	N001	09/23/2015	Potassium	130			220			135			18	0	NA
SHP02	1095	N002	09/23/2015	Potassium	130			220			135			18	0	NA
SHP02	1095	N001	09/23/2015	Selenium	0.0960			0.300			0.110			18	0	No
SHP02	1095	N001	09/23/2015	Uranium	0.0430			0.0680			0.0460			18	0	No
SHP02	1096	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	470			780			490			20	0	No
SHP02	1219	N001	09/22/2015	Nitrate + Nitrite as Nitrogen	1.80			22.0			3.50			8	0	No
SHP02	1219	N001	09/22/2015	Selenium	0.0170			0.120			0.0280			8	0	No
SHP02	MW1	N001	09/23/2015	Ammonia Total as N	0.120		FQJ	3.40		FQ	0.570		FQ	7	0	No
SHP02	MW1	N001	09/23/2015	Calcium	130		FQ	92.0		FQ	64.0		FQ	7	0	No
SHP02	MW1	N001	09/23/2015	Chloride	5700		FQ	5300		FQ	4500		FQ	7	0	NA
SHP02	MW1	N001	09/23/2015	Magnesium	56.0		FQ	45.0		FQ	32.0		FQ	7	0	No
SHP02	MW1	N001	09/23/2015	Nitrate + Nitrite as Nitrogen	3.10		FQ	0.490		FQ	0.0570		FQ	7	0	NA

**Data Validation Outliers Report - No Field Parameters**  
**Comparison: Historical Data Beginning 01/01/2006 for Unfiltered Samples**  
Laboratory: ALS Laboratory Group  
RIN: 15097349  
Report Date: 12/09/2015

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	MW1	N001	09/23/2015	Sodium	5200		FQ	4500		FQ	3600		FQ	7	0	No
SHP02	MW1	N001	09/23/2015	Strontium	12.0		FQ	10.00		FQ	7.10		FQ	7	0	No
SHP02	MW1	N001	09/23/2015	Sulfate	4100		FQ	2800		FQ	1900		FQ	7	0	Yes
SHP02	MW1	N001	09/23/2015	Uranium	0.0220		FQ	0.00440		FQ	0.00036		FQ	7	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.

# **Attachment 2**

## **Data Presentation**

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## **Groundwater Quality Data Floodplain Locations**

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

REPORT DATE: 12/09/2015

Location: 0608 WELL, SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	10	-	15	256		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	10	-	15	48		FJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	10	-	15	320		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	10	-	15	260		F	#	20	
Magnesium	mg/L	09/22/2015	N001	10	-	15	440		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	10	-	15	1.7		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	10	-	15	9.4		F	#	0.2	
Oxidation Reduction Potential	mV	09/22/2015	N001	10	-	15	93		F	#		
pH	s.u.	09/22/2015	N001	10	-	15	7.19		F	#		
Potassium	mg/L	09/22/2015	N001	10	-	15	50		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	10	-	15	0.0042		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	10	-	15	1600		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	10	-	15	9779		F	#		
Strontium	mg/L	09/22/2015	N001	10	-	15	7.4		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	10	-	15	6200		F	#	50	
Temperature	C	09/22/2015	N001	10	-	15	19.82		F	#		
Turbidity	NTU	09/22/2015	N001	10	-	15	2.1		F	#		
Uranium	mg/L	09/22/2015	N001	10	-	15	0.7		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0610 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	4	-	9	237		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	4	-	9	3.4		FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	4	-	9	490		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	4	-	9	250		F	#	20	
Magnesium	mg/L	09/22/2015	N001	4	-	9	780		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	4	-	9	0.067		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	4	-	9	350		F	#	5	
Oxidation Reduction Potential	mV	09/22/2015	N001	4	-	9	90.1		F	#		
pH	s.u.	09/22/2015	N001	4	-	9	7.15		F	#		
Potassium	mg/L	09/22/2015	N001	4	-	9	100		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	4	-	9	0.33		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	4	-	9	1100		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	4	-	9	9072		F	#		
Strontium	mg/L	09/22/2015	N001	4	-	9	7.5		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	4	-	9	5800		F	#	50	
Temperature	C	09/22/2015	N001	4	-	9	22.57		F	#		
Turbidity	NTU	09/22/2015	N001	4	-	9	1.96		F	#		
Uranium	mg/L	09/22/2015	N001	4	-	9	0.56		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0611 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	9.5 - 14.5	589		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	9.5 - 14.5	2.6		FJ	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N002	9.5 - 14.5	2.6		FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	9.5 - 14.5	150		F	#	0.12	
Calcium	mg/L	09/22/2015	N002	9.5 - 14.5	150		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	9.5 - 14.5	520		F	#	20	
Chloride	mg/L	09/22/2015	N002	9.5 - 14.5	490		F	#	20	
Magnesium	mg/L	09/22/2015	N001	9.5 - 14.5	76		F	#	0.15	
Magnesium	mg/L	09/22/2015	N002	9.5 - 14.5	76		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	9.5 - 14.5	0.04		FJ	#	0.0012	
Manganese	mg/L	09/22/2015	N002	9.5 - 14.5	0.058		FJ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	9.5 - 14.5	0.074		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N002	9.5 - 14.5	0.064		FJ	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	9.5 - 14.5	36.8		F	#		
pH	s.u.	09/22/2015	N001	9.5 - 14.5	7.28		F	#		
Potassium	mg/L	09/22/2015	N001	9.5 - 14.5	13		F	#	0.26	
Potassium	mg/L	09/22/2015	N002	9.5 - 14.5	13		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	9.5 - 14.5	0.0014		F	#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 0611 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data QA		Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N002	9.5	-	14.5	0.00067	J	F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	9.5	-	14.5	2300		F	#	0.23	
Sodium	mg/L	09/22/2015	N002	9.5	-	14.5	2300		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	9.5	-	14.5	10415		F	#		
Strontium	mg/L	09/22/2015	N001	9.5	-	14.5	6.7		F	#	0.0013	
Strontium	mg/L	09/22/2015	N002	9.5	-	14.5	6.1		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	9.5	-	14.5	5300		F	#	50	
Sulfate	mg/L	09/22/2015	N002	9.5	-	14.5	4900		F	#	50	
Temperature	C	09/22/2015	N001	9.5	-	14.5	21.87		F	#		
Turbidity	NTU	09/22/2015	N001	9.5	-	14.5	0.95		F	#		
Uranium	mg/L	09/22/2015	N001	9.5	-	14.5	0.0058		F	#	0.000029	
Uranium	mg/L	09/22/2015	N002	9.5	-	14.5	0.005		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	5	-	10	286		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	5	-	10	1.2		F	#	0.1	
Calcium	mg/L	09/23/2015	0003	5	-	10	130		F	#	0.024	
Calcium	mg/L	09/23/2015	N001	5	-	10	130		F	#	0.024	
Calcium	mg/L	09/23/2015	N003	5	-	10	120		F	#	0.024	
Chloride	mg/L	09/23/2015	N001	5	-	10	63		F	#	4	
Magnesium	mg/L	09/23/2015	0003	5	-	10	76		F	#	0.03	
Magnesium	mg/L	09/23/2015	N001	5	-	10	77		F	#	0.03	
Magnesium	mg/L	09/23/2015	N003	5	-	10	75		F	#	0.03	
Manganese	mg/L	09/23/2015	0003	5	-	10	1.2		F	#	0.00024	
Manganese	mg/L	09/23/2015	N001	5	-	10	1.2		F	#	0.00024	
Manganese	mg/L	09/23/2015	N003	5	-	10	1.2		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	5	-	10	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	5	-	10	-152.8		F	#		
pH	s.u.	09/23/2015	N001	5	-	10	7.36		F	#		
Potassium	mg/L	09/23/2015	0003	5	-	10	7		F	#	0.052	
Potassium	mg/L	09/23/2015	N001	5	-	10	7.1		F	#	0.052	
Potassium	mg/L	09/23/2015	N003	5	-	10	6.8		F	#	0.052	

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

REPORT DATE: 12/09/2015

Location: 0612 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data QA		Detection Limit	Uncertainty
Selenium	mg/L	09/23/2015	0003	5	-	10	0.00098	J	F	#	0.00032	
Selenium	mg/L	09/23/2015	N001	5	-	10	0.00032	U	F	#	0.00032	
Selenium	mg/L	09/23/2015	N003	5	-	10	0.0017		F	#	0.00032	
Sodium	mg/L	09/23/2015	0003	5	-	10	200		F	#	0.047	
Sodium	mg/L	09/23/2015	N001	5	-	10	200		F	#	0.047	
Sodium	mg/L	09/23/2015	N003	5	-	10	210		F	#	0.047	
Specific Conductance	umhos/cm	09/23/2015	N001	5	-	10	1928		F	#		
Strontium	mg/L	09/23/2015	0003	5	-	10	1.7		F	#	0.00026	
Strontium	mg/L	09/23/2015	N001	5	-	10	1.6		F	#	0.00026	
Strontium	mg/L	09/23/2015	N003	5	-	10	1.6		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	5	-	10	750		F	#	10	
Temperature	C	09/23/2015	N001	5	-	10	17.76		F	#		
Turbidity	NTU	09/23/2015	N001	5	-	10	1.36		F	#		
Uranium	mg/L	09/23/2015	0003	5	-	10	0.041		F	#	0.000029	
Uranium	mg/L	09/23/2015	N001	5	-	10	0.044		F	#	0.000029	
Uranium	mg/L	09/23/2015	N003	5	-	10	0.042		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0614 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	10	-	15	376		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	10	-	15	16		FJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	10	-	15	440		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	10	-	15	170		F	#	20	
Magnesium	mg/L	09/22/2015	N001	10	-	15	640		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	10	-	15	1.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	10	-	15	87		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	10	-	15	100.9		F	#		
pH	s.u.	09/22/2015	N001	10	-	15	7.15		F	#		
Potassium	mg/L	09/22/2015	N001	10	-	15	73		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	10	-	15	1.2		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	10	-	15	940		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	10	-	15	8369		F	#		
Strontium	mg/L	09/22/2015	N001	10	-	15	6.4		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	10	-	15	5500		F	#	50	
Temperature	C	09/22/2015	N001	10	-	15	17.85		F	#		
Turbidity	NTU	09/22/2015	N001	10	-	15	1.8		F	#		
Uranium	mg/L	09/22/2015	N001	10	-	15	0.9		F	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 0615 WELL S of floodplain fence, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	4.5	-	9.5	598		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	4.5	-	9.5	3.4		F	#	0.1	
Calcium	mg/L	09/23/2015	N001	4.5	-	9.5	490		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	4.5	-	9.5	160		F	#	20	
Magnesium	mg/L	09/23/2015	N001	4.5	-	9.5	570		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	4.5	-	9.5	3.9		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	4.5	-	9.5	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	4.5	-	9.5	-31.8		F	#		
pH	s.u.	09/23/2015	N001	4.5	-	9.5	7.09		F	#		
Potassium	mg/L	09/23/2015	N001	4.5	-	9.5	60		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	4.5	-	9.5	0.0049		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	4.5	-	9.5	1100		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	4.5	-	9.5	8380		F	#		
Strontium	mg/L	09/23/2015	N001	4.5	-	9.5	6.7		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	4.5	-	9.5	5800		F	#	50	
Temperature	C	09/23/2015	N001	4.5	-	9.5	21.88		F	#		
Turbidity	NTU	09/23/2015	N001	4.5	-	9.5	1.28		F	#		
Uranium	mg/L	09/23/2015	N001	4.5	-	9.5	0.81		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	11	-	16	434		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	11	-	16	25		F	#	2.5	
Calcium	mg/L	09/23/2015	N001	11	-	16	410		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	11	-	16	160		F	#	20	
Magnesium	mg/L	09/23/2015	N001	11	-	16	470		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	11	-	16	2.6		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	11	-	16	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	11	-	16	-17.7		F	#		
pH	s.u.	09/23/2015	N001	11	-	16	7.05		F	#		
Potassium	mg/L	09/23/2015	N001	11	-	16	56		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	11	-	16	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	11	-	16	1600		F	#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	11	-	16	10111		F	#		
Strontium	mg/L	09/23/2015	N001	11	-	16	5.3		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	11	-	16	6800		F	#	50	
Temperature	C	09/23/2015	N001	11	-	16	20.41		F	#		
Turbidity	NTU	09/23/2015	N001	11	-	16	1.82		F	#		
Uranium	mg/L	09/23/2015	N001	11	-	16	0.7		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0619 WELL Center of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	8	-	13	326		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	8	-	13	0.49		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	8	-	13	280		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	8	-	13	120		F	#	10	
Magnesium	mg/L	09/24/2015	N001	8	-	13	110		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	8	-	13	0.67		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	8	-	13	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	8	-	13	-108.9		F	#		
pH	s.u.	09/24/2015	N001	8	-	13	7.31		F	#		
Potassium	mg/L	09/24/2015	N001	8	-	13	21		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	8	-	13	0.0066		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	8	-	13	1300		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	8	-	13	6823		F	#		
Strontium	mg/L	09/24/2015	N001	8	-	13	8.2		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	8	-	13	3800		F	#	25	
Temperature	C	09/24/2015	N001	8	-	13	17.34		F	#		
Turbidity	NTU	09/24/2015	N001	8	-	13	0.57		F	#		
Uranium	mg/L	09/24/2015	N001	8	-	13	0.095		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	5	-	10	246		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	5	-	10	0.1	U	F	#	0.1	
Calcium	mg/L	09/24/2015	N001	5	-	10	220		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	5	-	10	88		F	#	10	
Magnesium	mg/L	09/24/2015	N001	5	-	10	66		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	5	-	10	0.34		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	5	-	10	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	5	-	10	-91.2		F	#		
pH	s.u.	09/24/2015	N001	5	-	10	7.41		F	#		
Potassium	mg/L	09/24/2015	N001	5	-	10	17		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	5	-	10	0.0015		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	5	-	10	980		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	5	-	10	5231		F	#		
Strontium	mg/L	09/24/2015	N001	5	-	10	8.6		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	5	-	10	2800		F	#	25	
Temperature	C	09/24/2015	N001	5	-	10	19.33		F	#		
Turbidity	NTU	09/24/2015	N001	5	-	10	1.02		F	#		
Uranium	mg/L	09/24/2015	N001	5	-	10	0.045		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0623 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	10	-	15	368		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	10	-	15	0.19		F	#	0.1	
Calcium	mg/L	09/23/2015	N001	10	-	15	220		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	10	-	15	75		F	#	10	
Magnesium	mg/L	09/23/2015	N001	10	-	15	44		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	10	-	15	1.2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	10	-	15	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	10	-	15	31.9		F	#		
pH	s.u.	09/23/2015	N001	10	-	15	7.38		F	#		
Potassium	mg/L	09/23/2015	N001	10	-	15	12		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	10	-	15	0.00091	J	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	10	-	15	1000		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	10	-	15	5206		F	#		
Strontium	mg/L	09/23/2015	N001	10	-	15	9.5		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	10	-	15	2700		F	#	25	
Temperature	C	09/23/2015	N001	10	-	15	20.03		F	#		
Turbidity	NTU	09/23/2015	N001	10	-	15	2.14		F	#		
Uranium	mg/L	09/23/2015	N001	10	-	15	0.041		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0625 WELL Center of floodplain, well nest

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	4.5	- 9.5	322		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	4.5	- 9.5	0.15		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	4.5	- 9.5	220		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	4.5	- 9.5	76		F	#	10	
Magnesium	mg/L	09/24/2015	N001	4.5	- 9.5	40		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	4.5	- 9.5	2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	4.5	- 9.5	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	4.5	- 9.5	-11.5		F	#		
pH	s.u.	09/24/2015	N001	4.5	- 9.5	7.23		F	#		
Potassium	mg/L	09/24/2015	N001	4.5	- 9.5	11		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	4.5	- 9.5	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	4.5	- 9.5	1000		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	4.5	- 9.5	5202		F	#		
Strontium	mg/L	09/24/2015	N001	4.5	- 9.5	9.8		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	4.5	- 9.5	2600		F	#	25	
Temperature	C	09/24/2015	N001	4.5	- 9.5	19.26		F	#		
Turbidity	NTU	09/24/2015	N001	4.5	- 9.5	2.17		F	#		
Uranium	mg/L	09/24/2015	N001	4.5	- 9.5	0.035		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	9.5	-	14.5	262		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	9.5	-	14.5	0.19		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	9.5	-	14.5	170		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	9.5	-	14.5	72		F	#	10	
Magnesium	mg/L	09/24/2015	N001	9.5	-	14.5	22		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	9.5	-	14.5	0.98		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	9.5	-	14.5	0.01	U	FJ	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	9.5	-	14.5	0		F	#		
pH	s.u.	09/24/2015	N001	9.5	-	14.5	7.47		F	#		
Potassium	mg/L	09/24/2015	N001	9.5	-	14.5	10		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	9.5	-	14.5	0.00056	J	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	9.5	-	14.5	870		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	9.5	-	14.5	4335		F	#		
Strontium	mg/L	09/24/2015	N001	9.5	-	14.5	9.7		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	9.5	-	14.5	2100		F	#	25	
Temperature	C	09/24/2015	N001	9.5	-	14.5	18.2		F	#		
Turbidity	NTU	09/24/2015	N001	9.5	-	14.5	4.04		F	#		
Uranium	mg/L	09/24/2015	N001	9.5	-	14.5	0.016		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	6	-	10	354		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	6	-	10	0.14		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	6	-	10	180		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	6	-	10	69		F	#	10	
Magnesium	mg/L	09/24/2015	N001	6	-	10	25		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	6	-	10	1.2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	6	-	10	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	6	-	10	-110.7		F	#		
pH	s.u.	09/24/2015	N001	6	-	10	7.39		F	#		
Potassium	mg/L	09/24/2015	N001	6	-	10	9.6		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	6	-	10	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	6	-	10	920		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	6	-	10	4676		F	#		
Strontium	mg/L	09/24/2015	N001	6	-	10	11		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	6	-	10	2200		F	#	25	
Temperature	C	09/24/2015	N001	6	-	10	17.23		F	#		
Turbidity	NTU	09/24/2015	N001	6	-	10	1		F	#		
Uranium	mg/L	09/24/2015	N001	6	-	10	0.021		F	#	0.000029	



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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	5	-	10	550		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	5	-	10	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	5	-	10	420		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	5	-	10	210		F	#	20	
Magnesium	mg/L	09/24/2015	N001	5	-	10	320		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	5	-	10	2.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	5	-	10	32		F	#	0.5	
Oxidation Reduction Potential	mV	09/24/2015	N001	5	-	10	78.6		F	#		
pH	s.u.	09/24/2015	N001	5	-	10	6.97		F	#		
Potassium	mg/L	09/24/2015	N001	5	-	10	17		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	5	-	10	0.24		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	5	-	10	1500		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	5	-	10	8464		F	#		
Strontium	mg/L	09/24/2015	N001	5	-	10	19		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	5	-	10	4800		F	#	50	
Temperature	C	09/24/2015	N001	5	-	10	19.47		F	#		
Turbidity	NTU	09/24/2015	N001	5	-	10	1.59		F	#		
Uranium	mg/L	09/24/2015	N001	5	-	10	0.26		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0735 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	3	-	8	820		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	3	-	8	16		FJ	#	2.5	
Calcium	mg/L	09/22/2015	0003	3	-	8	420		F	#	0.12	
Calcium	mg/L	09/22/2015	N001	3	-	8	420		F	#	0.12	
Calcium	mg/L	09/22/2015	N003	3	-	8	410		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	3	-	8	590		F	#	40	
Magnesium	mg/L	09/22/2015	0003	3	-	8	1200		F	#	0.15	
Magnesium	mg/L	09/22/2015	N001	3	-	8	1200		F	#	0.15	
Magnesium	mg/L	09/22/2015	N003	3	-	8	1100		F	#	0.15	
Manganese	mg/L	09/22/2015	0003	3	-	8	3.4		F	#	0.0012	
Manganese	mg/L	09/22/2015	N001	3	-	8	2.3		F	#	0.0012	
Manganese	mg/L	09/22/2015	N003	3	-	8	3.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	3	-	8	780		F	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	3	-	8	228		F	#		
pH	s.u.	09/22/2015	N001	3	-	8	6.95		F	#		
Potassium	mg/L	09/22/2015	0003	3	-	8	59		F	#	0.26	
Potassium	mg/L	09/22/2015	N001	3	-	8	61		F	#	0.26	
Potassium	mg/L	09/22/2015	N003	3	-	8	58		F	#	0.26	

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

REPORT DATE: 12/09/2015

Location: 0735 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	0003	3	-	8	0.17		F	#	0.00032	
Selenium	mg/L	09/22/2015	N001	3	-	8	0.16		F	#	0.00032	
Selenium	mg/L	09/22/2015	N003	3	-	8	0.16		F	#	0.00032	
Sodium	mg/L	09/22/2015	0003	3	-	8	3600		F	#	2.3	
Sodium	mg/L	09/22/2015	N001	3	-	8	3300		F	#	0.47	
Sodium	mg/L	09/22/2015	N003	3	-	8	3600		F	#	2.3	
Specific Conductance	umhos/cm	09/22/2015	N001	3	-	8	18852		F	#		
Strontium	mg/L	09/22/2015	0003	3	-	8	11		F	#	0.0013	
Strontium	mg/L	09/22/2015	N001	3	-	8	11		F	#	0.0013	
Strontium	mg/L	09/22/2015	N003	3	-	8	11		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	3	-	8	10000		F	#	100	
Temperature	C	09/22/2015	N001	3	-	8	16.61		F	#		
Turbidity	NTU	09/22/2015	N001	3	-	8	0.94		F	#		
Uranium	mg/L	09/22/2015	0003	3	-	8	0.28		F	#	0.000029	
Uranium	mg/L	09/22/2015	N001	3	-	8	0.29		F	#	0.000029	
Uranium	mg/L	09/22/2015	N003	3	-	8	0.26		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0736 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	3	-	5	255		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	3	-	5	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	3	-	5	360		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	3	-	5	120		F	#	10	
Magnesium	mg/L	09/24/2015	N001	3	-	5	49		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	3	-	5	0.43		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	3	-	5	0.83		F	#	0.05	
Oxidation Reduction Potential	mV	09/24/2015	N001	3	-	5	69		F	#		
pH	s.u.	09/24/2015	N001	3	-	5	7.38		F	#		
Potassium	mg/L	09/24/2015	N001	3	-	5	18		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	3	-	5	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	3	-	5	1200		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	3	-	5	6480		F	#		
Strontium	mg/L	09/24/2015	N001	3	-	5	5.7		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	3	-	5	3600		F	#	25	
Temperature	C	09/24/2015	N001	3	-	5	19.41		F	#		
Turbidity	NTU	09/24/2015	N001	3	-	5	5		F	#		
Uranium	mg/L	09/24/2015	N001	3	-	5	0.056		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0766 WELL Well Point

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	6.25	-	8.75	354		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	6.25	-	8.75	0.16		FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	6.25	-	8.75	280		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	6.25	-	8.75	120		F	#	20	
Magnesium	mg/L	09/24/2015	N001	6.25	-	8.75	170		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	6.25	-	8.75	0.37		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	6.25	-	8.75	0.49		F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	6.25	-	8.75	-161.8		F	#		
pH	s.u.	09/24/2015	N001	6.25	-	8.75	7.43		F	#		
Potassium	mg/L	09/24/2015	N001	6.25	-	8.75	42		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	6.25	-	8.75	0.0011		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	6.25	-	8.75	1500		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	6.25	-	8.75	8049		F	#		
Strontium	mg/L	09/24/2015	N001	6.25	-	8.75	4.8		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	6.25	-	8.75	4600		F	#	50	
Temperature	C	09/24/2015	N001	6.25	-	8.75	23.84		F	#		
Turbidity	NTU	09/24/2015	N001	6.25	-	8.75	2.27		F	#		
Uranium	mg/L	09/24/2015	N001	6.25	-	8.75	0.15		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0768 WELL Well Point

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	4.58	-	7.08	566		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	4.58	-	7.08	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	4.58	-	7.08	350		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	4.58	-	7.08	150		F	#	20	
Magnesium	mg/L	09/24/2015	N001	4.58	-	7.08	220		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	4.58	-	7.08	1.4		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	4.58	-	7.08	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	4.58	-	7.08	-81.1		F	#		
pH	s.u.	09/24/2015	N001	4.58	-	7.08	7.34		F	#		
Potassium	mg/L	09/24/2015	N001	4.58	-	7.08	38		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	4.58	-	7.08	0.0011		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	4.58	-	7.08	1900		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	4.58	-	7.08	9520		F	#		
Strontium	mg/L	09/24/2015	N001	4.58	-	7.08	11		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	4.58	-	7.08	5400		F	#	50	
Temperature	C	09/24/2015	N001	4.58	-	7.08	17.15		F	#		
Turbidity	NTU	09/24/2015	N001	4.58	-	7.08	4.82		F	#		
Uranium	mg/L	09/24/2015	N001	4.58	-	7.08	0.16		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0773 WELL Well Point

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	4	-	6.5	340		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	4	-	6.5	17		FQJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	4	-	6.5	170		FQ	#	0.024	
Chloride	mg/L	09/22/2015	N001	4	-	6.5	61		FQ	#	5	
Magnesium	mg/L	09/22/2015	N001	4	-	6.5	200		FQ	#	0.03	
Manganese	mg/L	09/22/2015	N001	4	-	6.5	0.66		FQ	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	4	-	6.5	7.3		FQ	#	0.1	
Oxidation Reduction Potential	mV	09/22/2015	N001	4	-	6.5	89.4		FQ	#		
pH	s.u.	09/22/2015	N001	4	-	6.5	7.24		FQ	#		
Potassium	mg/L	09/22/2015	N001	4	-	6.5	29		FQ	#	0.052	
Selenium	mg/L	09/22/2015	N001	4	-	6.5	0.15		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	4	-	6.5	290		FQ	#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N001	4	-	6.5	3361		FQ	#		
Strontium	mg/L	09/22/2015	N001	4	-	6.5	2.4		FQ	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	4	-	6.5	1300		FQ	#	12	
Temperature	C	09/22/2015	N001	4	-	6.5	22.47		FQ	#		
Turbidity	NTU	09/22/2015	N001	4	-	6.5	8.64		FQ	#		
Uranium	mg/L	09/22/2015	N001	4	-	6.5	0.28		FQ	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 0775 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	4.25 - 6.75	388		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	4.25 - 6.75	0.18		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	4.25 - 6.75	440		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	4.25 - 6.75	110		F	#	20	
Magnesium	mg/L	09/23/2015	N001	4.25 - 6.75	180		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	4.25 - 6.75	1.6		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	4.25 - 6.75	0.014		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	4.25 - 6.75	-147.5		F	#		
pH	s.u.	09/23/2015	N001	4.25 - 6.75	7.32		F	#		
Potassium	mg/L	09/23/2015	N001	4.25 - 6.75	37		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	4.25 - 6.75	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	4.25 - 6.75	1300		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	4.25 - 6.75	7750		F	#		
Strontium	mg/L	09/23/2015	N001	4.25 - 6.75	7.2		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	4.25 - 6.75	4300		F	#	50	
Temperature	C	09/23/2015	N001	4.25 - 6.75	22.13		F	#		
Turbidity	NTU	09/23/2015	N001	4.25 - 6.75	2.16		F	#		
Uranium	mg/L	09/23/2015	N001	4.25 - 6.75	0.18		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0779 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7	-	9.5	1000		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7	-	9.5	0.66		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	7	-	9.5	470		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7	-	9.5	440		F	#	40	
Magnesium	mg/L	09/23/2015	N001	7	-	9.5	1400		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	7	-	9.5	0.8		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7	-	9.5	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	7	-	9.5	42		F	#		
pH	s.u.	09/23/2015	N001	7	-	9.5	7.23		F	#		
Potassium	mg/L	09/23/2015	N001	7	-	9.5	150		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	7	-	9.5	0.034		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7	-	9.5	4200		F	#	0.47	
Specific Conductance	umhos /cm	09/23/2015	N001	7	-	9.5	21595		F	#		
Strontium	mg/L	09/23/2015	N001	7	-	9.5	14		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	7	-	9.5	16000		F	#	100	
Temperature	C	09/23/2015	N001	7	-	9.5	19.95		F	#		
Turbidity	NTU	09/23/2015	N001	7	-	9.5	1.31		F	#		
Uranium	mg/L	09/23/2015	N001	7	-	9.5	1.7		F	#	0.00029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	4.71	- 9.46	154		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	4.71	- 9.46	0.13		FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	4.71	- 9.46	84		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	4.71	- 9.46	22		F	#	4	
Magnesium	mg/L	09/22/2015	N001	4.71	- 9.46	28		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	4.71	- 9.46	2.2		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	4.71	- 9.46	0.011		F	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	4.71	- 9.46	126.9		F	#		
pH	s.u.	09/22/2015	N001	4.71	- 9.46	7.45		F	#		
Potassium	mg/L	09/22/2015	N001	4.71	- 9.46	4.4		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	4.71	- 9.46	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	4.71	- 9.46	200		F	#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N001	4.71	- 9.46	1533		F	#		
Strontium	mg/L	09/22/2015	N001	4.71	- 9.46	1.1		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	4.71	- 9.46	550		F	#	10	
Temperature	C	09/22/2015	N001	4.71	- 9.46	18.06		F	#		
Turbidity	NTU	09/22/2015	N001	4.71	- 9.46	9.95		F	#		
Uranium	mg/L	09/22/2015	N001	4.71	- 9.46	0.01		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	4.38	-	9.38	177		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	4.38	-	9.38	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	4.38	-	9.38	150		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	4.38	-	9.38	38		F	#	4	
Magnesium	mg/L	09/22/2015	N001	4.38	-	9.38	51		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	4.38	-	9.38	1.8		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	4.38	-	9.38	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	4.38	-	9.38	110.3		F	#		
pH	s.u.	09/22/2015	N001	4.38	-	9.38	7.39		F	#		
Potassium	mg/L	09/22/2015	N001	4.38	-	9.38	6.3		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	4.38	-	9.38	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	4.38	-	9.38	250		F	#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N001	4.38	-	9.38	2119		F	#		
Strontium	mg/L	09/22/2015	N001	4.38	-	9.38	2		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	4.38	-	9.38	910		F	#	10	
Temperature	C	09/22/2015	N001	4.38	-	9.38	23.98		F	#		
Turbidity	NTU	09/22/2015	N001	4.38	-	9.38	1.6		F	#		
Uranium	mg/L	09/22/2015	N001	4.38	-	9.38	0.0099		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0792 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	6	-	8	570		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	6	-	8	0.64		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	6	-	8	440		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	6	-	8	190		F	#	20	
Magnesium	mg/L	09/23/2015	N001	6	-	8	240		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	6	-	8	2.6		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	6	-	8	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	6	-	8	-26.2		F	#		
pH	s.u.	09/23/2015	N001	6	-	8	7.39		F	#		
Potassium	mg/L	09/23/2015	N001	6	-	8	45		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	6	-	8	0.0011		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	6	-	8	2000		F	#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	6	-	8	10492		F	#		
Strontium	mg/L	09/23/2015	N001	6	-	8	11		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	6	-	8	6200		F	#	50	
Temperature	C	09/23/2015	N001	6	-	8	20.62		F	#		
Turbidity	NTU	09/23/2015	N001	6	-	8	2.2		F	#		
Uranium	mg/L	09/23/2015	N001	6	-	8	0.17		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0793 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	5.2	-	7.2	394		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	5.2	-	7.2	4.7		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	5.2	-	7.2	290		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	5.2	-	7.2	120		F	#	20	
Magnesium	mg/L	09/23/2015	N001	5.2	-	7.2	440		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	5.2	-	7.2	0.57		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	5.2	-	7.2	0.19		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	5.2	-	7.2	-6.9		F	#		
pH	s.u.	09/23/2015	N001	5.2	-	7.2	7.21		F	#		
Potassium	mg/L	09/23/2015	N001	5.2	-	7.2	58		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	5.2	-	7.2	0.0066		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	5.2	-	7.2	1400		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	5.2	-	7.2	8499		F	#		
Strontium	mg/L	09/23/2015	N001	5.2	-	7.2	4.8		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	5.2	-	7.2	5300		F	#	50	
Temperature	C	09/23/2015	N001	5.2	-	7.2	20.71		F	#		
Turbidity	NTU	09/23/2015	N001	5.2	-	7.2	1		F	#		
Uranium	mg/L	09/23/2015	N001	5.2	-	7.2	0.45		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0797 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	7.3	- 9.3	370		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	N001	7.3	- 9.3	0.2		FQJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	7.3	- 9.3	410		FQ	#	0.12	
Chloride	mg/L	09/24/2015	N001	7.3	- 9.3	320		FQ	#	20	
Magnesium	mg/L	09/24/2015	N001	7.3	- 9.3	98		FQ	#	0.15	
Manganese	mg/L	09/24/2015	N001	7.3	- 9.3	1.3		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	7.3	- 9.3	0.11		FQ	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	7.3	- 9.3	-43.6		FQ	#		
pH	s.u.	09/24/2015	N001	7.3	- 9.3	7.19		FQ	#		
Potassium	mg/L	09/24/2015	N001	7.3	- 9.3	9.1		FQ	#	0.26	
Selenium	mg/L	09/24/2015	N001	7.3	- 9.3	0.00032	U	FQ	#	0.00032	
Sodium	mg/L	09/24/2015	N001	7.3	- 9.3	1800		FQ	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	7.3	- 9.3	9540		FQ	#		
Strontium	mg/L	09/24/2015	N001	7.3	- 9.3	7.6		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	7.3	- 9.3	5000		FQ	#	50	
Temperature	C	09/24/2015	N001	7.3	- 9.3	20.8		FQ	#		
Turbidity	NTU	09/24/2015	N001	7.3	- 9.3	7.63		FQ	#		
Uranium	mg/L	09/24/2015	N001	7.3	- 9.3	0.019		FQ	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 0798 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7.1	-	9.1	458		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7.1	-	9.1	2		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	7.1	-	9.1	510		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7.1	-	9.1	180		F	#	20	
Magnesium	mg/L	09/23/2015	N001	7.1	-	9.1	260		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	7.1	-	9.1	1.8		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7.1	-	9.1	0.019		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	7.1	-	9.1	74.8		F	#		
pH	s.u.	09/23/2015	N001	7.1	-	9.1	7.2		F	#		
Potassium	mg/L	09/23/2015	N001	7.1	-	9.1	42		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	7.1	-	9.1	0.00034	J	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7.1	-	9.1	1700		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	7.1	-	9.1	9482		F	#		
Strontium	mg/L	09/23/2015	N001	7.1	-	9.1	7		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	7.1	-	9.1	5900		F	#	50	
Temperature	C	09/23/2015	N001	7.1	-	9.1	19.66		F	#		
Turbidity	NTU	09/23/2015	N001	7.1	-	9.1	1.67		F	#		
Uranium	mg/L	09/23/2015	N001	7.1	-	9.1	0.28		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	5.6 - 15.4	326		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	5.6 - 15.4	0.18		FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	5.6 - 15.4	240		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	5.6 - 15.4	180		F	#	10	
Magnesium	mg/L	09/24/2015	N001	5.6 - 15.4	69		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	5.6 - 15.4	0.65		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	5.6 - 15.4	0.01	U	FJ	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	5.6 - 15.4	-71.2		F	#		
pH	s.u.	09/24/2015	N001	5.6 - 15.4	7.23		F	#		
Potassium	mg/L	09/24/2015	N001	5.6 - 15.4	5.8		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	5.6 - 15.4	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	5.6 - 15.4	840		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	5.6 - 15.4	4803		F	#		
Strontium	mg/L	09/24/2015	N001	5.6 - 15.4	3.9		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	5.6 - 15.4	2200		F	#	25	
Temperature	C	09/24/2015	N001	5.6 - 15.4	19.65		F	#		
Turbidity	NTU	09/24/2015	N001	5.6 - 15.4	7.29		F	#		
Uranium	mg/L	09/24/2015	N001	5.6 - 15.4	0.041		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0853 WELL S of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	10	-	15	223		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	10	-	15	15		FJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	10	-	15	110		F	#	0.024	
Chloride	mg/L	09/23/2015	N001	10	-	15	25		F	#	2	
Magnesium	mg/L	09/23/2015	N001	10	-	15	35		F	#	0.03	
Manganese	mg/L	09/23/2015	N001	10	-	15	0.65		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	10	-	15	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	10	-	15	-31.4		F	#		
pH	s.u.	09/23/2015	N001	10	-	15	7.35		F	#		
Potassium	mg/L	09/23/2015	N001	10	-	15	12		F	#	0.052	
Selenium	mg/L	09/23/2015	N001	10	-	15	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	10	-	15	100		F	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	10	-	15	1355		F	#		
Strontium	mg/L	09/23/2015	N001	10	-	15	1.3		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	10	-	15	480		F	#	5	
Temperature	C	09/23/2015	N001	10	-	15	20.58		F	#		
Turbidity	NTU	09/23/2015	N001	10	-	15	1.67		F	#		
Uranium	mg/L	09/23/2015	N001	10	-	15	0.044		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0854 WELL NE part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	9.05 - 11.55	482		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	9.05 - 11.55	4.4		FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	9.05 - 11.55	480		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	9.05 - 11.55	180		F	#	20	
Magnesium	mg/L	09/24/2015	N001	9.05 - 11.55	420		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	9.05 - 11.55	4		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	9.05 - 11.55	0.015		FJ	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	9.05 - 11.55	-16.7		F	#		
pH	s.u.	09/24/2015	N001	9.05 - 11.55	7.17		F	#		
Potassium	mg/L	09/24/2015	N001	9.05 - 11.55	65		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	9.05 - 11.55	0.00035	J	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	9.05 - 11.55	1900		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	9.05 - 11.55	10641		F	#		
Strontium	mg/L	09/24/2015	N001	9.05 - 11.55	7.5		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	9.05 - 11.55	6800		F	#	50	
Temperature	C	09/24/2015	N001	9.05 - 11.55	21.78		F	#		
Turbidity	NTU	09/24/2015	N001	9.05 - 11.55	3.59		F	#		
Uranium	mg/L	09/24/2015	N001	9.05 - 11.55	0.5		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0855 WELL NW part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	4.9 - 14.9	302		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	4.9 - 14.9	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	4.9 - 14.9	260		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	4.9 - 14.9	89		F	#	10	
Magnesium	mg/L	09/24/2015	N001	4.9 - 14.9	86		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	4.9 - 14.9	1.2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	4.9 - 14.9	4.6		F	#	0.05	
Oxidation Reduction Potential	mV	09/24/2015	N001	4.9 - 14.9	50.2		F	#		
pH	s.u.	09/24/2015	N001	4.9 - 14.9	7.27		F	#		
Potassium	mg/L	09/24/2015	N001	4.9 - 14.9	12		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	4.9 - 14.9	0.046		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	4.9 - 14.9	1100		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	4.9 - 14.9	5737		F	#		
Strontium	mg/L	09/24/2015	N001	4.9 - 14.9	11		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	4.9 - 14.9	3000		F	#	25	
Temperature	C	09/24/2015	N001	4.9 - 14.9	15.67		F	#		
Turbidity	NTU	09/24/2015	N001	4.9 - 14.9	3.34		F	#		
Uranium	mg/L	09/24/2015	N001	4.9 - 14.9	0.062		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0856 WELL NW part of floodplain

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	18.8	- 23.8	317		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	18.8	- 23.8	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	18.8	- 23.8	210		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	18.8	- 23.8	80		F	#	10	
Magnesium	mg/L	09/23/2015	N001	18.8	- 23.8	47		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	18.8	- 23.8	0.78		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	18.8	- 23.8	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	18.8	- 23.8	66.7		F	#		
pH	s.u.	09/23/2015	N001	18.8	- 23.8	7.51		F	#		
Potassium	mg/L	09/23/2015	N001	18.8	- 23.8	12		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	18.8	- 23.8	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	18.8	- 23.8	1000		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	18.8	- 23.8	5426		F	#		
Strontium	mg/L	09/23/2015	N001	18.8	- 23.8	8.5		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	18.8	- 23.8	2800		F	#	25	
Temperature	C	09/23/2015	N001	18.8	- 23.8	15.69		F	#		
Turbidity	NTU	09/23/2015	N001	18.8	- 23.8	2.35		F	#		
Uranium	mg/L	09/23/2015	N001	18.8	- 23.8	0.077		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0857 WELL Near E end of floodplain fence

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	13.2 - 18.2	516		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	13.2 - 18.2	11		FJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	13.2 - 18.2	500		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	13.2 - 18.2	230		F	#	20	
Magnesium	mg/L	09/23/2015	N001	13.2 - 18.2	570		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	13.2 - 18.2	1.7		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	13.2 - 18.2	18		F	#	0.5	
Oxidation Reduction Potential	mV	09/23/2015	N001	13.2 - 18.2	99.1		F	#		
pH	s.u.	09/23/2015	N001	13.2 - 18.2	7.07		F	#		
Potassium	mg/L	09/23/2015	N001	13.2 - 18.2	43		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	13.2 - 18.2	0.026		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	13.2 - 18.2	1200		F	#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	13.2 - 18.2	8705		F	#		
Strontium	mg/L	09/23/2015	N001	13.2 - 18.2	7.3		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	13.2 - 18.2	5400		F	#	50	
Temperature	C	09/23/2015	N001	13.2 - 18.2	18.74		F	#		
Turbidity	NTU	09/23/2015	N001	13.2 - 18.2	2.39		F	#		
Uranium	mg/L	09/23/2015	N001	13.2 - 18.2	0.86		F	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1008 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	6.9	- 16.9	398		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	6.9	- 16.9	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	6.9	- 16.9	440		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	6.9	- 16.9	110		F	#	10	
Magnesium	mg/L	09/24/2015	N001	6.9	- 16.9	160		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	6.9	- 16.9	1.6		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	6.9	- 16.9	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	6.9	- 16.9	28.4		F	#		
pH	s.u.	09/24/2015	N001	6.9	- 16.9	7.19		F	#		
Potassium	mg/L	09/24/2015	N001	6.9	- 16.9	35		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	6.9	- 16.9	0.0027		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	6.9	- 16.9	1200		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	6.9	- 16.9	7290		F	#		
Strontium	mg/L	09/24/2015	N001	6.9	- 16.9	4.8		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	6.9	- 16.9	4300		F	#	25	
Temperature	C	09/24/2015	N001	6.9	- 16.9	20.18		F	#		
Turbidity	NTU	09/24/2015	N001	6.9	- 16.9	1.93		F	#		
Uranium	mg/L	09/24/2015	N001	6.9	- 16.9	0.21		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1009 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7.4	-	17.4	241		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7.4	-	17.4	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	7.4	-	17.4	270		F	#	0.024	
Chloride	mg/L	09/23/2015	N001	7.4	-	17.4	35		F	#	5	
Magnesium	mg/L	09/23/2015	N001	7.4	-	17.4	130		F	#	0.03	
Manganese	mg/L	09/23/2015	N001	7.4	-	17.4	0.98		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7.4	-	17.4	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	7.4	-	17.4	-3.1		F	#		
pH	s.u.	09/23/2015	N001	7.4	-	17.4	7.19		F	#		
Potassium	mg/L	09/23/2015	N001	7.4	-	17.4	21		F	#	0.052	
Selenium	mg/L	09/23/2015	N001	7.4	-	17.4	0.0015		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7.4	-	17.4	220		F	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	7.4	-	17.4	2772		F	#		
Strontium	mg/L	09/23/2015	N001	7.4	-	17.4	2.8		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	7.4	-	17.4	1500		F	#	12	
Temperature	C	09/23/2015	N001	7.4	-	17.4	20.44		F	#		
Turbidity	NTU	09/23/2015	N001	7.4	-	17.4	1.98		F	#		
Uranium	mg/L	09/23/2015	N001	7.4	-	17.4	0.16		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1089 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	4.8 - 14.8	414			#		
Ammonia Total as N	mg/L	09/23/2015	N001	4.8 - 14.8	0.42		J	#	0.1	
Calcium	mg/L	09/23/2015	N001	4.8 - 14.8	370			#	0.12	
Chloride	mg/L	09/23/2015	N001	4.8 - 14.8	120			#	10	
Magnesium	mg/L	09/23/2015	N001	4.8 - 14.8	150			#	0.15	
Manganese	mg/L	09/23/2015	N001	4.8 - 14.8	1.6			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	4.8 - 14.8	3			#	0.1	
Oxidation Reduction Potential	mV	09/23/2015	N001	4.8 - 14.8	100			#		
pH	s.u.	09/23/2015	N001	4.8 - 14.8	7.3			#		
Potassium	mg/L	09/23/2015	N001	4.8 - 14.8	35			#	0.26	
Selenium	mg/L	09/23/2015	N001	4.8 - 14.8	0.0038			#	0.00032	
Sodium	mg/L	09/23/2015	N001	4.8 - 14.8	1300			#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	4.8 - 14.8	6780			#		
Strontium	mg/L	09/23/2015	N001	4.8 - 14.8	5.4			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	4.8 - 14.8	4200			#	25	
Temperature	C	09/23/2015	N001	4.8 - 14.8	23.5			#		
Turbidity	NTU	09/23/2015	N001	4.8 - 14.8	2.87			#		
Uranium	mg/L	09/23/2015	N001	4.8 - 14.8	0.17			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1104 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	10	-	15	530			#		
Ammonia Total as N	mg/L	09/23/2015	N001	10	-	15	17		J	#	2.5	
Calcium	mg/L	09/23/2015	N001	10	-	15	520			#	0.12	
Chloride	mg/L	09/23/2015	N001	10	-	15	210			#	20	
Magnesium	mg/L	09/23/2015	N001	10	-	15	440			#	0.15	
Manganese	mg/L	09/23/2015	N001	10	-	15	2.2			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	10	-	15	1.4			#	0.1	
Oxidation Reduction Potential	mV	09/23/2015	N001	10	-	15	105			#		
pH	s.u.	09/23/2015	N001	10	-	15	7.18			#		
Potassium	mg/L	09/23/2015	N001	10	-	15	61			#	0.26	
Selenium	mg/L	09/23/2015	N001	10	-	15	0.0029			#	0.00032	
Sodium	mg/L	09/23/2015	N001	10	-	15	1900			#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	10	-	15	11520			#		
Strontium	mg/L	09/23/2015	N001	10	-	15	7.2			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	10	-	15	7300			#	50	
Temperature	C	09/23/2015	N001	10	-	15	24.3			#		
Turbidity	NTU	09/23/2015	N001	10	-	15	3.96			#		
Uranium	mg/L	09/23/2015	N001	10	-	15	0.52			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1105 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	4.5	- 14.5	490		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	4.5	- 14.5	0.42		FJ	#	0.1	
Ammonia Total as N	mg/L	09/23/2015	N002	4.5	- 14.5	19		FJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	4.5	- 14.5	460		F	#	0.12	
Calcium	mg/L	09/23/2015	N002	4.5	- 14.5	450		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	4.5	- 14.5	180		F	#	20	
Chloride	mg/L	09/23/2015	N002	4.5	- 14.5	170		F	#	20	
Magnesium	mg/L	09/23/2015	N001	4.5	- 14.5	660		F	#	0.15	
Magnesium	mg/L	09/23/2015	N002	4.5	- 14.5	650		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	4.5	- 14.5	3.5		F	#	0.0012	
Manganese	mg/L	09/23/2015	N002	4.5	- 14.5	3.4		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	4.5	- 14.5	0.18		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N002	4.5	- 14.5	0.19		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	4.5	- 14.5	58.6		F	#		
pH	s.u.	09/23/2015	N001	4.5	- 14.5	7.07		F	#		
Potassium	mg/L	09/23/2015	N001	4.5	- 14.5	65		F	#	0.26	
Potassium	mg/L	09/23/2015	N002	4.5	- 14.5	67		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	4.5	- 14.5	0.06		FJ	#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 1105 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/23/2015	N002	4.5	-	14.5	0.047		FJ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	4.5	-	14.5	1500		F	#	0.23	
Sodium	mg/L	09/23/2015	N002	4.5	-	14.5	1500		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	4.5	-	14.5	10281		F	#		
Strontium	mg/L	09/23/2015	N001	4.5	-	14.5	6.1		F	#	0.0013	
Strontium	mg/L	09/23/2015	N002	4.5	-	14.5	6		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	4.5	-	14.5	6900		F	#	50	
Sulfate	mg/L	09/23/2015	N002	4.5	-	14.5	6600		F	#	50	
Temperature	C	09/23/2015	N001	4.5	-	14.5	20.7		F	#		
Turbidity	NTU	09/23/2015	N001	4.5	-	14.5	1.23		F	#		
Uranium	mg/L	09/23/2015	N001	4.5	-	14.5	0.96		F	#	0.000029	
Uranium	mg/L	09/23/2015	N002	4.5	-	14.5	0.8		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1109 TREATMENT SYSTEM Sump to the Trench 2 Treatment System

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	0	-	0	444		#		
Ammonia Total as N	mg/L	09/23/2015	N001	0	-	0	2	J	#	0.1	
Calcium	mg/L	09/23/2015	N001	0	-	0	350		#	0.12	
Chloride	mg/L	09/23/2015	N001	0	-	0	190		#	20	
Magnesium	mg/L	09/23/2015	N001	0	-	0	640		#	0.15	
Manganese	mg/L	09/23/2015	N001	0	-	0	1.5		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	0	-	0	290		#	5	
Oxidation Reduction Potential	mV	09/23/2015	N001	0	-	0	95		#		
pH	s.u.	09/23/2015	N001	0	-	0	6.84		#		
Potassium	mg/L	09/23/2015	N001	0	-	0	49		#	0.26	
Selenium	mg/L	09/23/2015	N001	0	-	0	0.027		#	0.00032	
Sodium	mg/L	09/23/2015	N001	0	-	0	860		#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	0	-	0	8110		#		
Strontium	mg/L	09/23/2015	N001	0	-	0	4.9		#	0.0013	
Sulfate	mg/L	09/23/2015	N001	0	-	0	4200		#	50	
Temperature	C	09/23/2015	N001	0	-	0	23.6		#		
Turbidity	NTU	09/23/2015	N001	0	-	0	2.74		#		
Uranium	mg/L	09/23/2015	N001	0	-	0	0.64		#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1110 TREATMENT SYSTEM Sump to the Trench 1 Treatment System

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data QA		Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	0	-	0	580			#		
Ammonia Total as N	mg/L	09/23/2015	N001	0	-	0	19		J	#	2.5	
Calcium	mg/L	09/23/2015	N001	0	-	0	350			#	0.12	
Chloride	mg/L	09/23/2015	N001	0	-	0	200			#	20	
Magnesium	mg/L	09/23/2015	N001	0	-	0	480			#	0.15	
Manganese	mg/L	09/23/2015	N001	0	-	0	0.48			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	0	-	0	16			#	0.5	
Oxidation Reduction Potential	mV	09/23/2015	N001	0	-	0	95			#		
pH	s.u.	09/23/2015	N001	0	-	0	7.19			#		
Potassium	mg/L	09/23/2015	N001	0	-	0	38			#	0.26	
Selenium	mg/L	09/23/2015	N001	0	-	0	0.29			#	0.00032	
Sodium	mg/L	09/23/2015	N001	0	-	0	1400			#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	0	-	0	9110			#		
Strontium	mg/L	09/23/2015	N001	0	-	0	8.6			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	0	-	0	5400			#	50	
Temperature	C	09/23/2015	N001	0	-	0	23.7			#		
Turbidity	NTU	09/23/2015	N001	0	-	0	4.04			#		
Uranium	mg/L	09/23/2015	N001	0	-	0	0.42			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1111 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7	-	12	1040		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7	-	12	87		FJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	7	-	12	460		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7	-	12	510		F	#	40	
Magnesium	mg/L	09/23/2015	N001	7	-	12	1100		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	7	-	12	0.86		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7	-	12	33		F	#	0.5	
Oxidation Reduction Potential	mV	09/23/2015	N001	7	-	12	79.4		F	#		
pH	s.u.	09/23/2015	N001	7	-	12	7.15		F	#		
Potassium	mg/L	09/23/2015	N001	7	-	12	72		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	7	-	12	0.4		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7	-	12	2500		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	7	-	12	15470		F	#		
Strontium	mg/L	09/23/2015	N001	7	-	12	13		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	7	-	12	10000		F	#	100	
Temperature	C	09/23/2015	N001	7	-	12	21.33		F	#		
Turbidity	NTU	09/23/2015	N001	7	-	12	3		F	#		
Uranium	mg/L	09/23/2015	N001	7	-	12	0.92		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1112 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7	-	12	418		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7	-	12	0.23		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	7	-	12	450		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7	-	12	200		F	#	20	
Magnesium	mg/L	09/23/2015	N001	7	-	12	780		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	7	-	12	1.8		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7	-	12	150		F	#	2	
Oxidation Reduction Potential	mV	09/23/2015	N001	7	-	12	111.7		F	#		
pH	s.u.	09/23/2015	N001	7	-	12	7.05		F	#		
Potassium	mg/L	09/23/2015	N001	7	-	12	80		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	7	-	12	1.2		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7	-	12	1200		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	7	-	12	9781		F	#		
Strontium	mg/L	09/23/2015	N001	7	-	12	7		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	7	-	12	6200		F	#	50	
Temperature	C	09/23/2015	N001	7	-	12	20.23		F	#		
Turbidity	NTU	09/23/2015	N001	7	-	12	2.37		F	#		
Uranium	mg/L	09/23/2015	N001	7	-	12	0.96		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1113 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	7	-	12	236		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	7	-	12	76		FJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	7	-	12	540		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	7	-	12	180		F	#	20	
Magnesium	mg/L	09/22/2015	N001	7	-	12	540		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	7	-	12	0.029		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	7	-	12	410		F	#	5	
Oxidation Reduction Potential	mV	09/22/2015	N001	7	-	12	81.6		F	#		
pH	s.u.	09/22/2015	N001	7	-	12	7.17		F	#		
Potassium	mg/L	09/22/2015	N001	7	-	12	82		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	7	-	12	0.3		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	7	-	12	830		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	7	-	12	7977		F	#		
Strontium	mg/L	09/22/2015	N001	7	-	12	5.9		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	7	-	12	3900		F	#	50	
Temperature	C	09/22/2015	N001	7	-	12	19.07		F	#		
Turbidity	NTU	09/22/2015	N001	7	-	12	5.91		F	#		
Uranium	mg/L	09/22/2015	N001	7	-	12	0.53		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1114 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	7	-	12	480		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	7	-	12	73		FJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	7	-	12	290		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	7	-	12	120		F	#	10	
Magnesium	mg/L	09/22/2015	N001	7	-	12	420		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	7	-	12	3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	7	-	12	120		FJ	#	2	
Oxidation Reduction Potential	mV	09/22/2015	N001	7	-	12	95.2		F	#		
pH	s.u.	09/22/2015	N001	7	-	12	7.03		F	#		
Potassium	mg/L	09/22/2015	N001	7	-	12	44		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	7	-	12	0.099		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	7	-	12	540		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	7	-	12	5764		F	#		
Strontium	mg/L	09/22/2015	N001	7	-	12	4		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	7	-	12	2900		F	#	25	
Temperature	C	09/22/2015	N001	7	-	12	19.7		F	#		
Turbidity	NTU	09/22/2015	N001	7	-	12	2.34		F	#		
Uranium	mg/L	09/22/2015	N001	7	-	12	0.56		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1115 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	7	-	12	759		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	7	-	12	290		FJ	#	20	
Calcium	mg/L	09/22/2015	N001	7	-	12	320		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	7	-	12	210		F	#	20	
Magnesium	mg/L	09/22/2015	N001	7	-	12	830		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	7	-	12	2.9		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	7	-	12	300		FJ	#	5	
Oxidation Reduction Potential	mV	09/22/2015	N001	7	-	12	108.3		F	#		
pH	s.u.	09/22/2015	N001	7	-	12	6.81		F	#		
Potassium	mg/L	09/22/2015	N001	7	-	12	110		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	7	-	12	0.044		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	7	-	12	970		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	7	-	12	10616		F	#		
Strontium	mg/L	09/22/2015	N001	7	-	12	5.6		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	7	-	12	5600		F	#	50	
Temperature	C	09/22/2015	N001	7	-	12	20.29		F	#		
Turbidity	NTU	09/22/2015	N001	7	-	12	1.47		F	#		
Uranium	mg/L	09/22/2015	N001	7	-	12	0.99		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	7	-	12	191		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	7	-	12	0.1	U	FJ	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N002	7	-	12	0.17		FJ	#	0.1	
Calcium	mg/L	09/22/2015	0003	7	-	12	72		F	#	0.024	
Calcium	mg/L	09/22/2015	0004	7	-	12	70		F	#	0.024	
Calcium	mg/L	09/22/2015	N001	7	-	12	73		F	#	0.024	
Calcium	mg/L	09/22/2015	N002	7	-	12	71		F	#	0.024	
Calcium	mg/L	09/22/2015	N003	7	-	12	71		F	#	0.024	
Calcium	mg/L	09/22/2015	N004	7	-	12	71		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	7	-	12	16		F	#	1	
Chloride	mg/L	09/22/2015	N002	7	-	12	15		F	#	2	
Magnesium	mg/L	09/22/2015	0003	7	-	12	12		F	#	0.03	
Magnesium	mg/L	09/22/2015	0004	7	-	12	12		F	#	0.03	
Magnesium	mg/L	09/22/2015	N001	7	-	12	13		F	#	0.03	
Magnesium	mg/L	09/22/2015	N002	7	-	12	12		F	#	0.03	
Magnesium	mg/L	09/22/2015	N003	7	-	12	12		F	#	0.03	
Magnesium	mg/L	09/22/2015	N004	7	-	12	12		F	#	0.03	
Manganese	mg/L	09/22/2015	0003	7	-	12	0.38		F	#	0.00024	

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

REPORT DATE: 12/09/2015

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Manganese	mg/L	09/22/2015	0004	7	-	12	0.39		F	#	0.00024	
Manganese	mg/L	09/22/2015	N001	7	-	12	0.41		F	#	0.00024	
Manganese	mg/L	09/22/2015	N002	7	-	12	0.4		F	#	0.00024	
Manganese	mg/L	09/22/2015	N003	7	-	12	0.43		F	#	0.00024	
Manganese	mg/L	09/22/2015	N004	7	-	12	0.4		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	7	-	12	0.012		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N002	7	-	12	0.13		FJ	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	7	-	12	-51		F	#		
pH	s.u.	09/22/2015	N001	7	-	12	7.54		F	#		
Potassium	mg/L	09/22/2015	0003	7	-	12	3.2		F	#	0.052	
Potassium	mg/L	09/22/2015	0004	7	-	12	3.1		F	#	0.052	
Potassium	mg/L	09/22/2015	N001	7	-	12	3.3		F	#	0.052	
Potassium	mg/L	09/22/2015	N002	7	-	12	3.4		F	#	0.052	
Potassium	mg/L	09/22/2015	N003	7	-	12	3.2		F	#	0.052	
Potassium	mg/L	09/22/2015	N004	7	-	12	3.1		F	#	0.052	
Selenium	mg/L	09/22/2015	0003	7	-	12	0.00071	J	F	#	0.00032	
Selenium	mg/L	09/22/2015	0004	7	-	12	0.00032	U	F	#	0.00032	
Selenium	mg/L	09/22/2015	N001	7	-	12	0.00032	U	F	#	0.00032	



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

REPORT DATE: 12/09/2015

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data QA		Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N002	7	-	12	0.00032	U	F	#	0.00032	
Selenium	mg/L	09/22/2015	N003	7	-	12	0.00032	U	F	#	0.00032	
Selenium	mg/L	09/22/2015	N004	7	-	12	0.00053	J	F	#	0.00032	
Sodium	mg/L	09/22/2015	0003	7	-	12	64		F	#	0.047	
Sodium	mg/L	09/22/2015	0004	7	-	12	62		F	#	0.047	
Sodium	mg/L	09/22/2015	N001	7	-	12	63		F	#	0.047	
Sodium	mg/L	09/22/2015	N002	7	-	12	63		F	#	0.047	
Sodium	mg/L	09/22/2015	N003	7	-	12	63		F	#	0.047	
Sodium	mg/L	09/22/2015	N004	7	-	12	63		F	#	0.047	
Specific Conductance	umhos /cm	09/22/2015	N001	7	-	12	713		F	#		
Strontium	mg/L	09/22/2015	0003	7	-	12	0.85		F	#	0.00026	
Strontium	mg/L	09/22/2015	0004	7	-	12	0.85		F	#	0.00026	
Strontium	mg/L	09/22/2015	N001	7	-	12	0.8		F	#	0.00026	
Strontium	mg/L	09/22/2015	N002	7	-	12	0.78		F	#	0.00026	
Strontium	mg/L	09/22/2015	N003	7	-	12	0.85		F	#	0.00026	
Strontium	mg/L	09/22/2015	N004	7	-	12	0.86		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	7	-	12	160		F	#	2.5	
Sulfate	mg/L	09/22/2015	N002	7	-	12	160		F	#	5	

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

REPORT DATE: 12/09/2015

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Temperature	C	09/22/2015	N001	7	-	12	19.14		F	#		
Turbidity	NTU	09/22/2015	N001	7	-	12	4.14		F	#		
Uranium	mg/L	09/22/2015	0003	7	-	12	0.0084		F	#	0.000029	
Uranium	mg/L	09/22/2015	0004	7	-	12	0.0075		F	#	0.000029	
Uranium	mg/L	09/22/2015	N001	7	-	12	0.0088		F	#	0.000029	
Uranium	mg/L	09/22/2015	N002	7	-	12	0.0076		F	#	0.000029	
Uranium	mg/L	09/22/2015	N003	7	-	12	0.0078		F	#	0.000029	
Uranium	mg/L	09/22/2015	N004	7	-	12	0.008		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1128 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	6.81	-	11.81	880		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	6.81	-	11.81	430		FJ	#	20	
Calcium	mg/L	09/22/2015	N001	6.81	-	11.81	480		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	6.81	-	11.81	340		F	#	40	
Magnesium	mg/L	09/22/2015	N001	6.81	-	11.81	1600		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	6.81	-	11.81	4.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	6.81	-	11.81	570		FJ	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	6.81	-	11.81	248		F	#		
pH	s.u.	09/22/2015	N001	6.81	-	11.81	6.71		F	#		
Potassium	mg/L	09/22/2015	N001	6.81	-	11.81	160		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	6.81	-	11.81	0.047		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	6.81	-	11.81	1500		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	6.81	-	11.81	16660		F	#		
Strontium	mg/L	09/22/2015	N001	6.81	-	11.81	9.6		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	6.81	-	11.81	9000		F	#	100	
Temperature	C	09/22/2015	N001	6.81	-	11.81	18.85		F	#		
Turbidity	NTU	09/22/2015	N001	6.81	-	11.81	4.13		F	#		
Uranium	mg/L	09/22/2015	N001	6.81	-	11.81	1.4		F	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 1130 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N003	4.43	- 9.43	117		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	4.43	- 9.43	0.3		FJ	#	0.1	
Calcium	mg/L	09/22/2015	0003	4.43	- 9.43	54		F	#	0.024	
Calcium	mg/L	09/22/2015	N001	4.43	- 9.43	53		F	#	0.024	
Calcium	mg/L	09/22/2015	N003	4.43	- 9.43	52		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	4.43	- 9.43	9.9		F	#	1	
Magnesium	mg/L	09/22/2015	0003	4.43	- 9.43	8.9		F	#	0.03	
Magnesium	mg/L	09/22/2015	N001	4.43	- 9.43	9.2		F	#	0.03	
Magnesium	mg/L	09/22/2015	N003	4.43	- 9.43	9		F	#	0.03	
Manganese	mg/L	09/22/2015	0003	4.43	- 9.43	0.64		F	#	0.00024	
Manganese	mg/L	09/22/2015	N001	4.43	- 9.43	0.77		F	#	0.00024	
Manganese	mg/L	09/22/2015	N003	4.43	- 9.43	0.83		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	4.43	- 9.43	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N003	4.43	- 9.43	-63		F	#		
pH	s.u.	09/22/2015	N003	4.43	- 9.43	7.59		F	#		
Potassium	mg/L	09/22/2015	0003	4.43	- 9.43	2.6		F	#	0.052	
Potassium	mg/L	09/22/2015	N001	4.43	- 9.43	2.7		F	#	0.052	
Potassium	mg/L	09/22/2015	N003	4.43	- 9.43	2.7		F	#	0.052	

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

REPORT DATE: 12/09/2015

Location: 1130 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	0003	4.43 - 9.43	0.0012		F	#	0.00032	
Selenium	mg/L	09/22/2015	N001	4.43 - 9.43	0.00032	U	F	#	0.00032	
Selenium	mg/L	09/22/2015	N003	4.43 - 9.43	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/22/2015	0003	4.43 - 9.43	38		F	#	0.047	
Sodium	mg/L	09/22/2015	N001	4.43 - 9.43	38		F	#	0.047	
Sodium	mg/L	09/22/2015	N003	4.43 - 9.43	38		F	#	0.047	
Specific Conductance	umhos /cm	09/22/2015	N003	4.43 - 9.43	505		F	#		
Strontium	mg/L	09/22/2015	0003	4.43 - 9.43	0.67		F	#	0.00026	
Strontium	mg/L	09/22/2015	N001	4.43 - 9.43	0.62		F	#	0.00026	
Strontium	mg/L	09/22/2015	N003	4.43 - 9.43	0.65		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	4.43 - 9.43	120		F	#	2.5	
Temperature	C	09/22/2015	N003	4.43 - 9.43	17.19		F	#		
Turbidity	NTU	09/22/2015	N003	4.43 - 9.43	1.27		F	#		
Uranium	mg/L	09/22/2015	0003	4.43 - 9.43	0.002		F	#	0.000029	
Uranium	mg/L	09/22/2015	N001	4.43 - 9.43	0.0022		F	#	0.000029	
Uranium	mg/L	09/22/2015	N003	4.43 - 9.43	0.0022		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1132 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	09/22/2015	N001	6.07 - 11.07	0.93		FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	6.07 - 11.07	74		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	6.07 - 11.07	23		F	#	1	
Magnesium	mg/L	09/22/2015	N001	6.07 - 11.07	21		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	6.07 - 11.07	0.47		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	6.07 - 11.07	3.8		FJ	#	0.1	
Oxidation Reduction Potential	mV	09/22/2015	N001	6.07 - 11.07	-30		F	#		
pH	s.u.	09/22/2015	N001	6.07 - 11.07	7.66		F	#		
Potassium	mg/L	09/22/2015	N001	6.07 - 11.07	3.5		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	6.07 - 11.07	0.00062	J	F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	6.07 - 11.07	61		F	#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N001	6.07 - 11.07	819		F	#		
Strontium	mg/L	09/22/2015	N001	6.07 - 11.07	0.84		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	6.07 - 11.07	230		F	#	2.5	
Temperature	C	09/22/2015	N001	6.07 - 11.07	19.01		F	#		
Turbidity	NTU	09/22/2015	N001	6.07 - 11.07	2.57		F	#		
Uranium	mg/L	09/22/2015	N001	6.07 - 11.07	0.014		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1134 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	8.16 - 13.16	163		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	8.16 - 13.16	1.9		FJ	#	0.1	
Calcium	mg/L	09/22/2015	N001	8.16 - 13.16	200		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	8.16 - 13.16	40		F	#	4	
Magnesium	mg/L	09/22/2015	N001	8.16 - 13.16	51		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	8.16 - 13.16	1.6		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	8.16 - 13.16	28		FJ	#	0.5	
Oxidation Reduction Potential	mV	09/22/2015	N001	8.16 - 13.16	-35		F	#		
pH	s.u.	09/22/2015	N001	8.16 - 13.16	7.38		F	#		
Potassium	mg/L	09/22/2015	N001	8.16 - 13.16	5.2		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	8.16 - 13.16	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	8.16 - 13.16	110		F	#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N001	8.16 - 13.16	1691		F	#		
Strontium	mg/L	09/22/2015	N001	8.16 - 13.16	2		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	8.16 - 13.16	630		F	#	10	
Temperature	C	09/22/2015	N001	8.16 - 13.16	17.31		F	#		
Turbidity	NTU	09/22/2015	N001	8.16 - 13.16	1.35		F	#		
Uranium	mg/L	09/22/2015	N001	8.16 - 13.16	0.025		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1135 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	6.39 - 11.39	249		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	6.39 - 11.39	0.27		FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	6.39 - 11.39	260		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	6.39 - 11.39	79		F	#	10	
Magnesium	mg/L	09/24/2015	N001	6.39 - 11.39	72		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	6.39 - 11.39	1.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	6.39 - 11.39	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	6.39 - 11.39	-2.7		F	#		
pH	s.u.	09/24/2015	N001	6.39 - 11.39	7.39		F	#		
Potassium	mg/L	09/24/2015	N001	6.39 - 11.39	19		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	6.39 - 11.39	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	6.39 - 11.39	900		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	6.39 - 11.39	5103		F	#		
Strontium	mg/L	09/24/2015	N001	6.39 - 11.39	2.9		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	6.39 - 11.39	2800		F	#	25	
Temperature	C	09/24/2015	N001	6.39 - 11.39	17.63		F	#		
Turbidity	NTU	09/24/2015	N001	6.39 - 11.39	9.99		F	#		
Uranium	mg/L	09/24/2015	N001	6.39 - 11.39	0.063		F	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1136 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	6.29	-	11.29	480		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	6.29	-	11.29	3.1		FJ	#	0.1	
Calcium	mg/L	09/23/2015	0003	6.29	-	11.29	350		F	#	0.12	
Calcium	mg/L	09/23/2015	N001	6.29	-	11.29	340		F	#	0.12	
Calcium	mg/L	09/23/2015	N003	6.29	-	11.29	350		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	6.29	-	11.29	170		F	#	20	
Magnesium	mg/L	09/23/2015	0003	6.29	-	11.29	470		F	#	0.15	
Magnesium	mg/L	09/23/2015	N001	6.29	-	11.29	470		F	#	0.15	
Magnesium	mg/L	09/23/2015	N003	6.29	-	11.29	480		F	#	0.15	
Manganese	mg/L	09/23/2015	0003	6.29	-	11.29	4.3		F	#	0.0012	
Manganese	mg/L	09/23/2015	N001	6.29	-	11.29	4.1		F	#	0.0012	
Manganese	mg/L	09/23/2015	N003	6.29	-	11.29	4.4		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	6.29	-	11.29	12		F	#	0.5	
Oxidation Reduction Potential	mV	09/23/2015	N001	6.29	-	11.29	118.2		F	#		
pH	s.u.	09/23/2015	N001	6.29	-	11.29	7.18		F	#		
Potassium	mg/L	09/23/2015	0003	6.29	-	11.29	17		F	#	0.26	
Potassium	mg/L	09/23/2015	N001	6.29	-	11.29	17		F	#	0.26	
Potassium	mg/L	09/23/2015	N003	6.29	-	11.29	18		F	#	0.26	

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

REPORT DATE: 12/09/2015

Location: 1136 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/23/2015	0003	6.29 - 11.29	0.0022		F	#	0.00032	
Selenium	mg/L	09/23/2015	N001	6.29 - 11.29	0.0031		F	#	0.00032	
Selenium	mg/L	09/23/2015	N003	6.29 - 11.29	0.0041		F	#	0.00032	
Sodium	mg/L	09/23/2015	0003	6.29 - 11.29	1300		F	#	0.23	
Sodium	mg/L	09/23/2015	N001	6.29 - 11.29	1200		F	#	0.23	
Sodium	mg/L	09/23/2015	N003	6.29 - 11.29	1300		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	6.29 - 11.29	8315		F	#		
Strontium	mg/L	09/23/2015	0003	6.29 - 11.29	5.4		F	#	0.0013	
Strontium	mg/L	09/23/2015	N001	6.29 - 11.29	4.7		F	#	0.0013	
Strontium	mg/L	09/23/2015	N003	6.29 - 11.29	5.3		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	6.29 - 11.29	5100		F	#	50	
Temperature	C	09/23/2015	N001	6.29 - 11.29	16.55		F	#		
Turbidity	NTU	09/23/2015	N001	6.29 - 11.29	0.56		F	#		
Uranium	mg/L	09/23/2015	0003	6.29 - 11.29	0.56		F	#	0.000029	
Uranium	mg/L	09/23/2015	N001	6.29 - 11.29	0.57		F	#	0.000029	
Uranium	mg/L	09/23/2015	N003	6.29 - 11.29	0.6		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	9.4	-	14.4	660		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	9.4	-	14.4	1.2		FJ	#	0.1	
Calcium	mg/L	09/24/2015	0003	9.4	-	14.4	400		F	#	0.12	
Calcium	mg/L	09/24/2015	N001	9.4	-	14.4	390		F	#	0.12	
Calcium	mg/L	09/24/2015	N003	9.4	-	14.4	400		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	9.4	-	14.4	390		F	#	40	
Magnesium	mg/L	09/24/2015	0003	9.4	-	14.4	1100		F	#	0.15	
Magnesium	mg/L	09/24/2015	N001	9.4	-	14.4	1100		F	#	0.15	
Magnesium	mg/L	09/24/2015	N003	9.4	-	14.4	1100		F	#	0.15	
Manganese	mg/L	09/24/2015	0003	9.4	-	14.4	5.6		F	#	0.0012	
Manganese	mg/L	09/24/2015	N001	9.4	-	14.4	5.2		F	#	0.0012	
Manganese	mg/L	09/24/2015	N003	9.4	-	14.4	5.5		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	9.4	-	14.4	16		F	#	0.5	
Oxidation Reduction Potential	mV	09/24/2015	N001	9.4	-	14.4	154.8		F	#		
pH	s.u.	09/24/2015	N001	9.4	-	14.4	7.26		F	#		
Potassium	mg/L	09/24/2015	0003	9.4	-	14.4	43		F	#	0.26	
Potassium	mg/L	09/24/2015	N001	9.4	-	14.4	44		F	#	0.26	
Potassium	mg/L	09/24/2015	N003	9.4	-	14.4	43		F	#	0.26	

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

REPORT DATE: 12/09/2015

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/24/2015	0003	9.4 - 14.4	0.0084		F	#	0.00032	
Selenium	mg/L	09/24/2015	N001	9.4 - 14.4	0.009		F	#	0.00032	
Selenium	mg/L	09/24/2015	N003	9.4 - 14.4	0.008		F	#	0.00032	
Sodium	mg/L	09/24/2015	0003	9.4 - 14.4	2100		F	#	0.23	
Sodium	mg/L	09/24/2015	N001	9.4 - 14.4	2000		F	#	0.23	
Sodium	mg/L	09/24/2015	N003	9.4 - 14.4	2100		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	9.4 - 14.4	14030		F	#		
Strontium	mg/L	09/24/2015	0003	9.4 - 14.4	8.4		F	#	0.0013	
Strontium	mg/L	09/24/2015	N001	9.4 - 14.4	7.4		F	#	0.0013	
Strontium	mg/L	09/24/2015	N003	9.4 - 14.4	8.3		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	9.4 - 14.4	9500		F	#	100	
Temperature	C	09/24/2015	N001	9.4 - 14.4	16.7		F	#		
Turbidity	NTU	09/24/2015	N001	9.4 - 14.4	1.18		F	#		
Uranium	mg/L	09/24/2015	0003	9.4 - 14.4	1.2		F	#	0.00029	
Uranium	mg/L	09/24/2015	N001	9.4 - 14.4	1.2		F	#	0.00029	
Uranium	mg/L	09/24/2015	N003	9.4 - 14.4	1.2		F	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 1138 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	8.09 - 13.09	700		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	8.09 - 13.09	2.2		FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	8.09 - 13.09	390		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	8.09 - 13.09	390		F	#	40	
Magnesium	mg/L	09/24/2015	N001	8.09 - 13.09	1100		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	8.09 - 13.09	4.4		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	8.09 - 13.09	8.6		F	#	0.5	
Oxidation Reduction Potential	mV	09/24/2015	N001	8.09 - 13.09	160		F	#		
pH	s.u.	09/24/2015	N001	8.09 - 13.09	7.2		F	#		
Potassium	mg/L	09/24/2015	N001	8.09 - 13.09	53		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	8.09 - 13.09	0.015		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	8.09 - 13.09	2300		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	8.09 - 13.09	14928		F	#		
Strontium	mg/L	09/24/2015	N001	8.09 - 13.09	7.5		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	8.09 - 13.09	11000		F	#	100	
Temperature	C	09/24/2015	N001	8.09 - 13.09	18.19		F	#		
Turbidity	NTU	09/24/2015	N001	8.09 - 13.09	1.39		F	#		
Uranium	mg/L	09/24/2015	N001	8.09 - 13.09	1.3		F	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 1139 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	6.19 - 11.19	690		F #		
Ammonia Total as N	mg/L	09/24/2015	N001	6.19 - 11.19	0.21		FJ #	0.1	
Calcium	mg/L	09/24/2015	N001	6.19 - 11.19	350		F #	0.12	
Chloride	mg/L	09/24/2015	N001	6.19 - 11.19	280		F #	20	
Magnesium	mg/L	09/24/2015	N001	6.19 - 11.19	750		F #	0.15	
Manganese	mg/L	09/24/2015	N001	6.19 - 11.19	1.6		F #	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	6.19 - 11.19	0.78		F #	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	6.19 - 11.19	160.7		F #		
pH	s.u.	09/24/2015	N001	6.19 - 11.19	7.32		F #		
Potassium	mg/L	09/24/2015	N001	6.19 - 11.19	60		F #	0.26	
Selenium	mg/L	09/24/2015	N001	6.19 - 11.19	0.005		F #	0.00032	
Sodium	mg/L	09/24/2015	N001	6.19 - 11.19	2200		F #	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	6.19 - 11.19	13350		F #		
Strontium	mg/L	09/24/2015	N001	6.19 - 11.19	6.3		F #	0.0013	
Sulfate	mg/L	09/24/2015	N001	6.19 - 11.19	8800		F #	50	
Temperature	C	09/24/2015	N001	6.19 - 11.19	21.86		F #		
Turbidity	NTU	09/24/2015	N001	6.19 - 11.19	8.63		F #		
Uranium	mg/L	09/24/2015	N001	6.19 - 11.19	0.86		F #	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1140 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7.6	-	12.6	651		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7.6	-	12.6	0.54		FJ	#	0.1	
Ammonia Total as N	mg/L	09/23/2015	N002	7.6	-	12.6	0.56		FJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	7.6	-	12.6	430		F	#	0.12	
Calcium	mg/L	09/23/2015	N002	7.6	-	12.6	430		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7.6	-	12.6	260		F	#	20	
Chloride	mg/L	09/23/2015	N002	7.6	-	12.6	250		F	#	20	
Magnesium	mg/L	09/23/2015	N001	7.6	-	12.6	700		F	#	0.15	
Magnesium	mg/L	09/23/2015	N002	7.6	-	12.6	710		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	7.6	-	12.6	1.9		F	#	0.0012	
Manganese	mg/L	09/23/2015	N002	7.6	-	12.6	1.8		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7.6	-	12.6	14		F	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N002	7.6	-	12.6	14		F	#	0.5	
Oxidation Reduction Potential	mV	09/23/2015	N001	7.6	-	12.6	41.7		F	#		
pH	s.u.	09/23/2015	N001	7.6	-	12.6	7.24		F	#		
Potassium	mg/L	09/23/2015	N001	7.6	-	12.6	100		F	#	0.26	
Potassium	mg/L	09/23/2015	N002	7.6	-	12.6	100		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	7.6	-	12.6	0.15		F	#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 1140 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/23/2015	N002	7.6	- 12.6	0.14		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7.6	- 12.6	2300		F	#	0.23	
Sodium	mg/L	09/23/2015	N002	7.6	- 12.6	2300		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	7.6	- 12.6	13439		F	#		
Strontium	mg/L	09/23/2015	N001	7.6	- 12.6	6.9		F	#	0.0013	
Strontium	mg/L	09/23/2015	N002	7.6	- 12.6	7.2		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	7.6	- 12.6	9100		F	#	50	
Sulfate	mg/L	09/23/2015	N002	7.6	- 12.6	8600		F	#	50	
Temperature	C	09/23/2015	N001	7.6	- 12.6	20.38		F	#		
Turbidity	NTU	09/23/2015	N001	7.6	- 12.6	1.63		F	#		
Uranium	mg/L	09/23/2015	N001	7.6	- 12.6	0.73		F	#	0.000029	
Uranium	mg/L	09/23/2015	N002	7.6	- 12.6	0.71		F	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1141 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	5.6	-	10.6	524		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	5.6	-	10.6	5.4		FJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	5.6	-	10.6	610		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	5.6	-	10.6	150		F	#	20	
Magnesium	mg/L	09/23/2015	N001	5.6	-	10.6	480		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	5.6	-	10.6	2		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	5.6	-	10.6	45		F	#	1	
Oxidation Reduction Potential	mV	09/23/2015	N001	5.6	-	10.6	102.7		F	#		
pH	s.u.	09/23/2015	N001	5.6	-	10.6	6.99		F	#		
Potassium	mg/L	09/23/2015	N001	5.6	-	10.6	49		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	5.6	-	10.6	0.67		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	5.6	-	10.6	820		F	#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	5.6	-	10.6	7490		F	#		
Strontium	mg/L	09/23/2015	N001	5.6	-	10.6	6.2		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	5.6	-	10.6	4900		F	#	50	
Temperature	C	09/23/2015	N001	5.6	-	10.6	20.72		F	#		
Turbidity	NTU	09/23/2015	N001	5.6	-	10.6	2.1		F	#		
Uranium	mg/L	09/23/2015	N001	5.6	-	10.6	0.88		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	9	-	14	125		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	9	-	14	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/23/2015	0003	9	-	14	52		F	#	0.024	
Calcium	mg/L	09/23/2015	N001	9	-	14	52		F	#	0.024	
Calcium	mg/L	09/23/2015	N003	9	-	14	52		F	#	0.024	
Chloride	mg/L	09/23/2015	N001	9	-	14	10		F	#	2	
Magnesium	mg/L	09/23/2015	0003	9	-	14	9.5		F	#	0.03	
Magnesium	mg/L	09/23/2015	N001	9	-	14	9.6		F	#	0.03	
Magnesium	mg/L	09/23/2015	N003	9	-	14	9.7		F	#	0.03	
Manganese	mg/L	09/23/2015	0003	9	-	14	0.3		F	#	0.00024	
Manganese	mg/L	09/23/2015	N001	9	-	14	0.36		F	#	0.00024	
Manganese	mg/L	09/23/2015	N003	9	-	14	0.34		F	#	0.00024	
Mercury	mg/L	09/23/2015	0003	9	-	14	0.0000029	U	F	#	0.0000029	
Mercury	mg/L	09/23/2015	N003	9	-	14	0.0000029	U	F	#	0.0000029	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	9	-	14	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	9	-	14	-65.4		F	#		
pH	s.u.	09/23/2015	N001	9	-	14	7.76		F	#		
Potassium	mg/L	09/23/2015	0003	9	-	14	2.2		F	#	0.052	

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

REPORT DATE: 12/09/2015

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Potassium	mg/L	09/23/2015	N001	9	-	14	2.4		F	#	0.052	
Potassium	mg/L	09/23/2015	N003	9	-	14	2.3		F	#	0.052	
Selenium	mg/L	09/23/2015	0003	9	-	14	0.00054	J	F	#	0.00032	
Selenium	mg/L	09/23/2015	N001	9	-	14	0.0012		F	#	0.00032	
Selenium	mg/L	09/23/2015	N003	9	-	14	0.00042	J	F	#	0.00032	
Sodium	mg/L	09/23/2015	0003	9	-	14	37		F	#	0.047	
Sodium	mg/L	09/23/2015	N001	9	-	14	37		F	#	0.047	
Sodium	mg/L	09/23/2015	N003	9	-	14	38		F	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	9	-	14	493		F	#		
Strontium	mg/L	09/23/2015	0003	9	-	14	0.61		F	#	0.00026	
Strontium	mg/L	09/23/2015	N001	9	-	14	0.55		F	#	0.00026	
Strontium	mg/L	09/23/2015	N003	9	-	14	0.61		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	9	-	14	110		F	#	5	
Temperature	C	09/23/2015	N001	9	-	14	13.71		F	#		
Turbidity	NTU	09/23/2015	N001	9	-	14	1		F	#		
Uranium	mg/L	09/23/2015	0003	9	-	14	0.0048		F	#	0.000029	
Uranium	mg/L	09/23/2015	N001	9	-	14	0.0053		F	#	0.000029	
Uranium	mg/L	09/23/2015	N003	9	-	14	0.015		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1143 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	8.3	- 13.3	227		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	8.3	- 13.3	0.1	U	FJ	#	0.1	
Calcium	mg/L	09/24/2015	N001	8.3	- 13.3	170		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	8.3	- 13.3	69		F	#	10	
Magnesium	mg/L	09/24/2015	N001	8.3	- 13.3	52		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	8.3	- 13.3	0.83		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	8.3	- 13.3	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	8.3	- 13.3	8		F	#		
pH	s.u.	09/24/2015	N001	8.3	- 13.3	7.57		F	#		
Potassium	mg/L	09/24/2015	N001	8.3	- 13.3	13		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	8.3	- 13.3	0.00032	U	F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	8.3	- 13.3	900		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	8.3	- 13.3	4695		F	#		
Strontium	mg/L	09/24/2015	N001	8.3	- 13.3	2.3		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	8.3	- 13.3	2400		F	#	25	
Temperature	C	09/24/2015	N001	8.3	- 13.3	14.97		F	#		
Turbidity	NTU	09/24/2015	N001	8.3	- 13.3	2.2		F	#		
Uranium	mg/L	09/24/2015	N001	8.3	- 13.3	0.047		F	#	0.000029	

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.

## **Groundwater Quality Data Terrace Locations**

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

REPORT DATE: 12/09/2015

Location: 0600 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	29	-	48.8	1360		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	N001	29	-	48.8	25		FQ	#	2.5	
Calcium	mg/L	09/23/2015	N001	29	-	48.8	260		FQ	#	0.12	
Chloride	mg/L	09/23/2015	N001	29	-	48.8	1200		FQ	#	40	
Magnesium	mg/L	09/23/2015	N001	29	-	48.8	250		FQ	#	0.15	
Manganese	mg/L	09/23/2015	N001	29	-	48.8	0.24		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	29	-	48.8	150		FQ	#	2	
Oxidation Reduction Potential	mV	09/23/2015	N001	29	-	48.8	41.7		FQ	#		
pH	s.u.	09/23/2015	N001	29	-	48.8	6.99		FQ	#		
Potassium	mg/L	09/23/2015	N001	29	-	48.8	34		FQ	#	0.26	
Selenium	mg/L	09/23/2015	N001	29	-	48.8	0.0014		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	29	-	48.8	5200		FQ	#	2.3	
Specific Conductance	umhos /cm	09/23/2015	N001	29	-	48.8	20762		FQ	#		
Strontium	mg/L	09/23/2015	N001	29	-	48.8	7.7		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	29	-	48.8	10000		FQ	#	100	
Temperature	C	09/23/2015	N001	29	-	48.8	17.58		FQ	#		
Turbidity	NTU	09/23/2015	N001	29	-	48.8	2.21		FQ	#		
Uranium	mg/L	09/23/2015	N001	29	-	48.8	0.7		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	27	-	47	1652		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	0001	27	-	47	61		FQ	#	2.5	
Calcium	mg/L	09/24/2015	0001	27	-	47	420		FQ	#	0.12	
Chloride	mg/L	09/24/2015	0001	27	-	47	2700		FQ	#	40	
Magnesium	mg/L	09/24/2015	0001	27	-	47	1300		FQ	#	0.15	
Manganese	mg/L	09/24/2015	0001	27	-	47	0.75		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	27	-	47	41		FQ	#	1	
Oxidation Reduction Potential	mV	09/24/2015	N001	27	-	47	95		FQ	#		
pH	s.u.	09/24/2015	N001	27	-	47	7.03		FQ	#		
Potassium	mg/L	09/24/2015	0001	27	-	47	76		FQ	#	0.26	
Selenium	mg/L	09/24/2015	0001	27	-	47	0.0023		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	0001	27	-	47	7100		FQ	#	2.3	
Specific Conductance	umhos /cm	09/24/2015	N001	27	-	47	19655		FQ	#		
Strontium	mg/L	09/24/2015	0001	27	-	47	20		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	0001	27	-	47	18000		FQ	#	100	
Temperature	C	09/24/2015	N001	27	-	47	19.1		FQ	#		
Turbidity	NTU	09/24/2015	N001	27	-	47	22.6		FQ	#		
Uranium	mg/L	09/24/2015	0001	27	-	47	0.36		FQ	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 0603 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	25.9	-	35.9	172		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	25.9	-	35.9	810		F	#	30	
Calcium	mg/L	09/23/2015	N001	25.9	-	35.9	1100		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	25.9	-	35.9	180		F	#	10	
Magnesium	mg/L	09/23/2015	N001	25.9	-	35.9	670		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	25.9	-	35.9	49		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	25.9	-	35.9	2400		F	#	50	
Oxidation Reduction Potential	mV	09/23/2015	N001	25.9	-	35.9	266.4		F	#		
pH	s.u.	09/23/2015	N001	25.9	-	35.9	6.33		F	#		
Potassium	mg/L	09/23/2015	N001	25.9	-	35.9	140		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	25.9	-	35.9	0.069		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	25.9	-	35.9	680		F	#	0.23	
Specific Conductance	umhos/cm	09/23/2015	N001	25.9	-	35.9	17560		F	#		
Strontium	mg/L	09/23/2015	N001	25.9	-	35.9	5.3		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	25.9	-	35.9	2700		F	#	25	
Temperature	C	09/23/2015	N001	25.9	-	35.9	18.71		F	#		
Turbidity	NTU	09/23/2015	N001	25.9	-	35.9	1.41		F	#		
Uranium	mg/L	09/23/2015	N001	25.9	-	35.9	0.0079		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0604 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	62.7 - 72.7	920		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	62.7 - 72.7	0.84		FQ	#	0.1	
Calcium	mg/L	09/22/2015	N001	62.7 - 72.7	520		FQ	#	0.24	
Chloride	mg/L	09/22/2015	N001	62.7 - 72.7	2400		FQ	#	40	
Magnesium	mg/L	09/22/2015	N001	62.7 - 72.7	1800		FQ	#	0.3	
Manganese	mg/L	09/22/2015	N001	62.7 - 72.7	0.73		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	62.7 - 72.7	1300		FQ	#	50	
Potassium	mg/L	09/22/2015	N001	62.7 - 72.7	50		FQ	#	0.52	
Selenium	mg/L	09/22/2015	N001	62.7 - 72.7	0.54		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	62.7 - 72.7	4500		FQ	#	0.47	
Strontium	mg/L	09/22/2015	N001	62.7 - 72.7	18		FQ	#	0.0026	
Sulfate	mg/L	09/22/2015	N001	62.7 - 72.7	12000		FQ	#	100	
Uranium	mg/L	09/22/2015	N001	62.7 - 72.7	0.074		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0648 WELL Artesian well W of Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	1482 - 1777	59			#		
Ammonia Total as N	mg/L	09/22/2015	N001	1482 - 1777	0.48			#	0.1	
Calcium	mg/L	09/22/2015	N001	1482 - 1777	110			#	0.024	
Chloride	mg/L	09/22/2015	N001	1482 - 1777	58			#	10	
Magnesium	mg/L	09/22/2015	N001	1482 - 1777	14			#	0.03	
Manganese	mg/L	09/22/2015	N001	1482 - 1777	0.094			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	1482 - 1777	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	1482 - 1777	16			#		
pH	s.u.	09/22/2015	N001	1482 - 1777	7.98			#		
Potassium	mg/L	09/22/2015	N001	1482 - 1777	8.4			#	0.052	
Selenium	mg/L	09/22/2015	N001	1482 - 1777	0.0018			#	0.00032	
Sodium	mg/L	09/22/2015	N001	1482 - 1777	780			#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	1482 - 1777	4140			#		
Strontium	mg/L	09/22/2015	N001	1482 - 1777	11			#	0.00026	
Sulfate	mg/L	09/22/2015	N001	1482 - 1777	2000			#	25	
Temperature	C	09/22/2015	N001	1482 - 1777	29.9			#		
Turbidity	NTU	09/22/2015	N001	1482 - 1777	1.16			#		
Uranium	mg/L	09/22/2015	N001	1482 - 1777	0.00011			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0725 WELL West side, lower Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	7.5	-	17.5	274		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	7.5	-	17.5	0.1	U	F	#	0.1	
Calcium	mg/L	09/24/2015	N001	7.5	-	17.5	270		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	7.5	-	17.5	84		F	#	10	
Magnesium	mg/L	09/24/2015	N001	7.5	-	17.5	91		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	7.5	-	17.5	0.038		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	7.5	-	17.5	3.2		F	#	0.05	
Oxidation Reduction Potential	mV	09/24/2015	N001	7.5	-	17.5	132.1		F	#		
pH	s.u.	09/24/2015	N001	7.5	-	17.5	7.29		F	#		
Potassium	mg/L	09/24/2015	N001	7.5	-	17.5	13		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	7.5	-	17.5	0.02	E	FJ	#	0.00032	
Sodium	mg/L	09/24/2015	N001	7.5	-	17.5	1000		F	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	7.5	-	17.5	5598		F	#		
Strontium	mg/L	09/24/2015	N001	7.5	-	17.5	13		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	7.5	-	17.5	3000		F	#	25	
Temperature	C	09/24/2015	N001	7.5	-	17.5	19.91		F	#		
Turbidity	NTU	09/24/2015	N001	7.5	-	17.5	2.03		F	#		
Uranium	mg/L	09/24/2015	N001	7.5	-	17.5	0.075	E	FJ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0726 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	27.2	- 37.2	616		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	27.2	- 37.2	2.9		F	#	0.1	
Calcium	mg/L	09/22/2015	N001	27.2	- 37.2	150		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	27.2	- 37.2	500		F	#	20	
Magnesium	mg/L	09/22/2015	N001	27.2	- 37.2	130		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	27.2	- 37.2	0.31		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	27.2	- 37.2	40		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	27.2	- 37.2	90		F	#		
pH	s.u.	09/22/2015	N001	27.2	- 37.2	7.37		F	#		
Potassium	mg/L	09/22/2015	N001	27.2	- 37.2	17		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	27.2	- 37.2	0.067		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	27.2	- 37.2	2300		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	27.2	- 37.2	11030		F	#		
Strontium	mg/L	09/22/2015	N001	27.2	- 37.2	5.5		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	27.2	- 37.2	5300		F	#	50	
Temperature	C	09/22/2015	N001	27.2	- 37.2	18.4		F	#		
Turbidity	NTU	09/22/2015	N001	27.2	- 37.2	6.91		F	#		
Uranium	mg/L	09/22/2015	N001	27.2	- 37.2	0.02		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0727 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	6.7	-	16.7	1264		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	6.7	-	16.7	23		FQ	#	2.5	
Calcium	mg/L	09/22/2015	N001	6.7	-	16.7	430		FQ	#	0.12	
Chloride	mg/L	09/22/2015	N001	6.7	-	16.7	370		FQ	#	40	
Magnesium	mg/L	09/22/2015	N001	6.7	-	16.7	1600		FQ	#	0.15	
Manganese	mg/L	09/22/2015	N001	6.7	-	16.7	1.5		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	6.7	-	16.7	53		FQ	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	6.7	-	16.7	95		FQ	#		
pH	s.u.	09/22/2015	N001	6.7	-	16.7	6.56		FQ	#		
Potassium	mg/L	09/22/2015	N001	6.7	-	16.7	77		FQ	#	0.26	
Selenium	mg/L	09/22/2015	N001	6.7	-	16.7	0.00075	J	FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	6.7	-	16.7	1900		FQ	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	6.7	-	16.7	14900		FQ	#		
Strontium	mg/L	09/22/2015	N001	6.7	-	16.7	11		FQ	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	6.7	-	16.7	11000		FQ	#	100	
Temperature	C	09/22/2015	N001	6.7	-	16.7	22.1		FQ	#		
Turbidity	NTU	09/22/2015	N001	6.7	-	16.7	1.99		FQ	#		
Uranium	mg/L	09/22/2015	N001	6.7	-	16.7	0.23		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0728 WELL W of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	17	-	27	215		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	17	-	27	33		F	#	2.5	
Calcium	mg/L	09/23/2015	N001	17	-	27	520		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	17	-	27	30		F	#	10	
Magnesium	mg/L	09/23/2015	N001	17	-	27	270		F	#	0.03	
Manganese	mg/L	09/23/2015	N001	17	-	27	0.51		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	17	-	27	7.7		F	#	0.2	
Oxidation Reduction Potential	mV	09/23/2015	N001	17	-	27	85		F	#		
pH	s.u.	09/23/2015	N001	17	-	27	7		F	#		
Potassium	mg/L	09/23/2015	N001	17	-	27	35		F	#	0.052	
Selenium	mg/L	09/23/2015	N001	17	-	27	0.002		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	17	-	27	160		F	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	17	-	27	2710		F	#		
Strontium	mg/L	09/23/2015	N001	17	-	27	4		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	17	-	27	2800		F	#	25	
Temperature	C	09/23/2015	N001	17	-	27	16.9		F	#		
Turbidity	NTU	09/23/2015	N001	17	-	27	2.8		F	#		
Uranium	mg/L	09/23/2015	N001	17	-	27	0.12		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0730 WELL Just SW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	0001	26.93 - 36.93	0		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	0001	26.93 - 36.93	42		FQ	#	2.5	
Calcium	mg/L	09/23/2015	0001	26.93 - 36.93	630		FQ	#	0.12	
Chloride	mg/L	09/23/2015	0001	26.93 - 36.93	16		FQ	#	10	
Magnesium	mg/L	09/23/2015	0001	26.93 - 36.93	120		FQ	#	0.03	
Manganese	mg/L	09/23/2015	0001	26.93 - 36.93	21		FQ	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	0001	26.93 - 36.93	110		FQ	#	2	
Oxidation Reduction Potential	mV	09/23/2015	N001	26.93 - 36.93	140		FQ	#		
pH	s.u.	09/23/2015	N001	26.93 - 36.93	5.05		FQ	#		
Potassium	mg/L	09/23/2015	0001	26.93 - 36.93	16		FQ	#	0.052	
Selenium	mg/L	09/23/2015	0001	26.93 - 36.93	0.01		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	0001	26.93 - 36.93	66		FQ	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	26.93 - 36.93	3660		FQ	#		
Strontium	mg/L	09/23/2015	0001	26.93 - 36.93	2.7		FQ	#	0.00026	
Sulfate	mg/L	09/23/2015	0001	26.93 - 36.93	2000		FQ	#	25	
Temperature	C	09/23/2015	N001	26.93 - 36.93	18.4		FQ	#		
Turbidity	NTU	09/23/2015	N001	26.93 - 36.93	374		FQ	#		
Uranium	mg/L	09/23/2015	0001	26.93 - 36.93	0.0057		FQ	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 0731 WELL SE of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	17	-	27	362		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	17	-	27	29		F	#	2.5	
Calcium	mg/L	09/24/2015	N001	17	-	27	470		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	17	-	27	150		F	#	20	
Magnesium	mg/L	09/24/2015	N001	17	-	27	450		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	17	-	27	0.25		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	17	-	27	92		F	#	1	
Oxidation Reduction Potential	mV	09/24/2015	N001	17	-	27	225.5		F	#		
pH	s.u.	09/24/2015	N001	17	-	27	7.02		F	#		
Potassium	mg/L	09/24/2015	N001	17	-	27	33		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	17	-	27	0.0051		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	17	-	27	970		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	17	-	27	7895		F	#		
Strontium	mg/L	09/24/2015	N001	17	-	27	8.2		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	17	-	27	4200		F	#	50	
Temperature	C	09/24/2015	N001	17	-	27	16.81		F	#		
Turbidity	NTU	09/24/2015	N001	17	-	27	1.43		F	#		
Uranium	mg/L	09/24/2015	N001	17	-	27	0.025		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0812 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	51.3	-	61.3	712		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	51.3	-	61.3	0.1	U	FQ	#	0.1	
Calcium	mg/L	09/22/2015	N001	51.3	-	61.3	440		FQ	#	0.24	
Chloride	mg/L	09/22/2015	N001	51.3	-	61.3	2500		FQ	#	50	
Magnesium	mg/L	09/22/2015	N001	51.3	-	61.3	2200		FQ	#	0.3	
Manganese	mg/L	09/22/2015	N001	51.3	-	61.3	0.2		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	51.3	-	61.3	1400		FQ	#	50	
Oxidation Reduction Potential	mV	09/22/2015	N001	51.3	-	61.3	221		FQ	#		
pH	s.u.	09/22/2015	N001	51.3	-	61.3	6.82		FQ	#		
Potassium	mg/L	09/22/2015	N001	51.3	-	61.3	63		FQ	#	0.52	
Selenium	mg/L	09/22/2015	N001	51.3	-	61.3	4.7		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	51.3	-	61.3	6900		FQ	#	4.7	
Specific Conductance	umhos/cm	09/22/2015	N001	51.3	-	61.3	33365		FQ	#		
Strontium	mg/L	09/22/2015	N001	51.3	-	61.3	14		FQ	#	0.0026	
Sulfate	mg/L	09/22/2015	N001	51.3	-	61.3	18000		FQ	#	120	
Temperature	C	09/22/2015	N001	51.3	-	61.3	15.7		FQ	#		
Turbidity	NTU	09/22/2015	N001	51.3	-	61.3	9.95		FQ	#		
Uranium	mg/L	09/22/2015	N001	51.3	-	61.3	0.1		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0813 WELL W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	40.8 - 50.8	822		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	40.8 - 50.8	69		F	#	2.5	
Calcium	mg/L	09/22/2015	N001	40.8 - 50.8	660		F	#	0.24	
Chloride	mg/L	09/22/2015	N001	40.8 - 50.8	880		F	#	40	
Magnesium	mg/L	09/22/2015	N001	40.8 - 50.8	2900		F	#	0.3	
Manganese	mg/L	09/22/2015	N001	40.8 - 50.8	0.81		F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	40.8 - 50.8	3000		F	#	50	
Oxidation Reduction Potential	mV	09/22/2015	N001	40.8 - 50.8	95		F	#		
pH	s.u.	09/22/2015	N001	40.8 - 50.8	6.63		F	#		
Potassium	mg/L	09/22/2015	N001	40.8 - 50.8	120		F	#	0.52	
Selenium	mg/L	09/22/2015	N001	40.8 - 50.8	0.18		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	40.8 - 50.8	2600		F	#	0.47	
Specific Conductance	umhos/cm	09/22/2015	N001	40.8 - 50.8	26655		F	#		
Strontium	mg/L	09/22/2015	N001	40.8 - 50.8	18		F	#	0.0026	
Sulfate	mg/L	09/22/2015	N001	40.8 - 50.8	9500		F	#	100	
Temperature	C	09/22/2015	N001	40.8 - 50.8	16.9		F	#		
Turbidity	NTU	09/22/2015	N001	40.8 - 50.8	3.82		F	#		
Uranium	mg/L	09/22/2015	N001	40.8 - 50.8	0.078		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	23.8	-	33.8	690		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	23.8	-	33.8	55		FQ	#	2.5	
Calcium	mg/L	09/22/2015	N001	23.8	-	33.8	440		FQ	#	0.24	
Chloride	mg/L	09/22/2015	N001	23.8	-	33.8	1000		FQ	#	40	
Magnesium	mg/L	09/22/2015	N001	23.8	-	33.8	1900		FQ	#	0.3	
Manganese	mg/L	09/22/2015	N001	23.8	-	33.8	1.3		FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	23.8	-	33.8	800		FQ	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	23.8	-	33.8	103		FQ	#		
pH	s.u.	09/22/2015	N001	23.8	-	33.8	6.97		FQ	#		
Potassium	mg/L	09/22/2015	N001	23.8	-	33.8	98		FQ	#	0.52	
Selenium	mg/L	09/22/2015	N001	23.8	-	33.8	1.6		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	23.8	-	33.8	3700		FQ	#	0.47	
Specific Conductance	umhos /cm	09/22/2015	N001	23.8	-	33.8	23440		FQ	#		
Strontium	mg/L	09/22/2015	N001	23.8	-	33.8	12		FQ	#	0.0026	
Sulfate	mg/L	09/22/2015	N001	23.8	-	33.8	14000		FQ	#	100	
Temperature	C	09/22/2015	N001	23.8	-	33.8	17.1		FQ	#		
Turbidity	NTU	09/22/2015	N001	23.8	-	33.8	7.32		FQ	#		
Uranium	mg/L	09/22/2015	N001	23.8	-	33.8	0.065		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	22.3	- 32.3	1364		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	22.3	- 32.3	1.7		F	#	0.1	
Calcium	mg/L	09/22/2015	N001	22.3	- 32.3	440		F	#	0.24	
Chloride	mg/L	09/22/2015	N001	22.3	- 32.3	560		F	#	40	
Magnesium	mg/L	09/22/2015	N001	22.3	- 32.3	2400		F	#	0.3	
Manganese	mg/L	09/22/2015	N001	22.3	- 32.3	1.5		F	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	22.3	- 32.3	560		F	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	22.3	- 32.3	90		F	#		
pH	s.u.	09/22/2015	N001	22.3	- 32.3	6.58		F	#		
Potassium	mg/L	09/22/2015	N001	22.3	- 32.3	84		F	#	0.52	
Selenium	mg/L	09/22/2015	N001	22.3	- 32.3	0.021		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	22.3	- 32.3	3100		F	#	0.47	
Specific Conductance	umhos/cm	09/22/2015	N001	22.3	- 32.3	21460		F	#		
Strontium	mg/L	09/22/2015	N001	22.3	- 32.3	12		F	#	0.0026	
Sulfate	mg/L	09/22/2015	N001	22.3	- 32.3	15000		F	#	100	
Temperature	C	09/22/2015	N001	22.3	- 32.3	18.1		F	#		
Turbidity	NTU	09/22/2015	N001	22.3	- 32.3	3.92		F	#		
Uranium	mg/L	09/22/2015	N001	22.3	- 32.3	0.27		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0816 WELL N of artesian well 648

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	20.1	-	25.1	254		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	20.1	-	25.1	0.24		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	20.1	-	25.1	100		F	#	0.024	
Chloride	mg/L	09/24/2015	N001	20.1	-	25.1	69		F	#	10	
Magnesium	mg/L	09/24/2015	N001	20.1	-	25.1	120		F	#	0.03	
Manganese	mg/L	09/24/2015	N001	20.1	-	25.1	0.0025	J	F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	20.1	-	25.1	11		F	#	0.2	
Oxidation Reduction Potential	mV	09/24/2015	N001	20.1	-	25.1	90		F	#		
pH	s.u.	09/24/2015	N001	20.1	-	25.1	7.71		F	#		
Potassium	mg/L	09/24/2015	N001	20.1	-	25.1	13		F	#	0.052	
Selenium	mg/L	09/24/2015	N001	20.1	-	25.1	0.01		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	20.1	-	25.1	790		F	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	20.1	-	25.1	3670		F	#		
Strontium	mg/L	09/24/2015	N001	20.1	-	25.1	2.1		F	#	0.00026	
Sulfate	mg/L	09/24/2015	N001	20.1	-	25.1	2100		F	#	25	
Temperature	C	09/24/2015	N001	20.1	-	25.1	21.7		F	#		
Turbidity	NTU	09/24/2015	N001	20.1	-	25.1	8.95		F	#		
Uranium	mg/L	09/24/2015	N001	20.1	-	25.1	0.013		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	21.6 - 31.62	1560		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	N001	21.6 - 31.62	810		FQ	#	2.5	
Calcium	mg/L	09/24/2015	N001	21.6 - 31.62	450		FQ	#	0.12	
Chloride	mg/L	09/24/2015	N001	21.6 - 31.62	560		FQ	#	40	
Magnesium	mg/L	09/24/2015	N001	21.6 - 31.62	1800		FQ	#	0.15	
Manganese	mg/L	09/24/2015	N001	21.6 - 31.62	2.3		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	21.6 - 31.62	590		FQ	#	10	
Oxidation Reduction Potential	mV	09/24/2015	N001	21.6 - 31.62	100		FQ	#		
pH	s.u.	09/24/2015	N001	21.6 - 31.62	6.5		FQ	#		
Potassium	mg/L	09/24/2015	N001	21.6 - 31.62	260		FQ	#	0.26	
Selenium	mg/L	09/24/2015	N001	21.6 - 31.62	0.0021		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	N001	21.6 - 31.62	1500		FQ	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	21.6 - 31.62	14710		FQ	#		
Strontium	mg/L	09/24/2015	N001	21.6 - 31.62	11		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	21.6 - 31.62	12000		FQ	#	100	
Temperature	C	09/24/2015	N001	21.6 - 31.62	19.4		FQ	#		
Turbidity	NTU	09/24/2015	N001	21.6 - 31.62	4.98		FQ	#		
Uranium	mg/L	09/24/2015	N001	21.6 - 31.62	8.2		FQ	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	52	-	61.5	724			#		
Ammonia Total as N	mg/L	09/22/2015	N001	52	-	61.5	56			#	2.5	
Ammonia Total as N	mg/L	09/22/2015	N002	52	-	61.5	50		J	#	2.5	
Calcium	mg/L	09/22/2015	N001	52	-	61.5	430			#	0.24	
Calcium	mg/L	09/22/2015	N002	52	-	61.5	430			#	0.12	
Chloride	mg/L	09/22/2015	N001	52	-	61.5	1000			#	50	
Chloride	mg/L	09/22/2015	N002	52	-	61.5	1100			#	40	
Magnesium	mg/L	09/22/2015	N001	52	-	61.5	1600			#	0.3	
Magnesium	mg/L	09/22/2015	N002	52	-	61.5	1600			#	0.15	
Manganese	mg/L	09/22/2015	N001	52	-	61.5	0.49			#	0.0024	
Manganese	mg/L	09/22/2015	N002	52	-	61.5	0.51			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	52	-	61.5	700			#	10	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N002	52	-	61.5	600			#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	52	-	61.5	90			#		
pH	s.u.	09/22/2015	N001	52	-	61.5	6.96			#		
Potassium	mg/L	09/22/2015	N001	52	-	61.5	66			#	0.52	
Potassium	mg/L	09/22/2015	N002	52	-	61.5	66			#	0.26	
Selenium	mg/L	09/22/2015	N001	52	-	61.5	1.8			#	0.00032	



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

REPORT DATE: 12/09/2015

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N002	52 - 61.5	2.1	#	0.00032	
Sodium	mg/L	09/22/2015	N001	52 - 61.5	3900	#	0.47	
Sodium	mg/L	09/22/2015	N002	52 - 61.5	4100	#	2.3	
Specific Conductance	umhos/cm	09/22/2015	N001	52 - 61.5	22900	#		
Strontium	mg/L	09/22/2015	N001	52 - 61.5	11	#	0.0026	
Strontium	mg/L	09/22/2015	N002	52 - 61.5	12	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	52 - 61.5	13000	#	120	
Sulfate	mg/L	09/22/2015	N002	52 - 61.5	14000	#	100	
Temperature	C	09/22/2015	N001	52 - 61.5	16.4	#		
Turbidity	NTU	09/22/2015	N001	52 - 61.5	5.21	#		
Uranium	mg/L	09/22/2015	N001	52 - 61.5	0.13	#	0.000029	
Uranium	mg/L	09/22/2015	N002	52 - 61.5	0.12	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	15.67 - 25.67	2438		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	0001	15.67 - 25.67	420		FQ	#	30	
Calcium	mg/L	09/24/2015	0001	15.67 - 25.67	470		FQ	#	0.24	
Chloride	mg/L	09/24/2015	0001	15.67 - 25.67	740		FQ	#	40	
Magnesium	mg/L	09/24/2015	0001	15.67 - 25.67	1300		FQ	#	0.3	
Manganese	mg/L	09/24/2015	0001	15.67 - 25.67	0.013	J	FQ	#	0.0024	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	15.67 - 25.67	43		FQJ	#	0.5	
Oxidation Reduction Potential	mV	09/24/2015	N001	15.67 - 25.67	110		FQ	#		
pH	s.u.	09/24/2015	N001	15.67 - 25.67	6.43		FQ	#		
Potassium	mg/L	09/24/2015	0001	15.67 - 25.67	160		FQ	#	0.52	
Selenium	mg/L	09/24/2015	0001	15.67 - 25.67	0.033		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	0001	15.67 - 25.67	2400		FQ	#	0.47	
Specific Conductance	umhos /cm	09/24/2015	N001	15.67 - 25.67	18350		FQ	#		
Strontium	mg/L	09/24/2015	0001	15.67 - 25.67	9		FQ	#	0.0026	
Sulfate	mg/L	09/24/2015	0001	15.67 - 25.67	13000		FQ	#	100	
Temperature	C	09/24/2015	N001	15.67 - 25.67	21.1		FQ	#		
Turbidity	NTU	09/24/2015	N001	15.67 - 25.67	14.8		FQ	#		
Uranium	mg/L	09/24/2015	0001	15.67 - 25.67	1.5		FQ	#	0.00029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	199	- 201.5	460		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	N001	199	- 201.5	1.3		FQ	#	0.1	
Calcium	mg/L	09/23/2015	N001	199	- 201.5	140		FQ	#	0.12	
Chloride	mg/L	09/23/2015	N001	199	- 201.5	7100		FQ	#	200	
Magnesium	mg/L	09/23/2015	N001	199	- 201.5	62		FQ	#	0.15	
Manganese	mg/L	09/23/2015	N001	199	- 201.5	0.35		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	199	- 201.5	0.013		FQ	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	199	- 201.5	-89.2		FQ	#		
pH	s.u.	09/23/2015	N001	199	- 201.5	7.35		FQ	#		
Potassium	mg/L	09/23/2015	N001	199	- 201.5	39		FQ	#	0.26	
Selenium	mg/L	09/23/2015	N001	199	- 201.5	0.00032	U	FQ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	199	- 201.5	5900		FQ	#	2.3	
Specific Conductance	umhos/cm	09/23/2015	N001	199	- 201.5	25925		FQ	#		
Strontium	mg/L	09/23/2015	N001	199	- 201.5	15		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	199	- 201.5	4700		FQ	#	500	
Temperature	C	09/23/2015	N001	199	- 201.5	18.53		FQ	#		
Turbidity	NTU	09/23/2015	N001	199	- 201.5	9.11		FQ	#		
Uranium	mg/L	09/23/2015	N001	199	- 201.5	0.037		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	198.5	-	201	260		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	N001	198.5	-	201	4.7		FQ	#	0.1	
Calcium	mg/L	09/23/2015	N001	198.5	-	201	180		FQ	#	0.12	
Chloride	mg/L	09/23/2015	N001	198.5	-	201	7700		FQ	#	200	
Magnesium	mg/L	09/23/2015	N001	198.5	-	201	72		FQ	#	0.15	
Manganese	mg/L	09/23/2015	N001	198.5	-	201	0.57		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	198.5	-	201	8.6		FQ	#	0.2	
Oxidation Reduction Potential	mV	09/23/2015	N001	198.5	-	201	-57.9		FQ	#		
pH	s.u.	09/23/2015	N001	198.5	-	201	7.25		FQ	#		
Potassium	mg/L	09/23/2015	N001	198.5	-	201	45		FQ	#	0.26	
Selenium	mg/L	09/23/2015	N001	198.5	-	201	0.00071	J	FQ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	198.5	-	201	6400		FQ	#	2.3	
Specific Conductance	umhos/cm	09/23/2015	N001	198.5	-	201	25920		FQ	#		
Strontium	mg/L	09/23/2015	N001	198.5	-	201	18		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	198.5	-	201	5100		FQ	#	500	
Temperature	C	09/23/2015	N001	198.5	-	201	21.6		FQ	#		
Turbidity	NTU	09/23/2015	N001	198.5	-	201	1.81		FQ	#		
Uranium	mg/L	09/23/2015	N001	198.5	-	201	0.088		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	10	-	20	1286		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	0001	10	-	20	84		FQ	#	2.5	
Calcium	mg/L	09/24/2015	0001	10	-	20	430		FQ	#	0.12	
Chloride	mg/L	09/24/2015	0001	10	-	20	360		FQ	#	40	
Magnesium	mg/L	09/24/2015	0001	10	-	20	1800		FQ	#	0.15	
Manganese	mg/L	09/24/2015	0001	10	-	20	2.3		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	10	-	20	13		FQ	#	0.5	
Oxidation Reduction Potential	mV	09/24/2015	N001	10	-	20	95		FQ	#		
pH	s.u.	09/24/2015	N001	10	-	20	6.55		FQ	#		
Potassium	mg/L	09/24/2015	0001	10	-	20	110		FQ	#	0.26	
Selenium	mg/L	09/24/2015	0001	10	-	20	0.0088		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	0001	10	-	20	1700		FQ	#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N001	10	-	20	14750		FQ	#		
Strontium	mg/L	09/24/2015	0001	10	-	20	9.4		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	0001	10	-	20	11000		FQ	#	100	
Temperature	C	09/24/2015	N001	10	-	20	22.5		FQ	#		
Turbidity	NTU	09/24/2015	N001	10	-	20	14.5		FQ	#		
Uranium	mg/L	09/24/2015	0001	10	-	20	1.5		FQ	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 0827 WELL Just NW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	0001	19.9 - 29.9	1598		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	0001	19.9 - 29.9	5.4		FQ	#	0.5	
Calcium	mg/L	09/23/2015	0001	19.9 - 29.9	450		FQ	#	0.12	
Chloride	mg/L	09/23/2015	0001	19.9 - 29.9	430		FQ	#	20	
Magnesium	mg/L	09/23/2015	0001	19.9 - 29.9	1000		FQ	#	0.15	
Manganese	mg/L	09/23/2015	0001	19.9 - 29.9	0.17		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	0001	19.9 - 29.9	15		FQ	#	0.2	
Oxidation Reduction Potential	mV	09/23/2015	N001	19.9 - 29.9	100		FQ	#		
pH	s.u.	09/23/2015	N001	19.9 - 29.9	6.58		FQ	#		
Potassium	mg/L	09/23/2015	0001	19.9 - 29.9	34		FQ	#	0.26	
Selenium	mg/L	09/23/2015	0001	19.9 - 29.9	0.0097		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	0001	19.9 - 29.9	1600		FQ	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	19.9 - 29.9	14350		FQ	#		
Strontium	mg/L	09/23/2015	0001	19.9 - 29.9	10		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	0001	19.9 - 29.9	8800		FQ	#	50	
Temperature	C	09/23/2015	N001	19.9 - 29.9	19.6		FQ	#		
Turbidity	NTU	09/23/2015	N001	19.9 - 29.9	15.3		FQ	#		
Uranium	mg/L	09/23/2015	0001	19.9 - 29.9	0.8		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	5.3	- 15.3	720		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	5.3	- 15.3	0.78		F	#	0.1	
Calcium	mg/L	09/24/2015	N001	5.3	- 15.3	310		F	#	0.024	
Chloride	mg/L	09/24/2015	N001	5.3	- 15.3	110		F	#	10	
Magnesium	mg/L	09/24/2015	N001	5.3	- 15.3	220		F	#	0.03	
Manganese	mg/L	09/24/2015	N001	5.3	- 15.3	1.9		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	5.3	- 15.3	1.2		F	#	0.05	
Oxidation Reduction Potential	mV	09/24/2015	N001	5.3	- 15.3	102.5		F	#		
pH	s.u.	09/24/2015	N001	5.3	- 15.3	7.13		F	#		
Potassium	mg/L	09/24/2015	N001	5.3	- 15.3	13		F	#	0.052	
Selenium	mg/L	09/24/2015	N001	5.3	- 15.3	0.0045		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	5.3	- 15.3	350		F	#	0.047	
Specific Conductance	umhos /cm	09/24/2015	N001	5.3	- 15.3	3852		F	#		
Strontium	mg/L	09/24/2015	N001	5.3	- 15.3	4.1		F	#	0.00026	
Sulfate	mg/L	09/24/2015	N001	5.3	- 15.3	1600		F	#	25	
Temperature	C	09/24/2015	N001	5.3	- 15.3	20.18		F	#		
Turbidity	NTU	09/24/2015	N001	5.3	- 15.3	4.39		F	#		
Uranium	mg/L	09/24/2015	N001	5.3	- 15.3	0.38		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0830 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	7.7 - 17.7	0		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	7.7 - 17.7	0.79		F	#	0.1	
Calcium	mg/L	09/23/2015	N001	7.7 - 17.7	610		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	7.7 - 17.7	58		F	#	5	
Magnesium	mg/L	09/23/2015	N001	7.7 - 17.7	47		F	#	0.03	
Manganese	mg/L	09/23/2015	N001	7.7 - 17.7	2.7		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	7.7 - 17.7	47		F	#	1	
Oxidation Reduction Potential	mV	09/23/2015	N001	7.7 - 17.7	344.4		F	#		
pH	s.u.	09/23/2015	N001	7.7 - 17.7	3.91		F	#		
Potassium	mg/L	09/23/2015	N001	7.7 - 17.7	6.4		F	#	0.052	
Selenium	mg/L	09/23/2015	N001	7.7 - 17.7	0.021		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	7.7 - 17.7	160		F	#	0.047	
Specific Conductance	umhos /cm	09/23/2015	N001	7.7 - 17.7	3196		F	#		
Strontium	mg/L	09/23/2015	N001	7.7 - 17.7	0.25		F	#	0.00026	
Sulfate	mg/L	09/23/2015	N001	7.7 - 17.7	1800		F	#	12	
Temperature	C	09/23/2015	N001	7.7 - 17.7	24.41		F	#		
Turbidity	NTU	09/23/2015	N001	7.7 - 17.7	0.9		F	#		
Uranium	mg/L	09/23/2015	N001	7.7 - 17.7	0.0047		F	#	0.000029	



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

REPORT DATE: 12/09/2015

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 Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	0001	21.1	-	31.1	318		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	0001	21.1	-	31.1	0.1	U	FQ	#	0.1	
Calcium	mg/L	09/22/2015	0001	21.1	-	31.1	370		FQ	#	0.12	
Chloride	mg/L	09/22/2015	0001	21.1	-	31.1	120		FQ	#	20	
Magnesium	mg/L	09/22/2015	0001	21.1	-	31.1	720		FQ	#	0.15	
Manganese	mg/L	09/22/2015	0001	21.1	-	31.1	0.007	J	FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	21.1	-	31.1	61		FQ	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	21.1	-	31.1	224.8		FQ	#		
pH	s.u.	09/22/2015	N001	21.1	-	31.1	7.36		FQ	#		
Potassium	mg/L	09/22/2015	0001	21.1	-	31.1	25		FQ	#	0.26	
Selenium	mg/L	09/22/2015	0001	21.1	-	31.1	0.39		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	0001	21.1	-	31.1	1900		FQ	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	21.1	-	31.1	11765		FQ	#		
Strontium	mg/L	09/22/2015	0001	21.1	-	31.1	6.8		FQ	#	0.0013	
Sulfate	mg/L	09/22/2015	0001	21.1	-	31.1	7900		FQ	#	50	
Temperature	C	09/22/2015	N001	21.1	-	31.1	18.02		FQ	#		
Turbidity	NTU	09/22/2015	N001	21.1	-	31.1	33.8		FQ	#		
Uranium	mg/L	09/22/2015	0001	21.1	-	31.1	0.048		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0833 WELL Just NE of Dine College tract

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	24.9 - 34.9	367		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	24.9 - 34.9	0.1	U	F	#	0.1	
Calcium	mg/L	09/22/2015	N001	24.9 - 34.9	460		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	24.9 - 34.9	180		F	#	20	
Magnesium	mg/L	09/22/2015	N001	24.9 - 34.9	410		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	24.9 - 34.9	0.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	24.9 - 34.9	70		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	24.9 - 34.9	185		F	#		
pH	s.u.	09/22/2015	N001	24.9 - 34.9	7.11		F	#		
Potassium	mg/L	09/22/2015	N001	24.9 - 34.9	20		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	24.9 - 34.9	0.2		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	24.9 - 34.9	840		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	24.9 - 34.9	6883		F	#		
Strontium	mg/L	09/22/2015	N001	24.9 - 34.9	4.9		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	24.9 - 34.9	3700		F	#	50	
Temperature	C	09/22/2015	N001	24.9 - 34.9	16.55		F	#		
Turbidity	NTU	09/22/2015	N001	24.9 - 34.9	9.44		F	#		
Uranium	mg/L	09/22/2015	N001	24.9 - 34.9	0.044		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	21.9 - 31.9	58		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	21.9 - 31.9	0.1	U	F	#	0.1	
Calcium	mg/L	09/22/2015	N001	21.9 - 31.9	52		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	21.9 - 31.9	20		F	#	0.4	
Magnesium	mg/L	09/22/2015	N001	21.9 - 31.9	19		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	21.9 - 31.9	0.036		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	21.9 - 31.9	1.2		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	21.9 - 31.9	162		F	#		
pH	s.u.	09/22/2015	N001	21.9 - 31.9	7.85		F	#		
Potassium	mg/L	09/22/2015	N001	21.9 - 31.9	1.9		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	21.9 - 31.9	0.0016		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	21.9 - 31.9	27		F	#	0.047	
Specific Conductance	umhos /cm	09/22/2015	N001	21.9 - 31.9	517		F	#		
Strontium	mg/L	09/22/2015	N001	21.9 - 31.9	0.55		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	21.9 - 31.9	120		F	#	1	
Temperature	C	09/22/2015	N001	21.9 - 31.9	17.24		F	#		
Turbidity	NTU	09/22/2015	N001	21.9 - 31.9	4.89		F	#		
Uranium	mg/L	09/22/2015	N001	21.9 - 31.9	0.0031		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample <sup>®</sup> Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	26.8 - 36.8	320		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	26.8 - 36.8	0.2		F	#	0.1	
Calcium	mg/L	09/22/2015	N001	26.8 - 36.8	530		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	26.8 - 36.8	100		F	#	10	
Magnesium	mg/L	09/22/2015	N001	26.8 - 36.8	280		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	26.8 - 36.8	0.3		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	26.8 - 36.8	64		F	#	0.5	
Oxidation Reduction Potential	mV	09/22/2015	N001	26.8 - 36.8	226.7		F	#		
pH	s.u.	09/22/2015	N001	26.8 - 36.8	6.96		F	#		
Potassium	mg/L	09/22/2015	N001	26.8 - 36.8	6.5		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	26.8 - 36.8	0.4		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	26.8 - 36.8	480		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	26.8 - 36.8	5094		F	#		
Strontium	mg/L	09/22/2015	N001	26.8 - 36.8	6.7		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	26.8 - 36.8	2900		F	#	25	
Temperature	C	09/22/2015	N001	26.8 - 36.8	15.34		F	#		
Turbidity	NTU	09/22/2015	N001	26.8 - 36.8	4.3		F	#		
Uranium	mg/L	09/22/2015	N001	26.8 - 36.8	0.044		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	17	- 27.1	323		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	17	- 27.1	0.1	U	F	#	0.1	
Calcium	mg/L	09/22/2015	N001	17	- 27.1	610		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	17	- 27.1	170		F	#	10	
Magnesium	mg/L	09/22/2015	N001	17	- 27.1	260		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	17	- 27.1	2.8		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	17	- 27.1	86		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	17	- 27.1	255.7		F	#		
pH	s.u.	09/22/2015	N001	17	- 27.1	6.9		F	#		
Potassium	mg/L	09/22/2015	N001	17	- 27.1	12		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	17	- 27.1	0.58		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	17	- 27.1	430		F	#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	17	- 27.1	5126		F	#		
Strontium	mg/L	09/22/2015	N001	17	- 27.1	6.9		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	17	- 27.1	2600		F	#	25	
Temperature	C	09/22/2015	N001	17	- 27.1	14.71		F	#		
Turbidity	NTU	09/22/2015	N001	17	- 27.1	8.34		F	#		
Uranium	mg/L	09/22/2015	N001	17	- 27.1	0.023		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0838 WELL W part of Dine College tract

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	21.9	-	31.9	314		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	21.9	-	31.9	0.12		F	#	0.1	
Calcium	mg/L	09/22/2015	N001	21.9	-	31.9	460		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	21.9	-	31.9	200		F	#	20	
Magnesium	mg/L	09/22/2015	N001	21.9	-	31.9	530		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	21.9	-	31.9	0.0093	J	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	21.9	-	31.9	87		F	#	1	
Oxidation Reduction Potential	mV	09/22/2015	N001	21.9	-	31.9	212		F	#		
pH	s.u.	09/22/2015	N001	21.9	-	31.9	7.23		F	#		
Potassium	mg/L	09/22/2015	N001	21.9	-	31.9	15		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	21.9	-	31.9	0.2		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	21.9	-	31.9	930		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	21.9	-	31.9	7559		F	#		
Strontium	mg/L	09/22/2015	N001	21.9	-	31.9	6.2		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	21.9	-	31.9	4600		F	#	50	
Temperature	C	09/22/2015	N001	21.9	-	31.9	16.02		F	#		
Turbidity	NTU	09/22/2015	N001	21.9	-	31.9	7.17		F	#		
Uranium	mg/L	09/22/2015	N001	21.9	-	31.9	0.081		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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 Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	11.9 - 21.9	266		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	11.9 - 21.9	0.1	U	F	#	0.1	
Calcium	mg/L	09/22/2015	N001	11.9 - 21.9	320		F	#	0.024	
Chloride	mg/L	09/22/2015	N001	11.9 - 21.9	58		F	#	10	
Magnesium	mg/L	09/22/2015	N001	11.9 - 21.9	120		F	#	0.03	
Manganese	mg/L	09/22/2015	N001	11.9 - 21.9	0.96		F	#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	11.9 - 21.9	19	N	FJ	#	0.2	
Oxidation Reduction Potential	mV	09/22/2015	N001	11.9 - 21.9	263.5		F	#		
pH	s.u.	09/22/2015	N001	11.9 - 21.9	7.14		F	#		
Potassium	mg/L	09/22/2015	N001	11.9 - 21.9	9.5		F	#	0.052	
Selenium	mg/L	09/22/2015	N001	11.9 - 21.9	0.38		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	11.9 - 21.9	320		F	#	0.047	
Specific Conductance	umhos /cm	09/22/2015	N001	11.9 - 21.9	3285		F	#		
Strontium	mg/L	09/22/2015	N001	11.9 - 21.9	3.6		F	#	0.00026	
Sulfate	mg/L	09/22/2015	N001	11.9 - 21.9	1500		F	#	25	
Temperature	C	09/22/2015	N001	11.9 - 21.9	16.07		F	#		
Turbidity	NTU	09/22/2015	N001	11.9 - 21.9	4.81		F	#		
Uranium	mg/L	09/22/2015	N001	11.9 - 21.9	0.022		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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 Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	28.91 - 38.91	690		F	#		
Ammonia Total as N	mg/L	09/22/2015	N001	28.91 - 38.91	0.1	U	F	#	0.1	
Calcium	mg/L	09/22/2015	N001	28.91 - 38.91	470		F	#	0.12	
Chloride	mg/L	09/22/2015	N001	28.91 - 38.91	1000		F	#	40	
Magnesium	mg/L	09/22/2015	N001	28.91 - 38.91	1900		F	#	0.15	
Manganese	mg/L	09/22/2015	N001	28.91 - 38.91	0.0045	J	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	28.91 - 38.91	640		F	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	28.91 - 38.91	213.5		F	#		
pH	s.u.	09/22/2015	N001	28.91 - 38.91	7.44		F	#		
Potassium	mg/L	09/22/2015	N001	28.91 - 38.91	52		F	#	0.26	
Selenium	mg/L	09/22/2015	N001	28.91 - 38.91	1.7		F	#	0.00032	
Sodium	mg/L	09/22/2015	N001	28.91 - 38.91	2400		F	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	28.91 - 38.91	19323		F	#		
Strontium	mg/L	09/22/2015	N001	28.91 - 38.91	12		F	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	28.91 - 38.91	11000		F	#	100	
Temperature	C	09/22/2015	N001	28.91 - 38.91	16.42		F	#		
Turbidity	NTU	09/22/2015	N001	28.91 - 38.91	1.72		F	#		
Uranium	mg/L	09/22/2015	N001	28.91 - 38.91	0.17		F	#	0.000029	



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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	45 - 142.58	1710		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	45 - 142.58	9.6		F	#	0.5	
Calcium	mg/L	09/23/2015	N001	45 - 142.58	350		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	45 - 142.58	1300		F	#	40	
Magnesium	mg/L	09/23/2015	N001	45 - 142.58	460		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	45 - 142.58	2.5		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	45 - 142.58	0.017		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	45 - 142.58	-41.3		F	#		
pH	s.u.	09/23/2015	N001	45 - 142.58	6.86		F	#		
Potassium	mg/L	09/23/2015	N001	45 - 142.58	32		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	45 - 142.58	0.043		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	45 - 142.58	7000		F	#	2.3	
Specific Conductance	umhos/cm	09/23/2015	N001	45 - 142.58	26526		F	#		
Strontium	mg/L	09/23/2015	N001	45 - 142.58	19		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	45 - 142.58	17000		F	#	100	
Temperature	C	09/23/2015	N001	45 - 142.58	16.74		F	#		
Turbidity	NTU	09/23/2015	N001	45 - 142.58	5.06		F	#		
Uranium	mg/L	09/23/2015	N001	45 - 142.58	0.015		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1007 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	36.8	-	46.3	1746		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	0001	36.8	-	46.3	20		FQ	#	2.5	
Calcium	mg/L	09/24/2015	0001	36.8	-	46.3	450		FQ	#	0.12	
Chloride	mg/L	09/24/2015	0001	36.8	-	46.3	590		FQ	#	40	
Magnesium	mg/L	09/24/2015	0001	36.8	-	46.3	2200		FQ	#	0.15	
Manganese	mg/L	09/24/2015	0001	36.8	-	46.3	1.5		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	36.8	-	46.3	540		FQJ	#	10	
Oxidation Reduction Potential	mV	09/24/2015	N001	36.8	-	46.3	150		FQ	#		
pH	s.u.	09/24/2015	N001	36.8	-	46.3	6.47		FQ	#		
Potassium	mg/L	09/24/2015	0001	36.8	-	46.3	120		FQ	#	0.26	
Selenium	mg/L	09/24/2015	0001	36.8	-	46.3	0.044		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	0001	36.8	-	46.3	2300		FQ	#	0.23	
Specific Conductance	umhos /cm	09/24/2015	N001	36.8	-	46.3	19360		FQ	#		
Strontium	mg/L	09/24/2015	0001	36.8	-	46.3	11		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	0001	36.8	-	46.3	13000		FQ	#	100	
Temperature	C	09/24/2015	N001	36.8	-	46.3	18.2		FQ	#		
Turbidity	NTU	09/24/2015	N001	36.8	-	46.3	82.9		FQ	#		
Uranium	mg/L	09/24/2015	0001	36.8	-	46.3	2.5		FQ	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 1011 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	0001	16.5	- 26	878		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	0001	16.5	- 26	0.1	U	FQ	#	0.1	
Calcium	mg/L	09/23/2015	0001	16.5	- 26	450		FQ	#	0.12	
Chloride	mg/L	09/23/2015	0001	16.5	- 26	340		FQ	#	20	
Magnesium	mg/L	09/23/2015	0001	16.5	- 26	1100		FQ	#	0.15	
Manganese	mg/L	09/23/2015	0001	16.5	- 26	0.0083	J	FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	0001	16.5	- 26	250		FQ	#	5	
Oxidation Reduction Potential	mV	09/23/2015	N001	16.5	- 26	72.8		FQ	#		
pH	s.u.	09/23/2015	N001	16.5	- 26	7.06		FQ	#		
Potassium	mg/L	09/23/2015	0001	16.5	- 26	62		FQ	#	0.26	
Selenium	mg/L	09/23/2015	0001	16.5	- 26	0.69		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	0001	16.5	- 26	1800		FQ	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	16.5	- 26	13120		FQ	#		
Strontium	mg/L	09/23/2015	0001	16.5	- 26	7.6		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	0001	16.5	- 26	8600		FQ	#	50	
Temperature	C	09/23/2015	N001	16.5	- 26	19.64		FQ	#		
Turbidity	NTU	09/23/2015	N001	16.5	- 26	999	>	FQ	#		
Uranium	mg/L	09/23/2015	0001	16.5	- 26	0.41		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	4.3	-	9.3	630		F	#		
Ammonia Total as N	mg/L	09/24/2015	N001	4.3	-	9.3	0.1	U	F	#	0.1	
Calcium	mg/L	09/24/2015	N001	4.3	-	9.3	410		F	#	0.12	
Chloride	mg/L	09/24/2015	N001	4.3	-	9.3	1600		F	#	40	
Magnesium	mg/L	09/24/2015	N001	4.3	-	9.3	1300		F	#	0.15	
Manganese	mg/L	09/24/2015	N001	4.3	-	9.3	0.0015	J	F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	4.3	-	9.3	520		FJ	#	5	
Oxidation Reduction Potential	mV	09/24/2015	N001	4.3	-	9.3	105		F	#		
pH	s.u.	09/24/2015	N001	4.3	-	9.3	7.4		F	#		
Potassium	mg/L	09/24/2015	N001	4.3	-	9.3	39		F	#	0.26	
Selenium	mg/L	09/24/2015	N001	4.3	-	9.3	1.2		F	#	0.00032	
Sodium	mg/L	09/24/2015	N001	4.3	-	9.3	6500		F	#	2.3	
Specific Conductance	umhos /cm	09/24/2015	N001	4.3	-	9.3	19700		F	#		
Strontium	mg/L	09/24/2015	N001	4.3	-	9.3	9.2		F	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	4.3	-	9.3	19000		F	#	100	
Temperature	C	09/24/2015	N001	4.3	-	9.3	17.2		F	#		
Turbidity	NTU	09/24/2015	N001	4.3	-	9.3	5.82		F	#		
Uranium	mg/L	09/24/2015	N001	4.3	-	9.3	0.15		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1057 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	36.66 - 41.66	280		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	36.66 - 41.66	190		F	#	20	
Calcium	mg/L	09/23/2015	N001	36.66 - 41.66	680		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	36.66 - 41.66	290		F	#	20	
Magnesium	mg/L	09/23/2015	N001	36.66 - 41.66	1400		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	36.66 - 41.66	11		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	36.66 - 41.66	1500		F	#	50	
Oxidation Reduction Potential	mV	09/23/2015	N001	36.66 - 41.66	100		F	#		
pH	s.u.	09/23/2015	N001	36.66 - 41.66	6.39		F	#		
Potassium	mg/L	09/23/2015	N001	36.66 - 41.66	150		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	36.66 - 41.66	0.036		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	36.66 - 41.66	1200		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	36.66 - 41.66	15350		F	#		
Strontium	mg/L	09/23/2015	N001	36.66 - 41.66	8.9		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	36.66 - 41.66	5400		F	#	50	
Temperature	C	09/23/2015	N001	36.66 - 41.66	16.6		F	#		
Turbidity	NTU	09/23/2015	N001	36.66 - 41.66	3.62		F	#		
Uranium	mg/L	09/23/2015	N001	36.66 - 41.66	0.035		F	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1058 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	41.7	-	51.2	570		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	N001	41.7	-	51.2	4.3		FQ	#	0.1	
Calcium	mg/L	09/24/2015	N001	41.7	-	51.2	220		FQ	#	0.12	
Chloride	mg/L	09/24/2015	N001	41.7	-	51.2	1600		FQ	#	20	
Magnesium	mg/L	09/24/2015	N001	41.7	-	51.2	110		FQ	#	0.15	
Manganese	mg/L	09/24/2015	N001	41.7	-	51.2	0.17		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	41.7	-	51.2	0.01	U	FQJ	#	0.01	
Oxidation Reduction Potential	mV	09/24/2015	N001	41.7	-	51.2	-90.5		FQ	#		
pH	s.u.	09/24/2015	N001	41.7	-	51.2	7.36		FQ	#		
Potassium	mg/L	09/24/2015	N001	41.7	-	51.2	15		FQ	#	0.26	
Selenium	mg/L	09/24/2015	N001	41.7	-	51.2	0.0012		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	N001	41.7	-	51.2	3200		FQ	#	2.3	
Specific Conductance	umhos/cm	09/24/2015	N001	41.7	-	51.2	13831		FQ	#		
Strontium	mg/L	09/24/2015	N001	41.7	-	51.2	11		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	41.7	-	51.2	5800		FQ	#	50	
Temperature	C	09/24/2015	N001	41.7	-	51.2	17.76		FQ	#		
Turbidity	NTU	09/24/2015	N001	41.7	-	51.2	2.13		FQ	#		
Uranium	mg/L	09/24/2015	N001	41.7	-	51.2	0.0032		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1059 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	39.5 - 49	580		FQ	#		
Ammonia Total as N	mg/L	09/24/2015	N001	39.5 - 49	1.4		FQ	#	0.1	
Calcium	mg/L	09/24/2015	N001	39.5 - 49	310		FQ	#	0.12	
Chloride	mg/L	09/24/2015	N001	39.5 - 49	810		FQ	#	20	
Magnesium	mg/L	09/24/2015	N001	39.5 - 49	330		FQ	#	0.15	
Manganese	mg/L	09/24/2015	N001	39.5 - 49	0.07		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	39.5 - 49	390		FQJ	#	5	
Oxidation Reduction Potential	mV	09/24/2015	N001	39.5 - 49	65.9		FQ	#		
pH	s.u.	09/24/2015	N001	39.5 - 49	7.25		FQ	#		
Potassium	mg/L	09/24/2015	N001	39.5 - 49	22		FQ	#	0.26	
Selenium	mg/L	09/24/2015	N001	39.5 - 49	0.0047		FQ	#	0.00032	
Sodium	mg/L	09/24/2015	N001	39.5 - 49	4200		FQ	#	2.3	
Specific Conductance	umhos/cm	09/24/2015	N001	39.5 - 49	17617		FQ	#		
Strontium	mg/L	09/24/2015	N001	39.5 - 49	16		FQ	#	0.0013	
Sulfate	mg/L	09/24/2015	N001	39.5 - 49	8900		FQ	#	50	
Temperature	C	09/24/2015	N001	39.5 - 49	16.69		FQ	#		
Turbidity	NTU	09/24/2015	N001	39.5 - 49	3.09		FQ	#		
Uranium	mg/L	09/24/2015	N001	39.5 - 49	0.065		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1068 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	6.95	-	8.95	460		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	0001	6.95	-	8.95	17		FQJ	#	2.5	
Calcium	mg/L	09/22/2015	0001	6.95	-	8.95	390		FQ	#	0.12	
Chloride	mg/L	09/22/2015	0001	6.95	-	8.95	250		FQ	#	20	
Magnesium	mg/L	09/22/2015	0001	6.95	-	8.95	660		FQ	#	0.15	
Manganese	mg/L	09/22/2015	0001	6.95	-	8.95	1.1		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	6.95	-	8.95	190		FQ	#	5	
Oxidation Reduction Potential	mV	09/22/2015	N001	6.95	-	8.95	105		FQ	#		
pH	s.u.	09/22/2015	N001	6.95	-	8.95	7.04		FQ	#		
Potassium	mg/L	09/22/2015	0001	6.95	-	8.95	41		FQ	#	0.26	
Selenium	mg/L	09/22/2015	0001	6.95	-	8.95	0.044		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	0001	6.95	-	8.95	950		FQ	#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	6.95	-	8.95	8610		FQ	#		
Strontium	mg/L	09/22/2015	0001	6.95	-	8.95	7		FQ	#	0.0013	
Sulfate	mg/L	09/22/2015	0001	6.95	-	8.95	4600		FQ	#	50	
Temperature	C	09/22/2015	N001	6.95	-	8.95	20.9		FQ	#		
Turbidity	NTU	09/22/2015	N001	6.95	-	8.95	571		FQ	#		
Uranium	mg/L	09/22/2015	0001	6.95	-	8.95	0.65		FQ	#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1070 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	52.5 - 62	776			#		
Ammonia Total as N	mg/L	09/22/2015	N001	52.5 - 62	2.8			#	0.1	
Calcium	mg/L	09/22/2015	N001	52.5 - 62	410			#	0.12	
Chloride	mg/L	09/22/2015	N001	52.5 - 62	1200			#	40	
Magnesium	mg/L	09/22/2015	N001	52.5 - 62	1100			#	0.15	
Manganese	mg/L	09/22/2015	N001	52.5 - 62	0.18			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	52.5 - 62	570			#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	52.5 - 62	87			#		
pH	s.u.	09/22/2015	N001	52.5 - 62	7.17			#		
Potassium	mg/L	09/22/2015	N001	52.5 - 62	57			#	0.26	
Selenium	mg/L	09/22/2015	N001	52.5 - 62	2.5			#	0.00032	
Sodium	mg/L	09/22/2015	N001	52.5 - 62	6400			#	2.3	
Specific Conductance	umhos/cm	09/22/2015	N001	52.5 - 62	26770			#		
Strontium	mg/L	09/22/2015	N001	52.5 - 62	9.7			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	52.5 - 62	16000			#	100	
Temperature	C	09/22/2015	N001	52.5 - 62	18.5			#		
Turbidity	NTU	09/22/2015	N001	52.5 - 62	3.7			#		
Uranium	mg/L	09/22/2015	N001	52.5 - 62	0.079			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1071 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	36.5	-	46	466			#		
Ammonia Total as N	mg/L	09/22/2015	N001	36.5	-	46	43		J	#	2.5	
Calcium	mg/L	09/22/2015	N001	36.5	-	46	430			#	0.12	
Chloride	mg/L	09/22/2015	N001	36.5	-	46	1100			#	40	
Magnesium	mg/L	09/22/2015	N001	36.5	-	46	1200			#	0.15	
Manganese	mg/L	09/22/2015	N001	36.5	-	46	0.68			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	36.5	-	46	470			#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	36.5	-	46	90			#		
pH	s.u.	09/22/2015	N001	36.5	-	46	7.13			#		
Potassium	mg/L	09/22/2015	N001	36.5	-	46	54			#	0.26	
Selenium	mg/L	09/22/2015	N001	36.5	-	46	2.5			#	0.00032	
Sodium	mg/L	09/22/2015	N001	36.5	-	46	4900			#	2.3	
Specific Conductance	umhos/cm	09/22/2015	N001	36.5	-	46	23710			#		
Strontium	mg/L	09/22/2015	N001	36.5	-	46	11			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	36.5	-	46	14000			#	100	
Temperature	C	09/22/2015	N001	36.5	-	46	20			#		
Turbidity	NTU	09/22/2015	N001	36.5	-	46	3.17			#		
Uranium	mg/L	09/22/2015	N001	36.5	-	46	0.14			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1073 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	40.5 - 50	164		FQ	#		
Ammonia Total as N	mg/L	09/22/2015	N001	40.5 - 50	33		FQJ	#	2.5	
Calcium	mg/L	09/22/2015	N001	40.5 - 50	510		FQ	#	0.12	
Chloride	mg/L	09/22/2015	N001	40.5 - 50	1200		FQ	#	40	
Magnesium	mg/L	09/22/2015	N001	40.5 - 50	1900		FQ	#	0.15	
Manganese	mg/L	09/22/2015	N001	40.5 - 50	0.6		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	40.5 - 50	900		FQ	#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	40.5 - 50	85		FQ	#		
pH	s.u.	09/22/2015	N001	40.5 - 50	7.36		FQ	#		
Potassium	mg/L	09/22/2015	N001	40.5 - 50	110		FQ	#	0.26	
Selenium	mg/L	09/22/2015	N001	40.5 - 50	2.3		FQ	#	0.00032	
Sodium	mg/L	09/22/2015	N001	40.5 - 50	3400		FQ	#	2.3	
Specific Conductance	umhos /cm	09/22/2015	N001	40.5 - 50	21800		FQ	#		
Strontium	mg/L	09/22/2015	N001	40.5 - 50	11		FQ	#	0.0013	
Sulfate	mg/L	09/22/2015	N001	40.5 - 50	12000		FQ	#	100	
Temperature	C	09/22/2015	N001	40.5 - 50	16.3		FQ	#		
Turbidity	NTU	09/22/2015	N001	40.5 - 50	9.4		FQ	#		
Uranium	mg/L	09/22/2015	N001	40.5 - 50	0.072		FQ	#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1074 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	27	-	36.5	1202		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	N001	27	-	36.5	6		FQJ	#	2.5	
Calcium	mg/L	09/23/2015	N001	27	-	36.5	570		FQ	#	0.12	
Chloride	mg/L	09/23/2015	N001	27	-	36.5	1200		FQ	#	20	
Magnesium	mg/L	09/23/2015	N001	27	-	36.5	2100		FQ	#	0.15	
Manganese	mg/L	09/23/2015	N001	27	-	36.5	1.5		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	27	-	36.5	970		FQ	#	10	
Oxidation Reduction Potential	mV	09/23/2015	N001	27	-	36.5	74		FQ	#		
pH	s.u.	09/23/2015	N001	27	-	36.5	6.81		FQ	#		
Potassium	mg/L	09/23/2015	N001	27	-	36.5	40		FQ	#	0.26	
Selenium	mg/L	09/23/2015	N001	27	-	36.5	0.45		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	27	-	36.5	2100		FQ	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	27	-	36.5	19897		FQ	#		
Strontium	mg/L	09/23/2015	N001	27	-	36.5	12		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	27	-	36.5	8500		FQ	#	50	
Temperature	C	09/23/2015	N001	27	-	36.5	22.7		FQ	#		
Turbidity	NTU	09/23/2015	N001	27	-	36.5	2.54		FQ	#		
Uranium	mg/L	09/23/2015	N001	27	-	36.5	1.9		FQ	#	0.00029	

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

REPORT DATE: 12/09/2015

Location: 1078 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	35.5 - 45	712			#		
Ammonia Total as N	mg/L	09/22/2015	N001	35.5 - 45	1.3			#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N002	35.5 - 45	1.3		J	#	0.1	
Calcium	mg/L	09/22/2015	N001	35.5 - 45	420			#	0.12	
Calcium	mg/L	09/22/2015	N002	35.5 - 45	400			#	0.12	
Chloride	mg/L	09/22/2015	N001	35.5 - 45	1000			#	40	
Chloride	mg/L	09/22/2015	N002	35.5 - 45	1000			#	40	
Magnesium	mg/L	09/22/2015	N001	35.5 - 45	1000			#	0.15	
Magnesium	mg/L	09/22/2015	N002	35.5 - 45	920			#	0.15	
Manganese	mg/L	09/22/2015	N001	35.5 - 45	0.05			#	0.0012	
Manganese	mg/L	09/22/2015	N002	35.5 - 45	0.047			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	35.5 - 45	400			#	10	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N002	35.5 - 45	430			#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	35.5 - 45	90			#		
pH	s.u.	09/22/2015	N001	35.5 - 45	7.17			#		
Potassium	mg/L	09/22/2015	N001	35.5 - 45	48			#	0.26	
Potassium	mg/L	09/22/2015	N002	35.5 - 45	46			#	0.26	
Selenium	mg/L	09/22/2015	N001	35.5 - 45	2.5			#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 1078 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N002	35.5 - 45	2.4			#	0.00032	
Sodium	mg/L	09/22/2015	N001	35.5 - 45	5300			#	2.3	
Sodium	mg/L	09/22/2015	N002	35.5 - 45	5100			#	2.3	
Specific Conductance	umhos /cm	09/22/2015	N001	35.5 - 45	23065			#		
Strontium	mg/L	09/22/2015	N001	35.5 - 45	9.7			#	0.0013	
Strontium	mg/L	09/22/2015	N002	35.5 - 45	9.7			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	35.5 - 45	14000			#	100	
Sulfate	mg/L	09/22/2015	N002	35.5 - 45	14000			#	100	
Temperature	C	09/22/2015	N001	35.5 - 45	17.7			#		
Turbidity	NTU	09/22/2015	N001	35.5 - 45	5.11			#		
Uranium	mg/L	09/22/2015	N001	35.5 - 45	0.12			#	0.000029	
Uranium	mg/L	09/22/2015	N002	35.5 - 45	0.11			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1079 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	10.5 - 20	340		F	#		
Ammonia Total as N	mg/L	09/23/2015	N001	10.5 - 20	0.1	U	F	#	0.1	
Calcium	mg/L	09/23/2015	N001	10.5 - 20	560		F	#	0.12	
Chloride	mg/L	09/23/2015	N001	10.5 - 20	400		F	#	20	
Magnesium	mg/L	09/23/2015	N001	10.5 - 20	450		F	#	0.15	
Manganese	mg/L	09/23/2015	N001	10.5 - 20	0.07		F	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	10.5 - 20	140		F	#	2	
Oxidation Reduction Potential	mV	09/23/2015	N001	10.5 - 20	110.7		F	#		
pH	s.u.	09/23/2015	N001	10.5 - 20	7		F	#		
Potassium	mg/L	09/23/2015	N001	10.5 - 20	13		F	#	0.26	
Selenium	mg/L	09/23/2015	N001	10.5 - 20	0.28		F	#	0.00032	
Sodium	mg/L	09/23/2015	N001	10.5 - 20	1100		F	#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	10.5 - 20	8207		F	#		
Strontium	mg/L	09/23/2015	N001	10.5 - 20	8.6		F	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	10.5 - 20	4500		F	#	50	
Temperature	C	09/23/2015	N001	10.5 - 20	16.85		F	#		
Turbidity	NTU	09/23/2015	N001	10.5 - 20	8.19		F	#		
Uranium	mg/L	09/23/2015	N001	10.5 - 20	0.049		F	#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	0	-	0	444			#		
Ammonia Total as N	mg/L	09/22/2015	N001	0	-	0	74		J	#	2.5	
Ammonia Total as N	mg/L	09/22/2015	N002	0	-	0	74		J	#	2.5	
Calcium	mg/L	09/22/2015	N001	0	-	0	370			#	0.12	
Calcium	mg/L	09/22/2015	N002	0	-	0	360			#	0.12	
Chloride	mg/L	09/22/2015	N001	0	-	0	210			#	20	
Chloride	mg/L	09/22/2015	N002	0	-	0	210			#	20	
Magnesium	mg/L	09/22/2015	N001	0	-	0	710			#	0.15	
Magnesium	mg/L	09/22/2015	N002	0	-	0	660			#	0.15	
Manganese	mg/L	09/22/2015	N001	0	-	0	0.73			#	0.0012	
Manganese	mg/L	09/22/2015	N002	0	-	0	0.73			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0	-	0	160			#	2.5	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N002	0	-	0	160			#	5	
Oxidation Reduction Potential	mV	09/22/2015	N001	0	-	0	105			#		
pH	s.u.	09/22/2015	N001	0	-	0	6.73			#		
Potassium	mg/L	09/22/2015	N001	0	-	0	69			#	0.26	
Potassium	mg/L	09/22/2015	N002	0	-	0	64			#	0.26	
Selenium	mg/L	09/22/2015	N001	0	-	0	0.04			#	0.00032	



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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample	ID	Depth Range			Result	Qualifiers			Detection Limit	Uncertainty
		Date		(Ft BLS)				Lab	Data	QA		
Selenium	mg/L	09/22/2015	N002	0	-	0	0.04			#	0.00032	
Sodium	mg/L	09/22/2015	N001	0	-	0	840			#	0.23	
Sodium	mg/L	09/22/2015	N002	0	-	0	780			#	0.23	
Specific Conductance	umhos /cm	09/22/2015	N001	0	-	0	8575			#		
Strontium	mg/L	09/22/2015	N001	0	-	0	6.6			#	0.0013	
Strontium	mg/L	09/22/2015	N002	0	-	0	6.8			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	0	-	0	4800			#	50	
Sulfate	mg/L	09/22/2015	N002	0	-	0	4800			#	50	
Temperature	C	09/22/2015	N001	0	-	0	22.2			#		
Turbidity	NTU	09/22/2015	N001	0	-	0	5.79			#		
Uranium	mg/L	09/22/2015	N001	0	-	0	0.32			#	0.000029	
Uranium	mg/L	09/22/2015	N002	0	-	0	0.31			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1091 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	33	-	43	980			#		
Ammonia Total as N	mg/L	09/23/2015	N001	33	-	43	0.3		J	#	0.1	
Calcium	mg/L	09/23/2015	N001	33	-	43	440			#	0.12	
Chloride	mg/L	09/23/2015	N001	33	-	43	1400			#	40	
Magnesium	mg/L	09/23/2015	N001	33	-	43	2200			#	0.15	
Manganese	mg/L	09/23/2015	N001	33	-	43	1.2			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	33	-	43	670			#	10	
Oxidation Reduction Potential	mV	09/23/2015	N001	33	-	43	135			#		
pH	s.u.	09/23/2015	N001	33	-	43	6.8			#		
Potassium	mg/L	09/23/2015	N001	33	-	43	61			#	0.26	
Selenium	mg/L	09/23/2015	N001	33	-	43	0.62			#	0.00032	
Sodium	mg/L	09/23/2015	N001	33	-	43	4100			#	2.3	
Specific Conductance	umhos /cm	09/23/2015	N001	33	-	43	24100			#		
Strontium	mg/L	09/23/2015	N001	33	-	43	13			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	33	-	43	16000			#	100	
Temperature	C	09/23/2015	N001	33	-	43	17.3			#		
Turbidity	NTU	09/23/2015	N001	33	-	43	4.57			#		
Uranium	mg/L	09/23/2015	N001	33	-	43	0.11			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1092 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	0001	33	-	43	610			#		
Ammonia Total as N	mg/L	09/24/2015	0001	33	-	43	35		J	#	2.5	
Calcium	mg/L	09/24/2015	0001	33	-	43	440			#	0.12	
Chloride	mg/L	09/24/2015	0001	33	-	43	1600			#	40	
Magnesium	mg/L	09/24/2015	0001	33	-	43	1700			#	0.15	
Manganese	mg/L	09/24/2015	0001	33	-	43	8.7			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	33	-	43	450		J	#	10	
Oxidation Reduction Potential	mV	09/24/2015	N001	33	-	43	10			#		
pH	s.u.	09/24/2015	N001	33	-	43	6.52			#		
Potassium	mg/L	09/24/2015	0001	33	-	43	60			#	0.26	
Selenium	mg/L	09/24/2015	0001	33	-	43	0.45			#	0.00032	
Sodium	mg/L	09/24/2015	0001	33	-	43	4300			#	2.3	
Specific Conductance	umhos/cm	09/24/2015	N001	33	-	43	23600			#		
Strontium	mg/L	09/24/2015	0001	33	-	43	10			#	0.0013	
Sulfate	mg/L	09/24/2015	0001	33	-	43	15000			#	100	
Temperature	C	09/24/2015	N001	33	-	43	21.5			#		
Turbidity	NTU	09/24/2015	N001	33	-	43	724			#		
Uranium	mg/L	09/24/2015	0001	33	-	43	0.066			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1093R WELL a replacement extraction well for 1093

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	34	-	38	540			#		
Ammonia Total as N	mg/L	09/23/2015	N001	34	-	38	370		J	#	20	
Calcium	mg/L	09/23/2015	N001	34	-	38	840			#	0.12	
Chloride	mg/L	09/23/2015	N001	34	-	38	660			#	20	
Magnesium	mg/L	09/23/2015	N001	34	-	38	1700			#	0.15	
Manganese	mg/L	09/23/2015	N001	34	-	38	23			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	34	-	38	2300			#	50	
Oxidation Reduction Potential	mV	09/23/2015	N001	34	-	38	145			#		
pH	s.u.	09/23/2015	N001	34	-	38	6.45			#		
Potassium	mg/L	09/23/2015	N001	34	-	38	150			#	0.26	
Selenium	mg/L	09/23/2015	N001	34	-	38	0.51			#	0.00032	
Sodium	mg/L	09/23/2015	N001	34	-	38	1700			#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	34	-	38	17150			#		
Strontium	mg/L	09/23/2015	N001	34	-	38	9.9			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	34	-	38	6700			#	50	
Temperature	C	09/23/2015	N001	34	-	38	20.1			#		
Turbidity	NTU	09/23/2015	N001	34	-	38	1.88			#		
Uranium	mg/L	09/23/2015	N001	34	-	38	0.11			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1095 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	39	-	49	390			#		
Ammonia Total as N	mg/L	09/23/2015	N001	39	-	49	400		J	#	20	
Ammonia Total as N	mg/L	09/23/2015	N002	39	-	49	400		J	#	20	
Calcium	mg/L	09/23/2015	N001	39	-	49	830			#	0.12	
Calcium	mg/L	09/23/2015	N002	39	-	49	840			#	0.12	
Chloride	mg/L	09/23/2015	N001	39	-	49	330			#	20	
Chloride	mg/L	09/23/2015	N002	39	-	49	320			#	20	
Magnesium	mg/L	09/23/2015	N001	39	-	49	1300			#	0.15	
Magnesium	mg/L	09/23/2015	N002	39	-	49	1400			#	0.15	
Manganese	mg/L	09/23/2015	N001	39	-	49	33			#	0.0012	
Manganese	mg/L	09/23/2015	N002	39	-	49	33			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	39	-	49	1700			#	50	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N002	39	-	49	1800			#	50	
Oxidation Reduction Potential	mV	09/23/2015	N001	39	-	49	115			#		
pH	s.u.	09/23/2015	N001	39	-	49	6.65			#		
Potassium	mg/L	09/23/2015	N001	39	-	49	130			#	0.26	
Potassium	mg/L	09/23/2015	N002	39	-	49	130			#	0.26	
Selenium	mg/L	09/23/2015	N001	39	-	49	0.096			#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 1095 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/23/2015	N002	39	-	49	0.11			#	0.00032	
Sodium	mg/L	09/23/2015	N001	39	-	49	1100			#	0.23	
Sodium	mg/L	09/23/2015	N002	39	-	49	1100			#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	39	-	49	15170			#		
Strontium	mg/L	09/23/2015	N001	39	-	49	8.6			#	0.0013	
Strontium	mg/L	09/23/2015	N002	39	-	49	9.1			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	39	-	49	5500			#	50	
Sulfate	mg/L	09/23/2015	N002	39	-	49	5700			#	50	
Temperature	C	09/23/2015	N001	39	-	49	16.7			#		
Turbidity	NTU	09/23/2015	N001	39	-	49	1.48			#		
Uranium	mg/L	09/23/2015	N001	39	-	49	0.043			#	0.000029	
Uranium	mg/L	09/23/2015	N002	39	-	49	0.049			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1096 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	57.5 - 66.5	970			#		
Ammonia Total as N	mg/L	09/22/2015	N001	57.5 - 66.5	4.4		J	#	0.1	
Calcium	mg/L	09/22/2015	N001	57.5 - 66.5	400			#	0.12	
Chloride	mg/L	09/22/2015	N001	57.5 - 66.5	1000			#	40	
Magnesium	mg/L	09/22/2015	N001	57.5 - 66.5	960			#	0.15	
Manganese	mg/L	09/22/2015	N001	57.5 - 66.5	0.11			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	57.5 - 66.5	470			#	10	
Oxidation Reduction Potential	mV	09/22/2015	N001	57.5 - 66.5	87			#		
pH	s.u.	09/22/2015	N001	57.5 - 66.5	7.18			#		
Potassium	mg/L	09/22/2015	N001	57.5 - 66.5	54			#	0.26	
Selenium	mg/L	09/22/2015	N001	57.5 - 66.5	2.3			#	0.00032	
Sodium	mg/L	09/22/2015	N001	57.5 - 66.5	5800			#	2.3	
Specific Conductance	umhos/cm	09/22/2015	N001	57.5 - 66.5	21470			#		
Strontium	mg/L	09/22/2015	N001	57.5 - 66.5	9			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	57.5 - 66.5	15000			#	100	
Temperature	C	09/22/2015	N001	57.5 - 66.5	17.5			#		
Turbidity	NTU	09/22/2015	N001	57.5 - 66.5	3.12			#		
Uranium	mg/L	09/22/2015	N001	57.5 - 66.5	0.085			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: MW1 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	-	1380		FQ	#		
Ammonia Total as N	mg/L	09/23/2015	N001	-	0.12		FQJ	#	0.1	
Calcium	mg/L	09/23/2015	N001	-	130		FQ	#	0.12	
Chloride	mg/L	09/23/2015	N001	-	5700		FQ	#	100	
Magnesium	mg/L	09/23/2015	N001	-	56		FQ	#	0.15	
Manganese	mg/L	09/23/2015	N001	-	0.096		FQ	#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	-	3.1		FQ	#	0.1	
Oxidation Reduction Potential	mV	09/23/2015	N001	-	71		FQ	#		
pH	s.u.	09/23/2015	N001	-	7.1		FQ	#		
Potassium	mg/L	09/23/2015	N001	-	21		FQ	#	0.26	
Selenium	mg/L	09/23/2015	N001	-	0.0025		FQ	#	0.00032	
Sodium	mg/L	09/23/2015	N001	-	5200		FQ	#	2.3	
Specific Conductance	umhos /cm	09/23/2015	N001	-	21312		FQ	#		
Strontium	mg/L	09/23/2015	N001	-	12		FQ	#	0.0013	
Sulfate	mg/L	09/23/2015	N001	-	4100		FQ	#	50	
Temperature	C	09/23/2015	N001	-	23.5		FQ	#		
Turbidity	NTU	09/23/2015	N001	-	3.68		FQ	#		
Uranium	mg/L	09/23/2015	N001	-	0.022		FQ	#	0.000029	



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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#Validated according to quality assurance guidelines.

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

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	103			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	59			#	0.024	
Calcium	mg/L	09/22/2015	N001	58			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	0.4	
Chloride	mg/L	09/22/2015	N001	13			#	0.4	
Magnesium	mg/L	09/22/2015	0001	9.4			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.3			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0039	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.042			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	1.4			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.34			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	123.7			#		
pH	s.u.	09/22/2015	N004	8.5			#		
Potassium	mg/L	09/22/2015	0001	2.7	E		#	0.052	
Potassium	mg/L	09/22/2015	N001	2.8			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00056	J		#	0.00032	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N001	0.00044	J		#	0.00032	
Sodium	mg/L	09/22/2015	0001	34			#	0.047	
Sodium	mg/L	09/22/2015	N001	34			#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	552			#		
Strontium	mg/L	09/22/2015	0001	0.75			#	0.00026	
Strontium	mg/L	09/22/2015	N001	0.73			#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120			#	1	
Sulfate	mg/L	09/22/2015	N001	130			#	1	
Temperature	C	09/22/2015	N004	18.04			#		
Turbidity	NTU	09/22/2015	N004	38.4			#		
Uranium	mg/L	09/22/2015	0001	0.0015			#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0016			#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	110			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	57			#	0.024	
Calcium	mg/L	09/22/2015	N001	58			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.4			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.7			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0027	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.05			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.33			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.31			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	98.5			#		
pH	s.u.	09/22/2015	N004	8.46			#		
Potassium	mg/L	09/22/2015	0001	2.8			#	0.052	
Potassium	mg/L	09/22/2015	N001	3			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00032	U		#	0.00032	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N001	0.00032	U	#	0.00032	
Sodium	mg/L	09/22/2015	0001	35		#	0.047	
Sodium	mg/L	09/22/2015	N001	35		#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	534		#		
Strontium	mg/L	09/22/2015	0001	0.78		#	0.00026	
Strontium	mg/L	09/22/2015	N001	0.78		#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120		#	5	
Sulfate	mg/L	09/22/2015	N001	120		#	5	
Temperature	C	09/22/2015	N004	17.96		#		
Turbidity	NTU	09/22/2015	N004	48.3		#		
Uranium	mg/L	09/22/2015	0001	0.0018		#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0017		#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	101			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	58			#	0.024	
Calcium	mg/L	09/22/2015	0003	58			#	0.024	
Calcium	mg/L	09/22/2015	N001	58			#	0.024	
Calcium	mg/L	09/22/2015	N003	60			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.4			#	0.03	
Magnesium	mg/L	09/22/2015	0003	9.1			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.5			#	0.03	
Magnesium	mg/L	09/22/2015	N003	9.7			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0035	J		#	0.00024	
Manganese	mg/L	09/22/2015	0003	0.0036	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.053			#	0.00024	
Manganese	mg/L	09/22/2015	N003	0.056			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.32			#	0.01	



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

REPORT DATE: 12/09/2015

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.32			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	132.1			#		
pH	s.u.	09/22/2015	N004	8.58			#		
Potassium	mg/L	09/22/2015	0001	2.7			#	0.052	
Potassium	mg/L	09/22/2015	0003	2.6			#	0.052	
Potassium	mg/L	09/22/2015	N001	3			#	0.052	
Potassium	mg/L	09/22/2015	N003	3			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00032	U		#	0.00032	
Selenium	mg/L	09/22/2015	0003	0.001			#	0.00032	
Selenium	mg/L	09/22/2015	N001	0.00037	J		#	0.00032	
Selenium	mg/L	09/22/2015	N003	0.00099	J		#	0.00032	
Sodium	mg/L	09/22/2015	0001	34			#	0.047	
Sodium	mg/L	09/22/2015	0003	35			#	0.047	
Sodium	mg/L	09/22/2015	N001	34			#	0.047	
Sodium	mg/L	09/22/2015	N003	35			#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	512			#		
Strontium	mg/L	09/22/2015	0001	0.76			#	0.00026	
Strontium	mg/L	09/22/2015	0003	0.75			#	0.00026	

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

REPORT DATE: 12/09/2015

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Strontium	mg/L	09/22/2015	N001	0.77			#	0.00026	
Strontium	mg/L	09/22/2015	N003	0.76			#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120			#	5	
Sulfate	mg/L	09/22/2015	N001	120			#	5	
Temperature	C	09/22/2015	N004	18.17			#		
Turbidity	NTU	09/22/2015	N004	56.6			#		
Uranium	mg/L	09/22/2015	0001	0.0016			#	0.000029	
Uranium	mg/L	09/22/2015	0003	0.0016			#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0017			#	0.000029	
Uranium	mg/L	09/22/2015	N003	0.0018			#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	107			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.17		J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	56			#	0.024	
Calcium	mg/L	09/22/2015	0003	59			#	0.024	
Calcium	mg/L	09/22/2015	N001	60			#	0.024	
Calcium	mg/L	09/22/2015	N003	59			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.3			#	0.03	
Magnesium	mg/L	09/22/2015	0003	9.4			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.8			#	0.03	
Magnesium	mg/L	09/22/2015	N003	9.7			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0033	J		#	0.00024	
Manganese	mg/L	09/22/2015	0003	0.0028	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.04			#	0.00024	
Manganese	mg/L	09/22/2015	N003	0.043			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.29			#	0.01	

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

REPORT DATE: 12/09/2015

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		
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.29			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	110			#		
pH	s.u.	09/22/2015	N004	8.62			#		
Potassium	mg/L	09/22/2015	0001	2.7			#	0.052	
Potassium	mg/L	09/22/2015	0003	2.6			#	0.052	
Potassium	mg/L	09/22/2015	N001	2.9			#	0.052	
Potassium	mg/L	09/22/2015	N003	2.9			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00032	U		#	0.00032	
Selenium	mg/L	09/22/2015	0003	0.00098	J		#	0.00032	
Selenium	mg/L	09/22/2015	N001	0.0012			#	0.00032	
Selenium	mg/L	09/22/2015	N003	0.00063	J		#	0.00032	
Sodium	mg/L	09/22/2015	0001	35			#	0.047	
Sodium	mg/L	09/22/2015	0003	35			#	0.047	
Sodium	mg/L	09/22/2015	N001	34			#	0.047	
Sodium	mg/L	09/22/2015	N003	35			#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	515			#		
Strontium	mg/L	09/22/2015	0001	0.76			#	0.00026	
Strontium	mg/L	09/22/2015	0003	0.74			#	0.00026	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Strontium	mg/L	09/22/2015	N001	0.69			#	0.00026	
Strontium	mg/L	09/22/2015	N003	0.76			#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120			#	5	
Sulfate	mg/L	09/22/2015	N001	120			#	5	
Temperature	C	09/22/2015	N004	18.3			#		
Uranium	mg/L	09/22/2015	0001	0.0018			#	0.000029	
Uranium	mg/L	09/22/2015	0003	0.0018			#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.002			#	0.000029	
Uranium	mg/L	09/22/2015	N003	0.0019			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	104			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	58			#	0.024	
Calcium	mg/L	09/22/2015	N001	60			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.1			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.6			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0036	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.045			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.32			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.32			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	113.5			#		
pH	s.u.	09/22/2015	N004	8.41			#		
Potassium	mg/L	09/22/2015	0001	2.6			#	0.052	
Potassium	mg/L	09/22/2015	N001	2.8			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00032	U		#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N001	0.00032	U	#	0.00032	
Sodium	mg/L	09/22/2015	0001	33		#	0.047	
Sodium	mg/L	09/22/2015	N001	33		#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	513		#		
Strontium	mg/L	09/22/2015	0001	0.68		#	0.00026	
Strontium	mg/L	09/22/2015	N001	0.69		#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120		#	5	
Sulfate	mg/L	09/22/2015	N001	120		#	5	
Temperature	C	09/22/2015	N004	17.67		#		
Uranium	mg/L	09/22/2015	0001	0.0017		#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0016		#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	98			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	58			#	0.024	
Calcium	mg/L	09/22/2015	N001	60			#	0.024	
Chloride	mg/L	09/22/2015	0001	12			#	2	
Chloride	mg/L	09/22/2015	N001	12			#	2	
Magnesium	mg/L	09/22/2015	0001	9.2			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.6			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0077			#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.055			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.38			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.38			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	126.5			#		
pH	s.u.	09/22/2015	N004	8.18			#		
Potassium	mg/L	09/22/2015	0001	2.6			#	0.052	
Potassium	mg/L	09/22/2015	N001	2.9			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00032	U		#	0.00032	



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

REPORT DATE: 12/09/2015

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	09/22/2015	N001	0.00078	J		#	0.00032	
Sodium	mg/L	09/22/2015	0001	33			#	0.047	
Sodium	mg/L	09/22/2015	N001	33			#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	672			#		
Strontium	mg/L	09/22/2015	0001	0.68			#	0.00026	
Strontium	mg/L	09/22/2015	N001	0.7			#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120			#	5	
Sulfate	mg/L	09/22/2015	N001	110			#	5	
Temperature	C	09/22/2015	N004	17.35			#		
Turbidity	NTU	09/22/2015	N004	50.4			#		
Uranium	mg/L	09/22/2015	0001	0.0016			#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0018			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N004	160			#		
Ammonia Total as N	mg/L	09/24/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/24/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/24/2015	0001	69			#	0.024	
Calcium	mg/L	09/24/2015	0003	68			#	0.024	
Calcium	mg/L	09/24/2015	N001	360			#	0.024	
Calcium	mg/L	09/24/2015	N003	330			#	0.12	
Chloride	mg/L	09/24/2015	0001	14			#	2	
Chloride	mg/L	09/24/2015	N001	14			#	1	
Magnesium	mg/L	09/24/2015	0001	7.2			#	0.03	
Magnesium	mg/L	09/24/2015	0003	7.1			#	0.03	
Magnesium	mg/L	09/24/2015	N001	130			#	0.03	
Magnesium	mg/L	09/24/2015	N003	110			#	0.15	
Manganese	mg/L	09/24/2015	0001	0.0046	J		#	0.00024	
Manganese	mg/L	09/24/2015	0003	0.0052			#	0.00024	
Manganese	mg/L	09/24/2015	N001	9			#	0.00024	
Manganese	mg/L	09/24/2015	N003	8.6			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	0001	0.68			#	0.01	

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

REPORT DATE: 12/09/2015

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	0.63		#	0.02	
Oxidation Reduction Potential	mV	09/24/2015	N004	62		#		
pH	s.u.	09/24/2015	N004	7.98		#		
Potassium	mg/L	09/24/2015	0001	4.8		#	0.052	
Potassium	mg/L	09/24/2015	0003	4.6		#	0.052	
Potassium	mg/L	09/24/2015	N001	82		#	0.052	
Potassium	mg/L	09/24/2015	N003	63		#	0.26	
Selenium	mg/L	09/24/2015	0001	0.0013		#	0.00032	
Selenium	mg/L	09/24/2015	0003	0.0014		#	0.00032	
Selenium	mg/L	09/24/2015	N001	0.023		#	0.0032	
Selenium	mg/L	09/24/2015	N003	0.031		#	0.00032	
Sodium	mg/L	09/24/2015	0001	110		#	0.047	
Sodium	mg/L	09/24/2015	0003	100		#	0.047	
Sodium	mg/L	09/24/2015	N001	120		#	0.047	
Sodium	mg/L	09/24/2015	N003	120		#	0.23	
Specific Conductance	umhos/cm	09/24/2015	N004	959		#		
Strontium	mg/L	09/24/2015	0001	0.79		#	0.00026	
Strontium	mg/L	09/24/2015	0003	0.84		#	0.00026	

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

REPORT DATE: 12/09/2015

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Strontium	mg/L	09/24/2015	N001	3.2			#	0.00026	
Strontium	mg/L	09/24/2015	N003	3.5			#	0.0013	
Sulfate	mg/L	09/24/2015	0001	280			#	5	
Sulfate	mg/L	09/24/2015	N001	290			#	2.5	
Temperature	C	09/24/2015	N004	23.2			#		
Turbidity	NTU	09/24/2015	N004	1000	>		#		
Uranium	mg/L	09/24/2015	0001	0.004			#	0.000029	
Uranium	mg/L	09/24/2015	0003	0.0041			#	0.000029	
Uranium	mg/L	09/24/2015	N001	0.034			#	0.00029	
Uranium	mg/L	09/24/2015	N003	0.026			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1118 TREATMENT SYSTEM Sump - seep vault

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	0	-	0	860			#		
Ammonia Total as N	mg/L	09/23/2015	N001	0	-	0	0.15		J	#	0.1	
Calcium	mg/L	09/23/2015	N001	0	-	0	420			#	0.12	
Chloride	mg/L	09/23/2015	N001	0	-	0	280			#	20	
Magnesium	mg/L	09/23/2015	N001	0	-	0	570			#	0.15	
Manganese	mg/L	09/23/2015	N001	0	-	0	0.033			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	0	-	0	69			#	1	
Oxidation Reduction Potential	mV	09/23/2015	N001	0	-	0	110			#		
pH	s.u.	09/23/2015	N001	0	-	0	7.43			#		
Potassium	mg/L	09/23/2015	N001	0	-	0	29			#	0.26	
Selenium	mg/L	09/23/2015	N001	0	-	0	0.37			#	0.00032	
Sodium	mg/L	09/23/2015	N001	0	-	0	1500			#	0.23	
Specific Conductance	umhos /cm	09/23/2015	N001	0	-	0	10280			#		
Strontium	mg/L	09/23/2015	N001	0	-	0	9.7			#	0.0013	
Sulfate	mg/L	09/23/2015	N001	0	-	0	6100			#	50	
Temperature	C	09/23/2015	N001	0	-	0	19.5			#		
Turbidity	NTU	09/23/2015	N001	0	-	0	3.12			#		
Uranium	mg/L	09/23/2015	N001	0	-	0	0.45			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	100			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	58			#	0.024	
Calcium	mg/L	09/22/2015	0003	58			#	0.024	
Calcium	mg/L	09/22/2015	N001	60			#	0.024	
Calcium	mg/L	09/22/2015	N003	59			#	0.024	
Chloride	mg/L	09/22/2015	0001	13			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.2			#	0.03	
Magnesium	mg/L	09/22/2015	0003	9.1			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.8			#	0.03	
Magnesium	mg/L	09/22/2015	N003	9.6			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0021	J		#	0.00024	
Manganese	mg/L	09/22/2015	0003	0.0023	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.042			#	0.00024	
Manganese	mg/L	09/22/2015	N003	0.044			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.37		J	#	0.01	

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

REPORT DATE: 12/09/2015

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.36		J	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	124.3			#		
pH	s.u.	09/22/2015	N004	8.55			#		
Potassium	mg/L	09/22/2015	0001	2.6			#	0.052	
Potassium	mg/L	09/22/2015	0003	2.5			#	0.052	
Potassium	mg/L	09/22/2015	N001	3			#	0.052	
Potassium	mg/L	09/22/2015	N003	2.9			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00072	J		#	0.00032	
Selenium	mg/L	09/22/2015	0003	0.00074	J		#	0.00032	
Selenium	mg/L	09/22/2015	N001	0.00059	J		#	0.00032	
Selenium	mg/L	09/22/2015	N003	0.002			#	0.00032	
Sodium	mg/L	09/22/2015	0001	33			#	0.047	
Sodium	mg/L	09/22/2015	0003	33			#	0.047	
Sodium	mg/L	09/22/2015	N001	34			#	0.047	
Sodium	mg/L	09/22/2015	N003	34			#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	513			#		
Strontium	mg/L	09/22/2015	0001	0.65			#	0.00026	
Strontium	mg/L	09/22/2015	0003	0.74			#	0.00026	

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

REPORT DATE: 12/09/2015

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Strontium	mg/L	09/22/2015	N001	0.68			#	0.00026	
Strontium	mg/L	09/22/2015	N003	0.78			#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120			#	5	
Sulfate	mg/L	09/22/2015	N001	120			#	5	
Temperature	C	09/22/2015	N004	18.09			#		
Turbidity	NTU	09/22/2015	N004	43.3			#		
Uranium	mg/L	09/22/2015	0001	0.0015			#	0.000029	
Uranium	mg/L	09/22/2015	0003	0.0015			#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0016			#	0.000029	
Uranium	mg/L	09/22/2015	N003	0.0017			#	0.000029	



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

REPORT DATE: 12/09/2015

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N004	103			#		
Ammonia Total as N	mg/L	09/22/2015	0001	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	0001	58			#	0.024	
Calcium	mg/L	09/22/2015	N001	60			#	0.024	
Chloride	mg/L	09/22/2015	0001	16			#	2	
Chloride	mg/L	09/22/2015	N001	13			#	2	
Magnesium	mg/L	09/22/2015	0001	9.2			#	0.03	
Magnesium	mg/L	09/22/2015	N001	9.8			#	0.03	
Manganese	mg/L	09/22/2015	0001	0.0028	J		#	0.00024	
Manganese	mg/L	09/22/2015	N001	0.047			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	0001	0.37		J	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	0.36		J	#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N004	113.4			#		
pH	s.u.	09/22/2015	N004	8.55			#		
Potassium	mg/L	09/22/2015	0001	2.7			#	0.052	
Potassium	mg/L	09/22/2015	N001	3.1			#	0.052	
Selenium	mg/L	09/22/2015	0001	0.00084	J		#	0.00032	

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

REPORT DATE: 12/09/2015

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers		Detection Limit	Uncertainty
		Date	ID		Lab	Data QA		
Selenium	mg/L	09/22/2015	N001	0.00039	J	#	0.00032	
Sodium	mg/L	09/22/2015	0001	34		#	0.047	
Sodium	mg/L	09/22/2015	N001	34		#	0.047	
Specific Conductance	umhos/cm	09/22/2015	N004	514		#		
Strontium	mg/L	09/22/2015	0001	0.66		#	0.00026	
Strontium	mg/L	09/22/2015	N001	0.69		#	0.00026	
Sulfate	mg/L	09/22/2015	0001	120		#	2	
Sulfate	mg/L	09/22/2015	N001	110		#	5	
Temperature	C	09/22/2015	N004	18.11		#		
Turbidity	NTU	09/22/2015	N004	47.9		#		
Uranium	mg/L	09/22/2015	0001	0.0016		#	0.000029	
Uranium	mg/L	09/22/2015	N001	0.0016		#	0.000029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	54			#		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	87			#		
Ammonia Total as N	mg/L	09/23/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/23/2015	N001	110			#	0.024	
Chloride	mg/L	09/23/2015	N001	60			#	10	
Magnesium	mg/L	09/23/2015	N001	14			#	0.03	
Manganese	mg/L	09/23/2015	N001	0.05			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	0.24			#	0.01	
Oxidation Reduction Potential	mV	09/22/2015	N001	157.2			#		
Oxidation Reduction Potential	mV	09/23/2015	N001	195			#		
pH	s.u.	09/22/2015	N001	8.25			#		
pH	s.u.	09/23/2015	N001	6.98			#		
Potassium	mg/L	09/23/2015	N001	9.5			#	0.052	
Selenium	mg/L	09/23/2015	N001	0.00032	U		#	0.00032	
Sodium	mg/L	09/23/2015	N001	810			#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	4069			#		
Specific Conductance	umhos/cm	09/23/2015	N001	4050			#		
Strontium	mg/L	09/23/2015	N001	11			#	0.00026	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sulfate	mg/L	09/23/2015	N001	2000			#	25	
Temperature	C	09/22/2015	N001	23.91			#		
Temperature	C	09/23/2015	N001	20.7			#		
Turbidity	NTU	09/22/2015	N001	29.1			#		
Turbidity	NTU	09/23/2015	N001	43.6			#		
Uranium	mg/L	09/23/2015	N001	0.0002			#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	560			#		
Ammonia Total as N	mg/L	09/24/2015	N001	0.17			#	0.1	
Calcium	mg/L	09/24/2015	N001	380			#	0.12	
Chloride	mg/L	09/24/2015	N001	1800			#	80	
Magnesium	mg/L	09/24/2015	N001	1400			#	0.15	
Manganese	mg/L	09/24/2015	N001	0.0065	J		#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	710			#	10	
Oxidation Reduction Potential	mV	09/24/2015	N001	230			#		
pH	s.u.	09/24/2015	N001	8.39			#		
Potassium	mg/L	09/24/2015	N001	63			#	0.26	
Selenium	mg/L	09/24/2015	N001	1.9			#	0.00032	
Sodium	mg/L	09/24/2015	N001	8500			#	2.3	
Specific Conductance	umhos/cm	09/24/2015	N001	35910			#		
Strontium	mg/L	09/24/2015	N001	8			#	0.0013	
Sulfate	mg/L	09/24/2015	N001	24000			#	200	
Temperature	C	09/24/2015	N001	16.4			#		
Turbidity	NTU	09/24/2015	N001	9.05			#		
Uranium	mg/L	09/24/2015	N001	0.17			#	0.000029	

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

REPORT DATE: 12/09/2015

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/24/2015	N001	888			#		
Ammonia Total as N	mg/L	09/24/2015	N001	15		J	#	2.5	
Calcium	mg/L	09/24/2015	N001	550			#	0.49	
Chloride	mg/L	09/24/2015	N001	4300			#	200	
Magnesium	mg/L	09/24/2015	N001	9400			#	0.6	
Manganese	mg/L	09/24/2015	N001	0.45			#	0.0049	
Nitrate + Nitrite as Nitrogen	mg/L	09/24/2015	N001	2800		J	#	50	
Oxidation Reduction Potential	mV	09/24/2015	N001	140			#		
pH	s.u.	09/24/2015	N001	8.27			#		
Potassium	mg/L	09/24/2015	N001	720			#	1	
Selenium	mg/L	09/24/2015	N001	4.9			#	0.00032	
Sodium	mg/L	09/24/2015	N001	19000			#	9.3	
Specific Conductance	umhos/cm	09/24/2015	N001	63770			#		
Strontium	mg/L	09/24/2015	N001	17			#	0.0052	
Sulfate	mg/L	09/24/2015	N001	68000			#	500	
Temperature	C	09/24/2015	N001	21			#		
Turbidity	NTU	09/24/2015	N001	3.02			#		
Uranium	mg/L	09/24/2015	N001	5.7			#	0.00029	



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

REPORT DATE: 12/09/2015

Location: 1219 SURFACE LOCATION

Parameter	Units	Sample		Result	Lab	Qualifiers		Detection Limit	Uncertainty
		Date	ID			Data	QA		
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/22/2015	N001	240			#		
Ammonia Total as N	mg/L	09/22/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/22/2015	N001	580			#	0.12	
Chloride	mg/L	09/22/2015	N001	21			#	5	
Magnesium	mg/L	09/22/2015	N001	150			#	0.15	
Manganese	mg/L	09/22/2015	N001	0.029			#	0.0012	
Nitrate + Nitrite as Nitrogen	mg/L	09/22/2015	N001	1.8			#	0.1	
Oxidation Reduction Potential	mV	09/22/2015	N001	162.1			#		
pH	s.u.	09/22/2015	N001	7.87			#		
Potassium	mg/L	09/22/2015	N001	11			#	0.26	
Selenium	mg/L	09/22/2015	N001	0.017			#	0.00032	
Sodium	mg/L	09/22/2015	N001	140			#	0.23	
Specific Conductance	umhos/cm	09/22/2015	N001	3335			#		
Strontium	mg/L	09/22/2015	N001	6.8			#	0.0013	
Sulfate	mg/L	09/22/2015	N001	2100			#	12	
Temperature	C	09/22/2015	N001	19.02			#		
Turbidity	NTU	09/22/2015	N001	4.78			#		
Uranium	mg/L	09/22/2015	N001	0.035			#	0.000029	

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

REPORT DATE: 12/09/2015

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	09/23/2015	N001	198			#		
Ammonia Total as N	mg/L	09/23/2015	N001	0.1	U	J	#	0.1	
Calcium	mg/L	09/23/2015	N001	380			#	0.024	
Chloride	mg/L	09/23/2015	N001	34			#	5	
Magnesium	mg/L	09/23/2015	N001	120			#	0.03	
Manganese	mg/L	09/23/2015	N001	0.15			#	0.00024	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2015	N001	0.032			#	0.01	
Oxidation Reduction Potential	mV	09/23/2015	N001	136.7			#		
pH	s.u.	09/23/2015	N001	7.67			#		
Potassium	mg/L	09/23/2015	N001	5.4			#	0.052	
Selenium	mg/L	09/23/2015	N001	0.016	E		#	0.00032	
Sodium	mg/L	09/23/2015	N001	120			#	0.047	
Specific Conductance	umhos/cm	09/23/2015	N001	2551			#		
Strontium	mg/L	09/23/2015	N001	5			#	0.00026	
Sulfate	mg/L	09/23/2015	N001	1500			#	12	
Temperature	C	09/23/2015	N001	13.82			#		
Turbidity	NTU	09/23/2015	N001	41			#		
Uranium	mg/L	09/23/2015	N001	0.03			#	0.000029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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## **Static Water Level Data Floodplain Locations**

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 12/09/2015**

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	09/22/2015	14:55:07	6.74	4886.61	
0610		4895.7	09/22/2015	15:55:19	10.22	4885.48	
0611		4895.62	09/22/2015	16:15:12	10.02	4885.6	
0612		4893.35	09/23/2015	08:05:54	7.77	4885.58	
0614		4892.79	09/22/2015	17:10:30	7.92	4884.87	
0615		4892.23	09/23/2015	10:35:59	7.7	4884.53	
0617		4891.9	09/22/2015	17:19:00	7.84	4884.06	
0618		4891.51	09/23/2015	15:10:47	7.33	4884.18	
0619		4892.19	09/24/2015	07:40:17	8.19	4884	
0622		4890.06	09/24/2015	13:35:30	4.95	4885.11	
0623		4891.19	09/23/2015	16:40:29	7.14	4884.05	
0625		4891.23	09/24/2015	08:05:46	7	4884.23	
0626		4891.4	09/24/2015	13:15:47	6.57	4884.83	
0628		4889.87	09/24/2015	12:50:32	5.51	4884.36	
0630		4887.62	09/24/2015	12:30:12	2.6	4885.02	
0734		4886.55	09/23/2015	12:05:00			D
0735		4895.85	09/22/2015	10:10:07	6.78	4889.07	
0736		4887.99	09/24/2015	10:35:36	6.41	4881.58	
0766		4892.55	09/24/2015	14:50:04	10.23	4882.32	
0768		4892.33	09/24/2015	08:40:27	7.97	4884.36	
0773		4894.87	09/22/2015	16:40:25	9.22	4885.65	
0775		4892.2	09/23/2015	17:10:35	8.85	4883.35	
0779		4893.86	09/23/2015	14:20:29	10.75	4883.11	
0782R		4884.75	09/22/2015	12:20:04	7.69	4877.06	
0783R		4884.09	09/22/2015	12:40:39	7.83	4876.26	
0792		4891.52	09/23/2015	15:40:43	7.34	4884.18	
0793		4891.05	09/23/2015	09:50:59	6.97	4884.08	
0797		4908.04	09/24/2015	11:50:55	9.36	4898.68	
0798		4891.55	09/23/2015	16:05:11	7.93	4883.62	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 12/09/2015**

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	09/24/2015	13:00:39	9.1	4898.41	
0853		4891.41	09/23/2015	09:00:06	7.57	4883.84	
0854		4890.09	09/24/2015	14:10:38	7.64	4882.45	
0855		4888.18	09/24/2015	09:20:50	6.1	4882.08	
0856		4887.57	09/23/2015	13:15:42	6.78	4880.79	
0857		4894.02	09/23/2015	14:45:53	10.45	4883.57	
0862		4893.83	09/22/2015	14:54:00	88.18	4805.65	
0863		4893	09/22/2015	14:56:00	77.28	4815.72	
1000		4892.17	09/22/2015	17:18:00	7.51	4884.66	
1001		4892.44	09/22/2015	14:59:00	12.95	4879.49	
1008		4890.8	09/24/2015	14:25:47	8.19	4882.61	
1009		4892.1	09/23/2015	09:20:46	8.06	4884.04	
1062		4892.51	09/22/2015	14:52:00	8.08	4884.43	
1105	O	4892.4	09/23/2015	10:15:49	7.78	4884.62	
1111		4889.85	09/23/2015	11:25:49	5.45	4884.4	
1112		4890.01	09/23/2015	11:40:50	5.71	4884.3	
1113		4892	09/22/2015	15:30:39	5.9	4886.1	
1114		4892.86	09/22/2015	14:25:58	5.77	4887.09	
1115		4895.59	09/22/2015	13:45:31	7.71	4887.88	
1117		4896.7	09/22/2015	11:15:45	8.71	4887.99	
1128		4897.63	09/22/2015	10:40:46	9.65	4887.98	
1130		4895.36	09/22/2015	12:00:46	7.06	4888.3	
1132		4894.5	09/22/2015	12:30:29	6.63	4887.87	
1134		4895.88	09/22/2015	13:15:33	8.04	4887.84	
1135		4890.71	09/24/2015	11:05:59	8.4	4882.31	
1136		4892.47	09/23/2015	13:50:24	9.18	4883.29	
1137		4891.3	09/24/2015	13:30:42	8.39	4882.91	
1138		4891.48	09/24/2015	13:55:50	8.82	4882.66	
1139		4890.44	09/24/2015	14:20:19	7.89	4882.55	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**  
**REPORT DATE: 12/09/2015**

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	09/23/2015	11:00:53	6.9	4884.63	
1141		4892.48	09/23/2015	12:05:32	7.89	4884.59	
1142		4894.34	09/23/2015	08:35:51	9.71	4884.63	
1143		4888.07	09/24/2015	09:55:34	6.69	4881.38	

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

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



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

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)  
REPORT DATE: 12/09/2015

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0600		4955.87	09/23/2015	13:45:54	33.1	4922.77	
0602		4956.89	09/24/2015	11:35:33	22.3	4934.59	
0603		4978.62	09/23/2015	17:15:48	31.82	4946.8	
0604		4995.87	09/22/2015	16:00:39	56.55	4939.32	
0725		4908.58	09/24/2015	12:40:48	14.45	4894.13	
0726		4939.95	09/22/2015	12:55:19			B
0727		4940.65	09/22/2015	12:25:10	7.27	4933.38	
0728		4964.46	09/23/2015	17:35:58	24.45	4940.01	
0730		4977.75	09/23/2015	16:45:58	36.11	4941.64	
0731		4972.15	09/24/2015	08:50:48	25.1	4947.05	
0800		4995.76	09/24/2015	15:23:00			D
0801		4995.29	09/24/2015	15:27:00			D
0802		4996.01	09/24/2015	15:28:00			D
0803		4994.4	09/24/2015	13:21:00			D
0812		5004.98	09/22/2015	07:30:11	61.4	4943.58	
0813		4984.37	09/22/2015	09:20:08	43.8	4940.57	
0814		4968.12	09/22/2015	10:45:19	32.57	4935.55	
0815		4953.67	09/22/2015	11:40:09	26.38	4927.29	
0816		4937.92	09/24/2015	12:35:28	25.01	4912.91	
0817		4957.34	09/24/2015	11:20:32	19.05	4938.29	
0819		4955.76	09/24/2015	11:05:10	20.03	4935.73	
0820		4954.95	09/23/2015	13:24:00			D
0821		4955.46	09/23/2015	13:25:00			D
0822		4954.42	09/23/2015	13:15:00	133.24	4821.18	
0823		4957.65	09/23/2015	14:03:00			D
0824		4958.21	09/23/2015	15:15:46	193.45	4764.76	
0825		4958.68	09/23/2015	14:21:00			D
0826		4950.73	09/24/2015	12:00:33	16.85	4933.88	
0827		4946.92	09/23/2015	11:45:08	26.17	4920.75	

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**  
**REPORT DATE: 12/09/2015**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0828		4957.43	09/24/2015	11:15:26	18.91	4938.52	
0829		4941.94	09/22/2015	14:44:00			D
0830		4960.77	09/23/2015	16:45:21	16	4944.77	
0832		4964.65	09/22/2015	13:05:51	28.99	4935.66	
0833		4940.52	09/22/2015	11:20:52	27.44	4913.08	
0835		4930.48	09/22/2015	10:30:22	19	4911.48	
0836		4901.74	09/22/2015	15:20:35	32.81	4868.93	
0837		4889.54	09/22/2015	16:20:10	23.92	4865.62	
0838		4937.7	09/22/2015	14:25:08	28.71	4908.99	
0841		4984.05	09/22/2015	08:58:00			B
0843		4883.56	09/22/2015	17:00:01	15.33	4868.23	
0844		4948.46	09/22/2015	13:50:48	32.11	4916.35	
0848		4949.91	09/23/2015	10:45:14	44.37	4905.54	
1002		4957.63	09/23/2015	14:00:00			D
1003		4957.84	09/23/2015	13:59:00			D
1004		4957.61	09/23/2015	14:01:00			D
1007		4962.01	09/24/2015	17:15:29	43.9	4918.11	
1011		4945.96	09/23/2015	11:45:52	27.3	4918.66	
1048		4921.35	09/24/2015	10:31:00			D
1049		4923.89	09/24/2015	10:20:56	7.13	4916.76	
1057		4984.83	09/23/2015	10:45:16	39.7	4945.13	
1058		4973.58	09/24/2015	09:25:37	28.2	4945.38	
1059		4970.52	09/24/2015	10:15:42	23.47	4947.05	
1060		4970.62	09/22/2015	12:52:00			D
1068		4927.97	09/22/2015	14:40:50	7.53	4920.44	
1073		4991.43	09/22/2015	10:00:20	50.08	4941.35	
1074		4959.52	09/23/2015	16:15:30	33.72	4925.8	
1079		4925.22	09/23/2015	09:50:17	20.2	4905.02	
1120		4890.98	09/22/2015	17:26:00			D

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)  
REPORT DATE: 12/09/2015

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1122		4893.62	09/22/2015	17:28:00			D
DM7		4974.44	09/24/2015	06:04:00			D
MW1		4955.64	09/23/2015	15:50:38	53.2	4902.44	

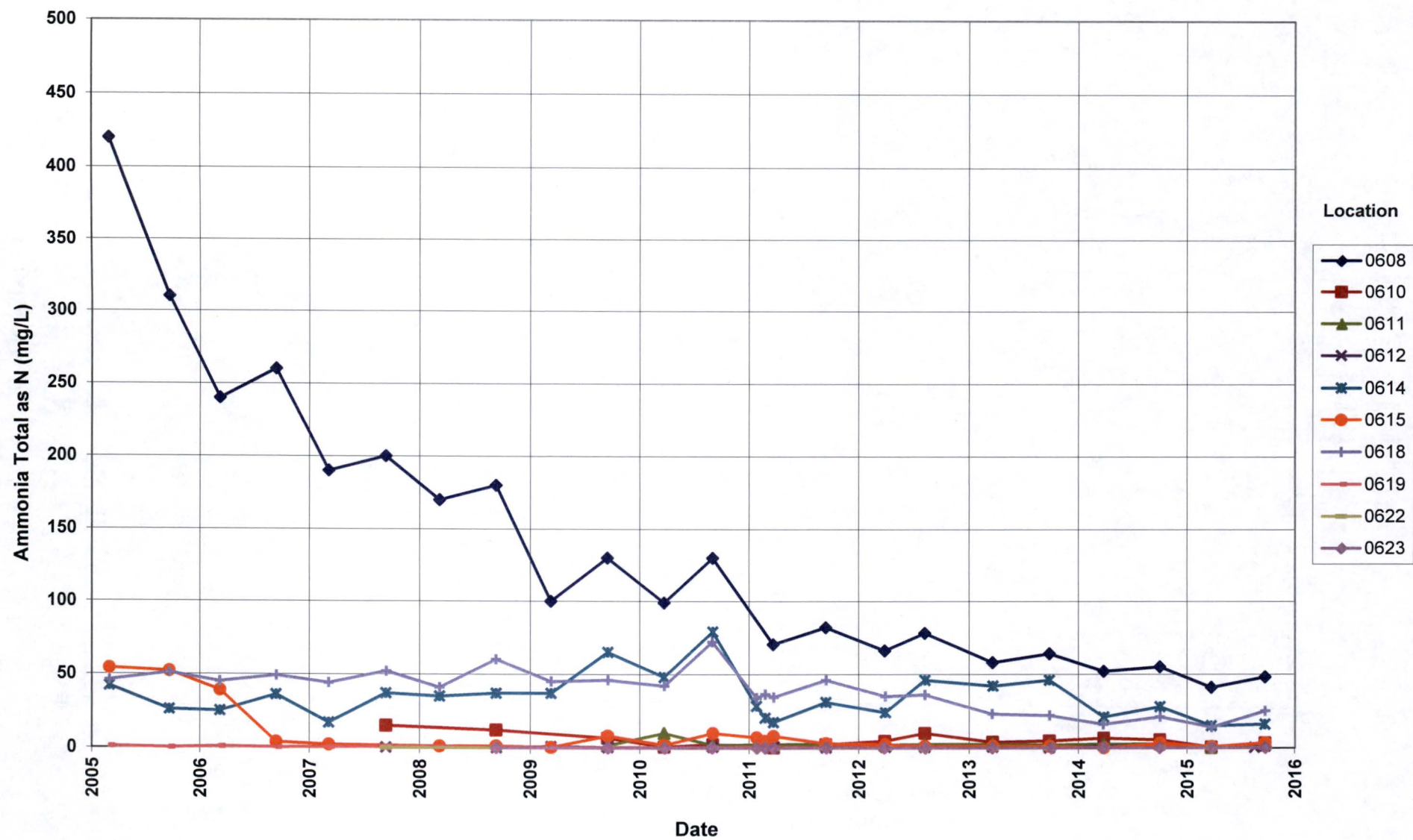
FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT F OFF SITE  
N UNKNOWN O ON SITE U UPGRADIENT

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

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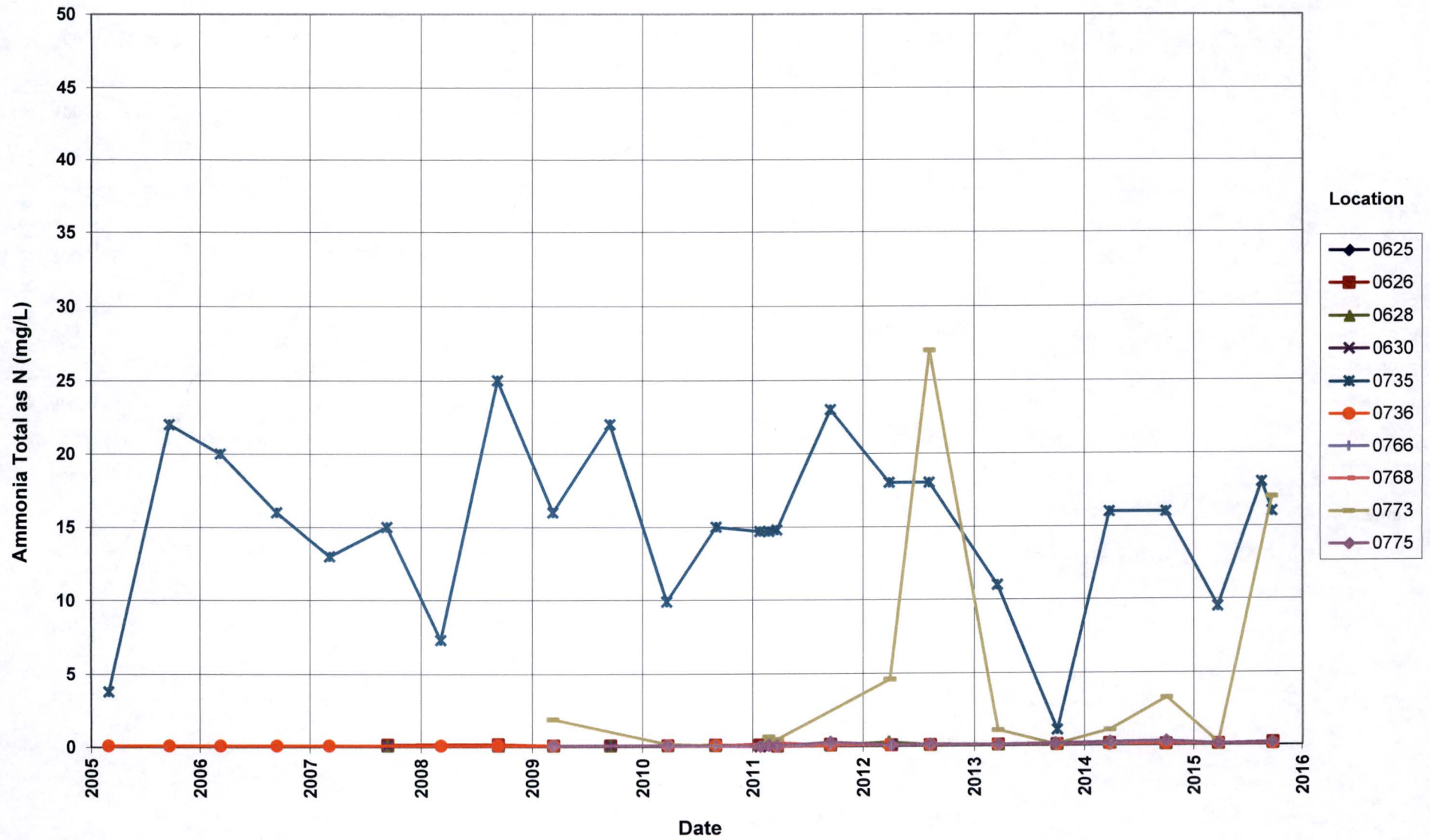
## **Time-Concentration Graphs Floodplain Groundwater Locations**

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

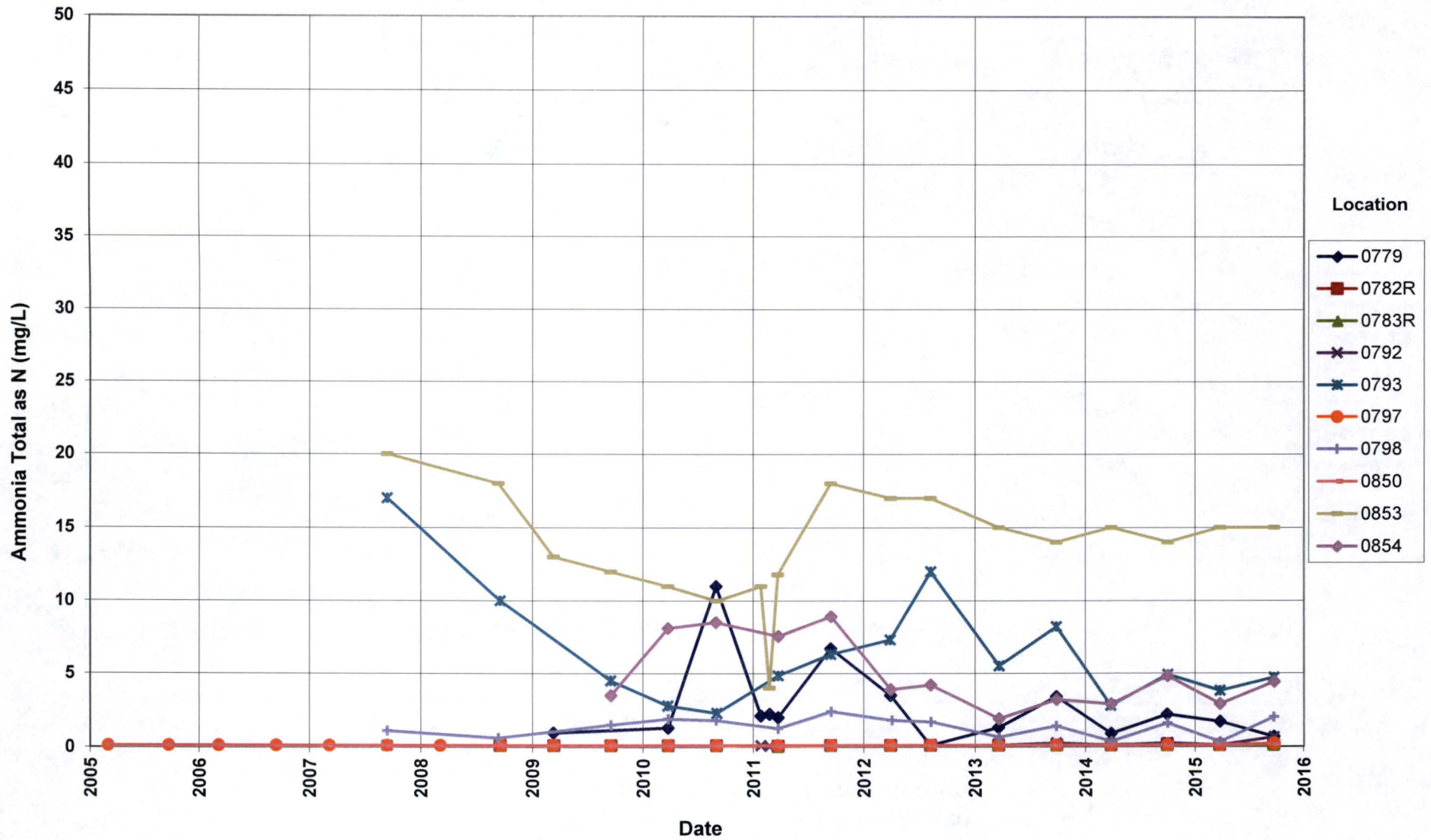




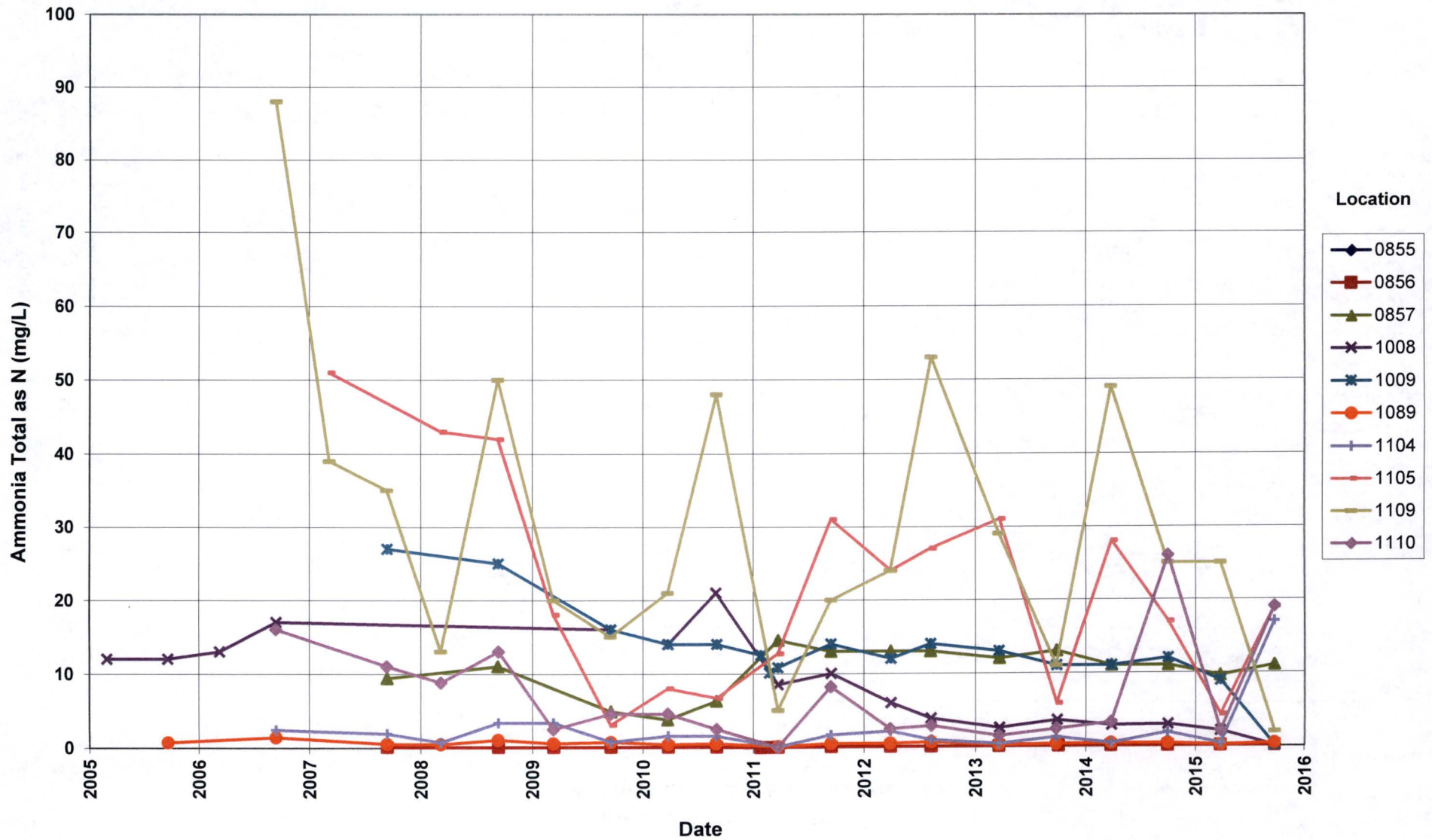
Shiprock Disposal Site (Floodplain)  
Ammonia Total as N Concentration



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

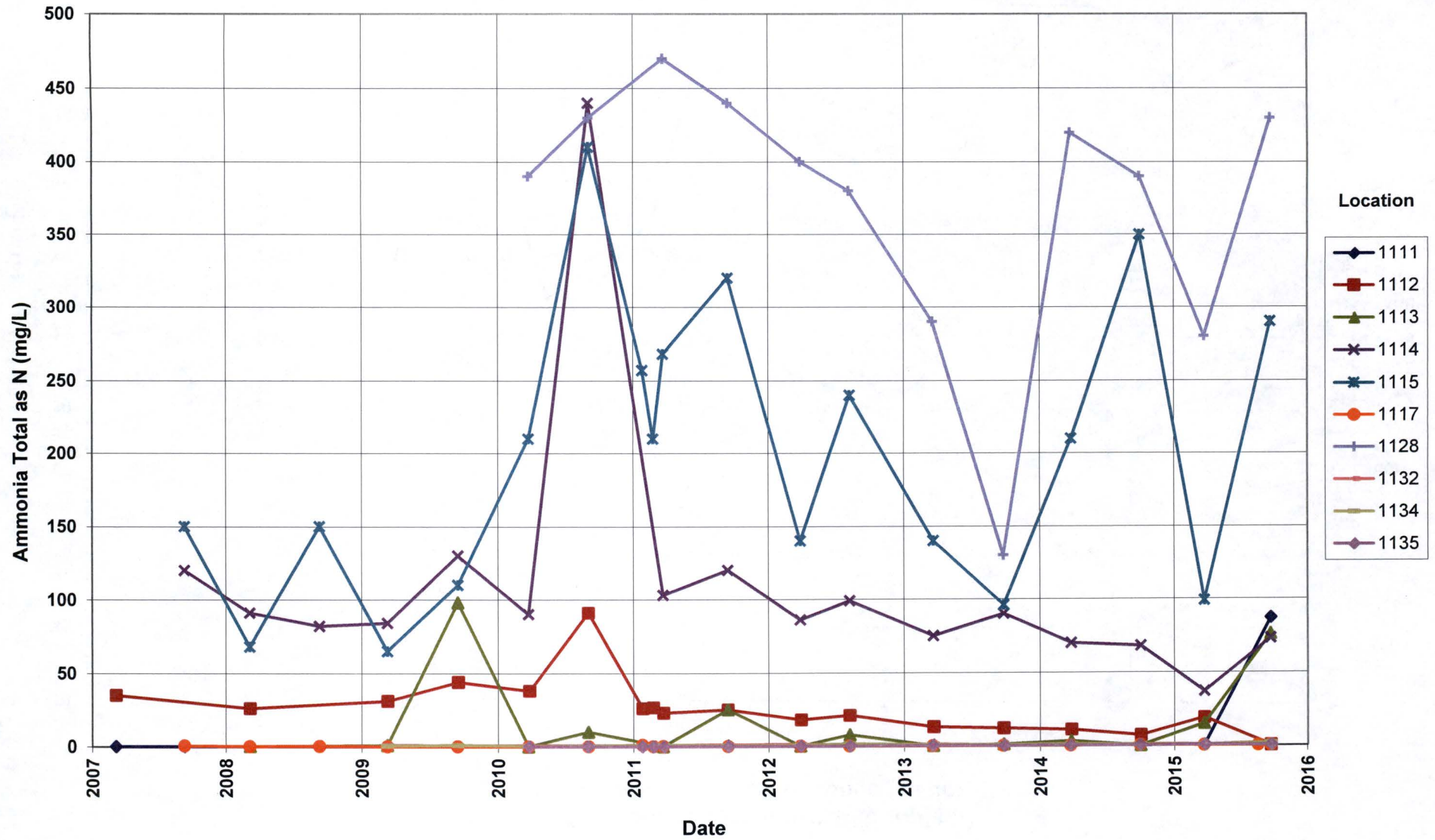


Shiprock Disposal Site (Floodplain)  
Ammonia Total as N Concentration

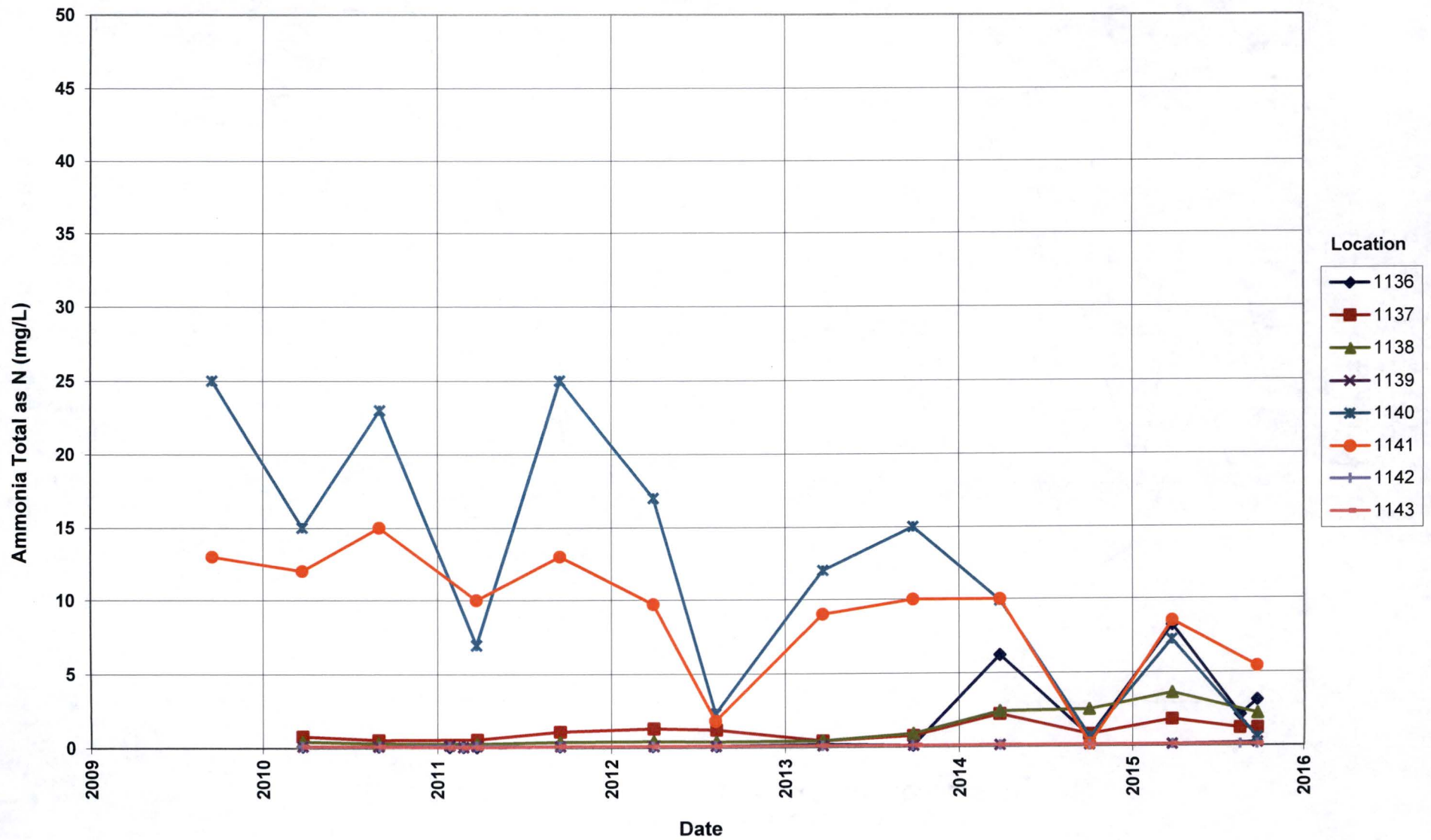




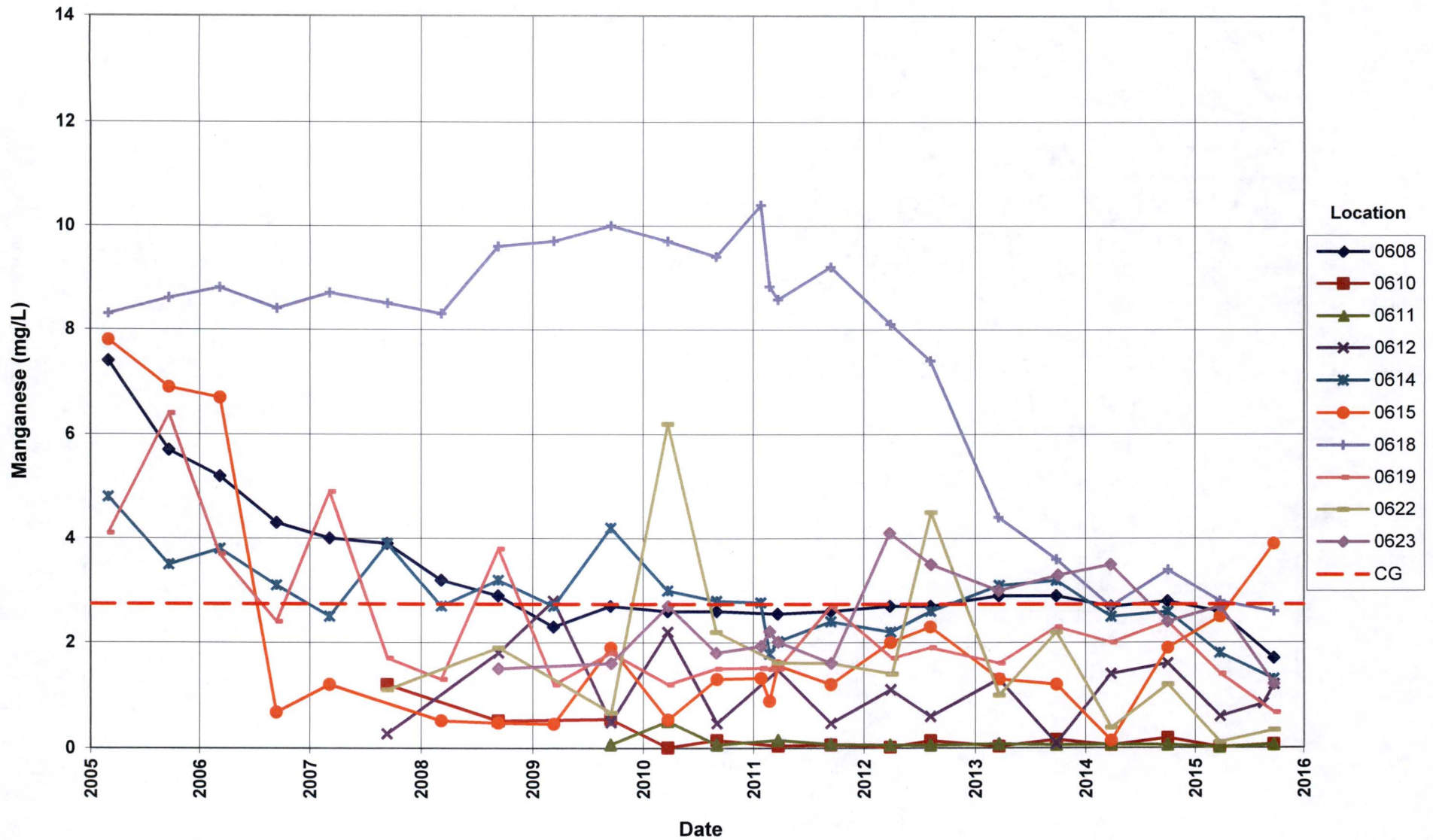
# Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



Shiprock Disposal Site (Floodplain)  
Ammonia Total as N Concentration

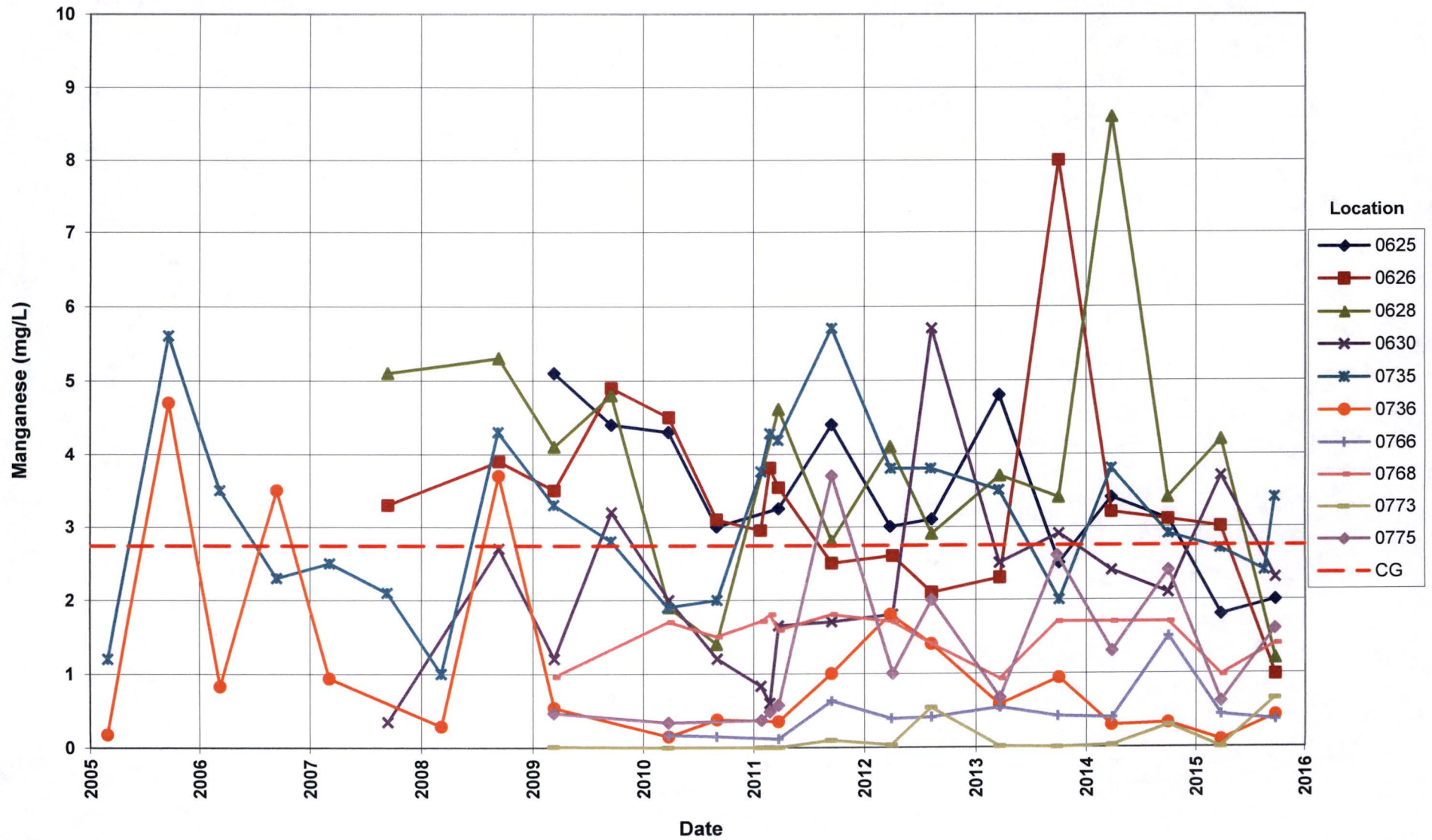


**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L

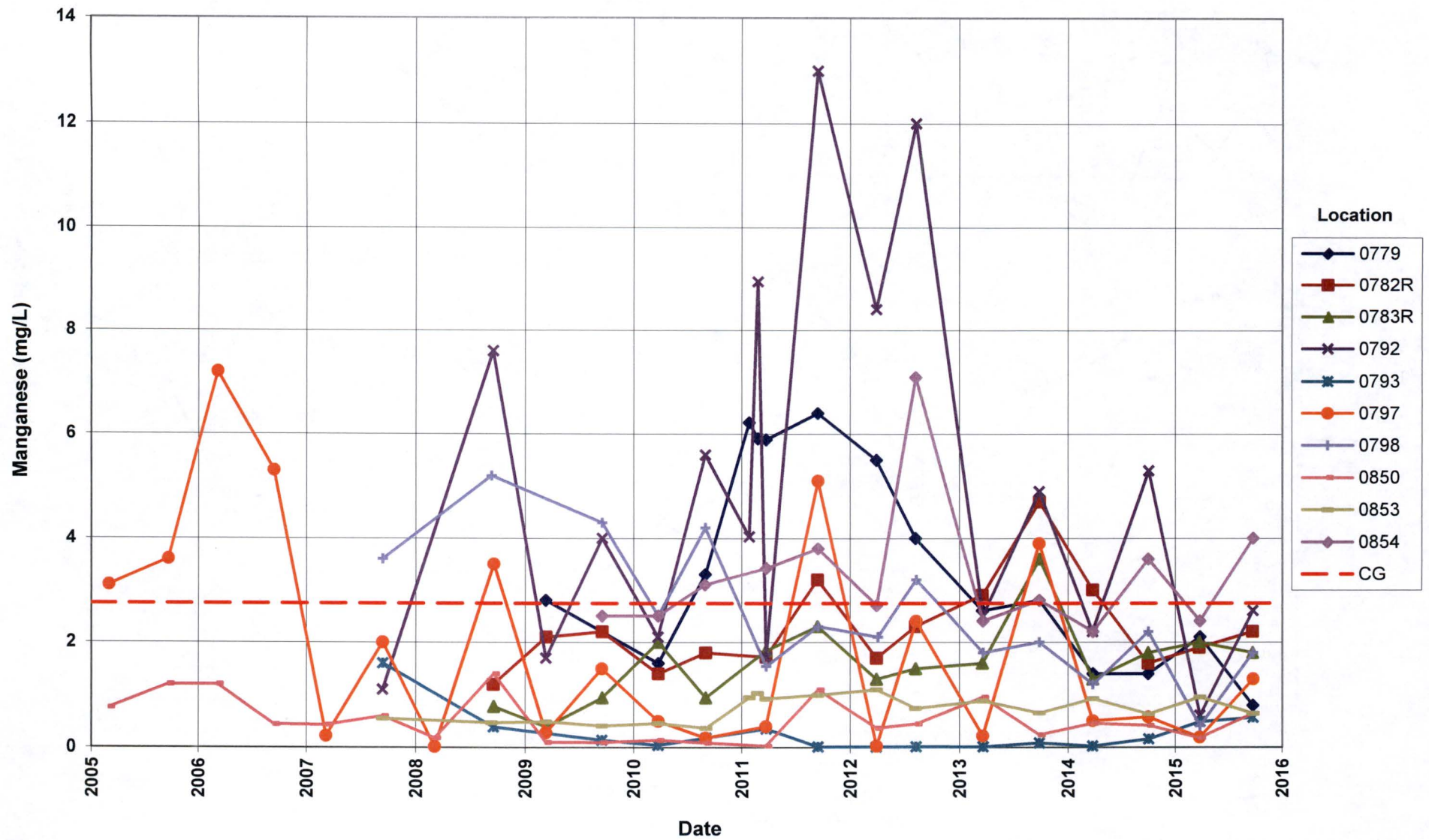




**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L

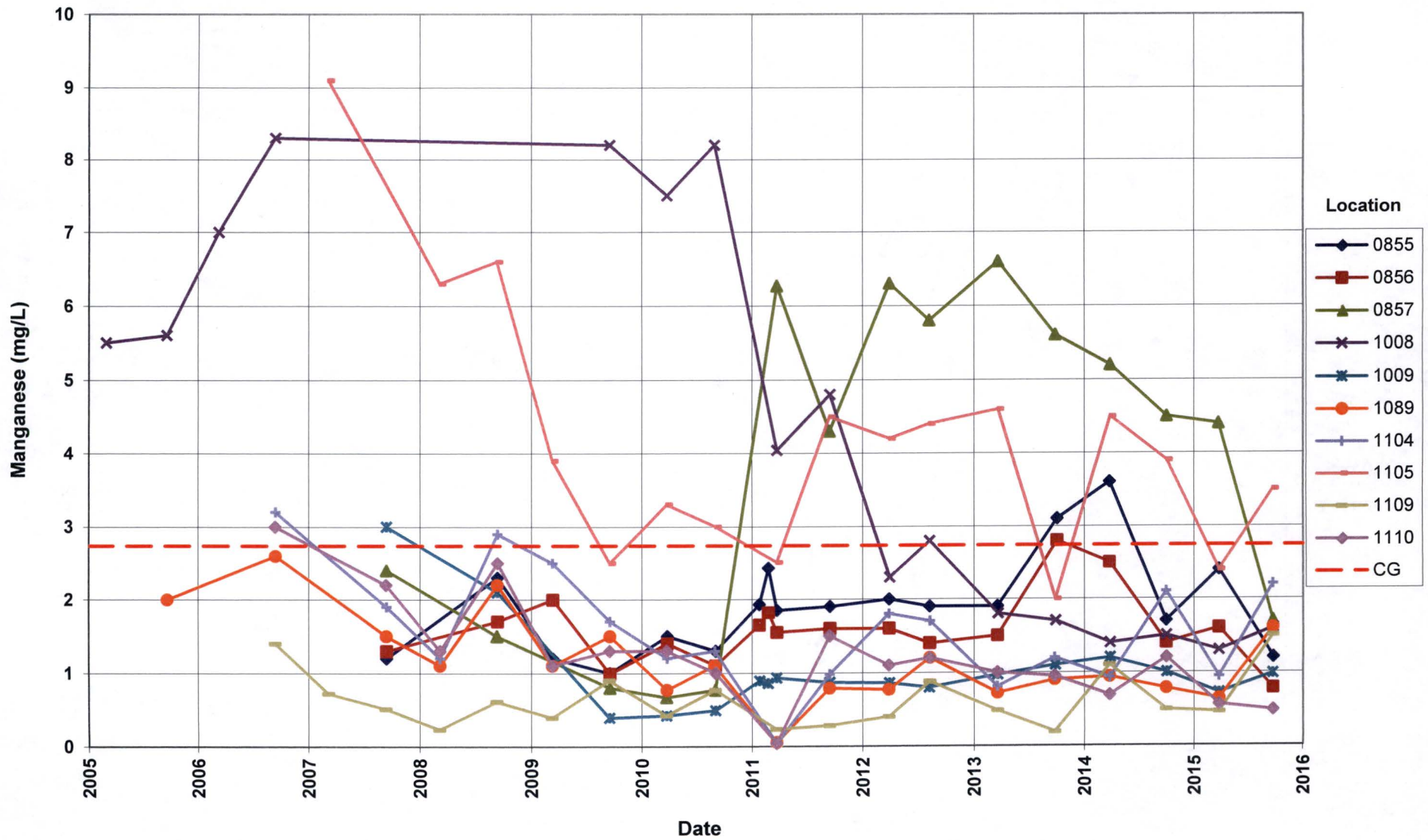


**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L

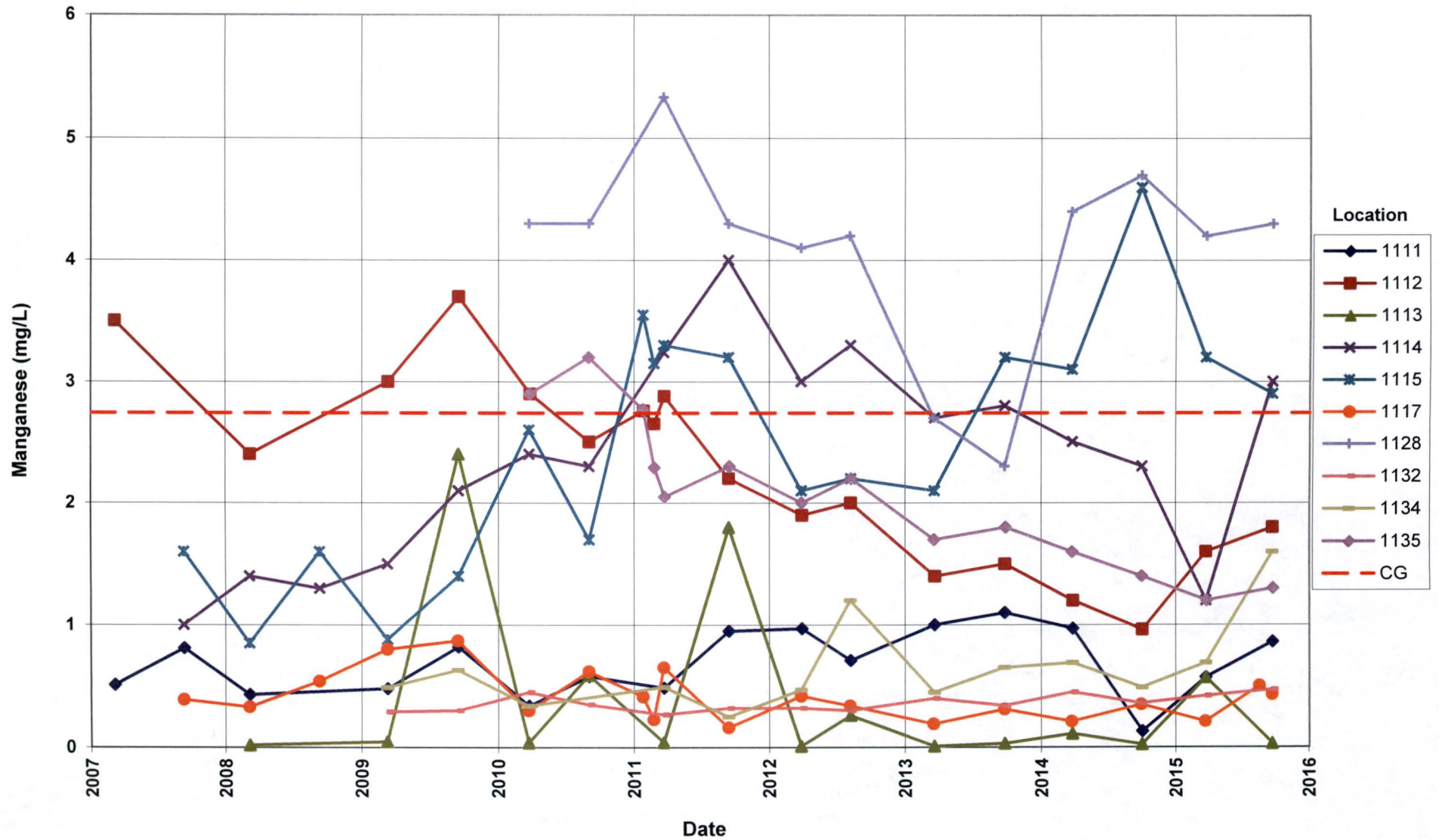




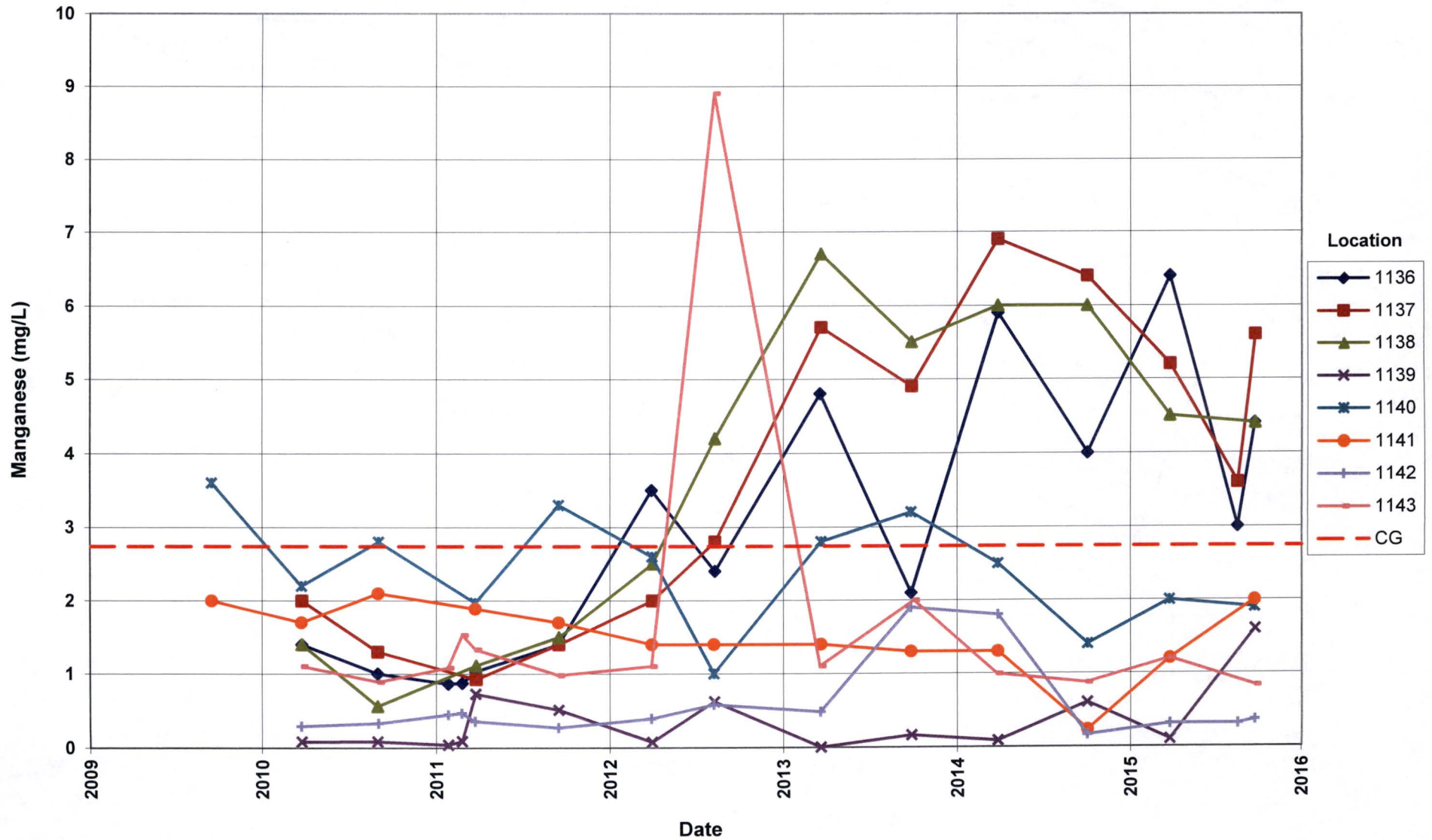
**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L



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

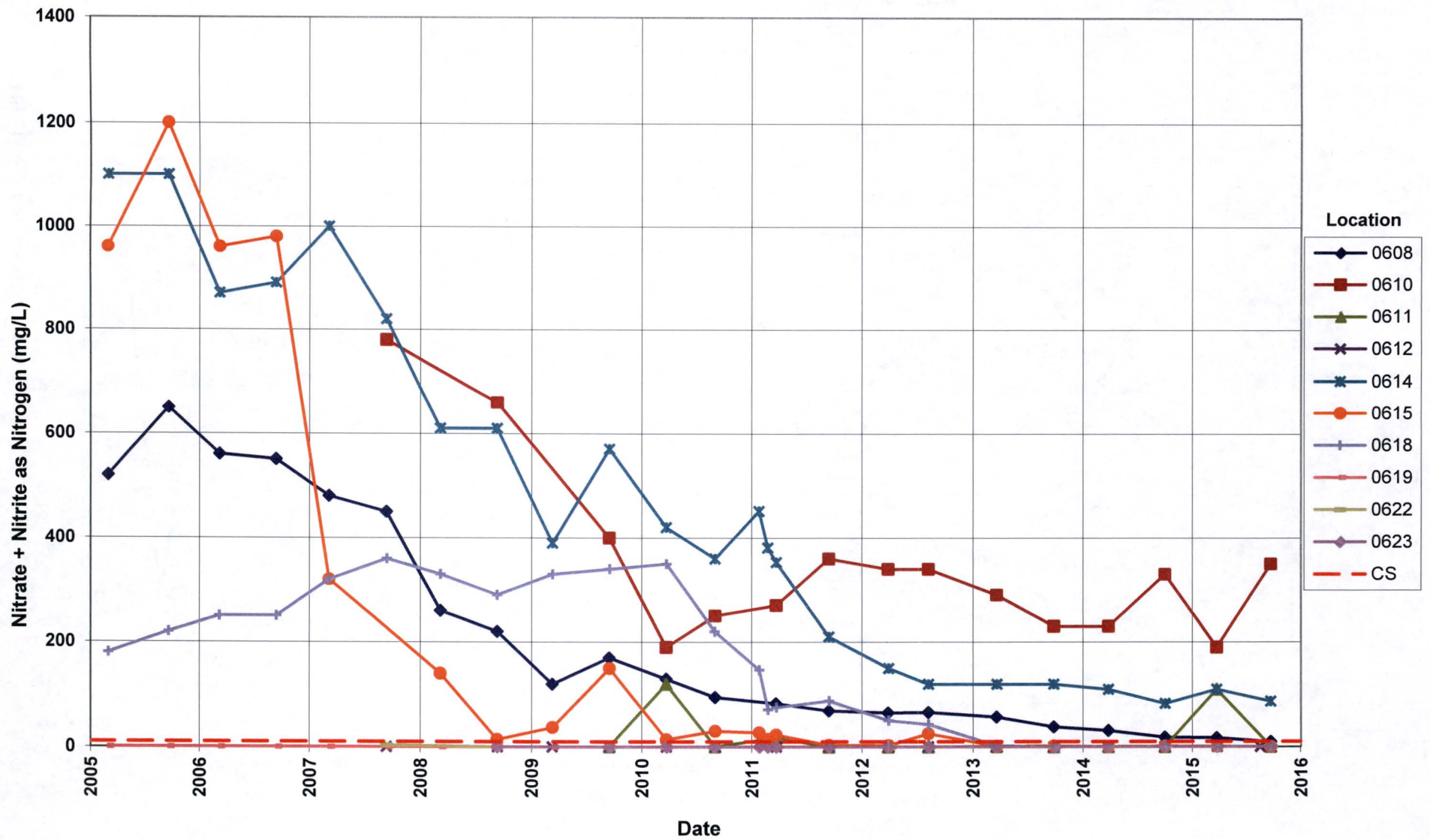


**Shiprock Disposal Site (Floodplain)**  
**Manganese Concentration**  
Cleanup Goal (CG) = 2.74 mg/L

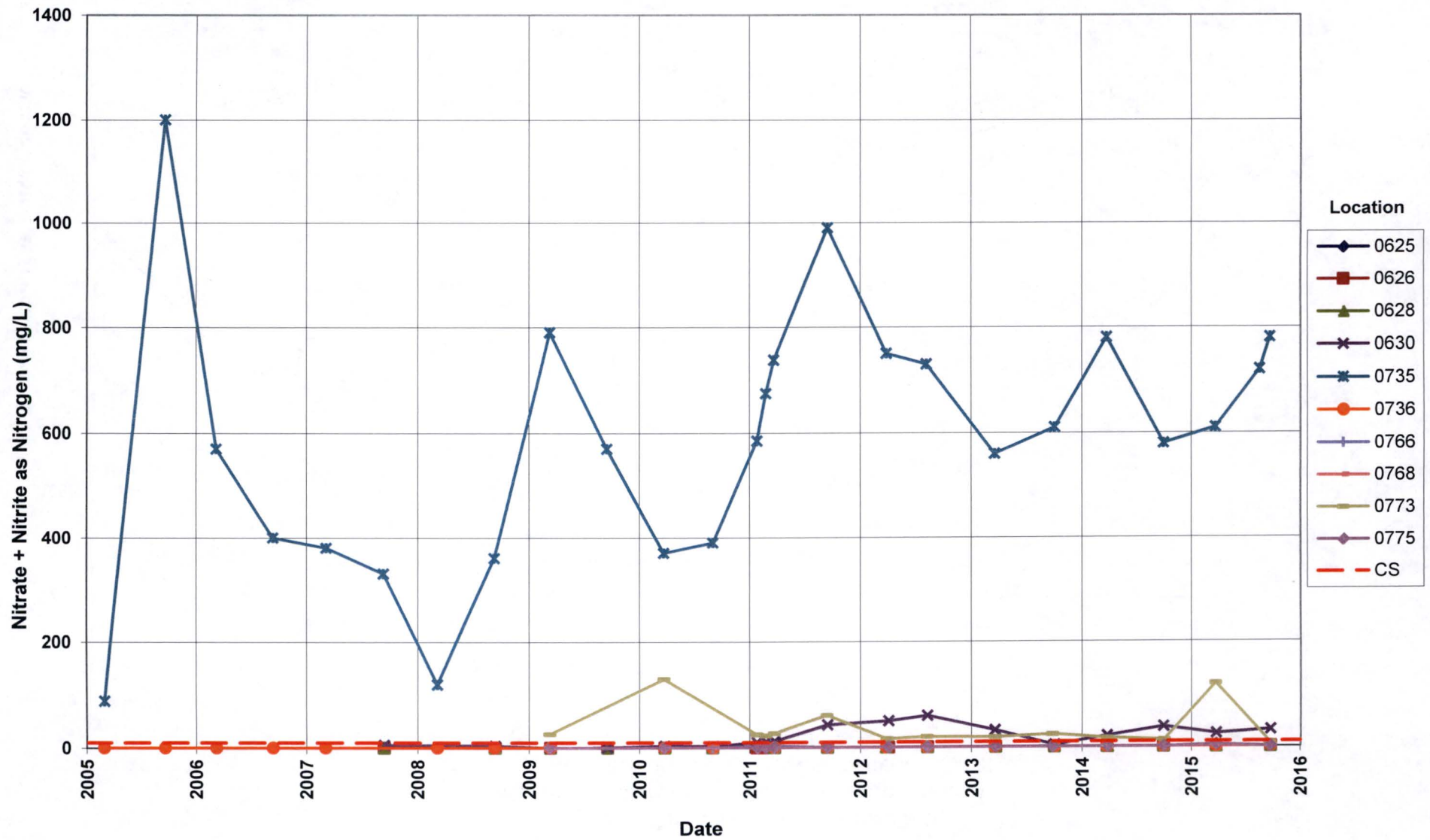




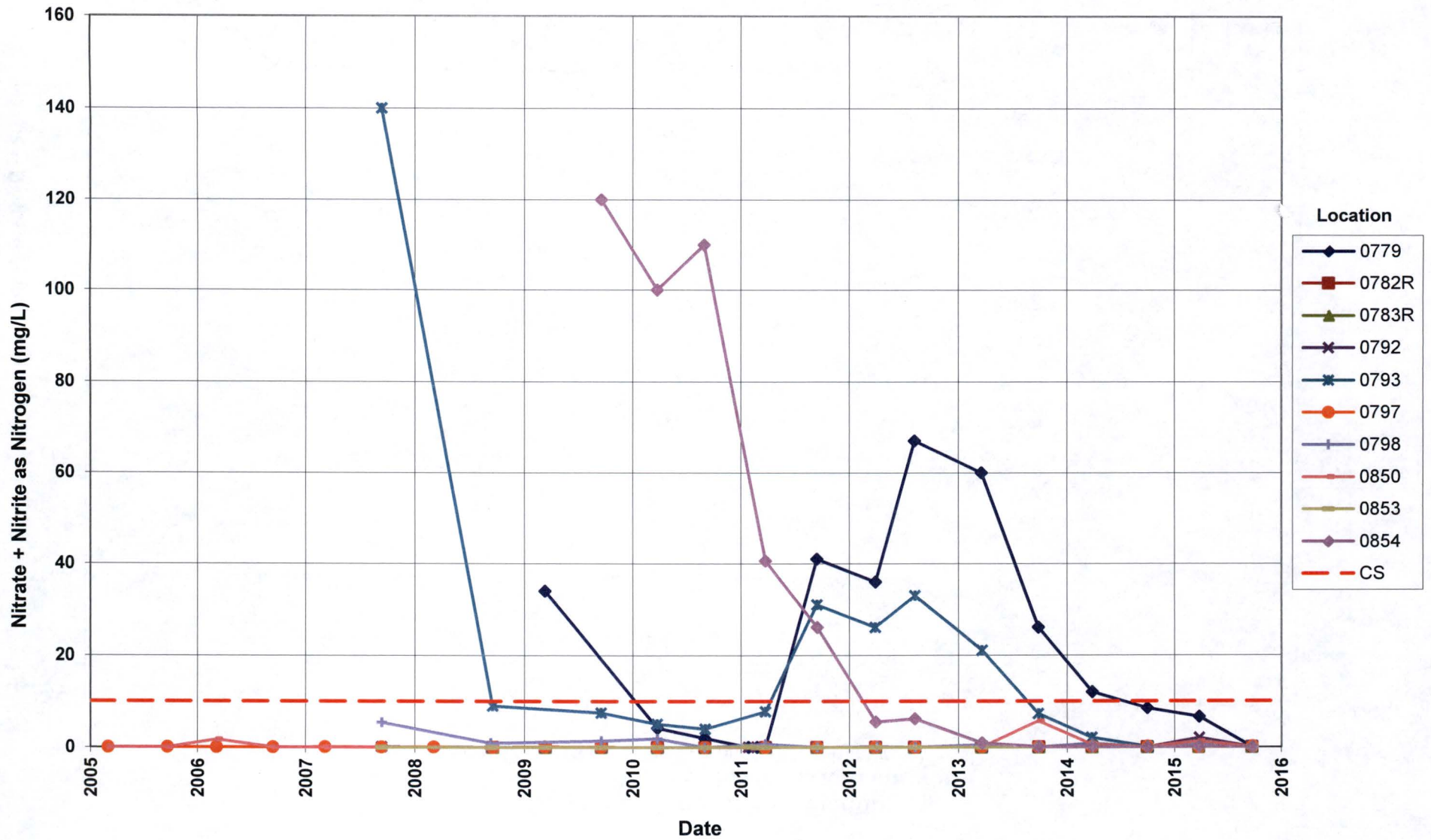
**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
 Compliance Standard (CS) = 10 mg/L



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

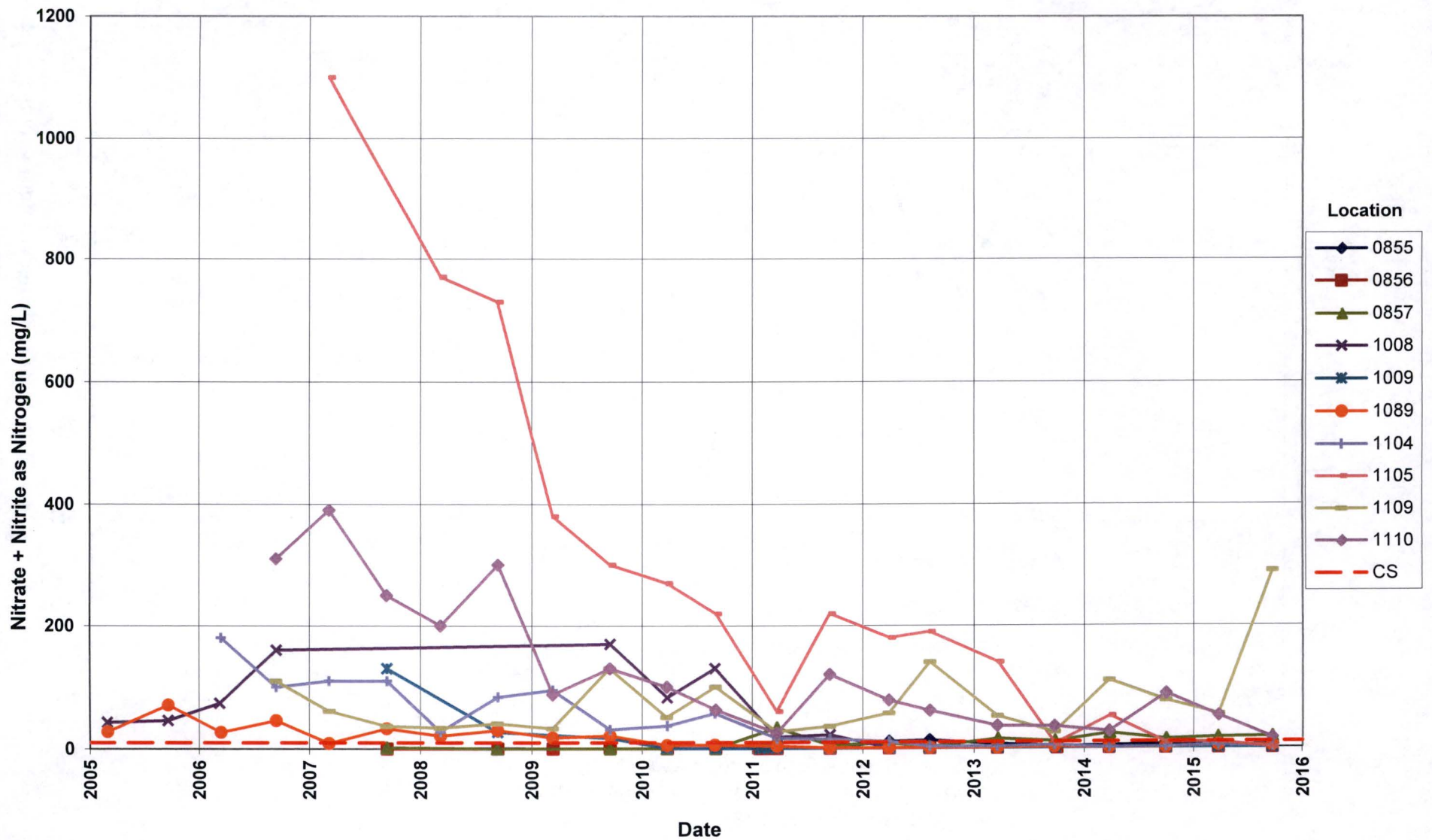


**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
Compliance Standard (CS) = 10 mg/L

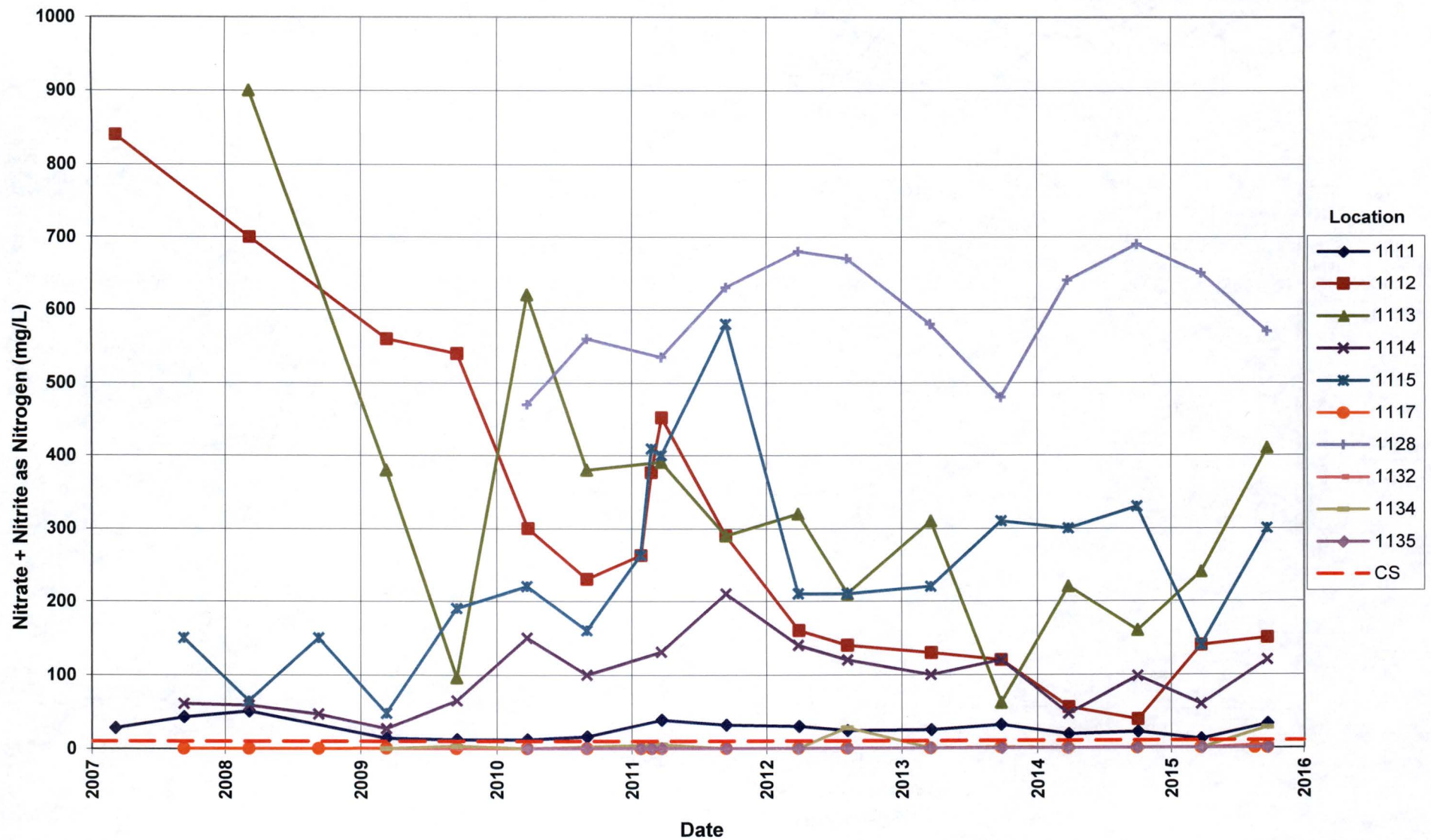




**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
 Compliance Standard (CS) = 10 mg/L

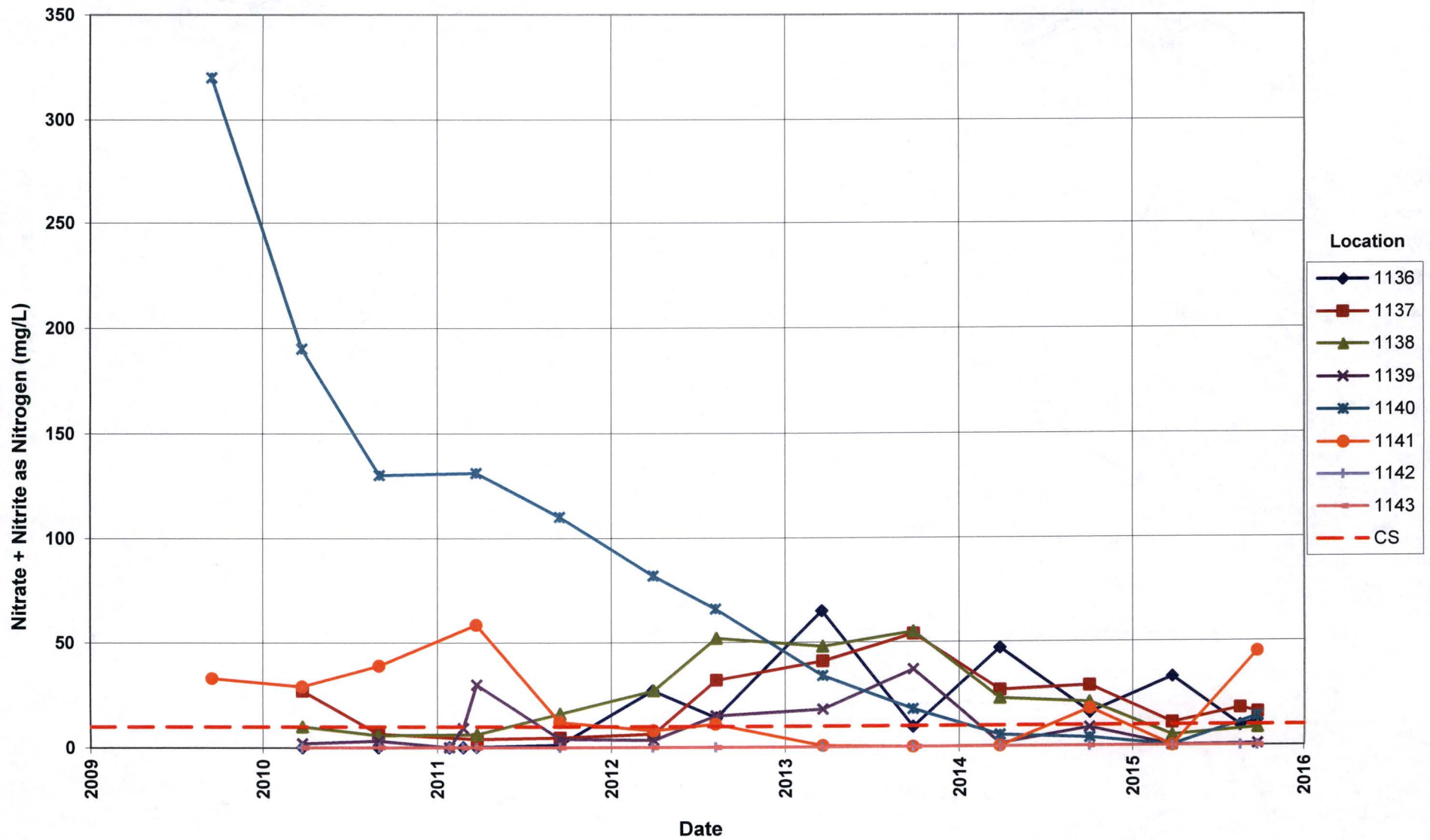


**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
 Compliance Standard (CS) = 10 mg/L

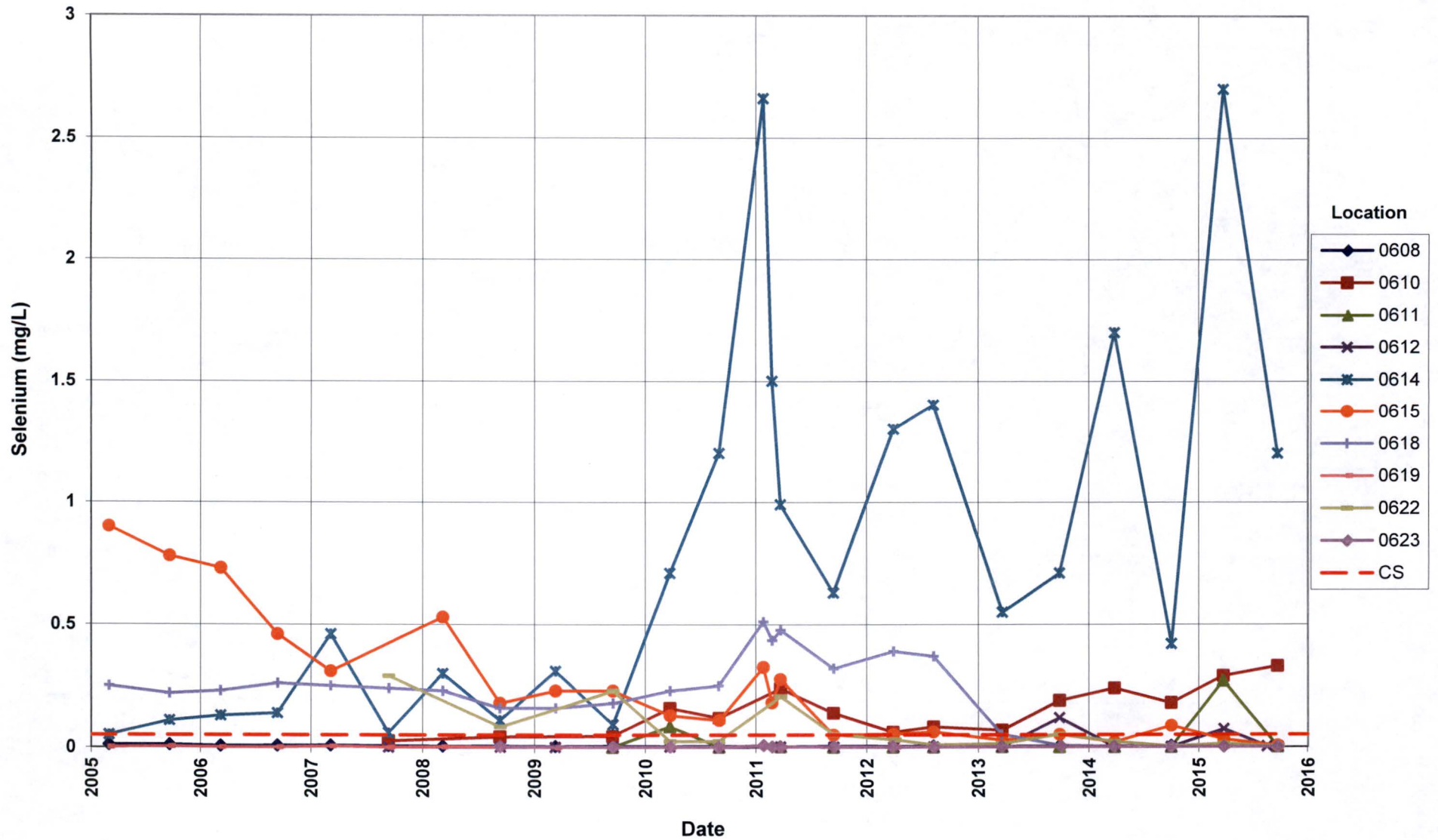




**Shiprock Disposal Site (Floodplain)**  
**Nitrate + Nitrite as Nitrogen Concentration**  
 Compliance Standard (CS) = 10 mg/L



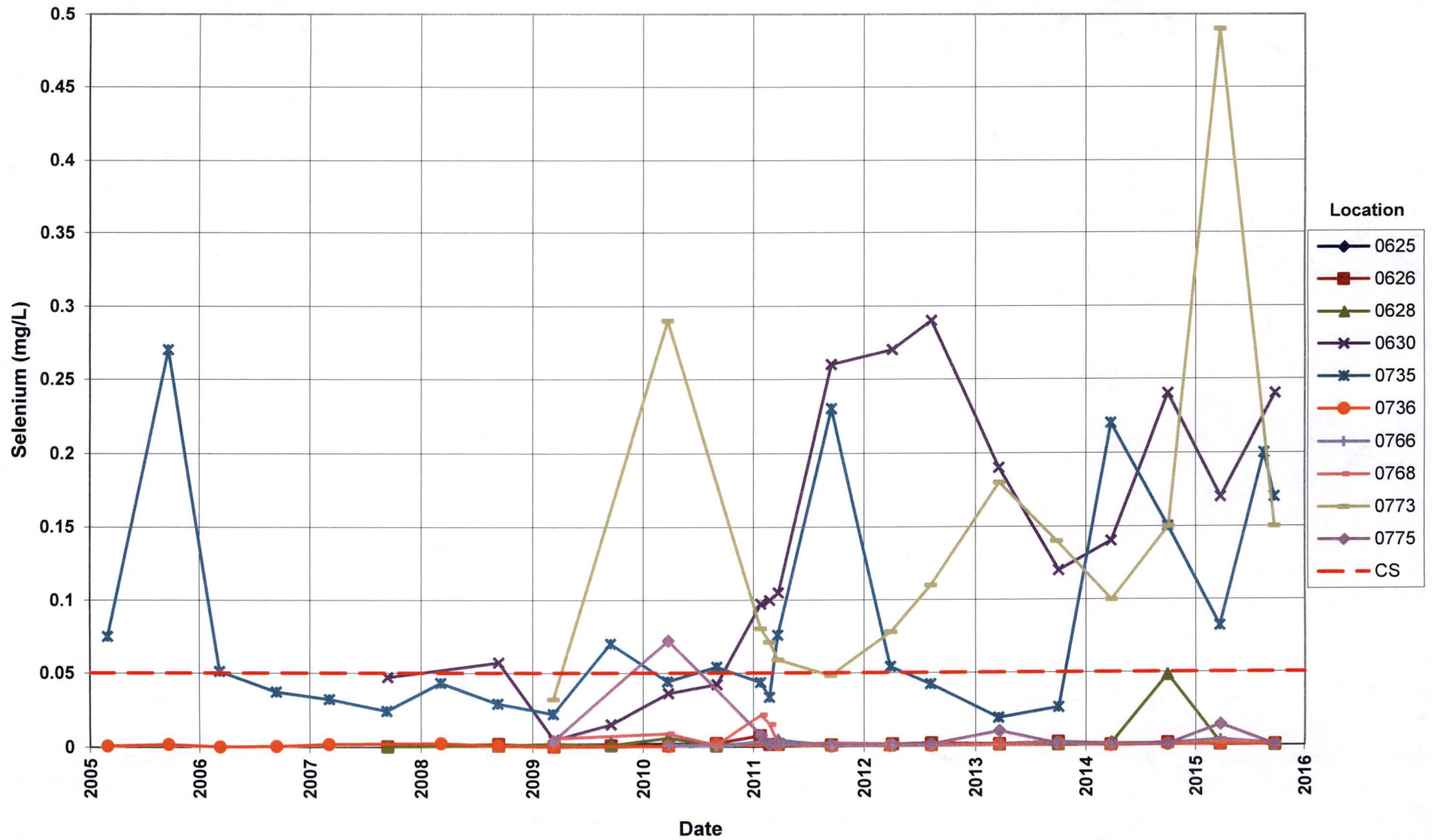
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



## Shiprock Disposal Site (Floodplain)

### Selenium Concentration

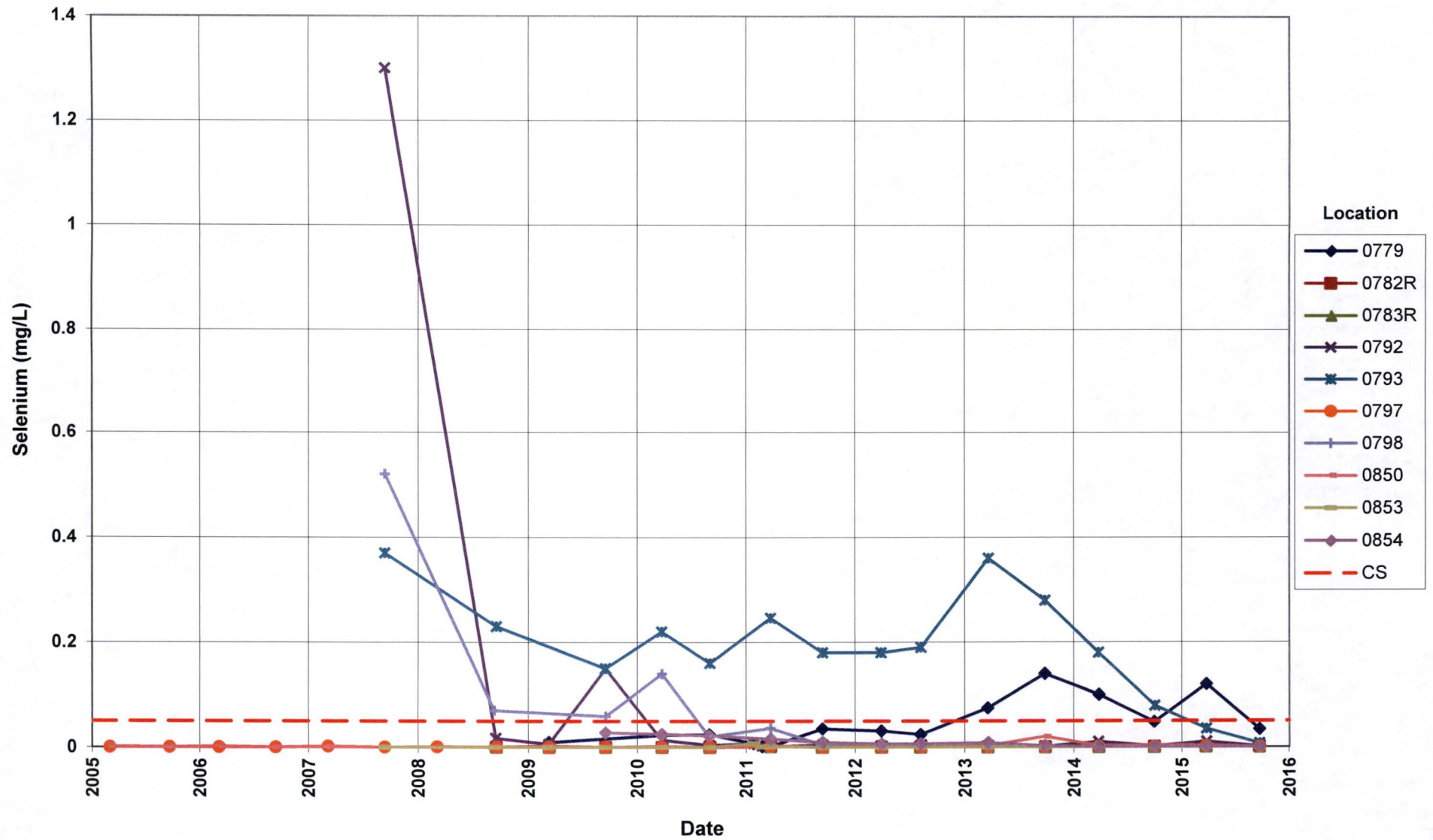
Compliance Standard (CS) = 0.05 mg/L



# Shiprock Disposal Site (Floodplain)

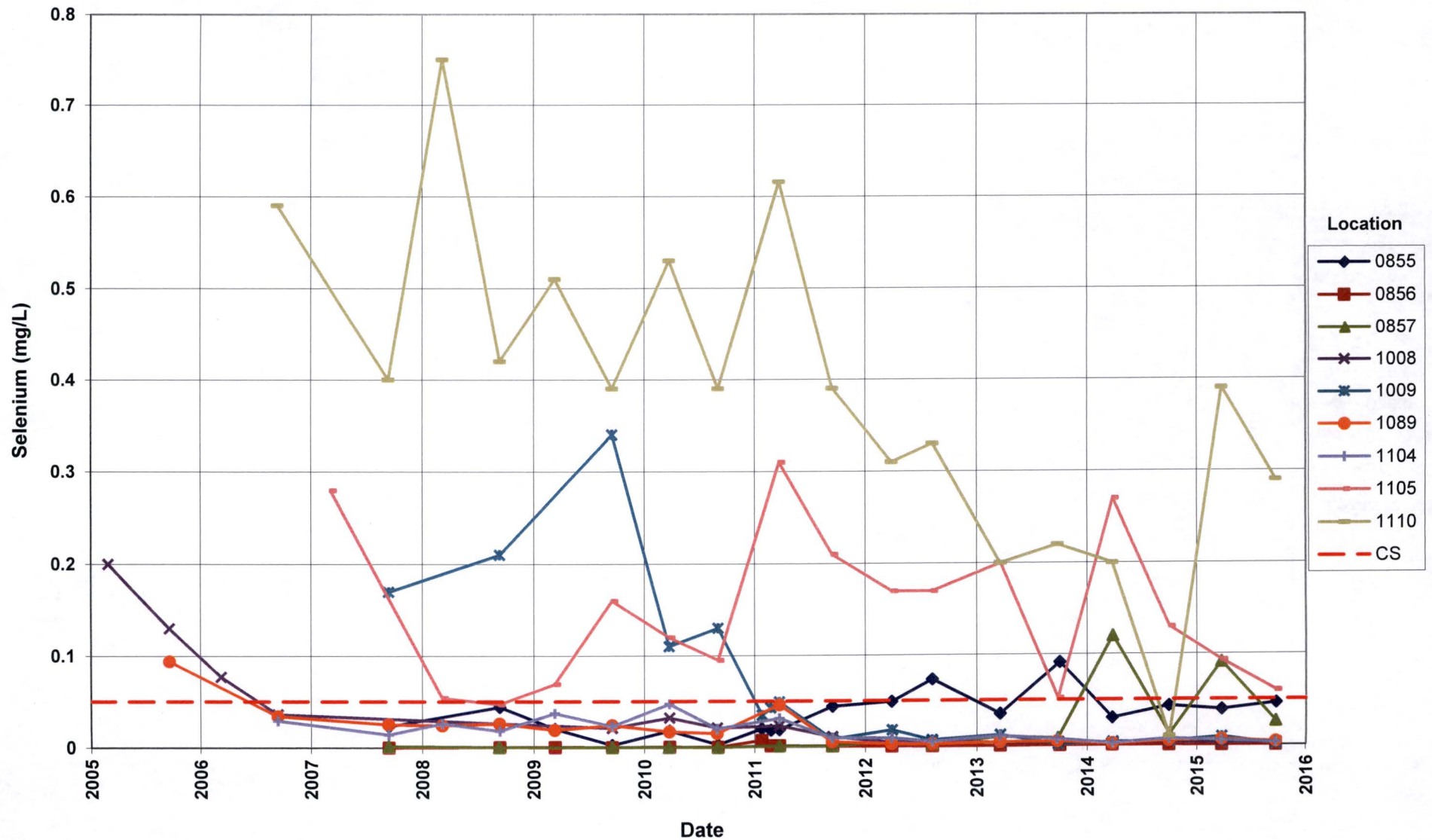
## Selenium Concentration

Compliance Standard (CS) = 0.05 mg/L

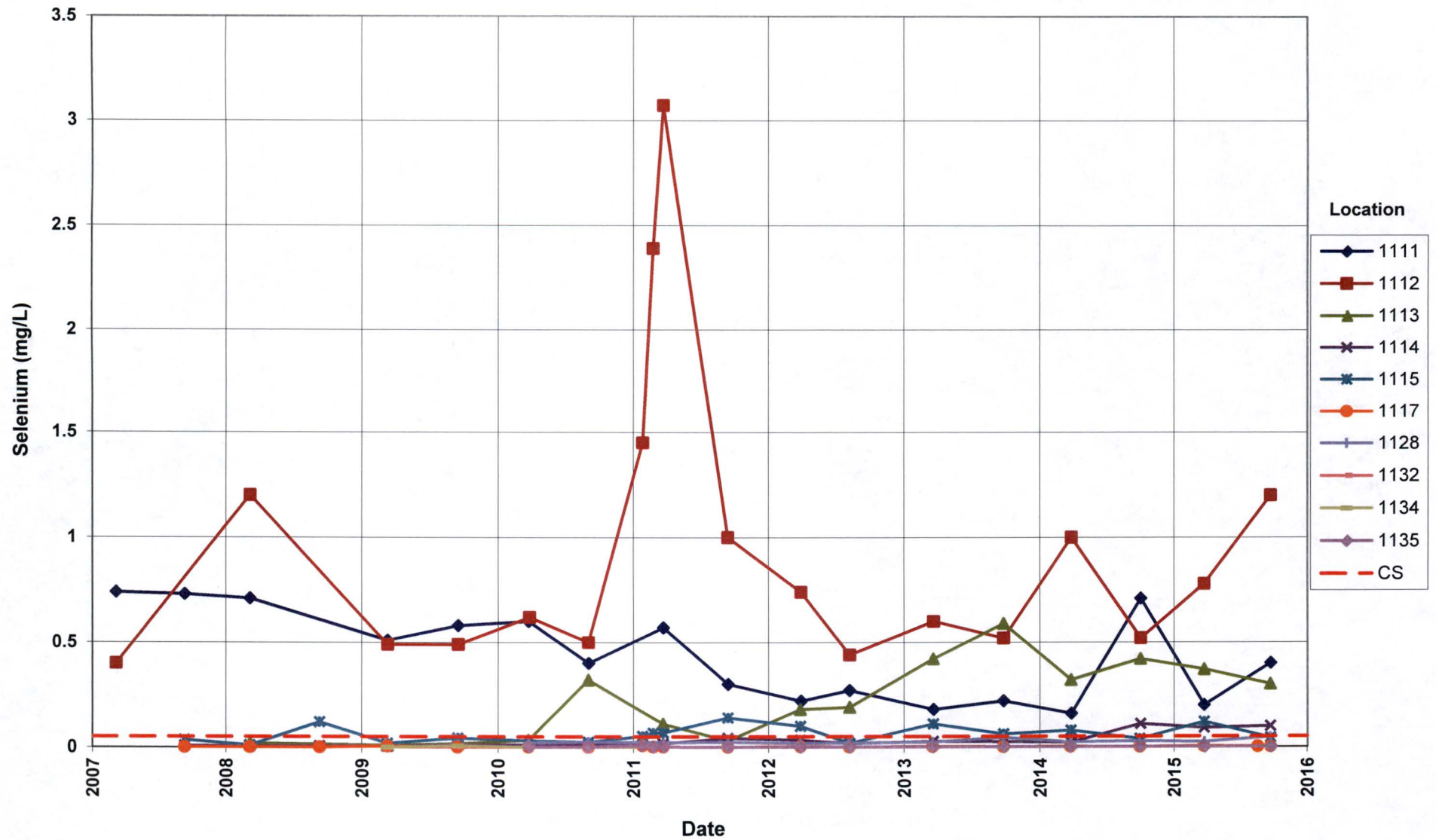




**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



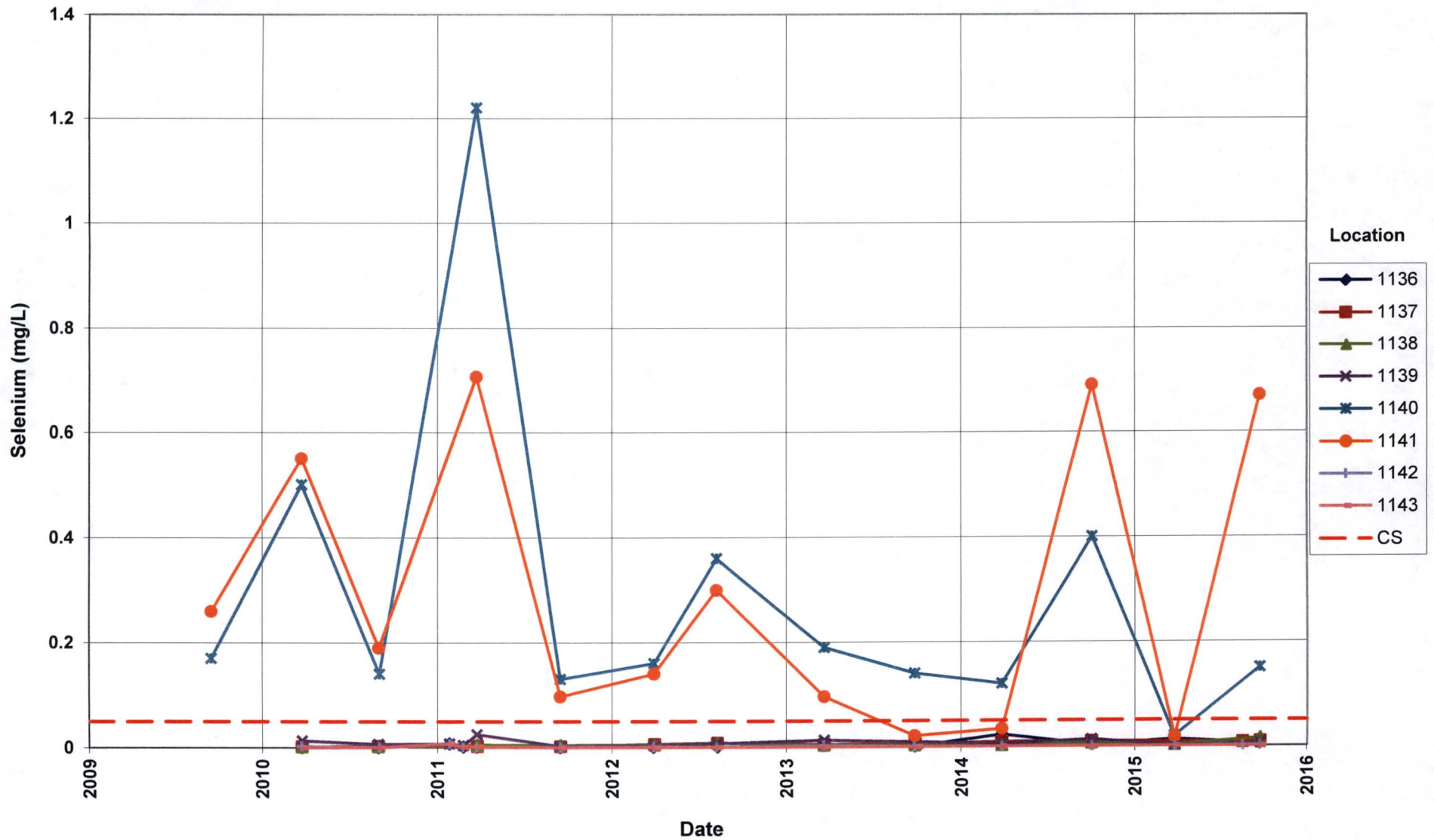
**Shiprock Disposal Site (Floodplain)**  
**Selenium Concentration**  
Compliance Standard (CS) = 0.05 mg/L



# Shiprock Disposal Site (Floodplain)

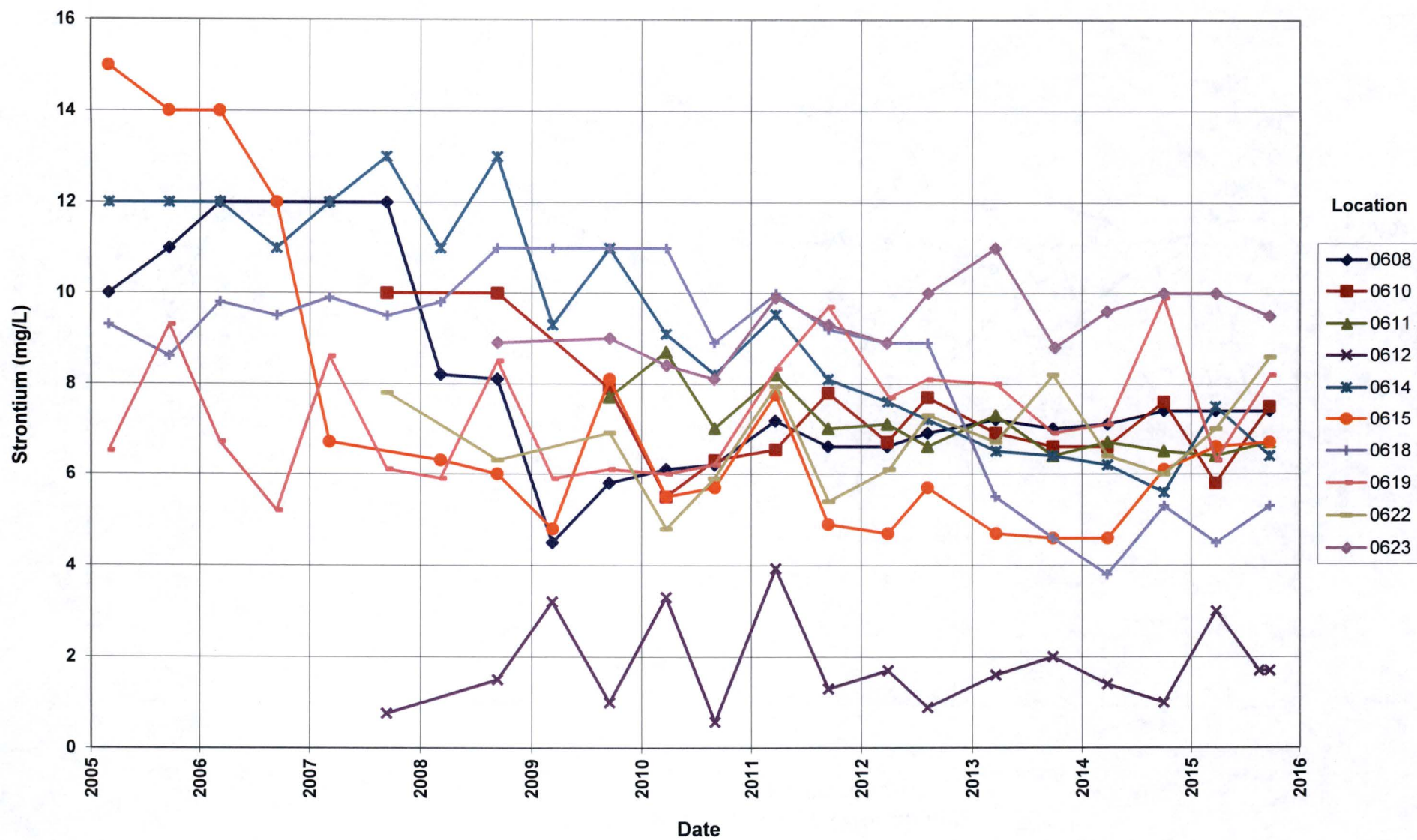
## Selenium Concentration

Compliance Standard (CS) = 0.05 mg/L



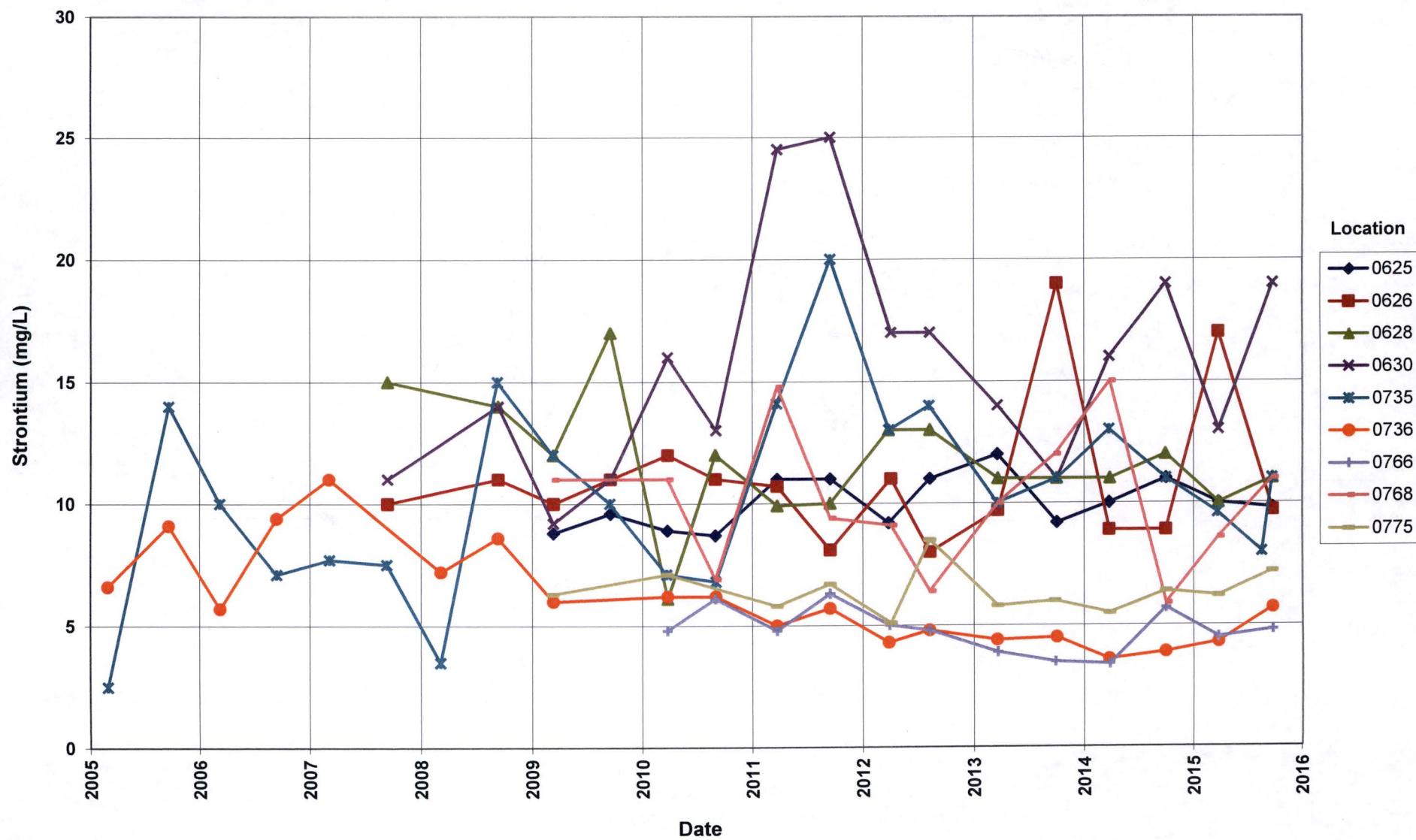


# Shiprock Disposal Site (Floodplain) Strontium Concentration

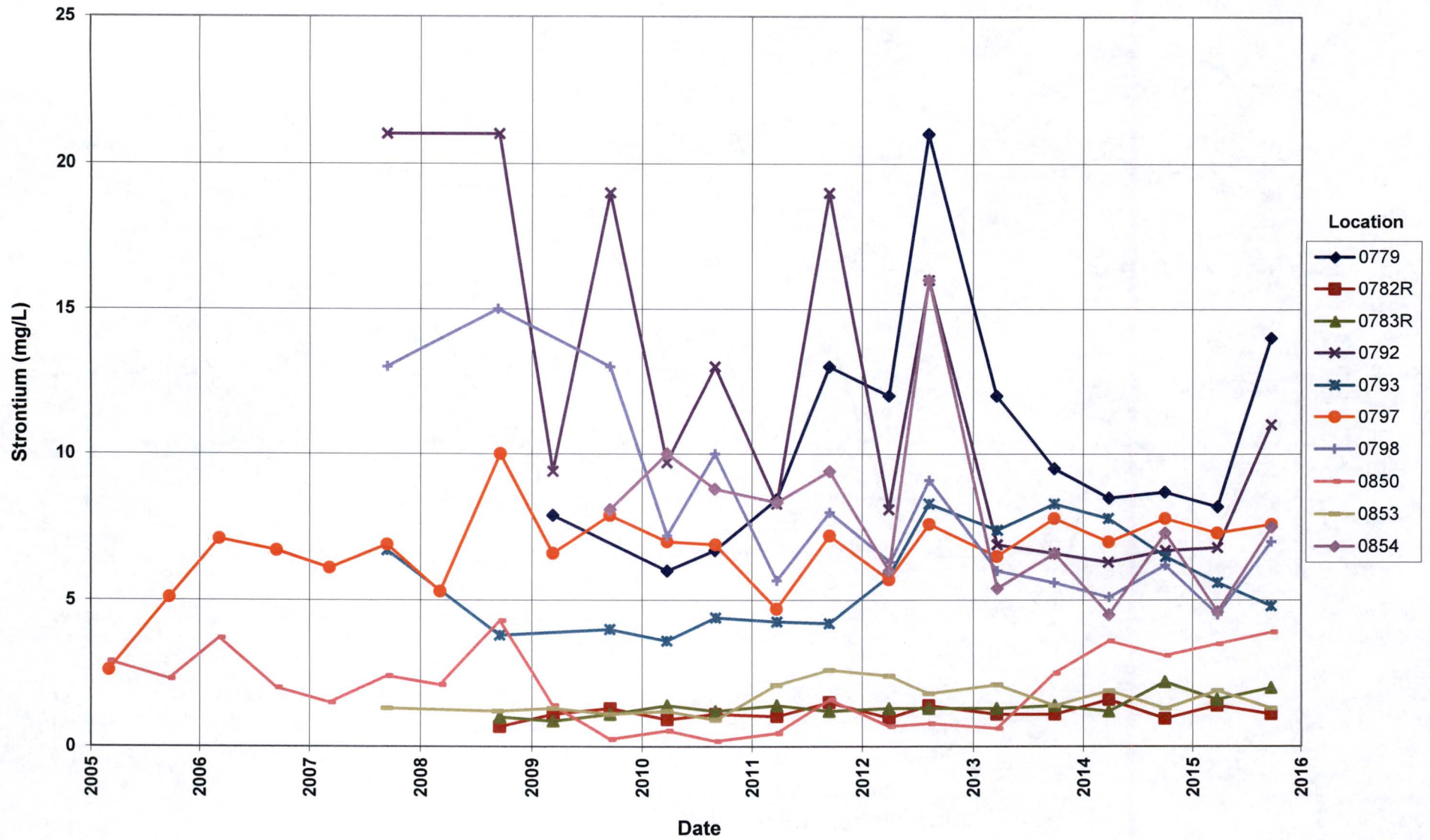




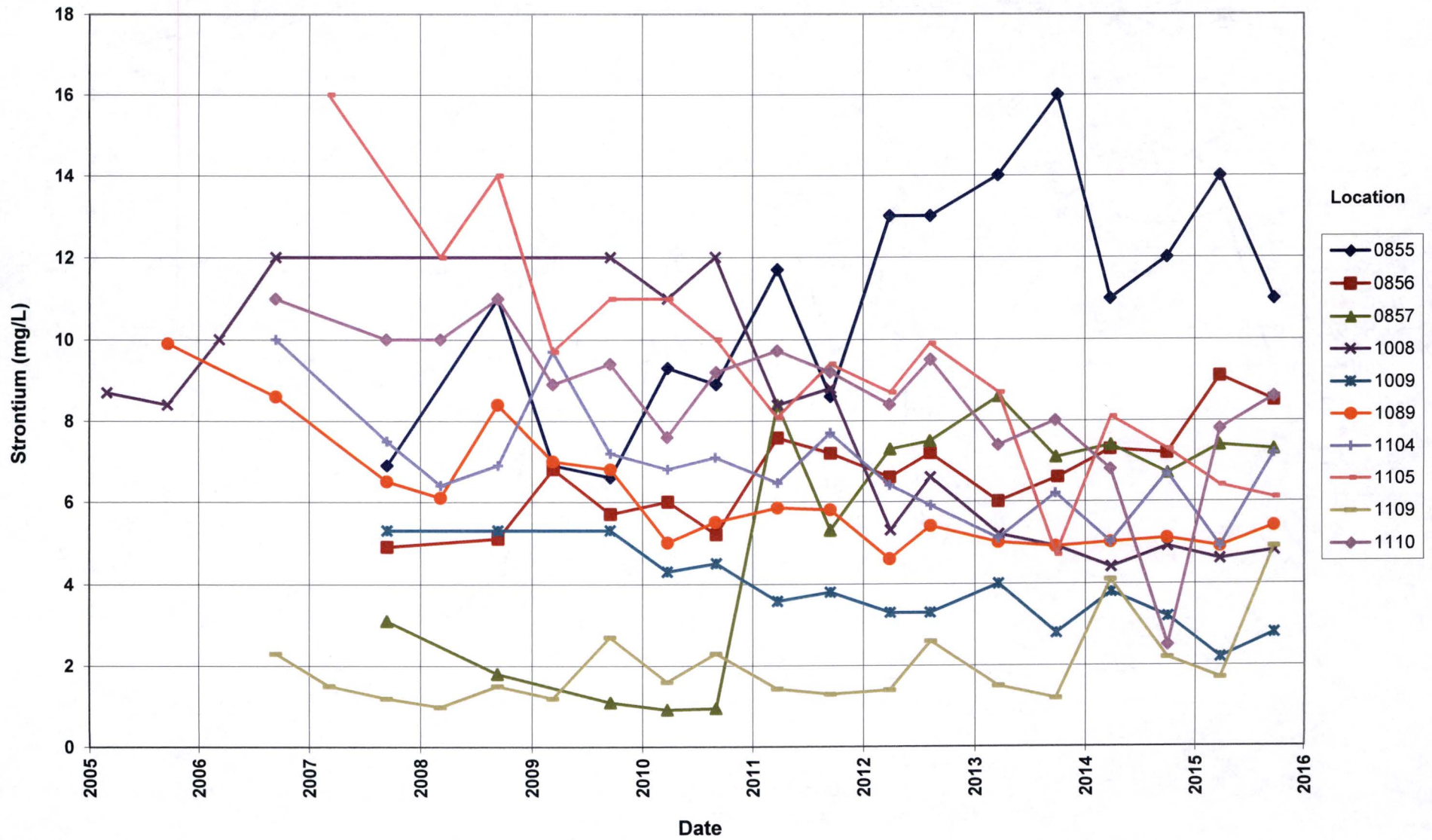
# Shiprock Disposal Site (Floodplain) Strontium Concentration



# Shiprock Disposal Site (Floodplain) Strontium Concentration

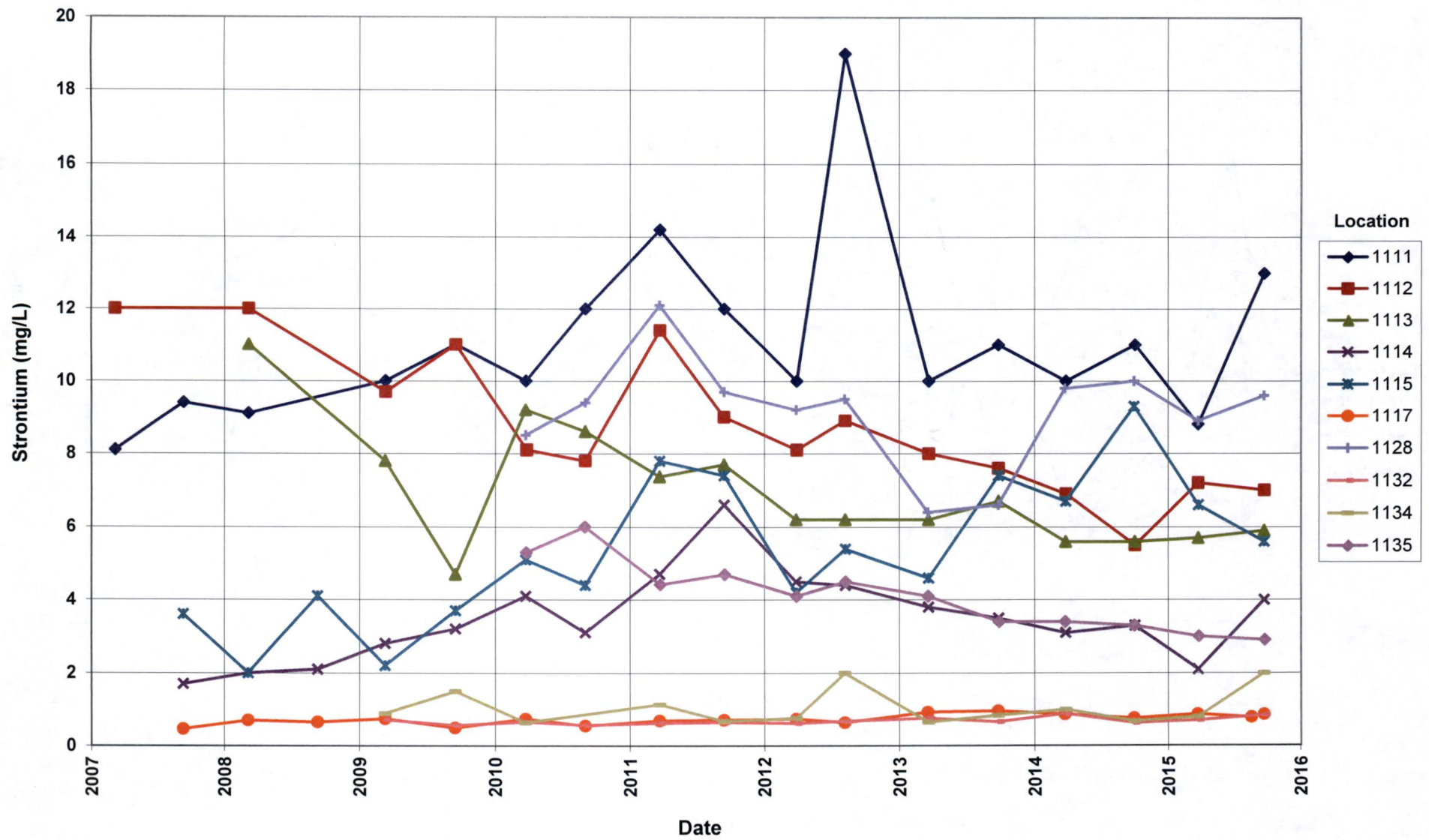


# Shiprock Disposal Site (Floodplain) Strontium Concentration

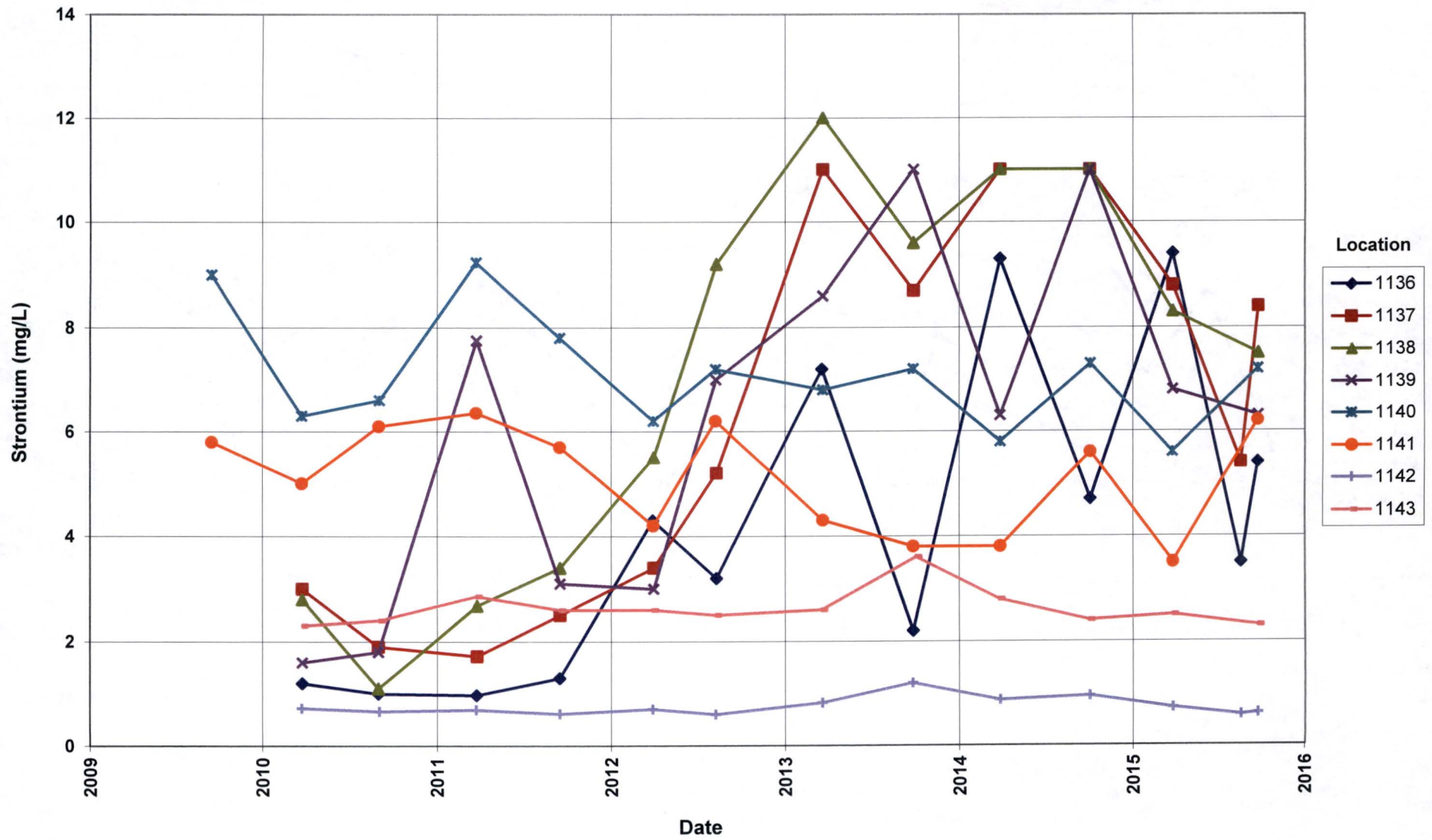




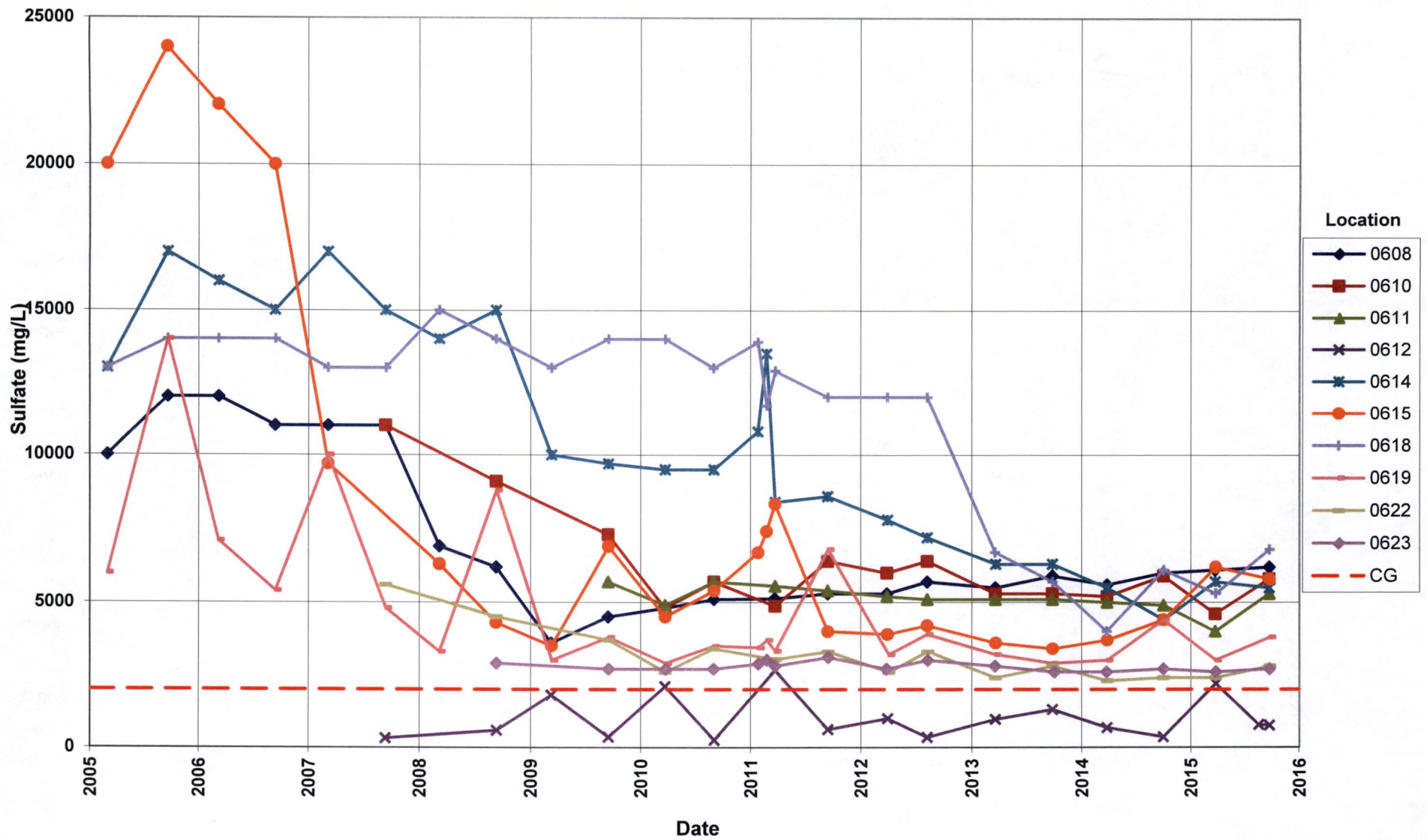
Shiprock Disposal Site (Floodplain)  
Strontium Concentration



# Shiprock Disposal Site (Floodplain) Strontium Concentration



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

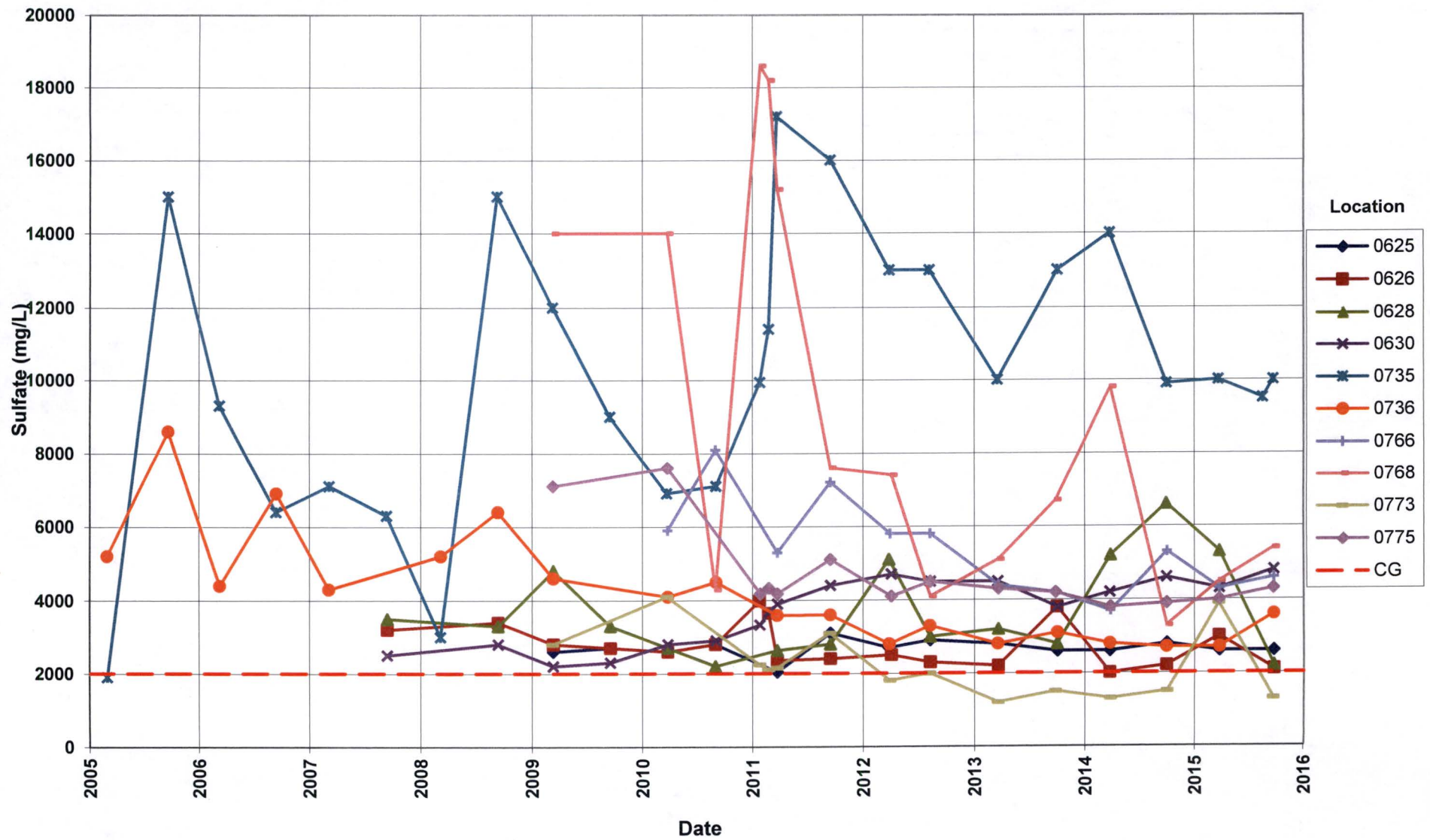




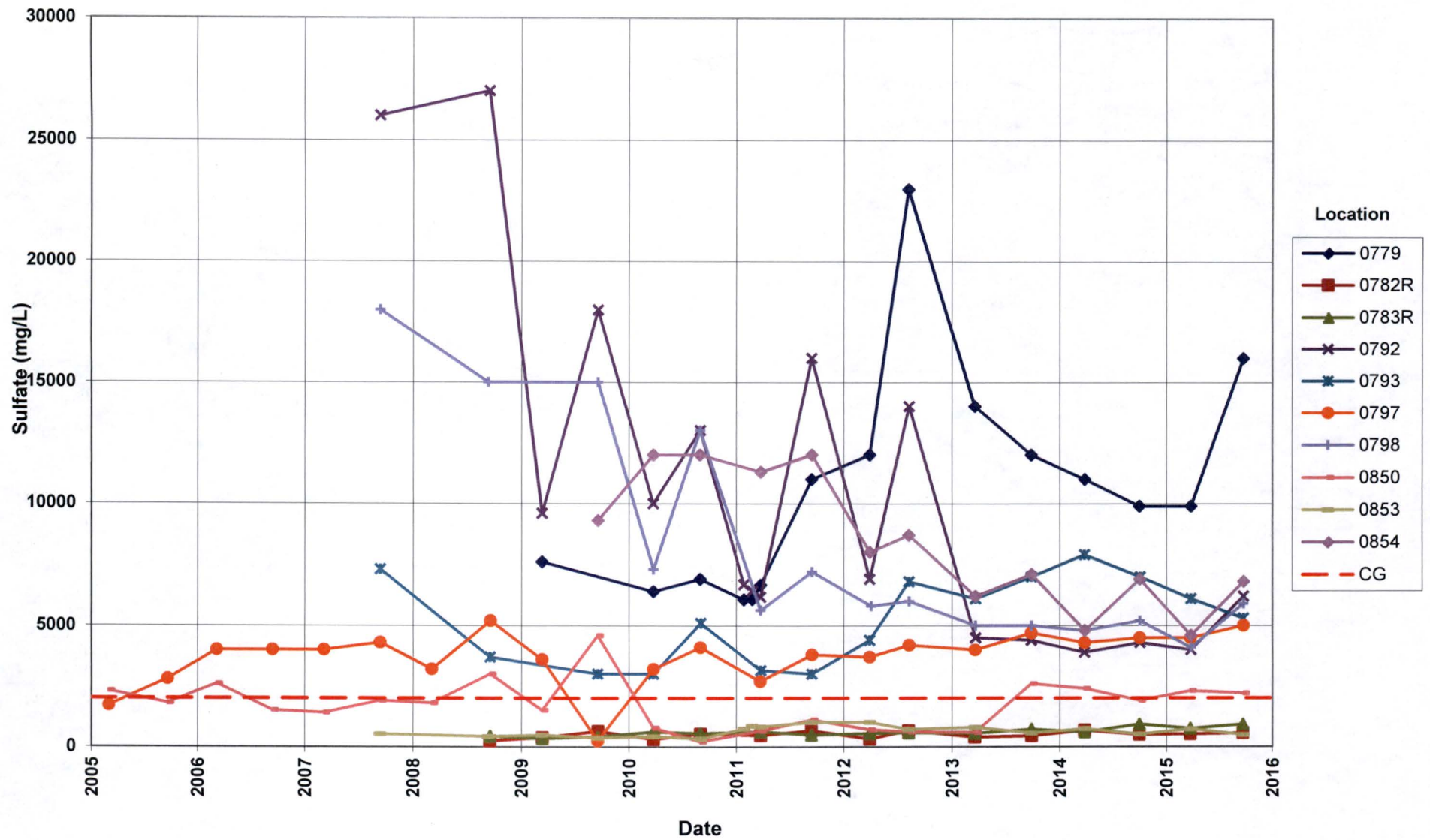
# Shiprock Disposal Site (Floodplain)

## Sulfate Concentration

Cleanup Goal (CG) = 2,000 mg/L



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

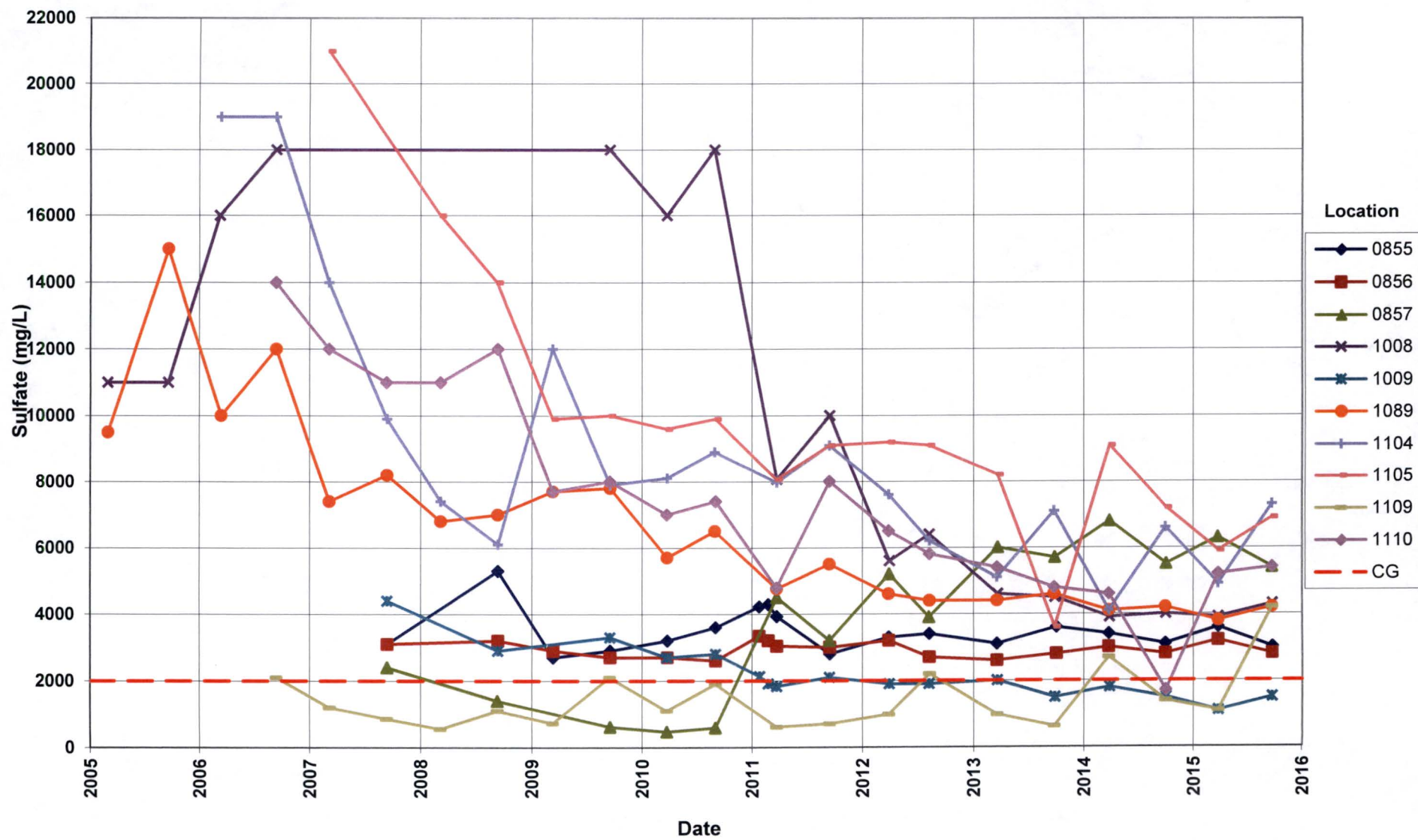




# Shiprock Disposal Site (Floodplain)

## Sulfate Concentration

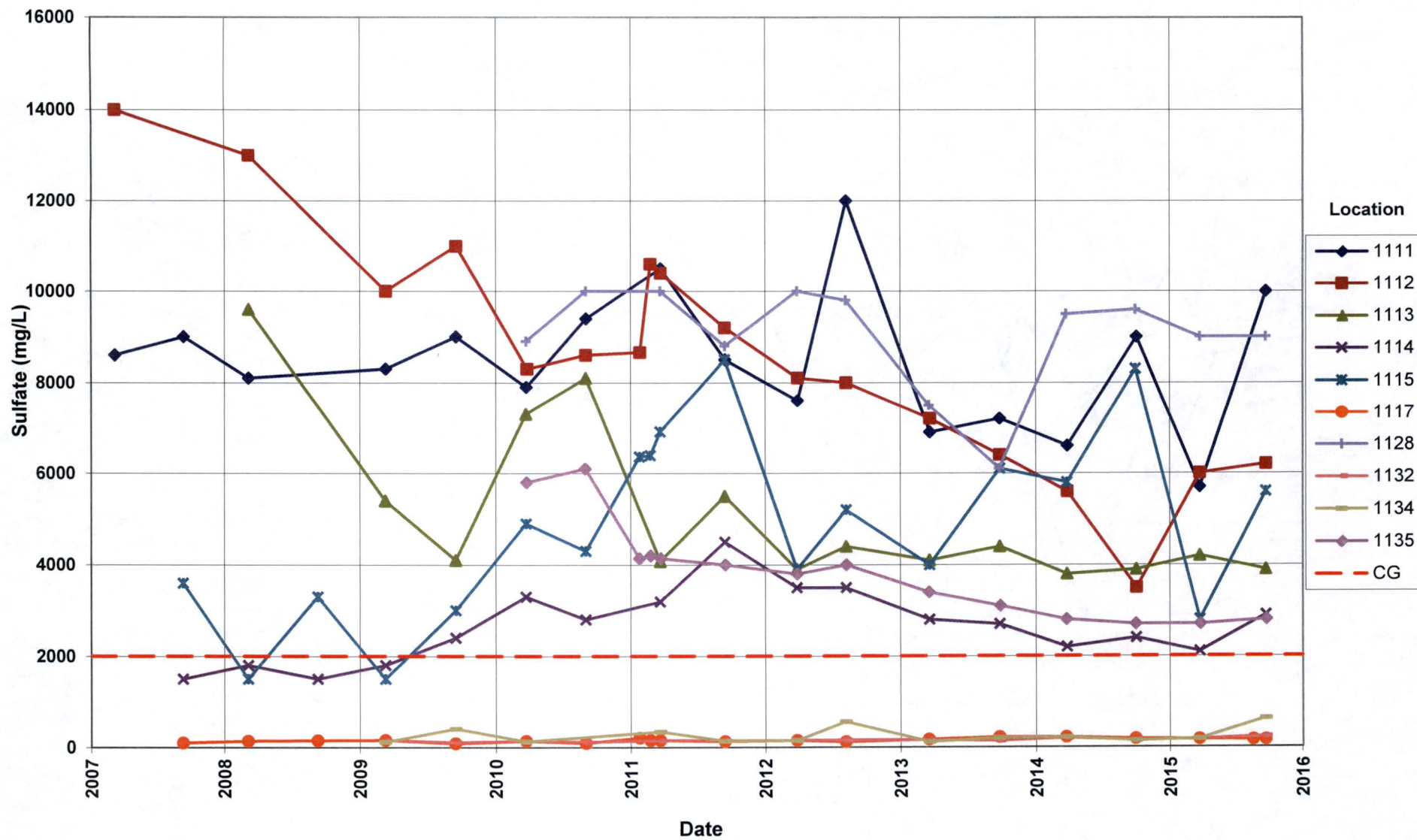
Cleanup Goal (CG) = 2,000 mg/L



# Shiprock Disposal Site (Floodplain)

## Sulfate Concentration

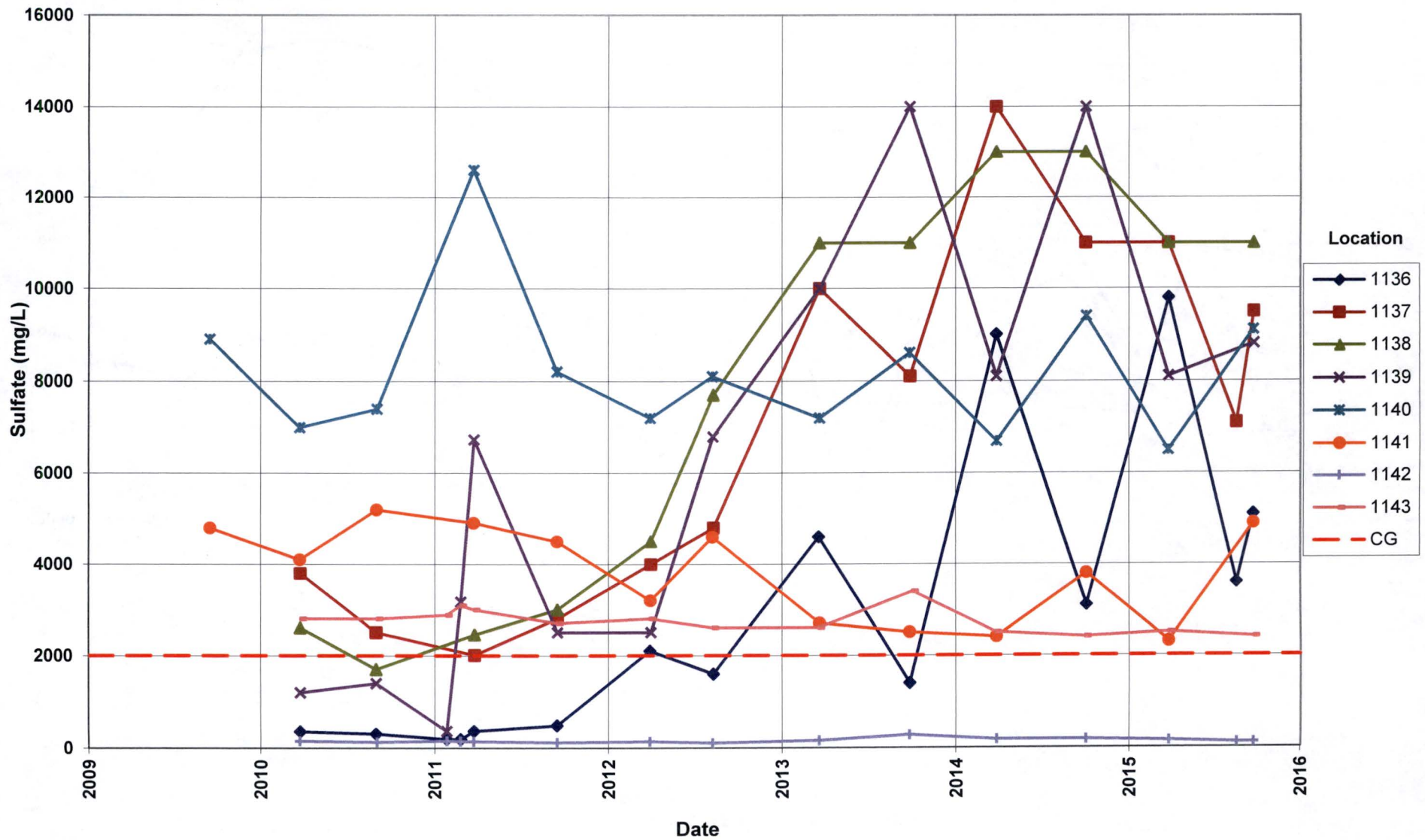
Cleanup Goal (CG) = 2,000 mg/L



# Shiprock Disposal Site (Floodplain)

## Sulfate Concentration

Cleanup Goal (CG) = 2,000 mg/L

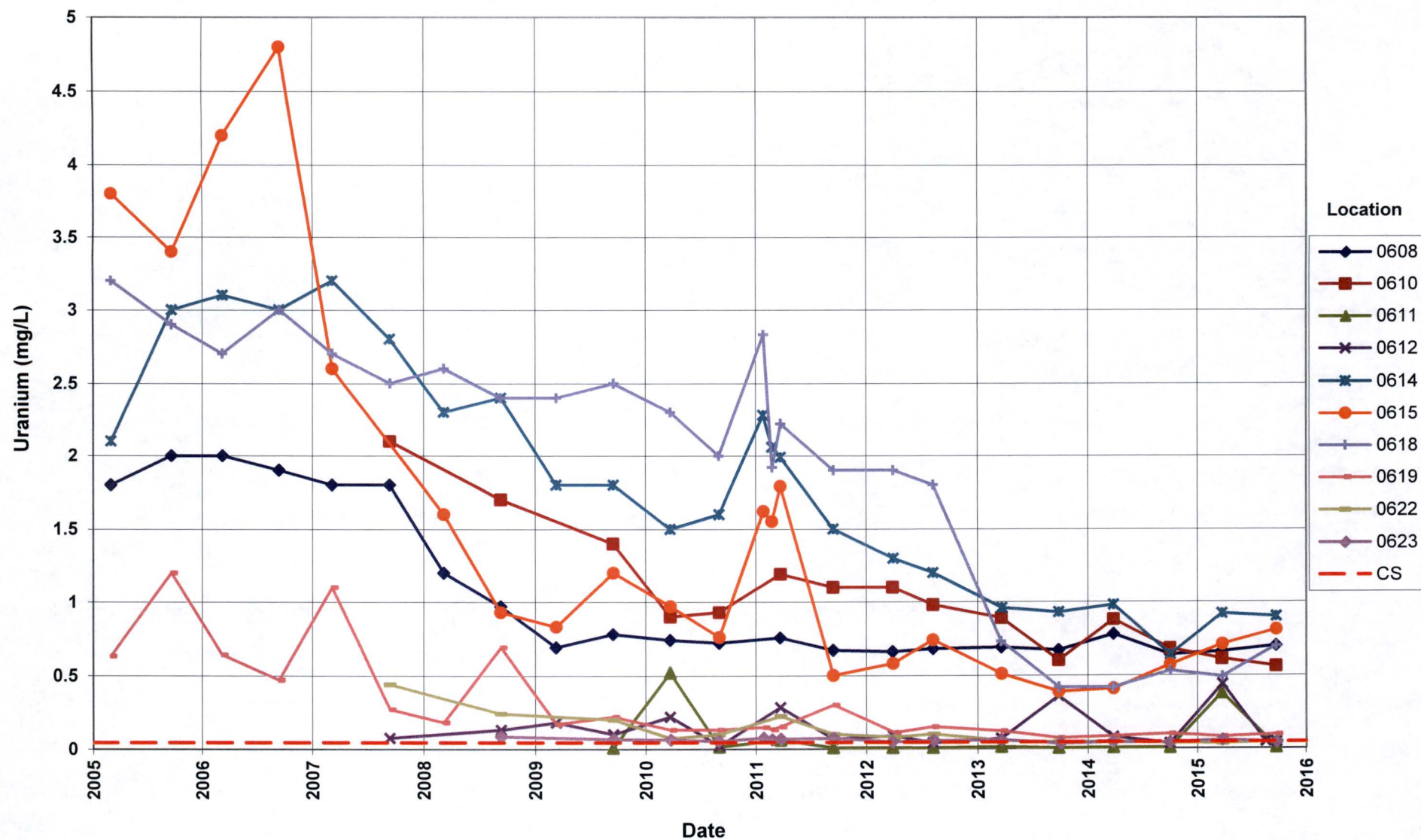




# Shiprock Disposal Site (Floodplain)

## Uranium Concentration

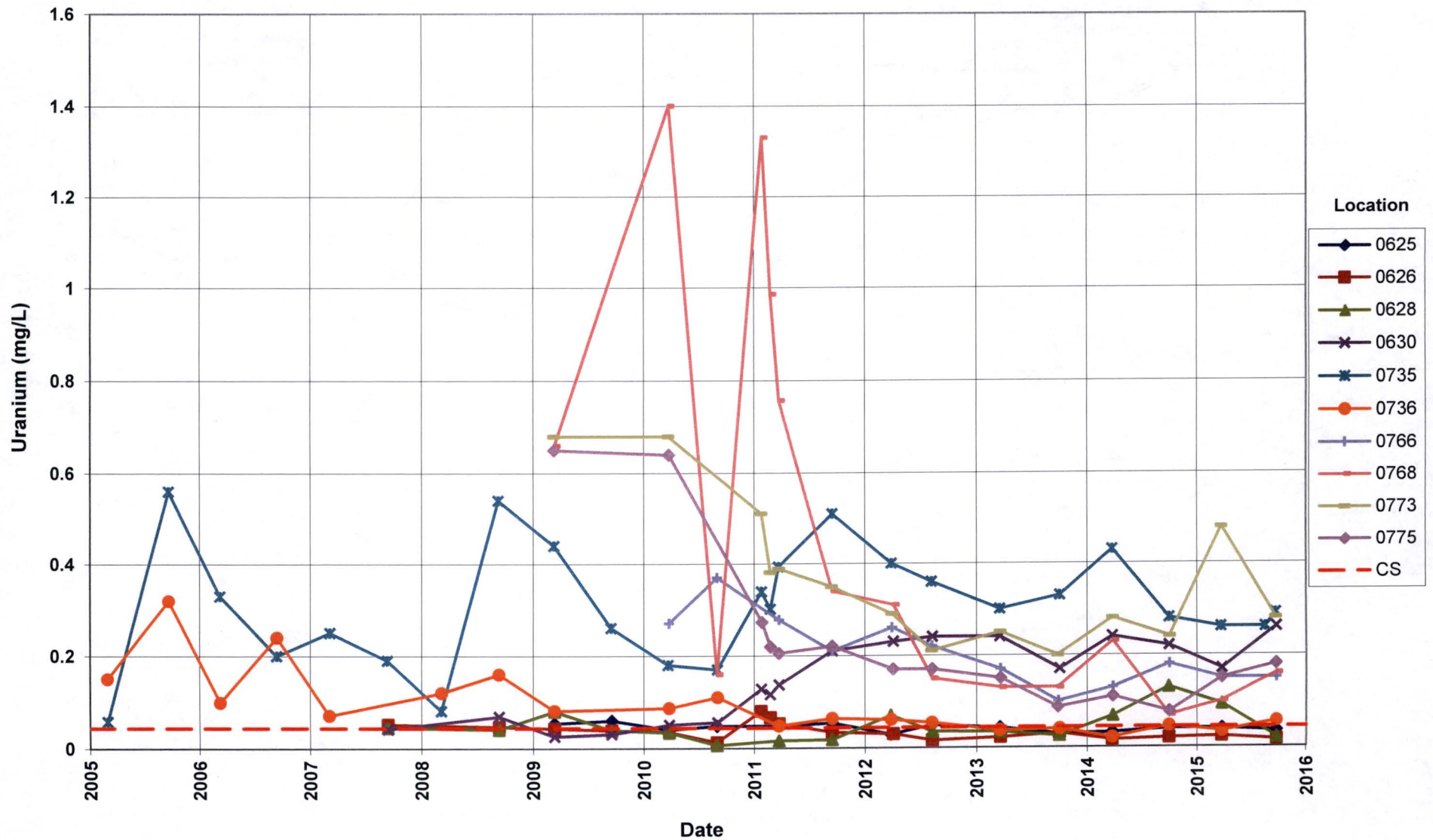
Compliance Standard (CS) = 0.044 mg/L



# Shiprock Disposal Site (Floodplain)

## Uranium Concentration

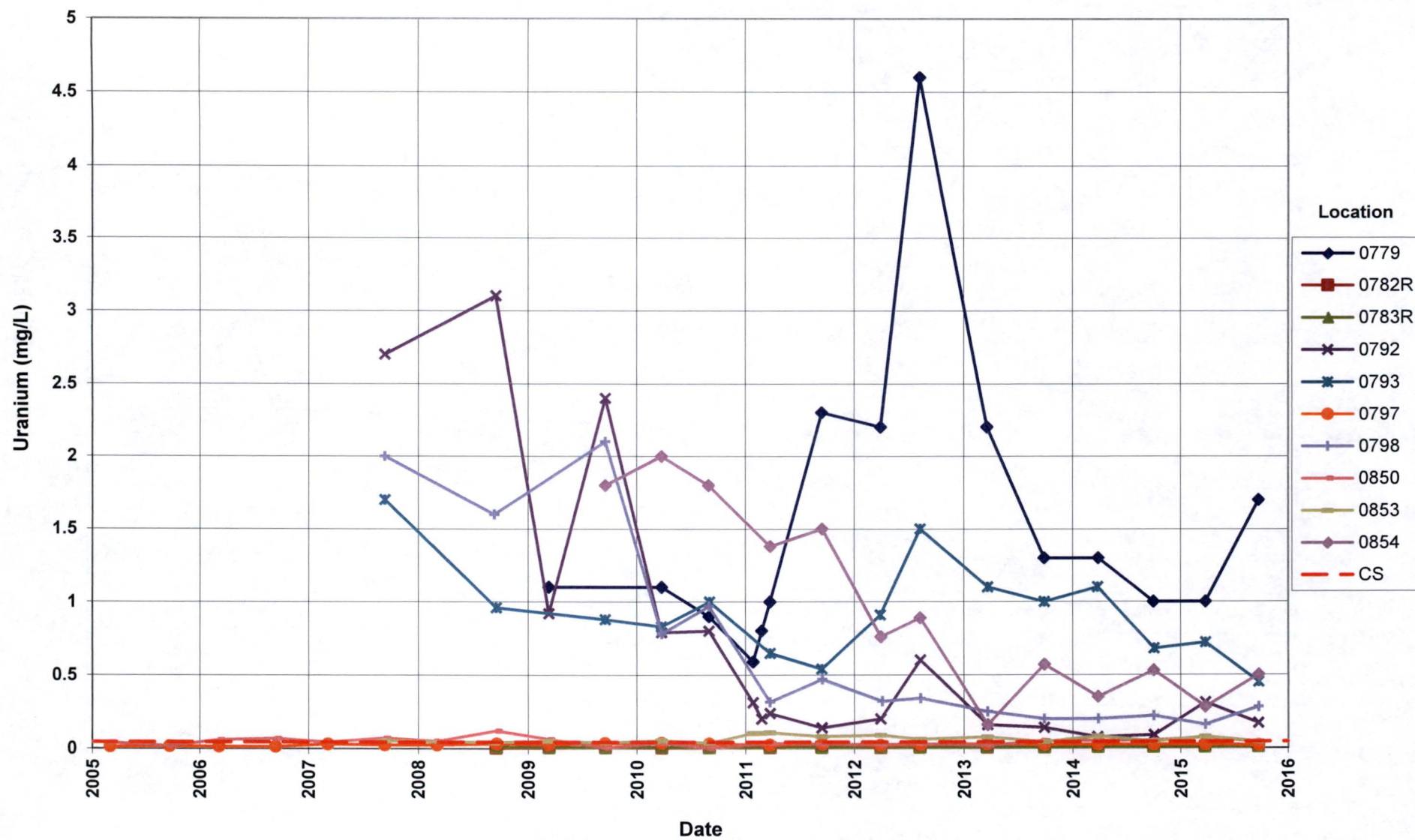
Compliance Standard (CS) = 0.044 mg/L



# Shiprock Disposal Site (Floodplain)

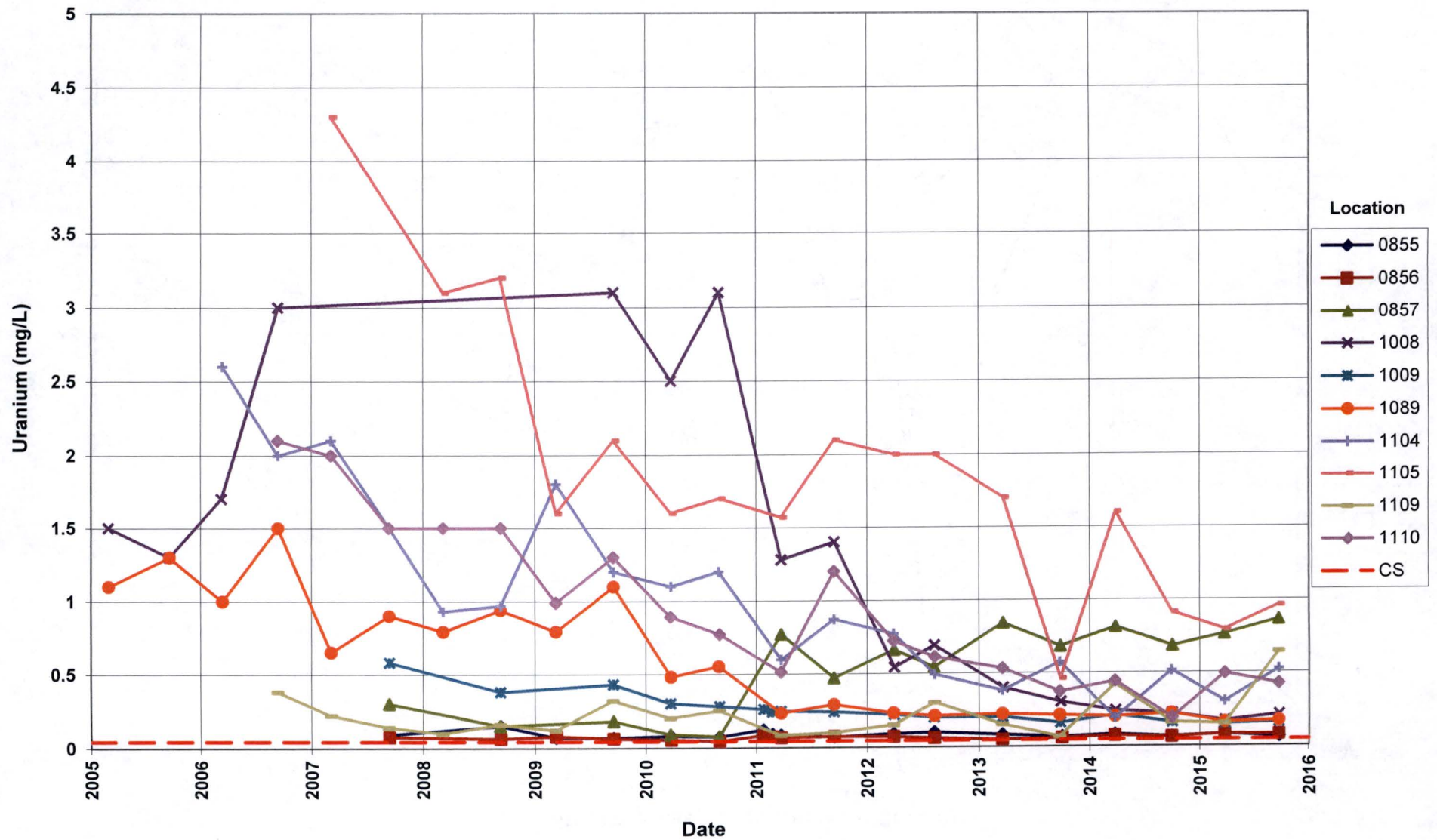
## Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L

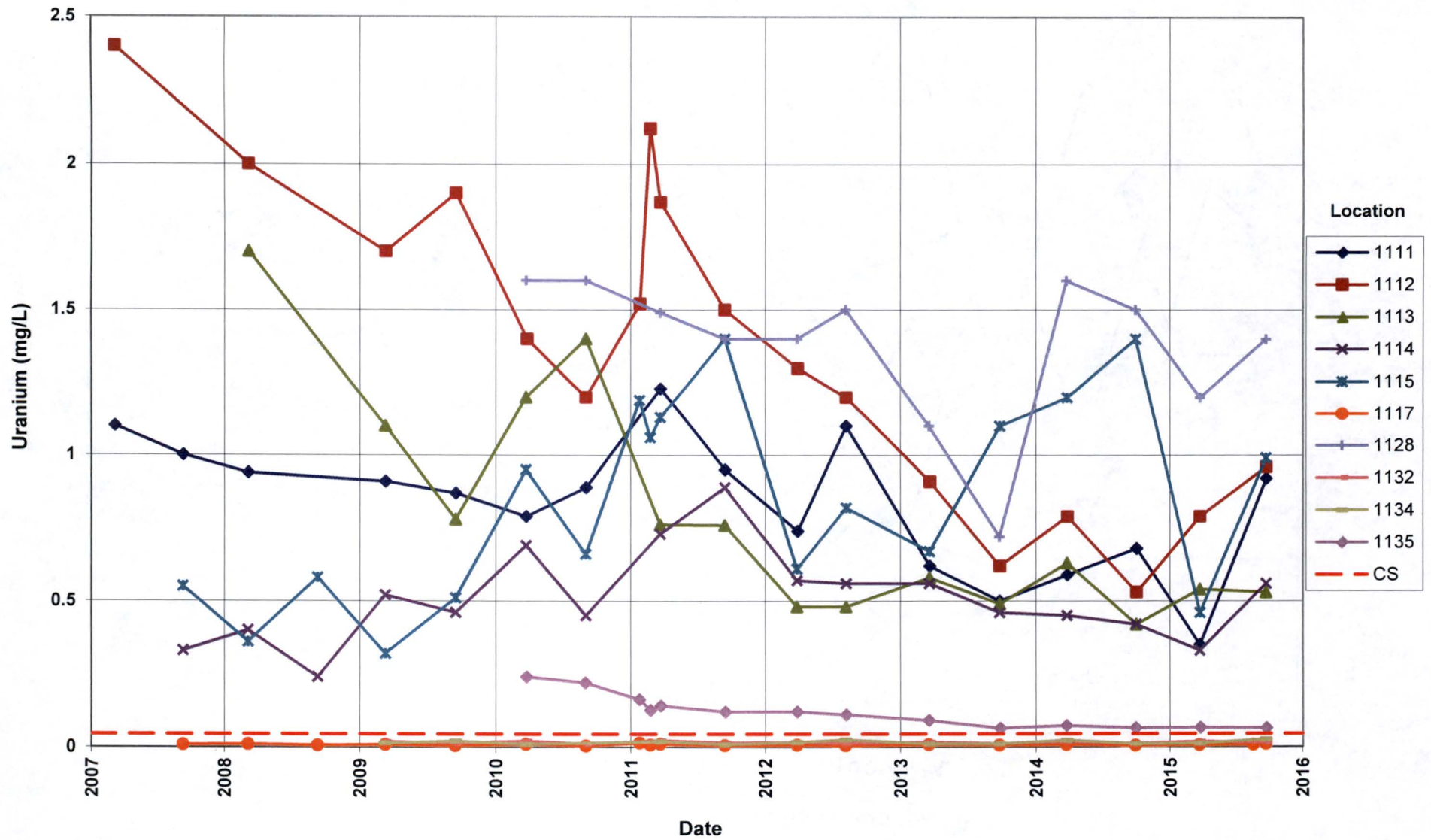




**Shiprock Disposal Site (Floodplain)**  
**Uranium Concentration**  
Compliance Standard (CS) = 0.044 mg/L



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

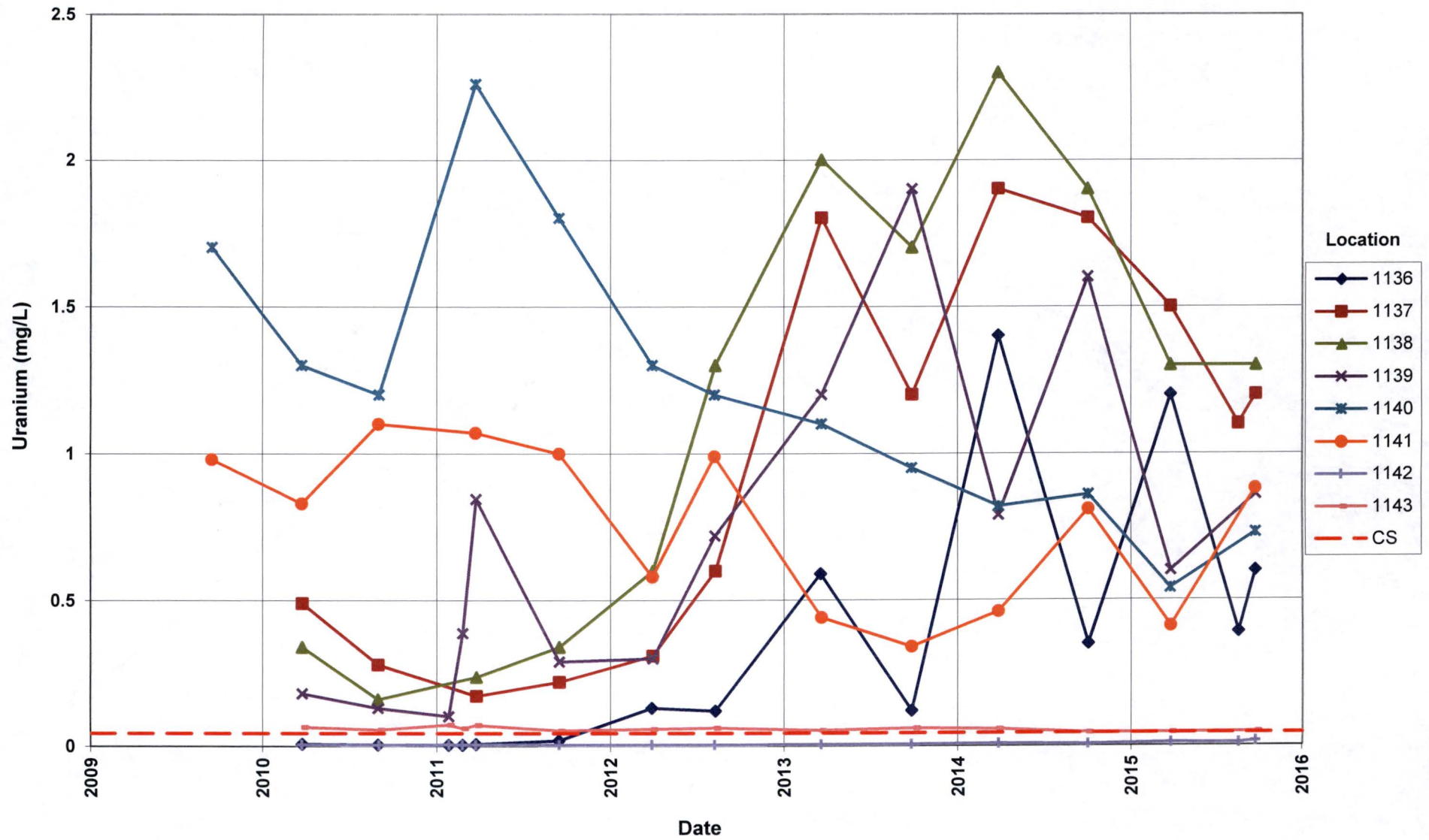




# Shiprock Disposal Site (Floodplain)

## Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L



## **Attachment 3**

# **Sampling and Analysis Work Order**

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**Stoller Newport News Nuclear**

August 24, 2015

Task Assignment 103  
Control Number 15-0758

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-LM0000415, Stoller Newport News Nuclear, Inc. (SN3),  
a wholly owned subsidiary of Huntington Ingalls Industries, Inc.  
Task Assignment 103 LTS&M - UMTRCA TI & TII, D&D, Others, and AS&T  
September 2015 Environmental Sampling at the Shiprock, New Mexico,  
Disposal Site

REFERENCE: Task Assignment 103, 3-103-1-02-119, 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 September 21, 2015.

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

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

**MONITORING WELLS\***

**Floodplain**

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

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**Terrace**

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

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

**SURFACE LOCATIONS**

**Floodplain**

501	897	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/lcg/bkb

Enclosures (3)

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Mark Kautsky  
Control Number 15-0758  
Page 3

cc: (electronic)  
Christina Pennal, DOE  
Steve Donovan, SN3  
Lauren Goodknight, SN3  
David Miller, SN3  
EDD Delivery  
rc-grand.junction  
File: SHP 400.02

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

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>Monitoring Wells</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				
<b>Monitoring Wells</b>						
<b>FLOODPLAIN - SHP01</b>						



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

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
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
648				Odd year		measure flow rate semiannually, sample biennially; next in 2015
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
<b>Monitoring Wells</b>						
<b>TERRACE - SHP02</b>						
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
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				
<b>Monitoring Wells</b>						
<b>TERRACE - SHP02</b>						
1060		X				
1067					X	WL only; Bob Lee Wash
1068		X				Bob Lee Wash
1069		X				Bob Lee Wash; data logger

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

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
1070		X				Ext. well; U, SO4, N as NO3 only at vault
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				Seep sump (423/420) U, SO4, N as NO3 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				



<p align="center"><b>Sampling Frequencies for Locations at Shiprock, New Mexico</b></p>
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Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>Surface Locations</b>						
<b>TERRACE - SHP02</b>						
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.**

### 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 (NH <sub>3</sub> -N)	X	X	0.1	EPA 350.1	WCH-A-005
Calcium	X	X	5	SW-846 6010	LMM-01
Chloride	X	X	0.5	SW-846 9056	MIS-A-039
Chromium					
Gross Alpha					
Gross Beta					
Iron					
Lead					
Magnesium	X	X	5	SW-846 6010	LMM-01
Manganese	X	X	0.005	SW-846 6010	LMM-01
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO <sub>3</sub> +NO <sub>2</sub> )-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium	X	X	1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium	X	X	1	SW-846 6010	LMM-01
Strontium	X	X	0.2	SW-846 6010	LMM-01
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
<b>Total No. of Analytes</b>	12	12			

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

## **Attachment 4**

### **Trip Report**

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## *Memorandum*

DATE: October 13, 2015  
TO: David Miller  
FROM: Jennifer Graham  
SUBJECT: Sampling trip report

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

**Dates of Sampling Event:** September 22-24, 2015

**Team Members:** Jennifer Graham, Dave Miller, Gretchen Baer, Jeff Price, David Dander, Rob Rice, Dan Sellers, and Samantha Tigar

**Sampling Summary:** Samples were collected from 128 of the 148 locations identified on the sampling notification letter as follows in Table 1. Locations SHP01 1130 and SHP02 1159 were added after notification letter was issued. Explanations for locations not sampled are listed in Table 2.

*Table 1: Sampled versus Planned Location Summary*

	Locations That Were Sampled	Planned Locations	Added locations
SHP01 Monitoring wells	59	59	1
SHP02 Monitoring wells	55	70	1
SHP01 Surface locations	10	11	
SHP02 Surface locations	5	8	

*Table 2: Locations Not Sampled/Reason*

Location	Reason
SHP01 Monitoring well: 0734	Dry
SHP02 Monitoring wells: 0820, 0821, 0823, 0825, 0829, 1002, 1003, 1004, 1048, 1060, 1069, 1120, 1122, 1159, and DM7	Dry
SHP02 Monitoring well: 0841	Not able to sample location or confirm water level due to an obstruction in well or possible nonfunctional pump.
SHP02 extraction well: 1088	Well not currently operating/ not sampled per site lead
SHP01 Surface location: 0655	Dry
SHP02 Surface locations: 0949, 1218, and 1221	Dry

**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 well locations; along with field measurements for free 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 August 18, 2015 *Gold King Technical Task Plan*. Additional analytes collected included Additional Metals (Ag, As, Cd, Cu, Hg, Pb and Zn), Uranium ( $^{234}\text{U}$ , and  $^{238}\text{U}$ ), Tritium, Water isotopes (H and O), and Sulfur stable isotopes in Sulfate.
- Field measurements for free chlorine were taken at select locations listed in Table 5. These measurements are recorded in the comments section of FDCS.

*Table 3: SHP01 Location Specific Information*

Location IDs	Comments
0612, 0628, 0766	Water has sulfur odor
0736	Small roots particles present in both purge and sample water. Data logger was removed and replaced in order to sample well.
0775	Water has sulfur odor and roots particles present in purge water.
0967	Filtered and nonfiltered samples were collected. Turbidity was >1000; sediment present in nonfiltered samples.
1118	Special samples taken directly from seep 0425 and 0426 outfall; normal samples taken from usual location.
1130	Sampling originally planned for additional metals only per site work plan (LMS/SHP/S13286); an additional bottle set for regular semiannual analytes was requested per D.Dander.
1141	Particulate in water and dirt has eroded away from concrete pad.

*Table 4: SHP02 Location Specific Information*

Location IDs	Comments
0814	Well initially met turbidity for field reading, as water was bailed for sample collection water became turbid and the metals sample required filtering.
0828	Both purge and sample water contains black particulates.
0832	Collected approximately 470 mL for metals bottle due to limited water in well. Samples collected required filtration due to turbidity.
0836	Outer casing is below ground level and lower than inner casing height. Well cannot be properly secured.
0837	Purge water contained black particulates.
0841	Not able to bring water up using bladder pump. Water level below pump level. Attempted to remove pump to bail water. Pump and data logger are locked in place. Did not sample well. Inner casing is broken off below ground surface.
0843	Black particulates in water
0848	Purge and sample water dark yellow color
1007	Required filtration due to turbidity.
1011	Collected ~250 mL for metals, 125 mL for nitrates, and ~50mL for anions due to limited water in well. Samples collected required filtration due to turbidity.
1069	Purged well dry, no sample taken



**Location Specific Free Chlorine Measurements:**

*Table 5: Free Chlorine Measurements*

Location ID	Site	Free Chlorine (mg/L)
0967	SHP01	0.00
0604	SHP02	0.15
0725	SHP02	0.65
0728	SHP02	1.05
0730	SHP02	1.63
0813	SHP02	0.16
0827	SHP02	0.49
0828	SHP02	2.20
0833	SHP02	1.73
0835	SHP02	0.06
1007	SHP02	0.14
1058	SHP02	0.00
1078	SHP02	0.20
1087	SHP02	0.26
1093R	SHP02	0.21
1095	SHP02	0.42
1096	SHP02	0.04
1110	SHP02	0.44
1118 (seeps 0425 & 0426)	SHP02	0.62
1215	SHP02	0.19

**Quality Control Sample Cross Reference:** The following are the false identifications assigned to the quality control samples. All locations were sampled with dedicated equipment.

False ID	Ticket Number	True ID	Sample Type	Associated Matrix
2210	NKU 060	01-1117	Duplicate	Ground Water
2211	NKU 061	01-0611	Duplicate	Ground Water
2215	NKU 059	01-1105	Duplicate	Ground Water
2592	NKU 064	01-1140	Duplicate	Ground Water
2319	NKU 120	02-1078	Duplicate	Ground Water
2320	NKU 121	02-1087	Duplicate	Ground Water
2665	NKU 128	02-0818	Duplicate	Ground Water
2811	NKU 113	02-1095	Duplicate	Ground Water
2757	NKV 047	01-1117	Duplicate	Ground Water
2758	NKV 048	01-1117	Duplicate	Ground Water
2788	NKV 070	02-0725	Duplicate	Ground Water
2789	NKV 091	02-1078	Duplicate	Ground Water

**Requisition Index Number (RIN) Assigned:** Samples were assigned to RINs 15097348, 15097349, 15097378, 15097379, and 15097380. Field data sheets can be found in \\crow\RAApps\SMS\15097348\FieldData and \\crow\RAApps\SMS\15097349\FieldData

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**Sample Shipment:**

- Samples associated with RINs 15097348, 15097349, and 15097378 were shipped overnight via FedEx from Grand Junction to ALS Laboratory Group in Fort Collins, CO on 09/28/15.
- Samples associated with RIN 15097379 were shipped overnight via FedEx from Grand Junction to GEL Laboratories in Charleston, SC on 09/28/15.
- Samples associated with RIN 15097380 were shipped overnight via FedEx from Grand Junction to RSI in Reston, VA on 09/28/15.

**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\RAApps\SMS\FDCS\WATER LEVELS.

**Well Inspection Summary:**

- SHP01 wells:
  - 1138 concrete broken around base of well
  - 1141 concrete around well base is hanging above the ground level
- SHP02 wells:
  - 0832 well needs sand or bentonite
  - 0836 needs outer casing raised
  - 0844 concrete base is hanging ~4" above ground level

**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.

Free chlorine measurements were taken using the Hach procedures manuals for its respective colorimeter model.

**Field Variance:** SHP02 well 1049 water level stability requirements for Category I wells was not confirmed. Water level readings could not be taken during sampling due to well diameter. All other samples were collected according to the SAP.

**Equipment:** All equipment functioned properly. Multi-gas meters were used to verify the air quality in the vaults. Colorimeters, Hach DR-890, and Hach DR-700 were used to collect field measurements for free chlorine.

**Dataloggers:** Dataloggers were downloaded and checked for accuracy at 15 locations as follows:

	Locations Downloaded	Planned Download Locations
SHP01 monitoring wells	2	2
SHP02 monitoring wells	13	13

Data and information from each data logger can be viewed electronically using SEEPro.

**Stakeholder/Regulatory/DOE:** Mark Kautsky, Department of Energy site manager and Joni Nofchissey, Navajo UMTRA/AML observed sampling activities on September 23, 2015.

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**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:** Wasp nests were treated at floodplain location 0625. Air monitoring results for all vaults indicated proper oxygen levels and no hazardous atmosphere.

**Access Issues:**

- Vegetation needs to be cleared at well SHP01 1136 for continued vehicle access.

**General Information:** Nothing to note.

**Immediate Actions Taken:**

- A high-visibility stake was placed near SHP02 0836.
- Left dedicated bailer at SHP02 1101.
- Chlorine measurement data was submitted to be added to the Environmental Data base (Issue Track ticket 2765).

**Future Actions Required or Suggested:**

- Wells needing redevelopment:
  - SHP01 wells: 0736, 0768, 0775, 0782R, 0850, 1141
  - SHP02 wells: 0827, 0828, 0837, 1049, 1057, 1079
- Pump Maintenance:
  - SHP02 wells:
    - 0822 & 0603 possible check valve malfunctions
    - 0841 pump may not be functioning and is lodged in well

cc: (electronic)  
Mark Kautsky, DOE  
David Dander, Navarro  
Steve Donovan, Navarro  
David Miller, Navarro  
EDD Delivery

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**Data Validation Package for the  
Shiprock, New Mexico, Disposal Site,  
September 2015**

The U.S. Department of Energy (DOE) has prepared a Data Validation Package containing the groundwater and surface water monitoring data generated from the September 2015 sampling event at the Shiprock, New Mexico, Disposal Site. This package includes worksheets and reports that document the sampling activities and validation procedures conducted. **At your request, you are receiving a hard copy of the report.**

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



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