

Data Validation Package

**March and May 2014
Groundwater and Surface Water
Sampling at the Shiprock, New Mexico,
Disposal Site**

June 2014



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Attachment 1—Assessment of Anomalous Data

Potential Outliers Report
Anomalous Data Review

Attachment 2—Data Presentation

Groundwater Quality Data Floodplain Locations
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Attachment 3—Sampling and Analysis Work Order

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Sampling Event Summary

Site: Shiprock, New Mexico, Disposal Site

Sampling Period: March 24–27 and May 1, 2014

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 14036011 and from terrace locations under RIN 14036013. Terrace location 1093R was not sampled in March due to safety concerns, but was sampled May 1 under RIN 140056142.

Monitoring of terrace locations is performed to determine the effectiveness of active remediation. Monitoring of floodplain locations is performed to determine the progress of the natural flushing process and the effectiveness of groundwater removal to prevent contaminants from reaching the San Juan River.

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 (COC) 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.

Floodplain wells with contaminant concentrations that exceeded compliance standards and cleanup goals presented in the plan are listed in Table 1. Time-concentration graphs for the COC in these wells are also included in this report.

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

Contaminant	Standard ^a	Location	Concentration
Manganese	2.74	0623	3.5
		0625	3.4
		0626	3.2
		0628	8.6
		0735	3.8
		0782R	3
		0855	3.6
		0857	5.2
		1105	4.5
		1115	3.1
		1128	4.4
		1136	5.9
		1137	6.9
		1138	6

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

Contaminant	Standard ^a	Location	Concentration
Nitrate/Nitrite as N	10	0608	31
		0610	230
		0614	110
		0630	21
		0735	780
		0773	17
		0779	12
		0857	24
		1105	52
		1109	110
		1110	27
		1111	19
		1112	56
		1113	220
		1114	47
		1115	300
		1118	47
		1128	640
		1136	45
		1137	26
		1138	23
Selenium	0.05	0610	0.24
		0614	1.7
		0630	0.14
		0734	0.08
		0735	0.22
		0773	0.10
		0779	0.10
		0793	0.18
		0857	0.12
		1105	0.27
		1110	0.20
		1111	0.16
		1112	1.0
		1113	0.32
		1115	0.08
		1118	0.23
		1140	0.12

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

Contaminant	Standard ^a	Location	Concentration
Sulfate	2000	0608	5600
		0610	5200
		0611	5000
		0614	5500
		0615	3700
		0618	4000
		0619	3000
		0622	2300
		0623	2600
		0625	2600
		0626	2000
		0628	5200
		0630	4200
		0655	3500
		0734	5300
		0735	14000
		0736	2800
		0766	3700
		0768	9800
		0775	3800
		0779	11000
		0792	3900
		0793	7900
		0797	4300
		0798	4800
		0850	2400
		0854	4800
		0855	3400
		0856	3000
		0857	6800
		1008	3900
		1089	4100
		1104	4100
		1105	9100
		1109	2700
		1110	4600
		1111	6600
		1112	5600
		1113	3800
		1114	2200
		1115	5800
		1118	5700
		1128	9300
		1135	2800
		1136	9000

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

Contaminant	Standard ^a	Location	Concentration
Sulfate	2000	1137	14000
		1138	13000
		1139	8100
		1140	6700
		1141	2400
		1143	2500
Uranium	0.044	0608	0.78
		0610	0.88
		0612	0.079
		0614	0.98
		0615	0.41
		0618	0.42
		0619	0.084
		0622	0.047
		0628	0.068
		0630	0.24
		0655	0.046
		0734	0.17
		0735	0.43
		0766	0.13
		0768	0.23
		0773	0.28
		0775	0.11
		0779	1.30
		0792	0.076
		0793	1.10
		0798	0.20
		0850	0.052
		0853	0.082
		0854	0.35
		0855	0.080
		0856	0.071
		0857	0.81
		1008	0.24
		1009	0.21
		1089	0.20
		1104	0.19
		1105	1.60
		1109	0.42
		1110	0.44
		1111	0.59
		1112	0.79
		1113	0.63
		1114	0.45
		1115	1.20

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

Contaminant	Standard ^a	Location	Concentration
Uranium	0.044	1118	0.46
		1128	1.60
		1135	0.070
		1136	1.30
		1137	1.90
		1138	2.30
		1139	0.79
		1140	0.82
		1141	0.46
		1143	0.057

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

Both filtered and unfiltered samples from the river locations were submitted. River location analyte concentrations of filtered and unfiltered samples were compared to statistical background threshold values (BTVs) in Tables 2 and 3. BTVs were calculated using data from location 0898, which is located upstream from the site on the San Juan River and used to perform background versus site comparisons. Concentrations at all river locations were less than the BTVs for all contaminants.

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

Location	Ammonium	Manganese	Nitrate	Selenium	Strontium	Sulfate	Uranium
BTV^a	0.1	0.93	0.82	0.0023	1.2	240	0.0075
0501	ND ^b	0.066	0.42	0.0007	1.1	180	0.0024
0897	ND	0.065	0.52	0.0014	1.0	190	0.0028
0899	ND	0.18	0.43	0.0010	1.1	180	0.0025
0940	ND	0.089	0.51	0.0008	1.1	200	0.0051
0956	ND	0.48	0.48	0.0019	1.1	180	0.0030
0965	ND	0.11	0.46	0.0009	1.1	180	0.0023
0967	ND	0.17	0.41	0.0010	1.1	190	0.0025
1203	ND	0.07	0.40	0.0009	1.1	190	0.0024
1205	ND	0.25	0.50	0.0010	1.1	180	0.0027

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

^a BTV values are calculated using ProUCL version 5.0 as provided by the USEPA.

^b ND = Not Detected.

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

Location	Ammonium	Manganese	Nitrate/Nitrite as N	Selenium	Strontium	Sulfate	Uranium
BTV ^a	0.1	0.027	1.1	0.002	1.3	280	0.0036
0501	ND ^b	0.0048	0.42	0.00095	1.0	180	0.0022
0897	ND	0.0058	0.49	0.00087	1.0	190	0.0022
0899	ND	0.0058	0.46	0.00068	1.0	190	0.0022
0940	ND	0.024	0.52	0.00074	1.0	200	0.0049
0956	ND	0.0099	0.47	0.00066	1.1	180	0.0023
0965	ND	0.006	0.46	0.00068	1.0	180	0.0021
0967	ND	0.023	0.44	0.00070	1.0	190	0.0023
1203	ND	0.018	0.40	0.00070	1.1	190	0.0023
1205	ND	0.0096	0.50	0.00067	1.0	190	0.0024

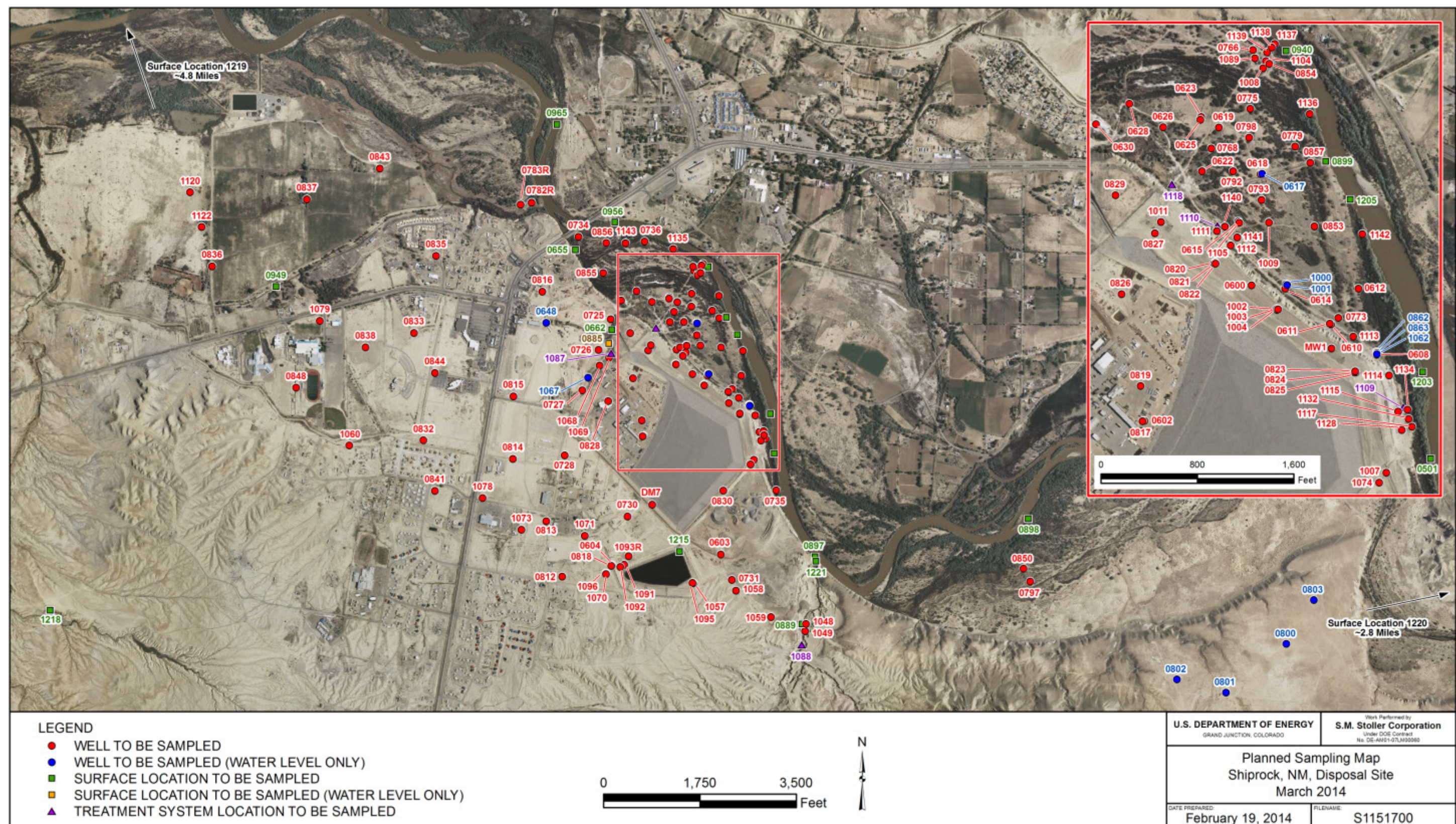
Units are in milligrams per liter (mg/L).

^a BTV values are calculated using ProUCL version 5.0 as provided by the USEPA.

^b ND = Not Detected.


 David Miller, Site Lead
 The S.M. Stoller Corporation,
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7/15/14
 Date



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Shiprock, New Mexico, Disposal Site, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Shiprock, New Mexico	Date(s) of Water Sampling	March 24–27 and May 1, 2014
Date(s) of Verification	June 2, 2014	Name of Verifier	Stephen Donovan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List any Program Directives or other documents, SOPs, instructions.	Yes	Work Order letter dated March 7, 2014. Program Directive SHP 2013-01.
2. Were the sampling locations specified in the planning documents sampled?	No	SHP02 surface water locations 0949 and 1218; and SHP02 groundwater locations 0820, 0821, 0823, 0825, 0829, 0832, 1002, 1003, 1004, 1011, 1048, 1060, 1120, 1122, and DM7 had insufficient water to sample. Location 1093R was sampled in May due to safety concerns during the March event.
3. Were calibrations conducted as specified in the above-named documents?	Yes	Calibrations were performed on March 21, 2014 and April 28, 2014.
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	No	Field measurements were not recorded at location SHP01-0734 because of insufficient water.
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	Eight duplicate samples were collected.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	One equipment blank was prepared.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were the true identities of the QC samples documented?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	No	Samples were collected for metals analysis only at locations 0730, 1068, and 1069 because of insufficient water.
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
19. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 14036011
Sample Event: March 24–27, 2014
Site(s): Shiprock Disposal Site (Floodplain), New Mexico
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1404020
Analysis: Metals and Wet Chemistry
Validator: Stephen Donivan
Review Date: May 13, 2014

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	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	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
1404020-1	0501	Selenium	J	PQL check result
1404020-2	0501	Selenium	J	PQL check result
1404020-3	0608	Selenium	J	PQL check result
1404020-5	0611	Selenium	J	PQL check result
1404020-6	0612	Selenium	J	PQL check result
1404020-10	0619	Selenium	J	PQL check result
1404020-14	0626	Selenium	J	PQL check result
1404020-20	0736	Selenium	J	PQL check result

Table 5 (continued). Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1404020-21	0766	Magnesium	J	Matrix spike recovery
1404020-21	0766	Potassium	J	Serial dilution result
1404020-26	0782R	Selenium	J	PQL check result
1404020-27	0783R	Selenium	J	PQL check result
1404020-30	0797	Selenium	J	PQL check result
1404020-34	0854	Selenium	J	PQL check result
1404020-36	0856	Selenium	J	PQL check result
1404020-40	0899	Selenium	J	PQL check result
1404020-42	0940	Selenium	J	PQL check result
1404020-44	0956	Selenium	J	PQL check result
1404020-46	0965	Selenium	J	PQL check result
1404020-48	0967	Selenium	J	PQL check result
1404020-61	1115	Nitrate + Nitrite as N	J	Matrix spike recovery
1404020-65	1132	Selenium	J	PQL check result
1404020-66	1134	Selenium	J	PQL check result
1404020-67	1135	Selenium	J	PQL check result
1404020-68	1136	Nitrate + Nitrite as N	J	Matrix spike recovery
1404020-69	1137	Selenium	J	Serial dilution result
1404020-74	1142	Selenium	J	PQL check result
1404020-75	1143	Selenium	J	PQL check result
1404020-76	1203	Selenium	J	PQL check result
1404020-78	1205	Selenium	J	PQL check result
1404020-81	1136 Duplicate	Nitrate + Nitrite as N	J	Matrix spike recovery
1404020-82	1137 Duplicate	Selenium	J	Serial dilution result
1404020-83	Equipment Blank	Manganese	J	Negative method blank result
1404020-84	0655 Duplicate	Selenium	J	PQL check result

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 85 water samples on April 1, 2014, 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 at 2.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the following exception. The labels for the preserved and unpreserved anions bottles from location 1205 were swapped.

The correct tests were assigned to the bottles by the laboratory based on the preservation. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run 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 April 8, 10, 14, and 15, 2014, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

Method EPA 353.2

Calibrations were performed for nitrate + nitrite as N on April 14, 2014, 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 April 11 and 14, 2014, 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 acceptance range of 70 to 130 percent.

Method SW-846 6020A

Calibrations for selenium and uranium were performed April 14, 2014, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 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. The selenium check result did not meet the acceptance criteria. Sample selenium results that are greater than the MDL but less than 5 times the PQL are qualified with a “J” flag as estimated values. 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 April 3, 2014, 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 one ammonia as N calibration blank and two nitrate/nitrite as N calibration blanks. The samples associated with these blanks either contained more than 10 times the analyte concentration than the blank, were below the MDL, or were re-analyzed with acceptable calibration blanks.

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

Inductively Coupled Plasma (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 evaluated with the following exceptions.

The nitrate + nitrite as N matrix spike and spike duplicate recoveries from samples 1115 and 1136 were below the acceptance range with recoveries of about 70 percent. Associated sample results are qualified with a “J” flag as estimated values.

The magnesium matrix spike and spike duplicate recoveries from sample 0766 were below the acceptance range with recoveries of about 75 percent. The associated sample result is qualified with a “J” flag as an estimated value.

Laboratory Replicate Analysis

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

Laboratory Control Samples

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with the following exceptions. The potassium serial dilution result for sample 0766 and the selenium serial dilution result for sample 1137 did not meet the acceptance criteria. The associated 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

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in

milliequivalents per liter. Table 6 shows the total anion and cation results in the samples from this event and the charge balance, which is an RPD calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

Table 6. Comparison of Major Anions and Cations

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0501	Surface Water (filtered)	6.88	6.76	0.9
0501	Surface Water (unfiltered)	7.17	6.76	2.9
0608	Groundwater	125.36	130.53	2.02
0610	Groundwater	133.53	136.23	1.00
0611	Groundwater	114.86	129.04	5.82
0612	Groundwater	21.06	22.54	3.40
0614	Groundwater	126.39	135.20	3.37
0615	Groundwater	81.87	87.27	3.19
0618	Groundwater	87.57	91.90	2.41
0619	Groundwater	63.37	73.14	7.16
0622	Groundwater	49.02	54.61	5.39
0623	Groundwater	58.99	63.80	3.92
0625	Groundwater	57.77	63.40	4.65
0626	Groundwater	43.35	47.25	4.30
0628	Groundwater	54.67	119.84	37.34
0630	Groundwater	96.25	104.86	4.28
0655	Surface Water	76.06	82.59	4.12
0734	Groundwater	124.65	113.78	4.56
0735	Groundwater	358.41	391.19	4.37
0736	Groundwater	58.46	65.07	5.35
0766	Groundwater	80.67	85.85	3.11
0768	Groundwater	200.90	226.67	6.03
0773	Groundwater	31.24	34.51	4.97
0775	Groundwater	82.88	89.54	3.86
0779	Groundwater	223.18	251.37	5.94
0782R	Groundwater	92.19	16.32	69.91
0783R	Groundwater	15.41	16.52	3.48
0792	Groundwater	85.49	89.88	2.50
0793	Groundwater	171.74	184.53	3.59
0797	Groundwater	93.20	100.23	3.63
0798	Groundwater	103.46	111.50	3.74
0850	Groundwater	55.68	59.29	3.14
0853	Groundwater	20.45	20.25	0.49
0854	Groundwater	102.80	112.65	4.57
0855	Groundwater	74.83	80.38	3.57
0856	Groundwater	60.35	70.30	7.61
0857	Groundwater	150.62	160.50	3.18
0897	Surface Water (filtered)	6.86	7.18	2.2

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

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0897	Surface Water (unfiltered)	6.97	7.18	1.5
0899	Surface Water (filtered)	6.96	7.07	0.8
0899	Surface Water (unfiltered)	7.43	6.85	4.1
0940	Surface Water (filtered)	7.32	7.29	0.2
0940	Surface Water (unfiltered)	7.55	7.29	1.8
0956	Surface Water (filtered)	7.13	6.90	1.7
0956	Surface Water (unfiltered)	8.14	6.87	8.4
0965	Surface Water (filtered)	6.88	6.87	0.1
0965	Surface Water (unfiltered)	7.22	6.87	2.5
0967	Surface Water (filtered)	6.98	6.12	6.6
0967	Surface Water (unfiltered)	7.36	6.12	9.2
1008	Groundwater	82.77	92.83	5.73
1009	Groundwater	43.97	41.51	2.88
1089	Groundwater	89.49	95.51	3.26
1104	Groundwater	88.16	94.91	3.68
1105	Groundwater	193.78	212.34	4.57
1109	Groundwater	81.18	73.05	5.27
1110	Groundwater	102.12	106.53	2.12
1111	Groundwater	150.72	164.03	4.23
1112	Groundwater	128.86	133.50	1.77
1113	Groundwater	99.80	103.55	1.85
1114	Groundwater	62.44	62.66	0.18
1115	Groundwater	157.90	164.66	2.10
1117	Groundwater	8.08	8.06	0.12
1118	Surface Water	130.13	138.76	3.21
1128	Groundwater	248.33	267.31	3.68
1132	Groundwater	7.82	7.75	0.48
1134	Groundwater	8.98	8.93	0.29
1135	Groundwater	56.70	64.57	6.49
1136	Groundwater	195.63	215.76	4.89
1137	Groundwater	293.10	328.26	5.66
1138	Groundwater	283.02	303.73	3.53
1139	Groundwater	167.95	187.27	5.44
1140	Groundwater	146.13	152.79	2.23
1141	Groundwater	55.62	57.89	2.00
1142	Groundwater	6.71	7.04	2.40
1143	Groundwater	52.16	58.84	6.02
1203	Surface Water (filtered)	6.88	7.09	1.5
1203	Surface Water (unfiltered)	7.09	7.09	0.0
1205	Surface Water (filtered)	6.83	9.68	17.3
1205	Surface Water (unfiltered)	7.53	9.45	11.3

meq/L = milliequivalents per liter

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

Analytical errors were suspected based on the charge balance differences for locations 0628 and 0782R and reanalysis of those samples was requested. The errors were confirmed and revised deliverables were issued by the laboratory.

There was no indication of laboratory errors associated with the data for location 1205. Both filtered and unfiltered samples were collected at this location, with good agreement between results.

Electronic Data Deliverable (EDD) File

The original EDD file that arrived on April 17, 2014, contained duplicate data for some of the analyses. A revision was requested and received on April 18, 2014. 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: 14036011 Lab Code: PAR Validator: Stephen Donovan Validation Date: 05/13/2014
Project: Shiprock Monitoring Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☐ Organics
of Samples: 85 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

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

All analyses were completed within the applicable holding times.

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

There was 1 trip/equipment blank evaluated.

There were 5 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 1 of 3

RIN: 14036011 Lab Code: PAR Date Due: 04/29/2014
 Matrix: Water Site Code: SHP01 Date Completed: 04/17/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	98.0	101.0	98.0	1.0	104.0	1.0	104.0
Calcium	ICP/ES	04/11/2014			OK	OK	OK	96.0				100.0	3.0	103.0
Calcium	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	100.0	97.0	99.0	1.0		3.0	
Calcium	ICP/ES	04/14/2014			OK	OK	OK	100.0					1.0	
Calcium	ICP/ES	04/14/2014			OK	OK	OK	98.0					2.0	
Magnesium	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	99.0	98.0	98.0	1.0	104.0	2.0	104.0
Magnesium	ICP/ES	04/11/2014			OK	OK	OK	98.0	75.0	76.0	0.0	107.0	4.0	108.0
Magnesium	ICP/ES	04/11/2014							100.0				3.0	
Magnesium	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	100.0	98.0	99.0	0.0		2.0	
Magnesium	ICP/ES	04/14/2014			OK	OK	OK	103.0					0.0	
Magnesium	ICP/ES	04/14/2014			OK	OK	OK	102.0						
Manganese	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	107.0	105.0	104.0	1.0		1.0	
Manganese	ICP/ES	04/11/2014			OK	OK	OK	104.0	95.0	96.0	0.0	95.0	2.0	103.0
Manganese	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	106.0	102.0	103.0	1.0	98.0	1.0	111.0
Manganese	ICP/ES	04/14/2014			OK	OK	OK	107.0					5.0	
Manganese	ICP/ES	04/14/2014			OK	OK	OK	105.0	81.0	91.0	1.0			
Potassium	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	97.0	109.0	109.0	0.0		13.0	82.0
Potassium	ICP/ES	04/11/2014			OK	OK	OK	98.0	94.0	94.0	0.0		7.0	82.0

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 2 of 3

RIN: 14036011 Lab Code: PAR Date Due: 04/29/2014
 Matrix: Water Site Code: SHP01 Date Completed: 04/17/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Potassium	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	99.0	108.0	109.0	0.0			
Potassium	ICP/ES	04/14/2014			OK	OK	OK	97.0	104.0	90.0	3.0			
Potassium	ICP/ES	04/14/2014			OK	OK	OK	100.0	93.0	95.0	1.0			
Selenium	ICP/MS	04/14/2014	0.0000	1.0000	OK	OK	OK	107.0	105.0	107.0	2.0	103.0		143.0
Selenium	ICP/MS	04/14/2014			OK	OK	OK	106.0	110.0	109.0	0.0			
Selenium	ICP/MS	04/14/2014			OK	OK	OK	110.0	107.0	103.0	4.0		31.0	
Selenium	ICP/MS	04/14/2014			OK	OK	OK	110.0	109.0	109.0	0.0			
Selenium	ICP/MS	04/14/2014			OK	OK	OK	110.0	107.0	115.0	6.0			
Sodium	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	99.0	114.0	111.0	2.0		2.0	83.0
Sodium	ICP/ES	04/11/2014			OK	OK	OK	100.0					4.0	84.0
Sodium	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	95.0	107.0	106.0	0.0		7.0	
Sodium	ICP/ES	04/14/2014			OK	OK	OK	96.0					1.0	
Sodium	ICP/ES	04/14/2014			OK	OK	OK	96.0					2.0	
Strontium	ICP/ES	04/11/2014	0.0000	1.0000	OK	OK	OK	99.0	101.0	99.0	1.0	97.0	2.0	99.0
Strontium	ICP/ES	04/11/2014			OK	OK	OK	99.0				99.0	3.0	102.0
Strontium	ICP/ES	04/14/2014	0.0000	1.0000	OK	OK	OK	103.0	96.0	99.0	1.0		2.0	
Strontium	ICP/ES	04/14/2014			OK	OK	OK	103.0					4.0	
Strontium	ICP/ES	04/14/2014			OK	OK	OK	104.0	86.0	88.0	0.0		4.0	

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 3 of 3

RIN: 14036011 Lab Code: PAR Date Due: 04/29/2014
 Matrix: Water Site Code: SHP01 Date Completed: 04/17/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Uranium	ICP/MS	04/14/2014	0.0000	1.0000	OK	OK	OK	101.0	106.0	107.0	0.0	101.0	4.0	100.0
Uranium	ICP/MS	04/14/2014			OK	OK	OK	104.0					1.0	
Uranium	ICP/MS	04/14/2014			OK	OK	OK	103.0	110.0	106.0	2.0		1.0	
Uranium	ICP/MS	04/14/2014			OK	OK	OK	99.0	117.0	110.0	4.0		1.0	
Uranium	ICP/MS	04/14/2014			OK	OK	OK	107.0					2.0	

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 14036011

Lab Code: PARDate Due: 04/29/2014Matrix: WaterSite Code: SHP01Date Completed: 04/17/2014

Analyte	Date Analyzed	CALIBRATION				Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
AMMONIA AS N	04/08/2014	0.000	1.0000	OK	OK	OK		102.0	116.0	13.00	
AMMONIA AS N	04/10/2014	0.000	1.0000	OK	OK	OK	106.00				
AMMONIA AS N	04/10/2014						105.00				
AMMONIA AS N	04/14/2014	0.000	1.0000	OK	OK	OK	105.00	104.0	111.0	6.00	
AMMONIA AS N	04/15/2014	0.000	1.0000	OK	OK	OK	103.00	88.0	92.0	1.00	
AMMONIA AS N	04/15/2014	0.000	1.0000	OK	OK	OK	105.00	103.0	113.0	10.00	
AMMONIA AS N	04/16/2014							99.0	95.0	4.00	
CHLORIDE	04/07/2014					OK	98.00	99.0	98.0	1.00	
CHLORIDE	04/08/2014					OK	99.00				
CHLORIDE	04/09/2014					OK	97.00	100.0	98.0	1.00	
CHLORIDE	04/09/2014							100.0	99.0	0	
CHLORIDE	04/11/2014					OK	99.00	100.0	100.0	0	
CHLORIDE	04/11/2014					OK	99.00	97.0			
CHLORIDE	04/12/2014								96.0	1.00	
Nitrate+Nitrite as N	04/14/2014	0.000	1.0000	OK	OK	OK	102.00	90.0	89.0	1.00	
Nitrate+Nitrite as N	04/14/2014					OK	102.00	103.0	102.0	1.00	

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

RIN: 14036011

Lab Code: PARDate Due: 04/29/2014Matrix: WaterSite Code: SHP01Date Completed: 04/17/2014

Analyte	Date Analyzed	CALIBRATION			Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV/CCB						
Nitrate+Nitrite as N	04/14/2014				OK	100.00	103.0	104.0	1.00	
Nitrate+Nitrite as N	04/14/2014				OK	101.00	93.0	70.0	6.00	
Nitrate+Nitrite as N	04/14/2014				OK	101.00	72.0	74.0	1.00	
SULFATE	04/07/2014				OK	96.00	98.0	96.0	1.00	
SULFATE	04/08/2014				OK	97.00				
SULFATE	04/09/2014				OK	95.00	98.0	97.0	1.00	
SULFATE	04/09/2014						99.0	99.0	0	
SULFATE	04/11/2014				OK	97.00	100.0	100.0	0	
SULFATE	04/11/2014				OK	97.00	102.0			
SULFATE	04/12/2014							101.0	1.00	

General Information

Report Number (RIN): 14036013
Sample Event: March 24–27, 2014
Site(s): Shiprock Disposal Site (Terrace), New Mexico
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1404016
Analysis: Metals and Wet Chemistry
Validator: Stephen Donivan
Review Date: May 20, 2014

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	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	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
1404016-1	0600	Selenium	J	PQL check result
1404016-2	0602	Selenium	J	PQL check result
1404016-2	0602	Potassium	J	Matrix spike recovery
1404016-7	0727	Selenium	J	PQL check result
1404016-8	0728	Selenium	J	PQL check result
1404016-19	0662	Selenium	J	PQL check result
1404016-21	0822	Selenium	J	PQL check result
1404016-23	0824	Magnesium	J	Serial dilution result
1404016-23	0824	Potassium	J	Serial dilution result
1404016-23	0824	Selenium	J	PQL check result
1404016-25	0826	Selenium	J	PQL check result

Table 8 (continued). Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1404016-25	0826	Uranium	J	Serial dilution result
1404016-32	0835	Selenium	J	PQL check result
1404016-50	1058	Selenium	J	PQL check result
1404016-61	1087	Selenium	J	Field duplicate precision
1404016-62	1088	Nitrate + Nitrite as N	J	Field duplicate precision
1404016-75	1088 Duplicate	Nitrate + Nitrite as N	J	Field duplicate precision
1404016-76	1087 Duplicate	Selenium	J	Field duplicate precision
1404016-77	0602 Duplicate	Potassium	J	Matrix spike recovery
1404016-79	MW1	Selenium	J	Replicate precision

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 79 water samples on April 1, 2014, accompanied by Chain of Custody forms. Copies of the air bills were included in the receiving documentation. The Chain of Custody forms were checked to confirm that all of the samples were listed and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the Chain of Custody forms had no errors or omissions with the following exception. Seventeen samples on the COC form were not collected. These samples appeared on the COC form without sample dates and times.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers between 1.8 and 4.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

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

Method EPA 350.1

Calibrations were performed for ammonia as N on April 3 and 4, 2014, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

Method EPA 353.2

Calibrations were performed for nitrate + nitrite as N on April 8, 2014, 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 April 9 and 10, 2014, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range of 70 to 130 percent.

Method SW-846 6020A

Calibrations for selenium and uranium were performed April 10, 2014, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 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. The selenium check result did not meet the acceptance criteria. Sample selenium results that are greater than the MDL but less than 5 times the PQL are qualified with a “J” flag as estimated values. 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 April 3, 2014, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

Method and Calibration Blanks

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

MDL, the associated sample results are qualified with a “U” flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

The method blank results for manganese and strontium were negative, with the absolute value of the result greater than the MDL. All associated sample results were greater than 5 times the MDL, requiring no qualification.

ICP 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

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

The potassium matrix spike recovery from sample 0602 was below the acceptance range with a recovery of 78 percent. The associated sample result is qualified with a “J” flag as an estimated value.

Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The RPD for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria, demonstrating acceptable laboratory precision, with the following exception. The replicate selenium results for sample MW1 did not meet the acceptance criteria. The associated sample result for selenium is qualified with a “J” flag as an estimated value.

Laboratory Control Samples

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with the following exception. The magnesium and potassium serial dilution results for sample 0824 and the uranium result for sample 0826 did not meet the acceptance criteria. Because of the possible reduced accuracy due to matrix interference, the associated 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

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in milliequivalents per liter. Table 9 shows the total anion and cation results in the samples from this event and the charge balance, which is an RPD calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

Table 9. Comparison of Major Anions and Cations

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0600	Groundwater	235.08	278.55	8.46
0602	Groundwater	386.96	479.79	10.71
0603	Groundwater	245.79	169.84	18.27
0604	Groundwater	370.69	432.48	7.69
0662	Surface Water	40.98	44.67	4.31
0725	Groundwater	54.70	61.87	6.15
0726	Groundwater	109.11	119.30	4.46
0727	Groundwater	249.96	316.96	11.82
0728	Groundwater	84.26	85.21	0.56
0731	Groundwater	87.58	103.73	8.44
0812	Groundwater	470.60	448.50	2.40
0813	Groundwater	401.17	432.31	3.74
0814	Groundwater	354.82	389.39	4.64
0815	Groundwater	361.19	400.97	5.22
0816	Groundwater	46.86	50.29	3.53
0817	Groundwater	319.07	346.23	4.08
0818	Groundwater	326.37	397.47	9.82
0819	Groundwater	300.96	331.52	4.83
0822	Groundwater	269.28	346.15	12.49
0824	Groundwater	291.14	364.29	11.16
0826	Groundwater	260.43	268.25	1.48
0827	Groundwater	173.57	178.85	1.50
0828	Groundwater	60.81	62.98	1.75
0830	Groundwater	37.87	36.71	1.56
0833	Groundwater	106.57	110.98	2.03
0835	Groundwater	7.21	7.77	3.77
0836	Groundwater	66.95	65.12	1.39

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

Location	Location Type	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0837	Groundwater	71.28	70.41	0.61
0838	Groundwater	169.22	173.94	1.38
0841	Groundwater	292.54	357.05	9.93
0843	Groundwater	48.52	49.42	0.92
0844	Groundwater	286.49	304.73	3.09
0848	Groundwater	350.30	403.14	7.01
0889	Surface Water	498.72	490.06	0.88
1007	Groundwater	334.89	337.00	0.31
1049	Groundwater	381.70	446.66	7.84
1057	Groundwater	214.40	210.14	1.00
1058	Groundwater	145.84	165.97	6.46
1059	Groundwater	207.40	243.15	7.93
1070	Groundwater	353.63	425.00	9.17
1071	Groundwater	309.65	390.37	11.53
1073	Groundwater	307.22	357.93	7.62
1074	Groundwater	289.69	316.92	4.49
1078	Groundwater	307.36	375.80	10.02
1079	Groundwater	105.18	115.93	4.86
1087	Groundwater	152.71	169.15	5.11
1088	Groundwater	368.32	462.11	11.29
1091	Groundwater	375.64	406.49	3.94
1092	Groundwater	359.36	418.86	7.65
1095	Groundwater	239.67	238.55	0.23
1096	Groundwater	311.25	399.20	12.38
1215	Surface Water	1102.26	1040.01	2.91
1219	Surface Water	60.56	43.14	16.79
1220	Surface Water	46.88	61.86	13.77
1221	Surface Water	432.87	404.92	3.34
MW1	Groundwater	182.91	214.83	8.02

meq/L = milliequivalents per liter

The charge balance difference exceeded 10 percent for 11 locations. Many of these locations are Category II or III wells where larger variations in the data are expected. There were no analytical errors identified during the review of the data associated with these locations. At locations 0730, 1068, and 1069, samples were collected for metals only and the charge balance difference cannot be calculated.

EDD File

The original EDD file that arrived on April 14, 2014, had the filtration status of sample MEU 471 reported incorrectly; a revised EDD file was received on April 15, 2014. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 14036013 Lab Code: PAR Validator: Stephen Donovan Validation Date: 05/19/2014
Project: Shiprock Monitoring Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☐ Organics
of Samples: 62 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

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

All analyses were completed within the applicable holding times.

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

There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 1 of 2

RIN: 14036013 Lab Code: PAR Date Due: 04/29/2014
 Matrix: Water Site Code: SHP01 Date Completed: 04/14/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	98.0			1.0	106.0	5.0	105.0
Calcium	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	100.0	94.0	97.0	1.0	105.0	9.0	107.0
Calcium	ICP/ES	04/10/2014					OK	99.0			1.0		3.0	
Calcium	ICP/ES	04/10/2014					OK	100.0			3.0		7.0	
Magnesium	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	97.0			0.0	107.0	7.0	107.0
Magnesium	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	101.0	90.0	89.0	0.0	105.0	21.0	112.0
Magnesium	ICP/ES	04/10/2014					OK	98.0			0.0		1.0	
Magnesium	ICP/ES	04/10/2014					OK	98.0			2.0		4.0	
Manganese	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	105.0	98.0	99.0	1.0	98.0	4.0	121.0
Manganese	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	100.0	106.0	107.0	0.0	97.0	7.0	111.0
Manganese	ICP/ES	04/10/2014					OK	102.0	88.0	87.0	0.0		4.0	
Manganese	ICP/ES	04/10/2014					OK	102.0	88.0	94.0	3.0		7.0	
Potassium	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	100.0	81.0	83.0	1.0		23.0	86.0
Potassium	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	98.0	96.0	94.0	1.0		3.0	82.0
Potassium	ICP/ES	04/10/2014					OK	96.0	117.0	120.0	1.0			82.0
Potassium	ICP/ES	04/10/2014					OK	97.0	78.0	85.0	2.0			
Selenium	ICP/MS	04/10/2014	0.0000	1.0000	OK	OK	OK	112.0	114.0	122.0	7.0	103.0		143.0
Selenium	ICP/MS	04/10/2014					OK	106.0	122.0	116.0	5.0			

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 2 of 2

RIN: 14036013 Lab Code: PAR Date Due: 04/29/2014
 Matrix: Water Site Code: SHP01 Date Completed: 04/14/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Selenium	ICP/MS	04/10/2014					OK	105.0	107.0	105.0	2.0			
Selenium	ICP/MS	04/10/2014					OK	108.0	105.0	101.0	4.0			
Sodium	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	98.0			1.0		3.0	85.0
Sodium	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	97.0			0.0		0.0	83.0
Sodium	ICP/ES	04/10/2014					OK	95.0			0.0		5.0	
Sodium	ICP/ES	04/10/2014					OK	97.0			2.0		2.0	
Strontium	ICP/ES	04/09/2014	0.0000	1.0000	OK	OK	OK	103.0			0.0	97.0	6.0	104.0
Strontium	ICP/ES	04/10/2014	0.0000	1.0000	OK	OK	OK	96.0			1.0	94.0	6.0	98.0
Strontium	ICP/ES	04/10/2014					OK	100.0			1.0		2.0	
Strontium	ICP/ES	04/10/2014					OK	101.0			2.0		6.0	
Uranium	ICP/MS	04/10/2014	0.0000	1.0000	OK	OK	OK	105.0			1.0	101.0	8.0	100.0
Uranium	ICP/MS	04/10/2014					OK	104.0			2.0		20.0	
Uranium	ICP/MS	04/10/2014					OK	105.0			2.0		2.0	
Uranium	ICP/MS	04/10/2014					OK	105.0	106.0	109.0	2.0		3.0	

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

RIN: 14036013

Lab Code: PARDate Due: 04/29/2014Matrix: WaterSite Code: SHP01Date Completed: 04/14/2014

Analyte	Date Analyzed	CALIBRATION				Method	LCS	MS	MSD	DUP	Serial Dil.
		Int.	R^2	CCV	CCB	Blank	%R	%R	%R	RPD	%R
AMMONIA AS N	04/03/2014	0.000	1.0000	OK	OK	OK	104.00				
AMMONIA AS N	04/04/2014	0.000	1.0000	OK	OK	OK	102.00	86.0	98.0	12.00	
AMMONIA AS N	04/04/2014					OK	108.00	83.0	101.0	7.00	
AMMONIA AS N	04/04/2014					OK	105.00				
CHLORIDE	04/04/2014	0.000	1.0000	OK	OK	OK	96.00	96.0	98.0	1.00	
CHLORIDE	04/06/2014			OK	OK	OK	97.00	94.0	96.0	2.00	
CHLORIDE	04/06/2014					OK	98.00				
CHLORIDE	04/07/2014							97.0	96.0	1.00	
Nitrate+Nitrite as N	04/08/2014	0.000	1.0000	OK	OK	OK	104.00	108.0	109.0	1.00	
Nitrate+Nitrite as N	04/08/2014					OK	105.00	87.0	75.0	4.00	
Nitrate+Nitrite as N	04/08/2014					OK	105.00	86.0	85.0	1.00	
SULFATE	04/04/2014	0.000	1.0000	OK	OK	OK	95.00	93.0	99.0	2.00	
SULFATE	04/06/2014			OK	OK	OK	94.00	94.0	98.0	1.00	
SULFATE	04/06/2014					OK	94.00				
SULFATE	04/07/2014							101.0	99.0	1.00	

General Information

Report Number (RIN): 14056142
Sample Event: May 1, 2014
Site(s): Shiprock Disposal Site (Terrace), New Mexico
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1405112
Analysis: Metals and Wet Chemistry
Validator: Stephen Donivan
Review Date: May 21, 2014

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 10.

Table 10. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as 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	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 11. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 11. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1405112-1	1093R	Nitrate + Nitrite as N	J	Matrix spike recovery
1405112-1	1093R	Potassium	J	Serial dilution result
1405112-1	1093R	Selenium	J	Matrix spike recovery

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received one water sample on May 7, 2014, accompanied by a Chain of Custody form. A copy of the air bill was included in the receiving documentation. The Chain of Custody form was checked to confirm that the sample was listed and that signatures and dates were present indicating sample relinquishment and receipt. The

sample submittal documents including the Chain of Custody form had no errors or omissions with the following exception. The sample collection date and time was not listed on the COC form. The sample was logged in using the date and time recorded on the sample label.

Preservation and Holding Times

The sample shipments were received intact with the temperature inside the iced cooler at 1.4 °C, which complies with requirements. The sample was received in the correct container types and had been preserved correctly for the requested analyses. The sample was analyzed within the applicable holding times.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

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

Method EPA 350.1

Calibrations were performed for ammonia as N on May 8, 2014, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria.

Method EPA 353.2

Calibrations were performed for nitrate + nitrite as N on May 9, 2014, 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 May 12, 2014, using three calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than 3 times the MDL.

Initial and continuing calibration verification checks were made at the required frequency with all calibration checks associated with reported results meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range of 70 to 130 percent.

Method SW-846 6020A

Calibrations for selenium and uranium were performed May 12, 2014, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 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. The selenium check result did not meet the acceptance criteria. The sample result for selenium was qualified on the basis of the matrix spike. 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 April 21, 2014, 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.

The method blank results for manganese and strontium were negative, with the absolute value of the result greater than the MDL. The associated sample results were greater than 5 times the MDL, requiring no qualification.

ICP 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

MS/MSD samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the

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

The nitrate+nitrite as N and selenium spike recoveries did not meet acceptance criteria with recoveries of 61 percent and 158 percent respectively. The associated sample results are qualified with a “J” flag as estimated values.

Laboratory Replicate Analysis

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

Laboratory Control Samples

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with the following exception. The potassium serial dilution result did not meet the acceptance criteria. Because of the possible reduced accuracy due to matrix interference, the associated sample result is qualified with a “J” flag as an estimated value.

Completeness

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

Chromatography Peak Integration

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

Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in milliequivalents per liter. Typically, a charge balance difference of 10 percent is considered acceptable. The charge balance for this sample is 3.2 percent indicating no errors associated with major ion analysis.

EDD File

The EDD file arrived on May 14, 2014. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 14056142 Lab Code: PAR Validator: Stephen Donovan Validation Date: 05/21/2014
Project: Shiprock Monitoring Analysis Type: ☒ Metals ☒ General Chem ☐ Rad ☐ Organics
of Samples: 1 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

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

All analyses were completed within the applicable holding times.

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

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

Page 1 of 1

RIN: 14056142 Lab Code: PAR Date Due: 06/04/2014
 Matrix: Water Site Code: SHP01 Date Completed: 05/15/2014

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Calcium	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	99.0	98.0		0.0	106.0	7.0	105.0
Magnesium	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	94.0			1.0	103.0	3.0	103.0
Manganese	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	98.0	87.0		0.0	93.0	7.0	106.0
Potassium	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	97.0	117.0		2.0		24.0	88.0
Selenium	ICP/MS	05/12/2014	0.0000	1.0000	OK	OK	OK	116.0	158.0		2.0		1.0	131.0
Sodium	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	99.0			2.0	98.0	1.0	87.0
Strontium	ICP/ES	05/12/2014	0.0000	1.0000	OK	OK	OK	101.0			2.0	97.0	4.0	95.0
Uranium	ICP/MS	05/12/2014	0.0000	1.0000	OK	OK	OK	100.0			1.0	106.0	6.0	90.0

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

RIN: 14056142

Lab Code: PARDate Due: 06/04/2014Matrix: WaterSite Code: SHP01Date Completed: 05/15/2014

Analyte	Date Analyzed	CALIBRATION				Method	LCS	MS	MSD	DUP	Serial Dil.
		Int.	R^2	CCV	CCB	Blank	%R	%R	%R	RPD	%R
AMMONIA AS N	05/08/2014	0.000	1.0000	OK	OK	OK	101.00				
CHLORIDE	05/08/2014	0.000	1.0000	OK	OK	OK	98.00	97.0	99.0	1.00	
Nitrate+Nitrite as N	05/09/2014	0.000	1.0000	OK	OK	OK	98.00	61.0	76.0	5.00	
SULFATE	05/08/2014	0.000	1.0000	OK	OK	OK	98.00	102.0	106.0	2.00	

Sampling Quality Control Assessment

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

Sampling Protocol

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

Floodplain wells 0734 and 0797; and terrace wells 0600, 0602, 0604, 0727, 0730, 0812, 0814, 0817, 0819, 0822, 0824, 0826, 0827, 1007, 1058, 1059, 1068, 1069, 1073, 1074, and MW1 were classified as Category II or III. The sample results for these wells were further qualified with a “Q” flag, indicating the data are qualitative because of the sampling technique.

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

Equipment Blank

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

Field Duplicate Analysis

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The RPD for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results (RPD is NA on the Field Duplicates report), the range should be no greater than the PQL.

Floodplain Locations

Duplicate samples were collected from locations 0655, 1128, 1135, 1136, and 1137. The duplicate results met the criteria with the following exceptions.

The selenium result from location 1137, and the manganese result from location 0655 had RPD values greater than 20 percent. During the review of the duplicate data, there were no additional analytical errors identified and sampling difficulties were not reported on the field data sheets. For those results where the RPD exceeded 20 percent, the precision observed is attributed to the complex sample matrix that required sample dilution prior to analysis for most analytes and those results are qualified with a “J” flag as estimated values. The duplicate results are acceptable as qualified.

Terrace Locations

Duplicate samples were collected from locations 0601, 1087, and 1088. The duplicate results met the criteria with the following exceptions

The nitrate+nitrite as N result from location 1088 and selenium result from location 1087 had RPD values greater than 20 percent. The precision observed is attributed to the complex sample matrix that required sample dilution prior to analysis for most analytes. The associated sample results are qualified with a “J” flag as estimated values.

Certification

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

Laboratory Coordinator:

Stephen Donovan
Stephen Donovan

6-24-2014
Date

Data Validation Lead:

Stephen Donovan
Stephen Donovan

6-24-2014
Date

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Attachment 1

Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

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

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

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

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

Twenty-six analytical results were identified as potential outliers. 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 from location SHP01-1136 show an overall upward shift in concentration for multiple analytes measured, in duplicate, by different methods, indicating that these results are representative of the samples collected.

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036011

Report Date: 06/03/2014

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	0608	N001	03/26/2014	Ammonia Total as N	52		F	420		JF	58		F	22	0	No
SHP01	0608	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	31		F	650		F	35.7		JF	22	0	NA
SHP01	0610	N001	03/26/2014	Selenium	0.24		F	0.239		F	0.005	U		30	3	No
SHP01	0612	N001	03/26/2014	Ammonia Total as N	1.2		F	0.91		F	0.1	U	F	12	2	No
SHP01	0614	N001	03/26/2014	Chloride	170		F	720		F	180		F	47	0	No
SHP01	0614	N001	03/26/2014	Magnesium	700		F	3200		F	760		F	47	0	No
SHP01	0614	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	110		F	1100		F	120		F	24	0	No
SHP01	0614	N001	03/26/2014	Sodium	1000		F	3200		F	1090			47	0	No
SHP01	0614	N001	03/26/2014	Strontium	6.2		F	14.1			6.4		F	45	0	NA
SHP01	0614	N001	03/26/2014	Sulfate	5500		F	17000		F	6300		F	47	0	No
SHP01	0615	N001	03/27/2014	Ammonia Total as N	0.11		F	54		JF	0.35		F	22	0	No
SHP01	0615	N001	03/27/2014	Chloride	75		F	980		F	78		F	44	0	NA
SHP01	0615	N001	03/27/2014	Manganese	0.14		F	9.75			0.46		F	44	0	NA
SHP01	0615	N001	03/27/2014	Nitrate + Nitrite as Nitrogen	0.25		F	1200		F	1.3		F	22	0	NA
SHP01	0615	N001	03/27/2014	Selenium	0.02		F	1.81			0.028		F	44	0	NA
SHP01	0618	N001	03/25/2014	Ammonia Total as N	16		F	72		F	22		F	26	0	No
SHP01	0618	N001	03/25/2014	Magnesium	270		F	2100		F	410		F	34	0	NA

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

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Report Date: 06/03/2014

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	0618	N001	03/25/2014	Manganese	2.7		F	11.3		F	3.6		F	33	0	NA
SHP01	0618	N001	03/25/2014	Nitrate + Nitrite as Nitrogen	0.072		F	360		F	0.086		F	27	0	No
SHP01	0618	N001	03/25/2014	Potassium	46		F	150		F	49		J	34	0	No
SHP01	0618	N001	03/25/2014	Selenium	0.0022		F	0.511	N	FJ	0.0067		F	34	0	No
SHP01	0618	N001	03/25/2014	Strontium	3.8		F	11.3		F	4.5			32	0	NA
SHP01	0622	N001	03/27/2014	Calcium	170		F	591			190		F	14	0	NA
SHP01	0622	N001	03/27/2014	Chloride	63		F	817	H		68		F	14	0	NA
SHP01	0622	N001	03/27/2014	Magnesium	58		F	2305			68		F	14	0	No
SHP01	0622	N001	03/27/2014	Manganese	0.39		F	6.2		F	0.67		F	14	0	No
SHP01	0622	N001	03/27/2014	Sodium	810		F	3756			830		F	14	0	NA
SHP01	0622	N001	03/27/2014	Sulfate	2300		F	14900			2400		F	14	0	NA
SHP01	0626	N001	03/25/2014	Chloride	59		F	414			62		F	38	0	NA
SHP01	0626	N001	03/25/2014	Sodium	740		F	2574			810		F	38	0	NA
SHP01	0626	N001	03/25/2014	Sulfate	2000		F	9100			2200		F	39	0	NA
SHP01	0628	N001	03/27/2014	Manganese	8.6		F	5.36			1.3		F	30	0	Yes
SHP01	0628	N001	03/27/2014	Sodium	2000		F	1900		F	730		F	29	0	No
SHP01	0734	N001	03/25/2014	Calcium	530		FQ	502			87		FQ	34	0	NA

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

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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	0736	N001	03/25/2014	Chloride	67		F	663			74		F	31	0	NA
SHP01	0736	N001	03/25/2014	Magnesium	33		F	1670			44		F	30	0	No
SHP01	0736	N001	03/25/2014	Sodium	880		F	4800			900		F	32	0	No
SHP01	0736	N001	03/25/2014	Strontium	3.6		F	11.1			4.3		F	32	0	No
SHP01	0736	N001	03/25/2014	Uranium	0.021		F	1.6			0.037		F	34	0	No
SHP01	0766	N001	03/27/2014	Chloride	93		F	1310			100		F	10	0	NA
SHP01	0766	N001	03/27/2014	Magnesium	140	N	FJ	3110			150		F	10	0	No
SHP01	0766	N001	03/27/2014	Sodium	1300		F	6490			1500		F	10	0	NA
SHP01	0766	N001	03/27/2014	Strontium	3.4		F	16			3.5		F	10	0	NA
SHP01	0766	N001	03/27/2014	Sulfate	3700		F	24600			4200		F	11	0	NA
SHP01	0768	N001	03/27/2014	Strontium	15		F	14.8		F	6.4		F	11	0	No
SHP01	0773	N001	03/26/2014	Chloride	52		F	197			54		F	14	0	No
SHP01	0773	N001	03/26/2014	Magnesium	160		F	911			170		F	14	0	NA
SHP01	0773	N001	03/26/2014	Potassium	16		F	67.9	E	J	26		F	14	0	No
SHP01	0773	N001	03/26/2014	Sodium	220		F	1030			230		F	14	0	No
SHP01	0775	N001	03/27/2014	Magnesium	120		F	1750		L	130		F	12	0	NA
SHP01	0775	N001	03/27/2014	Potassium	28		F	120	E	JL	31		F	12	0	No

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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	0775	N001	03/27/2014	Selenium	0.00098		F	0.124		L	0.001		F	13	2	No
SHP01	0775	N001	03/27/2014	Sulfate	3800		F	13300		L	4100		F	13	0	NA
SHP01	0779	N001	03/27/2014	Manganese	1.4		F	6.4		F	1.6		F	15	0	NA
SHP01	0782R	N001	03/26/2014	Ammonia Total as N	0.14		F	0.1	U	F	0.0721	J	UF	11	11	NA
SHP01	0782R	N001	03/26/2014	Calcium	130		F	110		F	53		F	11	0	No
SHP01	0782R	N001	03/26/2014	Sodium	190		F	180		F	72		F	11	0	No
SHP01	0782R	N001	03/26/2014	Strontium	1.6		F	1.5		F	0.67		F	11	0	No
SHP01	0782R	N001	03/26/2014	Sulfate	670		F	660		F	240		F	11	0	No
SHP01	0792	N001	03/25/2014	Magnesium	150		F	2500		F	190		F	16	0	No
SHP01	0792	N001	03/25/2014	Sodium	1200		F	6500		F	1300		F	16	0	No
SHP01	0792	N001	03/25/2014	Strontium	6.3		F	21		F	6.4		FJ	14	0	No
SHP01	0792	N001	03/25/2014	Sulfate	3900		F	27000		F	4400		F	16	0	No
SHP01	0792	N001	03/25/2014	Uranium	0.076		F	3.1		F	0.14		F	16	0	NA
SHP01	0793	N001	03/25/2014	Nitrate + Nitrite as Nitrogen	2.1		F	140		F	4		F	11	0	No
SHP01	0793	N001	03/25/2014	Sodium	1500		F	1300		F	510		F	12	0	No
SHP01	0793	N001	03/25/2014	Sulfate	7900		F	7300		F	2460			12	0	No
SHP01	0798	N001	03/27/2014	Ammonia Total as N	0.36		F	2.4		F	0.6		F	11	0	No

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Comparison: All Historical Data

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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	0798	N001	03/27/2014	Calcium	380		F	610		F	387		F	12	0	No
SHP01	0798	N001	03/27/2014	Chloride	120		F	908			130		F	12	0	No
SHP01	0798	N001	03/27/2014	Manganese	1.2		F	5.81			1.54		F	12	0	No
SHP01	0798	N001	03/27/2014	Sodium	1500		F	4800		F	1600		F	12	0	No
SHP01	0798	N001	03/27/2014	Strontium	5.1		F	15		F	5.6		F	12	0	No
SHP01	0798	N001	03/27/2014	Sulfate	4800		F	18000		F	5000		F	12	0	No
SHP01	0854	N001	03/27/2014	Calcium	310		F	840		F	320		F	17	0	NA
SHP01	0854	N001	03/27/2014	Chloride	110		F	1400			170		F	17	0	NA
SHP01	0854	N001	03/27/2014	Magnesium	300		F	3780			480		F	17	0	No
SHP01	0854	N001	03/27/2014	Manganese	2.2		F	12.8			2.4		F	18	0	No
SHP01	0854	N001	03/27/2014	Selenium	0.00068		FJ	0.0755		F	0.0022		F	18	0	No
SHP01	0854	N001	03/27/2014	Sodium	1400		F	7190			1700		F	17	0	No
SHP01	0854	N001	03/27/2014	Strontium	4.5		F	18.1			5.4		F	17	0	No
SHP01	0854	N001	03/27/2014	Sulfate	4800		F	27000			6200		F	18	0	NA
SHP01	0855	N001	03/25/2014	Manganese	3.6		F	3.1		F	1		F	22	0	NA
SHP01	0857	N001	03/27/2014	Chloride	240		F	230		F	17		F	16	0	No
SHP01	0857	N001	03/27/2014	Magnesium	720		F	670		F	51		F	16	0	No

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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	0857	N001	03/27/2014	Potassium	49		F	46		F	10		F	16	0	No
SHP01	0857	N001	03/27/2014	Selenium	0.12		F	0.01		F	0.0001	U		17	6	No
SHP01	0857	N001	03/27/2014	Sodium	1500		F	1200		F	140		F	16	0	No
SHP01	0857	N001	03/27/2014	Sulfate	6800		F	6000		F	470		F	17	0	No
SHP01	0899	0001	03/26/2014	Sulfate	190			180			100			18	0	No
SHP01	0956	N002	03/27/2014	Ammonia Total as N	0.36			0.16		J	0.0358	J	U	30	29	NA
SHP01	1008	N001	03/27/2014	Chloride	86		F	972		F	100		F	19	0	No
SHP01	1008	N001	03/27/2014	Magnesium	160		F	2760			210		F	19	0	No
SHP01	1008	N001	03/27/2014	Manganese	1.4		F	12.3			1.7		F	20	0	No
SHP01	1008	N001	03/27/2014	Selenium	0.0027		F	0.24		F	0.0038		F	20	0	No
SHP01	1008	N001	03/27/2014	Sodium	1100		F	5110			1300		F	19	0	No
SHP01	1008	N001	03/27/2014	Strontium	4.4		F	13.7			4.9		F	19	0	No
SHP01	1008	N001	03/27/2014	Sulfate	3900		F	19100			4500		F	20	0	No
SHP01	1008	N001	03/27/2014	Uranium	0.24		F	3.32			0.3		F	20	0	No
SHP01	1089	N001	03/25/2014	Chloride	100			690		F	110			18	0	NA
SHP01	1089	N001	03/25/2014	Magnesium	180			1700			200			18	0	No
SHP01	1089	N001	03/25/2014	Selenium	0.0022			0.094		F	0.0026			18	0	No

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Comparison: All Historical Data

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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	1089	N001	03/25/2014	Sulfate	4100			15000		F	4400			22	0	NA
SHP01	1089	N001	03/25/2014	Uranium	0.2			2.1			0.21			22	0	No
SHP01	1104	N001	03/25/2014	Chloride	100			920			150			14	0	No
SHP01	1104	N001	03/25/2014	Magnesium	170			1600			350			14	0	No
SHP01	1104	N001	03/25/2014	Nitrate + Nitrite as Nitrogen	0.64			180		F	2.5			16	0	No
SHP01	1104	N001	03/25/2014	Potassium	40			140			44			14	0	No
SHP01	1104	N001	03/25/2014	Selenium	0.0026			0.047			0.0055			14	0	No
SHP01	1104	N001	03/25/2014	Sodium	1300			3600			1600			14	0	No
SHP01	1104	N001	03/25/2014	Strontium	5			10			5.1			14	0	No
SHP01	1104	N001	03/25/2014	Sulfate	4100			19000		F	5100			16	0	No
SHP01	1104	N001	03/25/2014	Uranium	0.19			2.6		F	0.38			16	0	No
SHP01	1109	N001	03/25/2014	Calcium	290			210			76			15	0	NA
SHP01	1109	N001	03/25/2014	Chloride	120			98			28			15	0	NA
SHP01	1109	N001	03/25/2014	Magnesium	460			340			73			15	0	NA
SHP01	1109	N001	03/25/2014	Sodium	560			440			120			15	0	NA
SHP01	1109	N001	03/25/2014	Strontium	4.1			2.7			0.99			15	0	No
SHP01	1109	N001	03/25/2014	Sulfate	2700			2200			560			15	0	NA

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					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1109	N001	03/25/2014	Uranium	0.42			0.38			0.065			15	0	NA
SHP01	1110	N001	03/25/2014	Chloride	140			590			170			15	0	No
SHP01	1110	N001	03/25/2014	Magnesium	440			2000			460			15	0	No
SHP01	1110	N001	03/25/2014	Sodium	1100			3200			1300			15	0	No
SHP01	1110	N001	03/25/2014	Strontium	6.8			11			7.4			15	0	No
SHP01	1110	N001	03/25/2014	Sulfate	4600			14000			4790			16	0	NA
SHP01	1111	N001	03/27/2014	Ammonia Total as N	0.74		F	0.45		F	0.1	U	F	14	7	NA
SHP01	1111	N001	03/27/2014	Chloride	280		F	540		F	330		F	14	0	No
SHP01	1111	N001	03/27/2014	Magnesium	760		F	1600		F	810		F	14	0	No
SHP01	1111	N001	03/27/2014	Selenium	0.16		F	0.74		F	0.18		F	14	0	No
SHP01	1111	N001	03/27/2014	Sodium	1600		F	2880		F	1700		F	14	0	NA
SHP01	1111	N001	03/27/2014	Sulfate	6600		F	12000		F	6900		F	14	0	No
SHP01	1112	N001	03/27/2014	Ammonia Total as N	11		F	91		F	12		F	16	0	No
SHP01	1112	N001	03/27/2014	Chloride	140		F	530		F	200		F	16	0	No
SHP01	1112	N001	03/27/2014	Magnesium	700		F	2300		F	710		F	16	0	No
SHP01	1112	N001	03/27/2014	Nitrate + Nitrite as Nitrogen	56		F	840		F	120		F	16	0	No
SHP01	1112	N001	03/27/2014	Sodium	1100		F	3100		F	1400		F	16	0	No

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					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1112	N001	03/27/2014	Sulfate	5600		F	14000		F	6400		F	16	0	No
SHP01	1113	N001	03/26/2014	Sulfate	3800		F	9600		F	3900		F	12	0	No
SHP01	1114	N001	03/26/2014	Ammonia Total as N	70		F	440		F	75		F	14	0	NA
SHP01	1118	N001	03/25/2014	Strontium	9.9			9.86			8.2			16	0	No
SHP01	1132	N001	03/26/2014	Calcium	73		F	61		F	44		F	11	0	No
SHP01	1132	N001	03/26/2014	Chloride	20		F	18		F	8.8		F	11	0	No
SHP01	1132	N001	03/26/2014	Magnesium	21		F	20		F	13		F	11	0	NA
SHP01	1132	N001	03/26/2014	Sodium	53		F	42		F	30	E	FJ	11	0	No
SHP01	1132	N001	03/26/2014	Strontium	0.89		F	0.76		F	0.54		F	11	0	No
SHP01	1132	N001	03/26/2014	Sulfate	200		F	160		F	110		F	11	0	No
SHP01	1135	N001	03/25/2014	Chloride	67		F	130		F	73		F	11	0	No
SHP01	1135	N001	03/25/2014	Magnesium	88		F	400		F	100		F	11	0	No
SHP01	1135	N001	03/25/2014	Manganese	1.6		F	3.2		F	1.7		F	11	0	NA
SHP01	1135	N001	03/25/2014	Selenium	0.00024		FJ	0.0075	UN	FJ	0.00026		F	11	3	NA
SHP01	1135	N001	03/25/2014	Sodium	790		F	1700		F	930		F	11	0	No
SHP01	1135	N001	03/25/2014	Strontium	3.3		F	6		F	3.4		F	9	0	No
SHP01	1135	N001	03/25/2014	Sulfate	2800		F	6100		F	3100		F	11	0	No

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					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1135	N002	03/25/2014	Sulfate	2700		F	6100		F	3100		F	11	0	No
SHP01	1136	N001	03/27/2014	Ammonia Total as N	6.2		F	0.19		F	0.0411	J	UF	10	7	NA
SHP01	1136	N002	03/27/2014	Ammonia Total as N	6.2		F	0.19		F	0.0411	J	UF	10	7	NA
SHP01	1136	N002	03/27/2014	Chloride	390		F	270		F	14.7			10	0	No
SHP01	1136	N001	03/27/2014	Chloride	390		F	270		F	14.7			10	0	No
SHP01	1136	N001	03/27/2014	Magnesium	1100		F	480		F	18.3		F	10	0	Yes
SHP01	1136	N002	03/27/2014	Magnesium	1100		F	480		F	18.3		F	10	0	Yes
SHP01	1136	N002	03/27/2014	Manganese	5.9		F	4.8		F	0.863	E	F	10	0	Yes
SHP01	1136	N001	03/27/2014	Manganese	5.9		F	4.8		F	0.863	E	F	10	0	Yes
SHP01	1136	N001	03/27/2014	Potassium	30		F	18		F	2.32	B		10	0	Yes
SHP01	1136	N002	03/27/2014	Potassium	30		F	18		F	2.32	B		10	0	Yes
SHP01	1136	N001	03/27/2014	Selenium	0.022		F	0.0075	UN	FJ	0.000068	B	UF	10	4	No
SHP01	1136	N002	03/27/2014	Selenium	0.023		F	0.0075	UN	FJ	0.000068	B	UF	10	4	No
SHP01	1136	N001	03/27/2014	Sodium	1800		F	940		F	64		F	10	0	Yes
SHP01	1136	N002	03/27/2014	Sodium	1800		F	940		F	64		F	10	0	Yes
SHP01	1136	N002	03/27/2014	Strontium	9.3		F	7.2		F	0.972		F	8	0	No
SHP01	1136	N001	03/27/2014	Strontium	9.2		F	7.2		F	0.972		F	8	0	No

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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	1136	N001	03/27/2014	Sulfate	9000		F	4600		F	190			10	0	Yes
SHP01	1136	N002	03/27/2014	Sulfate	9000		F	4600		F	190			10	0	Yes
SHP01	1136	N001	03/27/2014	Uranium	1.3		F	0.59		F	0.00421	E	J	10	0	Yes
SHP01	1136	N002	03/27/2014	Uranium	1.4		F	0.59		F	0.00421	E	J	10	0	Yes
SHP01	1137	N002	03/27/2014	Ammonia Total as N	2		F	1.3		F	0.44		F	8	0	No
SHP01	1137	N001	03/27/2014	Ammonia Total as N	2.2		F	1.3		F	0.44		F	8	0	No
SHP01	1137	N002	03/27/2014	Chloride	550		F	530		F	48.4		F	8	0	No
SHP01	1137	N001	03/27/2014	Chloride	550		F	530		F	48.4		F	8	0	No
SHP01	1137	N001	03/27/2014	Magnesium	1600		F	1400		F	184		F	8	0	No
SHP01	1137	N002	03/27/2014	Magnesium	1600		F	1400		F	184		F	8	0	No
SHP01	1137	N001	03/27/2014	Manganese	6.9		F	5.7		F	0.924		F	8	0	No
SHP01	1137	N002	03/27/2014	Manganese	6.8		F	5.7		F	0.924		F	8	0	No
SHP01	1137	N002	03/27/2014	Potassium	73		F	52		F	12		F	8	0	No
SHP01	1137	N001	03/27/2014	Potassium	71		F	52		F	12		F	8	0	No
SHP01	1137	N002	03/27/2014	Selenium	0.009	E	FJ	0.0086		F	0.002		F	8	0	No
SHP01	1137	N002	03/27/2014	Sodium	3100		F	2000		F	570		F	8	0	No
SHP01	1137	N001	03/27/2014	Sodium	3100		F	2000		F	570		F	8	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036011

Report Date: 06/03/2014

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	1137	N002	03/27/2014	Sulfate	14000		F	10000		F	2010		F	8	0	No
SHP01	1137	N001	03/27/2014	Sulfate	14000		F	10000		F	2010		F	8	0	No
SHP01	1137	N001	03/27/2014	Uranium	1.9		F	1.8		F	0.172		F	8	0	No
SHP01	1138	N001	03/27/2014	Ammonia Total as N	2.4		F	0.91		F	0.271		F	8	0	No
SHP01	1138	N001	03/27/2014	Magnesium	1600		F	1500		F	120		F	8	0	No
SHP01	1138	N001	03/27/2014	Potassium	75		F	71		F	17.8		F	8	0	No
SHP01	1138	N001	03/27/2014	Sodium	2900		F	2500		F	490		F	8	0	No
SHP01	1138	N001	03/27/2014	Sulfate	13000		F	11000		F	1700		F	8	0	No
SHP01	1138	N001	03/27/2014	Uranium	2.3		F	2		F	0.16		F	8	0	No
SHP01	1140	N001	03/27/2014	Calcium	380		F	510		F	390		F	9	0	No
SHP01	1140	N001	03/27/2014	Chloride	180		F	461		F	220		F	9	0	No
SHP01	1140	N001	03/27/2014	Magnesium	720		F	1640		F	860		F	9	0	No
SHP01	1140	N001	03/27/2014	Nitrate + Nitrite as Nitrogen	5.5		F	320		F	18		F	9	0	No
SHP01	1140	N001	03/27/2014	Selenium	0.12		F	1.22	N	F	0.13		F	9	0	NA
SHP01	1140	N001	03/27/2014	Strontium	5.8		F	9.23		F	6.2		F	9	0	No
SHP01	1140	N001	03/27/2014	Sulfate	6700		F	12600		F	7000		F	9	0	No
SHP01	1140	N001	03/27/2014	Uranium	0.82		F	2.26		F	0.95		F	9	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036011

Report Date: 06/03/2014

					Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP01	1141	N001	03/27/2014	Chloride	45		F	140		F	53		F	9	0	No
SHP01	1141	N001	03/27/2014	Potassium	30		F	72		F	33		F	9	0	No
SHP01	1141	N001	03/27/2014	Sodium	330		F	844		F	380		F	9	0	No
SHP01	1141	N001	03/27/2014	Sulfate	2400		F	5200		F	2500		F	9	0	No
SHP01	1142	N001	03/27/2014	Uranium	0.0076		F	0.00577		F	0.0042		F	10	0	Yes
SHP01	1143	N001	03/25/2014	Ammonia Total as N	0.12		F	0.11		F	0.0502	J	UF	10	7	NA
SHP01	1143	N001	03/25/2014	Calcium	180		F	242		F	190		F	10	0	No
SHP01	1143	N001	03/25/2014	Chloride	67		F	96.1			68		F	10	0	No
SHP01	1143	N001	03/25/2014	Magnesium	59		F	88.6		F	63		F	10	0	No
SHP01	1143	N001	03/25/2014	Selenium	0.000094	B	FJ	0.0075	UN	FJ	0.00013		F	10	3	NA
SHP01	1143	N001	03/25/2014	Sulfate	2500		F	3400		F	2600		F	10	0	No
SHP01	1203	N002	03/24/2014	Ammonia Total as N	0.19			0.1	U		0.016	U		29	29	NA

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

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	0600	N001	03/24/2014	Magnesium	240		FQ	858			250		FQ	29	0	NA
SHP02	0602	N001	03/25/2014	Ammonia Total as N	68		FQ	380		F	69		FQ	11	0	No
SHP02	0602	N002	03/25/2014	Magnesium	1200		FQ	2940			1300		FQ	29	0	NA
SHP02	0602	N001	03/25/2014	Magnesium	1100		FQ	2940			1300		FQ	29	0	NA
SHP02	0602	N002	03/25/2014	Manganese	0.72		FQ	2.4			0.74	E	FQJ	30	0	NA
SHP02	0602	N001	03/25/2014	Manganese	0.65		FQ	2.4			0.74	E	FQJ	30	0	NA
SHP02	0602	N002	03/25/2014	Nitrate + Nitrite as Nitrogen	31		FQ	30		F	5.17		FQ	12	0	No
SHP02	0602	N001	03/25/2014	Sodium	6200		FQ	6100		FQ	2120			29	0	NA
SHP02	0602	N002	03/25/2014	Sulfate	19000		FQ	18100			12500	I		32	0	NA
SHP02	0603	N001	03/26/2014	Ammonia Total as N	1400		F	920		F	750		F	13	0	Yes
SHP02	0603	N001	03/26/2014	Calcium	1200		F	1100		F	367			24	0	NA
SHP02	0603	N001	03/26/2014	Selenium	0.074		F	0.455			0.076		F	24	0	NA
SHP02	0603	N001	03/26/2014	Strontium	5.9		F	5.1		F	2.33		F	24	0	NA
SHP02	0604	0001	03/27/2014	Manganese	1.1		FQ	1		FQ	0.0079	B	L	16	0	No
SHP02	0662	N001	03/27/2014	Magnesium	12			63.2			13			39	0	NA
SHP02	0725	N001	03/26/2014	Calcium	230		F	396			240		F	28	0	No
SHP02	0727	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	74		FQ	180		F	76		FQ	11	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

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	0728	N001	03/26/2014	Chloride	30		F	374			32		F	28	0	No
SHP02	0728	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	13		F	500		F	14		F	13	0	No
SHP02	0730	N001	03/27/2014	Uranium	0.0099		FQ	0.008		FQ	0.00056		F	22	0	No
SHP02	0731	N001	03/26/2014	Calcium	410		F	687			413		F	22	0	NA
SHP02	0812	0001	03/26/2014	Chloride	2000		FQ	2800			2150		FQ	19	0	No
SHP02	0812	0001	03/26/2014	Nitrate + Nitrite as Nitrogen	1200		FQ	1600		FQ	1300		FQ	12	0	No
SHP02	0812	0001	03/26/2014	Sulfate	14000		FQ	19000			14100		L	20	0	No
SHP02	0813	N001	03/26/2014	Chloride	1000		F	900		F	590		F	23	0	No
SHP02	0813	N001	03/26/2014	Manganese	1.2		F	0.85		F	0.119	E	JF	23	0	No
SHP02	0813	N001	03/26/2014	Selenium	0.11		F	0.1		F	0.0146	E	JF	23	0	No
SHP02	0815	N001	03/26/2014	Ammonia Total as N	1.2		F	0.88		F	0.1	U	F	14	7	NA
SHP02	0816	N001	03/27/2014	Nitrate + Nitrite as Nitrogen	9.9		F	61		F	12		FQ	12	0	No
SHP02	0816	N001	03/27/2014	Potassium	19		F	18		F	6.8		FQ	19	0	No
SHP02	0822	N001	03/24/2014	Chloride	7700		FQ	7100			6000		FQ	7	0	No
SHP02	0822	N001	03/24/2014	Magnesium	90		FQ	79		FQ	62			7	0	No
SHP02	0822	N001	03/24/2014	Nitrate + Nitrite as Nitrogen	1.7		FQ	14		FQ	3.6			7	0	No
SHP02	0822	N001	03/24/2014	Uranium	0.051		FQ	0.088		FQ	0.057			7	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
SHP02	0826	N001	03/25/2014	Chloride	340		FQ	792			410		FQ	21	0	No
SHP02	0826	N001	03/25/2014	Magnesium	1900		FQ	3000		FQ	2000		FQ	21	0	No
SHP02	0826	N001	03/25/2014	Sodium	1700		FQ	2300		FQ	1900		FQ	21	0	Yes
SHP02	0826	N001	03/25/2014	Strontium	10		FQ	13.3		FQ	11		F	21	0	No
SHP02	0826	N001	03/25/2014	Sulfate	11000		FQ	16000		F	11500		J	21	0	No
SHP02	0826	N001	03/25/2014	Uranium	1.4	E	FQJ	3.8		FQ	1.9		FQ	21	0	Yes
SHP02	0828	N001	03/25/2014	Manganese	1.6		F	1.5		F	0.0001	UE	JF	18	4	No
SHP02	0833	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	80		F	1260		F	95		F	12	0	No
SHP02	0835	N001	03/26/2014	Calcium	53		F	743		F	65		F	33	0	No
SHP02	0835	N001	03/26/2014	Magnesium	34		F	546		F	47		F	33	0	NA
SHP02	0835	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	0.89		F	240		F	5.8		F	22	0	NA
SHP02	0835	N001	03/26/2014	Potassium	1.9		F	23		F	4.29	E	J	33	0	No
SHP02	0835	N001	03/26/2014	Selenium	0.0036		FJ	0.587		F	0.026		F	34	0	No
SHP02	0835	N001	03/26/2014	Sodium	39		F	1300		F	114			33	0	No
SHP02	0835	N001	03/26/2014	Strontium	0.58		F	8.75		F	0.79		F	33	0	No
SHP02	0835	N001	03/26/2014	Sulfate	190		F	4690		JF	620		F	34	0	NA
SHP02	0835	N001	03/26/2014	Uranium	0.005		F	0.093		F	0.0098		F	34	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

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	0836	N001	03/26/2014	Selenium	0.4		F	0.35		F	0.035		F	33	0	No
SHP02	0836	N001	03/26/2014	Strontium	7.1		F	6.8		F	5.5		F	32	0	No
SHP02	0837	N001	03/26/2014	Calcium	660		F	630		F	356			20	0	No
SHP02	0837	N001	03/26/2014	Chloride	140		F	100		F	16.5			20	0	Yes
SHP02	0837	N001	03/26/2014	Magnesium	270		F	250		F	126			20	0	No
SHP02	0837	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	64		F	35		F	3.7		F	13	0	NA
SHP02	0837	N001	03/26/2014	Strontium	7.3		F	6.92		F	3.69			20	0	No
SHP02	0843	N001	03/26/2014	Chloride	90		F	83		F	24.7			18	0	NA
SHP02	1049	N001	03/25/2014	Manganese	0.041	B	F	0.04	U	F	0.00053	B		12	8	No
SHP02	1058	N001	03/26/2014	Manganese	0.41		FQ	0.25		FQ	0.0448		L	15	0	Yes
SHP02	1059	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	420		FQ	397		FQ	290		FQ	12	0	No
SHP02	1068	0001	03/27/2014	Calcium	550		FQ	500		FQ	370		FQ	11	0	No
SHP02	1068	0001	03/27/2014	Manganese	1.5		FQ	1.4		FQ	0.92		FQ	11	0	No
SHP02	1068	0001	03/27/2014	Sodium	1300		FQ	1150		FQ	890		FQ	11	0	No
SHP02	1068	0001	03/27/2014	Uranium	1.1		FQ	0.822	*EN	FQ	0.55		FQ	11	0	No
SHP02	1074	0001	03/25/2014	Selenium	0.47		FQ	0.4		FQ	0.25		FQ	12	0	No
SHP02	1074	0001	03/25/2014	Uranium	2.3		FQ	2.2		FQ	1.7		FQ	12	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

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	1079	N001	03/26/2014	Magnesium	240		F	210		F	99		F	27	0	No
SHP02	1079	N001	03/26/2014	Potassium	18		F	15		JF	4.9		F	27	0	No
SHP02	1079	N001	03/26/2014	Sodium	1100		F	740		F	115		F	27	0	Yes
SHP02	1079	N001	03/26/2014	Sulfate	3400		F	2600		F	1600		F	27	0	Yes
SHP02	1079	N001	03/26/2014	Uranium	0.055		F	0.048		F	0.023		F	27	0	NA
SHP02	1092	0001	03/25/2014	Calcium	420			1000			430			16	0	NA
SHP02	1092	0001	03/25/2014	Nitrate + Nitrite as Nitrogen	490			2900			570			20	0	No
SHP02	1092	0001	03/25/2014	Sulfate	16000			15000			5300			20	0	NA
SHP02	1095	N001	03/25/2014	Strontium	9.2			8.79			7.3			16	0	No
SHP02	1096	N001	03/25/2014	Manganese	0.91			0.48			0.092	B	J	18	0	No
SHP02	1219	N001	03/26/2014	Nitrate + Nitrite as Nitrogen	3.5			22			5.4			6	0	No
SHP02	1219	N001	03/26/2014	Sodium	290			218			100			6	0	No
SHP02	1220	N001	03/27/2014	Ammonia Total as N	0.14			0.1	U		0.0851	J	U	7	7	NA
SHP02	1220	N001	03/27/2014	Calcium	580			460			220			8	0	No
SHP02	1220	N001	03/27/2014	Chloride	130			38			16			7	0	Yes
SHP02	1220	N001	03/27/2014	Magnesium	150			120			63			8	0	No
SHP02	1220	N001	03/27/2014	Nitrate + Nitrite as Nitrogen	16			1.92			0.01	U		7	3	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: ALS Laboratory Group

RIN: 14036013

Report Date: 06/03/2014

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	1220	N001	03/27/2014	Potassium	8.9			8.2			1.8	BN	J	8	0	No
SHP02	1220	N001	03/27/2014	Strontium	6.5			4.4			2.4			8	0	Yes
SHP02	1220	N001	03/27/2014	Sulfate	2500			1400			670			7	0	Yes
SHP02	1220	N001	03/27/2014	Uranium	0.03			0.028			0.017			8	0	No
SHP02	MW1	0001	03/24/2014	Calcium	79		FQ	72.3		FQ	53.9		L	12	0	NA
SHP02	MW1	0001	03/24/2014	Magnesium	49		FQ	45		FQ	26		L	12	0	NA
SHP02	MW1	0001	03/24/2014	Manganese	0.21		FQ	0.197		L	0.056	B	FQ	12	0	NA
SHP02	MW1	0001	03/24/2014	Nitrate + Nitrite as Nitrogen	4.4		FQ	1.3		FQ	0.057		FQ	11	1	Yes
SHP02	MW1	0001	03/24/2014	Strontium	8.7		FQ	8.64		FQ	4.62		L	12	0	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory:

RIN: 14056142

Report Date: 06/03/2014

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	1093R	N001	05/01/2014	Calcium	490.000000			1200			610			15	0	No
SHP02	1093R	N001	05/01/2014	Magnesium	2500.000000			2300			190			15	0	NA
SHP02	1093R	N001	05/01/2014	Sodium	2500.000000			2200			190			15	0	NA
SHP02	1093R	N001	05/01/2014	SULFATE	14000			7600			1900			15	0	Yes
SHP02	1093R	N001	05/01/2014	Uranium	0.160000			0.15			0.068			15	0	No

STATISTICAL TESTS:

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

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

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

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

NA: Data are not normally or lognormally distributed.

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Anomalous Data Review

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Anomalous Data Review Sheet

Site: Shiprock, New Mexico, Disposal Site

Reviewer:	Stephen Donovan		
	Name (print)	Signature	Date

Date of Review: June 3, 2014

<u>Location</u>	<u>Analyte</u>	<u>Sample Type</u>	<u>Disposition</u>
SHP01-0628	Manganese	Groundwater	Reanalyzed, no errors identified, acceptable result
SHP01-1136	Most Analytes	Groundwater	Multiple analyses confirm results
SHP01-1142	Uranium	Groundwater	No errors identified, acceptable result
SHP02-0603	Ammonia as N	Groundwater	No errors identified, acceptable result
SHP02-0826	Sodium, Uranium	Groundwater	No errors identified, acceptable result
SHP02-0837	Chloride	Groundwater	No errors identified, acceptable result
SHP02-1058	Manganese	Groundwater	Multiple dilutions, no errors identified, acceptable result
SHP02-1079	Sodium, Sulfate	Groundwater	No errors identified, acceptable result
SHP02-1093R	Sulfate	Groundwater	No errors identified, acceptable result
SHP02-1220	Chloride, Strontium, Sulfate	Surface water	Multiple analyses confirm results
SHP02-MW1	Nitrate/Nitrite as N	Groundwater	No errors identified, acceptable result

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Attachment 2

Data Presentation

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Groundwater Quality Data Floodplain Locations

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	10	-	15	276		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	10	-	15	52		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	10	-	15	320		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	10	-	15	220		F	#	20	
Magnesium	mg/L	03/26/2014	N001	10	-	15	470		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	10	-	15	2.7		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	10	-	15	31		F	#	0.25	
Oxidation Reduction Potential	mV	03/26/2014	N001	10	-	15	117.2		F	#		
pH	s.u.	03/26/2014	N001	10	-	15	7.24		F	#		
Potassium	mg/L	03/26/2014	N001	10	-	15	63		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	10	-	15	0.0032		FJ	#	0.00016	
Sodium	mg/L	03/26/2014	N001	10	-	15	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	10	-	15	9848		F	#		
Strontium	mg/L	03/26/2014	N001	10	-	15	7.1		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	10	-	15	5600		F	#	50	
Temperature	C	03/26/2014	N001	10	-	15	10.46		F	#		
Turbidity	NTU	03/26/2014	N001	10	-	15	1.21		F	#		
Uranium	mg/L	03/26/2014	N001	10	-	15	0.78		F	#	0.00029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	4	-	9	295		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	4	-	9	6.6		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	4	-	9	450		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	4	-	9	200		F	#	20	
Magnesium	mg/L	03/26/2014	N001	4	-	9	780		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	4	-	9	0.053		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	4	-	9	230		F	#	2	
Oxidation Reduction Potential	mV	03/26/2014	N001	4	-	9	88.2		F	#		
pH	s.u.	03/26/2014	N001	4	-	9	7.08		F	#		
Potassium	mg/L	03/26/2014	N001	4	-	9	110		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	4	-	9	0.24		F	#	0.0032	
Sodium	mg/L	03/26/2014	N001	4	-	9	1000		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	4	-	9	9732		F	#		
Strontium	mg/L	03/26/2014	N001	4	-	9	6.6		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	4	-	9	5200		F	#	50	
Temperature	C	03/26/2014	N001	4	-	9	12.24		F	#		
Turbidity	NTU	03/26/2014	N001	4	-	9	0.96		F	#		
Uranium	mg/L	03/26/2014	N001	4	-	9	0.88		F	#	0.00029	

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

REPORT DATE: 06/04/2014

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
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	9.5	-	14.5	598		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	9.5	-	14.5	2.6		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	9.5	-	14.5	150		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	9.5	-	14.5	460		F	#	20	
Magnesium	mg/L	03/26/2014	N001	9.5	-	14.5	80		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	9.5	-	14.5	0.065		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	9.5	-	14.5	0.073		F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	9.5	-	14.5	68.7		F	#		
pH	s.u.	03/26/2014	N001	9.5	-	14.5	7.2		F	#		
Potassium	mg/L	03/26/2014	N001	9.5	-	14.5	16		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	9.5	-	14.5	0.00051		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	9.5	-	14.5	2300		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	9.5	-	14.5	10700		F	#		
Strontium	mg/L	03/26/2014	N001	9.5	-	14.5	6.7		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	9.5	-	14.5	5000		F	#	50	
Temperature	C	03/26/2014	N001	9.5	-	14.5	12.68		F	#		
Turbidity	NTU	03/26/2014	N001	9.5	-	14.5	1.29		F	#		
Uranium	mg/L	03/26/2014	N001	9.5	-	14.5	0.0059		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	5	-	10	380		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	5	-	10	1.2		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	5	-	10	110		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	5	-	10	35		F	#	4	
Magnesium	mg/L	03/26/2014	N001	5	-	10	74		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	5	-	10	1.4		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	5	-	10	0.024		F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	5	-	10	-34.7		F	#		
pH	s.u.	03/26/2014	N001	5	-	10	7.31		F	#		
Potassium	mg/L	03/26/2014	N001	5	-	10	8.9		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	5	-	10	0.00034		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	5	-	10	210		F	#	0.066	
Specific Conductance	umhos/cm	03/26/2014	N001	5	-	10	1935		F	#		
Strontium	mg/L	03/26/2014	N001	5	-	10	1.4		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	5	-	10	670		F	#	10	
Temperature	C	03/26/2014	N001	5	-	10	10.87		F	#		
Turbidity	NTU	03/26/2014	N001	5	-	10	2.14		F	#		
Uranium	mg/L	03/26/2014	N001	5	-	10	0.079		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	10	-	15	402		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	10	-	15	21		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	10	-	15	430		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	10	-	15	170		F	#	20	
Magnesium	mg/L	03/26/2014	N001	10	-	15	700		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	10	-	15	2.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	10	-	15	110		F	#	1	
Oxidation Reduction Potential	mV	03/26/2014	N001	10	-	15	46.1		F	#		
pH	s.u.	03/26/2014	N001	10	-	15	7.06		F	#		
Potassium	mg/L	03/26/2014	N001	10	-	15	87		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	10	-	15	1.7		F	#	0.0032	
Sodium	mg/L	03/26/2014	N001	10	-	15	1000		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	10	-	15	9244		F	#		
Strontium	mg/L	03/26/2014	N001	10	-	15	6.2		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	10	-	15	5500		F	#	50	
Temperature	C	03/26/2014	N001	10	-	15	11.52		F	#		
Turbidity	NTU	03/26/2014	N001	10	-	15	2.22		F	#		
Uranium	mg/L	03/26/2014	N001	10	-	15	0.98		F	#	0.00029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	4.5	-	9.5	405		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	4.5	-	9.5	0.11		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	4.5	-	9.5	420		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	4.5	-	9.5	75		F	#	10	
Magnesium	mg/L	03/27/2014	N001	4.5	-	9.5	380		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	4.5	-	9.5	0.14		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	4.5	-	9.5	0.25		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	4.5	-	9.5	239.9		F	#		
pH	s.u.	03/27/2014	N001	4.5	-	9.5	7.11		F	#		
Potassium	mg/L	03/27/2014	N001	4.5	-	9.5	50		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	4.5	-	9.5	0.02		F	#	0.0016	
Sodium	mg/L	03/27/2014	N001	4.5	-	9.5	650		F	#	0.033	
Specific Conductance	umhos/cm	03/27/2014	N001	4.5	-	9.5	5931		F	#		
Strontium	mg/L	03/27/2014	N001	4.5	-	9.5	4.6		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	4.5	-	9.5	3700		F	#	25	
Temperature	C	03/27/2014	N001	4.5	-	9.5	12		F	#		
Turbidity	NTU	03/27/2014	N001	4.5	-	9.5	2		F	#		
Uranium	mg/L	03/27/2014	N001	4.5	-	9.5	0.41		F	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 0618 WELL Center of floodplain, well nest, just 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 ₃)	mg/L	03/25/2014	N001	11	-	16	325		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	11	-	16	16		F	#	2.5	
Calcium	mg/L	03/25/2014	N001	11	-	16	390		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	11	-	16	75		F	#	20	
Magnesium	mg/L	03/25/2014	N001	11	-	16	270		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	11	-	16	2.7		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	11	-	16	0.072		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	11	-	16	87.3		F	#		
pH	s.u.	03/25/2014	N001	11	-	16	7.05		F	#		
Potassium	mg/L	03/25/2014	N001	11	-	16	46		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	11	-	16	0.0022		F	#	0.00032	
Sodium	mg/L	03/25/2014	N001	11	-	16	1000		F	#	0.33	
Specific Conductance	umhos /cm	03/25/2014	N001	11	-	16	6860		F	#		
Strontium	mg/L	03/25/2014	N001	11	-	16	3.8		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	11	-	16	4000		F	#	50	
Temperature	C	03/25/2014	N001	11	-	16	13.32		F	#		
Turbidity	NTU	03/25/2014	N001	11	-	16	4.55		F	#		
Uranium	mg/L	03/25/2014	N001	11	-	16	0.42		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	8	-	13	424		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	8	-	13	0.35		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	8	-	13	230		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	8	-	13	78		F	#	10	
Magnesium	mg/L	03/27/2014	N001	8	-	13	93		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	8	-	13	2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	8	-	13	0.045		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	8	-	13	9.9		F	#		
pH	s.u.	03/27/2014	N001	8	-	13	7.16		F	#		
Potassium	mg/L	03/27/2014	N001	8	-	13	22		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	8	-	13	0.0006		F	#	0.000032	
Sodium	mg/L	03/27/2014	N001	8	-	13	1000		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	8	-	13	6036		F	#		
Strontium	mg/L	03/27/2014	N001	8	-	13	7.1		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	8	-	13	3000		F	#	25	
Temperature	C	03/27/2014	N001	8	-	13	11.85		F	#		
Turbidity	NTU	03/27/2014	N001	8	-	13	4.17		F	#		
Uranium	mg/L	03/27/2014	N001	8	-	13	0.084		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	5	-	10	247		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	5	-	10	0.1	U	F	#	0.1	
Calcium	mg/L	03/27/2014	N001	5	-	10	170		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	5	-	10	63		F	#	10	
Magnesium	mg/L	03/27/2014	N001	5	-	10	58		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	5	-	10	0.39		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	5	-	10	0.031		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	5	-	10	212.2		F	#		
pH	s.u.	03/27/2014	N001	5	-	10	7.24		F	#		
Potassium	mg/L	03/27/2014	N001	5	-	10	15		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	5	-	10	0.022		FJ	#	0.00032	
Sodium	mg/L	03/27/2014	N001	5	-	10	810		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	5	-	10	4589		F	#		
Strontium	mg/L	03/27/2014	N001	5	-	10	6.4		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	5	-	10	2300		F	#	25	
Temperature	C	03/27/2014	N001	5	-	10	10.11		F	#		
Turbidity	NTU	03/27/2014	N001	5	-	10	1.15		F	#		
Uranium	mg/L	03/27/2014	N001	5	-	10	0.047		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	10	-	15	386		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	10	-	15	0.15		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	10	-	15	230		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	10	-	15	69		F	#	10	
Magnesium	mg/L	03/25/2014	N001	10	-	15	47		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	10	-	15	3.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	10	-	15	0.027		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	10	-	15	62.3		F	#		
pH	s.u.	03/25/2014	N001	10	-	15	7.07		F	#		
Potassium	mg/L	03/25/2014	N001	10	-	15	14		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	10	-	15	0.0011		F	#	0.00016	
Sodium	mg/L	03/25/2014	N001	10	-	15	990		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	10	-	15	5430		F	#		
Strontium	mg/L	03/25/2014	N001	10	-	15	9.6		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	10	-	15	2600		F	#	25	
Temperature	C	03/25/2014	N001	10	-	15	14.99		F	#		
Turbidity	NTU	03/25/2014	N001	10	-	15	2.3		F	#		
Uranium	mg/L	03/25/2014	N001	10	-	15	0.043		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	4.5	-	9.5	366		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	4.5	-	9.5	0.1		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	4.5	-	9.5	230		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	4.5	-	9.5	69		F	#	10	
Magnesium	mg/L	03/25/2014	N001	4.5	-	9.5	43		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	4.5	-	9.5	3.4		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	4.5	-	9.5	0.042		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	4.5	-	9.5	70.4		F	#		
pH	s.u.	03/25/2014	N001	4.5	-	9.5	7.05		F	#		
Potassium	mg/L	03/25/2014	N001	4.5	-	9.5	13		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	4.5	-	9.5	0.0012		F	#	0.00016	
Sodium	mg/L	03/25/2014	N001	4.5	-	9.5	970		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	4.5	-	9.5	5380		F	#		
Strontium	mg/L	03/25/2014	N001	4.5	-	9.5	10		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	4.5	-	9.5	2600		F	#	25	
Temperature	C	03/25/2014	N001	4.5	-	9.5	13.47		F	#		
Turbidity	NTU	03/25/2014	N001	4.5	-	9.5	9.8		F	#		
Uranium	mg/L	03/25/2014	N001	4.5	-	9.5	0.032		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	9.5	-	14.5	197		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	9.5	-	14.5	0.15		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	9.5	-	14.5	170		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	9.5	-	14.5	59		F	#	10	
Magnesium	mg/L	03/25/2014	N001	9.5	-	14.5	27		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	9.5	-	14.5	3.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	9.5	-	14.5	0.017		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	9.5	-	14.5	51.2		F	#		
pH	s.u.	03/25/2014	N001	9.5	-	14.5	7.35		F	#		
Potassium	mg/L	03/25/2014	N001	9.5	-	14.5	9.6		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	9.5	-	14.5	0.00056		FJ	#	0.000032	
Sodium	mg/L	03/25/2014	N001	9.5	-	14.5	740		F	#	0.033	
Specific Conductance	umhos/cm	03/25/2014	N001	9.5	-	14.5	4219		F	#		
Strontium	mg/L	03/25/2014	N001	9.5	-	14.5	8.9		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	9.5	-	14.5	2000		F	#	25	
Temperature	C	03/25/2014	N001	9.5	-	14.5	10.06		F	#		
Turbidity	NTU	03/25/2014	N001	9.5	-	14.5	2.3		F	#		
Uranium	mg/L	03/25/2014	N001	9.5	-	14.5	0.016		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	6	-	10	353		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	6	-	10	0.16		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	6	-	10	270		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	6	-	10	160		F	#	20	
Magnesium	mg/L	03/27/2014	N001	6	-	10	98		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	6	-	10	8.6		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	6	-	10	0.017		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	6	-	10	-49.3		F	#		
pH	s.u.	03/27/2014	N001	6	-	10	7.06		F	#		
Potassium	mg/L	03/27/2014	N001	6	-	10	23		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	6	-	10	0.0018		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	6	-	10	2000		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	6	-	10	9561		F	#		
Strontium	mg/L	03/27/2014	N001	6	-	10	11		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	6	-	10	5200		F	#	50	
Temperature	C	03/27/2014	N001	6	-	10	7.77		F	#		
Turbidity	NTU	03/27/2014	N001	6	-	10	9.2		F	#		
Uranium	mg/L	03/27/2014	N001	6	-	10	0.068		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	5	-	10	570		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	5	-	10	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	N001	5	-	10	400		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	5	-	10	160		F	#	20	
Magnesium	mg/L	03/25/2014	N001	5	-	10	230		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	5	-	10	2.4		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	5	-	10	21		F	#	0.2	
Oxidation Reduction Potential	mV	03/25/2014	N001	5	-	10	71.5		F	#		
pH	s.u.	03/25/2014	N001	5	-	10	6.89		F	#		
Potassium	mg/L	03/25/2014	N001	5	-	10	18		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	5	-	10	0.14		F	#	0.0016	
Sodium	mg/L	03/25/2014	N001	5	-	10	1300		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	5	-	10	7788		F	#		
Strontium	mg/L	03/25/2014	N001	5	-	10	16		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	5	-	10	4200		F	#	50	
Temperature	C	03/25/2014	N001	5	-	10	8.19		F	#		
Turbidity	NTU	03/25/2014	N001	5	-	10	1.4		F	#		
Uranium	mg/L	03/25/2014	N001	5	-	10	0.24		F	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 0734 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	03/25/2014	N001	2	-	4	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/25/2014	N001	2	-	4	530		FQ	#	0.06	
Chloride	mg/L	03/25/2014	N001	2	-	4	120		FQ	#	20	
Magnesium	mg/L	03/25/2014	N001	2	-	4	340		FQ	#	0.065	
Manganese	mg/L	03/25/2014	N001	2	-	4	0.97		FQ	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	2	-	4	0.72		FQ	#	0.01	
Potassium	mg/L	03/25/2014	N001	2	-	4	16		FQ	#	0.54	
Selenium	mg/L	03/25/2014	N001	2	-	4	0.077		FQ	#	0.00032	
Sodium	mg/L	03/25/2014	N001	2	-	4	1600		FQ	#	0.33	
Strontium	mg/L	03/25/2014	N001	2	-	4	10		FQ	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	2	-	4	5300		FQ	#	50	
Turbidity	NTU	03/25/2014	N001	2	-	4	6		FQ	#		
Uranium	mg/L	03/25/2014	N001	2	-	4	0.17		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 0735 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/24/2014	N001	3	-	8	1002		F	#		
Ammonia Total as N	mg/L	03/24/2014	N001	3	-	8	16		F	#	2.5	
Calcium	mg/L	03/24/2014	N001	3	-	8	460		F	#	0.12	
Chloride	mg/L	03/24/2014	N001	3	-	8	850		F	#	100	
Magnesium	mg/L	03/24/2014	N001	3	-	8	1600		F	#	0.13	
Manganese	mg/L	03/24/2014	N001	3	-	8	3.8		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N001	3	-	8	780		F	#	5	
Oxidation Reduction Potential	mV	03/24/2014	N001	3	-	8	188.1		F	#		
pH	s.u.	03/24/2014	N001	3	-	8	6.88		F	#		
Potassium	mg/L	03/24/2014	N001	3	-	8	92		F	#	1.1	
Selenium	mg/L	03/24/2014	N001	3	-	8	0.22		F	#	0.00032	
Sodium	mg/L	03/24/2014	N001	3	-	8	4600		F	#	0.66	
Specific Conductance	umhos/cm	03/24/2014	N001	3	-	8	24429		F	#		
Strontium	mg/L	03/24/2014	N001	3	-	8	13		F	#	0.00078	
Sulfate	mg/L	03/24/2014	N001	3	-	8	14000		F	#	250	
Temperature	C	03/24/2014	N001	3	-	8	10.76		F	#		
Turbidity	NTU	03/24/2014	N001	3	-	8	0.55		F	#		
Uranium	mg/L	03/24/2014	N001	3	-	8	0.43		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 0736 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	3	-	5	244		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	3	-	5	0.1		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	3	-	5	340		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	3	-	5	67		F	#	10	
Magnesium	mg/L	03/25/2014	N001	3	-	5	33		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	3	-	5	0.3		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	3	-	5	0.035		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	3	-	5	101.7		F	#		
pH	s.u.	03/25/2014	N001	3	-	5	7.33		F	#		
Potassium	mg/L	03/25/2014	N001	3	-	5	16		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	3	-	5	0.00015		FJ	#	0.000032	
Sodium	mg/L	03/25/2014	N001	3	-	5	880		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	3	-	5	5299		F	#		
Strontium	mg/L	03/25/2014	N001	3	-	5	3.6		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	3	-	5	2800		F	#	25	
Temperature	C	03/25/2014	N001	3	-	5	11.5		F	#		
Turbidity	NTU	03/25/2014	N001	3	-	5	3.44		F	#		
Uranium	mg/L	03/25/2014	N001	3	-	5	0.021		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	6.25	-	8.75	309		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	6.25	-	8.75	0.1		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	6.25	-	8.75	230		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	6.25	-	8.75	93		F	#	20	
Magnesium	mg/L	03/27/2014	N001	6.25	-	8.75	140	N	FJ	#	0.065	
Manganese	mg/L	03/27/2014	N001	6.25	-	8.75	0.4		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	6.25	-	8.75	0.15		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	6.25	-	8.75	10.9		F	#		
pH	s.u.	03/27/2014	N001	6.25	-	8.75	7.44		F	#		
Potassium	mg/L	03/27/2014	N001	6.25	-	8.75	41	E	FJ	#	0.54	
Selenium	mg/L	03/27/2014	N001	6.25	-	8.75	0.0013		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	6.25	-	8.75	1300		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	6.25	-	8.75	6940		F	#		
Strontium	mg/L	03/27/2014	N001	6.25	-	8.75	3.4		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	6.25	-	8.75	3700		F	#	50	
Temperature	C	03/27/2014	N001	6.25	-	8.75	12.75		F	#		
Turbidity	NTU	03/27/2014	N001	6.25	-	8.75	0.24		F	#		
Uranium	mg/L	03/27/2014	N001	6.25	-	8.75	0.13		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0768 WELL Well Point

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	4.58	-	7.08	680		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	4.58	-	7.08	0.21		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	4.58	-	7.08	370		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	4.58	-	7.08	320		F	#	40	
Magnesium	mg/L	03/27/2014	N001	4.58	-	7.08	450		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	4.58	-	7.08	1.7		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	4.58	-	7.08	0.024		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	4.58	-	7.08	-78.1		F	#		
pH	s.u.	03/27/2014	N001	4.58	-	7.08	7.2		F	#		
Potassium	mg/L	03/27/2014	N001	4.58	-	7.08	60		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	4.58	-	7.08	0.0015		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	4.58	-	7.08	3300		F	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	4.58	-	7.08	16562		F	#		
Strontium	mg/L	03/27/2014	N001	4.58	-	7.08	15		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	4.58	-	7.08	9800		F	#	100	
Temperature	C	03/27/2014	N001	4.58	-	7.08	10.99		F	#		
Turbidity	NTU	03/27/2014	N001	4.58	-	7.08	3.36		F	#		
Uranium	mg/L	03/27/2014	N001	4.58	-	7.08	0.23		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	4	-	6.5	238		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	4	-	6.5	1.1		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	4	-	6.5	160		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	4	-	6.5	52		F	#	5	
Magnesium	mg/L	03/26/2014	N001	4	-	6.5	160		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	4	-	6.5	0.029		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	4	-	6.5	17		F	#	0.2	
Oxidation Reduction Potential	mV	03/26/2014	N001	4	-	6.5	57.7		F	#		
pH	s.u.	03/26/2014	N001	4	-	6.5	7.31		F	#		
Potassium	mg/L	03/26/2014	N001	4	-	6.5	16		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	4	-	6.5	0.1		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	4	-	6.5	220		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	4	-	6.5	2750		F	#		
Strontium	mg/L	03/26/2014	N001	4	-	6.5	1.9		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	4	-	6.5	1300		F	#	12	
Temperature	C	03/26/2014	N001	4	-	6.5	13.58		F	#		
Turbidity	NTU	03/26/2014	N001	4	-	6.5	2.01		F	#		
Uranium	mg/L	03/26/2014	N001	4	-	6.5	0.28		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 0775 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	4.25	-	6.75	404		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	4.25	-	6.75	0.23		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	4.25	-	6.75	400		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	4.25	-	6.75	83		F	#	20	
Magnesium	mg/L	03/27/2014	N001	4.25	-	6.75	120		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	4.25	-	6.75	1.3		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	4.25	-	6.75	0.035		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	4.25	-	6.75	23.5		F	#		
pH	s.u.	03/27/2014	N001	4.25	-	6.75	7.24		F	#		
Potassium	mg/L	03/27/2014	N001	4.25	-	6.75	28		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	4.25	-	6.75	0.00098		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	4.25	-	6.75	1200		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	4.25	-	6.75	6961		F	#		
Strontium	mg/L	03/27/2014	N001	4.25	-	6.75	5.5		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	4.25	-	6.75	3800		F	#	50	
Temperature	C	03/27/2014	N001	4.25	-	6.75	12.85		F	#		
Turbidity	NTU	03/27/2014	N001	4.25	-	6.75	1.09		F	#		
Uranium	mg/L	03/27/2014	N001	4.25	-	6.75	0.11		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0779 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7	-	9.5	623		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7	-	9.5	0.89		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	7	-	9.5	350		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	7	-	9.5	320		F	#	50	
Magnesium	mg/L	03/27/2014	N001	7	-	9.5	980		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	7	-	9.5	1.4		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7	-	9.5	12		F	#	0.2	
Oxidation Reduction Potential	mV	03/27/2014	N001	7	-	9.5	233.8		F	#		
pH	s.u.	03/27/2014	N001	7	-	9.5	7.25		F	#		
Potassium	mg/L	03/27/2014	N001	7	-	9.5	120		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	7	-	9.5	0.1		F	#	0.0032	
Sodium	mg/L	03/27/2014	N001	7	-	9.5	2800		F	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	7	-	9.5	15366		F	#		
Strontium	mg/L	03/27/2014	N001	7	-	9.5	8.5		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	7	-	9.5	11000		F	#	120	
Temperature	C	03/27/2014	N001	7	-	9.5	11.92		F	#		
Turbidity	NTU	03/27/2014	N001	7	-	9.5	3.44		F	#		
Uranium	mg/L	03/27/2014	N001	7	-	9.5	1.3		F	#	0.00029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	4.71	-	9.46	82		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	4.71	-	9.46	0.14		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	4.71	-	9.46	130		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	4.71	-	9.46	26		F	#	4	
Magnesium	mg/L	03/26/2014	N001	4.71	-	9.46	33		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	4.71	-	9.46	3		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	4.71	-	9.46	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	4.71	-	9.46	123.5		F	#		
pH	s.u.	03/26/2014	N001	4.71	-	9.46	7.2		F	#		
Potassium	mg/L	03/26/2014	N001	4.71	-	9.46	5.4		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	4.71	-	9.46	0.00019		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	4.71	-	9.46	190		F	#	0.066	
Specific Conductance	umhos/cm	03/26/2014	N001	4.71	-	9.46	1665		F	#		
Strontium	mg/L	03/26/2014	N001	4.71	-	9.46	1.6		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	4.71	-	9.46	670		F	#	10	
Temperature	C	03/26/2014	N001	4.71	-	9.46	11.96		F	#		
Turbidity	NTU	03/26/2014	N001	4.71	-	9.46	2.35		F	#		
Uranium	mg/L	03/26/2014	N001	4.71	-	9.46	0.01		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	4.38	-	9.38	169		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	4.38	-	9.38	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	4.38	-	9.38	100		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	4.38	-	9.38	23		F	#	4	
Magnesium	mg/L	03/26/2014	N001	4.38	-	9.38	35		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	4.38	-	9.38	1.3		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	4.38	-	9.38	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	4.38	-	9.38	132.3		F	#		
pH	s.u.	03/26/2014	N001	4.38	-	9.38	7.28		F	#		
Potassium	mg/L	03/26/2014	N001	4.38	-	9.38	4.5		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	4.38	-	9.38	0.00036		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	4.38	-	9.38	170		F	#	0.066	
Specific Conductance	umhos/cm	03/26/2014	N001	4.38	-	9.38	1528		F	#		
Strontium	mg/L	03/26/2014	N001	4.38	-	9.38	1.2		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	4.38	-	9.38	600		F	#	10	
Temperature	C	03/26/2014	N001	4.38	-	9.38	12.72		F	#		
Turbidity	NTU	03/26/2014	N001	4.38	-	9.38	3.28		F	#		
Uranium	mg/L	03/26/2014	N001	4.38	-	9.38	0.0086		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 0792 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	6	-	8	301		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	6	-	8	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	N001	6	-	8	400		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	6	-	8	94		F	#	20	
Magnesium	mg/L	03/25/2014	N001	6	-	8	150		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	6	-	8	2.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	6	-	8	0.055		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	6	-	8	69.8		F	#		
pH	s.u.	03/25/2014	N001	6	-	8	7.53		F	#		
Potassium	mg/L	03/25/2014	N001	6	-	8	33		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	6	-	8	0.01		F	#	0.00016	
Sodium	mg/L	03/25/2014	N001	6	-	8	1200		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	6	-	8	7077		F	#		
Strontium	mg/L	03/25/2014	N001	6	-	8	6.3		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	6	-	8	3900		F	#	50	
Temperature	C	03/25/2014	N001	6	-	8	11.97		F	#		
Turbidity	NTU	03/25/2014	N001	6	-	8	3.65		F	#		
Uranium	mg/L	03/25/2014	N001	6	-	8	0.076		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0793 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	5.2	-	7.2	614		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	5.2	-	7.2	2.8		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	5.2	-	7.2	440		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	5.2	-	7.2	270		F	#	20	
Magnesium	mg/L	03/25/2014	N001	5.2	-	7.2	1000		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	5.2	-	7.2	0.024	B	F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	5.2	-	7.2	2.1		F	#	0.1	
Oxidation Reduction Potential	mV	03/25/2014	N001	5.2	-	7.2	80.3		F	#		
pH	s.u.	03/25/2014	N001	5.2	-	7.2	7.02		F	#		
Potassium	mg/L	03/25/2014	N001	5.2	-	7.2	75		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	5.2	-	7.2	0.18		F	#	0.0032	
Sodium	mg/L	03/25/2014	N001	5.2	-	7.2	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	5.2	-	7.2	11669		F	#		
Strontium	mg/L	03/25/2014	N001	5.2	-	7.2	7.8		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	5.2	-	7.2	7900		F	#	50	
Temperature	C	03/25/2014	N001	5.2	-	7.2	12.29		F	#		
Turbidity	NTU	03/25/2014	N001	5.2	-	7.2	1.91		F	#		
Uranium	mg/L	03/25/2014	N001	5.2	-	7.2	1.1		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 0797 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	7.3	-	9.3	168		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	N001	7.3	-	9.3	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/26/2014	N001	7.3	-	9.3	370		FQ	#	0.06	
Chloride	mg/L	03/26/2014	N001	7.3	-	9.3	260		FQ	#	20	
Magnesium	mg/L	03/26/2014	N001	7.3	-	9.3	110		FQ	#	0.065	
Manganese	mg/L	03/26/2014	N001	7.3	-	9.3	0.51		FQ	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	7.3	-	9.3	0.095		FQ	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	7.3	-	9.3	190.2		FQ	#		
pH	s.u.	03/26/2014	N001	7.3	-	9.3	7.62		FQ	#		
Potassium	mg/L	03/26/2014	N001	7.3	-	9.3	11		FQ	#	0.54	
Selenium	mg/L	03/26/2014	N001	7.3	-	9.3	0.00073		FQJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	7.3	-	9.3	1500		FQ	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	7.3	-	9.3	8147		FQ	#		
Strontium	mg/L	03/26/2014	N001	7.3	-	9.3	7		FQ	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	7.3	-	9.3	4300		FQ	#	50	
Temperature	C	03/26/2014	N001	7.3	-	9.3	8.8		FQ	#		
Turbidity	NTU	03/26/2014	N001	7.3	-	9.3	5.74		FQ	#		
Uranium	mg/L	03/26/2014	N001	7.3	-	9.3	0.026		FQ	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 0798 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7.1	-	9.1	406		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7.1	-	9.1	0.36		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	7.1	-	9.1	380		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	7.1	-	9.1	120		F	#	20	
Magnesium	mg/L	03/27/2014	N001	7.1	-	9.1	220		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	7.1	-	9.1	1.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7.1	-	9.1	0.8		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	7.1	-	9.1	5.6		F	#		
pH	s.u.	03/27/2014	N001	7.1	-	9.1	7.27		F	#		
Potassium	mg/L	03/27/2014	N001	7.1	-	9.1	40		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	7.1	-	9.1	0.001		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	7.1	-	9.1	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	7.1	-	9.1	8435		F	#		
Strontium	mg/L	03/27/2014	N001	7.1	-	9.1	5.1		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	7.1	-	9.1	4800		F	#	50	
Temperature	C	03/27/2014	N001	7.1	-	9.1	12.23		F	#		
Turbidity	NTU	03/27/2014	N001	7.1	-	9.1	2.36		F	#		
Uranium	mg/L	03/27/2014	N001	7.1	-	9.1	0.2		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	5.6	-	15.4	182		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	5.6	-	15.4	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	5.6	-	15.4	230		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	5.6	-	15.4	200		F	#	10	
Magnesium	mg/L	03/26/2014	N001	5.6	-	15.4	64		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	5.6	-	15.4	0.46		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	5.6	-	15.4	0.56		F	#	0.05	
Oxidation Reduction Potential	mV	03/26/2014	N001	5.6	-	15.4	49.3		F	#		
pH	s.u.	03/26/2014	N001	5.6	-	15.4	7.34		F	#		
Potassium	mg/L	03/26/2014	N001	5.6	-	15.4	5.4		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	5.6	-	15.4	0.0026		F	#	0.00016	
Sodium	mg/L	03/26/2014	N001	5.6	-	15.4	890		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	5.6	-	15.4	5765		F	#		
Strontium	mg/L	03/26/2014	N001	5.6	-	15.4	3.6		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	5.6	-	15.4	2400		F	#	25	
Temperature	C	03/26/2014	N001	5.6	-	15.4	12.53		F	#		
Turbidity	NTU	03/26/2014	N001	5.6	-	15.4	8.23		F	#		
Uranium	mg/L	03/26/2014	N001	5.6	-	15.4	0.052		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	10	-	15	221		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	10	-	15	15		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	10	-	15	180		F	#	0.012	
Chloride	mg/L	03/27/2014	N001	10	-	15	22		F	#	4	
Magnesium	mg/L	03/27/2014	N001	10	-	15	58		F	#	0.013	
Manganese	mg/L	03/27/2014	N001	10	-	15	0.93		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	10	-	15	0.081		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	10	-	15	116.4		F	#		
pH	s.u.	03/27/2014	N001	10	-	15	7.09		F	#		
Potassium	mg/L	03/27/2014	N001	10	-	15	14		F	#	0.11	
Selenium	mg/L	03/27/2014	N001	10	-	15	0.00011		F	#	0.000032	
Sodium	mg/L	03/27/2014	N001	10	-	15	120		F	#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	10	-	15	1736		F	#		
Strontium	mg/L	03/27/2014	N001	10	-	15	1.9		F	#	0.000078	
Sulfate	mg/L	03/27/2014	N001	10	-	15	730		F	#	10	
Temperature	C	03/27/2014	N001	10	-	15	12.61		F	#		
Turbidity	NTU	03/27/2014	N001	10	-	15	6.61		F	#		
Uranium	mg/L	03/27/2014	N001	10	-	15	0.082		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	9.05	-	11.55	480		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	9.05	-	11.55	2.9		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	9.05	-	11.55	310		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	9.05	-	11.55	110		F	#	20	
Magnesium	mg/L	03/27/2014	N001	9.05	-	11.55	300		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	9.05	-	11.55	2.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	9.05	-	11.55	0.13		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	9.05	-	11.55	-82.2		F	#		
pH	s.u.	03/27/2014	N001	9.05	-	11.55	7.23		F	#		
Potassium	mg/L	03/27/2014	N001	9.05	-	11.55	57		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	9.05	-	11.55	0.00068		FJ	#	0.00016	
Sodium	mg/L	03/27/2014	N001	9.05	-	11.55	1400		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	9.05	-	11.55	8263		F	#		
Strontium	mg/L	03/27/2014	N001	9.05	-	11.55	4.5		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	9.05	-	11.55	4800		F	#	50	
Temperature	C	03/27/2014	N001	9.05	-	11.55	11.5		F	#		
Turbidity	NTU	03/27/2014	N001	9.05	-	11.55	2.82		F	#		
Uranium	mg/L	03/27/2014	N001	9.05	-	11.55	0.35		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0855 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 ₃)	mg/L	03/25/2014	N001	4.9	-	14.9	335		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	4.9	-	14.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	N001	4.9	-	14.9	260		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	4.9	-	14.9	93		F	#	20	
Magnesium	mg/L	03/25/2014	N001	4.9	-	14.9	110		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	4.9	-	14.9	3.6		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	4.9	-	14.9	3.7		F	#	0.1	
Oxidation Reduction Potential	mV	03/25/2014	N001	4.9	-	14.9	140.6		F	#		
pH	s.u.	03/25/2014	N001	4.9	-	14.9	7.3		F	#		
Potassium	mg/L	03/25/2014	N001	4.9	-	14.9	14		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	4.9	-	14.9	0.03		F	#	0.00032	
Sodium	mg/L	03/25/2014	N001	4.9	-	14.9	1200		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	4.9	-	14.9	6580		F	#		
Strontium	mg/L	03/25/2014	N001	4.9	-	14.9	11		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	4.9	-	14.9	3400		F	#	50	
Temperature	C	03/25/2014	N001	4.9	-	14.9	7.1		F	#		
Turbidity	NTU	03/25/2014	N001	4.9	-	14.9	7.15		F	#		
Uranium	mg/L	03/25/2014	N001	4.9	-	14.9	0.08		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	18.8	-	23.8	276		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	18.8	-	23.8	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	N001	18.8	-	23.8	230		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	18.8	-	23.8	82		F	#	20	
Magnesium	mg/L	03/25/2014	N001	18.8	-	23.8	58		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	18.8	-	23.8	2.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	18.8	-	23.8	0.023		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	18.8	-	23.8	110.6		F	#		
pH	s.u.	03/25/2014	N001	18.8	-	23.8	7.33		F	#		
Potassium	mg/L	03/25/2014	N001	18.8	-	23.8	17		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	18.8	-	23.8	0.0007		FJ	#	0.000032	
Sodium	mg/L	03/25/2014	N001	18.8	-	23.8	1000		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	18.8	-	23.8	5757		F	#		
Strontium	mg/L	03/25/2014	N001	18.8	-	23.8	7.3		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	18.8	-	23.8	3000		F	#	50	
Temperature	C	03/25/2014	N001	18.8	-	23.8	11.83		F	#		
Turbidity	NTU	03/25/2014	N001	18.8	-	23.8	3.38		F	#		
Uranium	mg/L	03/25/2014	N001	18.8	-	23.8	0.071		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	13.2	-	18.2	522		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	13.2	-	18.2	11		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	13.2	-	18.2	480		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	13.2	-	18.2	240		F	#	20	
Magnesium	mg/L	03/27/2014	N001	13.2	-	18.2	720		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	13.2	-	18.2	5.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	13.2	-	18.2	24		F	#	0.2	
Oxidation Reduction Potential	mV	03/27/2014	N001	13.2	-	18.2	226.1		F	#		
pH	s.u.	03/27/2014	N001	13.2	-	18.2	6.89		F	#		
Potassium	mg/L	03/27/2014	N001	13.2	-	18.2	49		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	13.2	-	18.2	0.12		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	13.2	-	18.2	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	13.2	-	18.2	10275		F	#		
Strontium	mg/L	03/27/2014	N001	13.2	-	18.2	7.4		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	13.2	-	18.2	6800		F	#	50	
Temperature	C	03/27/2014	N001	13.2	-	18.2	13.4		F	#		
Turbidity	NTU	03/27/2014	N001	13.2	-	18.2	1.63		F	#		
Uranium	mg/L	03/27/2014	N001	13.2	-	18.2	0.81		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1008 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	6.9	-	16.9	460		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	6.9	-	16.9	2.9		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	6.9	-	16.9	410		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	6.9	-	16.9	86		F	#	20	
Magnesium	mg/L	03/27/2014	N001	6.9	-	16.9	160		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	6.9	-	16.9	1.4		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	6.9	-	16.9	0.032		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	6.9	-	16.9	-24.5		F	#		
pH	s.u.	03/27/2014	N001	6.9	-	16.9	7.18		F	#		
Potassium	mg/L	03/27/2014	N001	6.9	-	16.9	39		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	6.9	-	16.9	0.0027		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	6.9	-	16.9	1100		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	6.9	-	16.9	7046		F	#		
Strontium	mg/L	03/27/2014	N001	6.9	-	16.9	4.4		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	6.9	-	16.9	3900		F	#	50	
Temperature	C	03/27/2014	N001	6.9	-	16.9	11.47		F	#		
Turbidity	NTU	03/27/2014	N001	6.9	-	16.9	1.22		F	#		
Uranium	mg/L	03/27/2014	N001	6.9	-	16.9	0.24		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1009 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7.4	-	17.4	155		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7.4	-	17.4	11		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	7.4	-	17.4	380		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	7.4	-	17.4	33		F	#	10	
Magnesium	mg/L	03/27/2014	N001	7.4	-	17.4	160		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	7.4	-	17.4	1.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7.4	-	17.4	0.02		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	7.4	-	17.4	202.7		F	#		
pH	s.u.	03/27/2014	N001	7.4	-	17.4	6.93		F	#		
Potassium	mg/L	03/27/2014	N001	7.4	-	17.4	21		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	7.4	-	17.4	0.0039		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	7.4	-	17.4	240		F	#	0.033	
Specific Conductance	umhos/cm	03/27/2014	N001	7.4	-	17.4	3234		F	#		
Strontium	mg/L	03/27/2014	N001	7.4	-	17.4	3.8		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	7.4	-	17.4	1800		F	#	25	
Temperature	C	03/27/2014	N001	7.4	-	17.4	13.34		F	#		
Turbidity	NTU	03/27/2014	N001	7.4	-	17.4	0.62		F	#		
Uranium	mg/L	03/27/2014	N001	7.4	-	17.4	0.21		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1089 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	4.8	-	14.8	364			#		
Ammonia Total as N	mg/L	03/25/2014	N001	4.8	-	14.8	0.47			#	0.1	
Calcium	mg/L	03/25/2014	N001	4.8	-	14.8	340			#	0.06	
Chloride	mg/L	03/25/2014	N001	4.8	-	14.8	100			#	20	
Magnesium	mg/L	03/25/2014	N001	4.8	-	14.8	180			#	0.065	
Manganese	mg/L	03/25/2014	N001	4.8	-	14.8	0.94			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	4.8	-	14.8	0.66			#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	4.8	-	14.8	170			#		
pH	s.u.	03/25/2014	N001	4.8	-	14.8	6.98			#		
Potassium	mg/L	03/25/2014	N001	4.8	-	14.8	40			#	0.54	
Selenium	mg/L	03/25/2014	N001	4.8	-	14.8	0.0022			#	0.00016	
Sodium	mg/L	03/25/2014	N001	4.8	-	14.8	1300			#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	4.8	-	14.8	7500			#		
Strontium	mg/L	03/25/2014	N001	4.8	-	14.8	5			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	4.8	-	14.8	4100			#	50	
Temperature	C	03/25/2014	N001	4.8	-	14.8	11.8			#		
Turbidity	NTU	03/25/2014	N001	4.8	-	14.8	3.81			#		
Uranium	mg/L	03/25/2014	N001	4.8	-	14.8	0.2			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1104 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	10	-	15	334			#		
Ammonia Total as N	mg/L	03/25/2014	N001	10	-	15	0.48			#	0.1	
Calcium	mg/L	03/25/2014	N001	10	-	15	330			#	0.06	
Chloride	mg/L	03/25/2014	N001	10	-	15	100			#	20	
Magnesium	mg/L	03/25/2014	N001	10	-	15	170			#	0.065	
Manganese	mg/L	03/25/2014	N001	10	-	15	0.93			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	10	-	15	0.64			#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	10	-	15	170			#		
pH	s.u.	03/25/2014	N001	10	-	15	7.16			#		
Potassium	mg/L	03/25/2014	N001	10	-	15	40			#	0.54	
Selenium	mg/L	03/25/2014	N001	10	-	15	0.0026			#	0.00016	
Sodium	mg/L	03/25/2014	N001	10	-	15	1300			#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	10	-	15	7250			#		
Strontium	mg/L	03/25/2014	N001	10	-	15	5			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	10	-	15	4100			#	50	
Temperature	C	03/25/2014	N001	10	-	15	12			#		
Turbidity	NTU	03/25/2014	N001	10	-	15	0.87			#		
Uranium	mg/L	03/25/2014	N001	10	-	15	0.19			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1105 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	4.5	-	14.5	521			#		
Ammonia Total as N	mg/L	03/27/2014	N001	4.5	-	14.5	28			#	2.5	
Calcium	mg/L	03/27/2014	N001	4.5	-	14.5	410			#	0.06	
Chloride	mg/L	03/27/2014	N001	4.5	-	14.5	310			#	40	
Magnesium	mg/L	03/27/2014	N001	4.5	-	14.5	1100			#	0.065	
Manganese	mg/L	03/27/2014	N001	4.5	-	14.5	4.5			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	4.5	-	14.5	52			#	1	
Oxidation Reduction Potential	mV	03/27/2014	N001	4.5	-	14.5	266.9			#		
pH	s.u.	03/27/2014	N001	4.5	-	14.5	6.8			#		
Potassium	mg/L	03/27/2014	N001	4.5	-	14.5	93			#	0.54	
Selenium	mg/L	03/27/2014	N001	4.5	-	14.5	0.27			#	0.0032	
Sodium	mg/L	03/27/2014	N001	4.5	-	14.5	1800			#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	4.5	-	14.5	13087			#		
Strontium	mg/L	03/27/2014	N001	4.5	-	14.5	8.1			#	0.00039	
Sulfate	mg/L	03/27/2014	N001	4.5	-	14.5	9100			#	100	
Temperature	C	03/27/2014	N001	4.5	-	14.5	12.42			#		
Turbidity	NTU	03/27/2014	N001	4.5	-	14.5	1.69			#		
Uranium	mg/L	03/27/2014	N001	4.5	-	14.5	1.6			#	0.00029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	0	-	0	280			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0	-	0	49			#	2.5	
Calcium	mg/L	03/25/2014	N001	0	-	0	290			#	0.06	
Chloride	mg/L	03/25/2014	N001	0	-	0	120			#	20	
Magnesium	mg/L	03/25/2014	N001	0	-	0	460			#	0.065	
Manganese	mg/L	03/25/2014	N001	0	-	0	1.1			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	0	-	0	110			#	1	
Oxidation Reduction Potential	mV	03/25/2014	N001	0	-	0	195			#		
pH	s.u.	03/25/2014	N001	0	-	0	7.23			#		
Potassium	mg/L	03/25/2014	N001	0	-	0	36			#	0.54	
Selenium	mg/L	03/25/2014	N001	0	-	0	0.022			#	0.00032	
Sodium	mg/L	03/25/2014	N001	0	-	0	560			#	0.033	
Specific Conductance	umhos/cm	03/25/2014	N001	0	-	0	5490			#		
Strontium	mg/L	03/25/2014	N001	0	-	0	4.1			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	0	-	0	2700			#	50	
Temperature	C	03/25/2014	N001	0	-	0	12.8			#		
Turbidity	NTU	03/25/2014	N001	0	-	0	4.32			#		
Uranium	mg/L	03/25/2014	N001	0	-	0	0.42			#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	0	-	0	244			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0	-	0	3.3			#	0.1	
Calcium	mg/L	03/25/2014	N001	0	-	0	330			#	0.06	
Chloride	mg/L	03/25/2014	N001	0	-	0	140			#	20	
Magnesium	mg/L	03/25/2014	N001	0	-	0	440			#	0.065	
Manganese	mg/L	03/25/2014	N001	0	-	0	0.69			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	0	-	0	27			#	0.25	
Oxidation Reduction Potential	mV	03/25/2014	N001	0	-	0	175			#		
pH	s.u.	03/25/2014	N001	0	-	0	7.38			#		
Potassium	mg/L	03/25/2014	N001	0	-	0	48			#	0.54	
Selenium	mg/L	03/25/2014	N001	0	-	0	0.2			#	0.0032	
Sodium	mg/L	03/25/2014	N001	0	-	0	1100			#	0.33	
Specific Conductance	umhos /cm	03/25/2014	N001	0	-	0	7560			#		
Strontium	mg/L	03/25/2014	N001	0	-	0	6.8			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	0	-	0	4600			#	50	
Temperature	C	03/25/2014	N001	0	-	0	10.8			#		
Turbidity	NTU	03/25/2014	N001	0	-	0	3.76			#		
Uranium	mg/L	03/25/2014	N001	0	-	0	0.44			#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1111 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7	-	12	868		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7	-	12	0.74		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	7	-	12	340		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	7	-	12	280		F	#	20	
Magnesium	mg/L	03/27/2014	N001	7	-	12	760		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	7	-	12	0.97		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7	-	12	19		F	#	0.25	
Oxidation Reduction Potential	mV	03/27/2014	N001	7	-	12	264		F	#		
pH	s.u.	03/27/2014	N001	7	-	12	6.77		F	#		
Potassium	mg/L	03/27/2014	N001	7	-	12	54		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	7	-	12	0.16		F	#	0.0032	
Sodium	mg/L	03/27/2014	N001	7	-	12	1600		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	7	-	12	10434		F	#		
Strontium	mg/L	03/27/2014	N001	7	-	12	10		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	7	-	12	6600		F	#	50	
Temperature	C	03/27/2014	N001	7	-	12	11.14		F	#		
Turbidity	NTU	03/27/2014	N001	7	-	12	3.44		F	#		
Uranium	mg/L	03/27/2014	N001	7	-	12	0.59		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1112 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7	-	12	448		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7	-	12	11		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	7	-	12	410		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	7	-	12	140		F	#	20	
Magnesium	mg/L	03/27/2014	N001	7	-	12	700		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	7	-	12	1.2		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7	-	12	56		F	#	1	
Oxidation Reduction Potential	mV	03/27/2014	N001	7	-	12	271.2		F	#		
pH	s.u.	03/27/2014	N001	7	-	12	6.96		F	#		
Potassium	mg/L	03/27/2014	N001	7	-	12	80		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	7	-	12	1		F	#	0.0032	
Sodium	mg/L	03/27/2014	N001	7	-	12	1100		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	7	-	12	8815		F	#		
Strontium	mg/L	03/27/2014	N001	7	-	12	6.9		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	7	-	12	5600		F	#	50	
Temperature	C	03/27/2014	N001	7	-	12	9.22		F	#		
Turbidity	NTU	03/27/2014	N001	7	-	12	1.77		F	#		
Uranium	mg/L	03/27/2014	N001	7	-	12	0.79		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1113 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	7	-	12	239		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	7	-	12	3.2		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	7	-	12	460		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	7	-	12	140		F	#	20	
Magnesium	mg/L	03/26/2014	N001	7	-	12	530		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	7	-	12	0.11		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	7	-	12	220		F	#	2	
Oxidation Reduction Potential	mV	03/26/2014	N001	7	-	12	84		F	#		
pH	s.u.	03/26/2014	N001	7	-	12	7.19		F	#		
Potassium	mg/L	03/26/2014	N001	7	-	12	79		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	7	-	12	0.32		F	#	0.0016	
Sodium	mg/L	03/26/2014	N001	7	-	12	710		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	7	-	12	7616		F	#		
Strontium	mg/L	03/26/2014	N001	7	-	12	5.6		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	7	-	12	3800		F	#	50	
Temperature	C	03/26/2014	N001	7	-	12	8.68		F	#		
Turbidity	NTU	03/26/2014	N001	7	-	12	9.4		F	#		
Uranium	mg/L	03/26/2014	N001	7	-	12	0.63		F	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1114 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	7	-	12	534		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	7	-	12	70		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	7	-	12	180		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	7	-	12	100		F	#	10	
Magnesium	mg/L	03/26/2014	N001	7	-	12	330		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	7	-	12	2.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	7	-	12	47		F	#	0.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	7	-	12	123.3		F	#		
pH	s.u.	03/26/2014	N001	7	-	12	6.98		F	#		
Potassium	mg/L	03/26/2014	N001	7	-	12	48		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	7	-	12	0.022		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	7	-	12	460		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	7	-	12	5122		F	#		
Strontium	mg/L	03/26/2014	N001	7	-	12	3.1		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	7	-	12	2200		F	#	25	
Temperature	C	03/26/2014	N001	7	-	12	9.03		F	#		
Turbidity	NTU	03/26/2014	N001	7	-	12	1.43		F	#		
Uranium	mg/L	03/26/2014	N001	7	-	12	0.45		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1115 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	7	-	12	828		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	7	-	12	210		F	#	100	
Calcium	mg/L	03/26/2014	N001	7	-	12	350		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	7	-	12	210		F	#	20	
Magnesium	mg/L	03/26/2014	N001	7	-	12	960		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	7	-	12	3.1		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	7	-	12	300	N	FJ	#	2	
Oxidation Reduction Potential	mV	03/26/2014	N001	7	-	12	144.8		F	#		
pH	s.u.	03/26/2014	N001	7	-	12	6.75		F	#		
Potassium	mg/L	03/26/2014	N001	7	-	12	110		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	7	-	12	0.079		F	#	0.0016	
Sodium	mg/L	03/26/2014	N001	7	-	12	1000		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	7	-	12	11095		F	#		
Strontium	mg/L	03/26/2014	N001	7	-	12	6.7		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	7	-	12	5800		F	#	50	
Temperature	C	03/26/2014	N001	7	-	12	10.63		F	#		
Turbidity	NTU	03/26/2014	N001	7	-	12	1.46		F	#		
Uranium	mg/L	03/26/2014	N001	7	-	12	1.2		F	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1117 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/24/2014	N001	7	-	12	144		F	#		
Ammonia Total as N	mg/L	03/24/2014	N001	7	-	12	0.11		F	#	0.1	
Calcium	mg/L	03/24/2014	N001	7	-	12	82		F	#	0.012	
Chloride	mg/L	03/24/2014	N001	7	-	12	21		F	#	2	
Magnesium	mg/L	03/24/2014	N001	7	-	12	14		F	#	0.013	
Manganese	mg/L	03/24/2014	N001	7	-	12	0.21		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N001	7	-	12	0.15		F	#	0.01	
Oxidation Reduction Potential	mV	03/24/2014	N001	7	-	12	87.2		F	#		
pH	s.u.	03/24/2014	N001	7	-	12	7.37		F	#		
Potassium	mg/L	03/24/2014	N001	7	-	12	2.8		F	#	0.11	
Selenium	mg/L	03/24/2014	N001	7	-	12	0.0013		F	#	0.000032	
Sodium	mg/L	03/24/2014	N001	7	-	12	63		F	#	0.0066	
Specific Conductance	umhos/cm	03/24/2014	N001	7	-	12	806		F	#		
Strontium	mg/L	03/24/2014	N001	7	-	12	0.87		F	#	0.000078	
Sulfate	mg/L	03/24/2014	N001	7	-	12	220		F	#	5	
Temperature	C	03/24/2014	N001	7	-	12	10.73		F	#		
Turbidity	NTU	03/24/2014	N001	7	-	12	0.52		F	#		
Uranium	mg/L	03/24/2014	N001	7	-	12	0.0071		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1128 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/24/2014	N001	6.81	-	11.81	948		F	#		
Ammonia Total as N	mg/L	03/24/2014	N001	6.81	-	11.81	410		F	#	50	
Ammonia Total as N	mg/L	03/24/2014	N002	6.81	-	11.81	420		F	#	50	
Calcium	mg/L	03/24/2014	N001	6.81	-	11.81	440		F	#	0.12	
Calcium	mg/L	03/24/2014	N002	6.81	-	11.81	430		F	#	0.12	
Chloride	mg/L	03/24/2014	N001	6.81	-	11.81	320		F	#	50	
Chloride	mg/L	03/24/2014	N002	6.81	-	11.81	330		F	#	50	
Magnesium	mg/L	03/24/2014	N001	6.81	-	11.81	1600		F	#	0.13	
Magnesium	mg/L	03/24/2014	N002	6.81	-	11.81	1500		F	#	0.13	
Manganese	mg/L	03/24/2014	N001	6.81	-	11.81	4.4		F	#	0.0011	
Manganese	mg/L	03/24/2014	N002	6.81	-	11.81	4.3		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N001	6.81	-	11.81	640		F	#	5	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N002	6.81	-	11.81	590		F	#	5	
Oxidation Reduction Potential	mV	03/24/2014	N001	6.81	-	11.81	187.8		F	#		
pH	s.u.	03/24/2014	N001	6.81	-	11.81	6.58		F	#		
Potassium	mg/L	03/24/2014	N001	6.81	-	11.81	170		F	#	1.1	
Potassium	mg/L	03/24/2014	N002	6.81	-	11.81	170		F	#	1.1	
Selenium	mg/L	03/24/2014	N001	6.81	-	11.81	0.023		F	#	0.0016	

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

REPORT DATE: 06/04/2014

Location: 1128 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/24/2014	N002	6.81	-	11.81	0.024		F	#	0.00032	
Sodium	mg/L	03/24/2014	N001	6.81	-	11.81	1400		F	#	0.066	
Sodium	mg/L	03/24/2014	N002	6.81	-	11.81	1500		F	#	0.066	
Specific Conductance	umhos /cm	03/24/2014	N001	6.81	-	11.81	17160		F	#		
Strontium	mg/L	03/24/2014	N001	6.81	-	11.81	9.8		F	#	0.00078	
Strontium	mg/L	03/24/2014	N002	6.81	-	11.81	9.5		F	#	0.00078	
Sulfate	mg/L	03/24/2014	N001	6.81	-	11.81	9300		F	#	120	
Sulfate	mg/L	03/24/2014	N002	6.81	-	11.81	9500		F	#	120	
Temperature	C	03/24/2014	N001	6.81	-	11.81	12.81		F	#		
Turbidity	NTU	03/24/2014	N001	6.81	-	11.81	0.63		F	#		
Uranium	mg/L	03/24/2014	N001	6.81	-	11.81	1.6		F	#	0.00015	
Uranium	mg/L	03/24/2014	N002	6.81	-	11.81	1.5		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1132 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	6.07	-	11.07	151		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	6.07	-	11.07	0.78		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	6.07	-	11.07	73		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	6.07	-	11.07	20		F	#	2	
Magnesium	mg/L	03/26/2014	N001	6.07	-	11.07	21		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	6.07	-	11.07	0.45		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	6.07	-	11.07	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	6.07	-	11.07	62		F	#		
pH	s.u.	03/26/2014	N001	6.07	-	11.07	7.63		F	#		
Potassium	mg/L	03/26/2014	N001	6.07	-	11.07	2.8		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	6.07	-	11.07	0.00016		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	6.07	-	11.07	53		F	#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	6.07	-	11.07	770		F	#		
Strontium	mg/L	03/26/2014	N001	6.07	-	11.07	0.89		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	6.07	-	11.07	200		F	#	5	
Temperature	C	03/26/2014	N001	6.07	-	11.07	9.08		F	#		
Turbidity	NTU	03/26/2014	N001	6.07	-	11.07	0.98		F	#		
Uranium	mg/L	03/26/2014	N001	6.07	-	11.07	0.018		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1134 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	8.16	-	13.16	185		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	8.16	-	13.16	1.2		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	8.16	-	13.16	87		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	8.16	-	13.16	23		F	#	2	
Magnesium	mg/L	03/26/2014	N001	8.16	-	13.16	24		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	8.16	-	13.16	0.69		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	8.16	-	13.16	0.015		F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	8.16	-	13.16	55.5		F	#		
pH	s.u.	03/26/2014	N001	8.16	-	13.16	7.42		F	#		
Potassium	mg/L	03/26/2014	N001	8.16	-	13.16	3.1		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	8.16	-	13.16	0.00018		FJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	8.16	-	13.16	57		F	#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	8.16	-	13.16	859		F	#		
Strontium	mg/L	03/26/2014	N001	8.16	-	13.16	1		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	8.16	-	13.16	220		F	#	5	
Temperature	C	03/26/2014	N001	8.16	-	13.16	10.27		F	#		
Turbidity	NTU	03/26/2014	N001	8.16	-	13.16	4.6		F	#		
Uranium	mg/L	03/26/2014	N001	8.16	-	13.16	0.022		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1135 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	6.39	-	11.39	219		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	6.39	-	11.39	0.23		F	#	0.1	
Ammonia Total as N	mg/L	03/25/2014	N002	6.39	-	11.39	0.22		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	6.39	-	11.39	290		F	#	0.06	
Calcium	mg/L	03/25/2014	N002	6.39	-	11.39	300		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	6.39	-	11.39	67		F	#	10	
Chloride	mg/L	03/25/2014	N002	6.39	-	11.39	66		F	#	20	
Magnesium	mg/L	03/25/2014	N001	6.39	-	11.39	88		F	#	0.065	
Magnesium	mg/L	03/25/2014	N002	6.39	-	11.39	91		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	6.39	-	11.39	1.6		F	#	0.00057	
Manganese	mg/L	03/25/2014	N002	6.39	-	11.39	1.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	6.39	-	11.39	0.01	U	F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N002	6.39	-	11.39	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	6.39	-	11.39	69.8		F	#		
pH	s.u.	03/25/2014	N001	6.39	-	11.39	7.27		F	#		
Potassium	mg/L	03/25/2014	N001	6.39	-	11.39	21		F	#	0.54	
Potassium	mg/L	03/25/2014	N002	6.39	-	11.39	22		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	6.39	-	11.39	0.00024		FJ	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 1135 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/25/2014	N002	6.39	-	11.39	0.00026		FJ	#	0.000032	
Sodium	mg/L	03/25/2014	N001	6.39	-	11.39	790		F	#	0.33	
Sodium	mg/L	03/25/2014	N002	6.39	-	11.39	810		F	#	0.33	
Specific Conductance	umhos /cm	03/25/2014	N001	6.39	-	11.39	5241		F	#		
Strontium	mg/L	03/25/2014	N001	6.39	-	11.39	3.3		F	#	0.00039	
Strontium	mg/L	03/25/2014	N002	6.39	-	11.39	3.4		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	6.39	-	11.39	2800		F	#	25	
Sulfate	mg/L	03/25/2014	N002	6.39	-	11.39	2700		F	#	50	
Temperature	C	03/25/2014	N001	6.39	-	11.39	11.37		F	#		
Turbidity	NTU	03/25/2014	N001	6.39	-	11.39	9.34		F	#		
Uranium	mg/L	03/25/2014	N001	6.39	-	11.39	0.07		F	#	0.0000029	
Uranium	mg/L	03/25/2014	N002	6.39	-	11.39	0.072		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1136 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	6.29	-	11.29	708		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	6.29	-	11.29	6.2		F	#	2.5	
Ammonia Total as N	mg/L	03/27/2014	N002	6.29	-	11.29	6.2		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	6.29	-	11.29	510		F	#	0.12	
Calcium	mg/L	03/27/2014	N002	6.29	-	11.29	510		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	6.29	-	11.29	390		F	#	40	
Chloride	mg/L	03/27/2014	N002	6.29	-	11.29	390		F	#	40	
Magnesium	mg/L	03/27/2014	N001	6.29	-	11.29	1100		F	#	0.13	
Magnesium	mg/L	03/27/2014	N002	6.29	-	11.29	1100		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	6.29	-	11.29	5.9		F	#	0.0011	
Manganese	mg/L	03/27/2014	N002	6.29	-	11.29	5.9		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	6.29	-	11.29	45		FJ	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	6.29	-	11.29	47	N	FJ	#	0.5	
Oxidation Reduction Potential	mV	03/27/2014	N001	6.29	-	11.29	234.3		F	#		
pH	s.u.	03/27/2014	N001	6.29	-	11.29	6.87		F	#		
Potassium	mg/L	03/27/2014	N001	6.29	-	11.29	30		F	#	1.1	
Potassium	mg/L	03/27/2014	N002	6.29	-	11.29	30		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	6.29	-	11.29	0.022		F	#	0.00016	

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

REPORT DATE: 06/04/2014

Location: 1136 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	6.29 - 11.29	0.023		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	6.29 - 11.29	1800		F	#	0.66	
Sodium	mg/L	03/27/2014	N002	6.29 - 11.29	1800		F	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	6.29 - 11.29	13305		F	#		
Strontium	mg/L	03/27/2014	N001	6.29 - 11.29	9.2		F	#	0.00078	
Strontium	mg/L	03/27/2014	N002	6.29 - 11.29	9.3		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	6.29 - 11.29	9000		F	#	100	
Sulfate	mg/L	03/27/2014	N002	6.29 - 11.29	9000		F	#	100	
Temperature	C	03/27/2014	N001	6.29 - 11.29	10.31		F	#		
Turbidity	NTU	03/27/2014	N001	6.29 - 11.29	2.44		F	#		
Uranium	mg/L	03/27/2014	N001	6.29 - 11.29	1.3		F	#	0.000015	
Uranium	mg/L	03/27/2014	N002	6.29 - 11.29	1.4		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	9.4	-	14.4	970		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	9.4	-	14.4	2.2		F	#	0.1	
Ammonia Total as N	mg/L	03/27/2014	N002	9.4	-	14.4	2		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	9.4	-	14.4	490		F	#	0.12	
Calcium	mg/L	03/27/2014	N002	9.4	-	14.4	480		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	9.4	-	14.4	550		F	#	50	
Chloride	mg/L	03/27/2014	N002	9.4	-	14.4	550		F	#	50	
Magnesium	mg/L	03/27/2014	N001	9.4	-	14.4	1600		F	#	0.13	
Magnesium	mg/L	03/27/2014	N002	9.4	-	14.4	1600		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	9.4	-	14.4	6.9		F	#	0.0011	
Manganese	mg/L	03/27/2014	N002	9.4	-	14.4	6.8		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	9.4	-	14.4	26		F	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	9.4	-	14.4	27		F	#	0.5	
Oxidation Reduction Potential	mV	03/27/2014	N001	9.4	-	14.4	163.2		F	#		
pH	s.u.	03/27/2014	N001	9.4	-	14.4	7.35		F	#		
Potassium	mg/L	03/27/2014	N001	9.4	-	14.4	71		F	#	1.1	
Potassium	mg/L	03/27/2014	N002	9.4	-	14.4	73		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	9.4	-	14.4	0.0051		FJ	#	0.00032	

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

REPORT DATE: 06/04/2014

Location: 1137 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	9.4	-	14.4	0.009	E	FJ	#	0.000032	
Sodium	mg/L	03/27/2014	N001	9.4	-	14.4	3100		F	#	0.66	
Sodium	mg/L	03/27/2014	N002	9.4	-	14.4	3100		F	#	0.66	
Specific Conductance	umhos /cm	03/27/2014	N001	9.4	-	14.4	19186		F	#		
Strontium	mg/L	03/27/2014	N001	9.4	-	14.4	11		F	#	0.00078	
Strontium	mg/L	03/27/2014	N002	9.4	-	14.4	11		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	9.4	-	14.4	14000		F	#	120	
Sulfate	mg/L	03/27/2014	N002	9.4	-	14.4	14000		F	#	120	
Temperature	C	03/27/2014	N001	9.4	-	14.4	9.76		F	#		
Turbidity	NTU	03/27/2014	N001	9.4	-	14.4	0.78		F	#		
Uranium	mg/L	03/27/2014	N001	9.4	-	14.4	1.9		F	#	0.000029	
Uranium	mg/L	03/27/2014	N002	9.4	-	14.4	1.8		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1138 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	8.09	-	13.09	880		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	8.09	-	13.09	2.4		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	8.09	-	13.09	460		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	8.09	-	13.09	490		F	#	50	
Magnesium	mg/L	03/27/2014	N001	8.09	-	13.09	1600		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	8.09	-	13.09	6		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	8.09	-	13.09	23		F	#	0.25	
Oxidation Reduction Potential	mV	03/27/2014	N001	8.09	-	13.09	175.2		F	#		
pH	s.u.	03/27/2014	N001	8.09	-	13.09	7.31		F	#		
Potassium	mg/L	03/27/2014	N001	8.09	-	13.09	75		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	8.09	-	13.09	0.0025		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	8.09	-	13.09	2900		F	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	8.09	-	13.09	18718		F	#		
Strontium	mg/L	03/27/2014	N001	8.09	-	13.09	11		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	8.09	-	13.09	13000		F	#	120	
Temperature	C	03/27/2014	N001	8.09	-	13.09	9.85		F	#		
Turbidity	NTU	03/27/2014	N001	8.09	-	13.09	6.88		F	#		
Uranium	mg/L	03/27/2014	N001	8.09	-	13.09	2.3		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1139 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	6.19	-	11.19	616		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	6.19	-	11.19	0.1	U	F	#	0.1	
Calcium	mg/L	03/27/2014	N001	6.19	-	11.19	310		F	#	0.12	
Chloride	mg/L	03/27/2014	N001	6.19	-	11.19	220		F	#	40	
Magnesium	mg/L	03/27/2014	N001	6.19	-	11.19	670		F	#	0.13	
Manganese	mg/L	03/27/2014	N001	6.19	-	11.19	0.084		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	6.19	-	11.19	1.4		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	6.19	-	11.19	130.9		F	#		
pH	s.u.	03/27/2014	N001	6.19	-	11.19	7.61		F	#		
Potassium	mg/L	03/27/2014	N001	6.19	-	11.19	60		F	#	1.1	
Selenium	mg/L	03/27/2014	N001	6.19	-	11.19	0.0054		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	6.19	-	11.19	2200		F	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	6.19	-	11.19	12898		F	#		
Strontium	mg/L	03/27/2014	N001	6.19	-	11.19	6.3		F	#	0.00078	
Sulfate	mg/L	03/27/2014	N001	6.19	-	11.19	8100		F	#	100	
Temperature	C	03/27/2014	N001	6.19	-	11.19	10.37		F	#		
Turbidity	NTU	03/27/2014	N001	6.19	-	11.19	6.56		F	#		
Uranium	mg/L	03/27/2014	N001	6.19	-	11.19	0.79		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1140 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	7.6	-	12.6	391		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	7.6	-	12.6	9.9		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	7.6	-	12.6	380		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	7.6	-	12.6	180		F	#	20	
Magnesium	mg/L	03/27/2014	N001	7.6	-	12.6	720		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	7.6	-	12.6	2.5		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	7.6	-	12.6	5.5		F	#	0.1	
Oxidation Reduction Potential	mV	03/27/2014	N001	7.6	-	12.6	250.1		F	#		
pH	s.u.	03/27/2014	N001	7.6	-	12.6	6.91		F	#		
Potassium	mg/L	03/27/2014	N001	7.6	-	12.6	73		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	7.6	-	12.6	0.12		F	#	0.0032	
Sodium	mg/L	03/27/2014	N001	7.6	-	12.6	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/27/2014	N001	7.6	-	12.6	10318		F	#		
Strontium	mg/L	03/27/2014	N001	7.6	-	12.6	5.8		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	7.6	-	12.6	6700		F	#	50	
Temperature	C	03/27/2014	N001	7.6	-	12.6	10.51		F	#		
Turbidity	NTU	03/27/2014	N001	7.6	-	12.6	2.7		F	#		
Uranium	mg/L	03/27/2014	N001	7.6	-	12.6	0.82		F	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1141 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	5.6	-	10.6	332		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	5.6	-	10.6	10		F	#	2.5	
Calcium	mg/L	03/27/2014	N001	5.6	-	10.6	400		F	#	0.06	
Chloride	mg/L	03/27/2014	N001	5.6	-	10.6	45		F	#	10	
Magnesium	mg/L	03/27/2014	N001	5.6	-	10.6	240		F	#	0.065	
Manganese	mg/L	03/27/2014	N001	5.6	-	10.6	1.3		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	5.6	-	10.6	0.21		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	5.6	-	10.6	177.9		F	#		
pH	s.u.	03/27/2014	N001	5.6	-	10.6	6.98		F	#		
Potassium	mg/L	03/27/2014	N001	5.6	-	10.6	30		F	#	0.54	
Selenium	mg/L	03/27/2014	N001	5.6	-	10.6	0.034		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	5.6	-	10.6	330		F	#	0.033	
Specific Conductance	umhos/cm	03/27/2014	N001	5.6	-	10.6	4149		F	#		
Strontium	mg/L	03/27/2014	N001	5.6	-	10.6	3.8		F	#	0.00039	
Sulfate	mg/L	03/27/2014	N001	5.6	-	10.6	2400		F	#	25	
Temperature	C	03/27/2014	N001	5.6	-	10.6	10.9		F	#		
Turbidity	NTU	03/27/2014	N001	5.6	-	10.6	1.64		F	#		
Uranium	mg/L	03/27/2014	N001	5.6	-	10.6	0.46		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 1142 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	9	-	14	142		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	9	-	14	0.1		F	#	0.1	
Calcium	mg/L	03/27/2014	N001	9	-	14	73		F	#	0.012	
Chloride	mg/L	03/27/2014	N001	9	-	14	16		F	#	1	
Magnesium	mg/L	03/27/2014	N001	9	-	14	15		F	#	0.013	
Manganese	mg/L	03/27/2014	N001	9	-	14	1.8		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	9	-	14	0.015		F	#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	9	-	14	100.2		F	#		
pH	s.u.	03/27/2014	N001	9	-	14	7.45		F	#		
Potassium	mg/L	03/27/2014	N001	9	-	14	2.6		F	#	0.11	
Selenium	mg/L	03/27/2014	N001	9	-	14	0.00037		FJ	#	0.000032	
Sodium	mg/L	03/27/2014	N001	9	-	14	40		F	#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	9	-	14	645		F	#		
Strontium	mg/L	03/27/2014	N001	9	-	14	0.87		F	#	0.000078	
Sulfate	mg/L	03/27/2014	N001	9	-	14	180		F	#	2.5	
Temperature	C	03/27/2014	N001	9	-	14	10.93		F	#		
Turbidity	NTU	03/27/2014	N001	9	-	14	3.86		F	#		
Uranium	mg/L	03/27/2014	N001	9	-	14	0.0076		F	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1143 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	8.3	-	13.3	245		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	8.3	-	13.3	0.12		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	8.3	-	13.3	180		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	8.3	-	13.3	67		F	#	10	
Magnesium	mg/L	03/25/2014	N001	8.3	-	13.3	59		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	8.3	-	13.3	0.99		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	8.3	-	13.3	0.015		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	8.3	-	13.3	92.3		F	#		
pH	s.u.	03/25/2014	N001	8.3	-	13.3	7.44		F	#		
Potassium	mg/L	03/25/2014	N001	8.3	-	13.3	16		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	8.3	-	13.3	0.000094	B	FJ	#	0.000032	
Sodium	mg/L	03/25/2014	N001	8.3	-	13.3	870		F	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	8.3	-	13.3	5123		F	#		
Strontium	mg/L	03/25/2014	N001	8.3	-	13.3	2.8		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	8.3	-	13.3	2500		F	#	25	
Temperature	C	03/25/2014	N001	8.3	-	13.3	10.41		F	#		
Turbidity	NTU	03/25/2014	N001	8.3	-	13.3	2.65		F	#		
Uranium	mg/L	03/25/2014	N001	8.3	-	13.3	0.057		F	#	0.0000029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

Validated according to quality assurance guidelines.

Groundwater Quality Data Terrace Locations

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/24/2014	N001	29	-	48.8	1291		FQ	#		
Ammonia Total as N	mg/L	03/24/2014	N001	29	-	48.8	18		FQ	#	2.5	
Calcium	mg/L	03/24/2014	N001	29	-	48.8	250		FQ	#	0.12	
Chloride	mg/L	03/24/2014	N001	29	-	48.8	1300		FQ	#	50	
Magnesium	mg/L	03/24/2014	N001	29	-	48.8	240		FQ	#	0.13	
Manganese	mg/L	03/24/2014	N001	29	-	48.8	0.26		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N001	29	-	48.8	110		FQ	#	1	
Oxidation Reduction Potential	mV	03/24/2014	N001	29	-	48.8	223.3		FQ	#		
pH	s.u.	03/24/2014	N001	29	-	48.8	6.79		FQ	#		
Potassium	mg/L	03/24/2014	N001	29	-	48.8	51		FQ	#	1.1	
Selenium	mg/L	03/24/2014	N001	29	-	48.8	0.0018		FQJ	#	0.00016	
Sodium	mg/L	03/24/2014	N001	29	-	48.8	4600		FQ	#	0.66	
Specific Conductance	umhos/cm	03/24/2014	N001	29	-	48.8	20714		FQ	#		
Strontium	mg/L	03/24/2014	N001	29	-	48.8	8.5		FQ	#	0.00078	
Sulfate	mg/L	03/24/2014	N001	29	-	48.8	10000		FQ	#	120	
Temperature	C	03/24/2014	N001	29	-	48.8	16.45		FQ	#		
Turbidity	NTU	03/24/2014	N001	29	-	48.8	1.24		FQ	#		
Uranium	mg/L	03/24/2014	N001	29	-	48.8	0.75		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	27	-	47	1618		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	N001	27	-	47	68		FQ	#	2.5	
Ammonia Total as N	mg/L	03/25/2014	N002	27	-	47	74		FQ	#	2.5	
Calcium	mg/L	03/25/2014	N001	27	-	47	380		FQ	#	0.12	
Calcium	mg/L	03/25/2014	N002	27	-	47	390		FQ	#	0.12	
Chloride	mg/L	03/25/2014	N001	27	-	47	2500		FQ	#	100	
Chloride	mg/L	03/25/2014	N002	27	-	47	2500		FQ	#	100	
Magnesium	mg/L	03/25/2014	N001	27	-	47	1100		FQ	#	0.13	
Magnesium	mg/L	03/25/2014	N002	27	-	47	1200		FQ	#	0.13	
Manganese	mg/L	03/25/2014	N001	27	-	47	0.65		FQ	#	0.0011	
Manganese	mg/L	03/25/2014	N002	27	-	47	0.72		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	27	-	47	30		FQ	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N002	27	-	47	31		FQ	#	0.5	
Oxidation Reduction Potential	mV	03/25/2014	N001	27	-	47	144.9		FQ	#		
pH	s.u.	03/25/2014	N001	27	-	47	6.89		FQ	#		
Potassium	mg/L	03/25/2014	N001	27	-	47	100		FQ	#	1.1	
Potassium	mg/L	03/25/2014	N002	27	-	47	110	N	FQJ	#	1.1	
Selenium	mg/L	03/25/2014	N001	27	-	47	0.0058		FQJ	#	0.00032	

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

REPORT DATE: 06/04/2014

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
Selenium	mg/L	03/25/2014	N002	27	-	47	0.0061		FQ	#	0.00032	
Sodium	mg/L	03/25/2014	N001	27	-	47	6200		FQ	#	0.66	
Sodium	mg/L	03/25/2014	N002	27	-	47	5900		FQ	#	0.66	
Specific Conductance	umhos /cm	03/25/2014	N001	27	-	47	28707		FQ	#		
Strontium	mg/L	03/25/2014	N001	27	-	47	19		FQ	#	0.00078	
Strontium	mg/L	03/25/2014	N002	27	-	47	18		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	27	-	47	18000		FQ	#	250	
Sulfate	mg/L	03/25/2014	N002	27	-	47	19000		FQ	#	250	
Temperature	C	03/25/2014	N001	27	-	47	17.9		FQ	#		
Turbidity	NTU	03/25/2014	N001	27	-	47	5.76		FQ	#		
Uranium	mg/L	03/25/2014	N001	27	-	47	0.47		FQ	#	0.000029	
Uranium	mg/L	03/25/2014	N002	27	-	47	0.49		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 0603 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 ₃)	mg/L	03/26/2014	N001	25.9	-	35.9	160		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	25.9	-	35.9	1400		F	#	500	
Calcium	mg/L	03/26/2014	N001	25.9	-	35.9	1200		F	#	0.12	
Chloride	mg/L	03/26/2014	N001	25.9	-	35.9	160		F	#	50	
Magnesium	mg/L	03/26/2014	N001	25.9	-	35.9	670		F	#	0.13	
Manganese	mg/L	03/26/2014	N001	25.9	-	35.9	63		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	25.9	-	35.9	1600		F	#	20	
Oxidation Reduction Potential	mV	03/26/2014	N001	25.9	-	35.9	258.8		F	#		
pH	s.u.	03/26/2014	N001	25.9	-	35.9	6.15		F	#		
Potassium	mg/L	03/26/2014	N001	25.9	-	35.9	140		F	#	1.1	
Selenium	mg/L	03/26/2014	N001	25.9	-	35.9	0.074		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	25.9	-	35.9	620		F	#	0.066	
Specific Conductance	umhos/cm	03/26/2014	N001	25.9	-	35.9	17215		F	#		
Strontium	mg/L	03/26/2014	N001	25.9	-	35.9	5.9		F	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	25.9	-	35.9	2300		F	#	120	
Temperature	C	03/26/2014	N001	25.9	-	35.9	15.89		F	#		
Turbidity	NTU	03/26/2014	N001	25.9	-	35.9	3.08		F	#		
Uranium	mg/L	03/26/2014	N001	25.9	-	35.9	0.0072		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	0001	62.7	-	72.7	920		FQ	#		
Ammonia Total as N	mg/L	03/27/2014	0001	62.7	-	72.7	2.1		FQ	#	0.1	
Calcium	mg/L	03/27/2014	0001	62.7	-	72.7	490		FQ	#	0.12	
Chloride	mg/L	03/27/2014	0001	62.7	-	72.7	2300		FQ	#	100	
Magnesium	mg/L	03/27/2014	0001	62.7	-	72.7	1800		FQ	#	0.13	
Manganese	mg/L	03/27/2014	0001	62.7	-	72.7	1.1		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	62.7	-	72.7	1100		FQ	#	10	
Oxidation Reduction Potential	mV	03/27/2014	N001	62.7	-	72.7	240		FQ	#		
pH	s.u.	03/27/2014	N001	62.7	-	72.7	6.64		FQ	#		
Potassium	mg/L	03/27/2014	0001	62.7	-	72.7	75		FQ	#	1.1	
Selenium	mg/L	03/27/2014	0001	62.7	-	72.7	0.88		FQ	#	0.00032	
Sodium	mg/L	03/27/2014	0001	62.7	-	72.7	4500		FQ	#	0.66	
Specific Conductance	umhos/cm	03/27/2014	N001	62.7	-	72.7	25540		FQ	#		
Strontium	mg/L	03/27/2014	0001	62.7	-	72.7	18		FQ	#	0.00078	
Sulfate	mg/L	03/27/2014	0001	62.7	-	72.7	13000		FQ	#	250	
Temperature	C	03/27/2014	N001	62.7	-	72.7	14.1		FQ	#		
Turbidity	NTU	03/27/2014	N001	62.7	-	72.7	19.1		FQ	#		
Uranium	mg/L	03/27/2014	0001	62.7	-	72.7	0.1		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	7.5	-	17.5	256		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	7.5	-	17.5	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	7.5	-	17.5	230		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	7.5	-	17.5	72		F	#	10	
Magnesium	mg/L	03/26/2014	N001	7.5	-	17.5	80		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	7.5	-	17.5	0.14		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	7.5	-	17.5	8.2		F	#	0.1	
Oxidation Reduction Potential	mV	03/26/2014	N001	7.5	-	17.5	134.3		F	#		
pH	s.u.	03/26/2014	N001	7.5	-	17.5	6.88		F	#		
Potassium	mg/L	03/26/2014	N001	7.5	-	17.5	12		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	7.5	-	17.5	0.03		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	7.5	-	17.5	830		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	7.5	-	17.5	5049		F	#		
Strontium	mg/L	03/26/2014	N001	7.5	-	17.5	10		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	7.5	-	17.5	2600		F	#	25	
Temperature	C	03/26/2014	N001	7.5	-	17.5	12.85		F	#		
Turbidity	NTU	03/26/2014	N001	7.5	-	17.5	6.97		F	#		
Uranium	mg/L	03/26/2014	N001	7.5	-	17.5	0.093		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 0726 WELL West side, upper Bob Lee Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	27.2	-	37.2	454		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	27.2	-	37.2	0.72		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	27.2	-	37.2	360		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	27.2	-	37.2	240		F	#	20	
Magnesium	mg/L	03/26/2014	N001	27.2	-	37.2	300		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	27.2	-	37.2	0.41		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	27.2	-	37.2	20		F	#	0.2	
Oxidation Reduction Potential	mV	03/26/2014	N001	27.2	-	37.2	146.6		F	#		
pH	s.u.	03/26/2014	N001	27.2	-	37.2	6.91		F	#		
Potassium	mg/L	03/26/2014	N001	27.2	-	37.2	40		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	27.2	-	37.2	0.069		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	27.2	-	37.2	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	27.2	-	37.2	8557		F	#		
Strontium	mg/L	03/26/2014	N001	27.2	-	37.2	7		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	27.2	-	37.2	4900		F	#	50	
Temperature	C	03/26/2014	N001	27.2	-	37.2	16.56		F	#		
Turbidity	NTU	03/26/2014	N001	27.2	-	37.2	6.5		F	#		
Uranium	mg/L	03/26/2014	N001	27.2	-	37.2	0.024		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	6.7	-	16.7	1416		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	N001	6.7	-	16.7	0.84		FQ	#	0.1	
Calcium	mg/L	03/26/2014	N001	6.7	-	16.7	400		FQ	#	0.12	
Chloride	mg/L	03/26/2014	N001	6.7	-	16.7	450		FQ	#	50	
Magnesium	mg/L	03/26/2014	N001	6.7	-	16.7	1500		FQ	#	0.13	
Manganese	mg/L	03/26/2014	N001	6.7	-	16.7	1.2		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	6.7	-	16.7	74		FQ	#	1	
Oxidation Reduction Potential	mV	03/26/2014	N001	6.7	-	16.7	158.2		FQ	#		
pH	s.u.	03/26/2014	N001	6.7	-	16.7	6.49		FQ	#		
Potassium	mg/L	03/26/2014	N001	6.7	-	16.7	75		FQ	#	1.1	
Selenium	mg/L	03/26/2014	N001	6.7	-	16.7	0.002		FQJ	#	0.00016	
Sodium	mg/L	03/26/2014	N001	6.7	-	16.7	2400		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	6.7	-	16.7	15893		FQ	#		
Strontium	mg/L	03/26/2014	N001	6.7	-	16.7	12		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	6.7	-	16.7	13000		FQ	#	120	
Temperature	C	03/26/2014	N001	6.7	-	16.7	15.32		FQ	#		
Turbidity	NTU	03/26/2014	N001	6.7	-	16.7	6.68		FQ	#		
Uranium	mg/L	03/26/2014	N001	6.7	-	16.7	0.23		FQ	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	17	-	27	320		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	17	-	27	71		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	17	-	27	490		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	17	-	27	30		F	#	10	
Magnesium	mg/L	03/26/2014	N001	17	-	27	450		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	17	-	27	0.96		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	17	-	27	13		F	#	0.1	
Oxidation Reduction Potential	mV	03/26/2014	N001	17	-	27	159.9		F	#		
pH	s.u.	03/26/2014	N001	17	-	27	6.83		F	#		
Potassium	mg/L	03/26/2014	N001	17	-	27	59		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	17	-	27	0.0012		FJ	#	0.00016	
Sodium	mg/L	03/26/2014	N001	17	-	27	370		F	#	0.033	
Specific Conductance	umhos /cm	03/26/2014	N001	17	-	27	5283		F	#		
Strontium	mg/L	03/26/2014	N001	17	-	27	5.3		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	17	-	27	3700		F	#	25	
Temperature	C	03/26/2014	N001	17	-	27	16.99		F	#		
Turbidity	NTU	03/26/2014	N001	17	-	27	1.43		F	#		
Uranium	mg/L	03/26/2014	N001	17	-	27	0.2		F	#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0730 WELL Just SW of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Calcium	mg/L	03/27/2014	N001	26.93 - 36.93	580		FQ	#	0.12	
Magnesium	mg/L	03/27/2014	N001	26.93 - 36.93	110		FQ	#	0.013	
Manganese	mg/L	03/27/2014	N001	26.93 - 36.93	20		FQ	#	0.0011	
Oxidation Reduction Potential	mV	03/27/2014	N001	26.93 - 36.93	220		FQ	#		
pH	s.u.	03/27/2014	N001	26.93 - 36.93	4.59		FQ	#		
Potassium	mg/L	03/27/2014	N001	26.93 - 36.93	17		FQ	#	0.11	
Selenium	mg/L	03/27/2014	N001	26.93 - 36.93	0.017		FQ	#	0.00032	
Sodium	mg/L	03/27/2014	N001	26.93 - 36.93	67		FQ	#	0.0066	
Specific Conductance	umhos /cm	03/27/2014	N001	26.93 - 36.93	3040		FQ	#		
Strontium	mg/L	03/27/2014	N001	26.93 - 36.93	2.6		FQ	#	0.000078	
Temperature	C	03/27/2014	N001	26.93 - 36.93	13.5		FQ	#		
Turbidity	NTU	03/27/2014	N001	26.93 - 36.93	8.92		FQ	#		
Uranium	mg/L	03/27/2014	N001	26.93 - 36.93	0.0099		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	17	-	27	384		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	17	-	27	23		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	17	-	27	410		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	17	-	27	110		F	#	20	
Magnesium	mg/L	03/26/2014	N001	17	-	27	390		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	17	-	27	0.26		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	17	-	27	77		F	#	0.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	17	-	27	201.8		F	#		
pH	s.u.	03/26/2014	N001	17	-	27	6.86		F	#		
Potassium	mg/L	03/26/2014	N001	17	-	27	41		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	17	-	27	0.012		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	17	-	27	740		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	17	-	27	7778		F	#		
Strontium	mg/L	03/26/2014	N001	17	-	27	7.4		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	17	-	27	4200		F	#	50	
Temperature	C	03/26/2014	N001	17	-	27	14.93		F	#		
Turbidity	NTU	03/26/2014	N001	17	-	27	5.13		F	#		
Uranium	mg/L	03/26/2014	N001	17	-	27	0.028		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	0001	51.3	-	61.3	746		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	0001	51.3	-	61.3	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/26/2014	0001	51.3	-	61.3	430		FQ	#	0.12	
Chloride	mg/L	03/26/2014	0001	51.3	-	61.3	2000		FQ	#	200	
Magnesium	mg/L	03/26/2014	0001	51.3	-	61.3	2200		FQ	#	0.13	
Manganese	mg/L	03/26/2014	0001	51.3	-	61.3	0.23		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	51.3	-	61.3	1200		FQ	#	10	
Oxidation Reduction Potential	mV	03/26/2014	N001	51.3	-	61.3	205		FQ	#		
pH	s.u.	03/26/2014	N001	51.3	-	61.3	6.62		FQ	#		
Potassium	mg/L	03/26/2014	0001	51.3	-	61.3	100		FQ	#	1.1	
Selenium	mg/L	03/26/2014	0001	51.3	-	61.3	6.3		FQ	#	0.0032	
Sodium	mg/L	03/26/2014	0001	51.3	-	61.3	6100		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	51.3	-	61.3	30440		FQ	#		
Strontium	mg/L	03/26/2014	0001	51.3	-	61.3	14		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	0001	51.3	-	61.3	14000		FQ	#	500	
Temperature	C	03/26/2014	N001	51.3	-	61.3	14.4		FQ	#		
Turbidity	NTU	03/26/2014	N001	51.3	-	61.3	20.1		FQ	#		
Uranium	mg/L	03/26/2014	0001	51.3	-	61.3	0.15		FQ	#	0.00029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	40.8	-	50.8	900		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	40.8	-	50.8	40		F	#	2.5	
Calcium	mg/L	03/26/2014	N001	40.8	-	50.8	600		F	#	0.12	
Chloride	mg/L	03/26/2014	N001	40.8	-	50.8	1000		F	#	100	
Magnesium	mg/L	03/26/2014	N001	40.8	-	50.8	2900		F	#	0.13	
Manganese	mg/L	03/26/2014	N001	40.8	-	50.8	1.2		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	40.8	-	50.8	2200		F	#	50	
Oxidation Reduction Potential	mV	03/26/2014	N001	40.8	-	50.8	150.4		F	#		
pH	s.u.	03/26/2014	N001	40.8	-	50.8	6.68		F	#		
Potassium	mg/L	03/26/2014	N001	40.8	-	50.8	130		F	#	1.1	
Selenium	mg/L	03/26/2014	N001	40.8	-	50.8	0.11		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	40.8	-	50.8	2900		F	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	40.8	-	50.8	25924		F	#		
Strontium	mg/L	03/26/2014	N001	40.8	-	50.8	18		F	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	40.8	-	50.8	11000		F	#	250	
Temperature	C	03/26/2014	N001	40.8	-	50.8	16.26		F	#		
Turbidity	NTU	03/26/2014	N001	40.8	-	50.8	8.2		F	#		
Uranium	mg/L	03/26/2014	N001	40.8	-	50.8	0.1		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	23.8	-	33.8	700		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	0001	23.8	-	33.8	50		FQ	#	2.5	
Calcium	mg/L	03/26/2014	0001	23.8	-	33.8	440		FQ	#	0.12	
Chloride	mg/L	03/26/2014	0001	23.8	-	33.8	1000		FQ	#	100	
Magnesium	mg/L	03/26/2014	0001	23.8	-	33.8	2000		FQ	#	0.13	
Manganese	mg/L	03/26/2014	0001	23.8	-	33.8	1.2		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	23.8	-	33.8	780		FQ	#	10	
Oxidation Reduction Potential	mV	03/26/2014	N001	23.8	-	33.8	216		FQ	#		
pH	s.u.	03/26/2014	N001	23.8	-	33.8	7.12		FQ	#		
Potassium	mg/L	03/26/2014	0001	23.8	-	33.8	140		FQ	#	1.1	
Selenium	mg/L	03/26/2014	0001	23.8	-	33.8	2.2		FQ	#	0.0016	
Sodium	mg/L	03/26/2014	0001	23.8	-	33.8	3700		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	23.8	-	33.8	22154		FQ	#		
Strontium	mg/L	03/26/2014	0001	23.8	-	33.8	13		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	0001	23.8	-	33.8	14000		FQ	#	250	
Temperature	C	03/26/2014	N001	23.8	-	33.8	14.92		FQ	#		
Turbidity	NTU	03/26/2014	N001	23.8	-	33.8	28.1		FQ	#		
Uranium	mg/L	03/26/2014	0001	23.8	-	33.8	0.096		FQ	#	0.00015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	22.3	-	32.3	1416		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	22.3	-	32.3	1.2		F	#	0.1	
Calcium	mg/L	03/26/2014	N001	22.3	-	32.3	430		F	#	0.12	
Chloride	mg/L	03/26/2014	N001	22.3	-	32.3	570		F	#	100	
Magnesium	mg/L	03/26/2014	N001	22.3	-	32.3	2400		F	#	0.13	
Manganese	mg/L	03/26/2014	N001	22.3	-	32.3	1.5		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	22.3	-	32.3	620		F	#	10	
Oxidation Reduction Potential	mV	03/26/2014	N001	22.3	-	32.3	152.9		F	#		
pH	s.u.	03/26/2014	N001	22.3	-	32.3	6.55		F	#		
Potassium	mg/L	03/26/2014	N001	22.3	-	32.3	110		F	#	1.1	
Selenium	mg/L	03/26/2014	N001	22.3	-	32.3	0.036		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	22.3	-	32.3	3200		F	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	22.3	-	32.3	21861		F	#		
Strontium	mg/L	03/26/2014	N001	22.3	-	32.3	12		F	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	22.3	-	32.3	15000		F	#	250	
Temperature	C	03/26/2014	N001	22.3	-	32.3	17.57		F	#		
Turbidity	NTU	03/26/2014	N001	22.3	-	32.3	3.13		F	#		
Uranium	mg/L	03/26/2014	N001	22.3	-	32.3	0.33		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/27/2014	N001	20.1	-	25.1	200		F	#		
Ammonia Total as N	mg/L	03/27/2014	N001	20.1	-	25.1	0.1	U	F	#	0.1	
Calcium	mg/L	03/27/2014	N001	20.1	-	25.1	150		F	#	0.012	
Chloride	mg/L	03/27/2014	N001	20.1	-	25.1	66		F	#	20	
Magnesium	mg/L	03/27/2014	N001	20.1	-	25.1	160		F	#	0.013	
Manganese	mg/L	03/27/2014	N001	20.1	-	25.1	0.001	B	F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	20.1	-	25.1	9.9		F	#	0.1	
Oxidation Reduction Potential	mV	03/27/2014	N001	20.1	-	25.1	171.4		F	#		
pH	s.u.	03/27/2014	N001	20.1	-	25.1	7.58		F	#		
Potassium	mg/L	03/27/2014	N001	20.1	-	25.1	19		F	#	0.11	
Selenium	mg/L	03/27/2014	N001	20.1	-	25.1	0.016		F	#	0.00016	
Sodium	mg/L	03/27/2014	N001	20.1	-	25.1	590		F	#	0.066	
Specific Conductance	umhos/cm	03/27/2014	N001	20.1	-	25.1	3864		F	#		
Strontium	mg/L	03/27/2014	N001	20.1	-	25.1	2.8		F	#	0.000078	
Sulfate	mg/L	03/27/2014	N001	20.1	-	25.1	2100		F	#	50	
Temperature	C	03/27/2014	N001	20.1	-	25.1	13.86		F	#		
Turbidity	NTU	03/27/2014	N001	20.1	-	25.1	2.06		F	#		
Uranium	mg/L	03/27/2014	N001	20.1	-	25.1	0.016		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	21.6	-	31.62	1630		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	N001	21.6	-	31.62	1000		FQ	#	500	
Calcium	mg/L	03/25/2014	N001	21.6	-	31.62	450		FQ	#	0.12	
Chloride	mg/L	03/25/2014	N001	21.6	-	31.62	540		FQ	#	100	
Magnesium	mg/L	03/25/2014	N001	21.6	-	31.62	1900		FQ	#	0.13	
Manganese	mg/L	03/25/2014	N001	21.6	-	31.62	2.5		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	21.6	-	31.62	680		FQ	#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	21.6	-	31.62	175.2		FQ	#		
pH	s.u.	03/25/2014	N001	21.6	-	31.62	6.35		FQ	#		
Potassium	mg/L	03/25/2014	N001	21.6	-	31.62	300		FQ	#	1.1	
Selenium	mg/L	03/25/2014	N001	21.6	-	31.62	0.0062		FQ	#	0.00032	
Sodium	mg/L	03/25/2014	N001	21.6	-	31.62	1400		FQ	#	0.066	
Specific Conductance	umhos/cm	03/25/2014	N001	21.6	-	31.62	20839		FQ	#		
Strontium	mg/L	03/25/2014	N001	21.6	-	31.62	12		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	21.6	-	31.62	12000		FQ	#	250	
Temperature	C	03/25/2014	N001	21.6	-	31.62	17.92		FQ	#		
Turbidity	NTU	03/25/2014	N001	21.6	-	31.62	4.54		FQ	#		
Uranium	mg/L	03/25/2014	N001	21.6	-	31.62	6.7		FQ	#	0.0029	

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

REPORT DATE: 06/04/2014

Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	52	-	61.5	646			#		
Ammonia Total as N	mg/L	03/25/2014	N001	52	-	61.5	69			#	2.5	
Calcium	mg/L	03/25/2014	N001	52	-	61.5	440			#	0.12	
Chloride	mg/L	03/25/2014	N001	52	-	61.5	1000			#	100	
Magnesium	mg/L	03/25/2014	N001	52	-	61.5	1700			#	0.13	
Manganese	mg/L	03/25/2014	N001	52	-	61.5	0.58			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	52	-	61.5	1200			#	10	
Oxidation Reduction Potential	mV	03/25/2014	N001	52	-	61.5	220			#		
pH	s.u.	03/25/2014	N001	52	-	61.5	6.85			#		
Potassium	mg/L	03/25/2014	N001	52	-	61.5	110			#	1.1	
Selenium	mg/L	03/25/2014	N001	52	-	61.5	2.3			#	0.0032	
Sodium	mg/L	03/25/2014	N001	52	-	61.5	3600			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	52	-	61.5	22520			#		
Strontium	mg/L	03/25/2014	N001	52	-	61.5	12			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	52	-	61.5	13000			#	250	
Temperature	C	03/25/2014	N001	52	-	61.5	16.3			#		
Turbidity	NTU	03/25/2014	N001	52	-	61.5	3.21			#		
Uranium	mg/L	03/25/2014	N001	52	-	61.5	0.13			#	0.00029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	15.67 - 25.67	1970		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	N001	15.67 - 25.67	520		FQ	#	500	
Calcium	mg/L	03/25/2014	N001	15.67 - 25.67	420		FQ	#	0.12	
Chloride	mg/L	03/25/2014	N001	15.67 - 25.67	720		FQ	#	100	
Magnesium	mg/L	03/25/2014	N001	15.67 - 25.67	1500		FQ	#	0.13	
Manganese	mg/L	03/25/2014	N001	15.67 - 25.67	2.3		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	15.67 - 25.67	16		FQ	#	0.5	
Oxidation Reduction Potential	mV	03/25/2014	N001	15.67 - 25.67	122.2		FQ	#		
pH	s.u.	03/25/2014	N001	15.67 - 25.67	6.27		FQ	#		
Potassium	mg/L	03/25/2014	N001	15.67 - 25.67	240		FQ	#	1.1	
Selenium	mg/L	03/25/2014	N001	15.67 - 25.67	0.015		FQ	#	0.0016	
Sodium	mg/L	03/25/2014	N001	15.67 - 25.67	2600		FQ	#	0.66	
Specific Conductance	umhos /cm	03/25/2014	N001	15.67 - 25.67	20437		FQ	#		
Strontium	mg/L	03/25/2014	N001	15.67 - 25.67	10		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	15.67 - 25.67	13000		FQ	#	250	
Temperature	C	03/25/2014	N001	15.67 - 25.67	18.1		FQ	#		
Turbidity	NTU	03/25/2014	N001	15.67 - 25.67	3.19		FQ	#		
Uranium	mg/L	03/25/2014	N001	15.67 - 25.67	1.8		FQ	#	0.00015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/24/2014	N001	199	-	201.5	403		FQ	#		
Ammonia Total as N	mg/L	03/24/2014	N001	199	-	201.5	0.43		FQ	#	0.1	
Calcium	mg/L	03/24/2014	N001	199	-	201.5	150		FQ	#	0.12	
Chloride	mg/L	03/24/2014	N001	199	-	201.5	7700		FQ	#	100	
Magnesium	mg/L	03/24/2014	N001	199	-	201.5	90		FQ	#	0.13	
Manganese	mg/L	03/24/2014	N001	199	-	201.5	0.48		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N001	199	-	201.5	1.7		FQ	#	0.01	
Oxidation Reduction Potential	mV	03/24/2014	N001	199	-	201.5	211		FQ	#		
pH	s.u.	03/24/2014	N001	199	-	201.5	7.6		FQ	#		
Potassium	mg/L	03/24/2014	N001	199	-	201.5	66		FQ	#	1.1	
Selenium	mg/L	03/24/2014	N001	199	-	201.5	0.0011		FQJ	#	0.00016	
Sodium	mg/L	03/24/2014	N001	199	-	201.5	5800		FQ	#	0.66	
Specific Conductance	umhos/cm	03/24/2014	N001	199	-	201.5	25414		FQ	#		
Strontium	mg/L	03/24/2014	N001	199	-	201.5	17		FQ	#	0.00078	
Sulfate	mg/L	03/24/2014	N001	199	-	201.5	5800		FQ	#	250	
Temperature	C	03/24/2014	N001	199	-	201.5	19.37		FQ	#		
Turbidity	NTU	03/24/2014	N001	199	-	201.5	5.21		FQ	#		
Uranium	mg/L	03/24/2014	N001	199	-	201.5	0.051		FQ	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/24/2014	0001	198.5	-	201	294		FQ	#		
Ammonia Total as N	mg/L	03/24/2014	0001	198.5	-	201	6.7		FQ	#	2.5	
Calcium	mg/L	03/24/2014	0001	198.5	-	201	180		FQ	#	0.12	
Chloride	mg/L	03/24/2014	0001	198.5	-	201	8400		FQ	#	100	
Magnesium	mg/L	03/24/2014	0001	198.5	-	201	70	E	FQJ	#	0.13	
Manganese	mg/L	03/24/2014	0001	198.5	-	201	0.58		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	0001	198.5	-	201	9.8		FQ	#	0.5	
Oxidation Reduction Potential	mV	03/24/2014	N001	198.5	-	201	-12.1		FQ	#		
pH	s.u.	03/24/2014	N001	198.5	-	201	7.09		FQ	#		
Potassium	mg/L	03/24/2014	0001	198.5	-	201	57	E	FQJ	#	1.1	
Selenium	mg/L	03/24/2014	0001	198.5	-	201	0.00062		FQJ	#	0.000032	
Sodium	mg/L	03/24/2014	0001	198.5	-	201	6300		FQ	#	0.66	
Specific Conductance	umhos/cm	03/24/2014	N001	198.5	-	201	28127		FQ	#		
Strontium	mg/L	03/24/2014	0001	198.5	-	201	19		FQ	#	0.00078	
Sulfate	mg/L	03/24/2014	0001	198.5	-	201	5800		FQ	#	250	
Temperature	C	03/24/2014	N001	198.5	-	201	16.43		FQ	#		
Turbidity	NTU	03/24/2014	N001	198.5	-	201	10.7		FQ	#		
Uranium	mg/L	03/24/2014	0001	198.5	-	201	0.026		FQ	#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	10	-	20	1428		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	N001	10	-	20	80		FQ	#	2.5	
Calcium	mg/L	03/25/2014	N001	10	-	20	420		FQ	#	0.12	
Chloride	mg/L	03/25/2014	N001	10	-	20	340		FQ	#	50	
Magnesium	mg/L	03/25/2014	N001	10	-	20	1900		FQ	#	0.13	
Manganese	mg/L	03/25/2014	N001	10	-	20	2.5		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	10	-	20	15		FQ	#	0.2	
Oxidation Reduction Potential	mV	03/25/2014	N001	10	-	20	265.3		FQ	#		
pH	s.u.	03/25/2014	N001	10	-	20	6.43		FQ	#		
Potassium	mg/L	03/25/2014	N001	10	-	20	130		FQ	#	1.1	
Selenium	mg/L	03/25/2014	N001	10	-	20	0.0033		FQJ	#	0.00032	
Sodium	mg/L	03/25/2014	N001	10	-	20	1700		FQ	#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	10	-	20	15624		FQ	#		
Strontium	mg/L	03/25/2014	N001	10	-	20	10		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	10	-	20	11000		FQ	#	120	
Temperature	C	03/25/2014	N001	10	-	20	14.9		FQ	#		
Turbidity	NTU	03/25/2014	N001	10	-	20	5.73		FQ	#		
Uranium	mg/L	03/25/2014	N001	10	-	20	1.4	E	FQJ	#	0.00015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	0001	19.9	-	29.9	1126		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	0001	19.9	-	29.9	4.2		FQ	#	0.1	
Calcium	mg/L	03/25/2014	0001	19.9	-	29.9	450		FQ	#	0.06	
Chloride	mg/L	03/25/2014	0001	19.9	-	29.9	340		FQ	#	20	
Magnesium	mg/L	03/25/2014	0001	19.9	-	29.9	970		FQ	#	0.065	
Manganese	mg/L	03/25/2014	0001	19.9	-	29.9	0.35		FQ	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	19.9	-	29.9	14		FQ	#	0.2	
Oxidation Reduction Potential	mV	03/25/2014	N001	19.9	-	29.9	123.3		FQ	#		
pH	s.u.	03/25/2014	N001	19.9	-	29.9	6.51		FQ	#		
Potassium	mg/L	03/25/2014	0001	19.9	-	29.9	48		FQ	#	0.54	
Selenium	mg/L	03/25/2014	0001	19.9	-	29.9	0.02		FQ	#	0.0016	
Sodium	mg/L	03/25/2014	0001	19.9	-	29.9	1600		FQ	#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	19.9	-	29.9	13764		FQ	#		
Strontium	mg/L	03/25/2014	0001	19.9	-	29.9	9.6		FQ	#	0.00039	
Sulfate	mg/L	03/25/2014	0001	19.9	-	29.9	7000		FQ	#	50	
Temperature	C	03/25/2014	N001	19.9	-	29.9	14.45		FQ	#		
Turbidity	NTU	03/25/2014	N001	19.9	-	29.9	27.4		FQ	#		
Uranium	mg/L	03/25/2014	0001	19.9	-	29.9	1.1		FQ	#	0.00015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	5.3	-	15.3	962		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	5.3	-	15.3	0.74		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	5.3	-	15.3	300		F	#	0.06	
Chloride	mg/L	03/25/2014	N001	5.3	-	15.3	230		F	#	10	
Magnesium	mg/L	03/25/2014	N001	5.3	-	15.3	270		F	#	0.065	
Manganese	mg/L	03/25/2014	N001	5.3	-	15.3	1.6		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	5.3	-	15.3	26		F	#	0.2	
Oxidation Reduction Potential	mV	03/25/2014	N001	5.3	-	15.3	110.9		F	#		
pH	s.u.	03/25/2014	N001	5.3	-	15.3	6.89		F	#		
Potassium	mg/L	03/25/2014	N001	5.3	-	15.3	17		F	#	0.54	
Selenium	mg/L	03/25/2014	N001	5.3	-	15.3	0.019		F	#	0.00032	
Sodium	mg/L	03/25/2014	N001	5.3	-	15.3	530		F	#	0.033	
Specific Conductance	umhos/cm	03/25/2014	N001	5.3	-	15.3	4720		F	#		
Strontium	mg/L	03/25/2014	N001	5.3	-	15.3	4.3		F	#	0.00039	
Sulfate	mg/L	03/25/2014	N001	5.3	-	15.3	1700		F	#	25	
Temperature	C	03/25/2014	N001	5.3	-	15.3	17.39		F	#		
Turbidity	NTU	03/25/2014	N001	5.3	-	15.3	4.43		F	#		
Uranium	mg/L	03/25/2014	N001	5.3	-	15.3	0.67		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	0001	7.7	-	17.7	0		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	7.7	-	17.7	0.14		F	#	0.1	
Calcium	mg/L	03/25/2014	N001	7.7	-	17.7	560		F	#	0.12	
Chloride	mg/L	03/25/2014	N001	7.7	-	17.7	52		F	#	10	
Magnesium	mg/L	03/25/2014	N001	7.7	-	17.7	45		F	#	0.013	
Manganese	mg/L	03/25/2014	N001	7.7	-	17.7	2.9		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	7.7	-	17.7	27		F	#	0.2	
Oxidation Reduction Potential	mV	03/25/2014	N001	7.7	-	17.7	361.1		F	#		
pH	s.u.	03/25/2014	N001	7.7	-	17.7	3.74		F	#		
Potassium	mg/L	03/25/2014	N001	7.7	-	17.7	4.7		F	#	0.11	
Selenium	mg/L	03/25/2014	N001	7.7	-	17.7	0.027		F	#	0.00016	
Sodium	mg/L	03/25/2014	N001	7.7	-	17.7	140		F	#	0.0066	
Specific Conductance	umhos/cm	03/25/2014	N001	7.7	-	17.7	2924		F	#		
Strontium	mg/L	03/25/2014	N001	7.7	-	17.7	0.24		F	#	0.000078	
Sulfate	mg/L	03/25/2014	N001	7.7	-	17.7	1600		F	#	25	
Temperature	C	03/25/2014	N001	7.7	-	17.7	13.33		F	#		
Turbidity	NTU	03/25/2014	N001	7.7	-	17.7	1.15		F	#		
Uranium	mg/L	03/25/2014	N001	7.7	-	17.7	0.0034		F	#	0.000015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	24.9	-	34.9	482		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	24.9	-	34.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	24.9	-	34.9	460		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	24.9	-	34.9	290		F	#	20	
Magnesium	mg/L	03/26/2014	N001	24.9	-	34.9	510		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	24.9	-	34.9	0.03		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	24.9	-	34.9	80		F	#	1	
Oxidation Reduction Potential	mV	03/26/2014	N001	24.9	-	34.9	205		F	#		
pH	s.u.	03/26/2014	N001	24.9	-	34.9	6.88		F	#		
Potassium	mg/L	03/26/2014	N001	24.9	-	34.9	25		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	24.9	-	34.9	0.24		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	24.9	-	34.9	940		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	24.9	-	34.9	8339		F	#		
Strontium	mg/L	03/26/2014	N001	24.9	-	34.9	6		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	24.9	-	34.9	4200		F	#	50	
Temperature	C	03/26/2014	N001	24.9	-	34.9	15.36		F	#		
Turbidity	NTU	03/26/2014	N001	24.9	-	34.9	2.7		F	#		
Uranium	mg/L	03/26/2014	N001	24.9	-	34.9	0.098		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	21.9	-	31.9	148		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	21.9	-	31.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	21.9	-	31.9	53		F	#	0.012	
Chloride	mg/L	03/26/2014	N001	21.9	-	31.9	28		F	#	1	
Magnesium	mg/L	03/26/2014	N001	21.9	-	31.9	34		F	#	0.013	
Manganese	mg/L	03/26/2014	N001	21.9	-	31.9	0.14		F	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	21.9	-	31.9	0.89		F	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	21.9	-	31.9	158.2		F	#		
pH	s.u.	03/26/2014	N001	21.9	-	31.9	7.63		F	#		
Potassium	mg/L	03/26/2014	N001	21.9	-	31.9	1.9		F	#	0.11	
Selenium	mg/L	03/26/2014	N001	21.9	-	31.9	0.0036		FJ	#	0.00032	
Sodium	mg/L	03/26/2014	N001	21.9	-	31.9	39		F	#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	21.9	-	31.9	694		F	#		
Strontium	mg/L	03/26/2014	N001	21.9	-	31.9	0.58		F	#	0.000078	
Sulfate	mg/L	03/26/2014	N001	21.9	-	31.9	190		F	#	2.5	
Temperature	C	03/26/2014	N001	21.9	-	31.9	14.34		F	#		
Turbidity	NTU	03/26/2014	N001	21.9	-	31.9	8.55		F	#		
Uranium	mg/L	03/26/2014	N001	21.9	-	31.9	0.005		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	26.8	-	36.8	290		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	26.8	-	36.8	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	26.8	-	36.8	550		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	26.8	-	36.8	75		F	#	10	
Magnesium	mg/L	03/26/2014	N001	26.8	-	36.8	270		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	26.8	-	36.8	0.43		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	26.8	-	36.8	43		F	#	0.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	26.8	-	36.8	185.9		F	#		
pH	s.u.	03/26/2014	N001	26.8	-	36.8	6.73		F	#		
Potassium	mg/L	03/26/2014	N001	26.8	-	36.8	6.7		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	26.8	-	36.8	0.4		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	26.8	-	36.8	390		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	26.8	-	36.8	4671		F	#		
Strontium	mg/L	03/26/2014	N001	26.8	-	36.8	7.1		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	26.8	-	36.8	2600		F	#	25	
Temperature	C	03/26/2014	N001	26.8	-	36.8	15.23		F	#		
Turbidity	NTU	03/26/2014	N001	26.8	-	36.8	8.76		F	#		
Uranium	mg/L	03/26/2014	N001	26.8	-	36.8	0.053		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	17	-	27.1	388		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	17	-	27.1	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	17	-	27.1	660		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	17	-	27.1	140		F	#	10	
Magnesium	mg/L	03/26/2014	N001	17	-	27.1	270		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	17	-	27.1	4.7		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	17	-	27.1	64		F	#	0.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	17	-	27.1	152.2		F	#		
pH	s.u.	03/26/2014	N001	17	-	27.1	6.67		F	#		
Potassium	mg/L	03/26/2014	N001	17	-	27.1	12		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	17	-	27.1	0.22		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	17	-	27.1	360		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	17	-	27.1	4925		F	#		
Strontium	mg/L	03/26/2014	N001	17	-	27.1	7.3		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	17	-	27.1	2600		F	#	25	
Temperature	C	03/26/2014	N001	17	-	27.1	14.99		F	#		
Turbidity	NTU	03/26/2014	N001	17	-	27.1	5.07		F	#		
Uranium	mg/L	03/26/2014	N001	17	-	27.1	0.034		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	21.9	-	31.9	458		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	21.9	-	31.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	21.9	-	31.9	450		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	21.9	-	31.9	390		F	#	20	
Magnesium	mg/L	03/26/2014	N001	21.9	-	31.9	980		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	21.9	-	31.9	0.016	B	F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	21.9	-	31.9	200		F	#	2	
Oxidation Reduction Potential	mV	03/26/2014	N001	21.9	-	31.9	230		F	#		
pH	s.u.	03/26/2014	N001	21.9	-	31.9	6.99		F	#		
Potassium	mg/L	03/26/2014	N001	21.9	-	31.9	28		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	21.9	-	31.9	0.42		F	#	0.0016	
Sodium	mg/L	03/26/2014	N001	21.9	-	31.9	1500		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	21.9	-	31.9	11333		F	#		
Strontium	mg/L	03/26/2014	N001	21.9	-	31.9	8.8		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	21.9	-	31.9	6700		F	#	50	
Temperature	C	03/26/2014	N001	21.9	-	31.9	14.73		F	#		
Turbidity	NTU	03/26/2014	N001	21.9	-	31.9	3.03		F	#		
Uranium	mg/L	03/26/2014	N001	21.9	-	31.9	0.18		F	#	0.00015	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	0001	42	-	52	664		F	#		
Ammonia Total as N	mg/L	03/25/2014	0001	42	-	52	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	0001	42	-	52	410		F	#	0.12	
Chloride	mg/L	03/25/2014	0001	42	-	52	820		F	#	100	
Magnesium	mg/L	03/25/2014	0001	42	-	52	800		F	#	0.13	
Manganese	mg/L	03/25/2014	0001	42	-	52	0.01	B	F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	42	-	52	700		F	#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	42	-	52	157.7		F	#		
pH	s.u.	03/25/2014	N001	42	-	52	6.97		F	#		
Potassium	mg/L	03/25/2014	0001	42	-	52	65		F	#	1.1	
Selenium	mg/L	03/25/2014	0001	42	-	52	3.4		F	#	0.0032	
Sodium	mg/L	03/25/2014	0001	42	-	52	4700		F	#	0.66	
Specific Conductance	umhos /cm	03/25/2014	N001	42	-	52	22236		F	#		
Strontium	mg/L	03/25/2014	0001	42	-	52	8.2		F	#	0.00078	
Sulfate	mg/L	03/25/2014	0001	42	-	52	13000		F	#	250	
Temperature	C	03/25/2014	N001	42	-	52	16.38		F	#		
Turbidity	NTU	03/25/2014	N001	42	-	52	20.5		F	#		
Uranium	mg/L	03/25/2014	0001	42	-	52	0.11		F	#	0.00029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	11.9	-	21.9	298		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	11.9	-	21.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	11.9	-	21.9	430		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	11.9	-	21.9	90		F	#	10	
Magnesium	mg/L	03/26/2014	N001	11.9	-	21.9	150		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	11.9	-	21.9	2.1		F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	11.9	-	21.9	19		F	#	0.2	
Oxidation Reduction Potential	mV	03/26/2014	N001	11.9	-	21.9	108		F	#		
pH	s.u.	03/26/2014	N001	11.9	-	21.9	6.88		F	#		
Potassium	mg/L	03/26/2014	N001	11.9	-	21.9	9.6		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	11.9	-	21.9	0.35		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	11.9	-	21.9	330		F	#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	11.9	-	21.9	3705		F	#		
Strontium	mg/L	03/26/2014	N001	11.9	-	21.9	5.1		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	11.9	-	21.9	1900		F	#	25	
Temperature	C	03/26/2014	N001	11.9	-	21.9	14		F	#		
Turbidity	NTU	03/26/2014	N001	11.9	-	21.9	8.67		F	#		
Uranium	mg/L	03/26/2014	N001	11.9	-	21.9	0.03		F	#	0.000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/26/2014	N001	28.91	-	38.91	672		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	28.91	-	38.91	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	28.91	-	38.91	480		F	#	0.12	
Chloride	mg/L	03/26/2014	N001	28.91	-	38.91	870		F	#	50	
Magnesium	mg/L	03/26/2014	N001	28.91	-	38.91	1900		F	#	0.13	
Manganese	mg/L	03/26/2014	N001	28.91	-	38.91	0.0061	B	F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	28.91	-	38.91	820		F	#	10	
Oxidation Reduction Potential	mV	03/26/2014	N001	28.91	-	38.91	238.1		F	#		
pH	s.u.	03/26/2014	N001	28.91	-	38.91	7.31		F	#		
Potassium	mg/L	03/26/2014	N001	28.91	-	38.91	62		F	#	1.1	
Selenium	mg/L	03/26/2014	N001	28.91	-	38.91	1.9		F	#	0.0016	
Sodium	mg/L	03/26/2014	N001	28.91	-	38.91	2400		F	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	28.91	-	38.91	18910		F	#		
Strontium	mg/L	03/26/2014	N001	28.91	-	38.91	13		F	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	28.91	-	38.91	10000		F	#	120	
Temperature	C	03/26/2014	N001	28.91	-	38.91	15.03		F	#		
Turbidity	NTU	03/26/2014	N001	28.91	-	38.91	1.16		F	#		
Uranium	mg/L	03/26/2014	N001	28.91	-	38.91	0.2		F	#	0.00015	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	45	-	142.58	1808		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	45	-	142.58	9.7		F	#	2.5	
Calcium	mg/L	03/25/2014	N001	45	-	142.58	360		F	#	0.12	
Chloride	mg/L	03/25/2014	N001	45	-	142.58	1200		F	#	100	
Magnesium	mg/L	03/25/2014	N001	45	-	142.58	470		F	#	0.13	
Manganese	mg/L	03/25/2014	N001	45	-	142.58	2.9		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	45	-	142.58	0.036		F	#	0.01	
Oxidation Reduction Potential	mV	03/25/2014	N001	45	-	142.58	-5.7		F	#		
pH	s.u.	03/25/2014	N001	45	-	142.58	6.65		F	#		
Potassium	mg/L	03/25/2014	N001	45	-	142.58	44		F	#	1.1	
Selenium	mg/L	03/25/2014	N001	45	-	142.58	0.048		F	#	0.00032	
Sodium	mg/L	03/25/2014	N001	45	-	142.58	6700		F	#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	45	-	142.58	26411		F	#		
Strontium	mg/L	03/25/2014	N001	45	-	142.58	19		F	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	45	-	142.58	16000		F	#	250	
Temperature	C	03/25/2014	N001	45	-	142.58	16.47		F	#		
Turbidity	NTU	03/25/2014	N001	45	-	142.58	9.61		F	#		
Uranium	mg/L	03/25/2014	N001	45	-	142.58	0.017		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1007 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	0001	36.8	-	46.3	1190		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	0001	36.8	-	46.3	17		FQ	#	2.5	
Calcium	mg/L	03/25/2014	0001	36.8	-	46.3	470		FQ	#	0.12	
Chloride	mg/L	03/25/2014	0001	36.8	-	46.3	550		FQ	#	50	
Magnesium	mg/L	03/25/2014	0001	36.8	-	46.3	2400		FQ	#	0.13	
Manganese	mg/L	03/25/2014	0001	36.8	-	46.3	1.1		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	36.8	-	46.3	670		FQ	#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	36.8	-	46.3	134.6		FQ	#		
pH	s.u.	03/25/2014	N001	36.8	-	46.3	6.53		FQ	#		
Potassium	mg/L	03/25/2014	0001	36.8	-	46.3	150		FQ	#	1.1	
Selenium	mg/L	03/25/2014	0001	36.8	-	46.3	0.091		FQ	#	0.0016	
Sodium	mg/L	03/25/2014	0001	36.8	-	46.3	2500		FQ	#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	36.8	-	46.3	19289		FQ	#		
Strontium	mg/L	03/25/2014	0001	36.8	-	46.3	12		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	0001	36.8	-	46.3	12000		FQ	#	120	
Temperature	C	03/25/2014	N001	36.8	-	46.3	15.06		FQ	#		
Turbidity	NTU	03/25/2014	N001	36.8	-	46.3	130		FQ	#		
Uranium	mg/L	03/25/2014	0001	36.8	-	46.3	2.8		FQ	#	0.00015	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	4.3	-	9.3	662		F	#		
Ammonia Total as N	mg/L	03/25/2014	N001	4.3	-	9.3	0.1	U	F	#	0.1	
Calcium	mg/L	03/25/2014	N001	4.3	-	9.3	410		F	#	0.12	
Chloride	mg/L	03/25/2014	N001	4.3	-	9.3	1400		F	#	100	
Magnesium	mg/L	03/25/2014	N001	4.3	-	9.3	1200		F	#	0.13	
Manganese	mg/L	03/25/2014	N001	4.3	-	9.3	0.041	B	F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	4.3	-	9.3	560		F	#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	4.3	-	9.3	170		F	#		
pH	s.u.	03/25/2014	N001	4.3	-	9.3	7.37		F	#		
Potassium	mg/L	03/25/2014	N001	4.3	-	9.3	53		F	#	1.1	
Selenium	mg/L	03/25/2014	N001	4.3	-	9.3	1.2		F	#	0.0016	
Sodium	mg/L	03/25/2014	N001	4.3	-	9.3	6000		F	#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	4.3	-	9.3	26670		F	#		
Strontium	mg/L	03/25/2014	N001	4.3	-	9.3	9.3		F	#	0.00078	
Sulfate	mg/L	03/25/2014	N001	4.3	-	9.3	17000		F	#	250	
Temperature	C	03/25/2014	N001	4.3	-	9.3	13.9		F	#		
Turbidity	NTU	03/25/2014	N001	4.3	-	9.3	9.67		F	#		
Uranium	mg/L	03/25/2014	N001	4.3	-	9.3	0.17		F	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1057 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	36.66	-	41.66	280		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	36.66	-	41.66	200		F	#	100	
Calcium	mg/L	03/26/2014	N001	36.66	-	41.66	730		F	#	0.12	
Chloride	mg/L	03/26/2014	N001	36.66	-	41.66	270		F	#	50	
Magnesium	mg/L	03/26/2014	N001	36.66	-	41.66	1300		F	#	0.13	
Manganese	mg/L	03/26/2014	N001	36.66	-	41.66	15		F	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	36.66	-	41.66	1300		F	#	10	
Oxidation Reduction Potential	mV	03/26/2014	N001	36.66	-	41.66	165.9		F	#		
pH	s.u.	03/26/2014	N001	36.66	-	41.66	6.28		F	#		
Potassium	mg/L	03/26/2014	N001	36.66	-	41.66	170		F	#	1.1	
Selenium	mg/L	03/26/2014	N001	36.66	-	41.66	0.048		F	#	0.00032	
Sodium	mg/L	03/26/2014	N001	36.66	-	41.66	1200		F	#	0.066	
Specific Conductance	umhos/cm	03/26/2014	N001	36.66	-	41.66	15121		F	#		
Strontium	mg/L	03/26/2014	N001	36.66	-	41.66	9.5		F	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	36.66	-	41.66	5000		F	#	120	
Temperature	C	03/26/2014	N001	36.66	-	41.66	15.56		F	#		
Turbidity	NTU	03/26/2014	N001	36.66	-	41.66	2.62		F	#		
Uranium	mg/L	03/26/2014	N001	36.66	-	41.66	0.039		F	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1058 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	41.7	-	51.2	598		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	N001	41.7	-	51.2	3.7		FQ	#	0.1	
Calcium	mg/L	03/26/2014	N001	41.7	-	51.2	230		FQ	#	0.12	
Chloride	mg/L	03/26/2014	N001	41.7	-	51.2	1400		FQ	#	40	
Magnesium	mg/L	03/26/2014	N001	41.7	-	51.2	140		FQ	#	0.13	
Manganese	mg/L	03/26/2014	N001	41.7	-	51.2	0.41		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	41.7	-	51.2	0.01	U	FQ	#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	41.7	-	51.2	-44.3		FQ	#		
pH	s.u.	03/26/2014	N001	41.7	-	51.2	7.17		FQ	#		
Potassium	mg/L	03/26/2014	N001	41.7	-	51.2	21		FQ	#	1.1	
Selenium	mg/L	03/26/2014	N001	41.7	-	51.2	0.00032		FQJ	#	0.000032	
Sodium	mg/L	03/26/2014	N001	41.7	-	51.2	2800		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	41.7	-	51.2	13161		FQ	#		
Strontium	mg/L	03/26/2014	N001	41.7	-	51.2	11		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	41.7	-	51.2	5500		FQ	#	100	
Temperature	C	03/26/2014	N001	41.7	-	51.2	15.32		FQ	#		
Turbidity	NTU	03/26/2014	N001	41.7	-	51.2	4.35		FQ	#		
Uranium	mg/L	03/26/2014	N001	41.7	-	51.2	0.0033		FQ	#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1059 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	39.5	-	49	628		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	N001	39.5	-	49	3.6		FQ	#	0.1	
Calcium	mg/L	03/26/2014	N001	39.5	-	49	310		FQ	#	0.12	
Chloride	mg/L	03/26/2014	N001	39.5	-	49	690		FQ	#	50	
Magnesium	mg/L	03/26/2014	N001	39.5	-	49	360		FQ	#	0.13	
Manganese	mg/L	03/26/2014	N001	39.5	-	49	0.097		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	39.5	-	49	420		FQ	#	2.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	39.5	-	49	8.1		FQ	#		
pH	s.u.	03/26/2014	N001	39.5	-	49	7.12		FQ	#		
Potassium	mg/L	03/26/2014	N001	39.5	-	49	30		FQ	#	1.1	
Selenium	mg/L	03/26/2014	N001	39.5	-	49	0.009		FQ	#	0.00032	
Sodium	mg/L	03/26/2014	N001	39.5	-	49	3700		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	39.5	-	49	17090		FQ	#		
Strontium	mg/L	03/26/2014	N001	39.5	-	49	16		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	N001	39.5	-	49	8700		FQ	#	120	
Temperature	C	03/26/2014	N001	39.5	-	49	15.53		FQ	#		
Turbidity	NTU	03/26/2014	N001	39.5	-	49	3.45		FQ	#		
Uranium	mg/L	03/26/2014	N001	39.5	-	49	0.071		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1068 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Calcium	mg/L	03/27/2014	0001	6.95	-	8.95	550		FQ	#	0.12	
Magnesium	mg/L	03/27/2014	0001	6.95	-	8.95	990		FQ	#	0.13	
Manganese	mg/L	03/27/2014	0001	6.95	-	8.95	1.5		FQ	#	0.0011	
Oxidation Reduction Potential	mV	03/27/2014	N001	6.95	-	8.95	221.4		FQ	#		
pH	s.u.	03/27/2014	N001	6.95	-	8.95	7.14		FQ	#		
Potassium	mg/L	03/27/2014	0001	6.95	-	8.95	50		FQ	#	1.1	
Selenium	mg/L	03/27/2014	0001	6.95	-	8.95	0.067		FQ	#	0.00032	
Sodium	mg/L	03/27/2014	0001	6.95	-	8.95	1300		FQ	#	0.066	
Specific Conductance	umhos /cm	03/27/2014	N001	6.95	-	8.95	10808		FQ	#		
Strontium	mg/L	03/27/2014	0001	6.95	-	8.95	10		FQ	#	0.00078	
Temperature	C	03/27/2014	N001	6.95	-	8.95	12.68		FQ	#		
Turbidity	NTU	03/27/2014	N001	6.95	-	8.95	175		FQ	#		
Uranium	mg/L	03/27/2014	0001	6.95	-	8.95	1.1		FQ	#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1069 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	03/27/2014	0001	4.35	-	6.35	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/27/2014	0001	4.35	-	6.35	410		FQ	#	0.12	
Magnesium	mg/L	03/27/2014	0001	4.35	-	6.35	960		FQ	#	0.13	
Manganese	mg/L	03/27/2014	0001	4.35	-	6.35	0.02	B	FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	4.35	-	6.35	250		FQ	#	5	
Oxidation Reduction Potential	mV	03/27/2014	N001	4.35	-	6.35	205		FQ	#		
pH	s.u.	03/27/2014	N001	4.35	-	6.35	7.39		FQ	#		
Potassium	mg/L	03/27/2014	0001	4.35	-	6.35	47		FQ	#	1.1	
Selenium	mg/L	03/27/2014	0001	4.35	-	6.35	0.019		FQ	#	0.0016	
Sodium	mg/L	03/27/2014	0001	4.35	-	6.35	1600		FQ	#	0.66	
Specific Conductance	umhos /cm	03/27/2014	N001	4.35	-	6.35	11785		FQ	#		
Strontium	mg/L	03/27/2014	0001	4.35	-	6.35	9.7		FQ	#	0.00078	
Temperature	C	03/27/2014	N001	4.35	-	6.35	11.7		FQ	#		
Turbidity	NTU	03/27/2014	N001	4.35	-	6.35	849		FQ	#		
Uranium	mg/L	03/27/2014	0001	4.35	-	6.35	1.8		FQ	#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1070 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	52.5	-	62	652			#		
Ammonia Total as N	mg/L	03/25/2014	N001	52.5	-	62	1.8			#	0.1	
Calcium	mg/L	03/25/2014	N001	52.5	-	62	400			#	0.12	
Chloride	mg/L	03/25/2014	N001	52.5	-	62	1200			#	100	
Magnesium	mg/L	03/25/2014	N001	52.5	-	62	960			#	0.13	
Manganese	mg/L	03/25/2014	N001	52.5	-	62	0.23			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	52.5	-	62	630			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	52.5	-	62	215			#		
pH	s.u.	03/25/2014	N001	52.5	-	62	7.01			#		
Potassium	mg/L	03/25/2014	N001	52.5	-	62	82			#	1.1	
Selenium	mg/L	03/25/2014	N001	52.5	-	62	2.3			#	0.0032	
Sodium	mg/L	03/25/2014	N001	52.5	-	62	5800			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	52.5	-	62	26470			#		
Strontium	mg/L	03/25/2014	N001	52.5	-	62	9.3			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	52.5	-	62	16000			#	250	
Temperature	C	03/25/2014	N001	52.5	-	62	13.3			#		
Turbidity	NTU	03/25/2014	N001	52.5	-	62	2.85			#		
Uranium	mg/L	03/25/2014	N001	52.5	-	62	0.085			#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1071 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	36.5	-	46	394			#		
Ammonia Total as N	mg/L	03/25/2014	N001	36.5	-	46	120			#	2.5	
Calcium	mg/L	03/25/2014	N001	36.5	-	46	430			#	0.12	
Chloride	mg/L	03/25/2014	N001	36.5	-	46	1100			#	100	
Magnesium	mg/L	03/25/2014	N001	36.5	-	46	1300			#	0.13	
Manganese	mg/L	03/25/2014	N001	36.5	-	46	2.4			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	36.5	-	46	840			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	36.5	-	46	215			#		
pH	s.u.	03/25/2014	N001	36.5	-	46	6.9			#		
Potassium	mg/L	03/25/2014	N001	36.5	-	46	110			#	1.1	
Selenium	mg/L	03/25/2014	N001	36.5	-	46	2.5			#	0.0032	
Sodium	mg/L	03/25/2014	N001	36.5	-	46	3900			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	36.5	-	46	23210			#		
Strontium	mg/L	03/25/2014	N001	36.5	-	46	11			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	36.5	-	46	14000			#	250	
Temperature	C	03/25/2014	N001	36.5	-	46	13.3			#		
Turbidity	NTU	03/25/2014	N001	36.5	-	46	3.65			#		
Uranium	mg/L	03/25/2014	N001	36.5	-	46	0.13			#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1073 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	40.5	-	50	390		FQ	#		
Ammonia Total as N	mg/L	03/26/2014	0001	40.5	-	50	88		FQ	#	2.5	
Calcium	mg/L	03/26/2014	0001	40.5	-	50	460		FQ	#	0.12	
Chloride	mg/L	03/26/2014	0001	40.5	-	50	1100		FQ	#	100	
Magnesium	mg/L	03/26/2014	0001	40.5	-	50	1800		FQ	#	0.13	
Manganese	mg/L	03/26/2014	0001	40.5	-	50	0.57		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	40.5	-	50	970		FQ	#	5	
Oxidation Reduction Potential	mV	03/26/2014	N001	40.5	-	50	193.9		FQ	#		
pH	s.u.	03/26/2014	N001	40.5	-	50	6.48		FQ	#		
Potassium	mg/L	03/26/2014	0001	40.5	-	50	140		FQ	#	1.1	
Selenium	mg/L	03/26/2014	0001	40.5	-	50	2.4		FQ	#	0.0032	
Sodium	mg/L	03/26/2014	0001	40.5	-	50	2900		FQ	#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	40.5	-	50	21363		FQ	#		
Strontium	mg/L	03/26/2014	0001	40.5	-	50	10		FQ	#	0.00078	
Sulfate	mg/L	03/26/2014	0001	40.5	-	50	12000		FQ	#	250	
Temperature	C	03/26/2014	N001	40.5	-	50	14.27		FQ	#		
Turbidity	NTU	03/26/2014	N001	40.5	-	50	44.2		FQ	#		
Uranium	mg/L	03/26/2014	0001	40.5	-	50	0.094		FQ	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1074 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	0001	27	-	36.5	1266		FQ	#		
Ammonia Total as N	mg/L	03/25/2014	0001	27	-	36.5	6.3		FQ	#	2.5	
Calcium	mg/L	03/25/2014	0001	27	-	36.5	560		FQ	#	0.12	
Chloride	mg/L	03/25/2014	0001	27	-	36.5	1100		FQ	#	50	
Magnesium	mg/L	03/25/2014	0001	27	-	36.5	2100		FQ	#	0.13	
Manganese	mg/L	03/25/2014	0001	27	-	36.5	1.6		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	27	-	36.5	1200		FQ	#	10	
Oxidation Reduction Potential	mV	03/25/2014	N001	27	-	36.5	150.6		FQ	#		
pH	s.u.	03/25/2014	N001	27	-	36.5	6.64		FQ	#		
Potassium	mg/L	03/25/2014	0001	27	-	36.5	52		FQ	#	1.1	
Selenium	mg/L	03/25/2014	0001	27	-	36.5	0.47		FQ	#	0.0032	
Sodium	mg/L	03/25/2014	0001	27	-	36.5	2000		FQ	#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	27	-	36.5	19155		FQ	#		
Strontium	mg/L	03/25/2014	0001	27	-	36.5	12		FQ	#	0.00078	
Sulfate	mg/L	03/25/2014	0001	27	-	36.5	8400		FQ	#	120	
Temperature	C	03/25/2014	N001	27	-	36.5	13.95		FQ	#		
Turbidity	NTU	03/25/2014	N001	27	-	36.5	12		FQ	#		
Uranium	mg/L	03/25/2014	0001	27	-	36.5	2.3		FQ	#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1078 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	35.5	-	45	842			#		
Ammonia Total as N	mg/L	03/25/2014	N001	35.5	-	45	1.8			#	0.1	
Calcium	mg/L	03/25/2014	N001	35.5	-	45	400			#	0.12	
Chloride	mg/L	03/25/2014	N001	35.5	-	45	1000			#	100	
Magnesium	mg/L	03/25/2014	N001	35.5	-	45	930			#	0.13	
Manganese	mg/L	03/25/2014	N001	35.5	-	45	0.075			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	35.5	-	45	550			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	35.5	-	45	220			#		
pH	s.u.	03/25/2014	N001	35.5	-	45	7.05			#		
Potassium	mg/L	03/25/2014	N001	35.5	-	45	70			#	1.1	
Selenium	mg/L	03/25/2014	N001	35.5	-	45	2.8			#	0.0032	
Sodium	mg/L	03/25/2014	N001	35.5	-	45	4800			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	35.5	-	45	23380			#		
Strontium	mg/L	03/25/2014	N001	35.5	-	45	9.4			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	35.5	-	45	14000			#	250	
Temperature	C	03/25/2014	N001	35.5	-	45	17.6			#		
Turbidity	NTU	03/25/2014	N001	35.5	-	45	2.41			#		
Uranium	mg/L	03/25/2014	N001	35.5	-	45	0.14			#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1079 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	10.5	-	20	373		F	#		
Ammonia Total as N	mg/L	03/26/2014	N001	10.5	-	20	0.1	U	F	#	0.1	
Calcium	mg/L	03/26/2014	N001	10.5	-	20	740		F	#	0.06	
Chloride	mg/L	03/26/2014	N001	10.5	-	20	450		F	#	20	
Magnesium	mg/L	03/26/2014	N001	10.5	-	20	240		F	#	0.065	
Manganese	mg/L	03/26/2014	N001	10.5	-	20	0.012	B	F	#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	10.5	-	20	350		F	#	2.5	
Oxidation Reduction Potential	mV	03/26/2014	N001	10.5	-	20	204.8		F	#		
pH	s.u.	03/26/2014	N001	10.5	-	20	6.66		F	#		
Potassium	mg/L	03/26/2014	N001	10.5	-	20	18		F	#	0.54	
Selenium	mg/L	03/26/2014	N001	10.5	-	20	0.53		F	#	0.0016	
Sodium	mg/L	03/26/2014	N001	10.5	-	20	1100		F	#	0.33	
Specific Conductance	umhos/cm	03/26/2014	N001	10.5	-	20	8882		F	#		
Strontium	mg/L	03/26/2014	N001	10.5	-	20	8.8		F	#	0.00039	
Sulfate	mg/L	03/26/2014	N001	10.5	-	20	3400		F	#	50	
Temperature	C	03/26/2014	N001	10.5	-	20	15.45		F	#		
Turbidity	NTU	03/26/2014	N001	10.5	-	20	7.32		F	#		
Uranium	mg/L	03/26/2014	N001	10.5	-	20	0.055		F	#	0.00015	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	0	-	0	514			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0	-	0	100			#	2.5	
Ammonia Total as N	mg/L	03/25/2014	N002	0	-	0	100			#	2.5	
Calcium	mg/L	03/25/2014	N001	0	-	0	420			#	0.06	
Calcium	mg/L	03/25/2014	N002	0	-	0	430			#	0.06	
Chloride	mg/L	03/25/2014	N001	0	-	0	250			#	20	
Chloride	mg/L	03/25/2014	N002	0	-	0	240			#	20	
Magnesium	mg/L	03/25/2014	N001	0	-	0	990			#	0.065	
Magnesium	mg/L	03/25/2014	N002	0	-	0	1000			#	0.065	
Manganese	mg/L	03/25/2014	N001	0	-	0	1			#	0.00057	
Manganese	mg/L	03/25/2014	N002	0	-	0	1			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	0	-	0	260			#	2	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N002	0	-	0	240			#	2	
Oxidation Reduction Potential	mV	03/25/2014	N001	0	-	0	200			#		
pH	s.u.	03/25/2014	N001	0	-	0	6.82			#		
Potassium	mg/L	03/25/2014	N001	0	-	0	100			#	0.54	
Potassium	mg/L	03/25/2014	N002	0	-	0	100			#	0.54	
Selenium	mg/L	03/25/2014	N001	0	-	0	0.04		J	#	0.0016	

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

REPORT DATE: 06/04/2014

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
Selenium	mg/L	03/25/2014	N002	0	-	0	0.051		J	#	0.0016	
Sodium	mg/L	03/25/2014	N001	0	-	0	930			#	0.33	
Sodium	mg/L	03/25/2014	N002	0	-	0	950			#	0.33	
Specific Conductance	umhos /cm	03/25/2014	N001	0	-	0	10600			#		
Strontium	mg/L	03/25/2014	N001	0	-	0	7.9			#	0.00039	
Strontium	mg/L	03/25/2014	N002	0	-	0	8			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	0	-	0	6400			#	50	
Sulfate	mg/L	03/25/2014	N002	0	-	0	6300			#	50	
Temperature	C	03/25/2014	N001	0	-	0	12.7			#		
Turbidity	NTU	03/25/2014	N001	0	-	0	5.93			#		
Uranium	mg/L	03/25/2014	N001	0	-	0	0.51			#	0.00015	
Uranium	mg/L	03/25/2014	N002	0	-	0	0.45			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	0	-	0	606			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0	-	0	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/25/2014	N002	0	-	0	0.1	U		#	0.1	
Calcium	mg/L	03/25/2014	N001	0	-	0	380			#	0.12	
Calcium	mg/L	03/25/2014	N002	0	-	0	390			#	0.12	
Chloride	mg/L	03/25/2014	N001	0	-	0	1300			#	100	
Chloride	mg/L	03/25/2014	N002	0	-	0	1300			#	100	
Magnesium	mg/L	03/25/2014	N001	0	-	0	1000			#	0.13	
Magnesium	mg/L	03/25/2014	N002	0	-	0	1000			#	0.13	
Manganese	mg/L	03/25/2014	N001	0	-	0	0.041	B		#	0.0011	
Manganese	mg/L	03/25/2014	N002	0	-	0	0.041	B		#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	0	-	0	540		J	#	5	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N002	0	-	0	440		J	#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	0	-	0	202			#		
pH	s.u.	03/25/2014	N001	0	-	0	7.22			#		
Potassium	mg/L	03/25/2014	N001	0	-	0	62			#	1.1	
Potassium	mg/L	03/25/2014	N002	0	-	0	66			#	1.1	
Selenium	mg/L	03/25/2014	N001	0	-	0	1.3			#	0.0016	

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

REPORT DATE: 06/04/2014

Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/25/2014	N002	0	-	0	1.5			#	0.0016	
Sodium	mg/L	03/25/2014	N001	0	-	0	6100			#	0.66	
Sodium	mg/L	03/25/2014	N002	0	-	0	6300			#	0.66	
Specific Conductance	umhos /cm	03/25/2014	N001	0	-	0	27750			#		
Strontium	mg/L	03/25/2014	N001	0	-	0	8.7			#	0.00078	
Strontium	mg/L	03/25/2014	N002	0	-	0	9			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	0	-	0	18000			#	250	
Sulfate	mg/L	03/25/2014	N002	0	-	0	18000			#	250	
Temperature	C	03/25/2014	N001	0	-	0	10.7			#		
Turbidity	NTU	03/25/2014	N001	0	-	0	8.67			#		
Uranium	mg/L	03/25/2014	N001	0	-	0	0.16			#	0.00015	
Uranium	mg/L	03/25/2014	N002	0	-	0	0.17			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1091 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	33	-	43	775			#		
Ammonia Total as N	mg/L	03/25/2014	N001	33	-	43	0.45			#	0.1	
Calcium	mg/L	03/25/2014	N001	33	-	43	460			#	0.12	
Chloride	mg/L	03/25/2014	N001	33	-	43	1300			#	100	
Magnesium	mg/L	03/25/2014	N001	33	-	43	2300			#	0.13	
Manganese	mg/L	03/25/2014	N001	33	-	43	1.3			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	33	-	43	880			#	10	
Oxidation Reduction Potential	mV	03/25/2014	N001	33	-	43	190			#		
pH	s.u.	03/25/2014	N001	33	-	43	6.69			#		
Potassium	mg/L	03/25/2014	N001	33	-	43	88			#	1.1	
Selenium	mg/L	03/25/2014	N001	33	-	43	0.69			#	0.0016	
Sodium	mg/L	03/25/2014	N001	33	-	43	3700			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	33	-	43	24310			#		
Strontium	mg/L	03/25/2014	N001	33	-	43	14			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	33	-	43	14000			#	250	
Temperature	C	03/25/2014	N001	33	-	43	13.7			#		
Turbidity	NTU	03/25/2014	N001	33	-	43	2.01			#		
Uranium	mg/L	03/25/2014	N001	33	-	43	0.12			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1092 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	0001	33	-	43	704			#		
Ammonia Total as N	mg/L	03/25/2014	0001	33	-	43	17			#	2.5	
Calcium	mg/L	03/25/2014	0001	33	-	43	420			#	0.12	
Chloride	mg/L	03/25/2014	0001	33	-	43	1300			#	100	
Magnesium	mg/L	03/25/2014	0001	33	-	43	1900			#	0.13	
Manganese	mg/L	03/25/2014	0001	33	-	43	1.6			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	33	-	43	490			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	33	-	43	190			#		
pH	s.u.	03/25/2014	N001	33	-	43	6.93			#		
Potassium	mg/L	03/25/2014	0001	33	-	43	91			#	1.1	
Selenium	mg/L	03/25/2014	0001	33	-	43	0.95			#	0.0016	
Sodium	mg/L	03/25/2014	0001	33	-	43	4100			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	33	-	43	23700			#		
Strontium	mg/L	03/25/2014	0001	33	-	43	12			#	0.00078	
Sulfate	mg/L	03/25/2014	0001	33	-	43	16000			#	250	
Temperature	C	03/25/2014	N001	33	-	43	13.7			#		
Turbidity	NTU	03/25/2014	N001	33	-	43	21.3			#		
Uranium	mg/L	03/25/2014	0001	33	-	43	0.1			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1093R WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	05/01/2014	0001	34	-	38	1373			#		
Ammonia Total as N	mg/L	05/01/2014	0001	34	-	38	620			#	50	
Calcium	mg/L	05/01/2014	0001	34	-	38	490			#	0.12	
Chloride	mg/L	05/01/2014	0001	34	-	38	610			#	100	
Magnesium	mg/L	05/01/2014	0001	34	-	38	2500			#	0.13	
Manganese	mg/L	05/01/2014	0001	34	-	38	5.1			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	05/01/2014	0001	34	-	38	1100		J	#	10	
Oxidation Reduction Potential	mV	05/01/2014	N001	34	-	38	167			#		
pH	s.u.	05/01/2014	N001	34	-	38	6.55			#		
Potassium	mg/L	05/01/2014	0001	34	-	38	220		J	#	1.1	
Selenium	mg/L	05/01/2014	0001	34	-	38	0.056		J	#	0.0003	
Sodium	mg/L	05/01/2014	0001	34	-	38	2500			#	0.66	
Specific Conductance	umhos/cm	05/01/2014	N001	34	-	38	24060			#		
Strontium	mg/L	05/01/2014	0001	34	-	38	12			#	0.00078	
Sulfate	mg/L	05/01/2014	0001	34	-	38	14000			#	250	
Temperature	C	05/01/2014	N001	34	-	38	14.8			#		
Turbidity	NTU	05/01/2014	N001	34	-	38	8.7			#		
Uranium	mg/L	05/01/2014	0001	34	-	38	0.16			#	0.00029	

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

REPORT DATE: 06/04/2014

Location: 1095 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	39	-	49	275			#		
Ammonia Total as N	mg/L	03/25/2014	N001	39	-	49	440			#	400	
Calcium	mg/L	03/25/2014	N001	39	-	49	820			#	0.12	
Chloride	mg/L	03/25/2014	N001	39	-	49	300			#	50	
Magnesium	mg/L	03/25/2014	N001	39	-	49	1400			#	0.13	
Manganese	mg/L	03/25/2014	N001	39	-	49	33			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	39	-	49	1600			#	10	
Oxidation Reduction Potential	mV	03/25/2014	N001	39	-	49	220			#		
pH	s.u.	03/25/2014	N001	39	-	49	6.48			#		
Potassium	mg/L	03/25/2014	N001	39	-	49	160			#	1.1	
Selenium	mg/L	03/25/2014	N001	39	-	49	0.12			#	0.00032	
Sodium	mg/L	03/25/2014	N001	39	-	49	1100			#	0.066	
Specific Conductance	umhos/cm	03/25/2014	N001	39	-	49	17690			#		
Strontium	mg/L	03/25/2014	N001	39	-	49	9.2			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	39	-	49	5300			#	120	
Temperature	C	03/25/2014	N001	39	-	49	15.7			#		
Turbidity	NTU	03/25/2014	N001	39	-	49	5.71			#		
Uranium	mg/L	03/25/2014	N001	39	-	49	0.055			#	0.000029	

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

REPORT DATE: 06/04/2014

Location: 1096 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	57.5	-	66.5	592			#		
Ammonia Total as N	mg/L	03/25/2014	N001	57.5	-	66.5	3.1			#	0.1	
Calcium	mg/L	03/25/2014	N001	57.5	-	66.5	400			#	0.12	
Chloride	mg/L	03/25/2014	N001	57.5	-	66.5	990			#	100	
Magnesium	mg/L	03/25/2014	N001	57.5	-	66.5	920			#	0.13	
Manganese	mg/L	03/25/2014	N001	57.5	-	66.5	0.91			#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	57.5	-	66.5	660			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	57.5	-	66.5	205			#		
pH	s.u.	03/25/2014	N001	57.5	-	66.5	7.23			#		
Potassium	mg/L	03/25/2014	N001	57.5	-	66.5	81			#	1.1	
Selenium	mg/L	03/25/2014	N001	57.5	-	66.5	2.5			#	0.0016	
Sodium	mg/L	03/25/2014	N001	57.5	-	66.5	4900			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	57.5	-	66.5	24240			#		
Strontium	mg/L	03/25/2014	N001	57.5	-	66.5	8.9			#	0.00078	
Sulfate	mg/L	03/25/2014	N001	57.5	-	66.5	15000			#	250	
Temperature	C	03/25/2014	N001	57.5	-	66.5	15.1			#		
Turbidity	NTU	03/25/2014	N001	57.5	-	66.5	2.42			#		
Uranium	mg/L	03/25/2014	N001	57.5	-	66.5	0.096			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: MW1 WELL Just N of Disposal Cell

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/24/2014	0001	-	1316		FQ	#		
Ammonia Total as N	mg/L	03/24/2014	0001	-	1.6		FQ	#	0.1	
Calcium	mg/L	03/24/2014	0001	-	79		FQ	#	0.12	
Chloride	mg/L	03/24/2014	0001	-	4900		FQ	#	50	
Magnesium	mg/L	03/24/2014	0001	-	49		FQ	#	0.13	
Manganese	mg/L	03/24/2014	0001	-	0.21		FQ	#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	0001	-	4.4		FQ	#	0.2	
Oxidation Reduction Potential	mV	03/24/2014	N001	-	223.4		FQ	#		
pH	s.u.	03/24/2014	N001	-	6.77		FQ	#		
Potassium	mg/L	03/24/2014	0001	-	25		FQ	#	1.1	
Selenium	mg/L	03/24/2014	0001	-	0.00082	*	FQJ	#	0.000032	
Sodium	mg/L	03/24/2014	0001	-	4000		FQ	#	0.66	
Specific Conductance	umhos /cm	03/24/2014	N001	-	19160		FQ	#		
Strontium	mg/L	03/24/2014	0001	-	8.7		FQ	#	0.00078	
Sulfate	mg/L	03/24/2014	0001	-	2400		FQ	#	120	
Temperature	C	03/24/2014	N001	-	16.63		FQ	#		
Turbidity	NTU	03/24/2014	N001	-	22.6		FQ	#		
Uranium	mg/L	03/24/2014	0001	-	0.0026		FQ	#	0.0000029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Surface Water Quality Data Floodplain Locations

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/24/2014	N001	124			#		
Ammonia Total as N	mg/L	03/24/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/24/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/24/2014	0001	77			#	0.012	
Calcium	mg/L	03/24/2014	N002	80			#	0.012	
Chloride	mg/L	03/24/2014	0001	18			#	1	
Chloride	mg/L	03/24/2014	N002	18			#	1	
Magnesium	mg/L	03/24/2014	0001	13			#	0.013	
Magnesium	mg/L	03/24/2014	N002	14			#	0.013	
Manganese	mg/L	03/24/2014	0001	0.0048	B		#	0.00011	
Manganese	mg/L	03/24/2014	N002	0.066			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	0001	0.42			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N002	0.42			#	0.01	
Oxidation Reduction Potential	mV	03/24/2014	N001	86			#		
pH	s.u.	03/24/2014	N001	8.56			#		
Potassium	mg/L	03/24/2014	0001	2.9			#	0.11	
Potassium	mg/L	03/24/2014	N002	3.3			#	0.11	
Selenium	mg/L	03/24/2014	0001	0.00072		J	#	0.000032	

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

REPORT DATE: 06/04/2014

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	03/24/2014	N002	0.00095		J	#	0.00016	
Sodium	mg/L	03/24/2014	0001	43			#	0.0066	
Sodium	mg/L	03/24/2014	N002	44			#	0.0066	
Specific Conductance	umhos/cm	03/24/2014	N001	680			#		
Strontium	mg/L	03/24/2014	0001	1			#	0.000078	
Strontium	mg/L	03/24/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/24/2014	0001	180			#	2.5	
Sulfate	mg/L	03/24/2014	N002	180			#	2.5	
Temperature	C	03/24/2014	N001	14.38			#		
Turbidity	NTU	03/24/2014	N001	25.7			#		
Uranium	mg/L	03/24/2014	0001	0.0022			#	0.0000029	
Uranium	mg/L	03/24/2014	N002	0.0024			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0655 SURFACE LOCATION Ditch in NW end of floodplain

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	340			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/25/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/25/2014	N001	300			#	0.06	
Calcium	mg/L	03/25/2014	N002	300			#	0.06	
Chloride	mg/L	03/25/2014	N001	98			#	20	
Chloride	mg/L	03/25/2014	N002	99			#	20	
Magnesium	mg/L	03/25/2014	N001	100			#	0.065	
Magnesium	mg/L	03/25/2014	N002	110			#	0.065	
Manganese	mg/L	03/25/2014	N001	0.089			#	0.00057	
Manganese	mg/L	03/25/2014	N002	0.072			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	2.1			#	0.1	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N002	2.4			#	0.1	
Oxidation Reduction Potential	mV	03/25/2014	N001	125.4			#		
pH	s.u.	03/25/2014	N001	7.91			#		
Potassium	mg/L	03/25/2014	N001	15			#	0.54	
Potassium	mg/L	03/25/2014	N002	15			#	0.54	
Selenium	mg/L	03/25/2014	N001	0.0084			#	0.00016	

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

REPORT DATE: 06/04/2014

Location: 0655 SURFACE LOCATION Ditch in NW end of floodplain

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/25/2014	N002	0.0083			#	0.00032	
Sodium	mg/L	03/25/2014	N001	1200			#	0.33	
Sodium	mg/L	03/25/2014	N002	1100			#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	6507			#		
Strontium	mg/L	03/25/2014	N001	12			#	0.00039	
Strontium	mg/L	03/25/2014	N002	13			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	3500			#	50	
Sulfate	mg/L	03/25/2014	N002	3600			#	50	
Temperature	C	03/25/2014	N001	5.36			#		
Turbidity	NTU	03/25/2014	N001	6.32			#		
Uranium	mg/L	03/25/2014	N001	0.046			#	0.000015	
Uranium	mg/L	03/25/2014	N002	0.05			#	0.000029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	134			#		
Ammonia Total as N	mg/L	03/26/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/26/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/26/2014	0001	76			#	0.012	
Calcium	mg/L	03/26/2014	N002	77			#	0.012	
Chloride	mg/L	03/26/2014	0001	18			#	1	
Chloride	mg/L	03/26/2014	N002	18			#	1	
Magnesium	mg/L	03/26/2014	0001	14			#	0.013	
Magnesium	mg/L	03/26/2014	N002	14			#	0.013	
Manganese	mg/L	03/26/2014	0001	0.0058			#	0.00011	
Manganese	mg/L	03/26/2014	N002	0.065			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	0.49			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N002	0.52			#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	148.8			#		
pH	s.u.	03/26/2014	N001	8.34			#		
Potassium	mg/L	03/26/2014	0001	2.7			#	0.11	
Potassium	mg/L	03/26/2014	N002	3.1			#	0.11	
Selenium	mg/L	03/26/2014	0001	0.00087			#	0.000032	

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

REPORT DATE: 06/04/2014

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
Selenium	mg/L	03/26/2014	N002	0.0014			#	0.00016	
Sodium	mg/L	03/26/2014	0001	42			#	0.0066	
Sodium	mg/L	03/26/2014	N002	43			#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	699			#		
Strontium	mg/L	03/26/2014	0001	1			#	0.000078	
Strontium	mg/L	03/26/2014	N002	1			#	0.000078	
Sulfate	mg/L	03/26/2014	0001	190			#	2.5	
Sulfate	mg/L	03/26/2014	N002	190			#	2.5	
Temperature	C	03/26/2014	N001	9.96			#		
Turbidity	NTU	03/26/2014	N001	40.1			#		
Uranium	mg/L	03/26/2014	0001	0.0022			#	0.0000029	
Uranium	mg/L	03/26/2014	N002	0.0028			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	127			#		
Ammonia Total as N	mg/L	03/26/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/26/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/26/2014	0001	77			#	0.012	
Calcium	mg/L	03/26/2014	N002	86			#	0.012	
Chloride	mg/L	03/26/2014	0001	19			#	1	
Chloride	mg/L	03/26/2014	N002	19			#	1	
Magnesium	mg/L	03/26/2014	0001	14			#	0.013	
Magnesium	mg/L	03/26/2014	N002	14			#	0.013	
Manganese	mg/L	03/26/2014	0001	0.0058			#	0.00011	
Manganese	mg/L	03/26/2014	N002	0.18			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	0.46			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N002	0.43			#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	0			#		
pH	s.u.	03/26/2014	N001	8.49			#		
Potassium	mg/L	03/26/2014	0001	2.8			#	0.11	
Potassium	mg/L	03/26/2014	N002	3.5			#	0.11	
Selenium	mg/L	03/26/2014	0001	0.00068		J	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/26/2014	N002	0.001			#	0.000032	
Sodium	mg/L	03/26/2014	0001	43			#	0.0066	
Sodium	mg/L	03/26/2014	N002	43			#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	679			#		
Strontium	mg/L	03/26/2014	0001	1			#	0.000078	
Strontium	mg/L	03/26/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/26/2014	0001	190			#	2.5	
Sulfate	mg/L	03/26/2014	N002	180			#	2.5	
Temperature	C	03/26/2014	N001	12.93			#		
Turbidity	NTU	03/26/2014	N001	44.8			#		
Uranium	mg/L	03/26/2014	0001	0.0022			#	0.0000029	
Uranium	mg/L	03/26/2014	N002	0.0025			#	0.0000029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	128			#		
Ammonia Total as N	mg/L	03/27/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/27/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/27/2014	0001	79			#	0.012	
Calcium	mg/L	03/27/2014	N002	81			#	0.012	
Chloride	mg/L	03/27/2014	0001	19			#	1	
Chloride	mg/L	03/27/2014	N002	19			#	1	
Magnesium	mg/L	03/27/2014	0001	15			#	0.013	
Magnesium	mg/L	03/27/2014	N002	16			#	0.013	
Manganese	mg/L	03/27/2014	0001	0.024			#	0.00011	
Manganese	mg/L	03/27/2014	N002	0.089			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	0.52			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	0.51			#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	92.9			#		
pH	s.u.	03/27/2014	N001	8.38			#		
Potassium	mg/L	03/27/2014	0001	2.9			#	0.11	
Potassium	mg/L	03/27/2014	N002	3.2			#	0.11	
Selenium	mg/L	03/27/2014	0001	0.00074		J	#	0.000032	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	0.00084			#	0.000032	
Sodium	mg/L	03/27/2014	0001	47			#	0.0066	
Sodium	mg/L	03/27/2014	N002	48			#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	916			#		
Strontium	mg/L	03/27/2014	0001	1			#	0.000078	
Strontium	mg/L	03/27/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/27/2014	0001	200			#	2.5	
Sulfate	mg/L	03/27/2014	N002	200			#	2.5	
Temperature	C	03/27/2014	N001	9.88			#		
Turbidity	NTU	03/27/2014	N001	49.5			#		
Uranium	mg/L	03/27/2014	0001	0.0049			#	0.0000029	
Uranium	mg/L	03/27/2014	N002	0.0051			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	0001	129			#		
Ammonia Total as N	mg/L	03/27/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/27/2014	N002	0.36			#	0.1	
Calcium	mg/L	03/27/2014	0001	82			#	0.012	
Calcium	mg/L	03/27/2014	N002	94			#	0.012	
Chloride	mg/L	03/27/2014	0001	19			#	1	
Chloride	mg/L	03/27/2014	N002	18			#	1	
Magnesium	mg/L	03/27/2014	0001	13			#	0.013	
Magnesium	mg/L	03/27/2014	N002	17			#	0.013	
Manganese	mg/L	03/27/2014	0001	0.0099			#	0.00011	
Manganese	mg/L	03/27/2014	N002	0.48			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	0.47			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	0.48			#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	169.7			#		
pH	s.u.	03/27/2014	N001	8.37			#		
Potassium	mg/L	03/27/2014	0001	2.9			#	0.11	
Potassium	mg/L	03/27/2014	N002	5.9			#	0.11	
Selenium	mg/L	03/27/2014	0001	0.00066		J	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	0.0019			#	0.00016	
Sodium	mg/L	03/27/2014	0001	43			#	0.0066	
Sodium	mg/L	03/27/2014	N002	43			#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	687			#		
Strontium	mg/L	03/27/2014	0001	1.1			#	0.000078	
Strontium	mg/L	03/27/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/27/2014	0001	180			#	2.5	
Sulfate	mg/L	03/27/2014	N002	180			#	2.5	
Temperature	C	03/27/2014	N001	11.43			#		
Turbidity	NTU	03/27/2014	N001	40.4			#		
Uranium	mg/L	03/27/2014	0001	0.0023			#	0.0000029	
Uranium	mg/L	03/27/2014	N002	0.003			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	129			#		
Ammonia Total as N	mg/L	03/27/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/27/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/27/2014	0001	78			#	0.012	
Calcium	mg/L	03/27/2014	N002	82			#	0.012	
Chloride	mg/L	03/27/2014	0001	18			#	1	
Chloride	mg/L	03/27/2014	N002	18			#	1	
Magnesium	mg/L	03/27/2014	0001	13			#	0.013	
Magnesium	mg/L	03/27/2014	N002	14			#	0.013	
Manganese	mg/L	03/27/2014	0001	0.006			#	0.00011	
Manganese	mg/L	03/27/2014	N002	0.11			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	0.46			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	0.46			#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	197.1			#		
pH	s.u.	03/27/2014	N001	8.3			#		
Potassium	mg/L	03/27/2014	0001	2.7			#	0.11	
Potassium	mg/L	03/27/2014	N002	3.3			#	0.11	
Selenium	mg/L	03/27/2014	0001	0.00068		J	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	0.0009			#	0.00016	
Sodium	mg/L	03/27/2014	0001	42			#	0.0066	
Sodium	mg/L	03/27/2014	N002	43			#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	749			#		
Strontium	mg/L	03/27/2014	0001	1			#	0.000078	
Strontium	mg/L	03/27/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/27/2014	0001	180			#	2.5	
Sulfate	mg/L	03/27/2014	N002	180			#	2.5	
Temperature	C	03/27/2014	N001	8.91			#		
Turbidity	NTU	03/27/2014	N001	76			#		
Uranium	mg/L	03/27/2014	0001	0.0021			#	0.0000029	
Uranium	mg/L	03/27/2014	N002	0.0023			#	0.000015	

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

REPORT DATE: 06/04/2014

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	64			#		
Ammonia Total as N	mg/L	03/26/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/26/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/26/2014	0001	79			#	0.012	
Calcium	mg/L	03/26/2014	N002	83			#	0.012	
Chloride	mg/L	03/26/2014	0001	19			#	1	
Chloride	mg/L	03/26/2014	N002	19			#	1	
Magnesium	mg/L	03/26/2014	0001	13			#	0.013	
Magnesium	mg/L	03/26/2014	N002	14			#	0.013	
Manganese	mg/L	03/26/2014	0001	0.023			#	0.00011	
Manganese	mg/L	03/26/2014	N002	0.17			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	0001	0.44			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N002	0.41			#	0.01	
Oxidation Reduction Potential	mV	03/26/2014	N001	183.6			#		
pH	s.u.	03/26/2014	N001	7.71			#		
Potassium	mg/L	03/26/2014	0001	3			#	0.11	
Potassium	mg/L	03/26/2014	N002	4.7			#	0.11	
Selenium	mg/L	03/26/2014	0001	0.0007		J	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 0967 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/26/2014	N002	0.00096			#	0.000032	
Sodium	mg/L	03/26/2014	0001	43			#	0.0066	
Sodium	mg/L	03/26/2014	N002	44			#	0.0066	
Specific Conductance	umhos/cm	03/26/2014	N001	729			#		
Strontium	mg/L	03/26/2014	0001	1			#	0.000078	
Strontium	mg/L	03/26/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/26/2014	0001	190			#	2.5	
Sulfate	mg/L	03/26/2014	N002	190			#	2.5	
Temperature	C	03/26/2014	N001	15.23			#		
Turbidity	NTU	03/26/2014	N001	32.4			#		
Uranium	mg/L	03/26/2014	0001	0.0023			#	0.0000029	
Uranium	mg/L	03/26/2014	N002	0.0025			#	0.0000029	

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

REPORT DATE: 06/04/2014

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 ₃)	mg/L	03/25/2014	N001	0	-	0	512			#		
Ammonia Total as N	mg/L	03/25/2014	N001	0	-	0	0.1	U		#	0.1	
Calcium	mg/L	03/25/2014	N001	0	-	0	390			#	0.06	
Chloride	mg/L	03/25/2014	N001	0	-	0	230			#	20	
Magnesium	mg/L	03/25/2014	N001	0	-	0	590			#	0.065	
Manganese	mg/L	03/25/2014	N001	0	-	0	0.0049	B		#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	0	-	0	47			#	0.5	
Oxidation Reduction Potential	mV	03/25/2014	N001	0	-	0	175			#		
pH	s.u.	03/25/2014	N001	0	-	0	7.13			#		
Potassium	mg/L	03/25/2014	N001	0	-	0	40			#	0.54	
Selenium	mg/L	03/25/2014	N001	0	-	0	0.23			#	0.0016	
Sodium	mg/L	03/25/2014	N001	0	-	0	1400			#	0.33	
Specific Conductance	umhos/cm	03/25/2014	N001	0	-	0	9710			#		
Strontium	mg/L	03/25/2014	N001	0	-	0	9.9			#	0.00039	
Sulfate	mg/L	03/25/2014	N001	0	-	0	5700			#	50	
Temperature	C	03/25/2014	N001	0	-	0	6.7			#		
Turbidity	NTU	03/25/2014	N001	0	-	0	7.67			#		
Uranium	mg/L	03/25/2014	N001	0	-	0	0.46			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/24/2014	N001	130			#		
Ammonia Total as N	mg/L	03/24/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/24/2014	N002	0.19			#	0.1	
Calcium	mg/L	03/24/2014	0001	77			#	0.012	
Calcium	mg/L	03/24/2014	N002	80			#	0.012	
Chloride	mg/L	03/24/2014	0001	18			#	1	
Chloride	mg/L	03/24/2014	N002	18			#	1	
Magnesium	mg/L	03/24/2014	0001	14			#	0.013	
Magnesium	mg/L	03/24/2014	N002	14			#	0.013	
Manganese	mg/L	03/24/2014	0001	0.018			#	0.00011	
Manganese	mg/L	03/24/2014	N002	0.07			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	0001	0.4			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/24/2014	N002	0.4			#	0.01	
Oxidation Reduction Potential	mV	03/24/2014	N001	88.5			#		
pH	s.u.	03/24/2014	N001	8.55			#		
Potassium	mg/L	03/24/2014	0001	2.9			#	0.11	
Potassium	mg/L	03/24/2014	N002	3.5			#	0.11	
Selenium	mg/L	03/24/2014	0001	0.0007		J	#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/24/2014	N002	0.00088			#	0.000032	
Sodium	mg/L	03/24/2014	0001	41			#	0.0066	
Sodium	mg/L	03/24/2014	N002	42			#	0.0066	
Specific Conductance	umhos/cm	03/24/2014	N001	666			#		
Strontium	mg/L	03/24/2014	0001	1.1			#	0.000078	
Strontium	mg/L	03/24/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/24/2014	0001	190			#	2.5	
Sulfate	mg/L	03/24/2014	N002	190			#	2.5	
Temperature	C	03/24/2014	N001	16.63			#		
Turbidity	NTU	03/24/2014	N001	30.6			#		
Uranium	mg/L	03/24/2014	0001	0.0023			#	0.0000029	
Uranium	mg/L	03/24/2014	N002	0.0024			#	0.0000029	

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

REPORT DATE: 06/04/2014

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	0001	258			#		
Ammonia Total as N	mg/L	03/27/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	03/27/2014	N002	0.1	U		#	0.1	
Calcium	mg/L	03/27/2014	0001	77			#	0.012	
Calcium	mg/L	03/27/2014	N002	86			#	0.012	
Chloride	mg/L	03/27/2014	0001	19			#	1	
Chloride	mg/L	03/27/2014	N002	18			#	1	
Magnesium	mg/L	03/27/2014	0001	13			#	0.013	
Magnesium	mg/L	03/27/2014	N002	15			#	0.013	
Manganese	mg/L	03/27/2014	0001	0.0096			#	0.00011	
Manganese	mg/L	03/27/2014	N002	0.25			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	0001	0.5			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N002	0.5			#	0.01	
Oxidation Reduction Potential	mV	03/27/2014	N001	147			#		
pH	s.u.	03/27/2014	N001	8.36			#		
Potassium	mg/L	03/27/2014	0001	2.8			#	0.11	
Potassium	mg/L	03/27/2014	N002	4.1			#	0.11	
Selenium	mg/L	03/27/2014	0001	0.00067			#	0.000032	

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

REPORT DATE: 06/04/2014

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Selenium	mg/L	03/27/2014	N002	0.001		J	#	0.000032	
Sodium	mg/L	03/27/2014	0001	42			#	0.0066	
Sodium	mg/L	03/27/2014	N002	43			#	0.0066	
Specific Conductance	umhos/cm	03/27/2014	N001	661			#		
Strontium	mg/L	03/27/2014	0001	1			#	0.000078	
Strontium	mg/L	03/27/2014	N002	1.1			#	0.000078	
Sulfate	mg/L	03/27/2014	0001	190			#	2.5	
Sulfate	mg/L	03/27/2014	N002	180			#	2.5	
Temperature	C	03/27/2014	N001	11.13			#		
Turbidity	NTU	03/27/2014	N001	65.7			#		
Uranium	mg/L	03/27/2014	0001	0.0024			#	0.0000029	
Uranium	mg/L	03/27/2014	N002	0.0027			#	0.0000029	

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated

N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

Validated according to quality assurance guidelines.

Surface Water Quality Data Terrace Locations

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	74		#	
Ammonia Total as N	mg/L	03/27/2014	N001	0.1	U	#	0.1
Calcium	mg/L	03/27/2014	N001	100		#	0.012
Chloride	mg/L	03/27/2014	N001	54		#	10
Magnesium	mg/L	03/27/2014	N001	12		#	0.013
Manganese	mg/L	03/27/2014	N001	0.0084		#	0.00011
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	0.37		#	0.01
Oxidation Reduction Potential	mV	03/27/2014	N001	184.3		#	
pH	s.u.	03/27/2014	N001	8.34		#	
Potassium	mg/L	03/27/2014	N001	14		#	0.11
Selenium	mg/L	03/27/2014	N001	0.00015	J	#	0.000032
Sodium	mg/L	03/27/2014	N001	790		#	0.066
Specific Conductance	umhos/cm	03/27/2014	N001	3722		#	
Strontium	mg/L	03/27/2014	N001	12		#	0.00078
Sulfate	mg/L	03/27/2014	N001	2000		#	25
Temperature	C	03/27/2014	N001	17.95		#	
Turbidity	NTU	03/27/2014	N001	10.5		#	
Uranium	mg/L	03/27/2014	N001	0.00012		#	0.0000029

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	0001	720			#		
Ammonia Total as N	mg/L	03/25/2014	0001	0.11			#	0.1	
Calcium	mg/L	03/25/2014	0001	400			#	0.12	
Chloride	mg/L	03/25/2014	0001	1400			#	200	
Magnesium	mg/L	03/25/2014	0001	1300			#	0.13	
Manganese	mg/L	03/25/2014	0001	0.036	B		#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	0001	860			#	5	
Oxidation Reduction Potential	mV	03/25/2014	N001	180			#		
pH	s.u.	03/25/2014	N001	8.19			#		
Potassium	mg/L	03/25/2014	0001	74			#	1.1	
Selenium	mg/L	03/25/2014	0001	2.1			#	0.0016	
Sodium	mg/L	03/25/2014	0001	8500			#	0.66	
Specific Conductance	umhos/cm	03/25/2014	N001	33550			#		
Strontium	mg/L	03/25/2014	0001	10			#	0.00078	
Sulfate	mg/L	03/25/2014	0001	18000			#	500	
Temperature	C	03/25/2014	N001	14.3			#		
Turbidity	NTU	03/25/2014	N001	132			#		
Uranium	mg/L	03/25/2014	0001	0.22			#	0.00015	

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

REPORT DATE: 06/04/2014

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/25/2014	N001	615			#		
Ammonia Total as N	mg/L	03/25/2014	N001	21			#	2.5	
Calcium	mg/L	03/25/2014	N001	500			#	0.24	
Chloride	mg/L	03/25/2014	N001	2100			#	1000	
Magnesium	mg/L	03/25/2014	N001	6000			#	0.26	
Manganese	mg/L	03/25/2014	N001	0.63			#	0.0023	
Nitrate + Nitrite as Nitrogen	mg/L	03/25/2014	N001	1900			#	20	
Oxidation Reduction Potential	mV	03/25/2014	N001	200			#		
pH	s.u.	03/25/2014	N001	8.19			#		
Potassium	mg/L	03/25/2014	N001	650			#	2.2	
Selenium	mg/L	03/25/2014	N001	3.3			#	0.0065	
Sodium	mg/L	03/25/2014	N001	13000			#	1.3	
Specific Conductance	umhos/cm	03/25/2014	N001	54400			#		
Strontium	mg/L	03/25/2014	N001	13			#	0.0016	
Sulfate	mg/L	03/25/2014	N001	40000			#	2500	
Temperature	C	03/25/2014	N001	15.5			#		
Turbidity	NTU	03/25/2014	N001	9.16			#		
Uranium	mg/L	03/25/2014	N001	4.5			#	0.00058	

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

REPORT DATE: 06/04/2014

Location: 1219 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	140			#		
Ammonia Total as N	mg/L	03/26/2014	N001	0.1	U		#	0.1	
Calcium	mg/L	03/26/2014	N001	570			#	0.06	
Chloride	mg/L	03/26/2014	N001	19			#	10	
Magnesium	mg/L	03/26/2014	N001	230			#	0.065	
Manganese	mg/L	03/26/2014	N001	0.022	B		#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	3.5			#	0.05	
Oxidation Reduction Potential	mV	03/26/2014	N001	180.2			#		
pH	s.u.	03/26/2014	N001	7.88			#		
Potassium	mg/L	03/26/2014	N001	17			#	0.54	
Selenium	mg/L	03/26/2014	N001	0.037			#	0.00032	
Sodium	mg/L	03/26/2014	N001	290			#	0.033	
Specific Conductance	umhos/cm	03/26/2014	N001	2331			#		
Strontium	mg/L	03/26/2014	N001	6.4			#	0.00039	
Sulfate	mg/L	03/26/2014	N001	1900			#	25	
Temperature	C	03/26/2014	N001	14.5			#		
Turbidity	NTU	03/26/2014	N001	13.9			#		
Uranium	mg/L	03/26/2014	N001	0.03			#	0.000029	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/27/2014	N001	250			#		
Ammonia Total as N	mg/L	03/27/2014	N001	0.14			#	0.1	
Calcium	mg/L	03/27/2014	N001	580			#	0.06	
Chloride	mg/L	03/27/2014	N001	130			#	10	
Magnesium	mg/L	03/27/2014	N001	150			#	0.065	
Manganese	mg/L	03/27/2014	N001	0.0046	B		#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	03/27/2014	N001	16			#	0.2	
Oxidation Reduction Potential	mV	03/27/2014	N001	199.2			#		
pH	s.u.	03/27/2014	N001	8.12			#		
Potassium	mg/L	03/27/2014	N001	8.9			#	0.54	
Selenium	mg/L	03/27/2014	N001	0.03			#	0.00016	
Sodium	mg/L	03/27/2014	N001	120			#	0.033	
Specific Conductance	umhos/cm	03/27/2014	N001	4474			#		
Strontium	mg/L	03/27/2014	N001	6.5			#	0.00039	
Sulfate	mg/L	03/27/2014	N001	2500			#	25	
Temperature	C	03/27/2014	N001	11.04			#		
Turbidity	NTU	03/27/2014	N001	40			#		
Uranium	mg/L	03/27/2014	N001	0.03			#	0.000015	

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

REPORT DATE: 06/04/2014

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

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	03/26/2014	N001	582			#		
Ammonia Total as N	mg/L	03/26/2014	N001	0.11			#	0.1	
Calcium	mg/L	03/26/2014	N001	390			#	0.12	
Chloride	mg/L	03/26/2014	N001	1200			#	200	
Magnesium	mg/L	03/26/2014	N001	1300			#	0.13	
Manganese	mg/L	03/26/2014	N001	0.036	B		#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	03/26/2014	N001	660			#	5	
Oxidation Reduction Potential	mV	03/26/2014	N001	235.1			#		
pH	s.u.	03/26/2014	N001	8.08			#		
Potassium	mg/L	03/26/2014	N001	71			#	1.1	
Selenium	mg/L	03/26/2014	N001	1.7			#	0.0032	
Sodium	mg/L	03/26/2014	N001	7000			#	0.66	
Specific Conductance	umhos/cm	03/26/2014	N001	31213			#		
Strontium	mg/L	03/26/2014	N001	8.7			#	0.00078	
Sulfate	mg/L	03/26/2014	N001	15000			#	500	
Temperature	C	03/26/2014	N001	9.21			#		
Turbidity	NTU	03/26/2014	N001	10.4			#		
Uranium	mg/L	03/26/2014	N001	0.2			#	0.00029	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

Validated according to quality assurance guidelines.

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Equipment Blank Data

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BLANKS REPORT

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

RIN: 14036011

Report Date: 06/04/2014

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data		Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	SHP01	0999	03/27/2014	N001	mg/L	0.1	U		0.1		E
Calcium	SHP01	0999	03/27/2014	N001	mg/L	0.012	U		0.012		E
Chloride	SHP01	0999	03/27/2014	N001	mg/L	0.2	U		0.2		E
Magnesium	SHP01	0999	03/27/2014	N001	mg/L	0.013	U		0.013		E
Manganese	SHP01	0999	03/27/2014	N001	mg/L	0.00045	B	J	0.00011		E
Nitrate + Nitrite as Nitrogen	SHP01	0999	03/27/2014	N001	mg/L	0.01	U		0.01		E
Potassium	SHP01	0999	03/27/2014	N001	mg/L	0.11	U		0.11		E
Selenium	SHP01	0999	03/27/2014	N001	mg/L	0.000032	U		0.000032		E
Sodium	SHP01	0999	03/27/2014	N001	mg/L	0.22	B		0.0066		E
Strontium	SHP01	0999	03/27/2014	N001	mg/L	0.000078	U		0.000078		E
Sulfate	SHP01	0999	03/27/2014	N001	mg/L	0.5	U		0.5		E
Uranium	SHP01	0999	03/27/2014	N001	mg/L	0.000012			0.0000029		E

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated

N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

SAMPLE TYPES:

E Equipment Blank.

Static Water Level Data Floodplain Locations

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STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0608		4893.35	03/26/2014	11:10:15	6.35	4887
0610		4895.7	03/26/2014	15:10:42	9.88	4885.82
0611		4895.62	03/26/2014	15:30:30	9.76	4885.86
0612		4893.35	03/26/2014	16:20:17	7.47	4885.88
0614		4892.79	03/26/2014	16:50:10	7.88	4884.91
0615		4892.23	03/27/2014	11:35:07	8.35	4883.88
0617		4891.9	03/25/2014	15:15:00	7.47	4884.43
0618		4891.51	03/25/2014	15:05:53	7	4884.51
0619		4892.19	03/27/2014	14:50:57	7.31	4884.88
0622		4890.06	03/27/2014	16:05:21	4.5	4885.56
0623		4891.19	03/25/2014	13:55:33	6.04	4885.15
0625		4891.23	03/25/2014	14:20:23	6.02	4885.21
0626		4891.4	03/25/2014	17:00:47	5.53	4885.87
0628		4889.87	03/27/2014	15:35:28	4.18	4885.69
0630		4887.62	03/25/2014	17:35:36	1.67	4885.95
0734		4886.55	03/25/2014	09:25:39	6.66	4879.89
0735		4895.85	03/24/2014	15:00:27	6.73	4889.12
0736		4887.99	03/25/2014	11:10:43	6.35	4881.64
0766		4892.55	03/27/2014	13:05:18	10.88	4881.67
0768		4892.33	03/27/2014	16:00:18	7.16	4885.17
0773		4894.87	03/26/2014	14:35:14	8.86	4886.01
0775		4892.2	03/27/2014	15:15:45	8.18	4884.02
0779		4893.86	03/27/2014	14:50:51	10.36	4883.5
0782R		4884.75	03/26/2014	17:10:54	7.12	4877.63
0783R		4884.09	03/26/2014	16:35:28	7.1	4876.99
0792		4891.52	03/25/2014	15:35:32	6.85	4884.67
0793		4891.05	03/25/2014	16:20:09	6.82	4884.23
0797		4908.04	03/26/2014	12:40:44	8.13	4899.91

STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0798		4891.55	03/27/2014	14:25:20	7.24	4884.31
0850	B	4907.51	03/26/2014	13:30:04	7.85	4899.66
0851	B	4906.45	03/26/2014	13:00:00	7.28	4899.17
0852	B	4907.37	03/26/2014	13:05:00	7.75	4899.62
0853		4891.41	03/27/2014	12:45:26	7.42	4883.99
0854		4890.09	03/27/2014	13:30:34	8.1	4881.99
0855		4888.18	03/25/2014	09:05:59	5.15	4883.03
0856		4887.57	03/25/2014	10:40:26	6.76	4880.81
0857		4894.02	03/27/2014	14:20:59	10.41	4883.61
0862		4893.83	03/26/2014	11:28:00	89.15	4804.68
0863		4893	03/26/2014	11:33:00	78.83	4814.17
1000		4892.17	03/26/2014	17:05:00	7.51	4884.66
1001		4892.44	03/26/2014	17:07:00	14.44	4878
1008		4890.8	03/27/2014	13:55:24	8.24	4882.56
1009		4892.1	03/27/2014	12:00:10	7.93	4884.17
1062		4892.51	03/26/2014	11:24:00	8	4884.51
1105	O	4892.4	03/27/2014	11:15:36	8.38	4884.02
1111		4889.85	03/27/2014	10:50:56	7.58	4882.27
1112		4890.01	03/27/2014	09:25:32	7.29	4882.72
1113		4892	03/26/2014	12:10:16	5.51	4886.49
1114		4892.86	03/26/2014	10:40:14	5.39	4887.47
1115		4895.59	03/26/2014	09:40:14	7.92	4887.67
1117		4896.7	03/24/2014	18:10:54	8.68	4888.02
1128		4897.63	03/24/2014	17:30:34	9.71	4887.92
1132		4894.5	03/26/2014	09:10:00	6.74	4887.76
1134		4895.88	03/26/2014	10:10:01	8.16	4887.72
1135		4890.71	03/25/2014	13:20:46	8.69	4882.02
1136		4892.47	03/27/2014	15:25:58	9.6	4882.87

STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
1137		4891.3	03/27/2014	10:20:30	9.58	4881.72
1138		4891.48	03/27/2014	09:55:26	9.77	4881.71
1139		4890.44	03/27/2014	11:35:40	8.7	4881.74
1140		4891.53	03/27/2014	10:20:18	8.7	4882.83
1141		4892.48	03/27/2014	09:55:20	8.95	4883.53
1142		4894.34	03/27/2014	13:10:03	9.95	4884.39
1143		4888.07	03/25/2014	11:40:32	6.51	4881.56

FLOW CODES: B BACKGROUND
 N UNKNOWN

C CROSS GRADIENT
 O ONSITE

D DOWN GRADIENT
 U UPGRADIENT

F OFFSITE

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Static Water Level Data Terrace Locations

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STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0600		4955.87	03/24/2014	16:00:26	33.72	4922.15	
0602		4956.89	03/25/2014	14:35:13	20.45	4936.44	
0603		4978.62	03/26/2014	11:40:50	31.59	4947.03	
0604		4995.87	03/27/2014	09:40:28	56.21	4939.66	
0648		4943.8	03/26/2014	11:00:00			F
0725		4908.58	03/26/2014	17:30:37	12.61	4895.97	
0726		4939.95	03/26/2014	16:50:25	24.46	4915.49	
0727		4940.65	03/26/2014	15:50:50	7.04	4933.61	
0728		4964.46	03/26/2014	14:50:21	24.11	4940.35	
0730		4977.75	03/27/2014	08:55:47	35.71	4942.04	
0731		4972.15	03/26/2014	10:45:46	24.88	4947.27	
0800		4995.76	03/26/2014	12:20:00			D
0801		4995.29	03/26/2014	12:10:00			D
0802		4996.01	03/26/2014	12:00:00			D
0803		4994.4	03/26/2014	12:30:00			D
0812		5004.98	03/26/2014	08:45:59	61.31	4943.67	
0813		4984.37	03/26/2014	14:05:35	43.6	4940.77	
0814		4968.12	03/26/2014	09:25:04	32.41	4935.71	
0815		4953.67	03/26/2014	15:20:48	26.42	4927.25	
0816		4937.92	03/27/2014	10:15:36			B
0817		4957.34	03/25/2014	14:15:05	19.29	4938.05	
0819		4955.76	03/25/2014	13:45:30	20.49	4935.27	
0820		4954.95	03/24/2014	15:22:00			D
0821		4955.46	03/24/2014	15:29:00			D
0822		4954.42	03/24/2014	15:15:41	144.21	4810.21	
0823		4957.65	03/24/2014	17:16:00			D
0824		4958.21	03/24/2014	17:35:36	191.43	4766.78	
0825		4958.68	03/24/2014	17:42:00			D

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0826		4950.73	03/25/2014	11:55:17	18.03	4932.7	
0827		4946.92	03/25/2014	09:00:03	26.75	4920.17	
0828		4957.43	03/25/2014	15:35:49	20.91	4936.52	
0829		4941.94	03/27/2014	16:52:00			D
0830		4960.77	03/25/2014	10:45:09	16.3	4944.47	
0832		4964.65	03/26/2014	08:46:00			D
0833		4940.52	03/26/2014	10:45:36	28.39	4912.13	
0835		4930.48	03/26/2014	15:15:10	19.31	4911.17	
0836		4901.74	03/26/2014	11:45:58	32.33	4869.41	
0837		4889.54	03/26/2014	13:25:28	23.19	4866.35	
0838		4937.7	03/26/2014	10:00:09	29.7	4908	
0841		4984.05	03/25/2014	17:15:06	45.54	4938.51	
0843		4883.56	03/26/2014	12:50:49	15.04	4868.52	
0844		4948.46	03/26/2014	09:25:26	32.07	4916.39	
0848		4949.91	03/25/2014	12:55:14	45.28	4904.63	
1002		4957.63	03/24/2014	16:23:00			D
1003		4957.84	03/24/2014	16:24:00			D
1004		4957.61	03/24/2014	16:17:00			D
1007		4962.01	03/25/2014	09:30:51	44.05	4917.96	
1011		4945.96	03/25/2014	08:41:00			D
1048		4921.35	03/25/2014	16:22:00			D
1049		4923.89	03/25/2014	17:00:52	7	4916.89	
1057		4984.83	03/26/2014	12:55:52	39.49	4945.34	
1058		4973.58	03/26/2014	12:00:09	28.07	4945.51	
1059		4970.52	03/26/2014	12:15:09	23.44	4947.08	
1060		4970.62	03/25/2014	17:28:00			D
1067		4930.77	03/27/2014	12:00:00			D
1068		4927.97	03/27/2014	12:20:23	7.63	4920.34	

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 06/04/2014

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1069		4922.62	03/27/2014	12:00:14	6.15	4916.47	
1073		4991.43	03/26/2014	09:00:41	50.42	4941.01	
1074		4959.52	03/25/2014	10:05:13	33.65	4925.87	
1079		4925.22	03/26/2014	14:30:34	21.12	4904.1	
1120		4890.98	03/26/2014	11:52:00			D
1122		4893.62	03/26/2014	11:53:00			D
DM7		4974.44	03/25/2014	11:17:00			D
MW1		4955.64	03/24/2014	16:45:50	53.5	4902.14	

FLOW CODES: B BACKGROUND
 N UNKNOWN

C CROSS GRADIENT
 O ONSITE

D DOWN GRADIENT
 U UPGRADIENT

F OFFSITE

WATER LEVEL FLAGS: D Dry

F Flowing

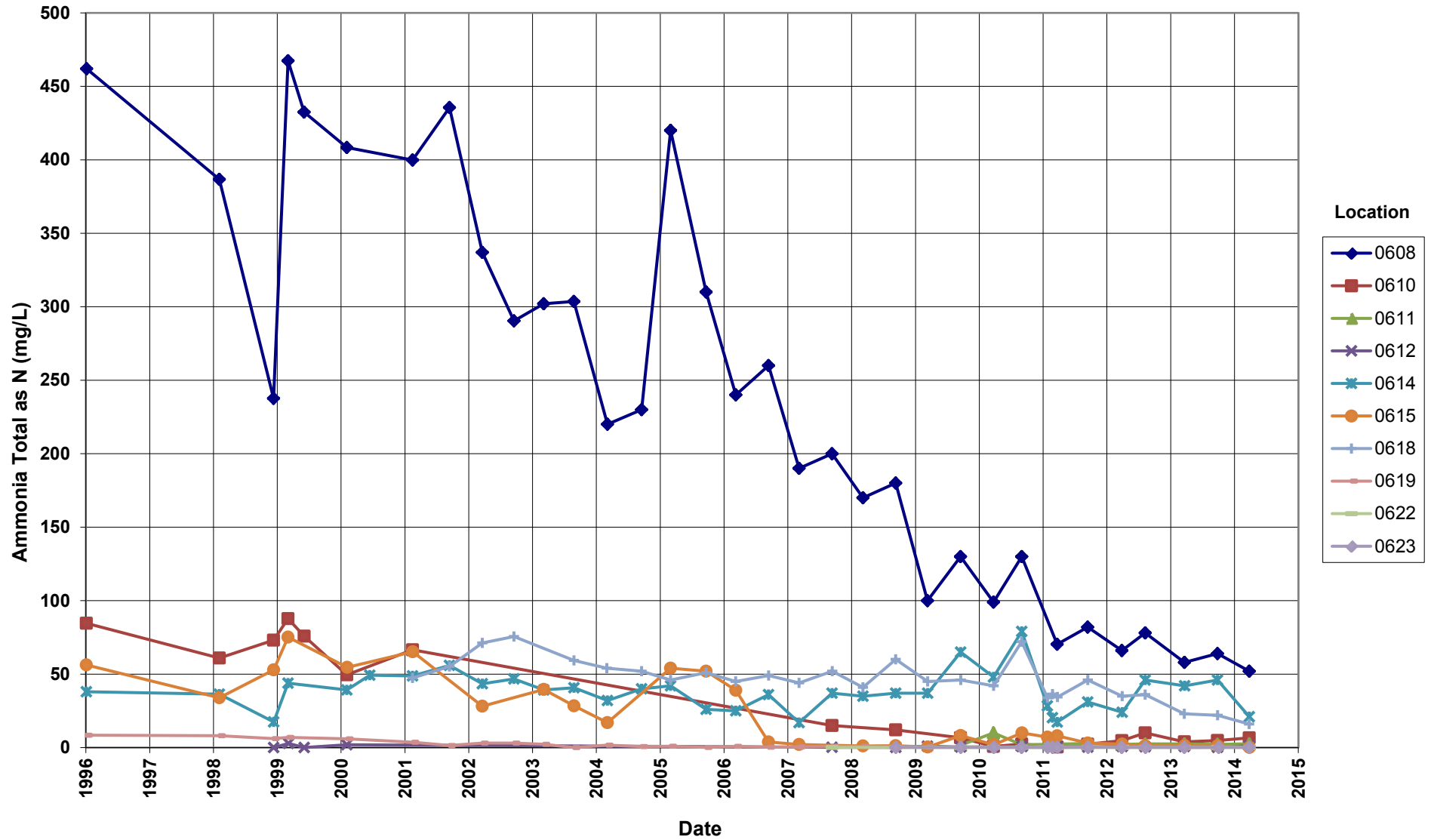
B Below top of pump

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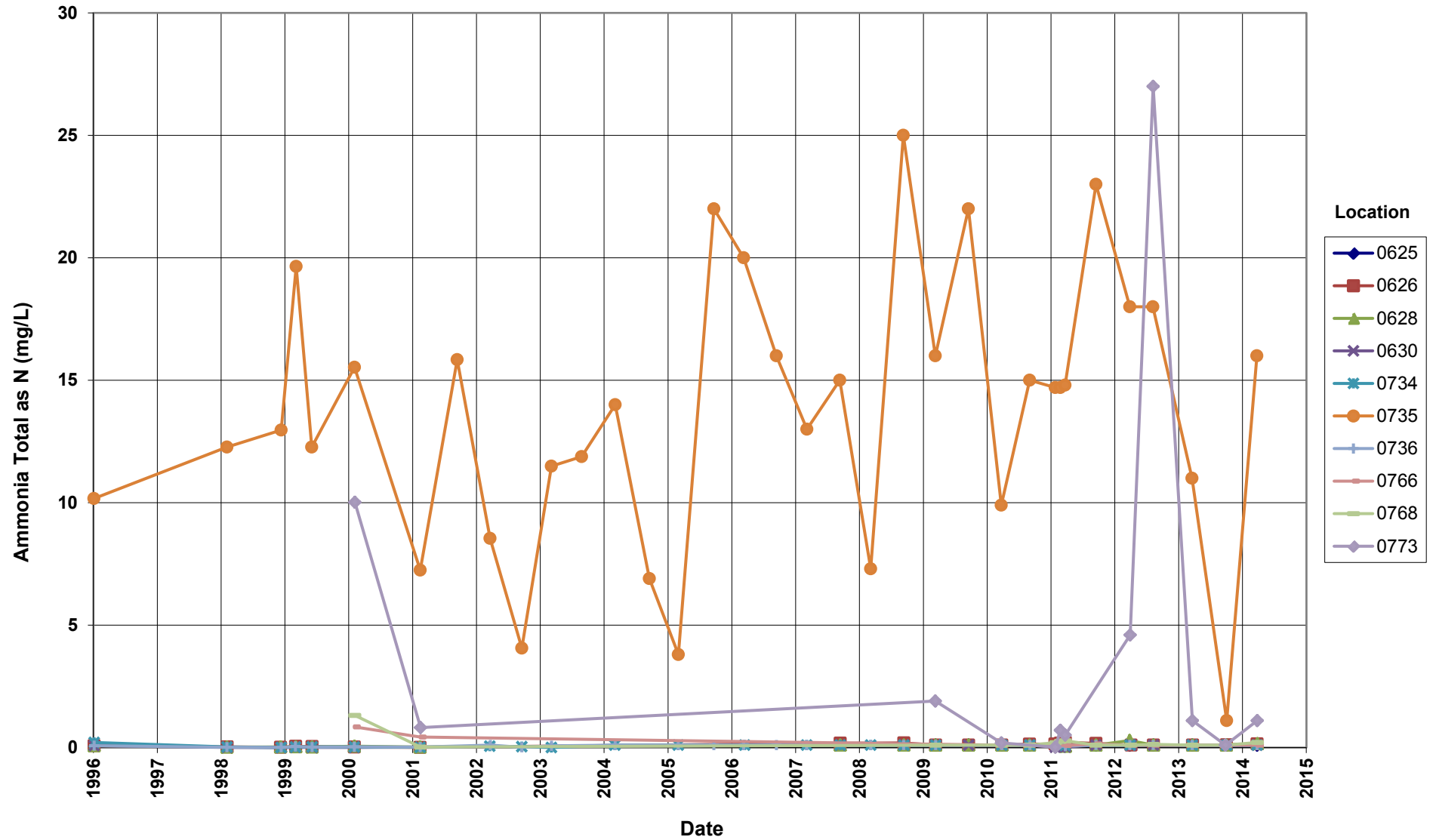
Time-Concentration Graphs Floodplain Groundwater Locations

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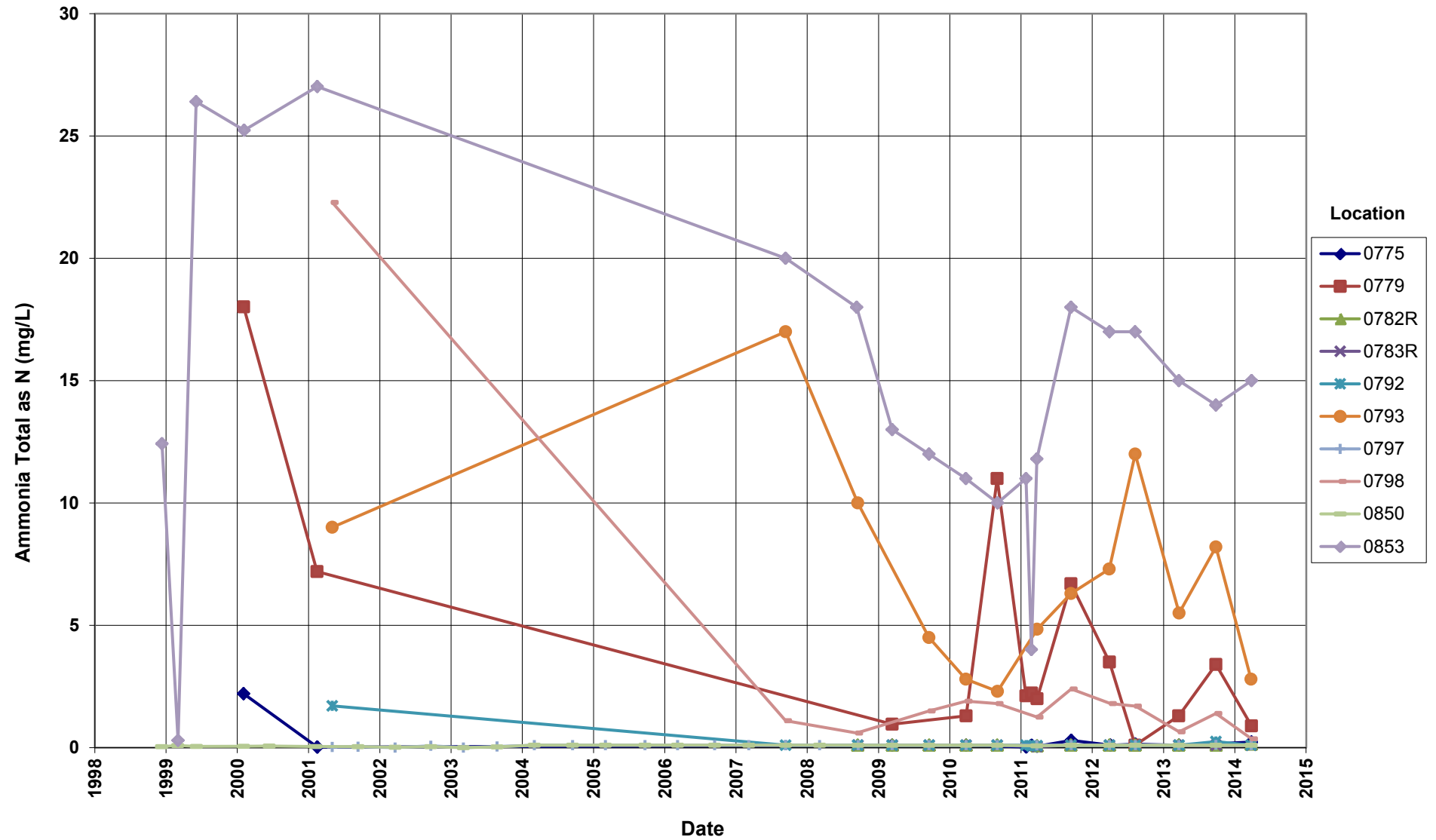
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



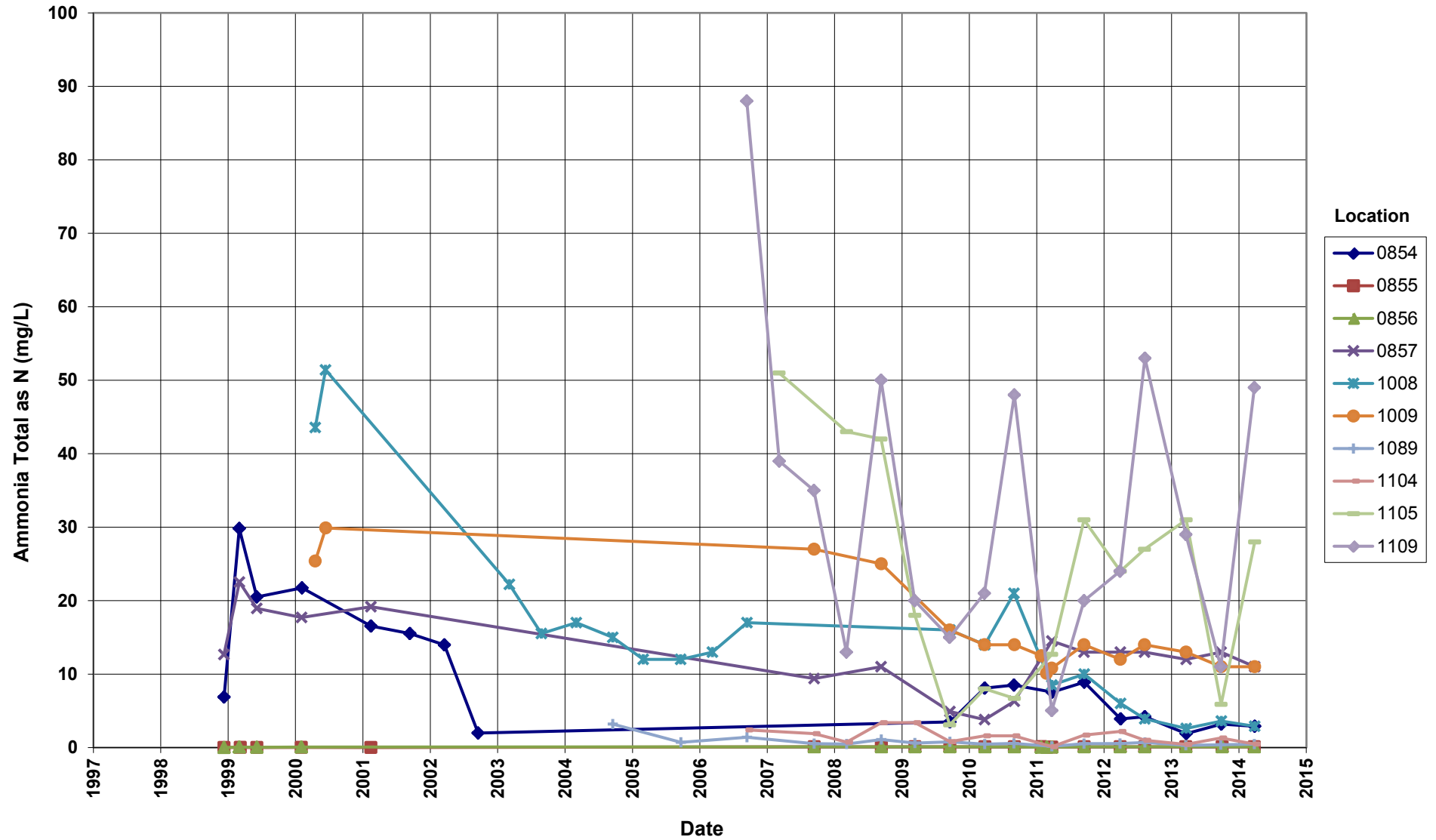
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



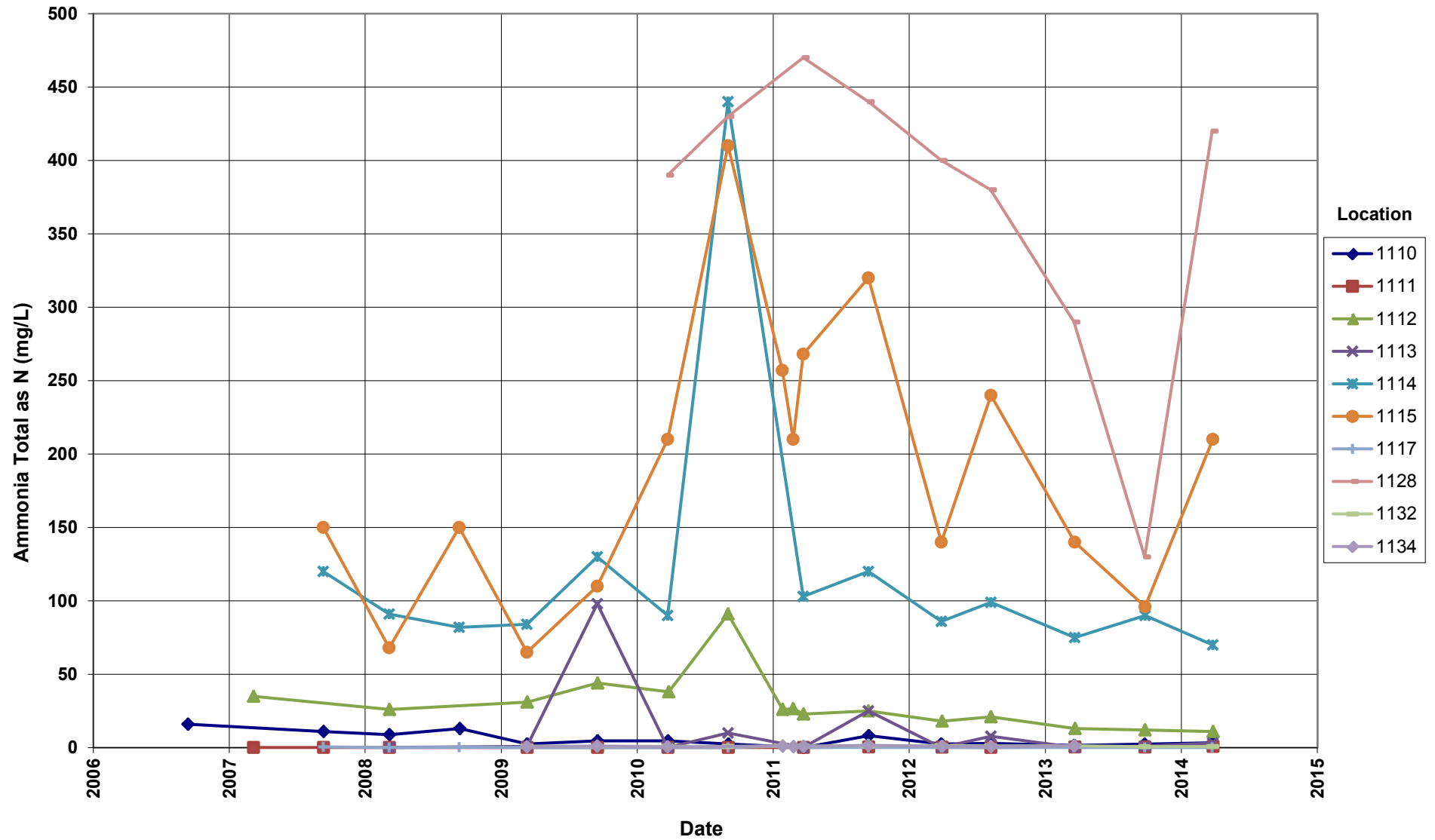
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



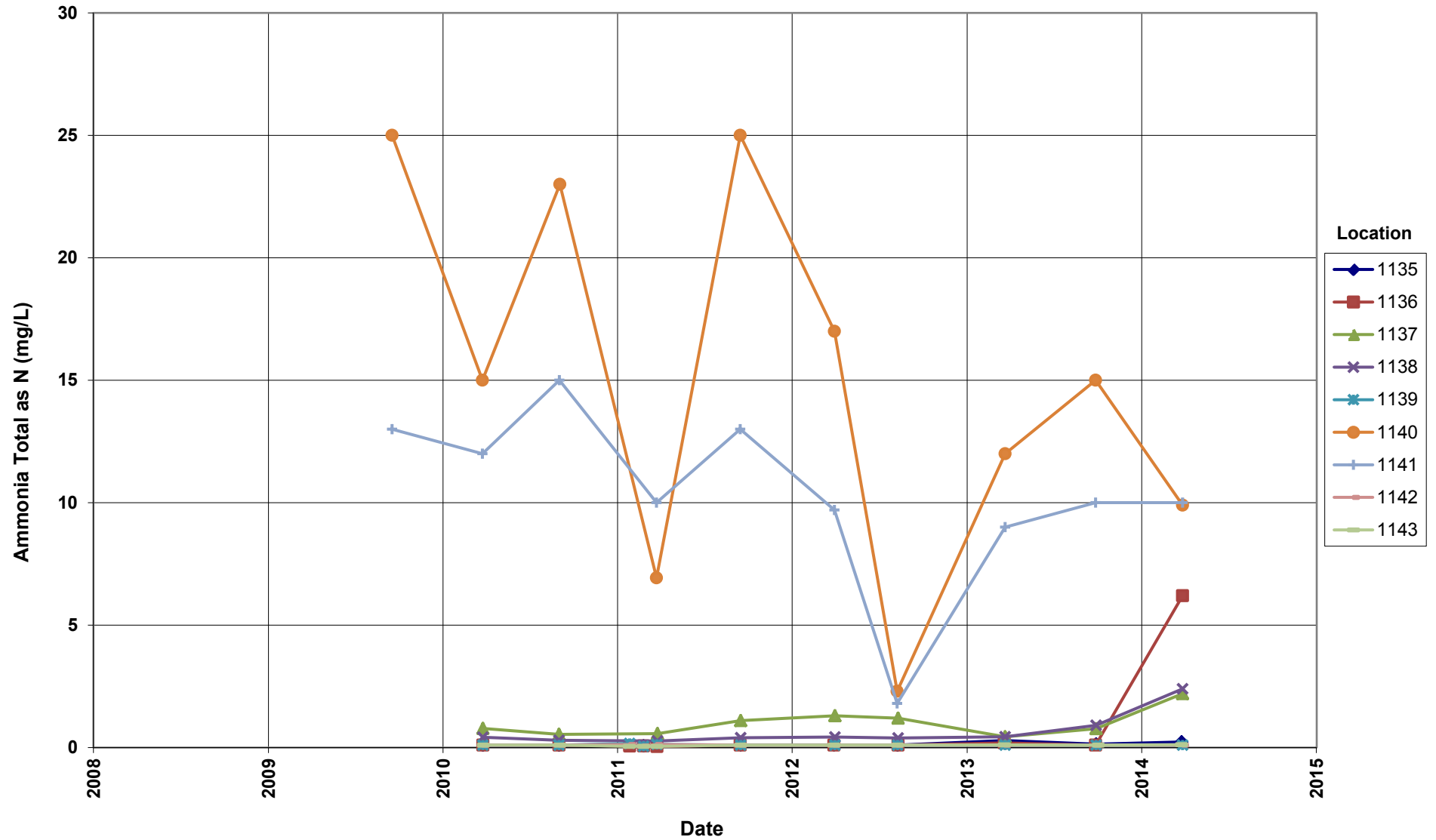
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



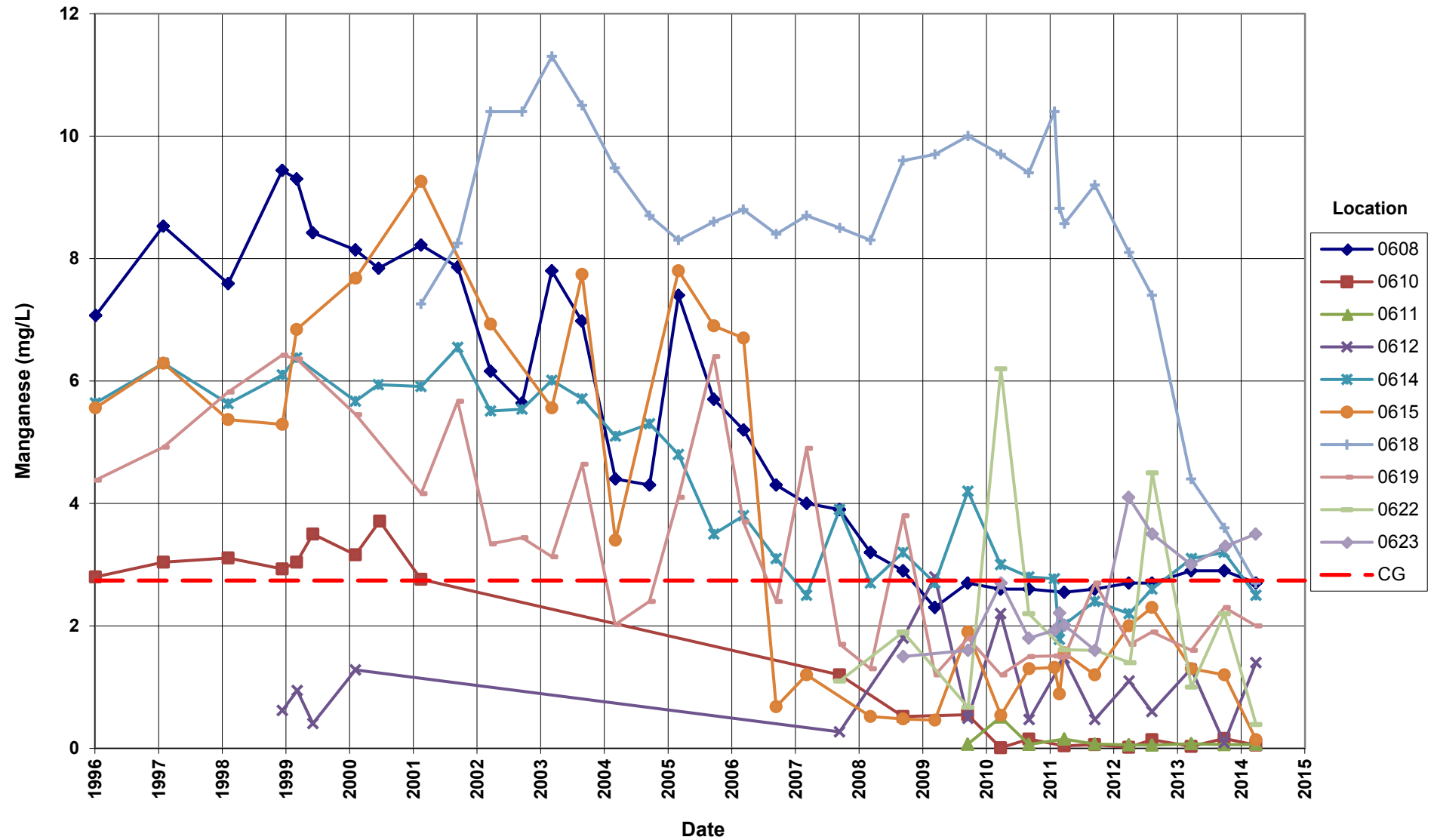
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



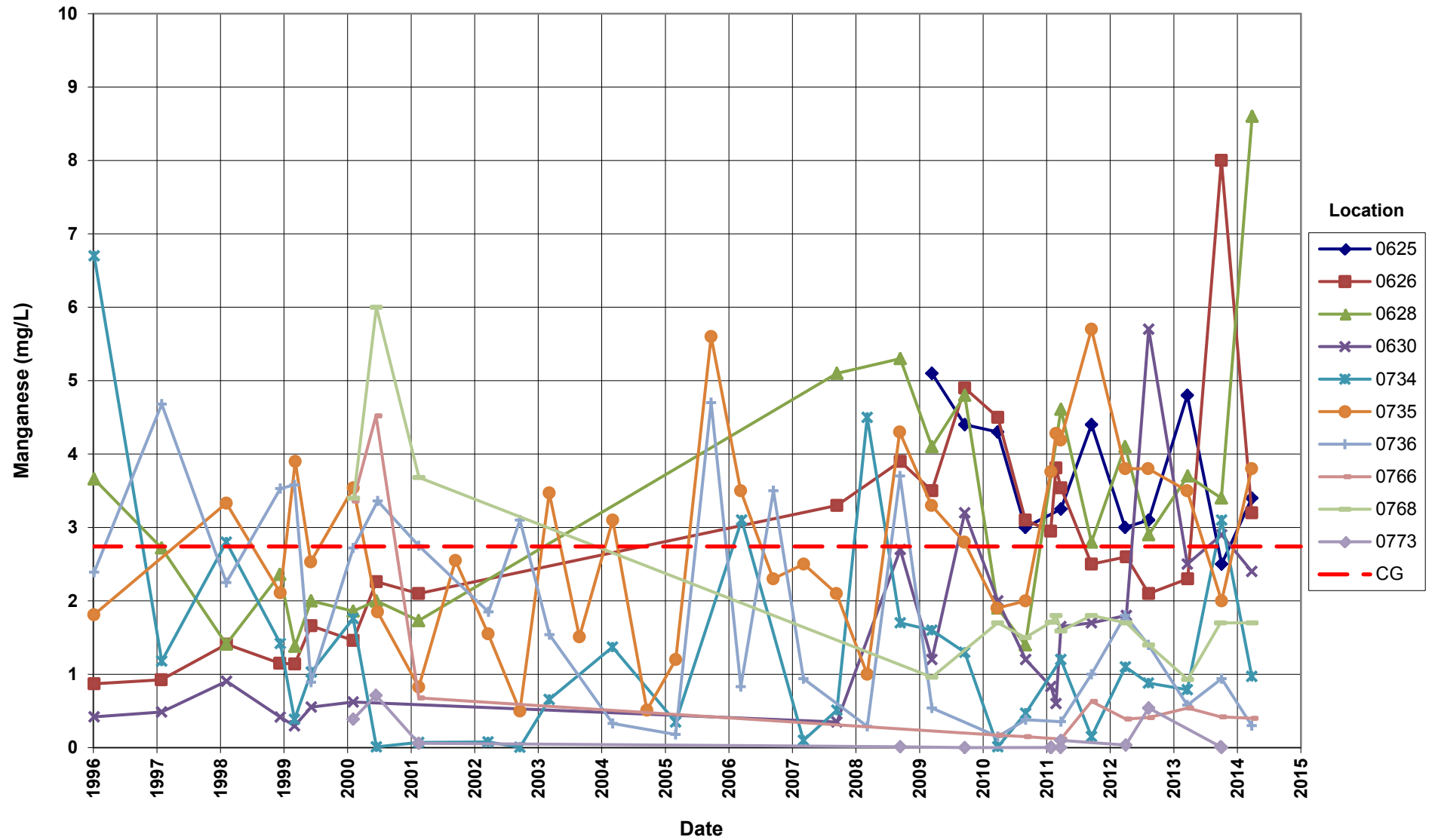
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



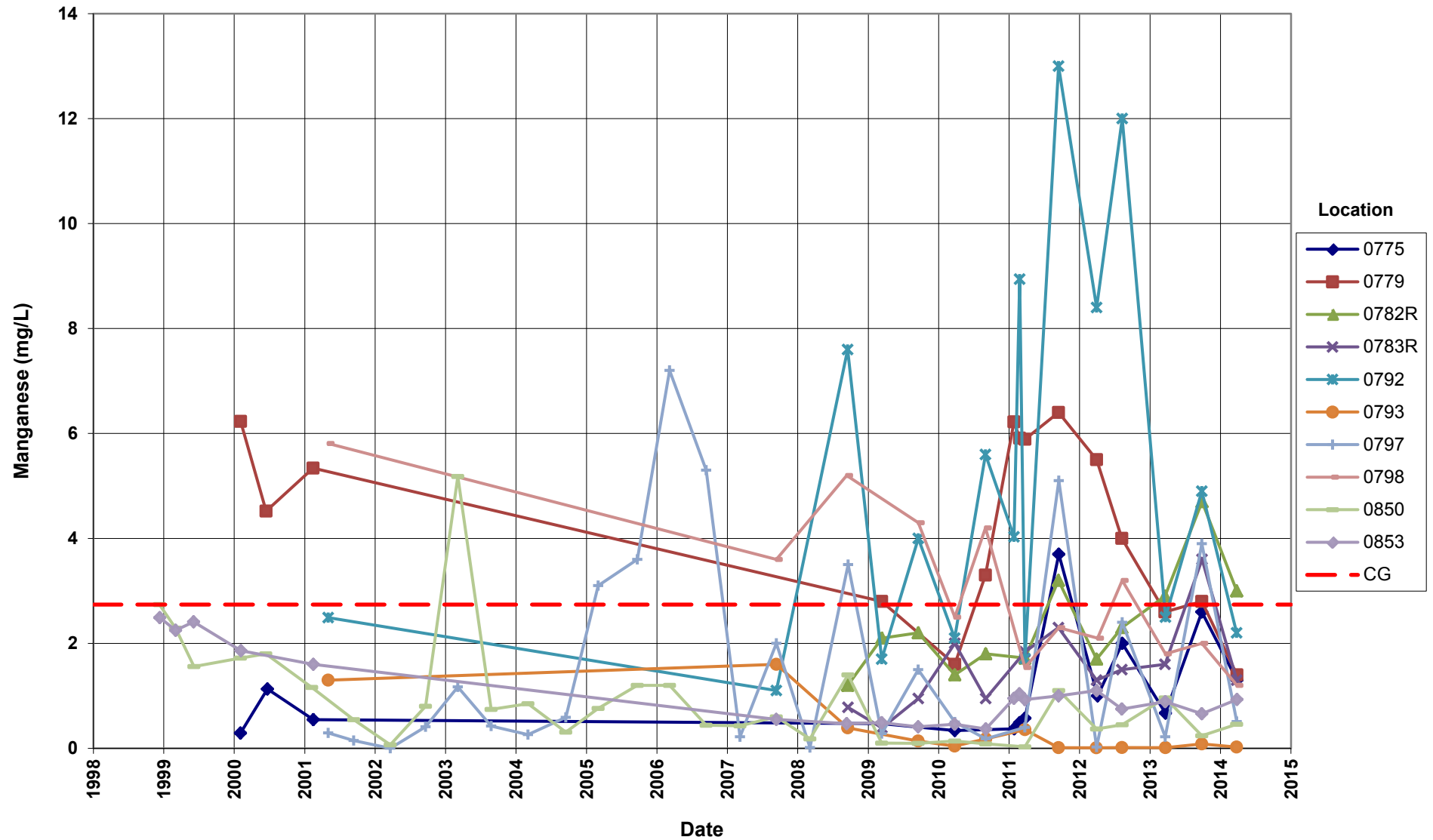
Shiprock Disposal Site (Floodplain)
Manganese Concentration
Cleanup Goal (CG) = 2.74 mg/L



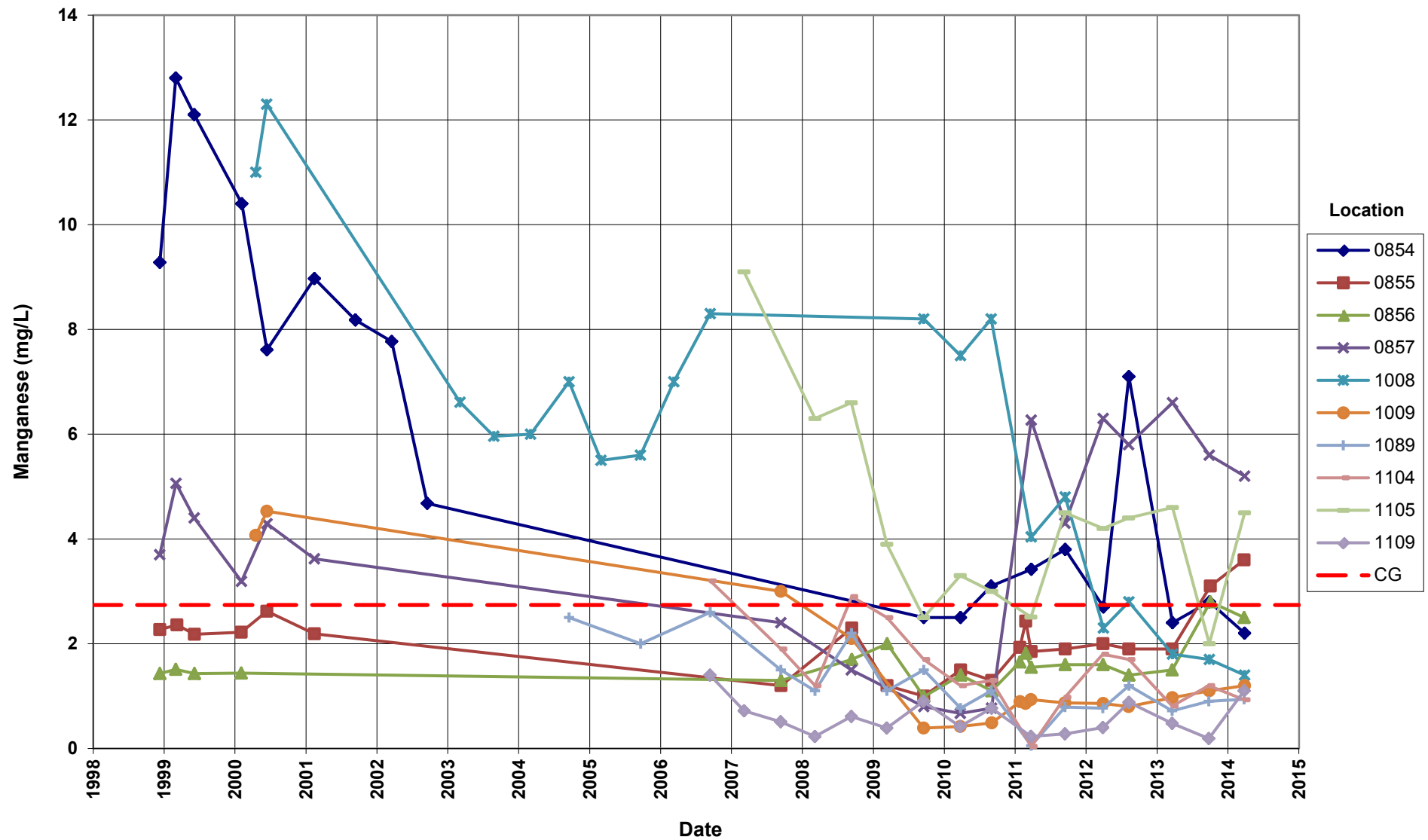
Shiprock Disposal Site (Floodplain)
Manganese Concentration
Cleanup Goal (CG) = 2.74 mg/L



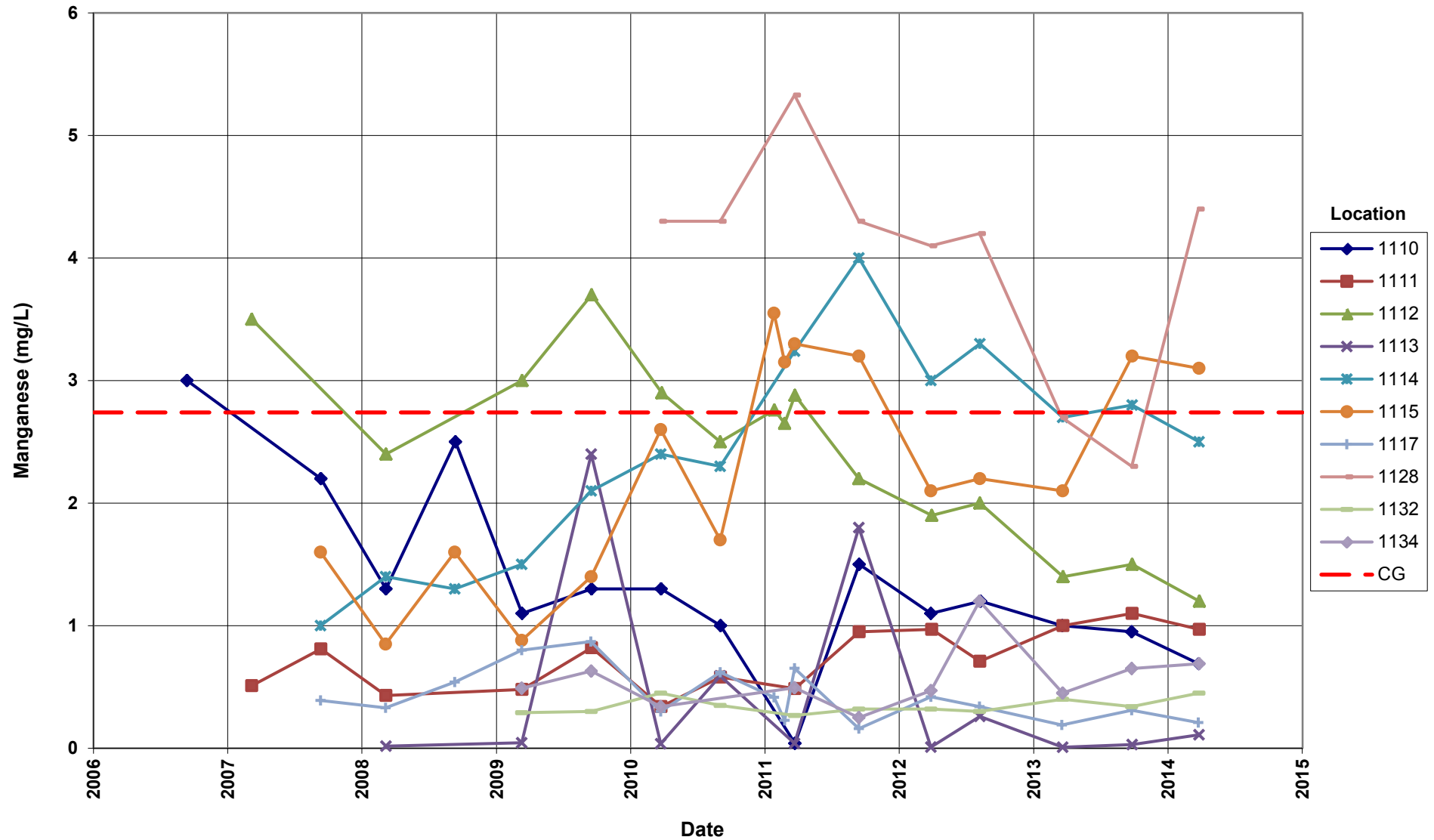
Shiprock Disposal Site (Floodplain)
Manganese Concentration
 Cleanup Goal (CG) = 2.74 mg/L



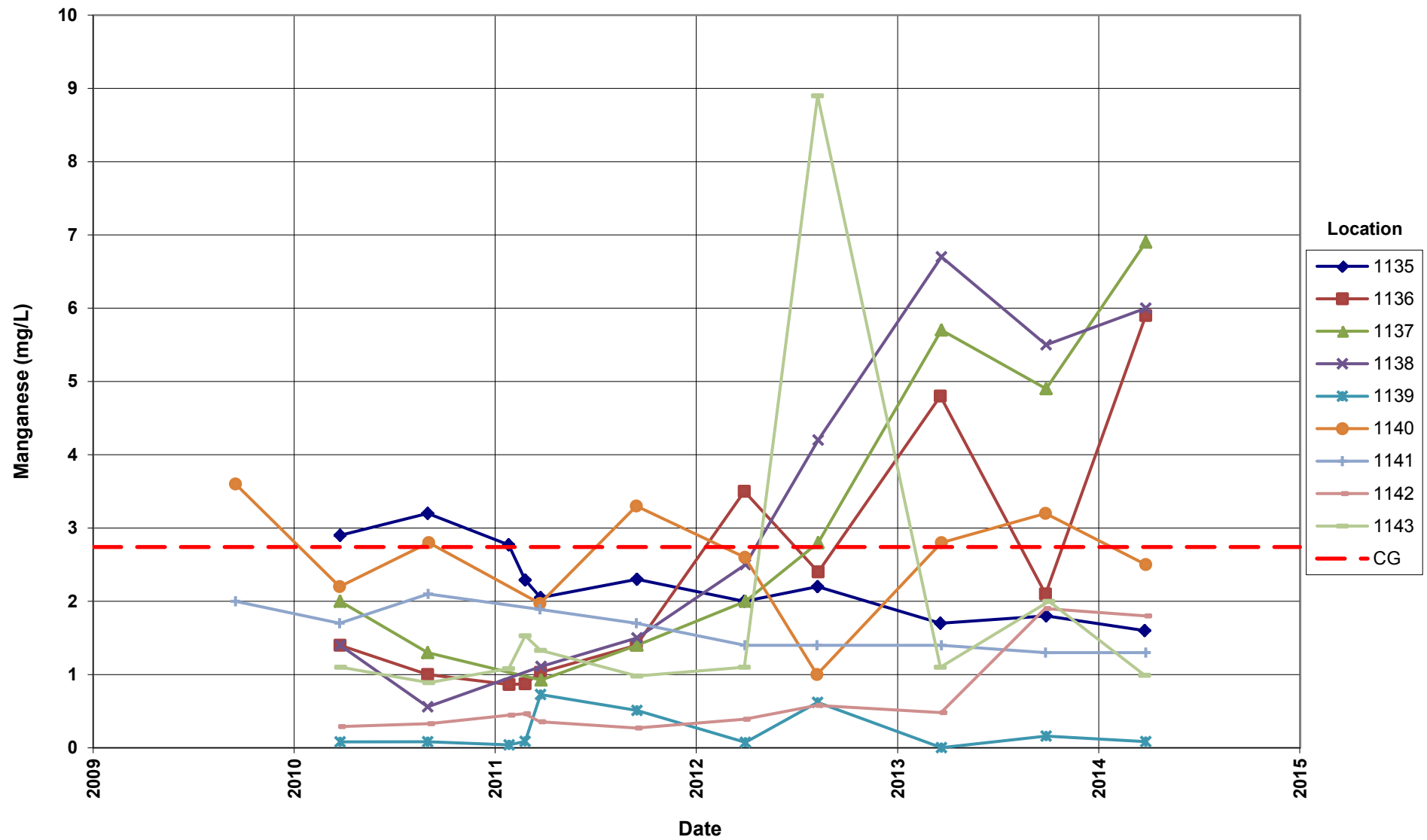
Shiprock Disposal Site (Floodplain)
Manganese Concentration
 Cleanup Goal (CG) = 2.74 mg/L



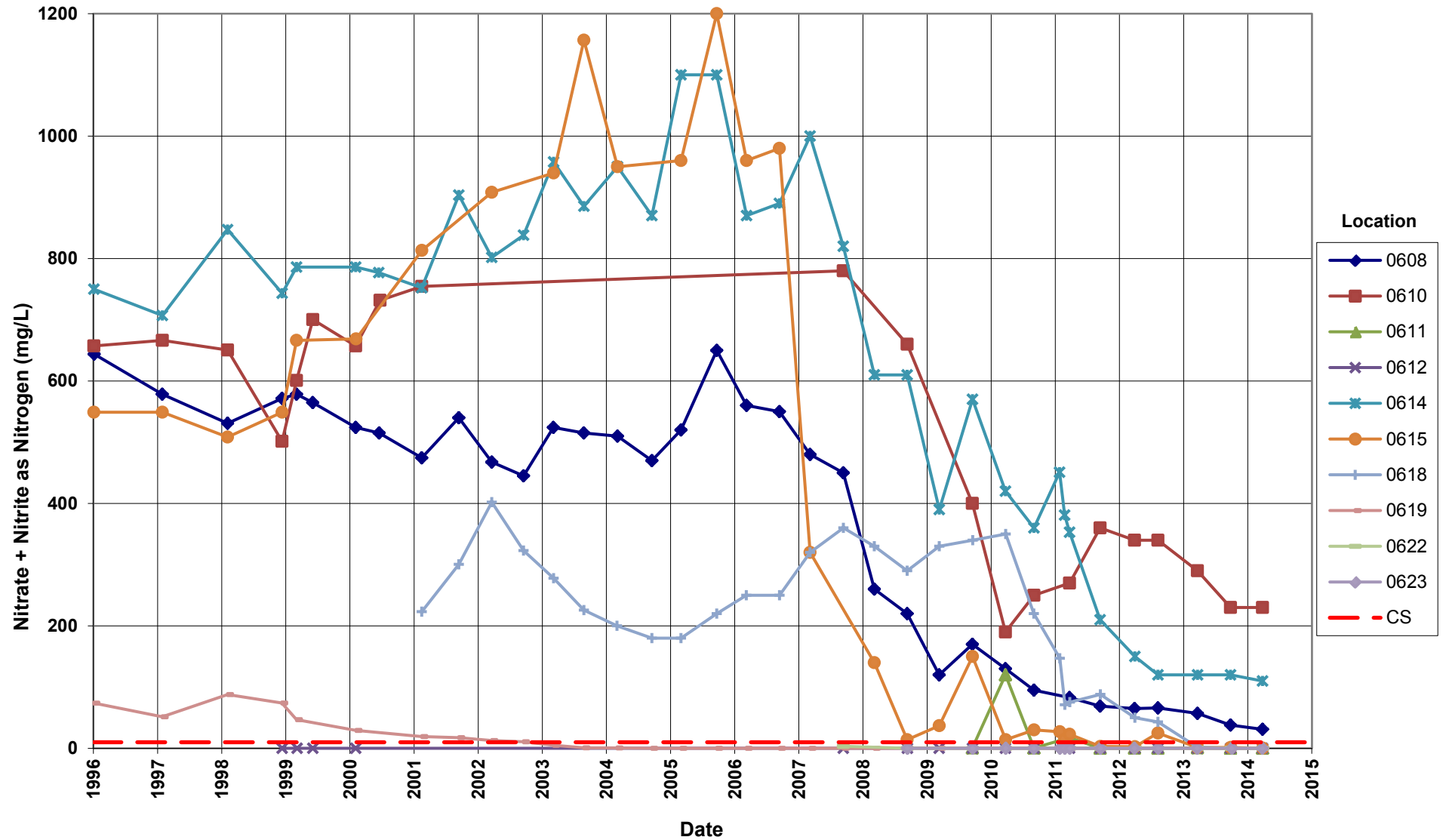
Shiprock Disposal Site (Floodplain)
Manganese Concentration
Cleanup Goal (CG) = 2.74 mg/L



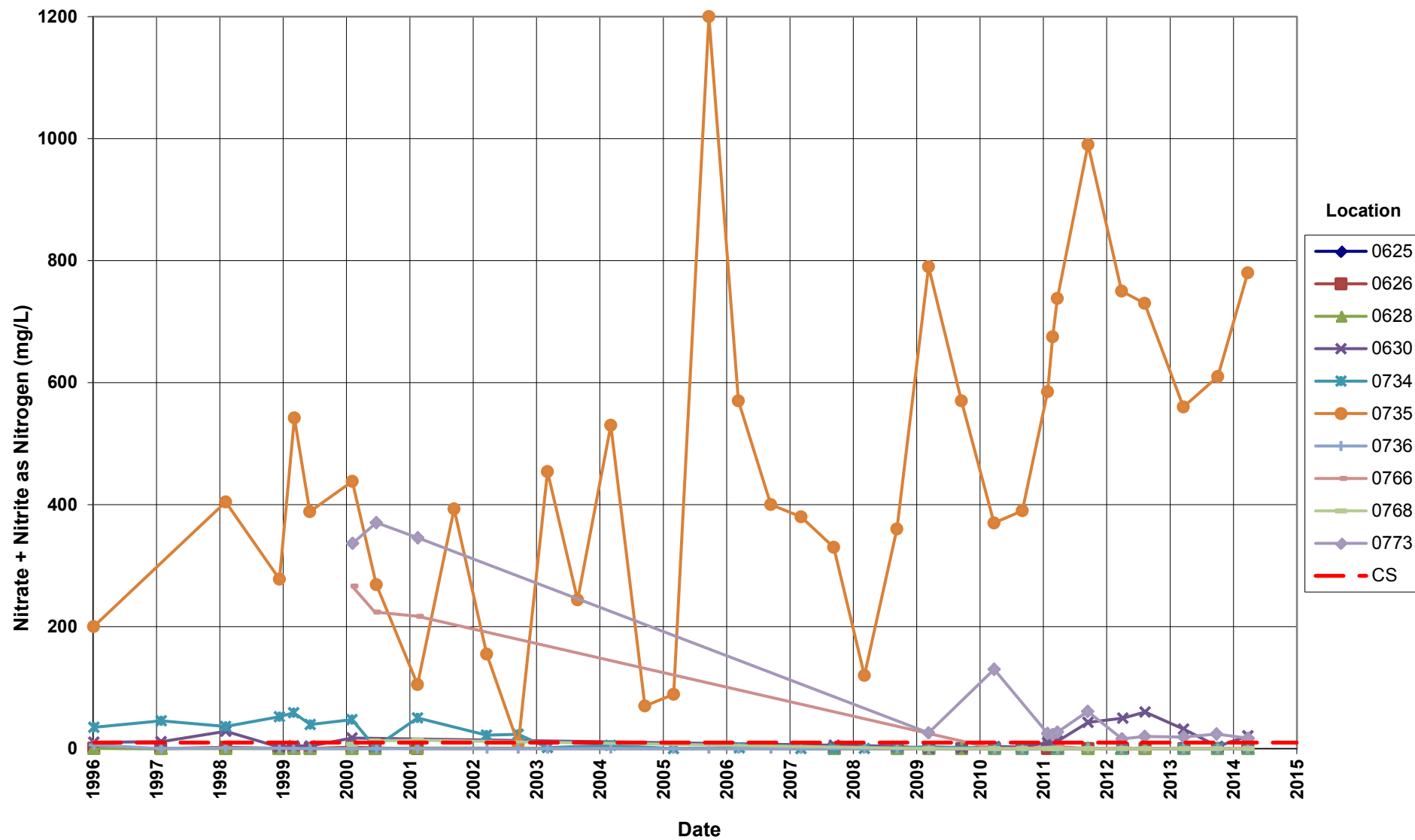
Shiprock Disposal Site (Floodplain)
Manganese Concentration
Cleanup Goal (CG) = 2.74 mg/L



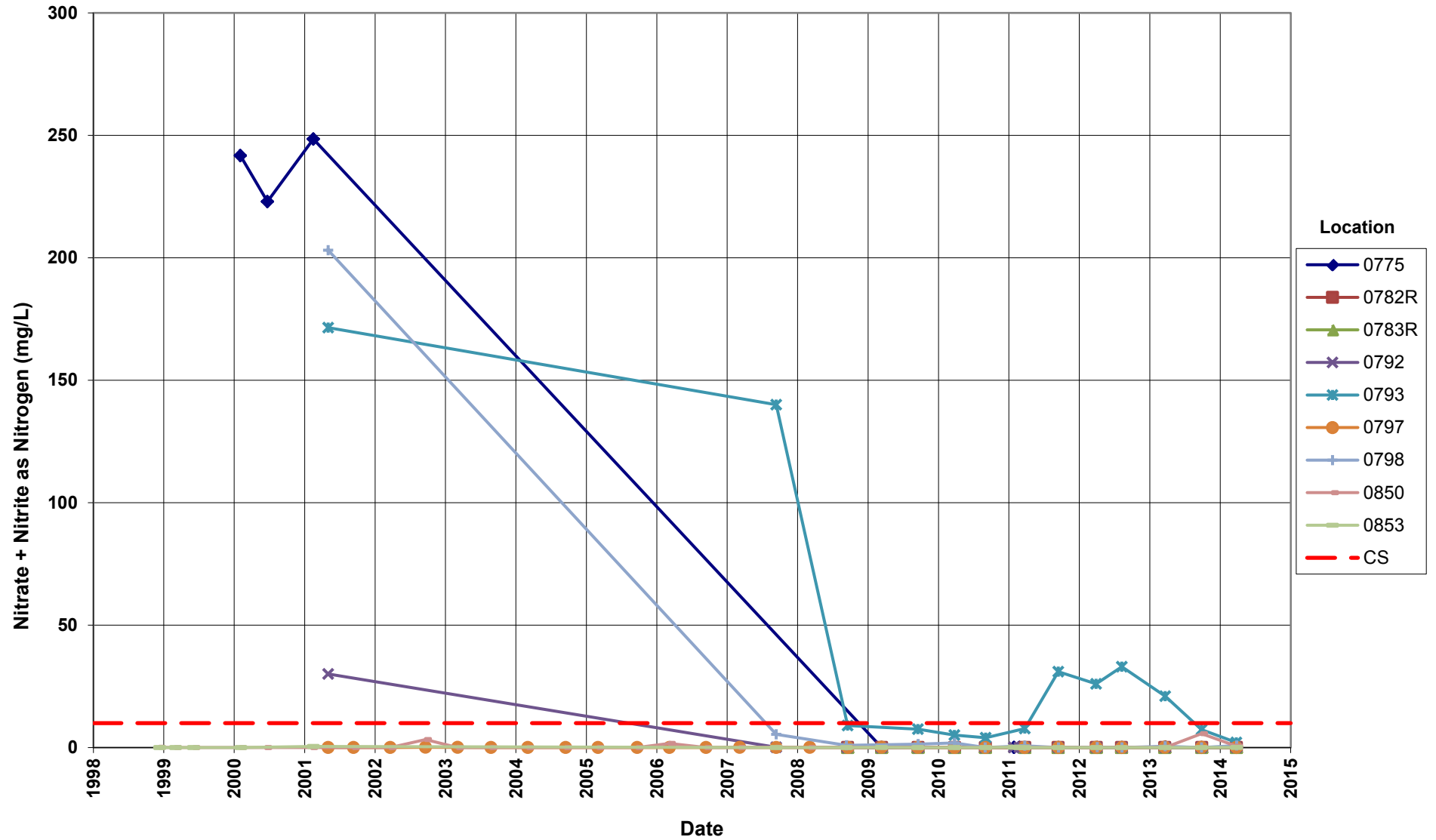
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
 Compliance Standard (CS) = 10 mg/L



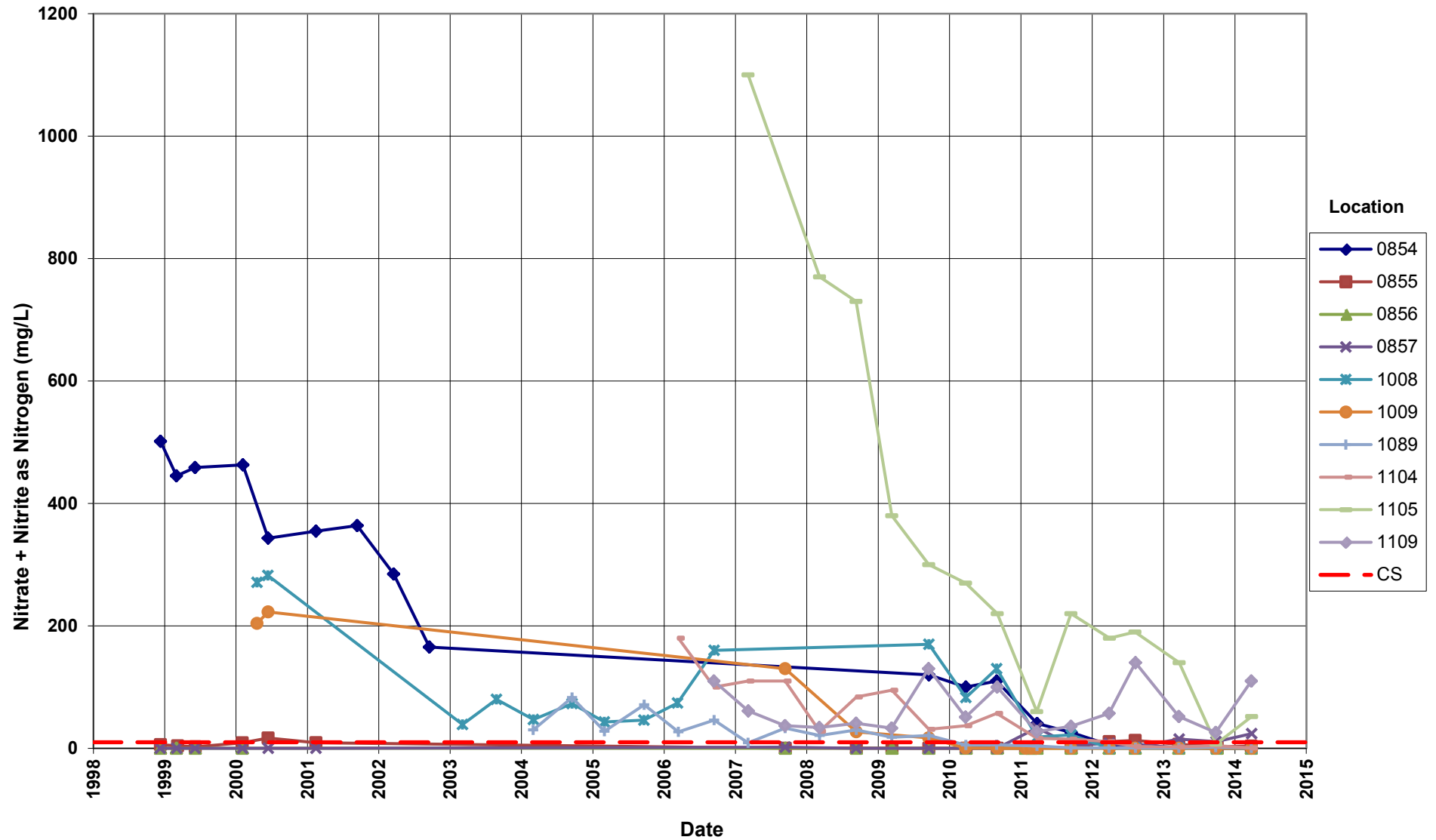
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
 Compliance Standard (CS) = 10 mg/L



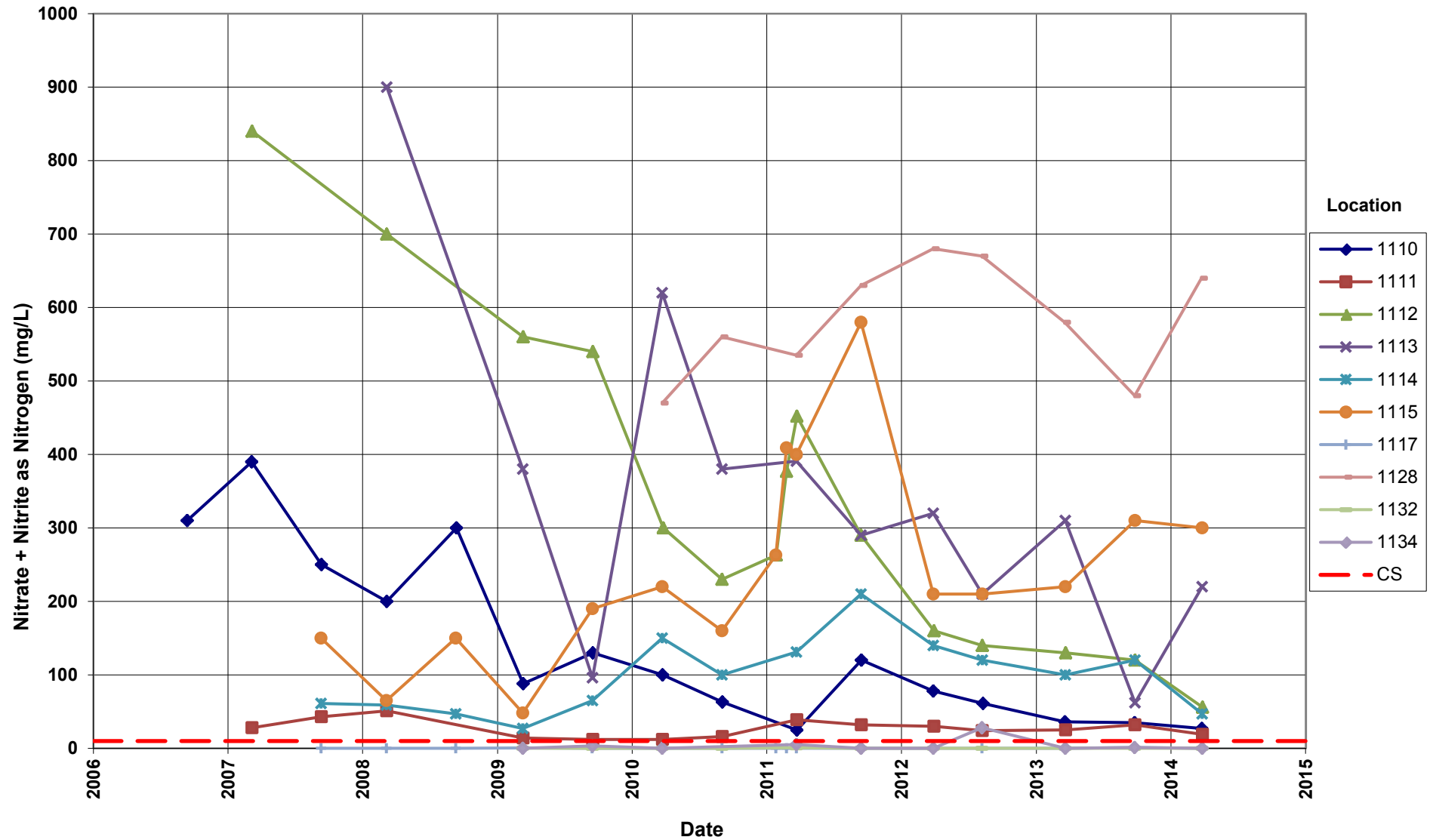
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Compliance Standard (CS) = 10 mg/L



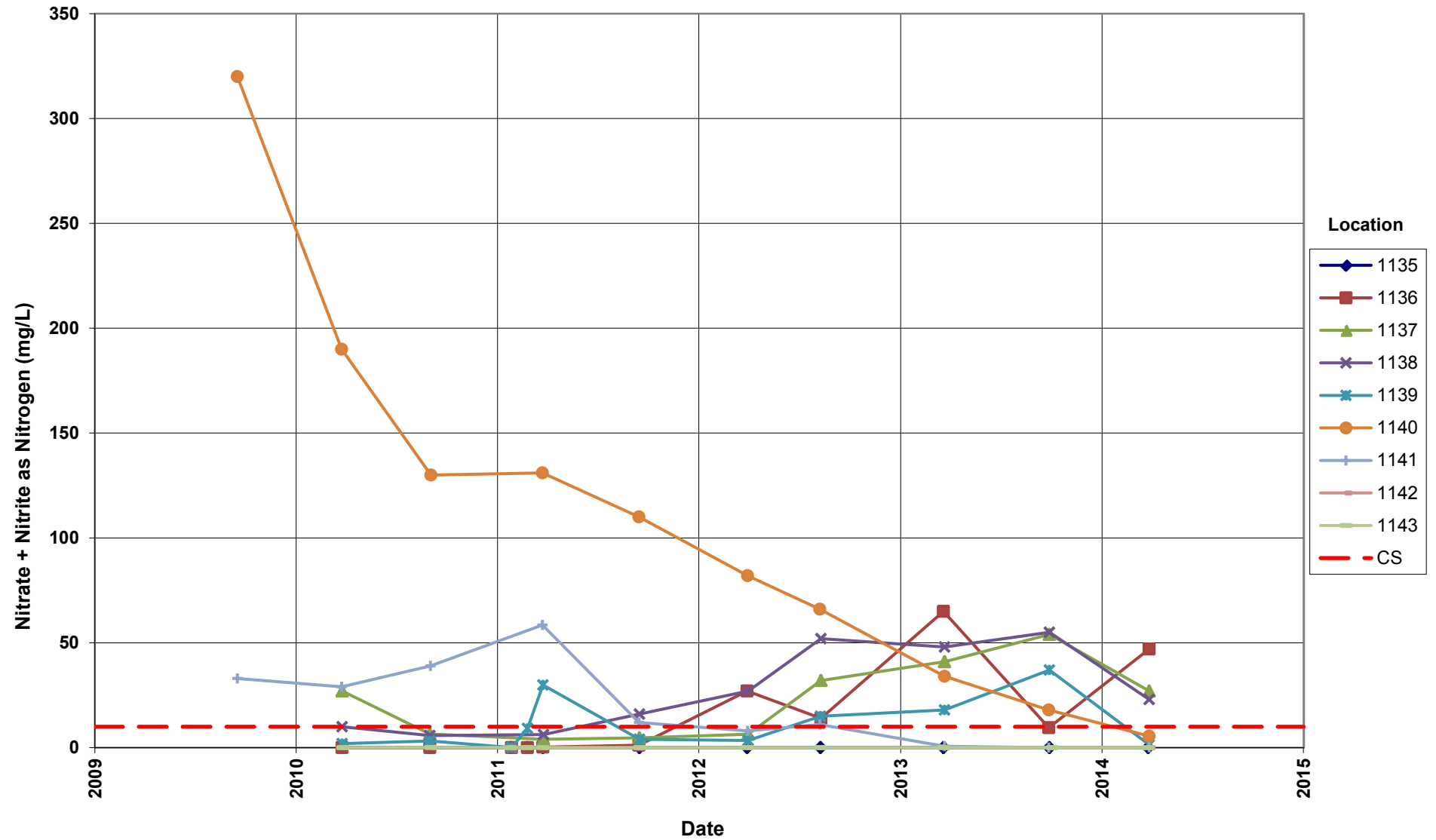
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Compliance Standard (CS) = 10 mg/L



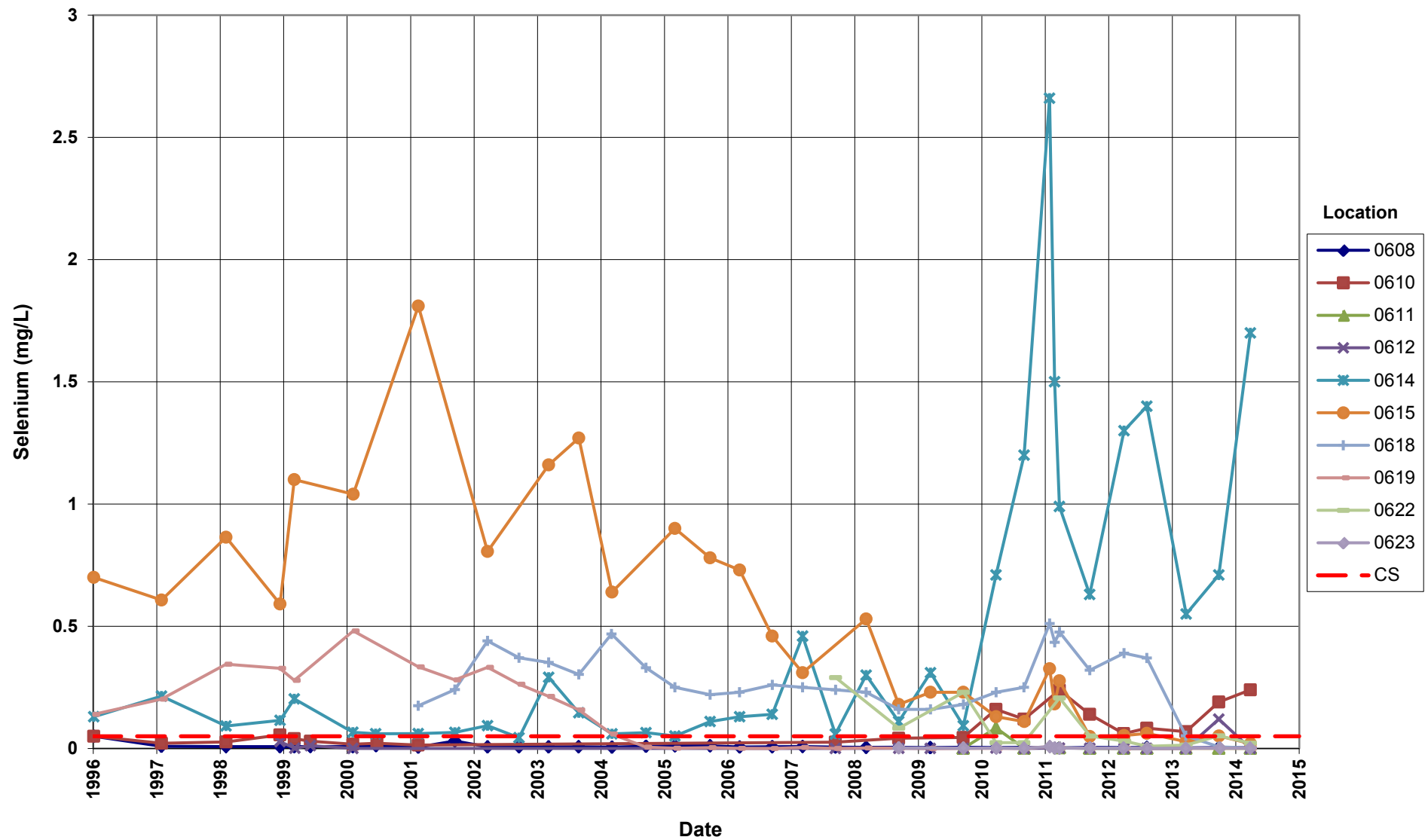
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Compliance Standard (CS) = 10 mg/L



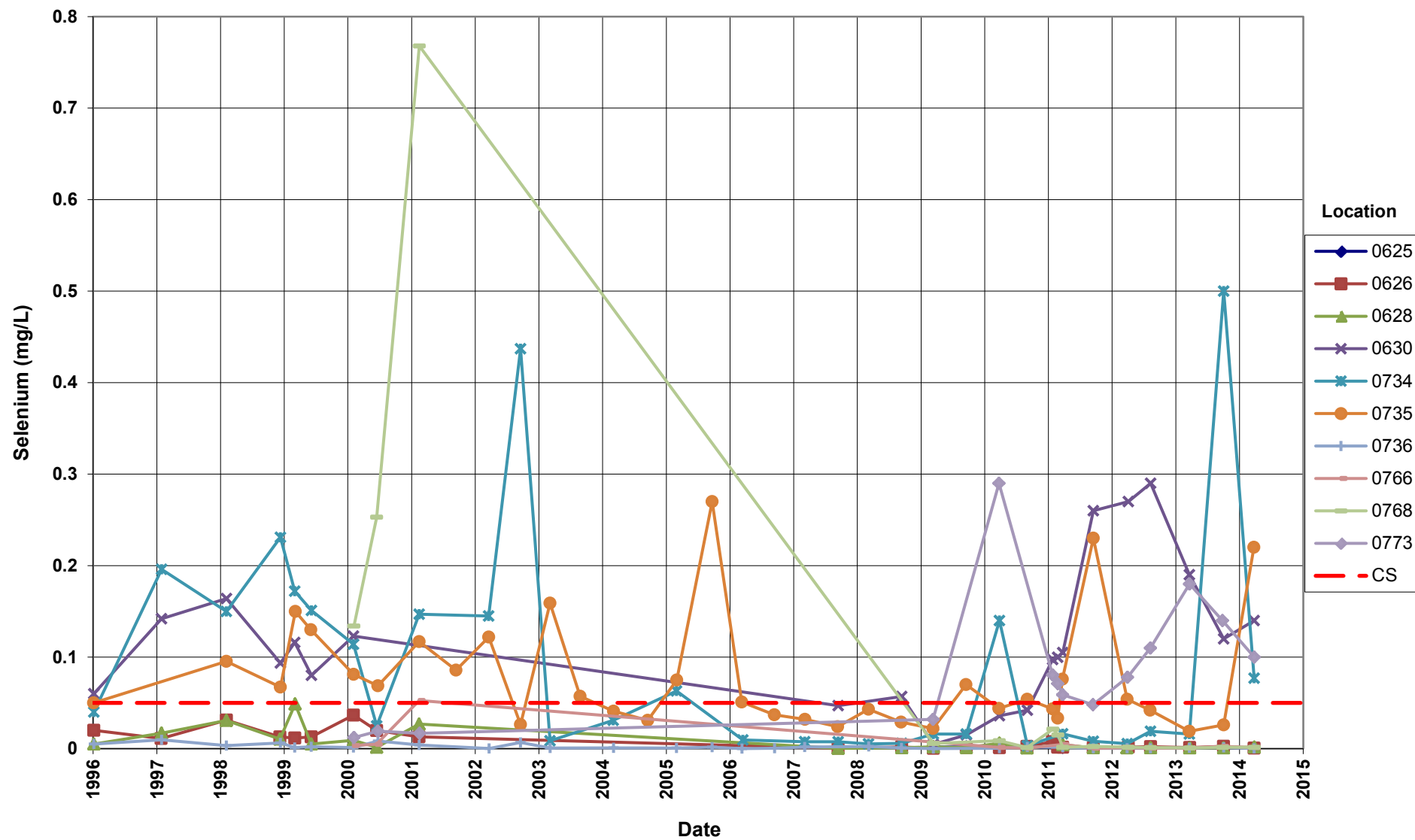
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Compliance Standard (CS) = 10 mg/L



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

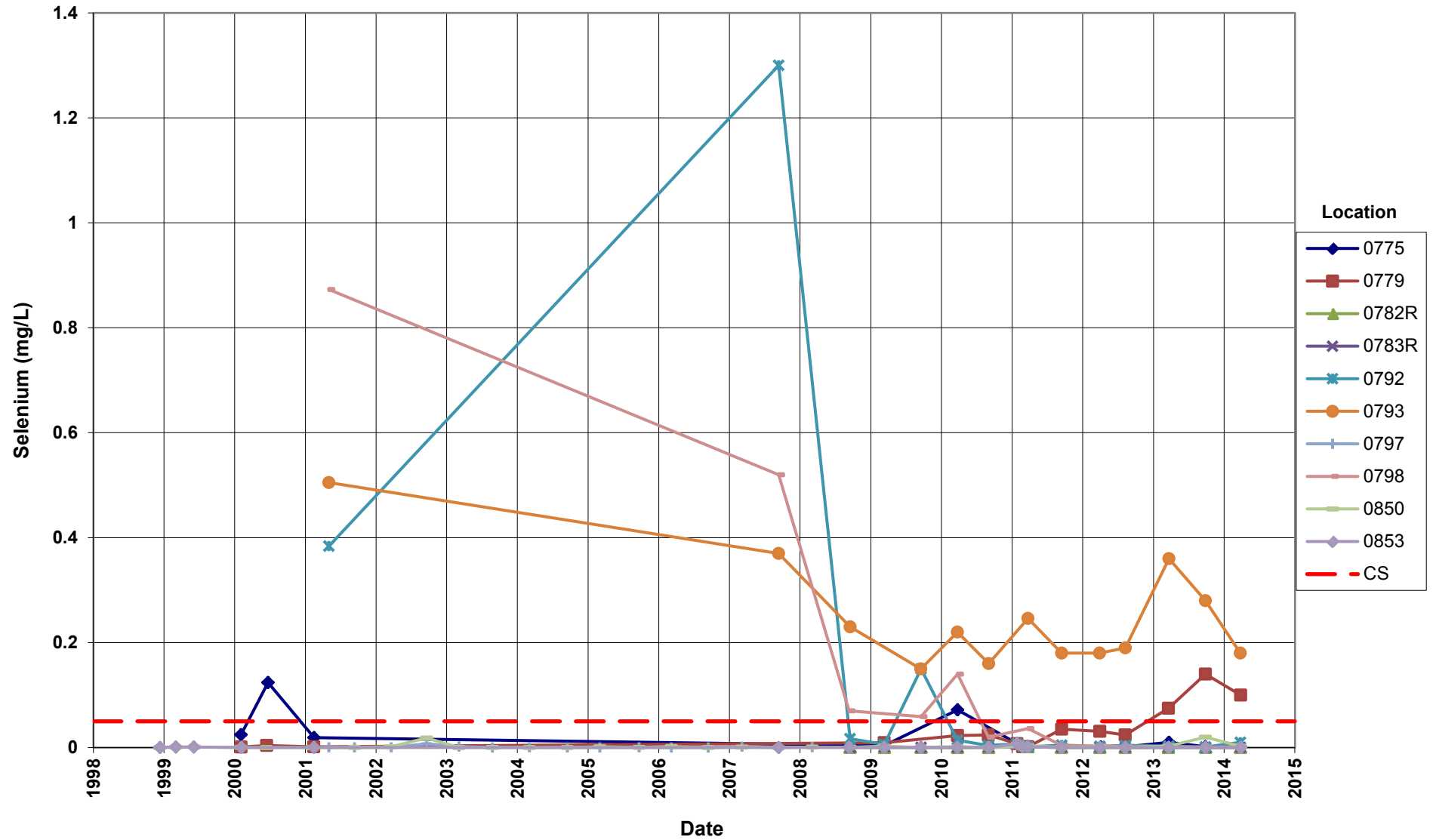


Shiprock Disposal Site (Floodplain)
Selenium Concentration
Compliance Standard (CS) = 0.05 mg/L



Shiprock Disposal Site (Floodplain) Selenium Concentration

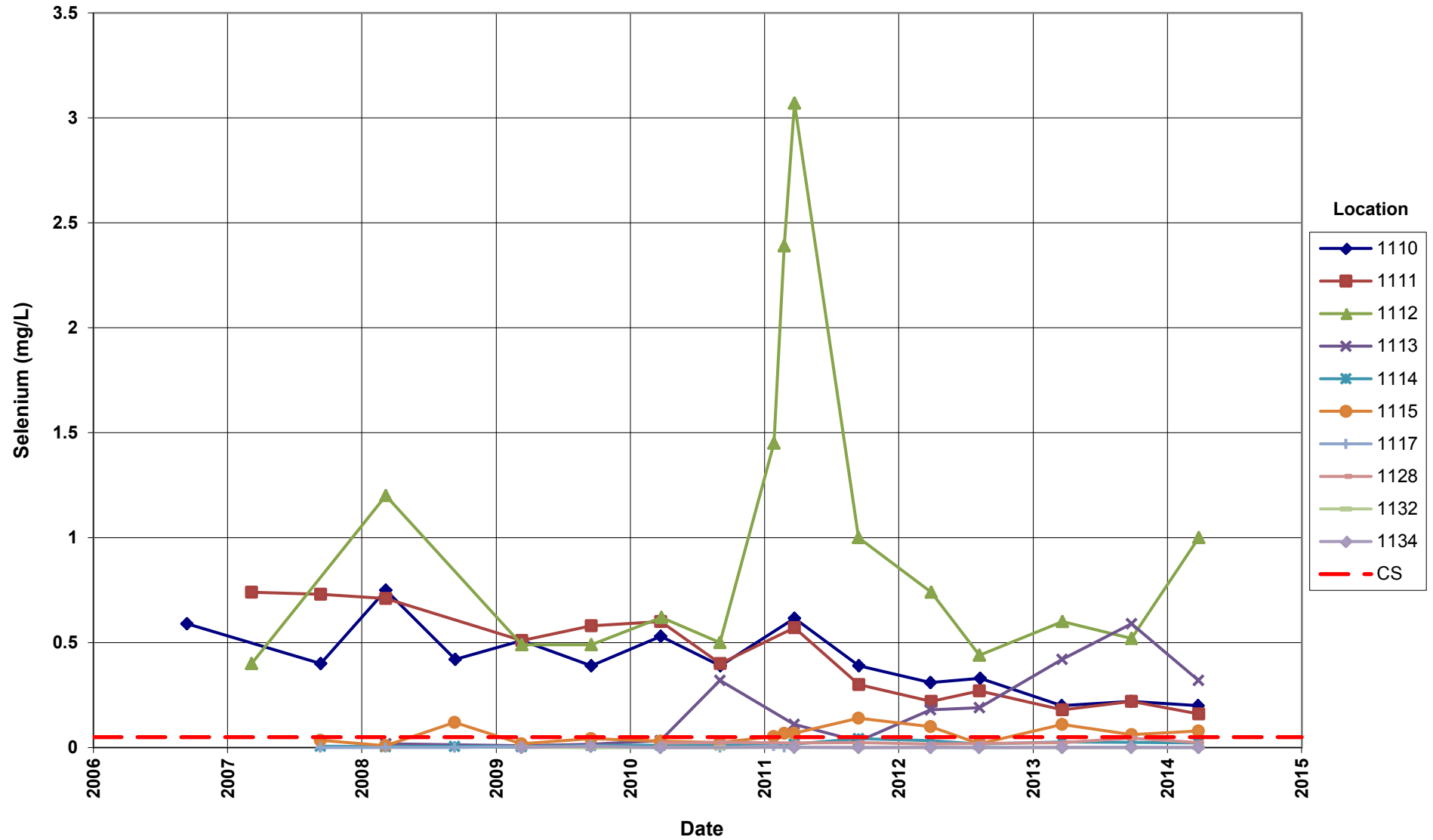
Compliance Standard (CS) = 0.05 mg/L



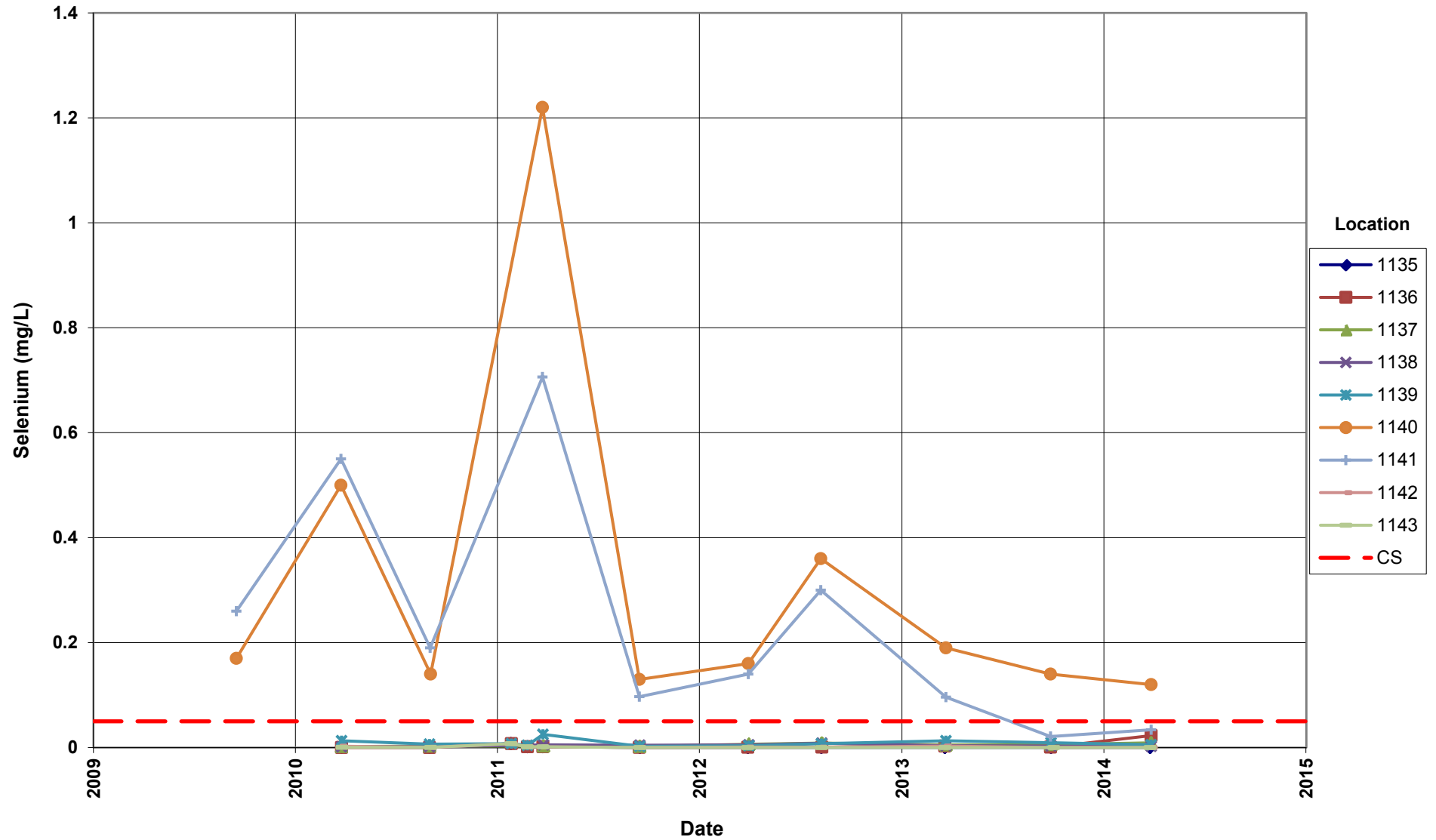
Compliance Standard (CS) = 0.05 mg/L



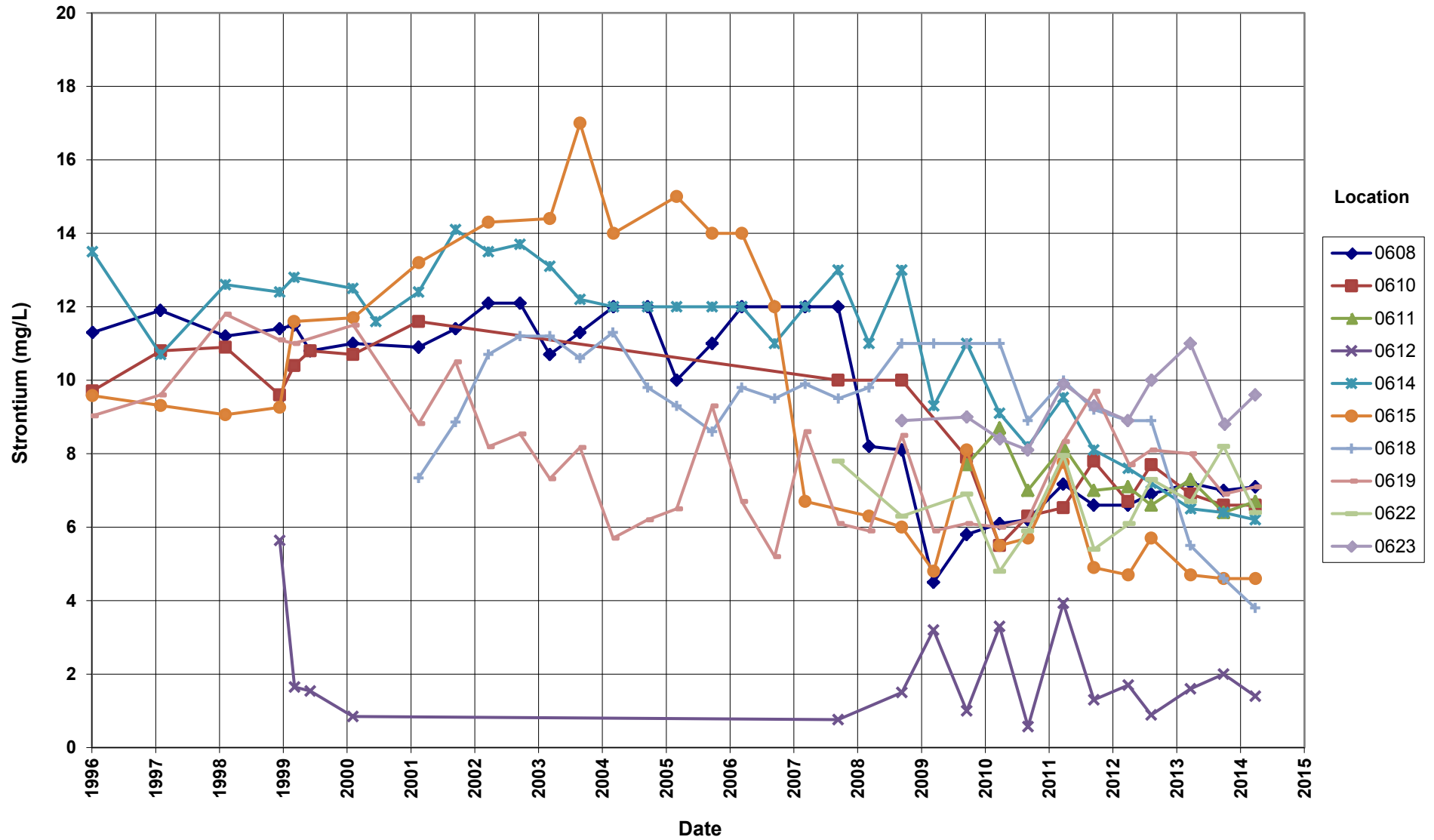
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Compliance Standard (CS) = 0.05 mg/L



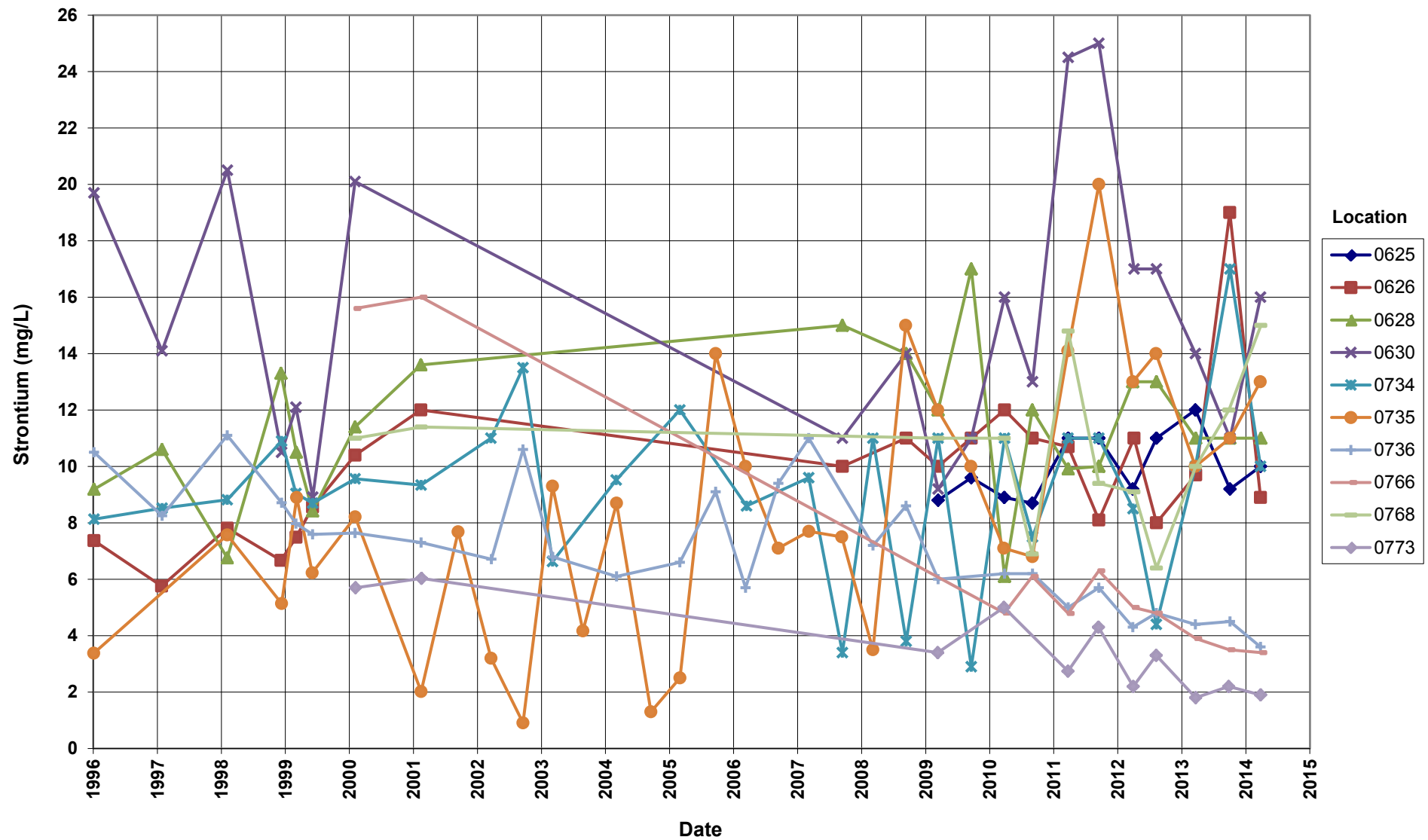
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Compliance Standard (CS) = 0.05 mg/L



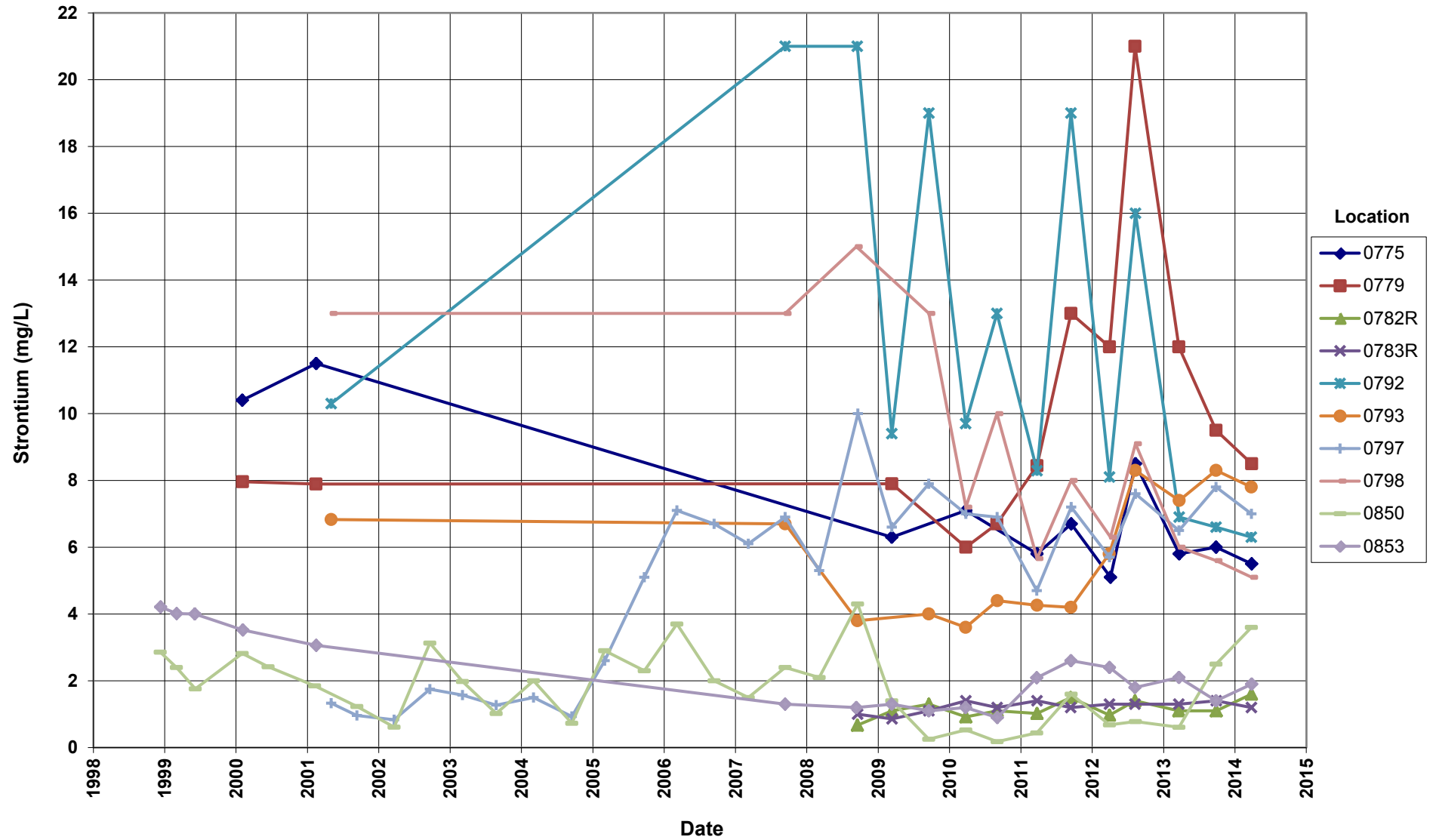
Shiprock Disposal Site (Floodplain)
Strontium Concentration



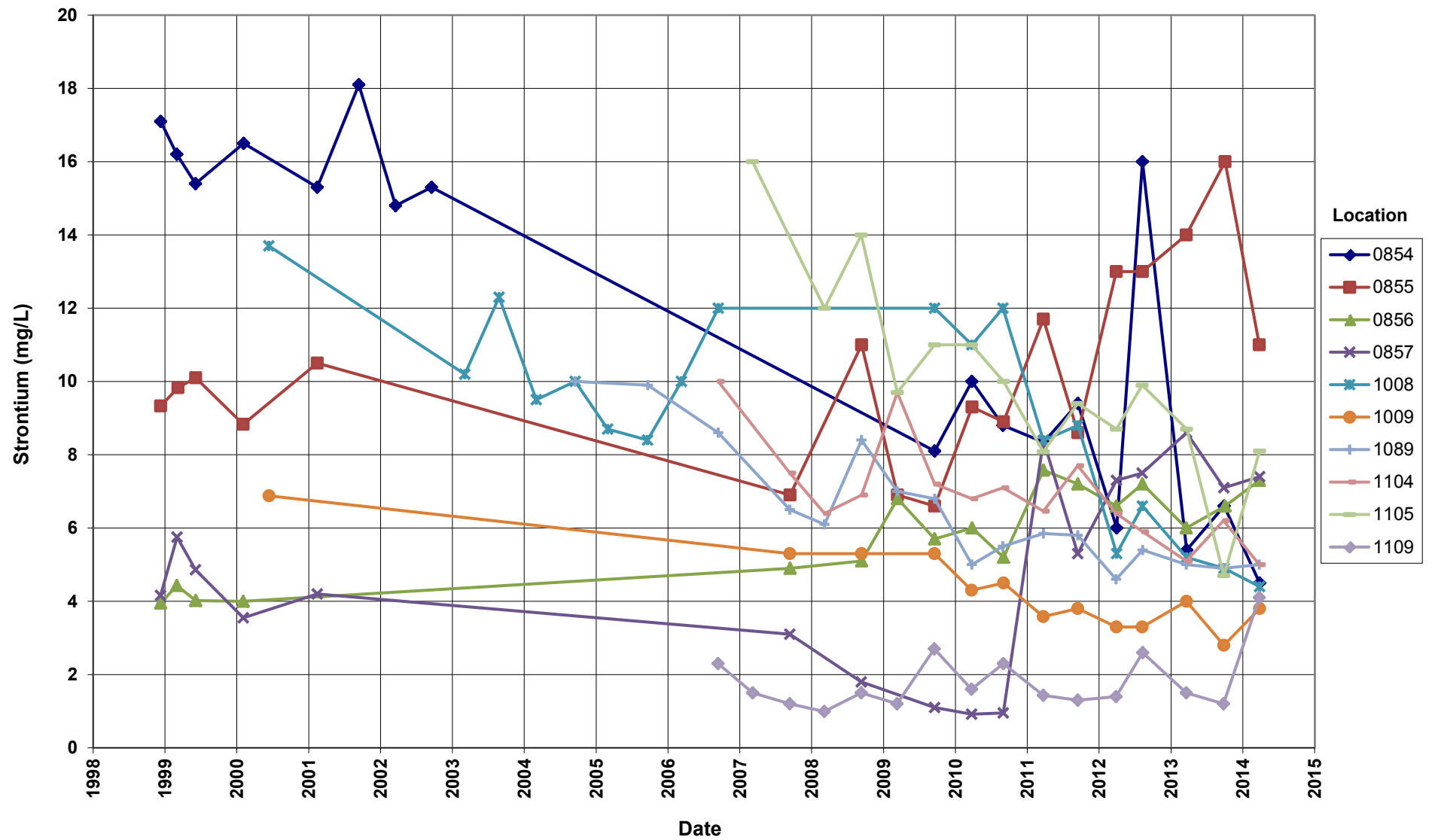
Shiprock Disposal Site (Floodplain) Strontium Concentration



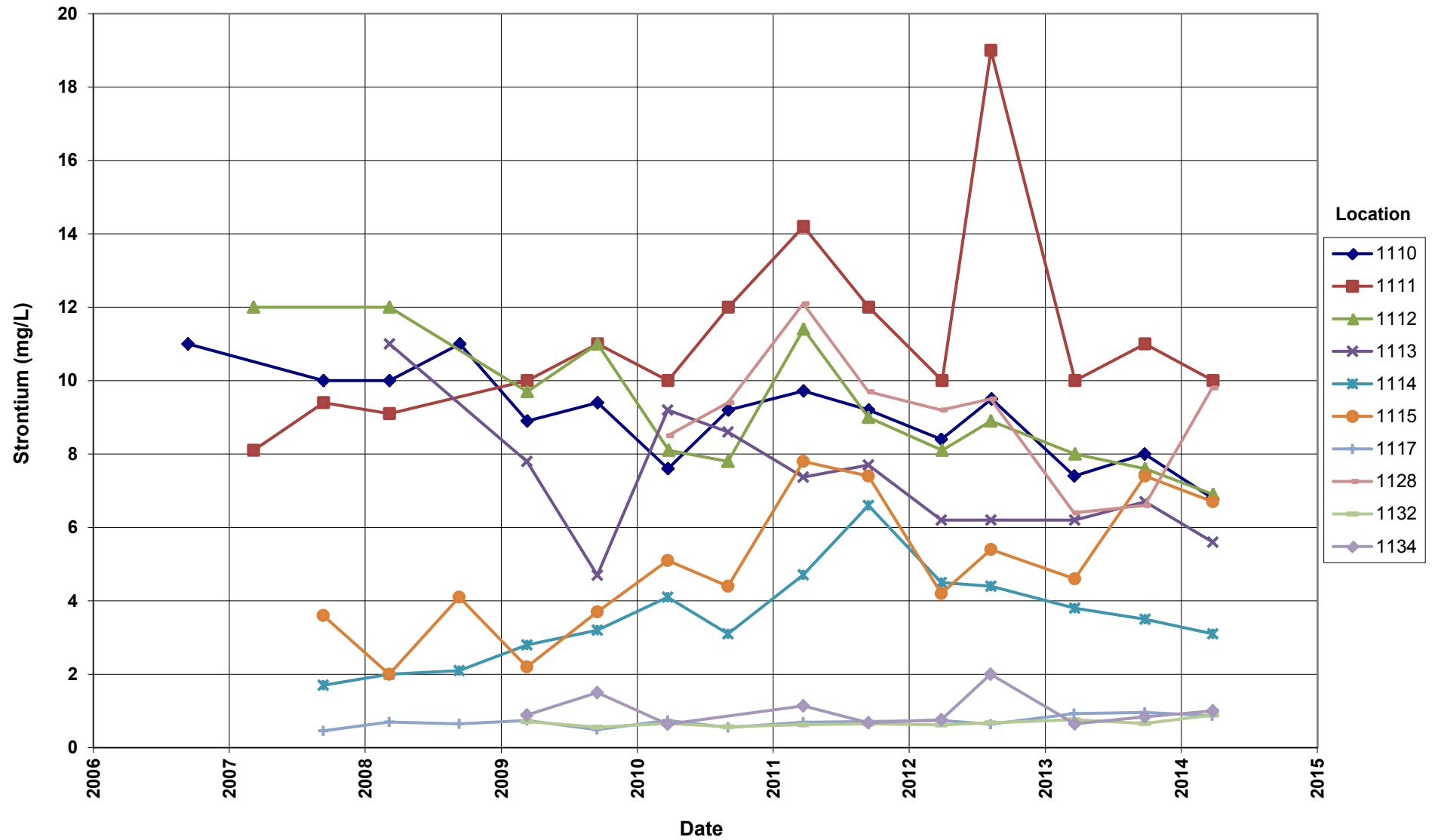
Shiprock Disposal Site (Floodplain) Strontium Concentration



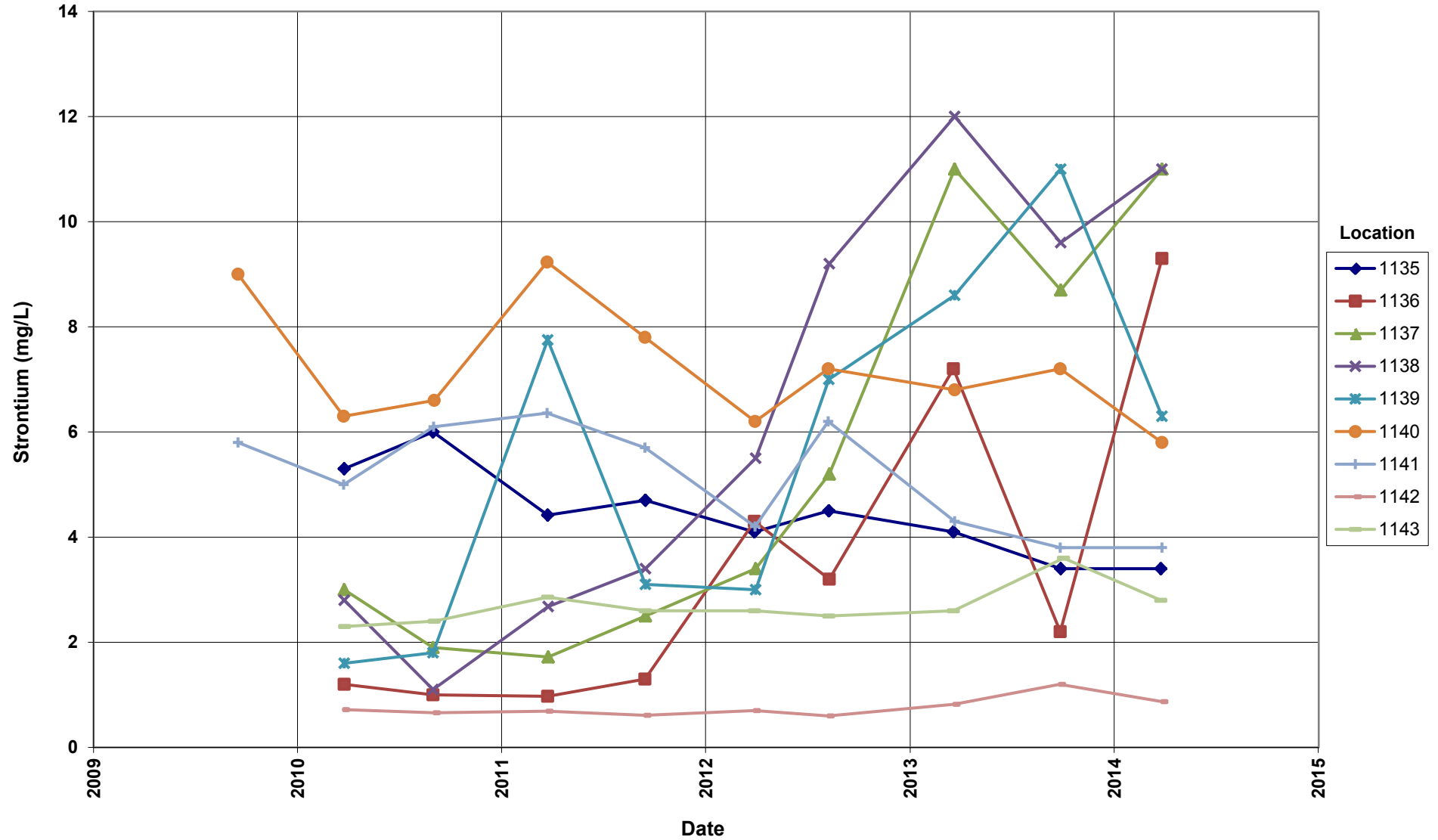
Shiprock Disposal Site (Floodplain) Strontium Concentration



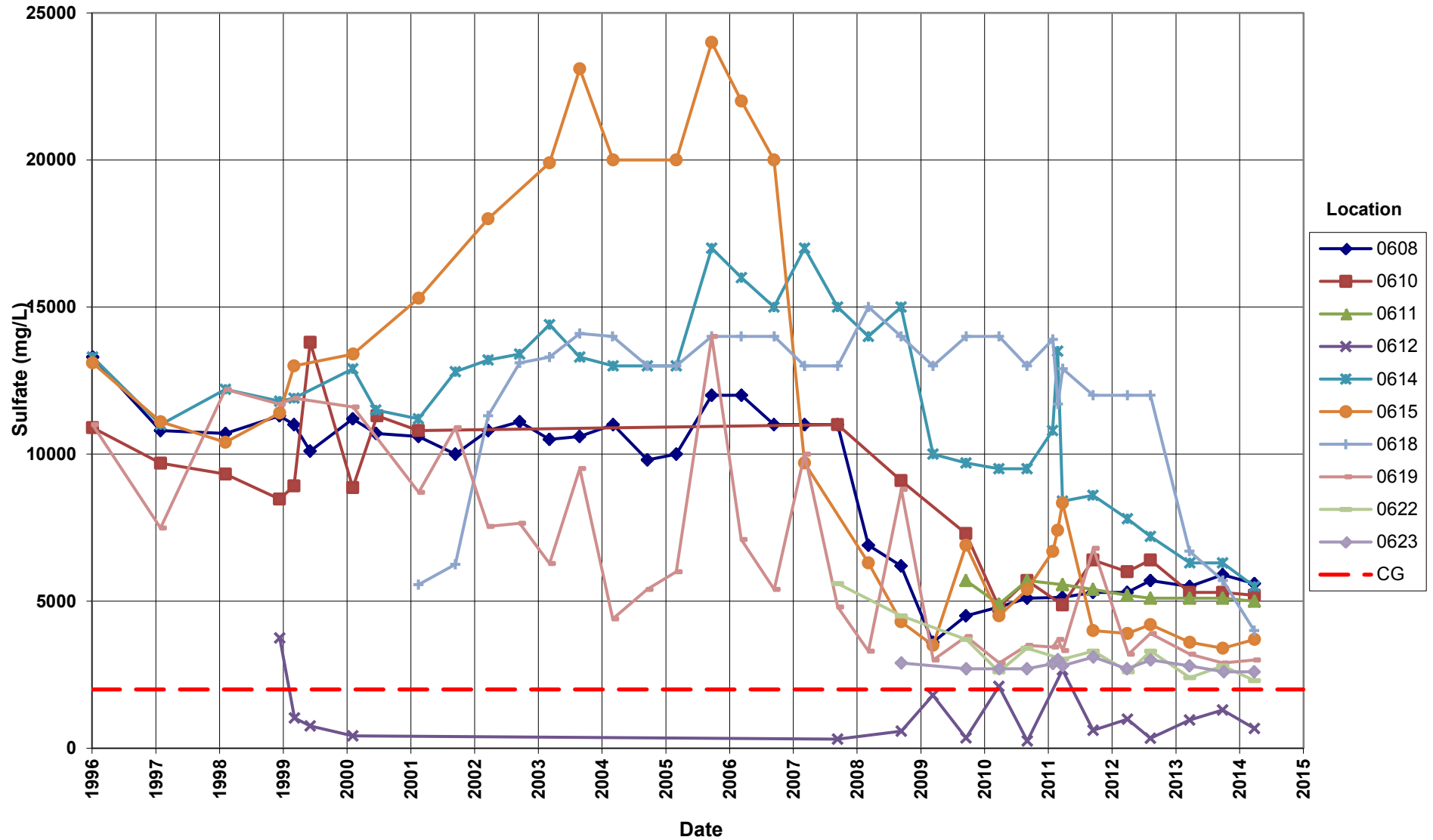
Shiprock Disposal Site (Floodplain)
Strontium Concentration



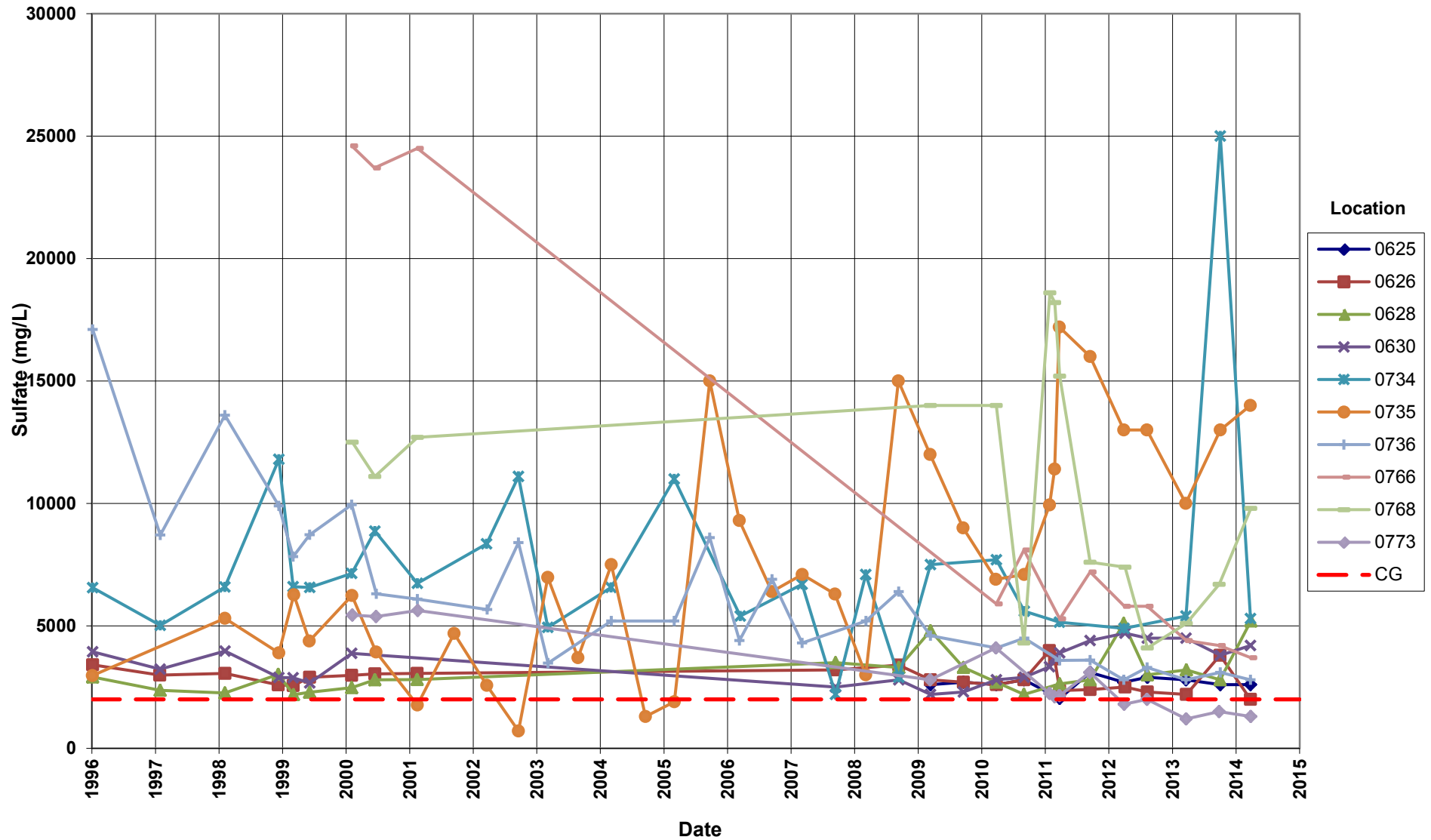
Shiprock Disposal Site (Floodplain)
Strontium Concentration



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



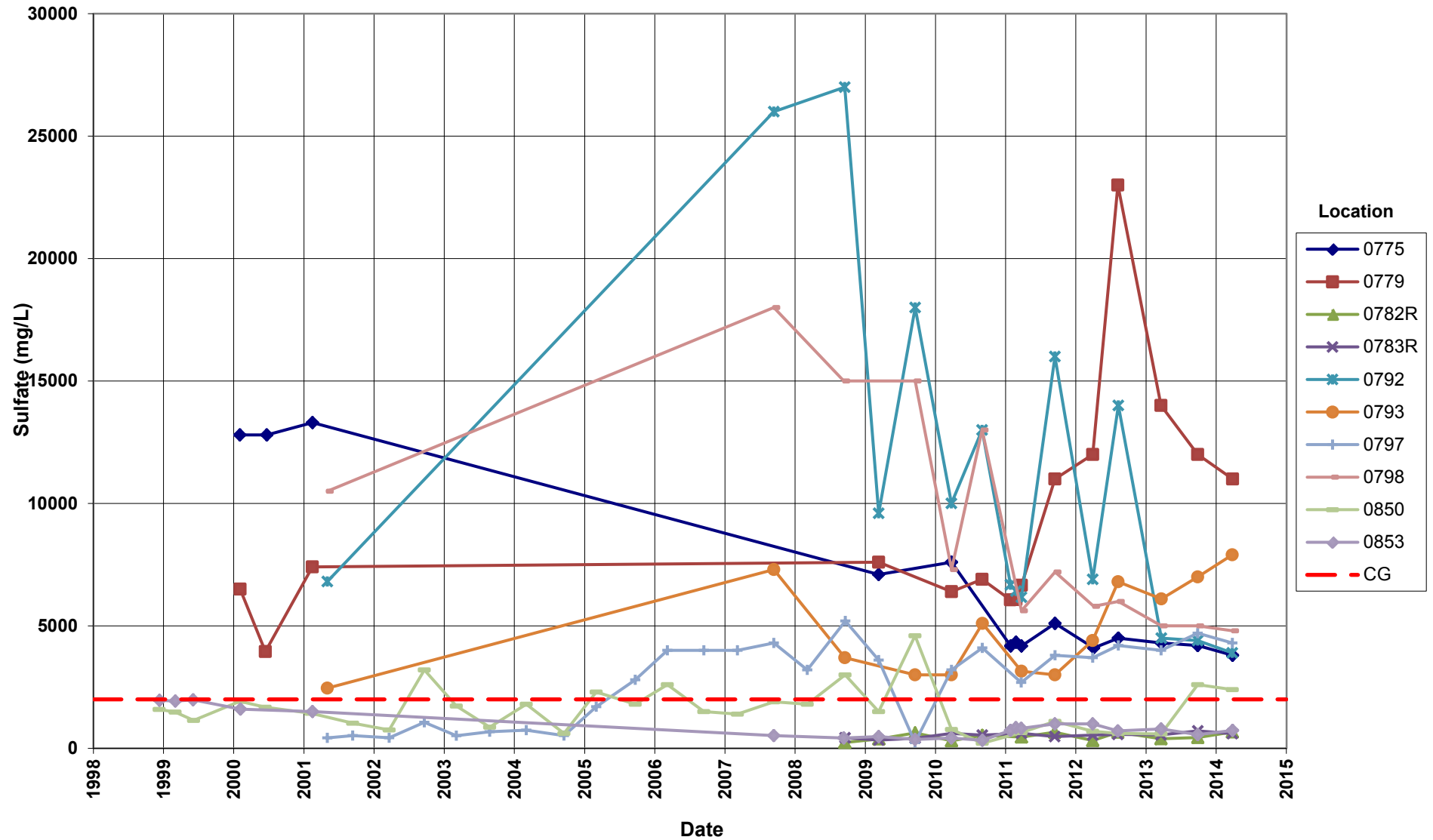
Shiprock Disposal Site (Floodplain)
Sulfate Concentration
Cleanup Goal (CG) = 2000 mg/L



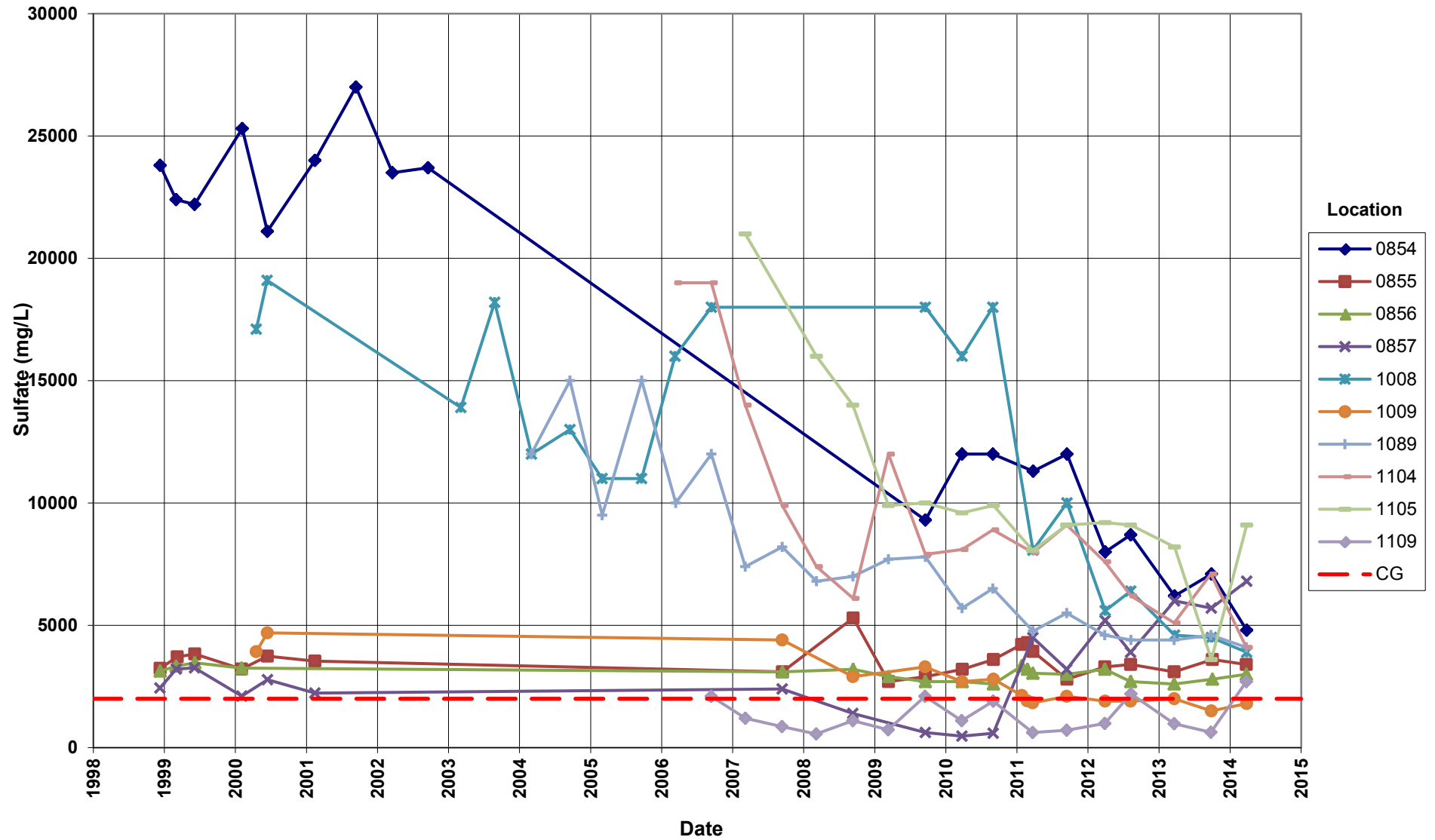
Shiprock Disposal Site (Floodplain)

Sulfate Concentration

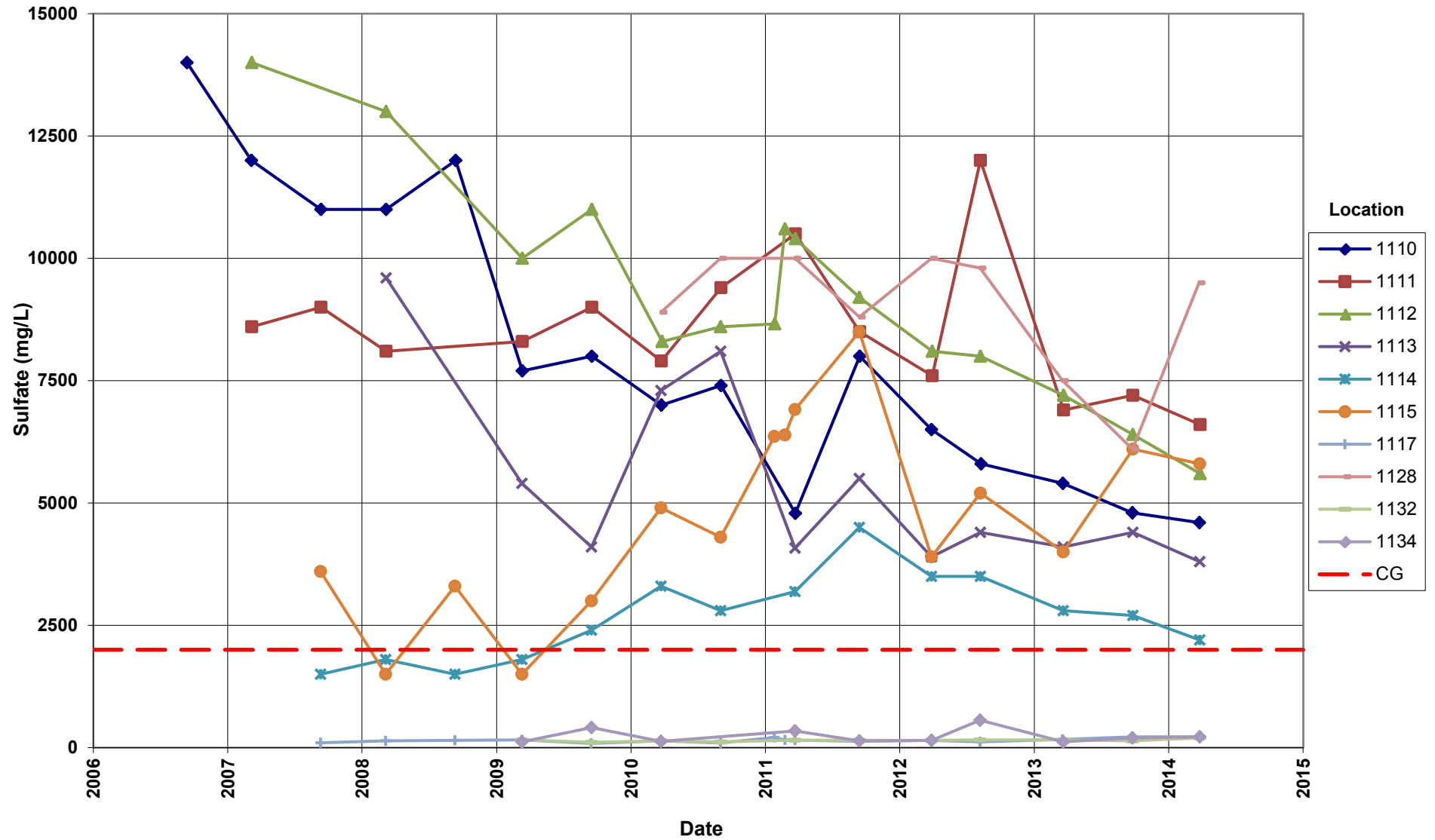
Cleanup Goal (CG) = 2000 mg/L



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



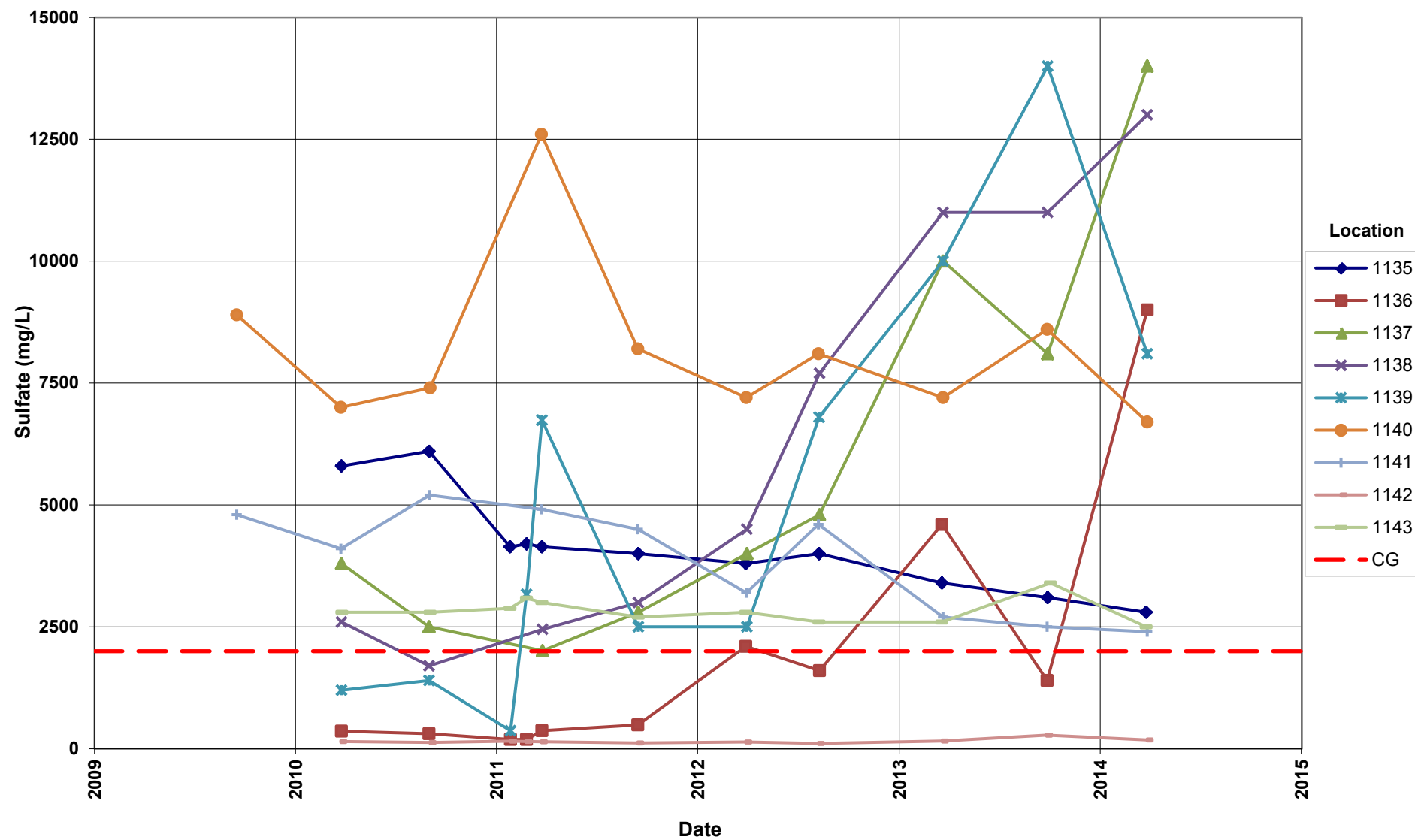
Shiprock Disposal Site (Floodplain)
Sulfate Concentration
Cleanup Goal (CG) = 2000 mg/L



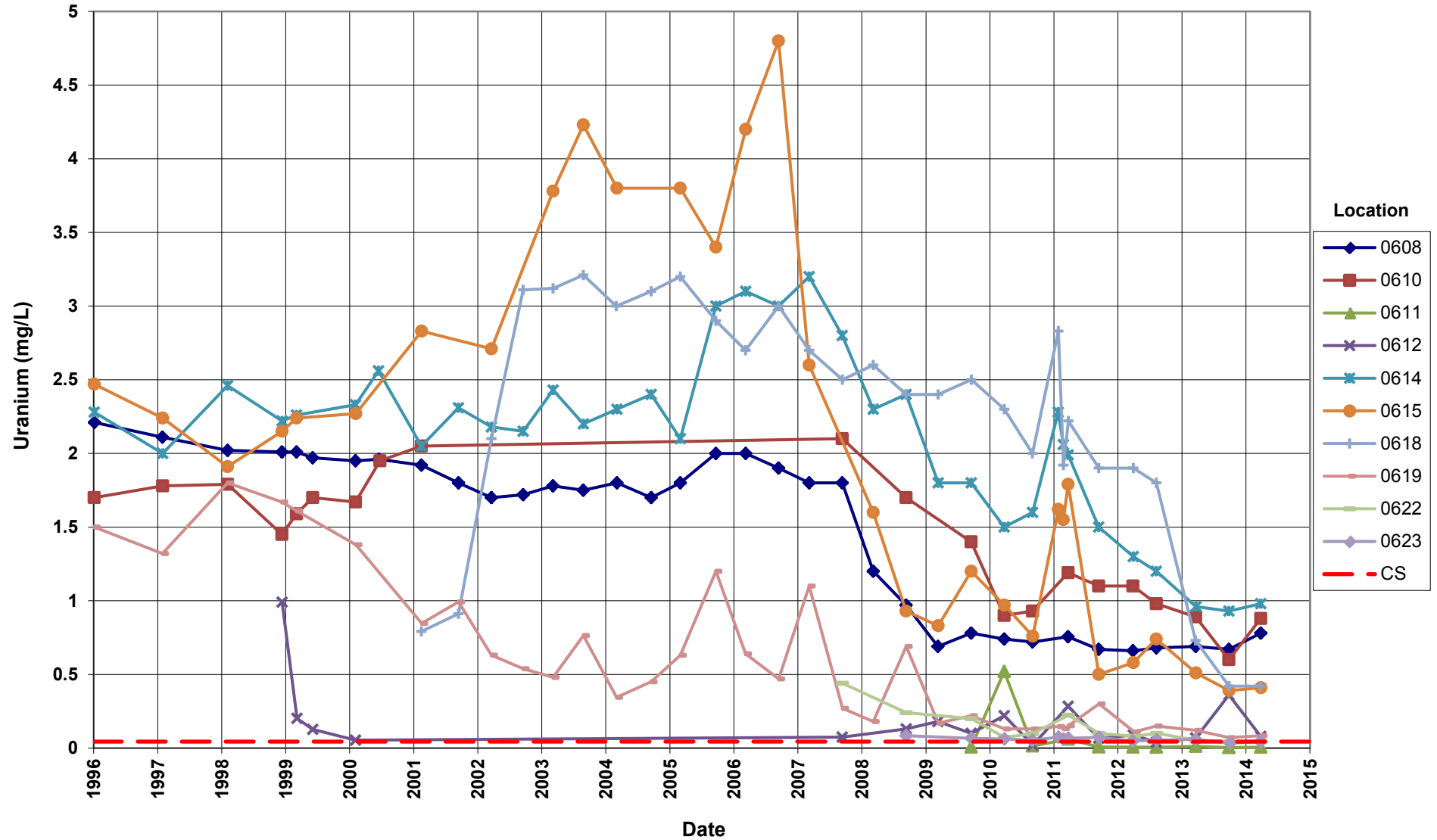
Shiprock Disposal Site (Floodplain)

Sulfate Concentration

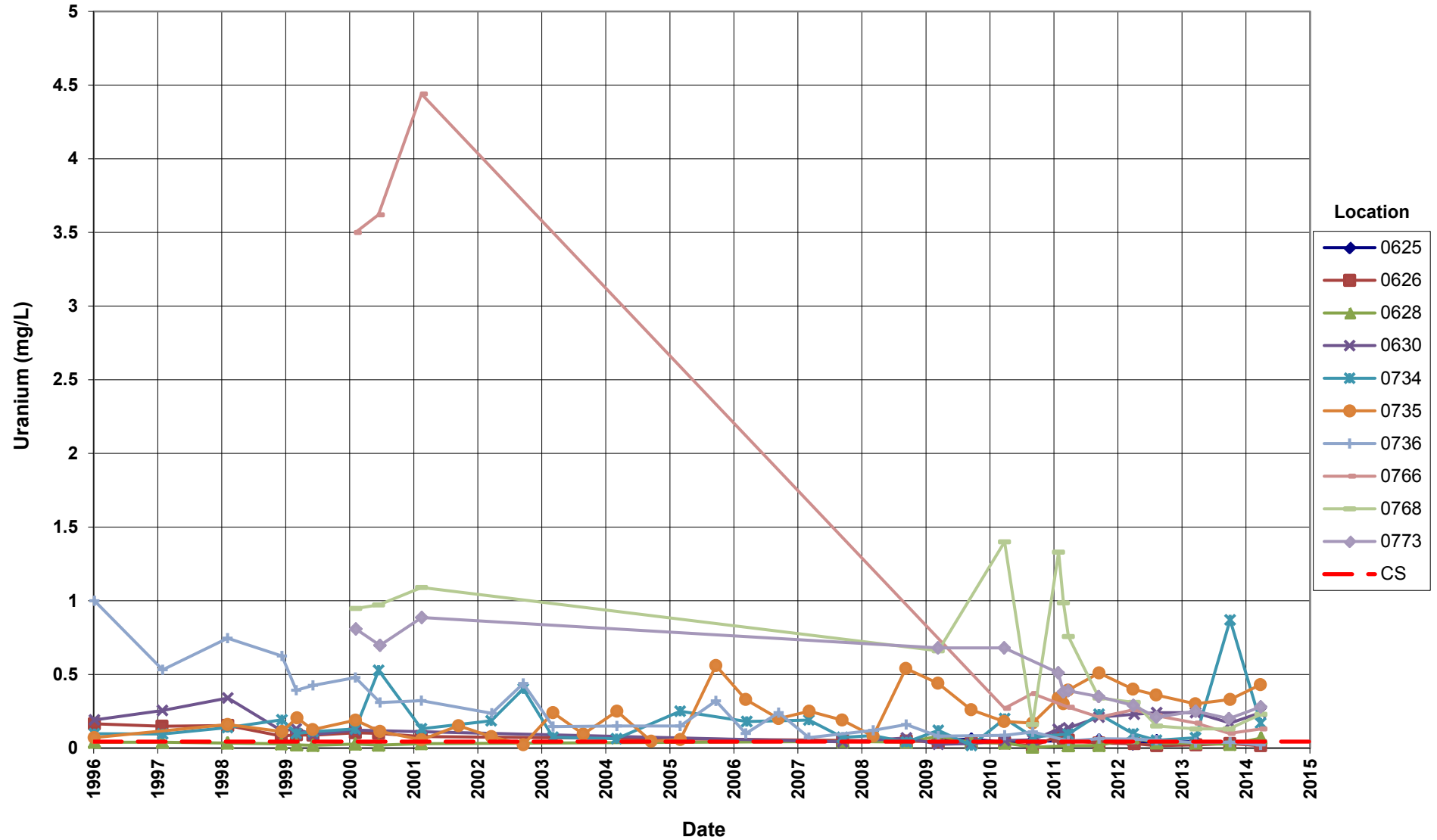
Cleanup Goal (CG) = 2000 mg/L



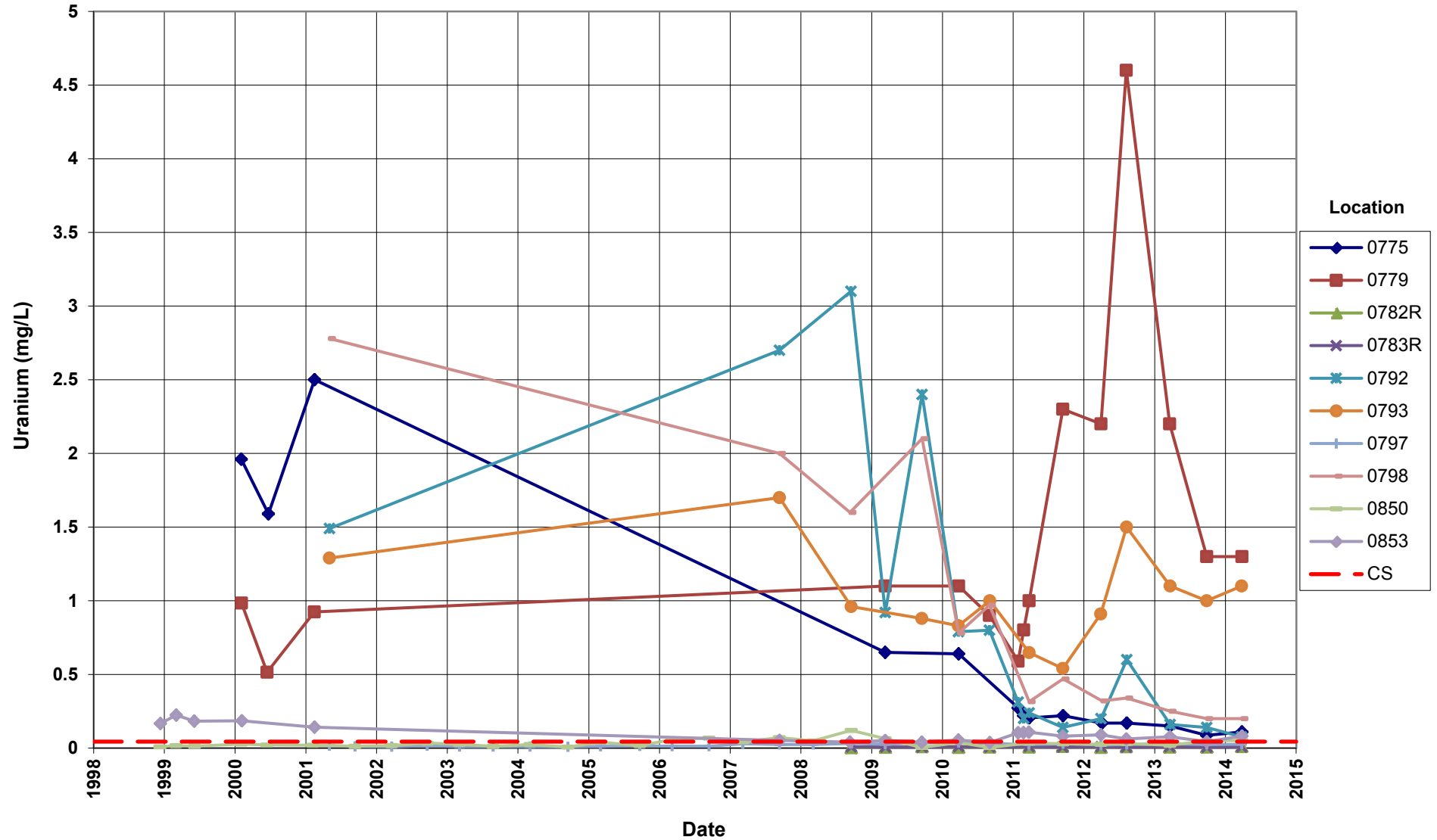
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Compliance Standard (CS) = 0.044 mg/L



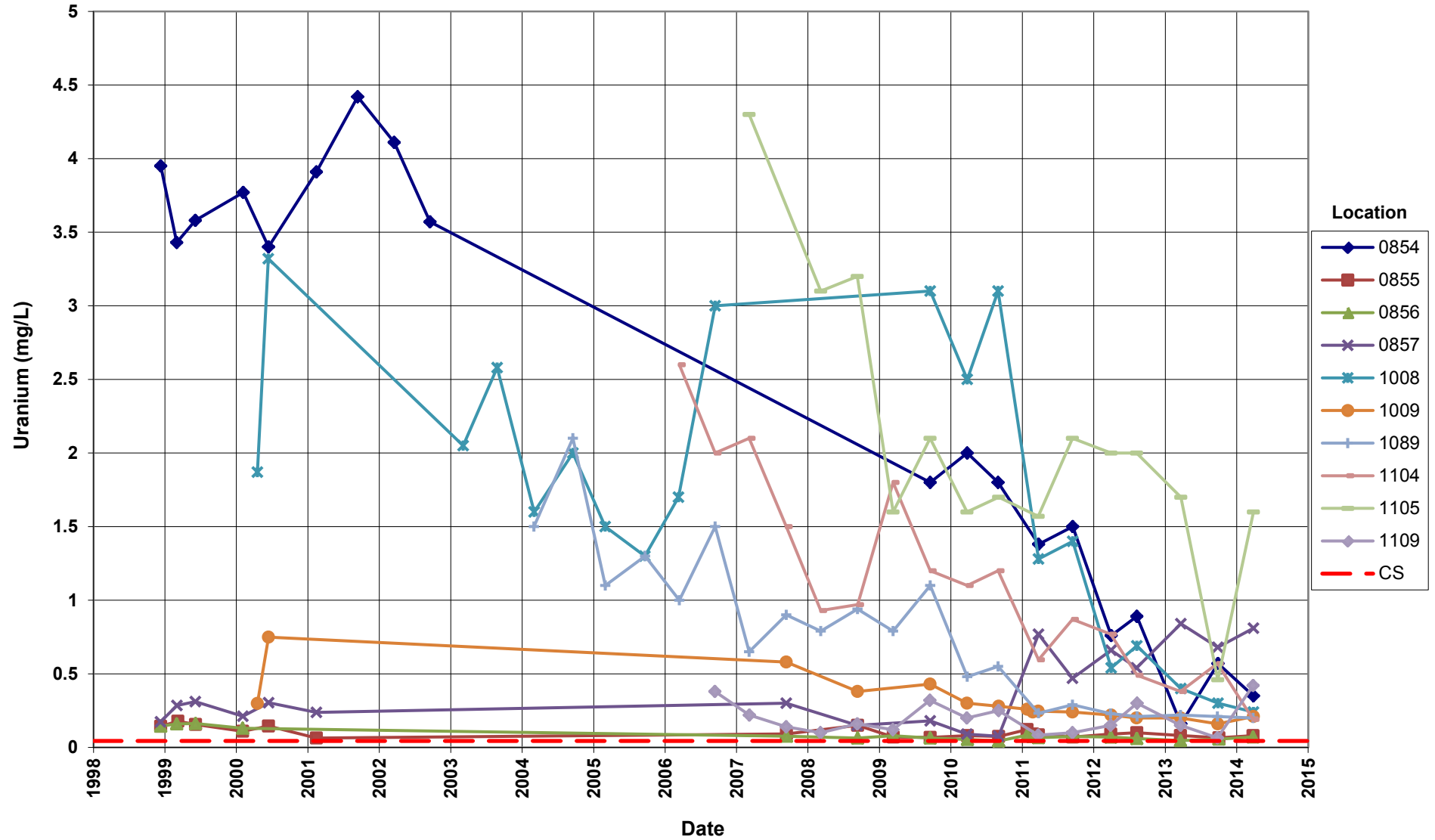
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Compliance Standard (CS) = 0.044 mg/L



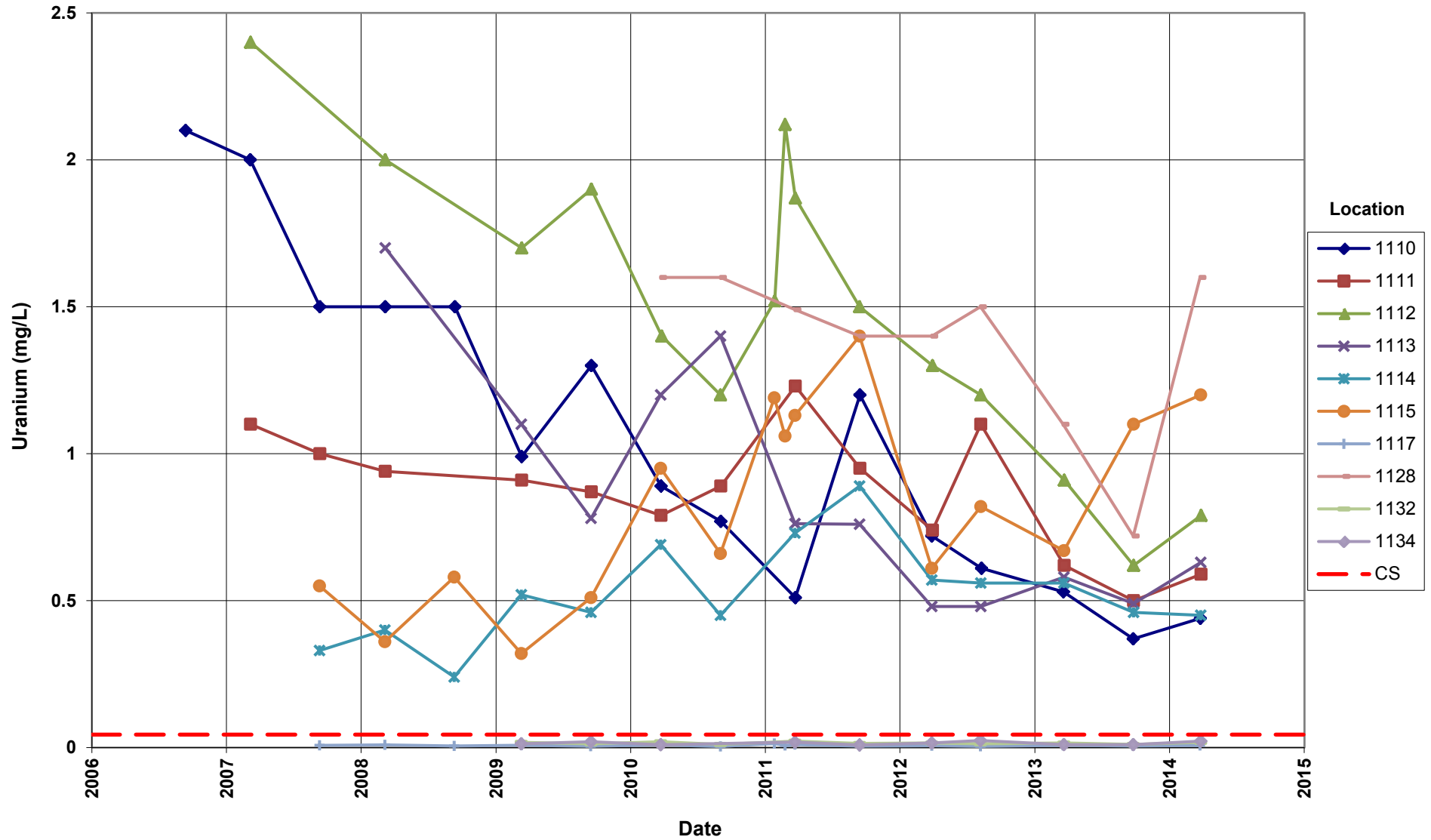
Shiprock Disposal Site (Floodplain)
Uranium Concentration
 Compliance Standard (CS) = 0.044 mg/L



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



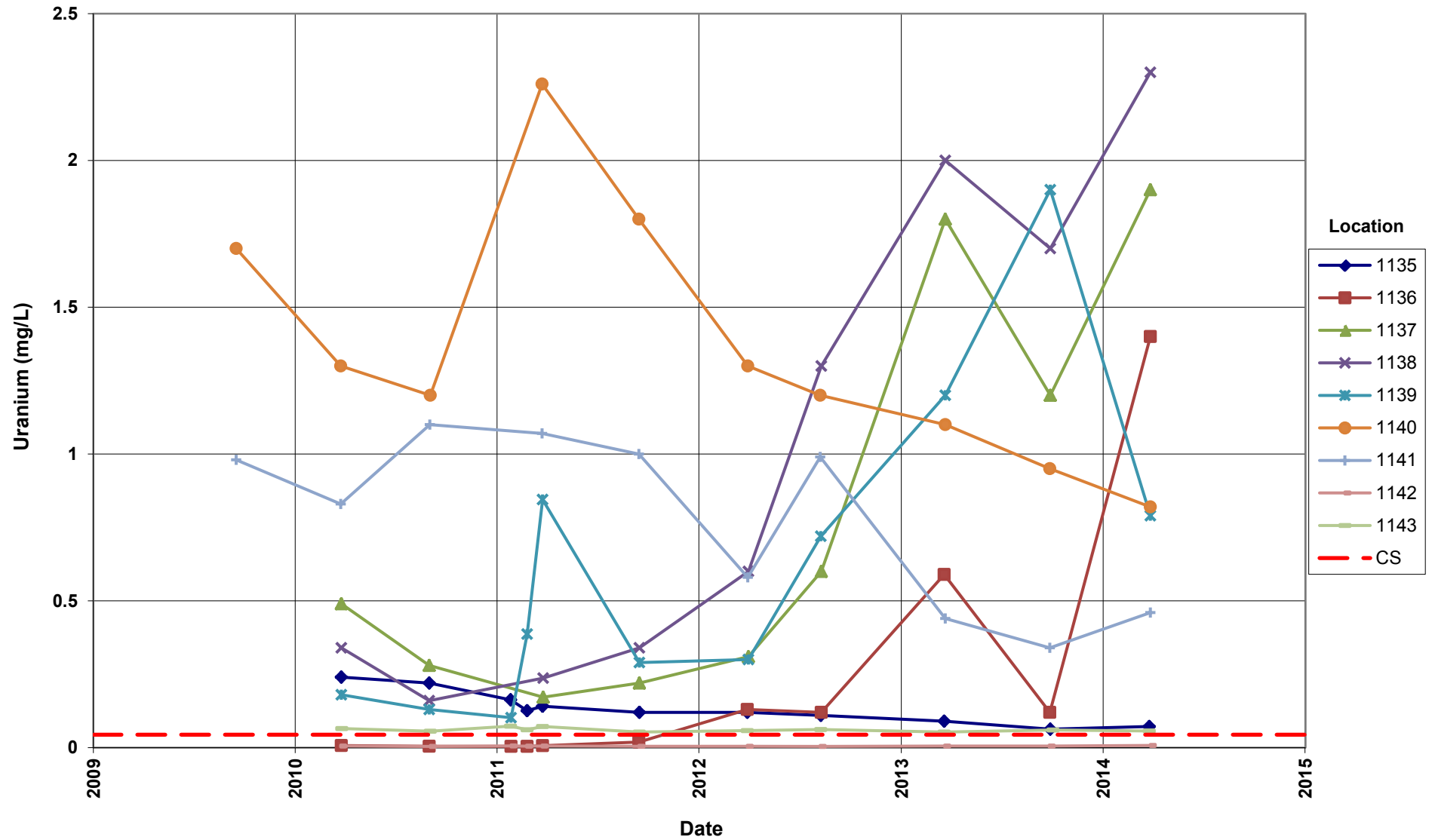
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Compliance Standard (CS) = 0.044 mg/L



Shiprock Disposal Site (Floodplain)

Uranium Concentration

Compliance Standard (CS) = 0.044 mg/L



Attachment 3

Sampling and Analysis Work Order

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March 7, 2014

Task Order LM00-501
Control Number 14-0430

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

SUBJECT: Contract No. DE-AM01-07LM00060, The S.M. Stoller Corporation, a wholly owned subsidiary of Huntington Ingalls Industries (Stoller)
Task Order LM00-501 Long-Term Surveillance and Maintenance—LM
March 2014 Environmental Sampling at Shiprock, New Mexico, Disposal Site—
Revised

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

Dear Ms. Steckley:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, New Mexico. Enclosed are the tables specifying sample locations and analytes for monitoring at the Shiprock disposal site. Sampling maps were delivered to LM Admin Support. Water quality data will be collected at this site as part of the routine environmental sampling scheduled to begin the afternoon of Monday, March 24, 2014. This correspondence was revised to reflect the discontinuance of well 0898.

Samples collected at the following SHP01 (floodplain) locations will be both filtered and unfiltered: 0501, 0897, 0899, 0940, 0956, 0965, 0967, 1203, and 1205.

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

MONITORING WELLS

Floodplain

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

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Terrace

600 Km	812 Al/Km	822 Km	833 Al	1003 Km	1068 Al	1091 Al
602 Km	813 Al/Km	823 Km	835 Al	1004 Km	1069 Al/Km	1092 Al
603 Al/Km	814 Al/Km	824 Km	836 Al	1007 Al/Km	1070 Al/Km	1093RAI
604 Km	815 Al/Km	825 Km	837 Al	1011 Al/Km	1071 Al/Km	1095 Al
725 Al/Km	816 Al/Km	826 Al/Km	838 Al	1048 Al/Km	1073 Al	1096 Al
726 Km	817 Km	827 Al/Km	841 Al	1049 Al/Km	1074 Al/Km	1120 Al
727 Km	818 Al	828 Al/Km	843 Al	1057 Al/Km	1078 Al/Km	1122 Al
728 Al/Km	819 Km	829 Km	844 Al/Km	1058 Km	1079 Al	DM7km
730 Al	820 Km	830 Km	848 Al/Km	1059 Km	1087 Nr	MW1 Km
731 Al/Km	821 Km	832 Al/Km	1002 Km	1060 Al/Km	1088 Nr	

*NOTE: Al = Alluvium; 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						

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

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

Sincerely,



David Miller
Site Lead

DM/lcg/lb

Enclosures (3)

cc: (electronic)

Christina Pennal, DOE
Steve Donovan, Stoller
Lauren Goodknight, Stoller
David Miller, Stoller
EDD Delivery

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Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
Floodplain - SHP01						
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

Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Floodplain - SHP01						
1009		X				
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				
Terrace - SHP02						
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

Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
726		X				
727		X				
728		X				Data logger
730		X				Data logger
731		X				Data logger
800					X	WLs only
Terrace - SHP02						
801					X	WLs only
802					X	WLs only
803					X	WLs only
812		X				
813		X				Data logger
814		X				
815		X				
816		X				
817		X				Low flow
818		X				Ext. well; U, SO ₄ , N as NO ₃ 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				

Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
1048		X				
1049		X				
1057		X				
1058		X				
Terrace - SHP02						
1059		X				
1060		X				
1067					X	WL only; Bob Lee Wash
1068		X				Bob Lee Wash
1069		X				Bob Lee Wash; data logger
1070		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1071		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1073		X				Data logger
1074		X				
1078		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1079		X				Low flow
1087		X				SUMP-Bob Lee Wash
1088		X				SUMP-Many Devils Wash
1091		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1092		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1093R		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1095		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1096		X				Ext. well; U, SO ₄ , N as NO ₃ only at vault
1120		X				
1122		X				
MW1		X				
DM7		X				
Surface Locations						
Floodplain - SHP01						
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

Sampling Frequencies for Locations at Shiprock, New Mexico

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
1118		X				Seep sump (423/426) U, SO ₄ , N as NO ₃ only at vault
1203		X				East of disposal cell
1205		X				San Juan River E of well 853
Terrace - SHP02						
662		X				Lower Bob Lee Wash
885					X	Upper Bob Lee Wash; water level
889		X				Many Devils Wash
949		X				
1215		X				
Terrace - SHP02						
1218		X				
1219		X				
1220		X				
1221		X				

Sampling conducted in March and September

Note: All San Juan River locations will have both filtered and unfiltered samples collected.

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			
Field Measurements					
Alkalinity	X	X			
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X	X			
Temperature	X	X			
Laboratory Measurements					
Aluminum					
Ammonia as N (NH ₃ -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 ₃ +NO ₂)-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					
Total No. of Analytes	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: April 22, 2014

TO: David Miller

FROM: Alison Kuhlman

SUBJECT: Sampling Trip Report

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

Dates of Sampling Event: March 24 – 27, 2014

Team Members: Sam Campbell, Gretchen Baer, Jeff Price, Dan Sellers, Joe Treviño, David Attkinson, Rob Rice, and Alison Kuhlman

Number of Locations Sampled: Samples were collected from 129 of the 147 locations identified on the sampling notification letter as follows:

	Locations That Were Sampled	Planned Locations
SHP01 monitoring wells	59	59
SHP02 monitoring wells	53	69
SHP01 surface locations	11	11
SHP02 surface locations	6	8

Locations Not Sampled/Reason: A total of 18 locations were not sampled for the following reasons:

- 2 dry surface water locations SHP02-0949 and 1218.
- 15 well locations: SHP02: 0820, 0821, 0823, 0825, 0829, 0832, 1002, 1003, 1004, 1011, 1048, 1060, 1120, 1122, DM7 were dry or had insufficient water to sample.
- 1 well location, 1093R, was inaccessible after a stop work order was issued for that area of the site.

Location Specific Information:

Location IDs	Site	Comments
0797	SHP01	Sampled as Cat II
0734	SHP01	Sampled as Cat III
1089, 1104, 1109, 1110, 1118	SHP01	Sampled as Cat IV
0600, 0602, 0604, 0727, 0817, 0819, 0822, 0824, 0826, 0827, 1058, 1059, 1074, MW1	SHP02	Sampled as Cat II
0730, 0812, 0814, 1007, 1068, 1069, 1073, DM7	SHP02	Sampled as Cat III
0818, 1070, 1071, 1078, 1087, 1088, 1091, 1092, 1095, 1096	SHP02	Sampled as Cat IV
0501, 0897, 0899, 0940, 0956, 0965, 0967, 1203, 1205	SHP01	Filtered and unfiltered samples were collected at all 9 locations on the San Juan River per the sampling notification letter. All other surface location samples collected were unfiltered regardless of turbidity per the program directive.
0612	SHP01	Water has faint sulfur odor
0619, 0626, 0855	SHP01	Small black flecks in water
0623	SHP01	Small black flecks in water; downhole tubing not fixed; 4 inch casing will need special cap.
0625	SHP01	Black flecks in water. Alkalinity was approximately 2 times the fall 2013 reading. The measurement of 366 was confirmed by taking a second reading.
0655	SHP01	No perceptible flow. Water seems stagnant.
0734	SHP01	Metals collected first. Left to recharge for 40 minutes, then remaining samples collected. Insufficient water for field data collection and alkalinity.
0766, 0775, 0792, 0793	SHP01	PVC casing only, no outer casing. Tubing is not fixed at sampling depth
0773	SHP01	PVC casing only, downhole tubing not fixed at sampling depth. Downhole tubing is marked to sample at a depth of 8.7 feet. Due to a lower water level this time we sampled at a depth of 9.2 feet.
0779, 1111, 1112	SHP01	No protective casing or lock
0798	SHP01	PVC casing only, downhole tubing not fixed at sampling depth. Black flecks in water.
0854	SHP01	PVC casing only, no outer casing. Tubing is not fixed at sampling depth. Slight sulfur odor
1114	SHP01	PVC casing only. Measured total depth was 10.1 feet.
0730	SHP02	Limited volume, metals only
0828	SHP02	Organic material (algae) floating in the sample.
0832	SHP02	Dry- 0.5 ft of water assumed in sump.
0835, 0838	SHP02	Relabeled well
0844	SHP02	Concrete around the protective casing was undermined- backfilled the void with adjacent soil.
1068	SHP02	Limited volume, metals only.
1069	SHP02	Limited volume, no anions or alkalinity.

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

False ID	Site	Ticket	True ID	Sample Type	Associated Matrix
2594	SHP01	MEU 785	0655	Duplicate	Water
2592	SHP01, SHP02	MEU 462	Associated with samples collected with non-dedicated equipment: 0501, 0655, 0897, 0899, 0940, 0956, 0965, 0967	Equipment Blank	Water
2593	SHP01	MEU 784	1135	Duplicate	Water
2210	SHP01	MEU 453	1128	Duplicate	Water
2211	SHP01	MEU 454	1136	Duplicate	Water
2215	SHP01	MEU 452	1137	Duplicate	Water
2811	SHP02	MEU 514	0602	Duplicate	Water
2320	SHP02	MEU 524	1087	Duplicate	Water
2319	SHP02	MEU 523	1088	Duplicate	Water

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

Requisition Identification Number (RIN) Assigned: Samples were assigned to RIN 14036011 (SHP01-Floodplain) and 14036013 (SHP02-Terrace). Field data sheets can be found in Crow\sms\14036011 and Crow\sms\14036013 in the Field Data folders.

Sample Shipment: Samples were shipped overnight via FedEx from Grand Junction to ALS Laboratory Group in Ft Collins, CO, on March 31, 2014.

Datalogger Download: Dataloggers were downloaded at 15 well locations: two in the floodplain (SHP01) area and 13 in the terrace (SHP02) area. All data has been uploaded to the SEE-Pro database and can now be viewed electronically via SEEPro. Reports and graphs have been sent to the Site Lead.

Water Level Measurements: Water levels were measured in all sampled wells and in 14 additional wells. A water level data report for these 14 wells (SHP01_432014pdf) can be found in Crow\sms\FDCS\WATER LEVELS.

Well Inspection Summary: Multiple wells only had PVC casing with no outer casing and drop tubing not fixed at the sampling depth. All wells were in good condition unless otherwise noted in the FDCS Water Sampling Logs or PDA inspection reports.

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

Field Variance: Turbidity stability requirements could not be met for the following wells and were filtered: SHP02-0841 and 1092.

Surface water location 0889 in SHP02 was filtered despite the program directive that all surface water samples at the Shiprock site are to be collected without filtering regardless of sample turbidity.

Equipment: All equipment functioned properly. Multi-gas meters were used to verify the air quality in the vaults. Monitoring wells were sampled with a peristaltic pump and dedicated tubing, a bailer (dedicated or non-dedicated), or a dedicated pump. Extraction wells were sampled by spigot. Surface waters were sampled using a peristaltic pump and tubing reel with stainless steel weight or by container immersion. An equipment blank was collected after decontamination of non-dedicated equipment.

Institutional Controls:

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

Signs: Some signs have bullet holes but were legible.

Trespassing/Site Disturbances: None observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: No issues observed.

Vegetation/Noxious Weed Concerns: None.

Maintenance Requirements: Multiple wells only had PVC casing with no outer casing or drop tubing not fixed at the sampling depth. It's recommended that an outer casing be installed. Additionally multiple wells did not have a lock.

Access Issues: Some wells on the floodplain are only accessible by ATV due to sandy or muddy conditions.

Safety Issues: An incident involving a local resident shooting in the area of the Radon Borrow Pit occurred the week before the sampling event. No shooting activity was observed or reported during the sampling event, however, and Incident Report was initiated and work was stopped on 3/28/2014.

Corrective Action Required/Taken: At numerous monitoring wells, dedicated tubing was secured at the top of the well so that the intake was fixed in the middle of the screen. Monitoring well 1136 still needs dedicated tubing secured at the top of the well – this task was not completed because of the Stop Work Order.

(AK/lcg)

cc: (electronic)
Deborah Steckley, DOE
David Miller, Stoller
Steve Donovan, Stoller
EDD Delivery



Memorandum

DATE: June 5, 2014
TO: Dave Miller
FROM: Jeff Price
SUBJECT: Sampling Trip Report

Site: Shiprock, NM Site

Dates of Sampling Event: May 1, 2014

Team Members: David Atkinson and Jeff Price

Number of Locations Sampled: 1; extraction well 1093R.

Locations Not Sampled/Reason: None.

Location Specific Information: This well was not sampled during the semi-annual event because the water line between the well and the sampling port was plugged and could not be repaired at that time.

Quality Control Sample Cross Reference: None.

RIN Number Assigned: Samples were assigned to RIN 14056142.

Sample Shipment: Samples were shipped overnight via FedEx to ALS labs on May 6, 2014.

Water Level Measurements: N/A

Well Inspection Summary: No issues were identified.

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

Field Variance: None.

Equipment: All equipment functioned properly.

Institutional Controls:

Fences, Gates, Locks: All ok.

Signs: No issues identified.

Trespassing/Site Disturbances: None observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: N/A

Vegetation/Noxious Weed Concerns: None.

Maintenance Requirements: None

Access Issues: None

Corrective Action Required: None.

(JP/lcg)

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