# Data Validation Package

## September 2016
## Groundwater and Surface Water Sampling at the Shiprock, New Mexico, Disposal Site

**January 2017**

U.S. DEPARTMENT OF ENERGY | Legacy Management

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# Contents

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# Sampling Event Summary

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

**Sampling Period:** September 26–29, 2016

Groundwater and surface water sampling and analyses are performed semiannually at the Shiprock, New Mexico, Disposal Site. Terrace locations are monitored to determine the progress of remediation and the extent of contamination. Floodplain locations are monitored to determine the progress of the natural flushing process. Planned monitoring locations are shown in Attachment 1, Sampling and Analysis Work Order.

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, http://energy.gov/lm/downloads/sampling-and-analysis-plan-us-department-energy-office-legacy-management-sites). Samples were submitted for analyses identified by a requisition index number (RIN). Samples from floodplain locations were submitted under RIN 16098030 and from terrace locations under RIN 16098031. An assessment of anomalous data is included in Attachment 4.

Water levels were measured in all sampled wells and in 11 additional wells. See Attachment 2, Trip Report for additional details.

As identified in the *Final Ground Water Compliance Action Plan for Remediation at the Shiprock, New Mexico, UMTRA Site* (July 2002), the contaminants of concern monitored at the Shiprock disposal site are ammonium, manganese, nitrate, selenium, strontium, sulfate, and uranium. Time-concentration graphs (2005 to present, where available) for the contaminants of concern in floodplain wells are included in Attachment 3, Data Presentation. Water quality parameters calcium, chloride, magnesium, potassium, and sodium are also monitored as stated in the plan. Because of the analytical methodologies employed, ammonium and nitrate data collected since 2004 are reported as "Ammonia Total as N" and "Nitrate + Nitrite as N." These are conservative estimates for the true ammonium and nitrate concentrations because both ammonia and ammonium are included in the Ammonia Total as N analysis and both nitrate and nitrite are included in the Nitrate + Nitrite as N analysis. Floodplain wells with contaminant concentrations that exceeded compliance standards and cleanup goals presented in the plan are listed in Table 1.

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

| Location | Manganese (mg/L) | Nitrate/Nitrite as N (mg/L) | Selenium (mg/L) | Sulfate (mg/L) | Uranium (mg/L) |
|---|---|---|---|---|---|
| **Standard / Goal[a]** | **2.74** | **10[b]** | **0.05** | **2000** | **0.044** |
| 0608 | | 35 | | 6400 | 0.63 |
| 0610 | | 220 | 0.18 | 6000 | 0.68 |
| 0611 | | | | 5300 | |

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

| Location | Manganese (mg/L) | Nitrate/Nitrite as N (mg/L) | Selenium (mg/L) | Sulfate (mg/L) | Uranium (mg/L) |
|---|---|---|---|---|---|
| **Standard / Goal[a]** | **2.74** | **10[b]** | **0.05** | **2000** | **0.044** |
| 0612 | | | | | 0.10 |
| 0614 | | 43 | 0.98 | 5200 | 0.89 |
| 0615 | 2.9 | | | 3700 | 0.28 |
| 0618 | 2.8 | | | 5200 | 0.35 |
| 0619 | 3.8 | | | 5600 | 0.18 |
| 0622 | | | | 3100 | |
| 0623 | | | | 2400 | |
| 0625 | | | | 2400 | |
| 0626 | | | | 2400 | |
| 0628 | 3.3 | | | 2700 | |
| 0630 | 3.1 | 26 | 0.20 | 4600 | 0.20 |
| 0735 | 3.8 | 800 | 0.24 | 14000 | 0.36 |
| 0736 | | | | 3700 | 0.062 |
| 0766 | | | | 5700 | 0.26 |
| 0768 | | | | 7600 | 0.16 |
| 0773 | | 40 | 0.13 | 2900 | 0.48 |
| 0775 | | | | 4100 | 0.12 |
| 0779 | | 54 | 0.051 | 13000 | 1.3 |
| 0792 | 5.0 | | | 4500 | 0.064 |
| 0793 | | | | 4600 | 0.35 |
| 0797 | | | | 3300 | |
| 0798 | 2.8 | | | 6400 | 0.26 |
| 0853 | | | | | 0.059 |
| 0854 | 4.0 | | | 7300 | 0.42 |
| 0855 | | | | 3400 | 0.064 |
| 0856 | | | | 3400 | 0.090 |
| 0857 | 4.0 | | | 5400 | 0.68 |
| 1008 | | | | 4100 | 0.17 |
| 1009 | | | | | 0.16 |
| 1089 | | | | 3800 | 0.16 |
| 1104 | | | | 6400 | 0.44 |
| 1105 | 3.1 | | | 3000 | 0.38 |
| 1109 | | 38 | | | 0.12 |
| 1110 | | 26 | 0.18 | 4900 | 0.41 |
| 1111 | | 23 | 0.15 | 6600 | 0.58 |
| 1112 | | 150 | 0.83 | 6600 | 0.94 |
| 1113 | | 190 | 0.29 | 3800 | 0.50 |
| 1114 | | 14 | 0.067 | | 0.18 |
| 1115 | | 70 | 0.12 | | 0.27 |
| 1118 | | 44 | 0.18 | 5400 | 0.38 |

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

| Location | Manganese (mg/L) | Nitrate/Nitrite as N (mg/L) | Selenium (mg/L) | Sulfate (mg/L) | Uranium (mg/L) |
|---|---|---|---|---|---|
| **Standard / Goal[a]** | **2.74** | **10[b]** | **0.05** | **2000** | **0.044** |
| 1128 | | 270 | | 4600 | 0.49 |
| 1135 | | | | 2900 | 0.071 |
| 1136 | 4.1 | | | 5800 | 0.66 |
| 1137 | 4.7 | 40 | | 9000 | 1.2 |
| 1138 | 3.1 | | | 7700 | 0.95 |
| 1139 | | | | 9000 | 0.87 |
| 1140 | 3.0 | | | 5600 | 0.40 |
| 1141 | | | | 2500 | 0.40 |
| 1143 | | | | 2800 | 0.056 |

[a] Compliance standards (uranium, nitrate, selenium) and cleanup goals (manganese, sulfate) are listed in the *Final Ground Water Compliance Action Plan (GCAP) for Remediation at the Shiprock, New Mexico, UMTRA Site* (July 2002), approved by the U.S. Nuclear Regulatory Commission.
[b] 10 mg/L of Nitrate-N is equivalent to 44 mg/L of Nitrate (GCAP Table 3-1).
mg/L = milligrams per liter

Both filtered and unfiltered samples from the river locations were submitted. River location analyte concentrations of filtered and unfiltered samples were compared to the maximum concentrations previously observed for location 0967, which is upstream from the site on the San Juan River and is used for background versus site comparisons. With the exception of Ammonia Total as N in the filtered sample for location 0965, all results were below the historical maximums.

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

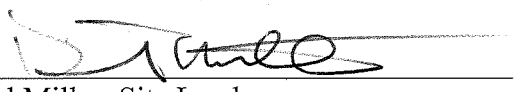
| Location | Ammonia Total as N (mg/L) | Manganese (mg/L) | Nitrate/Nitrite as N (mg/L) | Selenium (mg/L) | Strontium (mg/L) | Sulfate (mg/L) | Uranium (mg/L) |
|---|---|---|---|---|---|---|---|
| **Background[a]** | **0.1** | **9.0** | **1.2** | **0.031** | **3.5** | **290** | **0.034** |
| 0501 | ND[b] | 0.19 | 0.31 | ND[b] | 0.80 | 120 | 0.0016 |
| 0897 | ND[b] | 0.14 | 0.41 | ND[b] | 0.78 | 120 | 0.0016 |
| 0899 | ND[b] | 0.14 | 0.48 | ND[b] | 0.79 | 120 | 0.0016 |
| 0940 | ND[b] | 0.12 | 0.38 | ND[b] | 0.84 | 130 | 0.0018 |
| 0956 | ND[b] | 0.21 | 0.35 | ND[b] | 0.80 | 120 | 0.0018 |
| 0965 | ND[b] | 0.17 | 0.36 | ND[b] | 0.81 | 120 | 0.0017 |
| 0967 | ND[b] | 0.14 | 0.38 | ND[b] | 0.80 | 120 | 0.0015 |
| 1203 | ND[b] | 0.20 | 0.35 | ND[b] | 0.78 | 130 | 0.0016 |
| 1205 | ND[b] | 0.14 | 0.37 | ND[b] | 0.79 | 130 | 0.0017 |

[a] Background maximum concentration observed prior to September 2016 for background location 0967.
[b] ND = Not Detected.

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

| Location | Ammonia Total as N (mg/L) | Manganese (mg/L) | Nitrate/Nitrite as N (mg/L) | Selenium (mg/L) | Strontium (mg/L) | Sulfate (mg/L) | Uranium (mg/L) |
|---|---|---|---|---|---|---|---|
| **Background[a]** | **0.1** | **0.41** | **1.2** | **0.0017** | **1.0** | **280** | **0.0041** |
| 0501 | ND[b] | 0.0033 | 0.31 | ND[b] | 0.75 | 120 | 0.0014 |
| 0897 | ND[b] | 0.0034 | 0.41 | ND[b] | 0.76 | 120 | 0.0030 |
| 0899 | ND[b] | 0.0022 | 0.012 | ND[b] | 0.76 | 120 | 0.0015 |
| 0940 | ND[b] | 0.0026 | 0.42 | ND[b] | 0.78 | 120 | 0.0016 |
| 0956 | ND[b] | 0.0086 | 0.35 | ND[b] | 0.76 | 120 | 0.0015 |
| 0965 | 0.13 | 0.0026 | 0.36 | ND[b] | 0.77 | 120 | 0.0014 |
| 0967 | ND[b] | 0.0048 | 0.38 | ND[b] | 0.77 | 120 | 0.0015 |
| 1203 | ND[b] | 0.0046 | 0.36 | ND[b] | 0.76 | 130 | 0.0016 |
| 1205 | ND[b] | 0.0019 | 0.38 | ND[b] | 0.76 | 130 | 0.0014 |

[a] Background maximum concentration observed prior to September 2016 for background location 0967.
[b] ND = Not Detected.



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

1/17/17
Date

# Data Assessment Summary

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# Water Sampling Field Activities Verification Checklist

| | | | |
|---|---|---|---|
| **Project** | Shiprock, New Mexico | **Date(s) of Water Sampling** | September 26–29, 2016 |
| **Date(s) of Verification** | December 2, 2016 | **Name of Verifier** | Gretchen Baer |

| | Response (Yes, No, NA) | Comments |
|---|---|---|
| 1. Is the SAP the primary document directing field procedures? | Yes | |
| List any Program Directives or other documents, SOPs, instructions. | | Work Order letter dated August 26, 2016. |
| 2. Were the sampling locations specified in the planning documents sampled? | No | 19 locations could not be sampled because they were dry or non-functional. |
| 3. Were field equipment calibrations conducted as specified in the above-named documents? | Yes | Calibrations were performed on September 22, 23, and 26, 2016. |
| 4. Was an operational check of the field equipment conducted daily? | Yes | |
| Did the operational checks meet criteria? | Yes | The DO Gain value entered for YSI "G" on 9/29 was a typographical error; all other DO Gains for this instrument were acceptable. |
| 5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified? | Yes | The DO value entered for SHP02 1092 was '-5.82,' which is a typographical error; this value has been qualified with an "R" flag as rejected. |
| 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 collected for the five locations sampled with non-dedicated equipment. |
| 11. Were trip blanks prepared and included with each shipment of VOC samples? | NA | VOC samples were not collected. |
| 12. Were the true identities of the QC samples documented? | Yes | |
| 13. Were samples collected in the containers specified? | Yes | |
| 14. Were samples filtered and preserved as specified? | Yes | |
| 15. Were the number and types of samples collected as specified? | No | SHP02 1011: This well did not produce enough water to collect all requested samples. Only a metals sample could be collected. |
| 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): | 16098030 |
| Sample Event: | September 26–29, 2016 |
| Site(s): | Shiprock Disposal Site (Floodplain), New Mexico |
| Laboratory: | ALS Laboratory Group, Fort Collins, Colorado |
| Work Order No.: | 1610026 |
| Analysis: | Metals and Wet Chemistry |
| Validator: | Gretchen Baer |
| Review Date: | November 29, 2016 |

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

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

All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 4.

*Table 4. Analytes and Methods*

| Analyte | Line Item Code | Prep Method | Analytical Method |
|---|---|---|---|
| Ammonia as N, NH3-N | WCH-A-005 | EPA 350.1 | EPA 350.1 |
| Calcium, Magnesium, Manganese, Potassium, Sodium, Strontium | LMM-01 | SW-846 3005 | SW-846 6010B |
| Chloride, Sulfate | MIS-A-045 | SW-846 9056 | SW-846 9056 |
| Nitrate + Nitrite as N, $NO_3$+$NO_2$-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 |
|---|---|---|---|---|
| 1610026-38 | 0899 | Manganese | U | Less than 5 times the calibration blank |
| 1610026-41 | 0940 | Manganese | U | Less than 5 times the method blank |
| 1610026-42 | 0956 | Manganese | U | Less than 5 times the method blank |
| 1610026-44 | 0965 | Manganese | U | Less than 5 times the method blank |
| 1610026-46 | 0967 | Manganese | U | Less than 5 times the method blank |
| 1610026-59 | 1115 | Potassium | J | Field duplicate result |
| 1610026-72 | 1142 | Uranium | J | Field duplicate result |
| 1610026-79 | 1115 Duplicate | Potassium | J | Field duplicate result |
| 1610026-80 | 1142 Duplicate | Uranium | J | Field duplicate result |
| 1610026-82 | Equipment Blank | Calcium | U | Less than 5 times the calibration blank |
| 1610026-82 | Equipment Blank | Magnesium | U | Less than 5 times the calibration blank |
| 1610026-82 | Equipment Blank | Manganese | U | Less than 5 times the calibration blank |
| 1610026-82 | Equipment Blank | Potassium | U | Less than 5 times the calibration blank |
| 1610026-82 | Equipment Blank | Sodium | U | Less than 5 times the calibration blank |

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 82 water samples on October 4, 2016, accompanied by Chain of Custody forms. Copies of the air bills were included in the receiving documentation. The Chain of Custody forms were checked to confirm that all of the samples were listed and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the Chain of Custody forms had no errors or omissions.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers at 2.3 °C and 2.4 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

A method detection limit (MDL) is defined in 40 CFR 136 as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDLs reported by the laboratory were compared to the required MDLs to assess the sensitivity of the analyses and found to be in compliance with contractual requirements.

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

Laboratory Instrument Calibration

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

*Method EPA 350.1*
Calibrations were performed for ammonia as N on October 18–20, 2016, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

*Method EPA 353.2*
Calibrations were performed for nitrate + nitrite as N on October 21, 2016, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

*Method SW-846 6010B*
Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 19 and 20, 2016, using three calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

*Method SW-846 6020A*
Calibrations for selenium and uranium were performed October 26, 2016, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

*Method SW-846 9056*
Calibrations were performed for chloride and sulfate on October 3, 2016, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs for all analytes. In cases where the blank concentration exceeds the MDL, associated sample results that are greater than the MDL but less than 5 times the blank concentration are qualified with a "U" flag as not detected.

Inductively Coupled Plasma Interference Check Sample Analysis

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

Matrix Spike Analysis

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

The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes.

Laboratory Replicate Analysis

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

Laboratory Control Samples

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

Metals Serial Dilution

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

Completeness

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

Chromatography Peak Integration

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

Anion/Cation Balance

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

*Table 6. Comparison of Major Anions and Cations*

| Location | Location Type | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|---|
| 0501 | Surface Water | 5.1 | 5.2 | 1.0 |
| 0608 | Groundwater | 132.1 | 148.8 | 6.0 |
| 0610 | Groundwater | 144.9 | 152.5 | 2.6 |
| 0611 | Groundwater | 114.6 | 136.0 | 8.6 |
| 0612 | Groundwater | 15.0 | 15.8 | 2.8 |
| 0614 | Groundwater | 110.8 | 122.5 | 5.0 |
| 0615 | Groundwater | 79.9 | 86.3 | 3.9 |
| 0618 | Groundwater | 105.2 | 117.2 | 5.4 |
| 0619 | Groundwater | 111.8 | 129.4 | 7.3 |
| 0622 | Groundwater | 62.0 | 73.1 | 8.2 |
| 0623 | Groundwater | 50.1 | 57.8 | 7.1 |
| 0625 | Groundwater | 49.8 | 57.6 | 7.2 |
| 0626 | Groundwater | 50.8 | 56.9 | 5.6 |
| 0628 | Groundwater | 55.7 | 61.4 | 4.8 |
| 0630 | Groundwater | 98.4 | 113.1 | 6.9 |

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

| Location | Location Type | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|---|
| 0735 | Groundwater | 345.0 | 387.0 | 5.7 |
| 0736 | Groundwater | 76.9 | 85.0 | 5.0 |
| 0766 | Groundwater | 115.7 | 130.8 | 6.1 |
| 0768 | Groundwater | 153.4 | 179.3 | 7.8 |
| 0773 | Groundwater | 68.2 | 72.5 | 3.0 |
| 0775 | Groundwater | 87.4 | 95.0 | 4.2 |
| 0779 | Groundwater | 255.4 | 300.8 | 8.2 |
| 0782R | Groundwater | 10.2 | 10.8 | 2.9 |
| 0783R | Groundwater | 29.4 | 30.8 | 2.3 |
| 0792 | Groundwater | 93.2 | 104.6 | 5.8 |
| 0793 | Groundwater | 94.3 | 105.1 | 5.4 |
| 0797 | Groundwater | 70.0 | 79.1 | 6.1 |
| 0798 | Groundwater | 131.7 | 147.1 | 5.5 |
| 0850 | Groundwater | 39.1 | 41.1 | 2.6 |
| 0853 | Groundwater | 20.2 | 20.1 | 0.3 |
| 0854 | Groundwater | 149.9 | 167.5 | 5.5 |
| 0855 | Groundwater | 71.7 | 80.0 | 5.5 |
| 0856 | Groundwater | 73.4 | 79.4 | 4.0 |
| 0857 | Groundwater | 119.5 | 128.5 | 3.6 |
| 0897 | Surface Water | 5.5 | 5.1 | 4.0 |
| 0899 | Surface Water | 5.2 | 5.2 | 0.7 |
| 0940 | Surface Water | 5.9 | 5.5 | 3.8 |
| 0956 | Surface Water | 5.1 | 5.1 | 0.2 |
| 0965 | Surface Water | 5.1 | 4.9 | 2.1 |
| 0967 | Surface Water | 5.3 | 5.2 | 1.2 |
| 1008 | Groundwater | 92.3 | 95.8 | 1.8 |
| 1009 | Groundwater | 38.5 | 39.0 | 0.6 |
| 1089 | Groundwater | 83.8 | 92.9 | 5.1 |
| 1104 | Groundwater | 131.9 | 146.9 | 5.4 |
| 1105 | Groundwater | 68.9 | 72.4 | 2.5 |
| 1109 | Groundwater | 27.6 | 26.8 | 1.5 |
| 1110 | Groundwater | 108.1 | 122.6 | 6.3 |
| 1111 | Groundwater | 149.6 | 163.0 | 4.3 |
| 1112 | Groundwater | 152.4 | 162.8 | 3.3 |
| 1113 | Groundwater | 97.8 | 100.8 | 1.5 |
| 1114 | Groundwater | 27.4 | 26.9 | 0.8 |
| 1115 | Groundwater | 49.0 | 49.0 | 0.0 |
| 1117 | Groundwater | 6.8 | 6.9 | 0.7 |
| 1118 | Groundwater | 121.8 | 131.7 | 3.9 |
| 1128 | Groundwater | 126.9 | 129.6 | 1.1 |
| 1132 | Groundwater | 6.1 | 6.2 | 0.9 |
| 1134 | Groundwater | 6.1 | 6.3 | 1.5 |

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

| Location | Location Type | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|---|
| 1135 | Groundwater | 59.4 | 67.6 | 6.5 |
| 1136 | Groundwater | 120.1 | 135.4 | 6.0 |
| 1137 | Groundwater | 188.7 | 210.5 | 5.5 |
| 1138 | Groundwater | 155.7 | 179.6 | 7.1 |
| 1139 | Groundwater | 185.0 | 211.8 | 6.7 |
| 1140 | Groundwater | 113.2 | 127.9 | 6.1 |
| 1141 | Groundwater | 56.4 | 60.2 | 3.3 |
| 1142 | Groundwater | 5.8 | 5.9 | 0.8 |
| 1143 | Groundwater | 55.8 | 65.0 | 7.6 |
| 1203 | Surface Water | 5.1 | 5.3 | 2.4 |
| 1205 | Surface Water | 5.4 | 5.4 | 0.1 |

All charge balances were below 10%.

Electronic Data Deliverable (EDD) File

A revised EDD file arrived on November 2, 2016. The revision included corrections to some uranium results. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## SAMPLE MANAGEMENT SYSTEM

## General Data Validation Report

**RIN:** 16098030 **Lab Code:** PAR **Validator:** Gretchen Baer **Validation Date:** 11/28/2016

**Project:** Shiprock Monitoring **Analysis Type:** ☑ Metals ☑ General Chem ☐ Rad ☐ Organics

**# of Samples:** 82 **Matrix:** WATER **Requested Analysis Completed:** Yes

**Chain of Custody**

**Present:** OK **Signed:** OK **Dated:** OK

**Sample**

**Integrity:** OK **Preservation:** OK **Temperature:** OK

**Select Quality Parameters**

| | |
|---|---|
| ☑ Holding Times | All analyses were completed within the applicable holding times. |
| ☑ Detection Limits | The reported detection limits are equal to or below contract requirements. |
| ☑ Field/Trip Blanks | There was 1 trip/equipment blank evaluated. |
| ☑ Field Duplicates | There were 4 duplicates evaluated. |

*Figure 1. General Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 16098030 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Calcium | ICP/ES | 10/19/2016 | -0.0510 | 1.0000 | OK | OK | OK | 100.0 | 104.0 | 108.0 | 2.0 | 105.0 | 3.0 | 104.0 |
| Calcium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 103.0 | 93.0 | 92.0 | 0.0 | 107.0 | 3.0 | 102.0 |
| Calcium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 100.0 | 101.0 | 101.0 | 0.0 | 107.0 | 1.0 | 105.0 |
| Calcium | ICP/ES | 10/20/2016 | 0.1320 | 1.0000 | OK | OK | OK | 101.0 | 98.0 | 99.0 | 1.0 | | | |
| Calcium | ICP/ES | 10/20/2016 | | | OK | OK | OK | 99.0 | 101.0 | 101.0 | 0.0 | 105.0 | 2.0 | 102.0 |
| Magnesium | ICP/ES | 10/19/2016 | 0.1380 | 1.0000 | OK | OK | OK | 97.0 | 100.0 | 102.0 | 2.0 | 107.0 | 1.0 | 100.0 |
| Magnesium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 100.0 | 91.0 | 92.0 | 1.0 | 109.0 | 2.0 | 100.0 |
| Magnesium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 98.0 | 98.0 | 99.0 | 1.0 | 104.0 | 2.0 | 98.0 |
| Magnesium | ICP/ES | 10/20/2016 | 0.2460 | 1.0000 | OK | OK | OK | 101.0 | 99.0 | 99.0 | 0.0 | 108.0 | 2.0 | 100.0 |
| Magnesium | ICP/ES | 10/20/2016 | | | OK | OK | OK | 100.0 | 100.0 | 100.0 | 0.0 | | | |
| Manganese | ICP/ES | 10/19/2016 | 0.0000 | 1.0000 | OK | OK | OK | 101.0 | 99.0 | 101.0 | 2.0 | 94.0 | 1.0 | 101.0 |
| Manganese | ICP/ES | 10/19/2016 | 0.0000 | 1.0000 | OK | OK | OK | 100.0 | 91.0 | 91.0 | 0.0 | 92.0 | | 101.0 |
| Manganese | ICP/ES | 10/19/2016 | | | OK | OK | OK | 99.0 | 101.0 | 102.0 | 0.0 | 96.0 | 2.0 | 105.0 |
| Manganese | ICP/ES | 10/20/2016 | | | OK | OK | OK | 101.0 | 99.0 | 99.0 | 0.0 | | | |
| Manganese | ICP/ES | 10/20/2016 | | | OK | OK | OK | 99.0 | 93.0 | 93.0 | 0.0 | 95.0 | | 104.0 |
| Potassium | ICP/ES | 10/19/2016 | -1.0040 | 0.9999 | OK | OK | OK | 98.0 | 109.0 | 111.0 | 2.0 | | | 82.0 |
| Potassium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 103.0 | 111.0 | 114.0 | 2.0 | | | 82.0 |

*Figure 2. Metals Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 16098030 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Potassium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 99.0 | 98.0 | 100.0 | 1.0 | | | 81.0 |
| Potassium | ICP/ES | 10/20/2016 | -1.0800 | 0.9999 | OK | OK | OK | 103.0 | 111.0 | 110.0 | 1.0 | | | |
| Potassium | ICP/ES | 10/20/2016 | | | OK | OK | OK | 102.0 | 99.0 | 98.0 | 0.0 | | | 85.0 |
| Selenium | ICP/MS | 10/27/2016 | -0.0700 | 1.0000 | OK | OK | OK | 103.0 | 105.0 | 103.0 | 1.0 | | | 92.0 |
| Selenium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 95.0 | 99.0 | 102.0 | 3.0 | | | 96.0 |
| Selenium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 101.0 | 102.0 | 103.0 | 2.0 | | | 96.0 |
| Selenium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 104.0 | 98.0 | 102.0 | 4.0 | | | 101.0 |
| Selenium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 99.0 | 98.0 | 101.0 | 3.0 | 99.0 | | 108.0 |
| Sodium | ICP/ES | 10/19/2016 | 0.4520 | 0.9999 | OK | OK | OK | 98.0 | 107.0 | 109.0 | 1.0 | | 1.0 | 88.0 |
| Sodium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 102.0 | 101.0 | 102.0 | 0.0 | | 6.0 | 88.0 |
| Sodium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 99.0 | 98.0 | 99.0 | 1.0 | | 1.0 | 86.0 |
| Sodium | ICP/ES | 10/20/2016 | 0.3950 | 0.9999 | OK | OK | OK | 103.0 | 108.0 | 108.0 | 0.0 | | | |
| Sodium | ICP/ES | 10/20/2016 | | | OK | OK | OK | 102.0 | 111.0 | 110.0 | 1.0 | | 1.0 | 90.0 |
| Strontium | ICP/ES | 10/19/2016 | -0.0010 | 1.0000 | OK | OK | OK | 103.0 | 103.0 | 106.0 | 1.0 | 103.0 | 0.0 | 100.0 |
| Strontium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 102.0 | 96.0 | 98.0 | 1.0 | 102.0 | 2.0 | 95.0 |
| Strontium | ICP/ES | 10/19/2016 | | | OK | OK | OK | 101.0 | 103.0 | 104.0 | 2.0 | 101.0 | 2.0 | 95.0 |
| Strontium | ICP/ES | 10/20/2016 | 0.0000 | 1.0000 | OK | OK | OK | 103.0 | 99.0 | 101.0 | 1.0 | | | |

*Figure 2 (continued). Metals Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 16098030 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Strontium | ICP/ES | 10/20/2016 | | | OK | OK | OK | 102.0 | 101.0 | 100.0 | 0.0 | 103.0 | 0.0 | 100.0 |
| Uranium | ICP/MS | 10/27/2016 | -0.0020 | 1.0000 | OK | OK | OK | 99.0 | 105.0 | 105.0 | 0.0 | 100.0 | 1.0 | 80.0 |
| Uranium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 100.0 | 97.0 | 99.0 | 1.0 | | 7.0 | 90.0 |
| Uranium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 107.0 | 109.0 | 109.0 | 0.0 | | 4.0 | 110.0 |
| Uranium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 109.0 | 108.0 | 107.0 | 1.0 | | 6.0 | 80.0 |
| Uranium | ICP/MS | 10/27/2016 | | | OK | OK | OK | 105.0 | 109.0 | 112.0 | 3.0 | | | 110.0 |

*Figure 2 (continued). Metals Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

**RIN:** 16098030 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| Ammonia as N | 10/18/2016 | -0.075 | 0.9999 | OK | OK | OK | 102 | 88 | 83 | 5 | |
| AMMONIA AS N | 10/19/2016 | -0.061 | 1.0000 | OK | OK | OK | 107 | 78 | 83 | 6 | |
| AMMONIA AS N | 10/20/2016 | | | OK | OK | OK | 105 | 101 | 91 | 4 | |
| AMMONIA AS N | 10/20/2016 | -0.065 | 0.9999 | OK | OK | OK | 98 | | | 1 | |
| AMMONIA AS N | 10/20/2016 | | | OK | OK | OK | 109 | | | 0 | |
| CHLORIDE | 10/03/2016 | -0.030 | 1.0000 | | | | | | | | |
| CHLORIDE | 10/07/2016 | | | OK | OK | OK | 98 | | | | |
| CHLORIDE | 10/08/2016 | | | | | | | 100 | 101 | 1 | |
| CHLORIDE | 10/08/2016 | | | OK | OK | OK | 104 | 104 | 103 | 0 | |
| CHLORIDE | 10/10/2016 | | | OK | OK | OK | 96 | | | | |
| CHLORIDE | 10/10/2016 | | | OK | OK | OK | 101 | 107 | 99 | 4 | |
| CHLORIDE | 10/11/2016 | | | OK | OK | OK | 100 | 101 | 100 | 0 | |
| CHLORIDE | 10/11/2016 | | | | | | | 103 | 100 | 2 | |
| CHLORIDE | 10/12/2016 | | | OK | OK | OK | 102 | 97 | 98 | 1 | |
| CHLORIDE | 10/12/2016 | | | | | | | 102 | 105 | 1 | |

*Figure 3. Wet Chemistry Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

**RIN:** 16098030 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| Nitrate+Nitrite as N | 10/21/2016 | | | OK | OK | OK | 108 | 80 | 99 | 12 | |
| Nitrate+Nitrite as N | 10/21/2016 | -0.002 | 0.9999 | OK | OK | OK | 92 | 101 | 79 | | |
| Nitrate+Nitrite as N | 10/21/2016 | | | OK | OK | OK | 106 | 96 | 100 | 2 | |
| Nitrate+Nitrite as N | 10/21/2016 | | | OK | OK | OK | 108 | 100 | 93 | 6 | |
| Nitrate+Nitrite as N | 10/21/2016 | | | OK | OK | OK | 92 | 97 | 95 | 1 | |
| Sulfate | 10/03/2016 | 0.148 | 1.0000 | | | | | | | | |
| SULFATE | 10/07/2016 | | | OK | OK | OK | 99 | | | | |
| SULFATE | 10/08/2016 | | | OK | OK | OK | 105 | 99 | 98 | 0 | |
| SULFATE | 10/08/2016 | | | | | | | 101 | 102 | 1 | |
| SULFATE | 10/10/2016 | | | OK | OK | OK | 97 | | | | |
| SULFATE | 10/10/2016 | | | OK | OK | OK | 102 | 96 | 98 | 1 | |
| SULFATE | 10/11/2016 | | | | | | | 98 | 99 | 0 | |
| SULFATE | 10/11/2016 | | | OK | OK | OK | 101 | 102 | 98 | 1 | |
| SULFATE | 10/12/2016 | | | | | | | 100 | 104 | 1 | |
| SULFATE | 10/12/2016 | | | OK | OK | OK | 103 | 91 | 95 | 1 | |

*Figure 3 (continued). Wet Chemistry Validation Worksheet, RIN 16098030*

## General Information

| | |
|---|---|
| Report Number (RIN): | 16098031 |
| Sample Event: | September 26–29, 2016 |
| Site(s): | Shiprock Disposal Site (Terrace), New Mexico |
| Laboratory: | ALS Laboratory Group, Fort Collins, Colorado |
| Work Order No.: | 1610031 |
| Analysis: | Metals and Wet Chemistry |
| Validator: | Gretchen Baer |
| Review Date: | December 2, 2016 |

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

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

All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 7.

*Table 7. Analytes and Methods*

| Analyte | Line Item Code | Prep Method | Analytical Method |
|---|---|---|---|
| Ammonia as N, NH3-N | WCH-A-005 | EPA 350.1 | EPA 350.1 |
| Calcium, Magnesium, Manganese, Potassium, Sodium, Strontium | LMM-01 | SW-846 3005 | SW-846 6010B |
| Chloride, Sulfate | MIS-A-045 | SW-846 9056 | SW-846 9056 |
| Nitrate + Nitrite as N, $NO_3$+$NO_2$-N | WCH-A-022 | EPA 353.2 | EPA 353.2 |
| Selenium, Uranium | LMM-02 | SW-846 3005 | SW-846 6020 |
| Location 1215: Total Dissolved Solids | WCH-A-033 | MCAWW 160.1 | MCAWW 160.1 |
| Location 1215: Arsenic, Barium, Cadmium, Lead | 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 |
|---|---|---|---|---|
| 1610031-30 | 0838 | Manganese | U | Less than 5 times the calibration blank |
| 1610031-33 | 0844 | Manganese | U | Less than 5 times the calibration blank |
| 1610031-38 | 1049 | Manganese | U | Less than 5 times the calibration blank |
| 1610031-48 | 1079 | Selenium | J | Serial dilution result |
| 1610031-56 | 1221 | Manganese | U | Less than 5 times the calibration blank |
| 1610031-62 | 1215 | Lead | U | Less than 5 times the calibration blank |
| 1610031-62 | 1215 | Selenium | J | Serial dilution result |

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 62 water samples on September 29 and October 4, 2016, accompanied by Chain of Custody forms. Copies of the air bills were included in the receiving documentation. The Chain of Custody forms were checked to confirm that all of the samples were listed and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the Chain of Custody forms had no errors or omissions, with the following exception. A full bottle set could not be collected at location 1011, but the Chain of Custody erroneously listed the bottles that were not collected.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers between 1.8 °C and 3.5 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

A method detection limit (MDL) is defined in 40 CFR 136 as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDLs reported by the laboratory were compared to the required MDLs to assess the sensitivity of the analyses and found to be in compliance with contractual requirements.

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

Laboratory Instrument Calibration

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

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

*Method MCAWW 160.1*
There are no initial or continuing calibration requirements associated with the determination of Total Dissolved Solids (TDS).

*Method EPA 350.1*
Calibrations were performed for ammonia as N on October 20 and 24, 2016, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks associated with reported results met the acceptance criteria.

*Method EPA 353.2*
Calibrations were performed for nitrate + nitrite as N October 21, 2016, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

*Method SW-846 6010B*
Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed October 18 and 19, 2016, using three calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range.

*Method SW-846 6020A*
Calibrations for selenium and uranium were performed October 26 and 31, 2016, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

*Method SW-846 9056*
Calibrations were performed for chloride and sulfate on October 3, 2016, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the

absolute values of the intercepts were less than 3 times the MDL as required by the cited method. The ICV and CCV checks were made at the required frequency. All calibration checks met the acceptance criteria.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the PQLs for all analytes. In cases where the blank concentration exceeds the MDL, associated sample results that are greater than the MDL but less than 5 times the blank concentration are qualified with a "U" flag as not detected.

Inductively Coupled Plasma Interference Check Sample Analysis

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

Matrix Spike Analysis

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

The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes.

Laboratory Replicate Analysis

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

Laboratory Control Samples

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the

concentration of the undiluted sample is greater than 50 times the MDL. Evaluated serial dilution data were acceptable with the exception of some dilution results for selenium. The associated results are qualified with a "J" flag as estimated values.

Completeness

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

Chromatography Peak Integration

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

Anion/Cation Balance

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

*Table 9. Comparison of Major Anions and Cations*

| Location | Location Type | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|---|
| 0600 | Groundwater | 248.2 | 306.9 | 10.6 |
| 0602 | Groundwater | 413.8 | 507.8 | 10.2 |
| 0603 | Groundwater | 225.0 | 223.3 | 0.4 |
| 0604 | Groundwater | 393.4 | 416.8 | 2.9 |
| 0662 | Surface Water | 42.6 | 44.1 | 1.7 |
| 0725 | Groundwater | 80.9 | 78.4 | 1.6 |
| 0726 | Groundwater | 121.5 | 131.1 | 3.8 |
| 0728 | Groundwater | 144.9 | 148.7 | 1.3 |
| 0731 | Groundwater | 100.8 | 101.6 | 0.4 |
| 0813 | Groundwater | 417.1 | 398.9 | 2.2 |
| 0814 | Groundwater | 364.9 | 388.2 | 3.1 |
| 0815 | Groundwater | 384.5 | 421.5 | 4.6 |
| 0816 | Groundwater | 50.3 | 51.9 | 1.5 |
| 0817 | Groundwater | 338.5 | 353.5 | 2.2 |
| 0818 | Groundwater | 351.3 | 387.8 | 4.9 |
| 0819 | Groundwater | 329.1 | 370.1 | 5.9 |
| 0820 | Groundwater | 325.2 | 367.2 | 6.1 |
| 0822 | Groundwater | 275.0 | 347.1 | 11.6 |

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

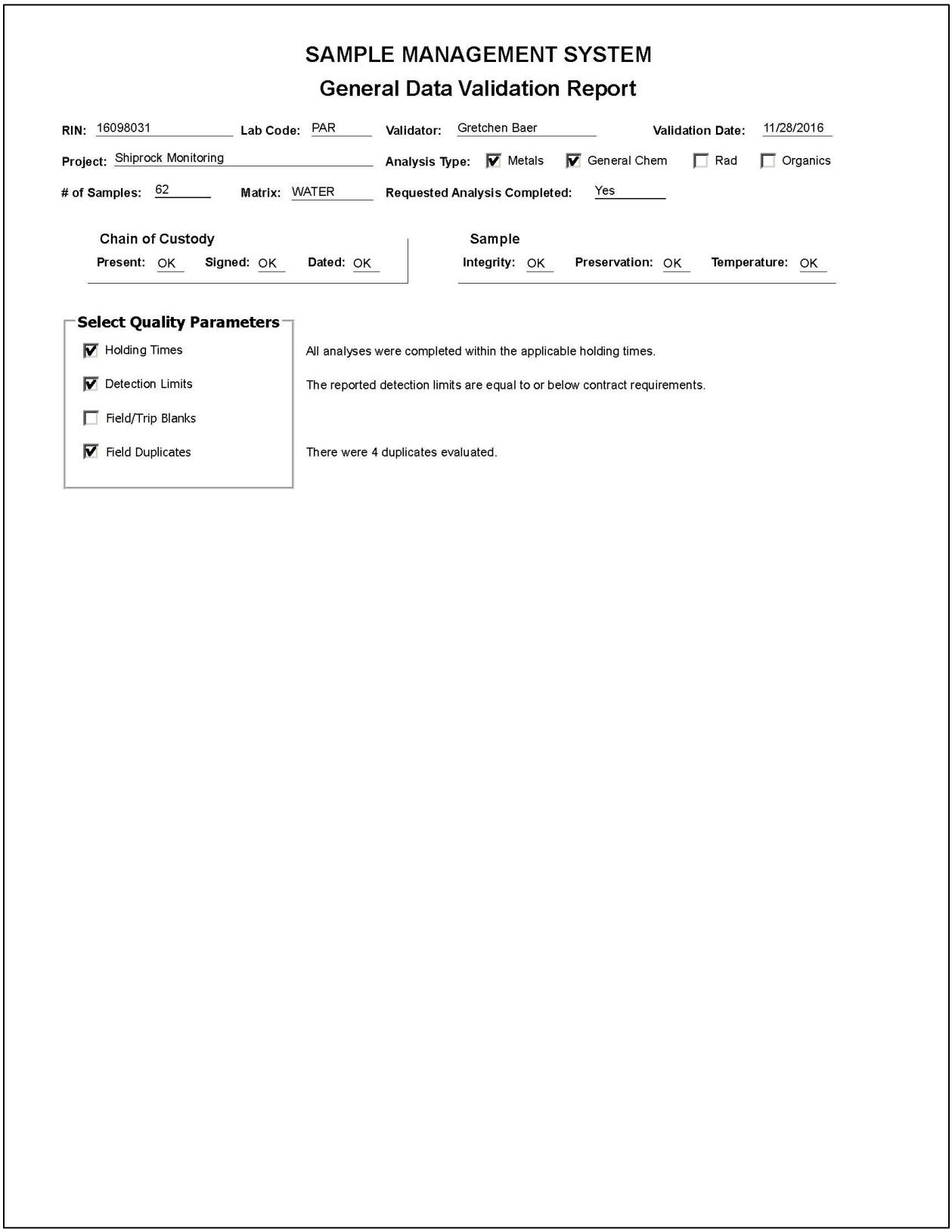
| Location | Location Type | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|---|
| 0824 | Groundwater | 317.8 | 379.2 | 8.8 |
| 0825 | Groundwater | 335.0 | 374.0 | 5.5 |
| 0826 | Groundwater | 245.0 | 270.8 | 5.0 |
| 0827 | Groundwater | 186.0 | 203.5 | 4.5 |
| 0828 | Groundwater | 49.3 | 47.9 | 1.5 |
| 0830 | Groundwater | 40.8 | 40.5 | 0.4 |
| 0832 | Groundwater | 117.7 | 122.2 | 1.9 |
| 0833 | Groundwater | 95.2 | 102.4 | 3.6 |
| 0835 | Groundwater | 5.5 | 5.2 | 2.8 |
| 0836 | Groundwater | 77.8 | 80.2 | 1.5 |
| 0837 | Groundwater | 67.8 | 70.0 | 1.6 |
| 0838 | Groundwater | 85.5 | 88.8 | 1.9 |
| 0841 | Groundwater | 299.1 | 358.8 | 9.1 |
| 0843 | Groundwater | 49.1 | 47.2 | 2.0 |
| 0844 | Groundwater | 314.5 | 314.0 | 0.1 |
| 0848 | Groundwater | 390.7 | 443.0 | 6.3 |
| 0889 | Surface Water | 600.1 | 744.6 | 10.8 |
| 1007 | Groundwater | 340.3 | 338.1 | 0.3 |
| 1011 | Groundwater | NA | NA | NA |
| 1049 | Groundwater | 430.4 | 476.7 | 5.1 |
| 1057 | Groundwater | 224.9 | 213.6 | 2.6 |
| 1058 | Groundwater | 158.6 | 174.2 | 4.7 |
| 1059 | Groundwater | 211.9 | 247.3 | 7.7 |
| 1068 | Groundwater | 117.4 | 122.5 | 2.2 |
| 1070 | Groundwater | 346.8 | 412.3 | 8.6 |
| 1071 | Groundwater | 326.4 | 383.6 | 8.1 |
| 1073 | Groundwater | 301.6 | 318.0 | 2.7 |
| 1074 | Groundwater | 291.6 | 291.3 | 0.1 |
| 1078 | Groundwater | 299.8 | 336.7 | 5.8 |
| 1079 | Groundwater | 42.8 | 41.2 | 1.9 |
| 1087 | Groundwater | 128.4 | 136.6 | 3.1 |
| 1091 | Groundwater | 380.5 | 414.8 | 4.3 |
| 1092 | Groundwater | 361.7 | 427.3 | 8.3 |
| 1093R | Groundwater | 236.6 | 316.8 | 14.5 |
| 1095 | Groundwater | 243.7 | 240.6 | 0.6 |
| 1096 | Groundwater | 341.6 | 407.2 | 8.8 |
| 1215 | Surface Water | 1528.2 | 1726.2 | 6.1 |
| 1219 | Surface Water | 49.4 | 50.3 | 0.9 |
| 1221 | Surface Water | 617.0 | 813.8 | 13.8 |

Locations 0600, 0602, 0822, 0889, 1093R, and 1221 had charge balances greater than 10%. There were no analytical errors identified during the review of the laboratory data. All other

charge balances were below 10%. The anion/cation balance cannot be calculated for location 1011; the anions sample could not be collected at this location because the well went dry during sampling.

Electronic Data Deliverable (EDD) File

A revised EDD file arrived on December 15, 2016, in response to Request for Information #16-5553. The revision included corrections to some sodium results. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package. Although not requested, lead results (reported in µg/L) for location SHP02 1215 were included in the EDD file; this is acceptable and no correction or data qualification is necessary.



SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 16098031 Lab Code: PAR Validator: Gretchen Baer Validation Date: 11/28/2016

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 | All analyses were completed within the applicable holding times. |
| ☑ Detection Limits | The reported detection limits are equal to or below contract requirements. |
| ☐ Field/Trip Blanks | |
| ☑ Field Duplicates | There were 4 duplicates evaluated. |

*Figure 4. General Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 16098031 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Arsenic | ICP/MS | 10/31/2016 | 0.0300 | 1.0000 | OK | OK | OK | 95.0 | 120.0 | 122.0 | 1.0 | 99.0 | | |
| Barium | ICP/MS | 10/31/2016 | -0.0120 | 1.0000 | OK | OK | OK | 94.0 | 118.0 | 118.0 | 0.0 | 104.0 | 3.0 | |
| Cadmium | ICP/MS | 10/31/2016 | 0.0040 | 1.0000 | OK | OK | OK | 98.0 | 107.0 | 107.0 | 0.0 | 101.0 | | |
| Calcium | ICP/ES | 10/18/2016 | 0.0720 | 1.0000 | OK | OK | OK | 96.0 | 91.0 | 95.0 | 1.0 | 103.0 | 1.0 | 100.0 |
| Calcium | ICP/ES | 10/18/2016 | | | | | OK | 100.0 | 103.0 | 107.0 | 1.0 | 105.0 | 1.0 | 103.0 |
| Calcium | ICP/ES | 10/19/2016 | 0.0500 | 1.0000 | OK | OK | OK | 101.0 | 86.0 | 88.0 | 0.0 | 105.0 | 1.0 | 104.0 |
| Calcium | ICP/ES | 10/19/2016 | | | | | OK | 100.0 | | | | 107.0 | | 105.0 |
| Lead | ICP/MS | 10/31/2016 | -0.1620 | 1.0000 | OK | OK | OK | 99.0 | 110.0 | 111.0 | 1.0 | 102.0 | | |
| Magnesium | ICP/ES | 10/18/2016 | 0.2260 | 1.0000 | OK | OK | OK | 97.0 | 94.0 | 94.0 | 1.0 | 104.0 | 1.0 | 95.0 |
| Magnesium | ICP/ES | 10/18/2016 | | | | | OK | 100.0 | 101.0 | 104.0 | 2.0 | 107.0 | 1.0 | 100.0 |
| Magnesium | ICP/ES | 10/19/2016 | 0.1380 | 1.0000 | OK | OK | OK | 97.0 | 93.0 | 93.0 | 0.0 | 104.0 | 4.0 | 98.0 |
| Magnesium | ICP/ES | 10/19/2016 | | | | | OK | 97.0 | | | | 107.0 | | 100.0 |
| Manganese | ICP/ES | 10/18/2016 | 0.0000 | 1.0000 | OK | OK | OK | 97.0 | 93.0 | 94.0 | 1.0 | 93.0 | 2.0 | 100.0 |
| Manganese | ICP/ES | 10/18/2016 | | | | | OK | 101.0 | 99.0 | 102.0 | 3.0 | 95.0 | | 104.0 |
| Manganese | ICP/ES | 10/19/2016 | 0.0000 | 1.0000 | OK | OK | OK | 93.0 | 90.0 | 90.0 | 0.0 | 92.0 | 5.0 | 101.0 |
| Manganese | ICP/ES | 10/19/2016 | | | | | OK | 101.0 | | | | 96.0 | | 105.0 |
| Potassium | ICP/ES | 10/18/2016 | -1.1500 | 0.9999 | OK | OK | OK | 101.0 | 104.0 | 103.0 | 1.0 | | | 81.0 |

*Figure 5. Metals Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

### Metals Data Validation Worksheet

**RIN:** 16098031 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Potassium | ICP/ES | 10/18/2016 | | | | | OK | 102.0 | 109.0 | 111.0 | 2.0 | | 0.0 | 82.0 |
| Potassium | ICP/ES | 10/19/2016 | -1.0040 | 0.9999 | OK | OK | OK | 101.0 | 104.0 | 104.0 | 0.0 | | 0.0 | 82.0 |
| Potassium | ICP/ES | 10/19/2016 | | | | | OK | 98.0 | | | | | | 81.0 |
| Selenium | ICP/MS | 10/26/2016 | -0.0710 | 1.0000 | OK | OK | OK | 99.0 | 102.0 | 100.0 | 2.0 | 99.0 | | |
| Selenium | ICP/MS | 10/27/2016 | | | | | OK | 103.0 | 102.0 | 105.0 | 3.0 | 100.0 | 15.0 | |
| Selenium | ICP/MS | 10/27/2016 | | | | | OK | 100.0 | 100.0 | 101.0 | 0.0 | | | |
| Selenium | ICP/MS | 10/27/2016 | | | | | OK | 99.0 | | | | | | |
| Selenium | ICP/MS | 10/31/2016 | -0.0540 | 1.0000 | OK | OK | OK | 93.0 | | | 2.0 | | 18.0 | |
| Sodium | ICP/ES | 10/18/2016 | 0.4400 | 0.9999 | OK | OK | OK | 99.0 | | | 0.0 | | 0.0 | 84.0 |
| Sodium | ICP/ES | 10/18/2016 | | | | | OK | 103.0 | 109.0 | 112.0 | 2.0 | | 2.0 | 88.0 |
| Sodium | ICP/ES | 10/19/2016 | 0.4520 | 0.9999 | OK | OK | OK | 100.0 | 100.0 | 100.0 | 0.0 | | 1.0 | 86.0 |
| Sodium | ICP/ES | 10/19/2016 | | | | | OK | 98.0 | | | | | | 88.0 |
| Strontium | ICP/ES | 10/18/2016 | -0.0010 | 1.0000 | OK | OK | OK | 107.0 | | | 0.0 | 100.0 | 2.0 | 90.0 |
| Strontium | ICP/ES | 10/18/2016 | | | | | OK | 108.0 | 106.0 | 111.0 | 2.0 | 102.0 | 3.0 | 97.0 |
| Strontium | ICP/ES | 10/19/2016 | -0.0010 | 1.0000 | OK | OK | OK | 98.0 | 86.0 | 80.0 | 1.0 | 106.0 | 2.0 | 95.0 |
| Strontium | ICP/ES | 10/19/2016 | | | | | OK | 103.0 | | | | 101.0 | | 95.0 |
| Uranium | ICP/MS | 10/26/2016 | -0.0020 | 1.0000 | OK | OK | OK | 104.0 | 101.0 | 100.0 | 1.0 | 100.0 | 9.0 | |

*Figure 5 (continued). Metals Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

### Metals Data Validation Worksheet

**RIN:** 16098031 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Method Type | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | Dup. RPD | ICSAB %R | Serial Dil. %R | CRI %R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Int. | R^2 | CCV | CCB | | | | | | | | |
| Uranium | ICP/MS | 10/27/2016 | | | | | OK | 100.0 | 100.0 | 101.0 | 1.0 | 104.0 | 2.0 | |
| Uranium | ICP/MS | 10/27/2016 | | | | | OK | 99.0 | 111.0 | 99.0 | 3.0 | | | |
| Uranium | ICP/MS | 10/27/2016 | | | | | OK | 105.0 | | | | | | |
| Uranium | ICP/MS | 10/31/2016 | -0.0010 | 1.0000 | OK | OK | OK | 98.0 | | | 5.0 | | 1.0 | |

*Figure 5 (continued). Metals Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

**RIN:** 16098031 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| AMMONIA AS N | 10/20/2016 | -0.065 | 0.9999 | OK | OK | OK | 109 | | | 3 | |
| AMMONIA AS N | 10/24/2016 | -0.054 | 0.9999 | OK | OK | OK | 108 | | | 4 | |
| AMMONIA AS N | 10/24/2016 | | | | | OK | 104 | 76 | 75 | 1 | |
| AMMONIA AS N | 10/24/2016 | | | | | OK | 106 | 124 | 120 | 3 | |
| CHLORIDE | 10/03/2016 | 0.030 | 1.0000 | OK | OK | | | | | | |
| CHLORIDE | 10/06/2016 | | | | | OK | 97 | | | | |
| CHLORIDE | 10/06/2016 | | | | | OK | 101 | 93 | 90 | 1 | |
| CHLORIDE | 10/07/2016 | | | | | OK | 99 | 98 | 94 | 2 | |
| CHLORIDE | 10/07/2016 | | | | | OK | 98 | 101 | 98 | 2 | |
| CHLORIDE | 10/08/2016 | | | | | | | 103 | 102 | 1 | |
| Nitrate+Nitrite as N | 10/21/2016 | -0.002 | 0.9999 | OK | OK | OK | 106 | 90 | 91 | 1 | |
| Nitrate+Nitrite as N | 10/21/2016 | | | | | OK | 109 | 98 | 98 | 0 | |
| Nitrate+Nitrite as N | 10/21/2016 | | | | | OK | 108 | 100 | 97 | 2 | |
| Nitrate+Nitrite as N | 10/21/2016 | | | | | OK | 106 | 86 | 86 | 0 | |
| Sulfate | 10/03/2016 | 0.148 | 1.0000 | OK | OK | | | | | | |

*Figure 6. Wet Chemistry Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

### Wet Chemistry Data Validation Worksheet

**RIN:** 16098031 **Lab Code:** PAR **Date Due:** 11/1/2016

**Matrix:** Water **Site Code:** SHP01 **Date Completed:** 11/3/2016

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| SULFATE | 10/06/2016 | | | | | OK | 102 | 93 | 89 | 1 | |
| SULFATE | 10/06/2016 | | | | | OK | 98 | | | | |
| SULFATE | 10/07/2016 | | | | | OK | 100 | 97 | 91 | 2 | |
| SULFATE | 10/07/2016 | | | | | OK | 99 | 101 | 95 | 2 | |
| SULFATE | 10/08/2016 | | | | | | | 105 | 105 | 0 | |
| TOTAL DISSOLVED SOLIDS | 10/06/2016 | | | | | OK | 98 | | | | |

*Figure 6 (continued). Wet Chemistry Validation Worksheet, RIN 16098031*

## Sampling Quality Control Assessment

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

Sampling Protocol

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

Floodplain wells 0773 and 0797, and terrace wells 0600, 0602, 0604, 0814, 0817, 0819, 0820, 0822, 0824, 0825, 0826, 0827, 0828, 0832, 1007, 1011, 1058, 1059, 1068, 1073, 1074, and MW1 were classified as Category II or III. The sample results for these wells were further qualified with a "Q" flag, indicating the data are qualitative because of the sampling technique.

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

Equipment Blank Assessment

Equipment blanks (Figure 7) are prepared and analyzed to document contamination attributable to the sample collection process. An equipment blank was collected after decontamination of non-dedicated tubing used to collect surface water samples at five locations. Uranium was detected in the equipment blank at a concentration slightly above the detection limit. All uranium sample results at the associated locations were greater than 5 times the equipment blank, so no further qualification is required. The equipment blank results indicate adequate decontamination of the sampling equipment.

Field Duplicate Assessment

Field duplicate samples (Figure 8 and Figure 9) are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The relative percent difference (RPD) for duplicate results that are greater than 5 times the PQL should be less than 20%. The RPD is not used to evaluate results that are less than 5 times the PQL. For these results, the range should be no greater than the PQL. Duplicate samples were collected from floodplain locations 0618, 0735, 1115, and 1142, and terrace locations 0818, 1070, 1078, and 1087. The duplicate results met the acceptance criteria for all analytes with the following exceptions. The potassium results for floodplain location 1115 and the uranium results for floodplain location 1142 did not meet the acceptance criteria. The associated sample and duplicate results are qualified with a "J" flag as estimated values.

## SAMPLE MANAGEMENT SYSTEM



## Validation Report: Equipment/Trip Blanks

**RIN:** 16098030 **Lab Code:** PAR **Project:** Shiprock Monitoring **Validation Date:** 11/30/2016

**Blank Data**

| Blank Type | Lab Sample ID | Lab Method | Analyte Name | Result | Qualifier | MDL | Units |
|---|---|---|---|---|---|---|---|
| Equipment Blank | 1610026-82 | SW6020 | Uranium | 0.00015 | | 0.000012 | MG/L |

| Sample ID | Sample Ticket | Location | Result | Dilution Factor | Lab Qualifier | Validation Qualifier |
|---|---|---|---|---|---|---|
| 1610026-1 | OKU 758 | 0501 | 0.0014 | 10 | | |
| 1610026-2 | OKU 767 | 0501 | 0.0016 | 10 | | |
| 1610026-36 | OKU 749 | 0897 | 0.003 | 10 | | |
| 1610026-37 | OKU 779 | 0897 | 0.0016 | 10 | | |
| 1610026-42 | OKU 752 | 0956 | 0.0015 | 10 | | |
| 1610026-43 | OKU 784 | 0956 | 0.0018 | 10 | | |
| 1610026-74 | OKU 755 | 1203 | 0.0016 | 10 | | |
| 1610026-75 | OKU 786 | 1203 | 0.0016 | 10 | | |

*Figure 7. Blanks Validation Worksheet*

## SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

**RIN:** 16098030 **Lab Code:** PAR **Project:** Shiprock Monitoring **Validation Date:** 11/28/2016

**Duplicate:** 2210 **Sample:** 0735

| | Sample | | | | Duplicate | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | RPD | RER | Units |
| AMMONIA AS N | 16 | | | 25 | 16 | | | 25 | 0 | | MG/L |
| Calcium | 520 | | | 10 | 480 | | | 10 | 8.00 | | MG/L |
| CHLORIDE | 780 | | | 200 | 770 | | | 200 | 1.29 | | MG/L |
| Magnesium | 1500 | | | 10 | 1400 | | | 10 | 6.90 | | MG/L |
| Manganese | 3.8 | | | 10 | 3.5 | | | 10 | 8.22 | | MG/L |
| Nitrate+Nitrite as N | 800 | | | 500 | 760 | | | 500 | 5.13 | | MG/L |
| Potassium | 110 | | | 10 | 110 | | | 10 | 0 | | MG/L |
| Selenium | 0.24 | | | 10 | 0.23 | | | 10 | 4.26 | | MG/L |
| Sodium | 4400 | | | 100 | 4200 | | | 100 | 4.65 | | MG/L |
| Strontium | 14 | | | 10 | 13 | | | 10 | 7.41 | | MG/L |
| SULFATE | 14000 | | | 200 | 14000 | | | 200 | 0 | | MG/L |
| Uranium | 0.36 | | | 10 | 0.37 | | | 10 | 2.74 | | MG/L |

**Duplicate:** 2211 **Sample:** 1115

| | Sample | | | | Duplicate | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | RPD | RER | Units |
| AMMONIA AS N | 54 | | | 25 | 54 | | | 25 | 0 | | MG/L |
| Calcium | 160 | | | 1 | 160 | | | 10 | 0 | | MG/L |
| CHLORIDE | 70 | | | 40 | 72 | | | 40 | 2.82 | | MG/L |
| Magnesium | 230 | | | 1 | 220 | | | 10 | 4.44 | | MG/L |
| Manganese | 0.97 | | | 1 | 1 | | | 10 | 3.05 | | MG/L |
| Nitrate+Nitrite as N | 70 | | | 100 | 71 | | | 100 | 1.42 | | MG/L |
| Potassium | 48 | | | 1 | 34 | | | 10 | 34.15 | | MG/L |
| Selenium | 0.12 | | | 10 | 0.12 | | | 10 | 0 | | MG/L |
| Sodium | 390 | | | 10 | 380 | | | 10 | 2.60 | | MG/L |
| Strontium | 2.3 | | | 1 | 2.5 | | | 10 | 8.33 | | MG/L |
| SULFATE | 1700 | | | 40 | 1800 | | | 40 | 5.71 | | MG/L |
| Uranium | 0.27 | | | 10 | 0.27 | | | 10 | 0 | | MG/L |

**Duplicate:** 2215 **Sample:** 1142

| | Sample | | | | Duplicate | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Result | Flag | Error | Dilution | Result | Flag | Error | Dilution | RPD | RER | Units |
| AMMONIA AS N | 0.1 | U | | 1 | 0.1 | U | | 1 | | | MG/L |
| Calcium | 62 | | | 1 | 61 | | | 1 | 1.63 | | MG/L |
| CHLORIDE | 12 | | | 4 | 12 | | | 4 | 0 | | MG/L |
| Magnesium | 12 | | | 1 | 12 | | | 1 | 0 | | MG/L |
| Manganese | 0.39 | | | 1 | 0.32 | | | 1 | 19.72 | | MG/L |

*Figure 8. Field Duplicates Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

**RIN:** 16098030 **Lab Code:** PAR **Project:** Shiprock Monitoring **Validation Date:** 11/28/2016

**Duplicate:** 2215 **Sample:** 1142

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate+Nitrite as N | 0.01 | U | | 1 | 0.01 | U | | 1 | | | MG/L |
| Potassium | 2.8 | | | 1 | 2.7 | | | 1 | 3.64 | | MG/L |
| Selenium | 0.00066 | U | | 10 | 0.00066 | U | | 10 | | | MG/L |
| Sodium | 37 | | | 1 | 36 | | | 1 | 2.74 | | MG/L |
| Strontium | 0.72 | | | 1 | 0.72 | | | 1 | 0 | | MG/L |
| SULFATE | 140 | | | 4 | 140 | | | 4 | 0 | | MG/L |
| Uranium | 0.0085 | | | 10 | 0.0062 | | | 10 | 31.29 | | MG/L |

**Duplicate:** 2592 **Sample:** 0618

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 13 | | | 25 | 12 | | | 25 | | | MG/L |
| Calcium | 450 | | | 10 | 440 | | | 10 | 2.25 | | MG/L |
| CHLORIDE | 94 | | | 100 | 87 | | | 100 | | | MG/L |
| Magnesium | 290 | | | 10 | 280 | | | 10 | 3.51 | | MG/L |
| Manganese | 2.8 | | | 10 | 2.8 | | | 10 | 0 | | MG/L |
| Nitrate+Nitrite as N | 0.27 | | | 1 | 0.3 | | | 1 | 10.53 | | MG/L |
| Potassium | 53 | | | 10 | 52 | | | 10 | 1.90 | | MG/L |
| Selenium | 0.001 | | | 10 | 0.00097 | J | | 10 | | | MG/L |
| Sodium | 1300 | | | 10 | 1200 | | | 10 | 8.00 | | MG/L |
| Strontium | 4.4 | | | 10 | 4.3 | | | 10 | 2.30 | | MG/L |
| SULFATE | 5200 | | | 100 | 5000 | | | 100 | 3.92 | | MG/L |
| Uranium | 0.35 | | | 10 | 0.34 | | | 10 | 2.90 | | MG/L |

*Figure 8 (continued). Field Duplicates Validation Worksheet, RIN 16098030*

## SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

**RIN:** 16098031 **Lab Code:** PAR **Project:** Shiprock Monitoring **Validation Date:** 11/28/2016

**Duplicate:** 2319 **Sample:** 0818

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 43 | | | 25 | 44 | | | 25 | 2.30 | | MG/L |
| Calcium | 450 | | | 10 | 450 | | | 10 | 0 | | MG/L |
| CHLORIDE | 980 | | | 250 | 940 | | | 200 | 4.17 | | MG/L |
| Magnesium | 1600 | | | 10 | 1500 | | | 10 | 6.45 | | MG/L |
| Manganese | 0.5 | | | 10 | 0.47 | | | 10 | 6.19 | | MG/L |
| Nitrate+Nitrite as N | 490 | | | 1000 | 510 | | | 1000 | 4.00 | | MG/L |
| Potassium | 100 | | | 10 | 96 | | | 10 | 4.08 | | MG/L |
| Selenium | 2.1 | | | 10 | 2 | | | 10 | 4.88 | | MG/L |
| Sodium | 4400 | | | 100 | 4300 | | | 100 | 2.30 | | MG/L |
| Strontium | 12 | | | 10 | 11 | | | 10 | 8.70 | | MG/L |
| SULFATE | 15000 | | | 250 | 15000 | | | 200 | 0 | | MG/L |
| Uranium | 0.12 | | | 10 | 0.11 | | | 10 | 8.70 | | MG/L |

**Duplicate:** 2320 **Sample:** 1070

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 4 | | | 1 | 4 | | | 1 | 0 | | MG/L |
| Calcium | 430 | | | 10 | 420 | | | 10 | 2.35 | | MG/L |
| CHLORIDE | 970 | | | 250 | 980 | | | 250 | 1.03 | | MG/L |
| Magnesium | 960 | | | 10 | 950 | | | 10 | 1.05 | | MG/L |
| Manganese | 0.11 | | | 10 | 0.12 | | | 10 | 8.70 | | MG/L |
| Nitrate+Nitrite as N | 470 | | | 1000 | 440 | | | 1000 | 6.59 | | MG/L |
| Potassium | 89 | | | 10 | 87 | | | 10 | 2.27 | | MG/L |
| Selenium | 2.3 | | | 10 | 2.2 | | | 10 | 4.44 | | MG/L |
| Sodium | 5600 | | | 100 | 5600 | | | 100 | 0 | | MG/L |
| Strontium | 9.2 | | | 10 | 9 | | | 10 | 2.20 | | MG/L |
| SULFATE | 16000 | | | 250 | 16000 | | | 250 | 0 | | MG/L |
| Uranium | 0.089 | | | 10 | 0.084 | | | 10 | 5.78 | | MG/L |

**Duplicate:** 2665 **Sample:** 1087

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 76 | | | 25 | 78 | | | 25 | 2.60 | | MG/L |
| Calcium | 450 | | | 10 | 460 | | | 10 | 2.20 | | MG/L |
| CHLORIDE | 210 | | | 100 | 210 | | | 100 | 0 | | MG/L |
| Magnesium | 740 | | | 10 | 750 | | | 10 | 1.34 | | MG/L |
| Manganese | 0.75 | | | 10 | 0.76 | | | 10 | 1.32 | | MG/L |

*Figure 9. Field Duplicates Validation Worksheet, RIN 16098031*

## SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

**RIN:** 16098031 **Lab Code:** PAR **Project:** Shiprock Monitoring **Validation Date:** 11/28/2016

**Duplicate:** 2665 **Sample:** 1087

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate+Nitrite as N | 140 | | | 500 | 130 | | | 500 | 7.41 | | MG/L |
| Potassium | 83 | | | 10 | 83 | | | 10 | 0 | | MG/L |
| Selenium | 0.038 | | | 10 | 0.038 | | | 10 | 0 | | MG/L |
| Sodium | 860 | | | 10 | 860 | | | 10 | 0 | | MG/L |
| Strontium | 7.2 | | | 10 | 7.2 | | | 10 | 0 | | MG/L |
| SULFATE | 5300 | | | 100 | 5300 | | | 100 | 0 | | MG/L |
| Uranium | 0.38 | | | 10 | 0.38 | | | 10 | 0 | | MG/L |

**Duplicate:** 2811 **Sample:** 1078

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 1.1 | | | 1 | 1 | | | 1 | 9.52 | | MG/L |
| Calcium | 440 | | | 10 | 440 | | | 10 | 0 | | MG/L |
| CHLORIDE | 900 | | | 200 | 900 | | | 200 | 0 | | MG/L |
| Magnesium | 920 | | | 10 | 930 | | | 10 | 1.08 | | MG/L |
| Manganese | 0.063 | | | 10 | 0.052 | | | 10 | 19.13 | | MG/L |
| Nitrate+Nitrite as N | 340 | | | 1000 | 340 | | | 1000 | 0 | | MG/L |
| Potassium | 71 | | | 10 | 72 | | | 10 | 1.40 | | MG/L |
| Selenium | 2.4 | | | 10 | 2.5 | | | 10 | 4.08 | | MG/L |
| Sodium | 4600 | | | 100 | 4700 | | | 100 | 2.15 | | MG/L |
| Strontium | 9.1 | | | 10 | 9.2 | | | 10 | 1.09 | | MG/L |
| SULFATE | 13000 | | | 200 | 13000 | | | 200 | 0 | | MG/L |
| Uranium | 0.11 | | | 10 | 0.12 | | | 10 | 8.70 | | MG/L |

*Figure 9 (continued). Field Duplicates Validation Worksheet, RIN 16098031*

## Certification

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

Laboratory Coordinator: Stephen Donivan — Date: 1-18-2017

Stephen Donivan

Date

Data Validation Lead: Gretchen Baer — Date: 1/18/17

Gretchen Baer

Date

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# Attachment 1

# Sampling and Analysis Work Order

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August 26, 2016

Task Assignment 103
Control Number 16-0882

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

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

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

Dear Mr. Kautsky:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, New Mexico. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Shiprock Site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of September 26, 2016.

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

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

**MONITORING WELLS***

**Floodplain**

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

**Terrace**

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

*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 | | | | | | |

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
LMS Site Lead

DM/lcg/csa

Enclosures

cc: (electronic)
Christina Pennal, DOE
Jeff Carman, Navarro
Beverly Cook, Navarro
Steve Donivan, Navarro
Lauren Goodknight, Navarro
Sam Marutzky, Navarro
David Miller, Navarro
Diana Osborne, Navarro
EDD Delivery
rc-grand.junction
FILE: SHP 0400.02

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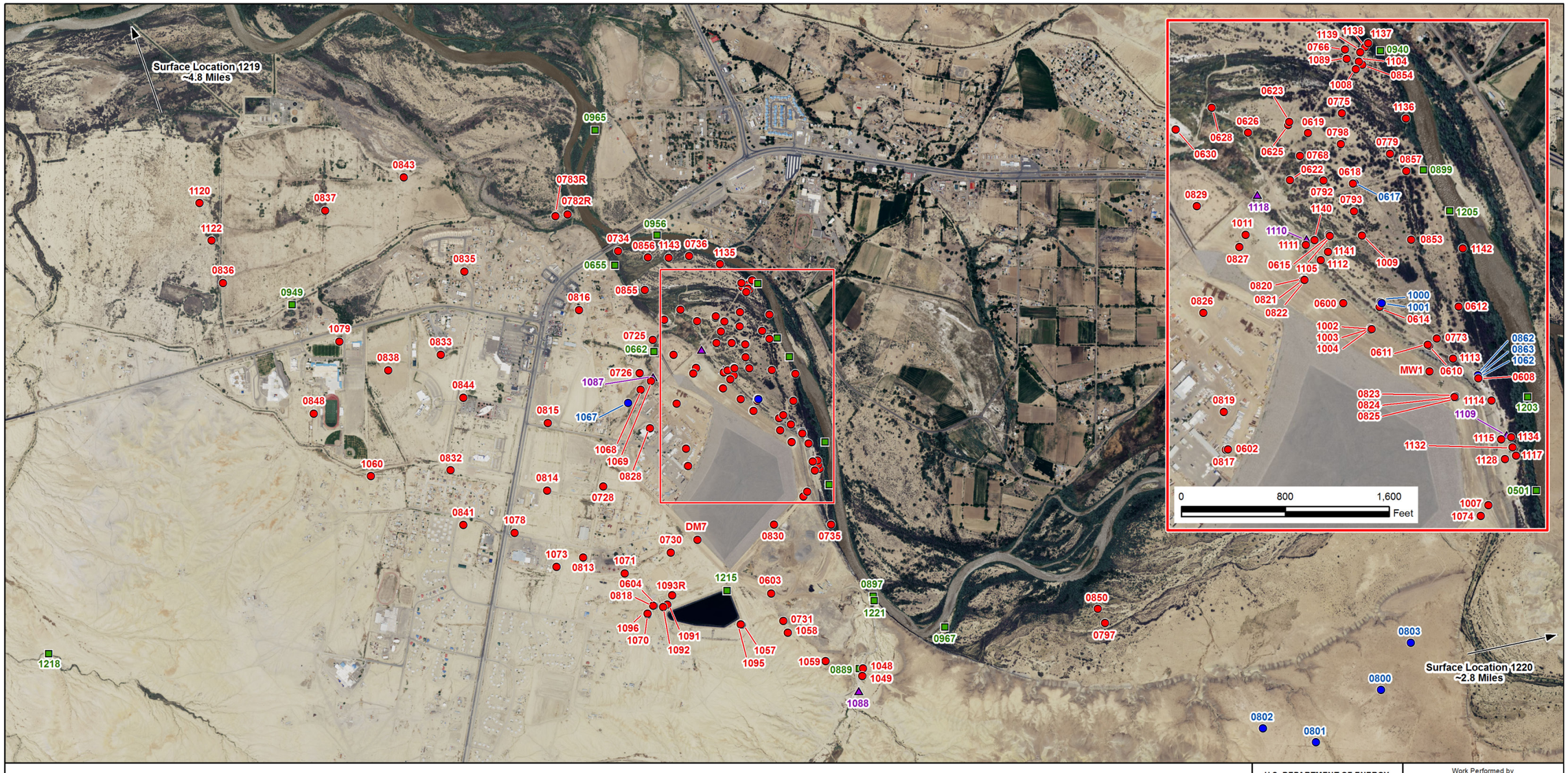


LEGEND

- WELL TO BE SAMPLED
- WELL TO BE SAMPLED (WATER LEVEL ONLY)
- SURFACE LOCATION TO BE SAMPLED
- TREATMENT SYSTEM LOCATION TO BE SAMPLED

0 1,750 3,500 Feet

N

U.S. DEPARTMENT OF ENERGY
OFFICE OF LEGACY MANAGEMENT

Work Performed by
Navarro Research & Engineering, Inc.
Under DOE Contract Number DE-LM0000421

Planned Sample Locations
Shiprock, NM, Disposal Site
September 2016

DATE PREPARED: August 12, 2016

FILE NAME: S1464800-11x17

*Shiprock, New Mexico, Disposal Site Planned Sample Locations*

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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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Monitoring Wells*** | | | | | | |
| **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 |
| 725 | | X | | | | Data logger |
| 726 | | X | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Monitoring Wells*** | | | | | | |
| **TERRACE - SHP02** | | | | | | |
| 728 | | X | | | | Data logger |
| 730 | | X | | | | Data logger |
| 731 | | X | | | | Data logger |
| 800 | | | | | X | WLs only |
| 801 | | | | | X | WLs only |
| 802 | | | | | X | WLs only |
| 803 | | | | | X | WLs only |
| 813 | | X | | | | Data logger |
| 814 | | X | | | | |
| 815 | | X | | | | |
| 816 | | X | | | | |
| 817 | | X | | | | Low flow |
| 818 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 819 | | X | | | | Data logger |
| 820 | | X | | | | |
| 821 | | X | | | | |
| 822 | | X | | | | |
| 823 | | X | | | | |
| 824 | | X | | | | |
| 825 | | X | | | | |
| 826 | | X | | | | Data logger |
| 827 | | X | | | | Data logger |
| 828 | | X | | | | Data logger |
| 829 | | X | | | | |
| 830 | | X | | | | Data logger |
| 832 | | X | | | | |
| 833 | | X | | | | |
| 835 | | X | | | | Low flow; data logger |
| 836 | | X | | | | Low flow; data logger |
| 837 | | X | | | | Data logger |
| 838 | | X | | | | Low flow |
| 841 | | X | | | | Low flow; data logger |
| 843 | | X | | | | Data logger |
| 844 | | X | | | | |
| 848 | | X | | | | Data logger |
| 1002 | | X | | | | |
| 1003 | | X | | | | |
| 1004 | | X | | | | |
| 1007 | | X | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Monitoring Wells*** | | | | | | |
| **TERRACE - SHP02** | | | | | | |
| 1011 | | X | | | | |
| 1048 | | X | | | | |
| 1049 | | X | | | | |
| 1057 | | X | | | | |
| 1058 | | X | | | | |
| 1059 | | X | | | | |
| 1060 | | X | | | | |
| 1067 | | | | | X | WL only; Bob Lee Wash |
| 1068 | | X | | | | Bob Lee Wash |
| 1069 | | X | | | | Bob Lee Wash; data logger |
| 1070 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1071 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1073 | | X | | | | Data logger |
| 1074 | | X | | | | |
| 1078 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1079 | | X | | | | Low flow |
| 1087 | | X | | | | SUMP-Bob Lee Wash |
| 1088 | | X | | | | SUMP-Many Devils Wash |
| 1091 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1092 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1093R | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1095 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1096 | | X | | | | Ext. well; U, SO4, N as NO3 only at vault |
| 1120 | | X | | | | |
| 1122 | | X | | | | |
| MW1 | | X | | | | |
| DM7 | | X | | | | |

| ***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 |
| 1118 | | X | | | | Seep sump (425/426) U, SO4, N as NO3 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 |
| 889 | | X | | | | Many Devils Wash |
| 949 | | X | | | | |
| 1215 | | X | | | | |
| 1218 | | X | | | | |
| 1219 | | X | | | | |
| 1220 | | X | | | | |
| 1221 | | X | | | | |

Sampling conducted in March and September

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

## Constituent Sampling Breakdown

| Site | Shiprock | | | | |
|---|---|---|---|---|---|
| Analyte | Groundwater | Surface Water | Required Detection Limit (mg/L) | Analytical Method | Line Item Code |
| **Approx. No. Samples/yr** | 256 | 38 | | | |
| *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 (NH3-N) | X | X | 0.1 | EPA 350.1 | WCH-A-005 |
| Calcium | X | X | 5 | SW-846 6010 | LMM-01 |
| Chloride | X | X | 0.5 | SW-846 9056 | MIS-A-039 |
| Chromium | | | | | |
| Gross Alpha | | | | | |
| Gross Beta | | | | | |
| Iron | | | | | |
| Lead | | | | | |
| Magnesium | X | X | 5 | SW-846 6010 | LMM-01 |
| Manganese | X | X | 0.005 | SW-846 6010 | LMM-01 |
| Molybdenum | | | | | |
| Nickel | | | | | |
| Nickel-63 | | | | | |
| Nitrate + Nitrite as N (NO3+NO2)-N | X | X | 0.05 | EPA 353.1 | WCH-A-022 |
| Potassium | X | X | 1 | SW-846 6010 | LMM-01 |
| Radium-226 | | | | | |
| Radium-228 | | | | | |
| Selenium | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Silica | | | | | |
| Sodium | X | X | 1 | SW-846 6010 | LMM-01 |
| Strontium | X | X | 0.2 | SW-846 6010 | LMM-01 |
| Sulfate | X | X | 0.5 | SW-846 9056 | MIS-A-044 |
| Sulfide | | | | | |
| Total Dissolved Solids | | | | | |
| Total Organic Carbon | | | | | |
| Uranium | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Vanadium | | | | | |
| Zinc | | | | | |
| **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 2

# Trip Report

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memo

NAVARRO

To: David Miller, Navarro

From: Jeff Price and Jennifer Graham, Navarro

Date: November 16, 2016

CC: Mark Kautsky, DOE
David Dander, Navarro
Steve Donivan, Navarro
EDD Delivery

Re: Sampling Trip Report

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

**Dates of Sampling Event:** September 26-29, 2016

**Team Members:** David Atkinson, Tony Franzone, Jennifer Graham, Jeff Price, Rob Rice, Dan Sellers, and Samantha Tigar, all from Navarro.

**Sampling Summary:** Samples were collected from 126 of the 145 locations identified on the sampling notification letter as shown in Table 1. An additional sub set of samples was collected in support of the Terrace Work Plan Investigation. Explanations for locations not sampled are listed in Table 2.

*Table 1: Sampled versus Planned Location Summary*

| | Locations That Were Sampled | Planned Locations |
|---|---|---|
| SHP01 Monitoring wells | 58 | 59 |
| SHP02 Monitoring wells | 53 | 67 |
| SHP01 Surface locations | 10 | 11 |
| SHP02 Surface locations | 5 | 8 |

*Table 2: Locations Not Sampled/Reason*

| Location | Reason |
|---|---|
| SHP01 Monitoring well: 0734 | Dry |
| SHP01 Surface location: 0655 | Dry |
| SHP02 Monitoring wells: 0730, 0821, 0823, 0829, 1002, 1003, 1004,1048,1060,1069,1120,1122, and DM7 | Dry |
| SHP02 Monitoring well 1049 | Replaced pump head tubing. |
| SHP02 Extraction well: 1088 | Well not currently operating/ not sampled per site lead. |
| SHP02 Surface locations: 0949, 1218, and 1220 | Dry |

**Location Specific Information:**

- Location specific information is listed below in Tables 3 and 4.
- Both regular semiannual samples and special analytes were collected at select locations, along with field measurements for total chlorine. The additional analytes and field measurements were collected in accordance with the Terrace Work Plan Investigation. Additional analytes collected included hydrogen and oxygen isotopes, uranium isotopes, enriched tritium, and sulfur and oxygen isotopes. Field measurements for total chlorine were obtained at select locations using a manganese interference method.

*Table 3: SHP01 Location Specific Information*

| Location IDs | Comments |
|---|---|
| 0626, 0628 | Purge water contained black particulates. |
| 0736 | Data Logger was removed in order to sample. Purge water contained roots and black particulates. Initial water level was below recorded screened interval. Well maintained water level during sampling. |
| 0850 | Purge water contained roots. |
| 0854 | Well cap does not fit due to cables in well. |
| 1128 | DTW below set intake depth; new tubing used to sample at 12 feet. |
| 1135 | Tubing was outside of well on arrival. New tubing was installed with the same sampling depth as previous. |

*Table 4: SHP02 Location Specific Information*

| Location IDs | Comments |
|---|---|
| 0837 | Purge water contains particulates. |
| 0848 | Bladder pump has a bad check valve. |
| 1011 | Well did not produce enough water to collect all requested samples. Samples were collected in a prioritized order and only a metals sample was collected. |

**Requisition Index Numbers (RIN) Assigned:** Samples were assigned to RINs 16098030 (SHP01), 16098031 (SHP02), 16098033 (hydrogen and oxygen isotopes; sulfur and oxygen isotopes), and 16098034 (enriched tritium and uranium isotopes). Field data sheets can be found in \\crow\SMS\16098030\FieldData and \\crow\SMS\16098031\FieldData.

**Quality Control Sample Cross Reference:** The false identifications assigned to the quality control samples are presented in Table 5.

*Table 5: Quality Control Sample Cross Reference*

| False ID | Ticket Number | True ID | Sample Type | Associated Matrix | Associated Locations |
|---|---|---|---|---|---|
| 2210 | OKU 814 | SHP01-0735 | Duplicate | Ground Water | N/A |
| 2211 | OKU 815 | SHP01-1115 | Duplicate | Ground Water | N/A |
| 2824 | OKU 821 | N/A | Equipment Blank | Surface Water | SHP01-0501, 0897, 0956, 1203 |
| 2215 | OKU 813 | SHP01-1142 | Duplicate | Ground Water | N/A |
| 2592 | OKU 817 | SHP01-0618 | Duplicate | Ground Water | N/A |
| 2319 | OKU 868 | SHP02-0818 | Duplicate | Ground Water | N/A |
| 2320 | OKU 869 | SHP02-1070 | Duplicate | Ground Water | N/A |
| 2665 | OKU 875 | SHP02-1087 | Duplicate | Ground Water | N/A |
| 2811 | OKU 864 | SHP02-1078 | Duplicate | Ground Water | N/A |

**Sample Shipment:** All samples were shipped overnight via FedEx from Grand Junction to the respective laboratories on October 03, 2016.

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

**Sampling Method**: Samples were collected according to the *Sampling and Analysis Plan (SAP) for the U. S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated) and Program Directive SHP-2015-01. Total chlorine measurements were taken using the Hach procedures manual for colorimeter model DR-890.

**Field Variance:** Turbidity requirements could not be met for Category I well SHP01-1143. These samples were filtered.

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

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

**Institutional Controls:**

**Fences, Gates, and Locks:** All gates were left locked and in operable condition.
**Signs**: No issues were observed.
**Trespassing/Site Disturbances:** None observed.
**Disposal Cell/Drainage Structure Integrity:** No issues observed.

**Safety Issues:** Air monitoring was completed prior to confined space entry. Results for all vaults indicated safe conditions.

**Access Issues:** SHP02 seep location 1220 was altered by a significant flash flood earlier in the monsoon season and is now dry.

**General Information:** Nothing to note.

**Immediate Actions Taken:** New downhole tubing was installed at SHP01-1135.

**Future Actions Required or Suggested:** Locations SHP01: 1134, 1136, and 1203 need to have vegetation removed for access.

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# Attachment 3

# 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: 12/13/2016
Location: 0608 WELL SE part of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 286 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 44 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 340 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 260 | | F | # | 20 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 440 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 2.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 35 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 10 | - | 15 | 126 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 10 | - | 15 | 7.19 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 64 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 0.0045 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 1700 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 10 | - | 15 | 10014 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 7.6 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 6400 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 10 | - | 15 | 22.47 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 10 | - | 15 | 2.99 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 10 | - | 15 | 0.63 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0610 WELL SE part of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 284 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 9.2 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 560 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 220 | | F | # | 20 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 790 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 0.3 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 220 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 4 | - | 9 | 109.5 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 4 | - | 9 | 7.05 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 130 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 0.18 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 1100 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 4 | - | 9 | 10036 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 7.7 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 6000 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 4 | - | 9 | 25.18 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 4 | - | 9 | 0.98 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 4 | - | 9 | 0.68 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0611 WELL SE part of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 590 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 2.3 | | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 150 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 490 | | F | # | 20 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 76 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 0.065 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 0.029 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 9.5 - 14.5 | 50.4 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 9.5 - 14.5 | 7.25 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 18 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 2300 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 9.5 - 14.5 | 10616 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 6.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 5300 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 9.5 - 14.5 | 24.1 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 9.5 - 14.5 | 1.42 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 9.5 - 14.5 | 0.0045 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0612 WELL SE part of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 263 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 82 | | F | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 27 | | F | # | 2 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 51 | | F | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.7 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 5 | - | 10 | -92.4 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 5 | - | 10 | 7.3 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 4.6 | | F | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 150 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 5 | - | 10 | 1386 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 1 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 470 | | F | # | 5 | |
| Temperature | C | 09/28/2016 | N001 | 5 | - | 10 | 18.74 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 5 | - | 10 | 1.71 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.1 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0614 WELL SE part of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 10 - 15 | 360 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 10 - 15 | 14 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 10 - 15 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 10 - 15 | 140 | | F | # | 20 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 10 - 15 | 590 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 10 - 15 | 1.3 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 10 - 15 | 43 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 10 - 15 | 24.1 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 10 - 15 | 7.04 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 10 - 15 | 77 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 10 - 15 | 0.98 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 10 - 15 | 810 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 10 - 15 | 7765 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 10 - 15 | 6.2 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 10 - 15 | 5200 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 10 - 15 | 21.34 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 10 - 15 | 1.25 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 10 - 15 | 0.89 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0615 WELL S of floodplain fence, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 370 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 67 | | F | # | 12 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 340 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 2.9 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 0.039 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 4.5 | - | 9.5 | 16.6 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 4.5 | - | 9.5 | 7.19 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 53 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 0.017 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 610 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 4.5 | - | 9.5 | 5843 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 4.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 3700 | | F | # | 31 | |
| Temperature | C | 09/28/2016 | N001 | 4.5 | - | 9.5 | 23.15 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 4.5 | - | 9.5 | 3.77 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.5 | - | 9.5 | 0.28 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0618 WELL Center of floodplain, well nest, just N of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 312 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 13 | | F | # | 2.5 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 12 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 450 | | F | # | 0.12 | |
| Calcium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 440 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 94 | | F | # | 20 | |
| Chloride | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 87 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 290 | | F | # | 0.13 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 280 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 2.8 | | F | # | 0.0011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 2.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 0.27 | | F | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 0.3 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 11 | - | 16 | -11.6 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 11 | - | 16 | 7.13 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 53 | | F | # | 1.1 | |
| Potassium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 52 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 0.001 | | F | # | 0.00066 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0618 WELL Center of floodplain, well nest, just N of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 0.00097 | J | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 1300 | | F | # | 0.066 | |
| Sodium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 11 | - | 16 | 8216 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 4.4 | | F | # | 0.00078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 4.3 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 5200 | | F | # | 50 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 5000 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 11 | - | 16 | 22.86 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 11 | - | 16 | 5.85 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 11 | - | 16 | 0.35 | | F | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 11 | - | 16 | 0.34 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0619 WELL Center of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 441 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 0.42 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 300 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 140 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 260 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 3.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 8 | - | 13 | -48.9 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 8 | - | 13 | 7.21 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 50 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 1700 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 8 | - | 13 | 9353 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 6.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 5600 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 8 | - | 13 | 21.38 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 8 | - | 13 | 0.93 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 8 | - | 13 | 0.18 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0622 WELL Center of floodplain, well nest, N of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 312 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 250 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 81 | | F | # | 10 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 69 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 1.5 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 5 | - | 10 | -39.1 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 5 | - | 10 | 7.32 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 19 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.00078 | J | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 990 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 5 | - | 10 | 5733 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 11 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 3100 | | F | # | 25 | |
| Temperature | C | 09/28/2016 | N001 | 5 | - | 10 | 20.5 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 5 | - | 10 | 1.51 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 5 | - | 10 | 0.043 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0623 WELL Center of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 10 - 15 | 291 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 10 - 15 | 190 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 10 - 15 | 70 | | F | # | 10 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 10 - 15 | 38 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 10 - 15 | 1.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 10 - 15 | 60.2 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 10 - 15 | 7.32 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 10 - 15 | 12 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 10 - 15 | 850 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 10 - 15 | 4775 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 10 - 15 | 7.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 10 - 15 | 2400 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 10 - 15 | 18.54 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 10 - 15 | 0.79 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.03 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0625 WELL Center of floodplain, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 290 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 190 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 65 | | F | # | 10 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 35 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 2 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 4.5 | - | 9.5 | 195.6 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 4.5 | - | 9.5 | 7.33 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 12 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 850 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 4.5 | - | 9.5 | 4764 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 8.3 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 2400 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 4.5 | - | 9.5 | 19.97 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 4.5 | - | 9.5 | 1 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 4.5 | - | 9.5 | 0.025 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0626 WELL Center of floodplain, just NE of wetland

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 250 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 190 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 67 | | F | # | 10 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 24 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 1.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 9.5 | - | 14.5 | 14.8 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 9.5 | - | 14.5 | 7.28 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 15 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 890 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 9.5 | - | 14.5 | 4697 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 11 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 2400 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 9.5 | - | 14.5 | 17.78 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 9.5 | - | 14.5 | 1.22 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 9.5 | - | 14.5 | 0.019 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0628 WELL Center of floodplain, well nest, just N of wetland

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 157 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 280 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 72 | | F | # | 10 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 39 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 3.3 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6 | - | 10 | -50.5 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6 | - | 10 | 7.12 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 19 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 870 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6 | - | 10 | 5070 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 9.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 2700 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 6 | - | 10 | 17.01 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6 | - | 10 | 8.28 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 6 | - | 10 | 0.019 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0630 WELL Just N of mouth of Bob Lee Wash, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 517 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 360 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 180 | | F | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 280 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 3.1 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 26 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 5 | - | 10 | 172.2 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 5 | - | 10 | 6.85 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 22 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 0.2 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 5 | - | 10 | 7922 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 14 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 4600 | | F | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 5 | - | 10 | 18.52 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 5 | - | 10 | 0.89 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 5 | - | 10 | 0.2 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0735 WELL SE end of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 820 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 16 | | F | # | 2.5 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 16 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 520 | | F | # | 0.12 | |
| Calcium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 780 | | F | # | 40 | |
| Chloride | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 770 | | F | # | 40 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 1500 | | F | # | 0.13 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 1400 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 3.8 | | F | # | 0.0011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 3.5 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 800 | | F | # | 5 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 760 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 3 | - | 8 | 192.6 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 3 | - | 8 | 6.94 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 110 | | F | # | 1.1 | |
| Potassium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 110 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 0.24 | | F | # | 0.00066 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0735 WELL SE end of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 0.23 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 4400 | | F | # | 0.66 | |
| Sodium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 4200 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 3 | - | 8 | 22874 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 14 | | F | # | 0.00078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 13 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 14000 | | F | # | 100 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 14000 | | F | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 3 | - | 8 | 16.38 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 3 | - | 8 | 1.5 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 3 | - | 8 | 0.36 | | F | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 3 | - | 8 | 0.37 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0736 WELL N part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 3 - 5 | 267 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 3 - 5 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 3 - 5 | 350 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 3 - 5 | 94 | | F | # | 12 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 3 - 5 | 79 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 3 - 5 | 0.79 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 3 - 5 | 0.052 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 3 - 5 | 46.2 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 3 - 5 | 7.2 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 3 - 5 | 23 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 3 - 5 | 0.00077 | J | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 3 - 5 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 3 - 5 | 6460 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 3 - 5 | 6.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 3 - 5 | 3700 | | F | # | 31 | |
| Temperature | C | 09/29/2016 | N001 | 3 - 5 | 18.96 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 3 - 5 | 4.56 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 3 - 5 | 0.062 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0766 WELL NE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 421 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 0.27 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 370 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 130 | | F | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 210 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 0.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 0.024 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6.25 | - | 8.75 | -184.8 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6.25 | - | 8.75 | 7.29 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 59 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 0.003 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 1800 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6.25 | - | 8.75 | 9195 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 5.6 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 5700 | | F | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 6.25 | - | 8.75 | 22.59 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6.25 | - | 8.75 | 2.74 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 6.25 | - | 8.75 | 0.26 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0768 WELL Center of floodplain, N of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 742 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 220 | | F | # | 25 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 230 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 1.2 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 0.031 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 4.58 | - | 7.08 | -91.8 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 4.58 | - | 7.08 | 7.29 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 54 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 0.00083 | J | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 2500 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 4.58 | - | 7.08 | 13050 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 16 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 7600 | | F | # | 62 | |
| Temperature | C | 09/28/2016 | N001 | 4.58 | - | 7.08 | 20.76 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 4.58 | - | 7.08 | 9.25 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.58 | - | 7.08 | 0.16 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0773 WELL SE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 322 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 15 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 330 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 100 | | FQ | # | 10 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 350 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 1.3 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 40 | | FQ | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 4 | - | 6.5 | 121.7 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 4 | - | 6.5 | 7.27 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 37 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 0.13 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 480 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 4 | - | 6.5 | 5862 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 4.2 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 2900 | | FQ | # | 25 | |
| Temperature | C | 09/27/2016 | N001 | 4 | - | 6.5 | 28.26 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 4 | - | 6.5 | 5.87 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 4 | - | 6.5 | 0.48 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0775 WELL Center of floodplain, just S of drainage ditch

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 342 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 0.1 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 470 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 100 | | F | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 130 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 2.4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 4.25 | - | 6.75 | -84.6 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 4.25 | - | 6.75 | 7.31 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 36 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 4.25 | - | 6.75 | 7169 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 5.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 4100 | | F | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 4.25 | - | 6.75 | 21.18 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 4.25 | - | 6.75 | 3.08 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 4.25 | - | 6.75 | 0.12 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0779 WELL E part of floodplain, just N of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 764 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 0.62 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 510 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 390 | | F | # | 40 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 1000 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 1.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 54 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7 | - | 9.5 | 117 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7 | - | 9.5 | 7.24 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 150 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 0.051 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 3300 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7 | - | 9.5 | 18035 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 11 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 13000 | | F | # | 100 | |
| Temperature | C | 09/28/2016 | N001 | 7 | - | 9.5 | 25.27 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7 | - | 9.5 | 4.88 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7 | - | 9.5 | 1.3 | | F | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0782R WELL Island area NW of US Hwy 491 bridge.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 176 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 53 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 14 | | F | # | 1 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 16 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 1.3 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 4.71 | - | 9.46 | 8.8 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 4.71 | - | 9.46 | 7.11 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 4.1 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 140 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 4.71 | - | 9.46 | 1034 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 0.65 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 330 | | F | # | 2.5 | |
| Temperature | C | 09/27/2016 | N001 | 4.71 | - | 9.46 | 18.28 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 4.71 | - | 9.46 | 2.52 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 4.71 | - | 9.46 | 0.0071 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0783R WELL Island area NW of US Hwy 491 bridge.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 228 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 180 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 44 | | F | # | 5 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 59 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 1.9 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 4.38 | - | 9.38 | 31.5 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 4.38 | - | 9.38 | 7.25 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 11 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 350 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 4.38 | - | 9.38 | 2666 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 2.1 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 1200 | | F | # | 12 | |
| Temperature | C | 09/27/2016 | N001 | 4.38 | - | 9.38 | 23.94 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 4.38 | - | 9.38 | 3.77 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 4.38 | - | 9.38 | 0.016 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0792 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 392 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 110 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 140 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 5 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 0.01 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 6 | - | 8 | 59.8 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 6 | - | 8 | 7.37 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 38 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 6 | - | 8 | 7297 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 8.8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 4500 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 6 | - | 8 | 22.26 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 6 | - | 8 | 3.02 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 6 | - | 8 | 0.064 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0793 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 325 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 2.9 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 280 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 100 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 320 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 0.88 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 0.32 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 5.2 | - | 7.2 | 12.2 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 5.2 | - | 7.2 | 7.31 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 60 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 0.0026 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 5.2 | - | 7.2 | 7466 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 3.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 4600 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 5.2 | - | 7.2 | 22.42 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 5.2 | - | 7.2 | 0.81 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 5.2 | - | 7.2 | 0.35 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0797 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 264 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 0.1 | U | FQ | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 240 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 180 | | FQ | # | 12 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 67 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 0.15 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 0.086 | | FQ | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7.3 | - | 9.3 | 4.7 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.3 | - | 9.3 | 7.5 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 8.3 | J | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 0.00074 | J | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 1200 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7.3 | - | 9.3 | 6386 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 4.6 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 3300 | | FQ | # | 31 | |
| Temperature | C | 09/28/2016 | N001 | 7.3 | - | 9.3 | 21.76 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7.3 | - | 9.3 | 6.41 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7.3 | - | 9.3 | 0.021 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0798 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 436 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 1.1 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 610 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 180 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 260 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 2.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7.1 | - | 9.1 | 30.1 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.1 | - | 9.1 | 7.23 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 52 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 1800 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7.1 | - | 9.1 | 9977 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 7.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 6400 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 7.1 | - | 9.1 | 21.71 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7.1 | - | 9.1 | 1.27 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7.1 | - | 9.1 | 0.26 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0850 WELL Background area 1 mi E of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 461 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 130 | | F | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 98 | | F | # | 5 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 34 | | F | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 1.9 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 5.6 | - | 15.4 | -104.4 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 5.6 | - | 15.4 | 7.24 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 5.2 | | F | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 680 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 5.6 | - | 15.4 | 3634 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 2 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 1400 | | F | # | 12 | |
| Temperature | C | 09/28/2016 | N001 | 5.6 | - | 15.4 | 19.75 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 5.6 | - | 15.4 | 4.77 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 5.6 | - | 15.4 | 0.034 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0853 WELL S of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 10 - 15 | 211 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 10 - 15 | 18 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 10 - 15 | 180 | | F | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | N001 | 10 - 15 | 32 | | F | # | 2.5 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 10 - 15 | 52 | | F | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 10 - 15 | 0.88 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 10 - 15 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 10 - 15 | -41.1 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 10 - 15 | 7.28 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 10 - 15 | 17 | | F | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 10 - 15 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 10 - 15 | 120 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 10 - 15 | 1710 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 10 - 15 | 1.8 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 10 - 15 | 720 | | F | # | 6.2 | |
| Temperature | C | 09/28/2016 | N001 | 10 - 15 | 21.46 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 10 - 15 | 5.85 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 10 - 15 | 0.059 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0854 WELL NE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 492 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 3 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 470 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 200 | | F | # | 25 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 450 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 9.05 - 11.55 | -28.2 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 9.05 - 11.55 | 7.21 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 81 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 2000 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 9.05 - 11.55 | 11257 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 6.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 7300 | | F | # | 62 | |
| Temperature | C | 09/29/2016 | N001 | 9.05 - 11.55 | 20.99 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 9.05 - 11.55 | 1.19 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 9.05 - 11.55 | 0.42 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0855 WELL NW part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 311 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 300 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 98 | | F | # | 12 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 100 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 1.6 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 3.6 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 4.9 | - | 14.9 | 65.4 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 4.9 | - | 14.9 | 7.03 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 16 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 0.037 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 1100 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 4.9 | - | 14.9 | 6158 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 10 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 3400 | | F | # | 31 | |
| Temperature | C | 09/28/2016 | N001 | 4.9 | - | 14.9 | 16.99 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 4.9 | - | 14.9 | 1.77 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.9 | - | 14.9 | 0.064 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0856 WELL NW part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 300 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 300 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 94 | | F | # | 12 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 67 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 1.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 18.8 | - | 23.8 | 91.2 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 18.8 | - | 23.8 | 7.24 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 18 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 18.8 | - | 23.8 | 6211 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 9.8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 3400 | | F | # | 31 | |
| Temperature | C | 09/28/2016 | N001 | 18.8 | - | 23.8 | 16.63 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 18.8 | - | 23.8 | 1.07 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 18.8 | - | 23.8 | 0.09 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0857 WELL Near E end of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 465 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 10 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 470 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 220 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 560 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 7.3 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 13.2 | - | 18.2 | 84.9 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 13.2 | - | 18.2 | 7.06 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 50 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 0.027 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 1100 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 13.2 | - | 18.2 | 8427 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 6.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 5400 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 13.2 | - | 18.2 | 21.83 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 13.2 | - | 18.2 | 3.11 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 13.2 | - | 18.2 | 0.68 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1008 WELL NE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 365 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 1.9 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 410 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 110 | | F | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 170 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 1.6 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6.9 | - | 16.9 | 13.1 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6.9 | - | 16.9 | 7.21 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 42 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 0.0029 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6.9 | - | 16.9 | 7352 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 5.2 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 4100 | | F | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 6.9 | - | 16.9 | 19.09 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6.9 | - | 16.9 | 0.34 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 6.9 | - | 16.9 | 0.17 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1009 WELL Center of floodplain, S of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 231 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 12 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 310 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 37 | | F | # | 8 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 140 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 1.2 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7.4 | - | 17.4 | -7 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.4 | - | 17.4 | 7.16 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 22 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 230 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7.4 | - | 17.4 | 3082 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 3.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 1600 | | F | # | 20 | |
| Temperature | C | 09/28/2016 | N001 | 7.4 | - | 17.4 | 21.62 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7.4 | - | 17.4 | 1.19 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7.4 | - | 17.4 | 0.16 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1089 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 544 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 0.3 | | | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 310 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 100 | | | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 130 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 1.2 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 0.6 | | | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 4.8 | - | 14.8 | 193.9 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 4.8 | - | 14.8 | 6.82 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 39 | | | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 0.0043 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 1300 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 4.8 | - | 14.8 | 6988 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 5 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 3800 | | | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 4.8 | - | 14.8 | 21.09 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 4.8 | - | 14.8 | 5.11 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 4.8 | - | 14.8 | 0.16 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1104 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 10 - 15 | 424 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 10 - 15 | 1.8 | | | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 10 - 15 | 390 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 10 - 15 | 180 | | | # | 25 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 10 - 15 | 6.83 | | | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 10 - 15 | 390 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 10 - 15 | 1.7 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.6 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 10 - 15 | 218.8 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 10 - 15 | 6.35 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 10 - 15 | 72 | | | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.0024 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 10 - 15 | 1800 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 10 - 15 | 9855 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 10 - 15 | 6.1 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 10 - 15 | 6400 | | | # | 62 | |
| Temperature | C | 09/29/2016 | N001 | 10 - 15 | 21 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 10 - 15 | 2.07 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 10 - 15 | 0.44 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1105 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 400 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 1.1 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 380 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 68 | | F | # | 12 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 310 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 3.1 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 0.022 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 4.5 | - | 14.5 | 7.2 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 4.5 | - | 14.5 | 7.17 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 47 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 0.0024 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 530 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 4.5 | - | 14.5 | 5121 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 4.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 3000 | | F | # | 31 | |
| Temperature | C | 09/28/2016 | N001 | 4.5 | - | 14.5 | 22.42 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 4.5 | - | 14.5 | 1.21 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.5 | - | 14.5 | 0.38 | | F | # | 0.000012 | |

**General Water Quality Data by Location (USEE105) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1109 TREATMENT SYSTEM Sump to the Trench 2 Treatment System

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 0 - 0 | 180 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 0 - 0 | 19 | | | # | 2.5 | |
| Calcium | mg/L | 09/29/2016 | N001 | 0 - 0 | 110 | | | # | 0.012 | |
| Chloride | mg/L | 09/29/2016 | N001 | 0 - 0 | 46 | | | # | 4 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 0 - 0 | 130 | | | # | 0.013 | |
| Manganese | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.43 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 0 - 0 | 38 | | | # | 1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 0 - 0 | 181.8 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 0 - 0 | 7.49 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 0 - 0 | 18 | | | # | 0.11 | |
| Selenium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.014 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 0 - 0 | 220 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 0 - 0 | 2553 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 0 - 0 | 1.5 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 0 - 0 | 920 | | | # | 10 | |
| Temperature | C | 09/29/2016 | N001 | 0 - 0 | 18.83 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 0 - 0 | 4.49 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.12 | | | # | 0.000012 | |

**General Water Quality Data by Location (USEE105) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1110 TREATMENT SYSTEM Sump to the Trench 1 Treatment System

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 0 - 0 | 709 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 0 - 0 | 2.8 | | | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 0 - 0 | 360 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 0 - 0 | 160 | | | # | 20 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 0 - 0 | 440 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 0 - 0 | 1.3 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 0 - 0 | 26 | | | # | 1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 0 - 0 | 212.3 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 0 - 0 | 6.79 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 0 - 0 | 54 | | | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.18 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 0 - 0 | 1200 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 0 - 0 | 8123 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 0 - 0 | 8.1 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 0 - 0 | 4900 | | | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 0 - 0 | 20.72 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 0 - 0 | 4.84 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.41 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1111 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 832 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 1.7 | | F | # | 0.1 | |
| Calcium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 350 | | F | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 260 | | F | # | 25 | |
| Chlorine, Total Residual | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 0.09 | | F | # | | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 3.81 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 790 | | F | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 1.4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 23 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 7 | - | 12 | -5.5 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 7 | - | 12 | 6.86 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 62 | | F | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 0.15 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 1500 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 7 | - | 12 | 10335 | | F | # | | |
| Stable isotope ratio H2/H1 in Water | parts per thousand | 09/26/2016 | N003 | 7 | - | 12 | -89.99 | | | 0 | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1111 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stable isotope ratio O18/O16 in Sulfate | parts per thousand | 09/26/2016 | N003 | 7 | - | 12 | 2.12 | | | 0 | | |
| Stable isotope ratio O18/O16 in Water | parts per thousand | 09/26/2016 | N004 | 7 | - | 12 | -11.13 | | | 0 | | |
| Stable isotope ratio S-34/S-32 in Sulfate | parts per thousand | 09/26/2016 | 0001 | 7 | - | 12 | -3.71 | | | 0 | | |
| Strontium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 8.7 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 6600 | | F | # | 62 | |
| Temperature | C | 09/26/2016 | N001 | 7 | - | 12 | 19.52 | | F | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 7 | - | 12 | 3.86 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 7 | - | 12 | 0.58 | | F | # | 0.000012 | |
| Uranium-234 | pCi/L | 09/26/2016 | N002 | 7 | - | 12 | 202 | | | 0 | 0.0861 | 27.9 |
| Uranium-235/236 | pCi/L | 09/26/2016 | N002 | 7 | - | 12 | 9.16 | | | 0 | 0.0333 | 1.41 |
| Uranium-238 | pCi/L | 09/26/2016 | N002 | 7 | - | 12 | 174 | | | 0 | 0.0861 | 24.1 |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1112 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7 - 12 | 436 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7 - 12 | 28 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7 - 12 | 470 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7 - 12 | 210 | | F | # | 25 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7 - 12 | 820 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7 - 12 | 2.2 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7 - 12 | 150 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7 - 12 | 60.6 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7 - 12 | 6.98 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7 - 12 | 110 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7 - 12 | 0.83 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7 - 12 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7 - 12 | 10289 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7 - 12 | 8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7 - 12 | 6600 | | F | # | 62 | |
| Temperature | C | 09/27/2016 | N001 | 7 - 12 | 19.42 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7 - 12 | 2.49 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7 - 12 | 0.94 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1113 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 222 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 2.2 | | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 520 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 130 | | F | # | 12 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 470 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.049 | J | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 190 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7 | - | 12 | 102.7 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7 | - | 12 | 7.13 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 81 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.29 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 710 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7 | - | 12 | 7280 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 5.7 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 3800 | | F | # | 31 | |
| Temperature | C | 09/27/2016 | N001 | 7 | - | 12 | 21.83 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7 | - | 12 | 3.34 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.5 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1114 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 274 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 30 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 110 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 38 | | F | # | 4 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 130 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.96 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 14 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7 | - | 12 | 82.6 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7 | - | 12 | 7.26 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 29 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.067 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 190 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7 | - | 12 | 2342 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 1.5 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 930 | | F | # | 10 | |
| Temperature | C | 09/27/2016 | N001 | 7 | - | 12 | 22.32 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7 | - | 12 | 1.47 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.18 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1115 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7 - 12 | 332 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7 - 12 | 54 | | F | # | 2.5 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 7 - 12 | 54 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7 - 12 | 160 | | F | # | 0.012 | |
| Calcium | mg/L | 09/27/2016 | N002 | 7 - 12 | 160 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7 - 12 | 70 | | F | # | 8 | |
| Chloride | mg/L | 09/27/2016 | N002 | 7 - 12 | 72 | | F | # | 8 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7 - 12 | 230 | | F | # | 0.013 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 7 - 12 | 220 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7 - 12 | 0.97 | | F | # | 0.00011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 7 - 12 | 1 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7 - 12 | 70 | | F | # | 1 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 7 - 12 | 71 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7 - 12 | 121.1 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7 - 12 | 7.15 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7 - 12 | 48 | | JF | # | 0.11 | |
| Potassium | mg/L | 09/27/2016 | N002 | 7 - 12 | 34 | | JF | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7 - 12 | 0.12 | | F | # | 0.00066 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1115 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | N002 | 7 | - | 12 | 0.12 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 390 | | F | # | 0.066 | |
| Sodium | mg/L | 09/27/2016 | N002 | 7 | - | 12 | 380 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7 | - | 12 | 4013 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 2.3 | | F | # | 0.000078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 7 | - | 12 | 2.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 1700 | | F | # | 20 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 7 | - | 12 | 1800 | | F | # | 20 | |
| Temperature | C | 09/27/2016 | N001 | 7 | - | 12 | 20.19 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7 | - | 12 | 0.82 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.27 | | F | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 7 | - | 12 | 0.27 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1117 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 158 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 72 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 13 | | F | # | 0.8 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 12 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.24 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.094 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7 | - | 12 | 82.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7 | - | 12 | 7.41 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 3.1 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.0028 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 48 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7 | - | 12 | 646 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.84 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 160 | | F | # | 2 | |
| Temperature | C | 09/27/2016 | N001 | 7 | - | 12 | 18.72 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7 | - | 12 | 2.39 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7 | - | 12 | 0.0046 | | F | # | 0.000012 | |

**General Water Quality Data by Location (USEE105) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1118 TREATMENT SYSTEM Sump - seep vault

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 0 - 0 | 508 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 0 - 0 | 440 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 0 - 0 | 210 | | | # | 20 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 0 - 0 | 7.52 | | | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 0 - 0 | 460 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.033 | J | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 0 - 0 | 44 | | | # | 1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 0 - 0 | 228 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 0 - 0 | 6.85 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 0 - 0 | 33 | | | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.18 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 0 - 0 | 1400 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 0 - 0 | 8911 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 0 - 0 | 11 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 0 - 0 | 5400 | | | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 0 - 0 | 17.88 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 0 - 0 | 1.77 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 0 - 0 | 0.38 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1128 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 404 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 55 | | F | # | 2.5 | |
| Calcium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 310 | | F | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 230 | | F | # | 20 | |
| Chlorine, Total Residual | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 0.11 | | F | # | | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 5.46 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 650 | | F | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 1.8 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 270 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 6.81 | - | 11.81 | -1.9 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 6.81 | - | 11.81 | 7.01 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 67 | | F | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 0.05 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 1200 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 6.81 | - | 11.81 | 9575 | | F | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 4600 | | F | # | 50 | |
| Temperature | C | 09/26/2016 | N001 | 6.81 | - | 11.81 | 20.61 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1128 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | NTU | 09/26/2016 | N001 | 6.81 | - | 11.81 | 1.06 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 6.81 | - | 11.81 | 0.49 | | F | # | 0.000012 | |
| Uranium-234 | pCi/L | 09/26/2016 | N002 | 6.81 | - | 11.81 | 178 | | | 0 | 0.128 | 24.4 |
| Uranium-235/236 | pCi/L | 09/26/2016 | N002 | 6.81 | - | 11.81 | 9.23 | | | 0 | 0.0788 | 1.4 |
| Uranium-238 | pCi/L | 09/26/2016 | N002 | 6.81 | - | 11.81 | 161 | | | 0 | 0.0921 | 22.1 |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1132 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 126 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.36 | | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 59 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 12 | | F | # | 0.8 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 13 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.35 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 6.07 | - | 11.07 | 50.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 6.07 | - | 11.07 | 7.72 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 2.8 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 45 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 6.07 | - | 11.07 | 600 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.72 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 160 | | F | # | 2 | |
| Temperature | C | 09/27/2016 | N001 | 6.07 | - | 11.07 | 17.39 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 6.07 | - | 11.07 | 1.59 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 6.07 | - | 11.07 | 0.0098 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1134 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 151 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.47 | | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 58 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 12 | | F | # | 0.5 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 12 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.81 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.012 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 8.16 | - | 13.16 | 1.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 8.16 | - | 13.16 | 7.52 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 2.6 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 48 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 8.16 | - | 13.16 | 634 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.68 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 140 | | F | # | 1.2 | |
| Temperature | C | 09/27/2016 | N001 | 8.16 | - | 13.16 | 15.64 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.53 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 8.16 | - | 13.16 | 0.0063 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1135 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 254 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 0.2 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 260 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 76 | | F | # | 10 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 77 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 1.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 0.018 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6.39 | - | 11.39 | 13.1 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6.39 | - | 11.39 | 7.41 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 17 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 910 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6.39 | - | 11.39 | 5463 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 3.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 2900 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 6.39 | - | 11.39 | 18.04 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6.39 | - | 11.39 | 4.38 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 6.39 | - | 11.39 | 0.071 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1136 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 474 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 6.3 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 360 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 170 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 540 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 4.1 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 4.7 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 6.29 | - | 11.29 | 103.7 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 6.29 | - | 11.29 | 7.11 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 23 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 0.0043 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 6.29 | - | 11.29 | 9244 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 5.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 5800 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 6.29 | - | 11.29 | 19.59 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 6.29 | - | 11.29 | 3.02 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 6.29 | - | 11.29 | 0.66 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1137 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 592 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 1.2 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 390 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 300 | | F | # | 25 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 930 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 4.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 40 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 9.4 | - | 14.4 | -9.4 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 9.4 | - | 14.4 | 7.32 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 46 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 0.011 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 2100 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 9.4 | - | 14.4 | 12816 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 7.3 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 9000 | | F | # | 62 | |
| Temperature | C | 09/29/2016 | N001 | 9.4 | - | 14.4 | 15 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 9.4 | - | 14.4 | 1.48 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 9.4 | - | 14.4 | 1.2 | | F | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1138 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 630 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 1.6 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 330 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 230 | | F | # | 25 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 670 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 3.1 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 2 | | F | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 8.09 | - | 13.09 | -67.8 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 8.09 | - | 13.09 | 7.32 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 47 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 0.011 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 1900 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 8.09 | - | 13.09 | 11438 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 5.9 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 7700 | | F | # | 62 | |
| Temperature | C | 09/29/2016 | N001 | 8.09 | - | 13.09 | 16.98 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 8.09 | - | 13.09 | 4.45 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 8.09 | - | 13.09 | 0.95 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1139 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 838 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 0.16 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 450 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 270 | | F | # | 25 | |
| Magnesium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 790 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 2.7 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 0.011 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6.19 | - | 11.19 | -88.9 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6.19 | - | 11.19 | 7.33 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 67 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 2200 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6.19 | - | 11.19 | 12753 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 7.7 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 9000 | | F | # | 62 | |
| Temperature | C | 09/29/2016 | N001 | 6.19 | - | 11.19 | 20.49 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6.19 | - | 11.19 | 2.8 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 6.19 | - | 11.19 | 0.87 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1140 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 398 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 7.3 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 450 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 120 | | F | # | 20 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 390 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 3 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 0.045 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7.6 | - | 12.6 | 42.7 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.6 | - | 12.6 | 7.11 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 59 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 0.0056 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7.6 | - | 12.6 | 8688 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 5.8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 5600 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 7.6 | - | 12.6 | 22.5 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7.6 | - | 12.6 | 1.13 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7.6 | - | 12.6 | 0.4 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1141 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 324 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 11 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 370 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 58 | | F | # | 10 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 250 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 1.4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 5.6 | - | 10.6 | 71.6 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 5.6 | - | 10.6 | 7.11 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 32 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 0.005 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 360 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 5.6 | - | 10.6 | 4317 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 4.1 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 2500 | | F | # | 25 | |
| Temperature | C | 09/27/2016 | N001 | 5.6 | - | 10.6 | 22.28 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 5.6 | - | 10.6 | 1.91 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 5.6 | - | 10.6 | 0.4 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1142 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 131 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.1 | U | F | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 62 | | F | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 61 | | F | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 12 | | F | # | 0.8 | |
| Chloride | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 12 | | F | # | 0.8 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 12 | | F | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 12 | | F | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.39 | | F | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.32 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.01 | U | F | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 9 | - | 14 | -29.6 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 9 | - | 14 | 7.72 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 2.8 | | F | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 2.7 | | F | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.00066 | U | F | # | 0.00066 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1142 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 37 | | F | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 36 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 9 | - | 14 | 553 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.72 | | F | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.72 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 140 | | F | # | 2 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 140 | | F | # | 2 | |
| Temperature | C | 09/28/2016 | N001 | 9 | - | 14 | 14.3 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 9 | - | 14 | 3.17 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 9 | - | 14 | 0.0085 | | JF | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 9 | - | 14 | 0.0062 | | JF | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1143 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 228 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 190 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 75 | | F | # | 10 | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 60 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 0.97 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 0.01 | U | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 86.8 | | F | # | | |
| pH | s.u. | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 7.35 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 17 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 940 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 5154 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 3.1 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 2800 | | F | # | 25 | |
| Temperature | C | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 17.61 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 92 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 8.3 | - | 13.3 | 0.056 | | F | # | 0.000012 | |

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

\# Validated according to quality assurance guidelines.

# Groundwater Quality Data

# Terrace Locations

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**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0600 WELL Just N of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 1668 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 18 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 250 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 1300 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 6 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 240 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 0.22 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 110 | | FQ | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 29 | - | 48.8 | 45.7 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 29 | - | 48.8 | 6.87 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 53 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 0.0017 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 4900 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 29 | - | 48.8 | 20484 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 8.3 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 11000 | | FQ | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 29 | - | 48.8 | 19.01 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 29 | - | 48.8 | 3.26 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 29 | - | 48.8 | 0.91 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0602 WELL Just W of Disposal Cell; NECA yard

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 1636 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 43 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 420 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 2700 | | FQ | # | 50 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 1.84 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 1000 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 0.54 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 47 | | FQ | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 27 | - | 47 | 185.6 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 27 | - | 47 | 6.92 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 100 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 0.0046 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 7000 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 27 | - | 47 | 29979 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 21 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 19000 | | FQ | # | 120 | |
| Temperature | C | 09/27/2016 | N001 | 27 | - | 47 | 18.59 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 27 | - | 47 | 2.9 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 27 | - | 47 | 0.44 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0603 WELL Just SE of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 82 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 830 | | F | # | 100 | |
| Calcium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 1300 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 190 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 6.35 | | F | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 760 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 54 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 2300 | | F | # | 50 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 25.9 | - | 35.9 | 463.4 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 25.9 | - | 35.9 | 6.19 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 180 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 0.078 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 770 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 25.9 | - | 35.9 | 19071 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 7.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 2500 | | F | # | 25 | |
| Temperature | C | 09/28/2016 | N001 | 25.9 | - | 35.9 | 17.82 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 25.9 | - | 35.9 | 3.71 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 25.9 | - | 35.9 | 0.0086 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0604 WELL Just W of radon cover borrow pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 990 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 3.6 | | FQ | # | 0.5 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 510 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 2100 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 62.7 | - | 72.7 | 4.12 | | FQ | # | | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 1900 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 0.76 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 940 | | FQ | # | 50 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 62.7 | - | 72.7 | 160 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 62.7 | - | 72.7 | 6.82 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 88 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 0.75 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 4800 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 62.7 | - | 72.7 | 26156 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 19 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 13000 | | FQ | # | 100 | |
| Temperature | C | 09/28/2016 | N001 | 62.7 | - | 72.7 | 20.55 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 62.7 | - | 72.7 | 43.1 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 62.7 | - | 72.7 | 0.099 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0725 WELL West side, lower Bob Lee Wash

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 432 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 370 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 91 | | F | # | 12 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.14 | | F | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.86 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 170 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.45 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 7.5 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 7.5 | - | 17.5 | 136.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7.5 | - | 17.5 | 6.59 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 15 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.011 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 1100 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 7.5 | - | 17.5 | 5802 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 11 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 3200 | | F | # | 31 | |
| Temperature | C | 09/27/2016 | N001 | 7.5 | - | 17.5 | 18.43 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 7.5 | - | 17.5 | 3.54 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 7.5 | - | 17.5 | 0.085 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0726 WELL West side, upper Bob Lee Wash

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 280 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 2.4 | | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 200 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 380 | | F | # | 20 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 0.72 | | F | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 180 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 0.37 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 33 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 27.2 | - | 37.2 | 149.2 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 27.2 | - | 37.2 | 7.19 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 27 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 0.054 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 2200 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 27.2 | - | 37.2 | 11121 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 6.4 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 5400 | | F | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 27.2 | - | 37.2 | 16.43 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 27.2 | - | 37.2 | 5.98 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 27.2 | - | 37.2 | 0.024 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0728 WELL W of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 498 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 120 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 27 | | F | # | 20 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 0 | | F | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 1.7 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 870 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 1.5 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 8 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 17 | - | 27 | 178.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 17 | - | 27 | 6.69 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 110 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 0.0011 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 870 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 17 | - | 27 | 8994 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 6600 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 17 | - | 27 | 16.19 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 17 | - | 27 | 2.4 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 17 | - | 27 | 0.24 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0731 WELL SE of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 528 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 18 | | F | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 100 | | F | # | 20 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 5.25 | | F | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 450 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 0.2 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 69 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 17 | - | 27 | 361.9 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 17 | - | 27 | 6.81 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 38 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 0.017 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 860 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 17 | - | 27 | 7578 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 8.5 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 4000 | | F | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 17 | - | 27 | 17.65 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 17 | - | 27 | 1.06 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 17 | - | 27 | 0.03 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0813 WELL W of radon cover borrow pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 740 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 92 | | F | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 730 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 750 | | F | # | 40 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 4.26 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 3100 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 0.43 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 2400 | | F | # | 50 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 40.8 | - | 50.8 | 186.3 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 40.8 | - | 50.8 | 6.6 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 220 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 0.35 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 2600 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 40.8 | - | 50.8 | 26006 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 21 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 9200 | | F | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 40.8 | - | 50.8 | 17.33 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 40.8 | - | 50.8 | 2.33 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 40.8 | - | 50.8 | 0.094 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0814 WELL South edge of fairgrounds, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 940 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 45 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 470 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 990 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 23.8 | - | 33.8 | 16.81 | | FQ | # | | |
| Magnesium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 2000 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 1.3 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 700 | | FQ | # | 10 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 23.8 | - | 33.8 | 187.5 | | FQ | # | | |
| pH | s.u. | 09/26/2016 | N001 | 23.8 | - | 33.8 | 7.35 | | FQ | # | | |
| Potassium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 150 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 1.9 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 3900 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 23.8 | - | 33.8 | 23517 | | FQ | # | | |
| Strontium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 13 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 14000 | | FQ | # | 100 | |
| Temperature | C | 09/26/2016 | N001 | 23.8 | - | 33.8 | 19.62 | | FQ | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 23.8 | - | 33.8 | 13.6 | | FQ | # | | |
| Uranium | mg/L | 09/26/2016 | 0001 | 23.8 | - | 33.8 | 0.083 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0815 WELL Fairgrounds, just N of Uranium Blvd., flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 1862 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 1.9 | | F | # | 0.1 | |
| Calcium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 460 | | F | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 520 | | F | # | 50 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 11.12 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 2500 | | F | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 1.5 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 510 | | F | # | 10 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 22.3 | - | 32.3 | 220.7 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 22.3 | - | 32.3 | 6.76 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 130 | | F | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 0.024 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 3500 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 22.3 | - | 32.3 | 22083 | | F | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 13 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 16000 | | F | # | 120 | |
| Temperature | C | 09/26/2016 | N001 | 22.3 | - | 32.3 | 19.64 | | F | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 22.3 | - | 32.3 | 3.59 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 22.3 | - | 32.3 | 0.34 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0816 WELL N of artesian well 648

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 194 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 110 | | F | # | 0.012 | |
| Chloride | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 61 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 10.06 | | F | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 120 | | F | # | 0.013 | |
| Manganese | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 0.0012 | J | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 6.3 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 20.1 | - | 25.1 | 160.4 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 20.1 | - | 25.1 | 7.56 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 21 | | F | # | 0.11 | |
| Selenium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 0.0095 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 790 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 20.1 | - | 25.1 | 4440 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 2.6 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 2200 | | F | # | 25 | |
| Temperature | C | 09/29/2016 | N001 | 20.1 | - | 25.1 | 17.13 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 20.1 | - | 25.1 | 2.84 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 20.1 | - | 25.1 | 0.012 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0817 WELL Just W of Disposal Cell, NECA yard

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 1716 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 1000 | | FQ | # | 100 | |
| Calcium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 490 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 530 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 2.32 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 2000 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 2.5 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 470 | | FQ | # | 10 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 21.6 | - | 31.62 | 209.1 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 21.6 | - | 31.62 | 6.45 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 320 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 0.0026 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 1600 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 21.6 | - | 31.62 | 20909 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 13 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 13000 | | FQ | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 21.6 | - | 31.62 | 18.86 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 21.6 | - | 31.62 | 3.25 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 21.6 | - | 31.62 | 8 | | FQ | # | 0.00061 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0818 WELL Just W of radon cover borrow pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 644 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 43 | | | # | 2.5 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 44 | | | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 450 | | | # | 0.12 | |
| Calcium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 450 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 980 | | | # | 50 | |
| Chloride | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 940 | | | # | 40 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 5.54 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 1600 | | | # | 0.13 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 1500 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 0.5 | | | # | 0.0011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 0.47 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 490 | | | # | 10 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 510 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 52 | - | 61.5 | 154.4 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 52 | - | 61.5 | 6.88 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 100 | | | # | 1.1 | |
| Potassium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 96 | | | # | 1.1 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0818 WELL Just W of radon cover borrow pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 2.1 | | | # | 0.00066 | |
| Selenium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 2 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 4400 | | | # | 0.66 | |
| Sodium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 4300 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 52 | - | 61.5 | 23231 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 12 | | | # | 0.00078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 11 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 15000 | | | # | 120 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 15000 | | | # | 100 | |
| Temperature | C | 09/28/2016 | N001 | 52 | - | 61.5 | 19.09 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 52 | - | 61.5 | 9.12 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 52 | - | 61.5 | 0.12 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 52 | - | 61.5 | 0.11 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0819 WELL Just W of Disposal Cell, NECA yard, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 1802 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 520 | | FQ | # | 100 | |
| Calcium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 470 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 730 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 2.75 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 1700 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 1.5 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 16 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 15.67 | - | 25.67 | 189.9 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 15.67 | - | 25.67 | 6.39 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 260 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 0.006 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 2800 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 15.67 | - | 25.67 | 21057 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 11 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 15000 | | FQ | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 15.67 | - | 25.67 | 19.67 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 15.67 | - | 25.67 | 4.64 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 15.67 | - | 25.67 | 2.1 | | FQ | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0820 WELL Just N of Disposal Cell, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 822 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 0.72 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 230 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 9400 | | FQ | # | 400 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 149 | - | 151.5 | 8.88 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 92 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 0.29 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 32 | | FQ | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 149 | - | 151.5 | 47.3 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 149 | - | 151.5 | 7.21 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 42 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 0.0027 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 7000 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 149 | - | 151.5 | 30630 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 22 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 4000 | | FQ | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 149 | - | 151.5 | 18.12 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 149 | - | 151.5 | 15.9 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 149 | - | 151.5 | 0.13 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0822 WELL Just N of Disposal Cell, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 199 | - | 201.5 | 330 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 1.1 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 140 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 8600 | | FQ | # | 100 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 199 | - | 201.5 | 0.04 | | FQ | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 199 | - | 201.5 | 2.37 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 62 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 0.33 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 0.01 | U | FQ | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 199 | - | 201.5 | -102.7 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 199 | - | 201.5 | 7.18 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 56 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 0.00066 | U | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 6000 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 199 | - | 201.5 | 24828 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 17 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 4700 | | FQ | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 199 | - | 201.5 | 21.79 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0822 WELL Just N of Disposal Cell, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | NTU | 09/27/2016 | N001 | 199 | - | 201.5 | 12.9 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 199 | - | 201.5 | 0.04 | | FQ | # | 0.000012 | |
| Uranium-234 | pCi/L | 09/27/2016 | N002 | 199 | - | 201.5 | 39.2 | | | 0 | 0.0547 | 4.12 |
| Uranium-235/236 | pCi/L | 09/27/2016 | N002 | 199 | - | 201.5 | 0.884 | | | 0 | 0.0133 | 0.153 |
| Uranium-238 | pCi/L | 09/27/2016 | N002 | 199 | - | 201.5 | 13.7 | | | 0 | 0.0479 | 1.49 |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0824 WELL Just NE of Disposal Cell, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 380 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 3.5 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 190 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 9100 | | FQ | # | 100 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 4.5 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 72 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 0.49 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 5.7 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 198.5 | - | 201 | -99.2 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 198.5 | - | 201 | 7.16 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 60 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 0.00069 | J | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 6900 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 198.5 | - | 201 | 25255 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 22 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 5500 | | FQ | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 198.5 | - | 201 | 22.13 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 198.5 | - | 201 | 5.55 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 198.5 | - | 201 | 0.035 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0825 WELL Just NE of Disposal Cell, well nest

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 470 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 3.2 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 250 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 9000 | | FQ | # | 400 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 8.78 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 84 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 0.99 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 4.5 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 147.79 - 150.23 | 23.3 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 147.79 - 150.23 | 7.39 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 64 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 0.00066 | U | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 7200 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 147.79 - 150.23 | 30510 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 24 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 5300 | | FQ | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 147.79 - 150.23 | 17.25 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 147.79 - 150.23 | 9.85 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 147.79 - 150.23 | 0.037 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0826 WELL Just West of Disposal Cell, NECA yard, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 10 - 20 | 1550 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 10 - 20 | 77 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/27/2016 | N001 | 10 - 20 | 440 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 10 - 20 | 350 | | FQ | # | 40 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 10 - 20 | 0.06 | | FQ | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 10 - 20 | 2.26 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 10 - 20 | 1700 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 10 - 20 | 2.6 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 10 - 20 | 13 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 10 - 20 | 181.1 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 10 - 20 | 6.47 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 10 - 20 | 140 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 10 - 20 | 0.0052 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 10 - 20 | 1700 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 10 - 20 | 14305 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 10 - 20 | 10 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 10 - 20 | 11000 | | FQ | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 10 - 20 | 21.75 | | FQ | # | | |

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

REPORT DATE: 12/13/2016

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

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | NTU | 09/27/2016 | N001 | 10 | - | 20 | 1.87 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 10 | - | 20 | 1.3 | | FQ | # | 0.00012 | |
| Uranium-234 | pCi/L | 09/27/2016 | N002 | 10 | - | 20 | 487 | | | 0 | 4.51 | 51.3 |
| Uranium-235/236 | pCi/L | 09/27/2016 | N002 | 10 | - | 20 | 24.9 | | | 0 | 1.25 | 6.81 |
| Uranium-238 | pCi/L | 09/27/2016 | N002 | 10 | - | 20 | 465 | | | 0 | 1.01 | 49.2 |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0827 WELL Just NW of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 1410 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 2 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 480 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 350 | | FQ | # | 25 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 0 | | FQ | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 5.99 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 1000 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 0.25 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 13 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 19.9 | - | 29.9 | 66.4 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 19.9 | - | 29.9 | 6.61 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 44 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 0.018 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 1800 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 19.9 | - | 29.9 | 12901 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 11 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 7900 | | FQ | # | 62 | |
| Temperature | C | 09/27/2016 | N001 | 19.9 | - | 29.9 | 19.09 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 19.9 | - | 29.9 | 5.52 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 19.9 | - | 29.9 | 1.1 | | FQ | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0828 WELL Just E of upper Bob Lee Wash, NECA yard

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 582 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 0.19 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 370 | | FQ | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 100 | | FQ | # | 8 | |
| Chlorine, Total Residual | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 0.12 | | FQ | # | | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 2.22 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 210 | | FQ | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 2.6 | | FQ | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 1 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 5.3 | - | 15.3 | 120.4 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 5.3 | - | 15.3 | 6.92 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 16 | | FQ | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 0.0059 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 300 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 5.3 | - | 15.3 | 3629 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 4.7 | | FQ | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 1600 | | FQ | # | 20 | |
| Temperature | C | 09/27/2016 | N001 | 5.3 | - | 15.3 | 18.93 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 5.3 | - | 15.3 | 7.6 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 5.3 | - | 15.3 | 0.39 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0830 WELL Just SE of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0.18 | | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 610 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 42 | | F | # | 8 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 5.46 | | F | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 44 | | F | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 2.6 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 25 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 7.7 | - | 17.7 | 364.9 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.7 | - | 17.7 | 3.7 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 7.7 | | F | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0.025 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 150 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 7.7 | - | 17.7 | 3036 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0.33 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 1800 | | F | # | 20 | |
| Temperature | C | 09/28/2016 | N001 | 7.7 | - | 17.7 | 23.46 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0.7 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 7.7 | - | 17.7 | 0.0047 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0832 WELL SW corner of Multipurpose Center tract, W of US Hwy 491, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 21.1 | - | 31.1 | 229 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 0.1 | U | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 430 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 26 | | FQ | # | 20 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 21.1 | - | 31.1 | 3.99 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 580 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 0.13 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 4.3 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 21.1 | - | 31.1 | 200.5 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 21.1 | - | 31.1 | 7.32 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 21 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 0.09 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 1100 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 21.1 | - | 31.1 | 7894 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 6.6 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 5600 | | FQ | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 21.1 | - | 31.1 | 16.86 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 21.1 | - | 31.1 | 89.7 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 21.1 | - | 31.1 | 0.04 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0833 WELL Just NE of Dine College tract

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 410 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 480 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 160 | | F | # | 20 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 0.44 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 420 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 0.16 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 61 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 24.9 | - | 34.9 | 144.2 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 24.9 | - | 34.9 | 6.97 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 20 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 0.27 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 830 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 24.9 | - | 34.9 | 7295 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 5.6 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 4100 | | F | # | 50 | |
| Temperature | C | 09/27/2016 | N001 | 24.9 | - | 34.9 | 18.84 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 24.9 | - | 34.9 | 3.68 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 24.9 | - | 34.9 | 0.064 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0835 WELL Housing area between 2nd Wash and 3rd Wash

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 103 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 59 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 21 | | F | # | 0.4 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 5.72 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 17 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.02 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.14 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 21.9 | - | 31.9 | 133.7 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 21.9 | - | 31.9 | 7.4 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 1.7 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.00066 | U | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 24 | | F | # | 0.0066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 21.9 | - | 31.9 | 538 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.71 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 120 | | F | # | 1 | |
| Temperature | C | 09/27/2016 | N001 | 21.9 | - | 31.9 | 18.96 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 21.9 | - | 31.9 | 2.56 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.0028 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0836 WELL SW part of Blueeyes Ranch, N of US Hwy 64

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 317 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 560 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 120 | | F | # | 12 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 3.47 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 300 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 0.37 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 54 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 26.8 | - | 36.8 | 159.3 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 26.8 | - | 36.8 | 6.84 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 7.2 | J | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 0.47 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 570 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 26.8 | - | 36.8 | 5509 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 8 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 3200 | | F | # | 31 | |
| Temperature | C | 09/27/2016 | N001 | 26.8 | - | 36.8 | 14.06 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 26.8 | - | 36.8 | 6.22 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 26.8 | - | 36.8 | 0.056 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0837 WELL Center of Blueeyes Ranch, N of US Hwy 64

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 313 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 580 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 130 | | F | # | 10 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 2.23 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 250 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 1.3 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 54 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 17 | - | 27.1 | 166.6 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 17 | - | 27.1 | 6.71 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 11 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 0.91 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 410 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 17 | - | 27.1 | 4866 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 7.2 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 2700 | | F | # | 25 | |
| Temperature | C | 09/27/2016 | N001 | 17 | - | 27.1 | 14.75 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 17 | - | 27.1 | 9.68 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 17 | - | 27.1 | 0.029 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0838 WELL W part of Dine College tract

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 292 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 450 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 140 | | F | # | 12 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 2.75 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 380 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.0032 | J | UF | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 57 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 21.9 | - | 31.9 | 126.1 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 21.9 | - | 31.9 | 7.04 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 14 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.18 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 720 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 21.9 | - | 31.9 | 6105 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 5.7 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 3600 | | F | # | 31 | |
| Temperature | C | 09/27/2016 | N001 | 21.9 | - | 31.9 | 17.04 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 21.9 | - | 31.9 | 1.48 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 21.9 | - | 31.9 | 0.07 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0841 WELL S of Multipurpose Center tract, W of US Hwy 491

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 1214 | | F | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 410 | | F | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 640 | | F | # | 40 | |
| Chlorine, Total Residual | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 0.09 | | F | # | | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 3.21 | | F | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 720 | | F | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 0.045 | J | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 350 | | F | # | 5 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 42 | - | 52 | 195.6 | | F | # | | |
| pH | s.u. | 09/29/2016 | N001 | 42 | - | 52 | 7.18 | | F | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 70 | | F | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 2.3 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 5000 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 42 | - | 52 | 21862 | | F | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 8.2 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 14000 | | F | # | 100 | |
| Temperature | C | 09/29/2016 | N001 | 42 | - | 52 | 17.23 | | F | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 42 | - | 52 | 8.56 | | F | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 42 | - | 52 | 0.096 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0843 WELL E part of Blueeyes Ranch, N of US Hwy 64

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 248 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 420 | | F | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 64 | | F | # | 8 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 0.24 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 140 | | F | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 0.94 | | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 12 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 11.9 | - | 21.9 | 164.5 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 11.9 | - | 21.9 | 6.98 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 15 | | F | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 0.25 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 370 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 11.9 | - | 21.9 | 3639 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 4.6 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 1900 | | F | # | 20 | |
| Temperature | C | 09/27/2016 | N001 | 11.9 | - | 21.9 | 15.68 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 11.9 | - | 21.9 | 1.54 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 11.9 | - | 21.9 | 0.026 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0844 WELL W part of Multipurpose Center tract, W of US Hwy 491, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 665 | | F | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 520 | | F | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 920 | | F | # | 40 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 6.65 | | F | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 2000 | | F | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 0.0071 | J | UF | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 640 | | F | # | 10 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 28.91 | - | 38.91 | 176.1 | | F | # | | |
| pH | s.u. | 09/27/2016 | N001 | 28.91 | - | 38.91 | 7.32 | | F | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 75 | | F | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 1.7 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 2800 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 28.91 | - | 38.91 | 19388 | | F | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 15 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 11000 | | F | # | 100 | |
| Temperature | C | 09/27/2016 | N001 | 28.91 | - | 38.91 | 17.77 | | F | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 28.91 | - | 38.91 | 1.65 | | F | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 28.91 | - | 38.91 | 0.19 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0848 WELL Just W of Shiprock High School track, S of US Hwy 64

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 1720 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 9.7 | | F | # | 2.5 | |
| Calcium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 380 | | F | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 1200 | | F | # | 50 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 0.26 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 470 | | F | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 2.4 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 0.019 | | F | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 45 | - | 142.58 | -54.9 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 45 | - | 142.58 | 6.68 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 52 | | F | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 0.045 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 7600 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 45 | - | 142.58 | 26746 | | F | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 22 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 18000 | | F | # | 120 | |
| Temperature | C | 09/26/2016 | N001 | 45 | - | 142.58 | 17.6 | | F | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 45 | - | 142.58 | 3.11 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 45 | - | 142.58 | 0.014 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1007 WELL Just E of disposal cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 1190 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 22 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 480 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 510 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 36.8 - 46.3 | 7.41 | | FQ | # | | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 2300 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 1.8 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 410 | | FQ | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 36.8 - 46.3 | 206.6 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 36.8 - 46.3 | 6.36 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 140 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 0.0085 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 2800 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 36.8 - 46.3 | 18609 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 12 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 13000 | | FQ | # | 100 | |
| Temperature | C | 09/28/2016 | N001 | 36.8 - 46.3 | 15.99 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 36.8 - 46.3 | 17.1 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 36.8 - 46.3 | 2.4 | | FQ | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1011 WELL Just NW of disposal cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 1042 | | FQ | # | | |
| Calcium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 470 | | FQ | # | 0.12 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 16.5 | - | 26 | 8.93 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 1100 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 0.016 | J | FQ | # | 0.0011 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 16.5 | - | 26 | 85.1 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | 16.5 | - | 26 | 7.2 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 78 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 0.65 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 1900 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | 16.5 | - | 26 | 12639 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 8.7 | | FQ | # | 0.00078 | |
| Temperature | C | 09/27/2016 | N001 | 16.5 | - | 26 | 18.75 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 16.5 | - | 26 | 1000 | > | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 16.5 | - | 26 | 0.45 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1049 WELL Many Devils Wash, just E of knickpoint, flush mount.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 580 | | F | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 440 | | F | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 1400 | | F | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 5.09 | | F | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 1400 | | F | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 0.0032 | J | UF | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 420 | | F | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 4.3 | - | 9.3 | 79.2 | | F | # | | |
| pH | s.u. | 09/28/2016 | N001 | 4.3 | - | 9.3 | 7.3 | | F | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 62 | | F | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 1.4 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 6700 | | F | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 4.3 | - | 9.3 | 28335 | | F | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 11 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 19000 | | F | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 4.3 | - | 9.3 | 18.73 | | F | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 4.3 | - | 9.3 | 2.95 | | F | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.3 | - | 9.3 | 0.18 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1057 WELL SE part of radon cover borrow pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 186 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 160 | | F | # | 10 | |
| Calcium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 740 | | F | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 270 | | F | # | 20 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 5.93 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 1400 | | F | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 13 | | F | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 1200 | | F | # | 50 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 36.66 - 41.66 | 235.5 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 36.66 - 41.66 | 6.39 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 180 | | F | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 0.015 | | F | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 1300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 36.66 - 41.66 | 15562 | | F | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 10 | | F | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 5600 | | F | # | 50 | |
| Temperature | C | 09/26/2016 | N001 | 36.66 - 41.66 | 17.73 | | F | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 36.66 - 41.66 | 2.48 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 36.66 - 41.66 | 0.031 | | F | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1058 WELL Just S of NECA gravel pit

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 590 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 2.8 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 240 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 1400 | | FQ | # | 20 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 3.35 | | FQ | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 130 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 0.29 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 0.3 | | FQ | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 41.7 | - | 51.2 | -13.8 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 41.7 | - | 51.2 | 7.2 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 22 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 0.00066 | U | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 3100 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 41.7 | - | 51.2 | 13701 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 12 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 5900 | | FQ | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 41.7 | - | 51.2 | 17.19 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 41.7 | - | 51.2 | 3.26 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 41.7 | - | 51.2 | 0.0062 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1059 WELL Mesa Verde cactus preserve

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 792 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 0.77 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 310 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 780 | | FQ | # | 25 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 2.05 | | FQ | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 310 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 0.044 | J | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 280 | | FQ | # | 5 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 39.5 | - | 49 | 212.4 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 39.5 | - | 49 | 7.15 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 34 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 0.0026 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 3900 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 39.5 | - | 49 | 17404 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 16 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 9100 | | FQ | # | 62 | |
| Temperature | C | 09/28/2016 | N001 | 39.5 | - | 49 | 16.43 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 39.5 | - | 49 | 6.97 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 39.5 | - | 49 | 0.063 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1068 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 6.95 | - | 8.95 | 456 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 8.5 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 440 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 220 | | FQ | # | 20 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 6.95 | - | 8.95 | 4.84 | | FQ | # | | |
| Magnesium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 670 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 1.1 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 160 | | FQ | # | 5 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 6.95 | - | 8.95 | 173.6 | | FQ | # | | |
| pH | s.u. | 09/29/2016 | N001 | 6.95 | - | 8.95 | 6.95 | | FQ | # | | |
| Potassium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 49 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 0.069 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 880 | | FQ | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 6.95 | - | 8.95 | 8421 | | FQ | # | | |
| Strontium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 7.6 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 4600 | | FQ | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 6.95 | - | 8.95 | 20.62 | | FQ | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 6.95 | - | 8.95 | 92.5 | | FQ | # | | |
| Uranium | mg/L | 09/29/2016 | 0001 | 6.95 | - | 8.95 | 0.84 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1070 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 912 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 4 | | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 4 | | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 430 | | | # | 0.12 | |
| Calcium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 420 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 970 | | | # | 50 | |
| Chloride | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 980 | | | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 2.89 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 960 | | | # | 0.13 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 950 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 0.11 | | | # | 0.0011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 0.12 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 470 | | | # | 10 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 440 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 52.5 | - | 62 | 138.2 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 52.5 | - | 62 | 7.07 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 89 | | | # | 1.1 | |
| Potassium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 87 | | | # | 1.1 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1070 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 2.3 | | | # | 0.00066 | |
| Selenium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 2.2 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 5600 | | | # | 0.66 | |
| Sodium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 5600 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 52.5 | - | 62 | 24752 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 9.2 | | | # | 0.00078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 9 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 16000 | | | # | 120 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 16000 | | | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 52.5 | - | 62 | 19.16 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 52.5 | - | 62 | 6.32 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 52.5 | - | 62 | 0.089 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 52.5 | - | 62 | 0.084 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1071 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 510 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 52 | | | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 430 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 1000 | | | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 0.75 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 1200 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 0.63 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 460 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 36.5 | - | 46 | 139.7 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 36.5 | - | 46 | 7.47 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 85 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 2.5 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 4600 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 36.5 | - | 46 | 23543 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 11 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 15000 | | | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 36.5 | - | 46 | 20.13 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 36.5 | - | 46 | 8.23 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 36.5 | - | 46 | 0.14 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1073 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 146 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 32 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 500 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 950 | | FQ | # | 40 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 40.5 | - | 50 | 3.61 | | FQ | # | | |
| Magnesium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 1700 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 0.59 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 830 | | FQ | # | 10 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 40.5 | - | 50 | 249.3 | | FQ | # | | |
| pH | s.u. | 09/26/2016 | N001 | 40.5 | - | 50 | 8.02 | | FQ | # | | |
| Potassium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 150 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 2.1 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 3000 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 40.5 | - | 50 | 22200 | | FQ | # | | |
| Strontium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 10 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 11000 | | FQ | # | 100 | |
| Temperature | C | 09/26/2016 | N001 | 40.5 | - | 50 | 16.1 | | FQ | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 40.5 | - | 50 | 67.2 | | FQ | # | | |
| Uranium | mg/L | 09/26/2016 | 0001 | 40.5 | - | 50 | 0.06 | | FQ | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1074 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 1200 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 5.9 | | FQ | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 590 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 1100 | | FQ | # | 25 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 8.19 | | FQ | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 2000 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 1.4 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 830 | | FQ | # | 50 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 27 | - | 36.5 | 227.3 | | FQ | # | | |
| pH | s.u. | 09/28/2016 | N001 | 27 | - | 36.5 | 6.64 | | FQ | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 52 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 0.41 | | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 2200 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 27 | - | 36.5 | 19404 | | FQ | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 12 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 8500 | | FQ | # | 62 | |
| Temperature | C | 09/28/2016 | N001 | 27 | - | 36.5 | 17.79 | | FQ | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 27 | - | 36.5 | 9.79 | | FQ | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 27 | - | 36.5 | 2.1 | | FQ | # | 0.00012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1078 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 818 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 1.1 | | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 1 | | | # | 0.1 | |
| Calcium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 440 | | | # | 0.12 | |
| Calcium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 440 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 900 | | | # | 40 | |
| Chloride | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 900 | | | # | 40 | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 6.9 | | | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 920 | | | # | 0.13 | |
| Magnesium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 930 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 0.063 | | | # | 0.0011 | |
| Manganese | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 0.052 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 340 | | | # | 10 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 340 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 35.5 | - | 45 | 227 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 35.5 | - | 45 | 7.13 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 71 | | | # | 1.1 | |
| Potassium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 72 | | | # | 1.1 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1078 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 2.4 | | | # | 0.00066 | |
| Selenium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 2.5 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 4600 | | | # | 0.66 | |
| Sodium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 4700 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 35.5 | - | 45 | 21524 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 9.1 | | | # | 0.00078 | |
| Strontium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 9.2 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 13000 | | | # | 100 | |
| Sulfate | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 13000 | | | # | 100 | |
| Temperature | C | 09/29/2016 | N001 | 35.5 | - | 45 | 18.48 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 35.5 | - | 45 | 4.85 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 35.5 | - | 45 | 0.11 | | | # | 0.000012 | |
| Uranium | mg/L | 09/29/2016 | N002 | 35.5 | - | 45 | 0.12 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1079 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 198 | | F | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 0.1 | U | F | # | 0.1 | |
| Calcium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 310 | | F | # | 0.012 | |
| Chloride | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 79 | | F | # | 8 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 5.06 | | F | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 170 | | F | # | 0.013 | |
| Manganese | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 0.0031 | J | F | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 24 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 10.5 | - | 20 | 155.6 | | F | # | | |
| pH | s.u. | 09/26/2016 | N001 | 10.5 | - | 20 | 6.71 | | F | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 8.8 | | F | # | 0.11 | |
| Selenium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 0.075 | E | JF | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 300 | | F | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 10.5 | - | 20 | 3293 | | F | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 3.4 | | F | # | 0.000078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 1600 | | F | # | 20 | |
| Temperature | C | 09/26/2016 | N001 | 10.5 | - | 20 | 16.13 | | F | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 10.5 | - | 20 | 8.21 | | F | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 10.5 | - | 20 | 0.027 | | F | # | 0.000012 | |

**General Water Quality Data by Location (USEE105) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1087 TREATMENT SYSTEM Sump from interceptor trenches in Bob Lee Wash

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 516 | | | # | | |
| Ammonia Total as N | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 76 | | | # | 2.5 | |
| Ammonia Total as N | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 78 | | | # | 2.5 | |
| Calcium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 450 | | | # | 0.12 | |
| Calcium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 460 | | | # | 0.12 | |
| Chloride | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 210 | | | # | 20 | |
| Chloride | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 210 | | | # | 20 | |
| Chlorine, Total Residual | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 0 | | | # | | |
| Dissolved Oxygen | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 4.76 | | | # | | |
| Magnesium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 740 | | | # | 0.13 | |
| Magnesium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 750 | | | # | 0.13 | |
| Manganese | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 0.75 | | | # | 0.0011 | |
| Manganese | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 0.76 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 140 | | | # | 5 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 130 | | | # | 5 | |
| Oxidation Reduction Potential | mV | 09/29/2016 | N001 | 0 | - | 0 | 214.3 | | | # | | |
| pH | s.u. | 09/29/2016 | N001 | 0 | - | 0 | 6.66 | | | # | | |
| Potassium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 83 | | | # | 1.1 | |

**General Water Quality Data by Location (USEE105) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1087 TREATMENT SYSTEM Sump from interceptor trenches in Bob Lee Wash

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 83 | | | # | 1.1 | |
| Selenium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 0.038 | | | # | 0.00066 | |
| Selenium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 0.038 | | | # | 0.00066 | |
| Sodium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 860 | | | # | 0.066 | |
| Sodium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 860 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/29/2016 | N001 | 0 | - | 0 | 8764 | | | # | | |
| Strontium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 7.2 | | | # | 0.00078 | |
| Strontium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 7.2 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 5300 | | | # | 50 | |
| Sulfate | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 5300 | | | # | 50 | |
| Temperature | C | 09/29/2016 | N001 | 0 | - | 0 | 20.44 | | | # | | |
| Turbidity | NTU | 09/29/2016 | N001 | 0 | - | 0 | 1.97 | | | # | | |
| Uranium | mg/L | 09/29/2016 | N001 | 0 | - | 0 | 0.38 | | | # | 0.000012 | |
| Uranium | mg/L | 09/29/2016 | N002 | 0 | - | 0 | 0.38 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1091 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1400 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 460 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1300 | | | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 6.78 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 2200 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 530 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 33 | - | 43 | 134.1 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 33 | - | 43 | 6.91 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 90 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 0.6 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 4000 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 33 | - | 43 | 24023 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 13 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 15000 | | | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 33 | - | 43 | 20.93 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 33 | - | 43 | 3.81 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 0.099 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1092 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1340 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 19 | | | # | 2.5 | |
| Calcium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 450 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1400 | | | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 33 | - | 43 | -5.82 | | R | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 1800 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 2.8 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 390 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 33 | - | 43 | 152.8 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 33 | - | 43 | 7.51 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 98 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 0.51 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 4300 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 33 | - | 43 | 24352 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 12 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 16000 | | | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 33 | - | 43 | 23.1 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 33 | - | 43 | 8.98 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 33 | - | 43 | 0.11 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1093R WELL a replacement extraction well for 1093

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 416 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 320 | | | # | 50 | |
| Calcium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 670 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 770 | | | # | 20 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 3.41 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 1400 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 18 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 1100 | | | # | 50 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 34 | - | 38 | 127.4 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 34 | - | 38 | 6.37 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 160 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 0.42 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 1400 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 34 | - | 38 | 17420 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 8 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 10000 | | | # | 50 | |
| Temperature | C | 09/28/2016 | N001 | 34 | - | 38 | 22.11 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 34 | - | 38 | 6.67 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 34 | - | 38 | 0.096 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1095 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 319 | | | # | | |
| Ammonia Total as N | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 380 | | | # | 10 | |
| Calcium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 900 | | | # | 0.12 | |
| Chloride | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 300 | | | # | 20 | |
| Dissolved Oxygen | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 7.89 | | | # | | |
| Magnesium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 1400 | | | # | 0.13 | |
| Manganese | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 34 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 1500 | | | # | 50 | |
| Oxidation Reduction Potential | mV | 09/26/2016 | N001 | 39 | - | 49 | 261 | | | # | | |
| pH | s.u. | 09/26/2016 | N001 | 39 | - | 49 | 6.73 | | | # | | |
| Potassium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 160 | | | # | 1.1 | |
| Selenium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 0.091 | | | # | 0.00066 | |
| Sodium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 1200 | | | # | 0.066 | |
| Specific Conductance | umhos /cm | 09/26/2016 | N001 | 39 | - | 49 | 18070 | | | # | | |
| Strontium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 9.1 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 5700 | | | # | 50 | |
| Temperature | C | 09/26/2016 | N001 | 39 | - | 49 | 18.53 | | | # | | |
| Turbidity | NTU | 09/26/2016 | N001 | 39 | - | 49 | 4.66 | | | # | | |
| Uranium | mg/L | 09/26/2016 | N001 | 39 | - | 49 | 0.053 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1096 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 700 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 4.1 | | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 430 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 990 | | | # | 50 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 7.29 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 950 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 0.31 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 450 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 57.5 | - | 66.5 | 140.4 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 57.5 | - | 66.5 | 8.03 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 88 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 2.2 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 5500 | | | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/28/2016 | N001 | 57.5 | - | 66.5 | 20 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 9 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 16000 | | | # | 120 | |
| Temperature | C | 09/28/2016 | N001 | 57.5 | - | 66.5 | 28.15 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 57.5 | - | 66.5 | 9.24 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 57.5 | - | 66.5 | 0.083 | | | # | 0.000012 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: MW1 WELL Just N of disposal cell

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | - | 1580 | | FQ | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | - | 0.27 | | FQ | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | - | 130 | | FQ | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | - | 5600 | | FQ | # | 100 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | - | 7 | | FQ | # | | |
| Magnesium | mg/L | 09/27/2016 | N001 | - | 56 | | FQ | # | 0.13 | |
| Manganese | mg/L | 09/27/2016 | N001 | - | 0.093 | | FQ | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | - | 0.66 | | FQ | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | - | 70.7 | | FQ | # | | |
| pH | s.u. | 09/27/2016 | N001 | - | 6.95 | | FQ | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | - | 31 | | FQ | # | 1.1 | |
| Selenium | mg/L | 09/27/2016 | N001 | - | 0.00066 | U | FQ | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | - | 4700 | | FQ | # | 0.66 | |
| Specific Conductance | umhos /cm | 09/27/2016 | N001 | - | 21261 | | FQ | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | - | 12 | | FQ | # | 0.00078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | - | 4300 | | FQ | # | 31 | |
| Temperature | C | 09/27/2016 | N001 | - | 19.4 | | FQ | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | - | 4.33 | | FQ | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | - | 0.012 | | FQ | # | 0.000012 | |

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

\# Validated according to quality assurance guidelines.

# Surface Water Quality Data

# Floodplain Locations

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**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 114 | | | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 63 | | | # | 0.012 | |
| Calcium | mg/L | 09/27/2016 | N002 | 69 | | | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 13 | | | # | 0.4 | |
| Chloride | mg/L | 09/27/2016 | N002 | 13 | | | # | 0.4 | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 9.1 | | | # | 0.013 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 0.0033 | J | | # | 0.00011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 0.19 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 0.31 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 0.31 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 55.2 | | | # | | |
| pH | s.u. | 09/27/2016 | N001 | 8.32 | | | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 2.4 | | | # | 0.11 | |
| Potassium | mg/L | 09/27/2016 | N002 | 2.7 | | | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 25 | | | # | 0.0066 | |
| Sodium | mg/L | 09/27/2016 | N002 | 26 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/27/2016 | N001 | 631 | | | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 0.75 | | | # | 0.000078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 0.8 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 120 | | | # | 1 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 120 | | | # | 1 | |
| Temperature | C | 09/27/2016 | N001 | 14.31 | | | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 121 | | | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 0.0014 | | | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 0.0016 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | 0002 | 111 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 66 | | | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N001 | 69 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/28/2016 | N001 | 13 | | | # | 0.5 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 9.1 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 9.7 | | | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 0.0034 | J | | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.14 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 0.41 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 0.41 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 296.8 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.95 | | | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 2.4 | | | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N001 | 2.7 | | | # | 0.11 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |
| Selenium | mg/L | 09/28/2016 | N001 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 27 | | | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 611 | | | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 0.76 | | | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N001 | 0.78 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 120 | | | # | 1.2 | |
| Temperature | C | 09/28/2016 | N001 | 16.56 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 79 | | | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 0.003 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.0016 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 115 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 65 | | | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N002 | 69 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/28/2016 | N002 | 13 | | | # | 0.5 | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 9.5 | | | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 0.0022 | J | U | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 0.14 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 0.012 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 0.48 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 168.2 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.92 | | | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 2.3 | | | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N002 | 2.6 | | | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0899 SURFACE LOCATION Stilling well at W bank of San Juan River at E end of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 26 | | | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N002 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 483 | | | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 0.76 | | | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 0.79 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 120 | | | # | 1.2 | |
| Temperature | C | 09/28/2016 | N001 | 14.58 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 72 | | | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 0.0015 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 0.0016 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 491 bridge

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 119 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0002 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0002 | 65 | | | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N001 | 74 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | 0002 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/28/2016 | N001 | 13 | | | # | 0.5 | |
| Magnesium | mg/L | 09/28/2016 | 0002 | 9.8 | | | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 11 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | 0002 | 0.0026 | J | U | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.12 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0002 | 0.42 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 0.38 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 187.4 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.96 | | | # | | |
| Potassium | mg/L | 09/28/2016 | 0002 | 2.6 | | | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N001 | 2.8 | | | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | 0002 | 0.00066 | U | | # | 0.00066 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 491 bridge

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N001 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0002 | 27 | | | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 28 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 502 | | | # | | |
| Strontium | mg/L | 09/28/2016 | 0002 | 0.78 | | | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N001 | 0.84 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | 0002 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 130 | | | # | 1.2 | |
| Temperature | C | 09/28/2016 | N001 | 15.44 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 83.2 | | | # | | |
| Uranium | mg/L | 09/28/2016 | 0002 | 0.0016 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.0018 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0956 SURFACE LOCATION N bank of San Juan River at intake structure

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 112 | | | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 62 | | | # | 0.012 | |
| Calcium | mg/L | 09/27/2016 | N002 | 69 | | | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 12 | | | # | 0.5 | |
| Chloride | mg/L | 09/27/2016 | N002 | 12 | | | # | 0.5 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 7.71 | | | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 9.3 | | | # | 0.013 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 0.0086 | | U | # | 0.00011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 0.21 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 0.35 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 0.35 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 142.8 | | | # | | |
| pH | s.u. | 09/27/2016 | N001 | 8.38 | | | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 2.7 | | | # | 0.11 | |
| Potassium | mg/L | 09/27/2016 | N002 | 3 | | | # | 0.11 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0956 SURFACE LOCATION N bank of San Juan River at intake structure

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |
| Selenium | mg/L | 09/27/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 26 | | | # | 0.0066 | |
| Sodium | mg/L | 09/27/2016 | N002 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/27/2016 | N001 | 729 | | | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 0.76 | | | # | 0.000078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 0.8 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 120 | | | # | 1.2 | |
| Temperature | C | 09/27/2016 | N001 | 20.33 | | | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 121 | | | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 0.0015 | | | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 0.0018 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0965 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 103 | | | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 0.13 | | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 63 | | | # | 0.012 | |
| Calcium | mg/L | 09/27/2016 | N002 | 68 | | | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 12 | | | # | 0.5 | |
| Chloride | mg/L | 09/27/2016 | N002 | 12 | | | # | 0.5 | |
| Dissolved Oxygen | mg/L | 09/27/2016 | N001 | 7.98 | | | # | | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 9.3 | | | # | 0.013 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 0.0026 | J | U | # | 0.00011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 0.17 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 0.36 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 0.36 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 137.2 | | | # | | |
| pH | s.u. | 09/27/2016 | N001 | 8.25 | | | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 2.5 | | | # | 0.11 | |
| Potassium | mg/L | 09/27/2016 | N002 | 2.8 | | | # | 0.11 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0965 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |
| Selenium | mg/L | 09/27/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 26 | | | # | 0.0066 | |
| Sodium | mg/L | 09/27/2016 | N002 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/27/2016 | N001 | 508 | | | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 0.77 | | | # | 0.000078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 0.81 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 120 | | | # | 1.2 | |
| Temperature | C | 09/27/2016 | N001 | 19.42 | | | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 153 | | | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 0.0014 | | | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 0.0017 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0967 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 114 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0001 | 65 | | | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N002 | 68 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | 0001 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/28/2016 | N002 | 13 | | | # | 0.5 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 8.74 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | 0001 | 9.6 | | | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | 0001 | 0.0048 | J | U | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N002 | 0.14 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0001 | 0.38 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N002 | 0.38 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 131.1 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.46 | | | # | | |
| Potassium | mg/L | 09/28/2016 | 0001 | 2.5 | | | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N002 | 2.7 | | | # | 0.11 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 0967 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |
| Selenium | mg/L | 09/28/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0001 | 27 | | | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N002 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 512 | | | # | | |
| Strontium | mg/L | 09/28/2016 | 0001 | 0.77 | | | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N002 | 0.8 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | 0001 | 120 | | | # | 1.2 | |
| Sulfate | mg/L | 09/28/2016 | N002 | 120 | | | # | 1.2 | |
| Temperature | C | 09/28/2016 | N001 | 16.98 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 105 | | | # | | |
| Uranium | mg/L | 09/28/2016 | 0001 | 0.0015 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N002 | 0.0015 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 111 | | | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | 0001 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/27/2016 | N002 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | 0001 | 62 | | | # | 0.012 | |
| Calcium | mg/L | 09/27/2016 | N002 | 66 | | | # | 0.012 | |
| Chloride | mg/L | 09/27/2016 | 0001 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/27/2016 | N002 | 13 | | | # | 0.5 | |
| Magnesium | mg/L | 09/27/2016 | 0001 | 9.2 | | | # | 0.013 | |
| Magnesium | mg/L | 09/27/2016 | N002 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | 0001 | 0.0046 | J | | # | 0.00011 | |
| Manganese | mg/L | 09/27/2016 | N002 | 0.2 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | 0001 | 0.36 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N002 | 0.35 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 70.7 | | | # | | |
| pH | s.u. | 09/27/2016 | N001 | 8.36 | | | # | | |
| Potassium | mg/L | 09/27/2016 | 0001 | 2.4 | | | # | 0.11 | |
| Potassium | mg/L | 09/27/2016 | N002 | 2.8 | | | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | 0001 | 0.00066 | U | | # | 0.00066 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1203 SURFACE LOCATION S bank of San Juan River, in SE part of floodplain

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/27/2016 | N002 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | 0001 | 26 | | | # | 0.0066 | |
| Sodium | mg/L | 09/27/2016 | N002 | 26 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/27/2016 | N001 | 505 | | | # | | |
| Strontium | mg/L | 09/27/2016 | 0001 | 0.76 | | | # | 0.000078 | |
| Strontium | mg/L | 09/27/2016 | N002 | 0.78 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | 0001 | 130 | | | # | 1.2 | |
| Sulfate | mg/L | 09/27/2016 | N002 | 130 | | | # | 1.2 | |
| Temperature | C | 09/27/2016 | N001 | 17.27 | | | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 122 | | | # | | |
| Uranium | mg/L | 09/27/2016 | 0001 | 0.0016 | | | # | 0.000012 | |
| Uranium | mg/L | 09/27/2016 | N002 | 0.0016 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1205 SURFACE LOCATION S bank of San Juan River, S of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 117 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | 0002 | 0.1 | U | | # | 0.1 | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | 0002 | 62 | | | # | 0.012 | |
| Calcium | mg/L | 09/28/2016 | N001 | 67 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | 0002 | 13 | | | # | 0.5 | |
| Chloride | mg/L | 09/28/2016 | N001 | 13 | | | # | 0.5 | |
| Magnesium | mg/L | 09/28/2016 | 0002 | 9.2 | | | # | 0.013 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 10 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | 0002 | 0.0019 | J | | # | 0.00011 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.14 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | 0002 | 0.38 | | | # | 0.01 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 0.37 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 169 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.7 | | | # | | |
| Potassium | mg/L | 09/28/2016 | 0002 | 2.4 | | | # | 0.11 | |
| Potassium | mg/L | 09/28/2016 | N001 | 2.7 | | | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | 0002 | 0.00066 | U | | # | 0.00066 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
REPORT DATE: 12/13/2016
Location: 1205 SURFACE LOCATION S bank of San Juan River, S of floodplain fence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | mg/L | 09/28/2016 | N001 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | 0002 | 26 | | | # | 0.0066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 27 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 482 | | | # | | |
| Strontium | mg/L | 09/28/2016 | 0002 | 0.76 | | | # | 0.000078 | |
| Strontium | mg/L | 09/28/2016 | N001 | 0.79 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/28/2016 | 0002 | 130 | | | # | 1.2 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 130 | | | # | 1.2 | |
| Temperature | C | 09/28/2016 | N001 | 14.5 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 78.4 | | | # | | |
| Uranium | mg/L | 09/28/2016 | 0002 | 0.0014 | | | # | 0.000012 | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.0017 | | | # | 0.000012 | |

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

\# Validated according to quality assurance guidelines.

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# 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: 12/13/2016
Location: 0662 SURFACE LOCATION Bob Lee Wash, just below outflow ditch confluence

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 49 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 110 | | | # | 0.012 | |
| Chloride | mg/L | 09/28/2016 | N001 | 51 | | | # | 10 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 14.27 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 14 | | | # | 0.013 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.013 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 0.23 | | | # | 0.01 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 76.8 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 8.51 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 16 | | | # | 0.11 | |
| Selenium | mg/L | 09/28/2016 | N001 | 0.00066 | U | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 810 | | | # | 0.066 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 4034 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 13 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 2000 | | | # | 25 | |
| Temperature | C | 09/28/2016 | N001 | 27.87 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 55.7 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.00011 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 0889 SURFACE LOCATION Many Devils Wash, just below knickpoint

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 506 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 440 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 2200 | | | # | 100 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 7.08 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 1700 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.03 | J | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 670 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 140.4 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 8.11 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 120 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 2.3 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 10000 | | | # | 0.66 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 39563 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 11 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 30000 | | | # | 250 | |
| Temperature | C | 09/28/2016 | N001 | 26.43 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 19.1 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.21 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1215 SURFACE LOCATION Evaporation Pond

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 866 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 15 | | | # | 2.5 | |
| Arsenic | mg/L | 09/28/2016 | N001 | 0.0035 | | | # | 0.00012 | |
| Barium | mg/L | 09/28/2016 | N001 | 0.067 | | | # | 0.00013 | |
| Cadmium | mg/L | 09/28/2016 | N001 | 0.00032 | J | | # | 0.000055 | |
| Calcium | mg/L | 09/28/2016 | N001 | 500 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 3600 | | | # | 400 | |
| Chlorine, Total Residual | mg/L | 09/28/2016 | N001 | 0.06 | | | # | | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 4.89 | | | # | | |
| Lead | mg/L | 09/28/2016 | N001 | 0.00055 | J | U | # | 0.00013 | |
| Magnesium | mg/L | 09/28/2016 | N001 | 8400 | | | # | 1.3 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.3 | | | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 2100 | | | # | 50 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 262.9 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 8.18 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 1100 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 4.7 | E | J | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 18000 | | | # | 6.6 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1215 SURFACE LOCATION Evaporation Pond

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 70862 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 15 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 70000 | | | # | 1000 | |
| Temperature | C | 09/28/2016 | N001 | 24 | | | # | | |
| Total Dissolved Solids | mg/L | 09/28/2016 | N001 | 130000 | | | # | 2000 | |
| Turbidity | NTU | 09/28/2016 | N001 | 11.2 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 4.9 | | | # | 0.00012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1219 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/27/2016 | N001 | 289 | | | # | | |
| Ammonia Total as N | mg/L | 09/27/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/27/2016 | N001 | 610 | | | # | 0.12 | |
| Chloride | mg/L | 09/27/2016 | N001 | 22 | | | # | 8 | |
| Magnesium | mg/L | 09/27/2016 | N001 | 150 | | | # | 0.013 | |
| Manganese | mg/L | 09/27/2016 | N001 | 0.03 | | | # | 0.00011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/27/2016 | N001 | 2.2 | | | # | 0.1 | |
| Oxidation Reduction Potential | mV | 09/27/2016 | N001 | 164 | | | # | | |
| pH | s.u. | 09/27/2016 | N001 | 7.53 | | | # | | |
| Potassium | mg/L | 09/27/2016 | N001 | 14 | | | # | 0.11 | |
| Selenium | mg/L | 09/27/2016 | N001 | 0.02 | | | # | 0.00066 | |
| Sodium | mg/L | 09/27/2016 | N001 | 140 | | | # | 0.0066 | |
| Specific Conductance | umhos/cm | 09/27/2016 | N001 | 3159 | | | # | | |
| Strontium | mg/L | 09/27/2016 | N001 | 6.6 | | | # | 0.000078 | |
| Sulfate | mg/L | 09/27/2016 | N001 | 2100 | | | # | 20 | |
| Temperature | C | 09/27/2016 | N001 | 19.6 | | | # | | |
| Turbidity | NTU | 09/27/2016 | N001 | 218 | | | # | | |
| Uranium | mg/L | 09/27/2016 | N001 | 0.029 | | | # | 0.000012 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
REPORT DATE: 12/13/2016
Location: 1221 SURFACE LOCATION Many Devils Wash, 10 feet up from the river.

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (as $CaCO_3$) | mg/L | 09/28/2016 | N001 | 526 | | | # | | |
| Ammonia Total as N | mg/L | 09/28/2016 | N001 | 0.1 | U | | # | 0.1 | |
| Calcium | mg/L | 09/28/2016 | N001 | 450 | | | # | 0.12 | |
| Chloride | mg/L | 09/28/2016 | N001 | 2500 | | | # | 100 | |
| Dissolved Oxygen | mg/L | 09/28/2016 | N001 | 7.54 | | | # | | |
| Magnesium | mg/L | 09/28/2016 | N001 | 1900 | | | # | 0.13 | |
| Manganese | mg/L | 09/28/2016 | N001 | 0.0057 | J | U | # | 0.0011 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 09/28/2016 | N001 | 640 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 09/28/2016 | N001 | 351.5 | | | # | | |
| pH | s.u. | 09/28/2016 | N001 | 7.81 | | | # | | |
| Potassium | mg/L | 09/28/2016 | N001 | 120 | | | # | 1.1 | |
| Selenium | mg/L | 09/28/2016 | N001 | 1.9 | | | # | 0.00066 | |
| Sodium | mg/L | 09/28/2016 | N001 | 10000 | | | # | 0.66 | |
| Specific Conductance | umhos/cm | 09/28/2016 | N001 | 39706 | | | # | | |
| Strontium | mg/L | 09/28/2016 | N001 | 11 | | | # | 0.00078 | |
| Sulfate | mg/L | 09/28/2016 | N001 | 33000 | | | # | 250 | |
| Temperature | C | 09/28/2016 | N001 | 16.83 | | | # | | |
| Turbidity | NTU | 09/28/2016 | N001 | 21.7 | | | # | | |
| Uranium | mg/L | 09/28/2016 | N001 | 0.19 | | | # | 0.000012 | |

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

| | |
|---|---|
| # | Validated according to quality assurance guidelines. |

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# Equipment Blank Data

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**BLANKS REPORT**

LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)
RIN: 16098030
Report Date: 12/13/2016

| Parameter | Site Code | Location ID | Sample Date | Sample ID | Units | Result | Qualifiers Lab | Qualifiers Data | Detection Limit | Uncertainty | Sample Type |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia Total as N | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.1 | U | | 0.1 | | E |
| Calcium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.046 | J | U | 0.012 | | E |
| Chloride | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.2 | U | | 0.2 | | E |
| Magnesium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.016 | J | U | 0.013 | | E |
| Manganese | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.00044 | J | U | 0.00011 | | E |
| Nitrate + Nitrite as Nitrogen | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.01 | U | | 0.01 | | E |
| Potassium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.12 | J | U | 0.11 | | E |
| Selenium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.00066 | U | | 0.00066 | | E |
| Sodium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.13 | J | U | 0.0066 | | E |
| Strontium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.000078 | U | | 0.000078 | | E |
| Sulfate | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.5 | U | | 0.5 | | E |
| Uranium | SHP01 | 0999 | 09/27/2016 | N001 | mg/L | 0.00015 | | | 0.000012 | | E |

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

SAMPLE TYPES:

E Equipment Blank.

# Static Water Level Data

# Floodplain Locations

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**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
**REPORT DATE: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 0608 | | 4893.35 | 09/27/2016 | 13:00:19 | 6.88 | 4886.47 | |
| 0610 | | 4895.7 | 09/27/2016 | 14:55:32 | 10.48 | 4885.22 | |
| 0611 | | 4895.62 | 09/27/2016 | 14:20:41 | 10.3 | 4885.32 | |
| 0612 | | 4893.35 | 09/28/2016 | 08:30:47 | 7.91 | 4885.44 | |
| 0614 | | 4892.79 | 09/27/2016 | 16:20:25 | 8.34 | 4884.45 | |
| 0615 | | 4892.23 | 09/28/2016 | 11:25:23 | 8.65 | 4883.58 | |
| 0617 | | 4891.9 | 09/28/2016 | 14:40:00 | 7.92 | 4883.98 | |
| 0618 | | 4891.51 | 09/28/2016 | 14:35:18 | 7.47 | 4884.04 | |
| 0619 | | 4892.19 | 09/28/2016 | 16:55:20 | 8.14 | 4884.05 | |
| 0622 | | 4890.06 | 09/28/2016 | 15:35:23 | 5.2 | 4884.86 | |
| 0623 | | 4891.19 | 09/29/2016 | 09:20:17 | 7.03 | 4884.16 | |
| 0625 | | 4891.23 | 09/29/2016 | 09:00:42 | 6.98 | 4884.25 | |
| 0626 | | 4891.4 | 09/29/2016 | 11:45:52 | 6.59 | 4884.81 | |
| 0628 | | 4889.87 | 09/29/2016 | 11:20:52 | 5.24 | 4884.63 | |
| 0630 | | 4887.62 | 09/29/2016 | 10:25:17 | 2.8 | 4884.82 | |
| 0734 | | 4886.55 | 09/28/2016 | 16:16:00 | | | D |
| 0735 | | 4895.85 | 09/27/2016 | 09:20:28 | 6.46 | 4889.39 | |
| 0736 | | 4887.99 | 09/29/2016 | 10:55:51 | 6.54 | 4881.45 | |
| 0766 | | 4892.55 | 09/29/2016 | 12:15:24 | 10.54 | 4882.01 | |
| 0768 | | 4892.33 | 09/28/2016 | 16:05:09 | 7.96 | 4884.37 | |
| 0773 | | 4894.87 | 09/27/2016 | 15:35:50 | 9.43 | 4885.44 | |
| 0775 | | 4892.2 | 09/29/2016 | 10:00:02 | 8.88 | 4883.32 | |
| 0779 | | 4893.86 | 09/28/2016 | 13:30:54 | 10.45 | 4883.41 | |
| 0782R | | 4884.75 | 09/27/2016 | 11:25:15 | 7.35 | 4877.4 | |
| 0783R | | 4884.09 | 09/27/2016 | 10:55:29 | 7.51 | 4876.58 | |
| 0792 | | 4891.52 | 09/28/2016 | 15:05:15 | 7.44 | 4884.08 | |
| 0793 | | 4891.05 | 09/28/2016 | 10:30:52 | 7.25 | 4883.8 | |
| 0797 | | 4908.04 | 09/28/2016 | 12:30:57 | 8.4 | 4899.64 | |
| 0798 | | 4891.55 | 09/28/2016 | 16:30:52 | 7.88 | 4883.67 | |

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
**REPORT DATE: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 0850 | B | 4907.51 | 09/28/2016 | 12:15:20 | 8.27 | 4899.24 | |
| 0853 | | 4891.41 | 09/28/2016 | 09:30:43 | 7.69 | 4883.72 | |
| 0854 | | 4890.09 | 09/29/2016 | 10:55:16 | 8.07 | 4882.02 | |
| 0855 | | 4888.18 | 09/28/2016 | 17:05:26 | 6.05 | 4882.13 | |
| 0856 | | 4887.57 | 09/28/2016 | 16:40:11 | 6.98 | 4880.59 | |
| 0857 | | 4894.02 | 09/28/2016 | 12:25:31 | 10.38 | 4883.64 | |
| 0862 | | 4893.83 | 09/27/2016 | 13:07:00 | 87.64 | 4806.19 | |
| 0863 | | 4893 | 09/27/2016 | 13:09:00 | 76.39 | 4816.61 | |
| 1000 | | 4892.17 | 09/27/2016 | 16:19:00 | 7.76 | 4884.41 | |
| 1001 | | 4892.44 | 09/27/2016 | 16:17:00 | 12.01 | 4880.43 | |
| 1008 | | 4890.8 | 09/29/2016 | 10:30:41 | 8.39 | 4882.41 | |
| 1009 | | 4892.1 | 09/28/2016 | 10:00:08 | 8.39 | 4883.71 | |
| 1062 | | 4892.51 | 09/27/2016 | 13:03:00 | 7.88 | 4884.63 | |
| 1105 | O | 4892.4 | 09/28/2016 | 11:00:55 | 8.64 | 4883.76 | |
| 1111 | | 4889.85 | 09/26/2016 | 18:15:40 | 7.26 | 4882.59 | |
| 1112 | | 4890.01 | 09/27/2016 | 16:45:53 | 7.12 | 4882.89 | |
| 1113 | | 4892 | 09/27/2016 | 14:00:29 | 6.11 | 4885.89 | |
| 1114 | | 4892.86 | 09/27/2016 | 12:05:58 | 6.28 | 4886.58 | |
| 1115 | | 4895.59 | 09/27/2016 | 11:10:34 | 9.88 | 4885.71 | |
| 1117 | | 4896.7 | 09/27/2016 | 10:25:31 | 9.98 | 4886.72 | |
| 1128 | | 4897.63 | 09/26/2016 | 17:30:11 | 11.22 | 4886.41 | |
| 1132 | | 4894.5 | 09/27/2016 | 10:45:57 | 8.29 | 4886.21 | |
| 1134 | | 4895.88 | 09/27/2016 | 11:40:42 | 9.94 | 4885.94 | |
| 1135 | | 4890.71 | 09/29/2016 | 13:20:49 | 8.67 | 4882.04 | |
| 1136 | | 4892.47 | 09/28/2016 | 14:10:19 | 9.39 | 4883.08 | |
| 1137 | | 4891.3 | 09/29/2016 | 11:25:26 | 9.1 | 4882.2 | |
| 1138 | | 4891.48 | 09/29/2016 | 11:50:20 | 9.37 | 4882.11 | |
| 1139 | | 4890.44 | 09/29/2016 | 12:20:23 | 8.38 | 4882.06 | |
| 1140 | | 4891.53 | 09/28/2016 | 11:50:47 | 8.46 | 4883.07 | |

**STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)**
**REPORT DATE: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 1141 | | 4892.48 | 09/27/2016 | 17:20:35 | 9.09 | 4883.39 | |
| 1142 | | 4894.34 | 09/28/2016 | 08:55:55 | 9.78 | 4884.56 | |
| 1143 | | 4888.07 | 09/28/2016 | 16:05:23 | 6.8 | 4881.27 | |

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

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

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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: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 0600 | | 4955.87 | 09/27/2016 | 16:05:15 | 33.58 | 4922.29 | |
| 0602 | | 4956.89 | 09/27/2016 | 11:45:55 | 22.25 | 4934.64 | |
| 0603 | | 4978.62 | 09/28/2016 | 09:45:02 | 32.09 | 4946.53 | |
| 0604 | | 4995.87 | 09/28/2016 | 16:00:06 | 56.13 | 4939.74 | |
| 0725 | | 4908.58 | 09/27/2016 | 09:00:58 | 14.61 | 4893.97 | |
| 0726 | | 4939.95 | 09/29/2016 | 09:25:53 | 23.75 | 4916.2 | |
| 0728 | | 4964.46 | 09/27/2016 | 09:55:54 | 24.96 | 4939.5 | |
| 0730 | | 4977.75 | 09/28/2016 | 14:45:00 | 36.25 | 4941.5 | |
| 0731 | | 4972.15 | 09/28/2016 | 10:15:09 | 25.27 | 4946.88 | |
| 0800 | | 4995.76 | 09/28/2016 | 11:16:00 | | | D |
| 0801 | | 4995.29 | 09/28/2016 | 11:21:00 | | | D |
| 0802 | | 4996.01 | 09/28/2016 | 12:10:00 | | | D |
| 0803 | | 4994.4 | 09/28/2016 | 11:13:00 | | | D |
| 0813 | | 4984.37 | 09/27/2016 | 13:00:41 | 43.83 | 4940.54 | |
| 0814 | | 4968.12 | 09/26/2016 | 17:20:18 | 32.54 | 4935.58 | |
| 0815 | | 4953.67 | 09/26/2016 | 16:50:23 | 26.52 | 4927.15 | |
| 0816 | | 4937.92 | 09/29/2016 | 14:40:59 | 25.12 | 4912.8 | |
| 0817 | | 4957.34 | 09/27/2016 | 11:30:34 | 18.96 | 4938.38 | |
| 0819 | | 4955.76 | 09/27/2016 | 11:10:54 | 20.07 | 4935.69 | |
| 0820 | | 4954.95 | 09/27/2016 | 15:45:25 | 147.8 | 4807.15 | |
| 0821 | | 4955.46 | 09/27/2016 | 15:20:00 | | | D |
| 0822 | | 4954.42 | 09/27/2016 | 15:10:18 | 133.87 | 4820.55 | |
| 0823 | | 4957.65 | 09/27/2016 | 16:39:00 | | | D |
| 0824 | | 4958.21 | 09/27/2016 | 17:25:49 | 196.3 | 4761.91 | |
| 0825 | | 4958.68 | 09/27/2016 | 16:55:31 | 149.45 | 4809.23 | |
| 0826 | | 4950.73 | 09/27/2016 | 12:15:52 | 17.32 | 4933.41 | |
| 0827 | | 4946.92 | 09/27/2016 | 14:00:05 | 26.49 | 4920.43 | |
| 0828 | | 4957.43 | 09/27/2016 | 10:30:28 | 18.1 | 4939.33 | |
| 0829 | | 4941.94 | 09/29/2016 | 11:53:00 | | | D |

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
**REPORT DATE: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 0830 | | 4960.77 | 09/28/2016 | 09:15:04 | 16.42 | 4944.35 | |
| 0832 | | 4964.65 | 09/27/2016 | 15:00:25 | 29.22 | 4935.43 | |
| 0833 | | 4940.52 | 09/27/2016 | 13:50:22 | 27.44 | 4913.08 | |
| 0835 | | 4930.48 | 09/27/2016 | 14:20:20 | 19.04 | 4911.44 | |
| 0836 | | 4901.74 | 09/27/2016 | 08:35:12 | 32.77 | 4868.97 | |
| 0837 | | 4889.54 | 09/27/2016 | 09:50:19 | 23.37 | 4866.17 | |
| 0838 | | 4937.7 | 09/27/2016 | 13:15:29 | 28.53 | 4909.17 | |
| 0841 | | 4984.05 | 09/29/2016 | 13:45:51 | 44.39 | 4939.66 | |
| 0843 | | 4883.56 | 09/27/2016 | 10:15:52 | 15.49 | 4868.07 | |
| 0844 | | 4948.46 | 09/27/2016 | 15:30:23 | 32.19 | 4916.27 | |
| 0848 | | 4949.91 | 09/26/2016 | 17:00:43 | 44.1 | 4905.81 | |
| 1002 | | 4957.63 | 09/27/2016 | 16:11:00 | | | D |
| 1003 | | 4957.84 | 09/27/2016 | 16:13:00 | | | D |
| 1004 | | 4957.61 | 09/27/2016 | 16:15:00 | | | D |
| 1007 | | 4962.01 | 09/28/2016 | 08:15:43 | 44.58 | 4917.43 | |
| 1011 | | 4945.96 | 09/27/2016 | 14:25:04 | 27.62 | 4918.34 | |
| 1048 | | 4921.35 | 09/28/2016 | 14:49:00 | | | D |
| 1049 | | 4923.89 | 09/28/2016 | 14:45:08 | 7.04 | 4916.85 | |
| 1057 | | 4984.83 | 09/26/2016 | 15:50:15 | 39.71 | 4945.12 | |
| 1058 | | 4973.58 | 09/28/2016 | 12:25:28 | 29.18 | 4944.4 | |
| 1059 | | 4970.52 | 09/28/2016 | 12:10:02 | 23.78 | 4946.74 | |
| 1060 | | 4970.62 | 09/27/2016 | 14:36:00 | | | D |
| 1067 | | 4930.77 | 09/28/2016 | 10:00:00 | | | D |
| 1068 | | 4927.97 | 09/29/2016 | 09:50:12 | 7.55 | 4920.42 | |
| 1069 | | 4922.62 | 09/29/2016 | 09:58:00 | | | D |
| 1073 | | 4991.43 | 09/26/2016 | 17:45:00 | 50.6 | 4940.83 | |
| 1074 | | 4959.52 | 09/28/2016 | 08:45:34 | 33.3 | 4926.22 | |
| 1079 | | 4925.22 | 09/26/2016 | 16:30:44 | 19.64 | 4905.58 | |
| 1120 | | 4890.98 | 09/27/2016 | 09:19:00 | | | D |

**STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)**
**REPORT DATE: 12/13/2016**

| Location Code | Flow Code | Top of Casing Elevation (Ft) | Measurement Date | Measurement Time | Depth From Top of Casing (Ft) | Water Elevation (Ft) | Water Level Flag |
|---|---|---|---|---|---|---|---|
| 1122 | | 4893.62 | 09/27/2016 | 09:20:00 | | | D |
| 1160 | | 4993.93 | 09/28/2016 | 12:01:00 | | | D |
| 1161 | | 4996.11 | 09/28/2016 | 12:08:00 | | | D |
| 1162 | | 4995.13 | 09/28/2016 | 12:13:00 | | | D |
| 1163 | | 4992.22 | 09/28/2016 | 11:24:00 | | | D |
| DM7 | | 4974.44 | 09/28/2016 | 14:38:00 | | | D |
| MW1 | | 4955.64 | 09/27/2016 | 16:30:01 | 55.24 | 4900.4 | |

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

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

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# Time-Concentration Graphs

# Floodplain Groundwater Locations

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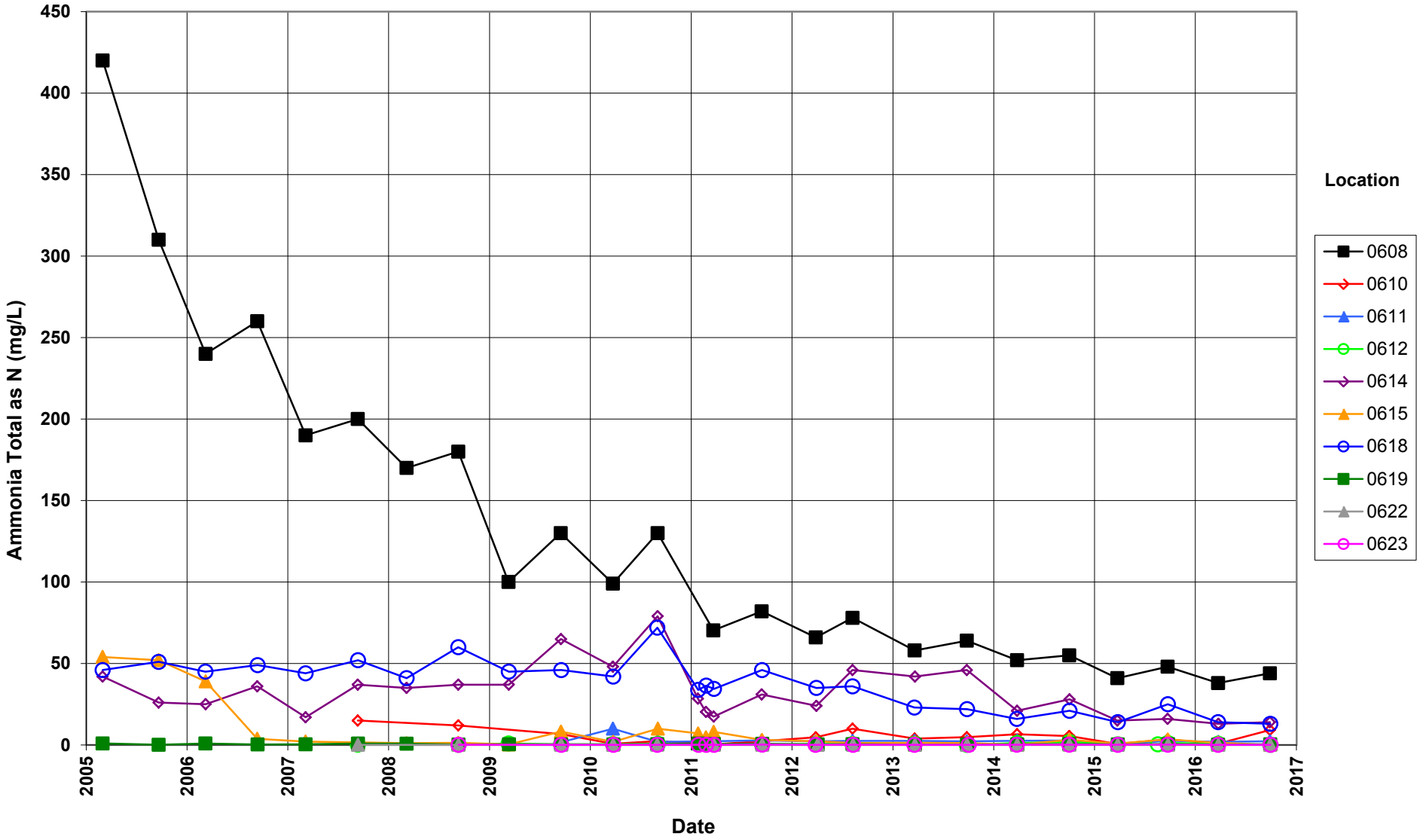
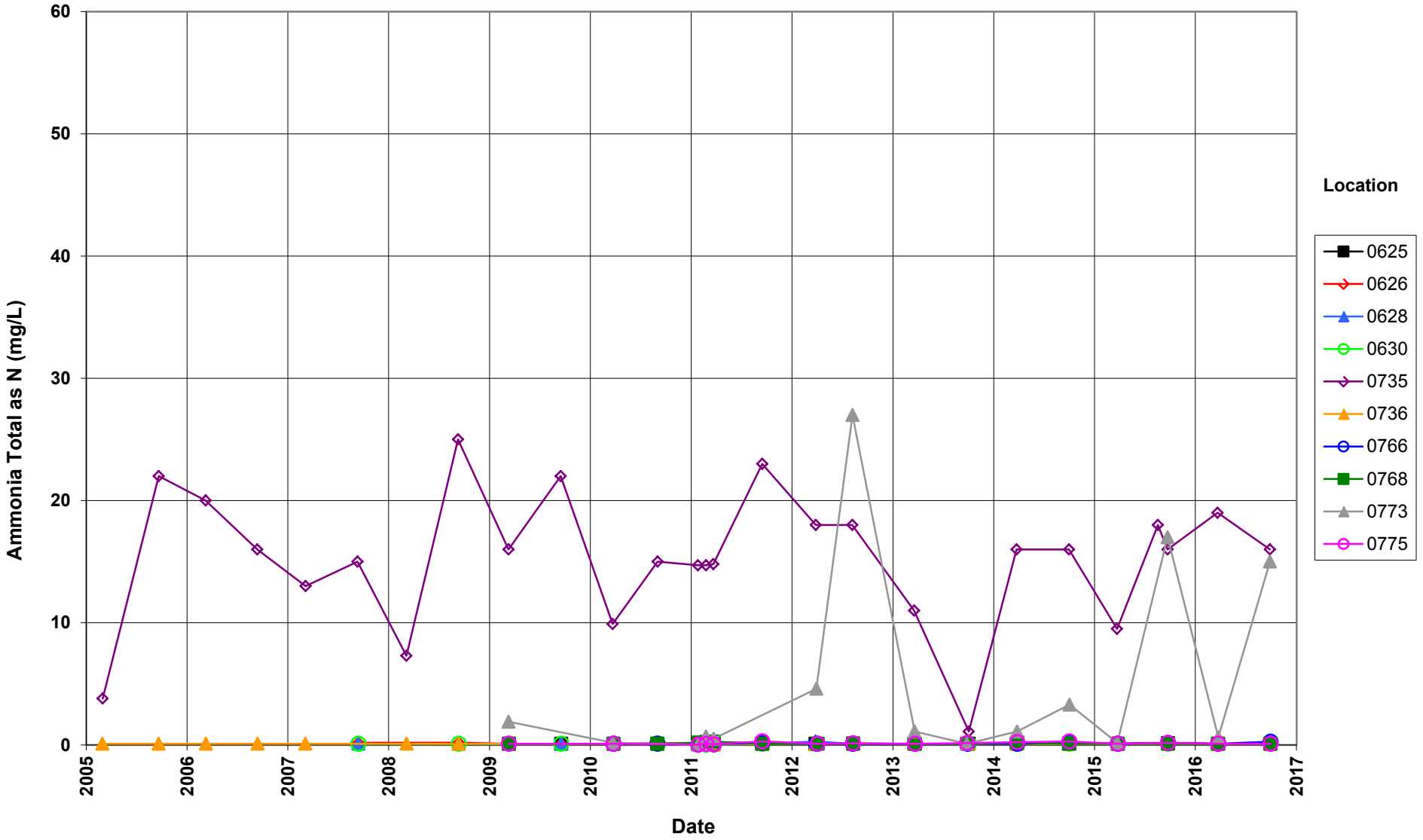
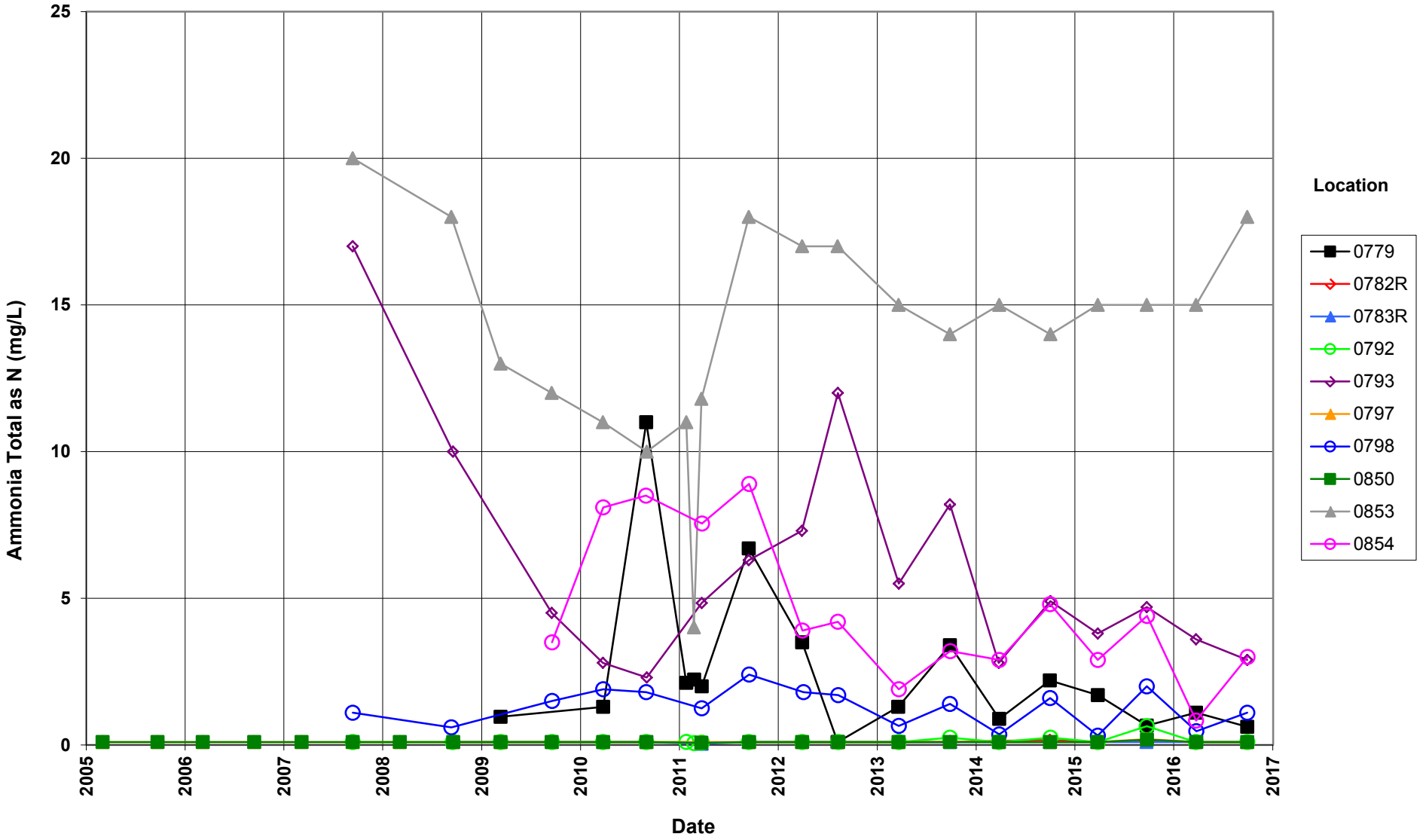
## Shiprock Disposal Site (Floodplain)
## Ammonia Total as N Concentration



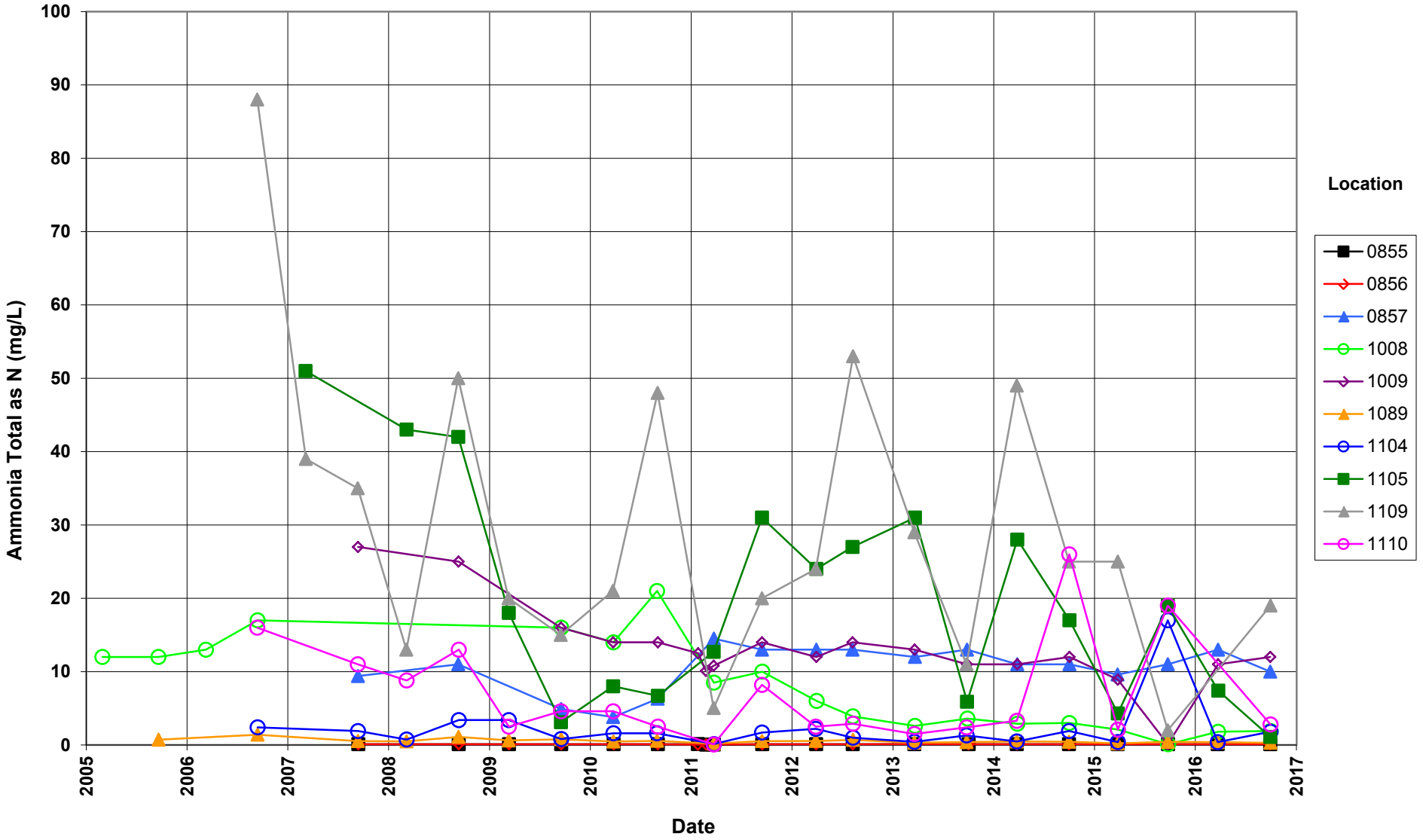
## Shiprock Disposal Site (Floodplain)
## Ammonia Total as N Concentration

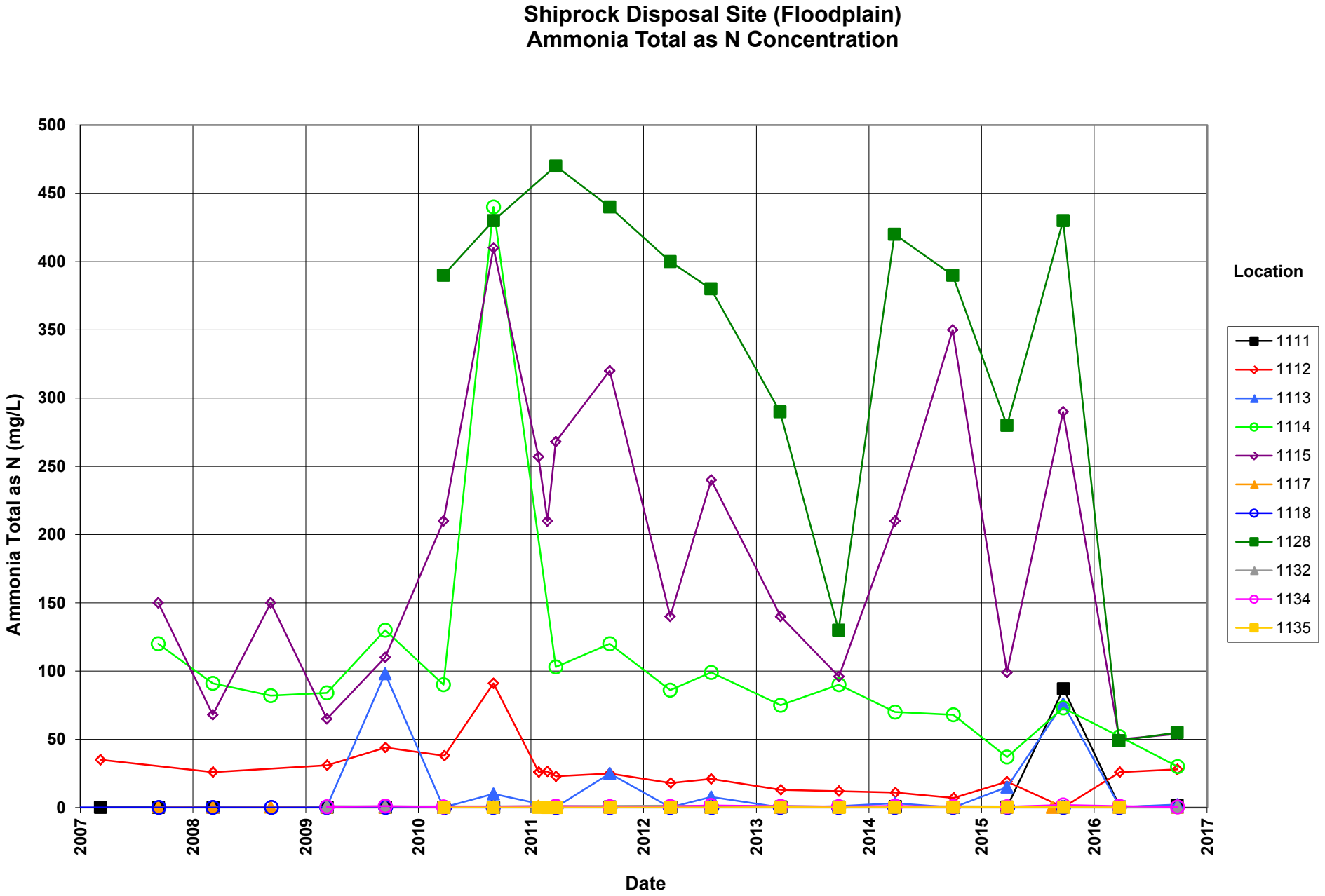


## Shiprock Disposal Site (Floodplain)
## Ammonia Total as N Concentration

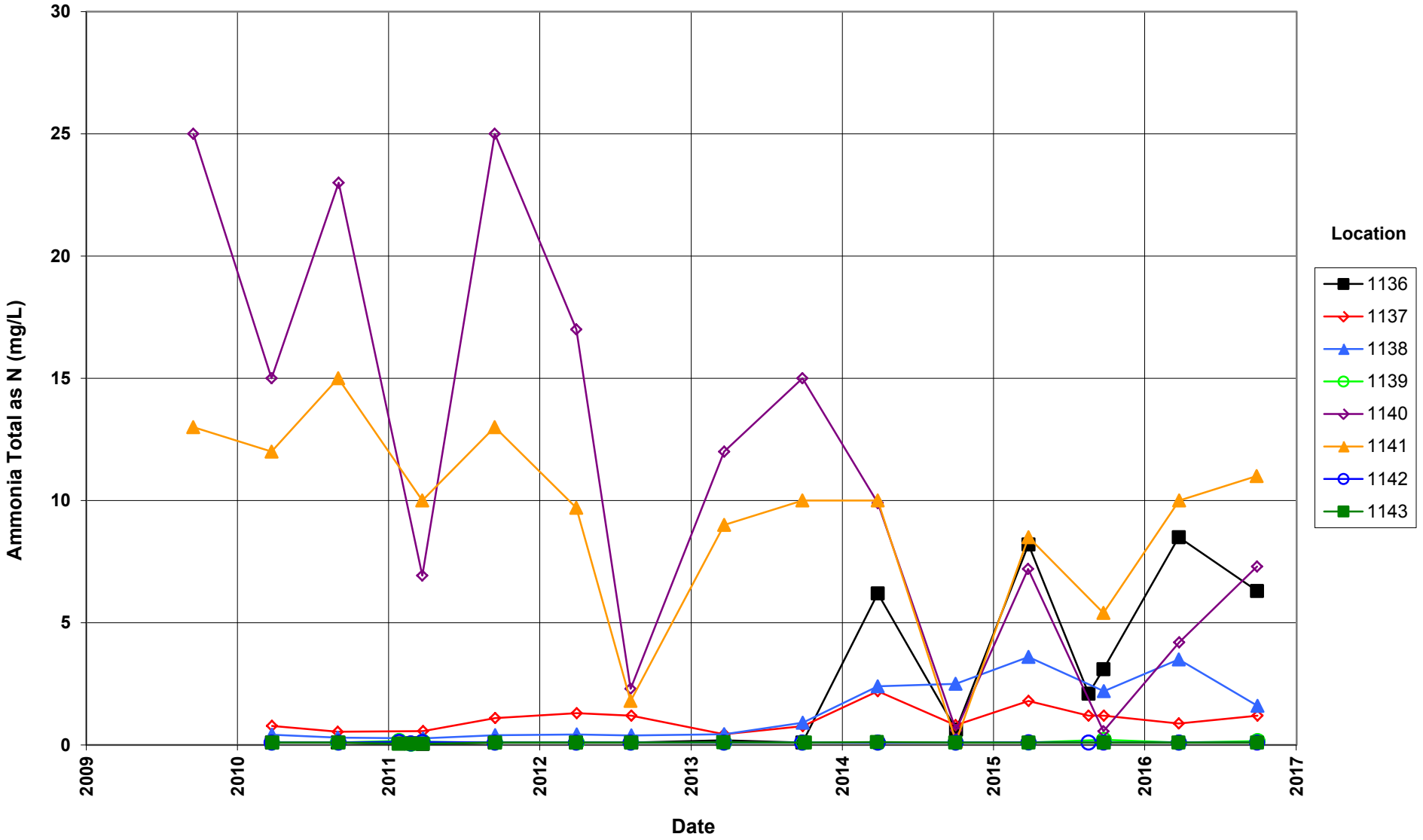


## Shiprock Disposal Site (Floodplain)
## Ammonia Total as N Concentration

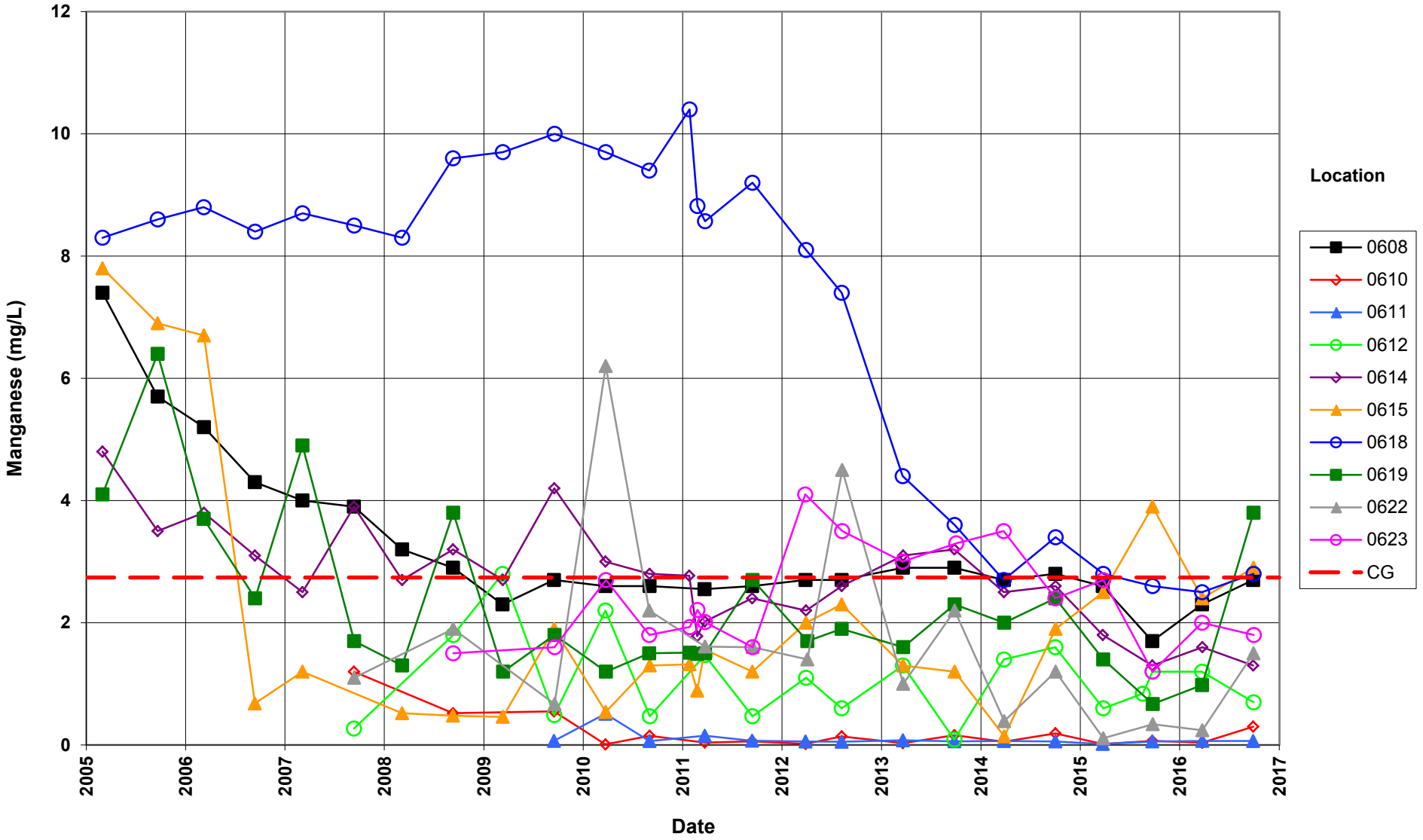



Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration
Ammonia Total as N (mg/L)
500
450
400
350
300
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
1111
1112
1113
1114
1115
1117
1118
1128
1132
1134
1135

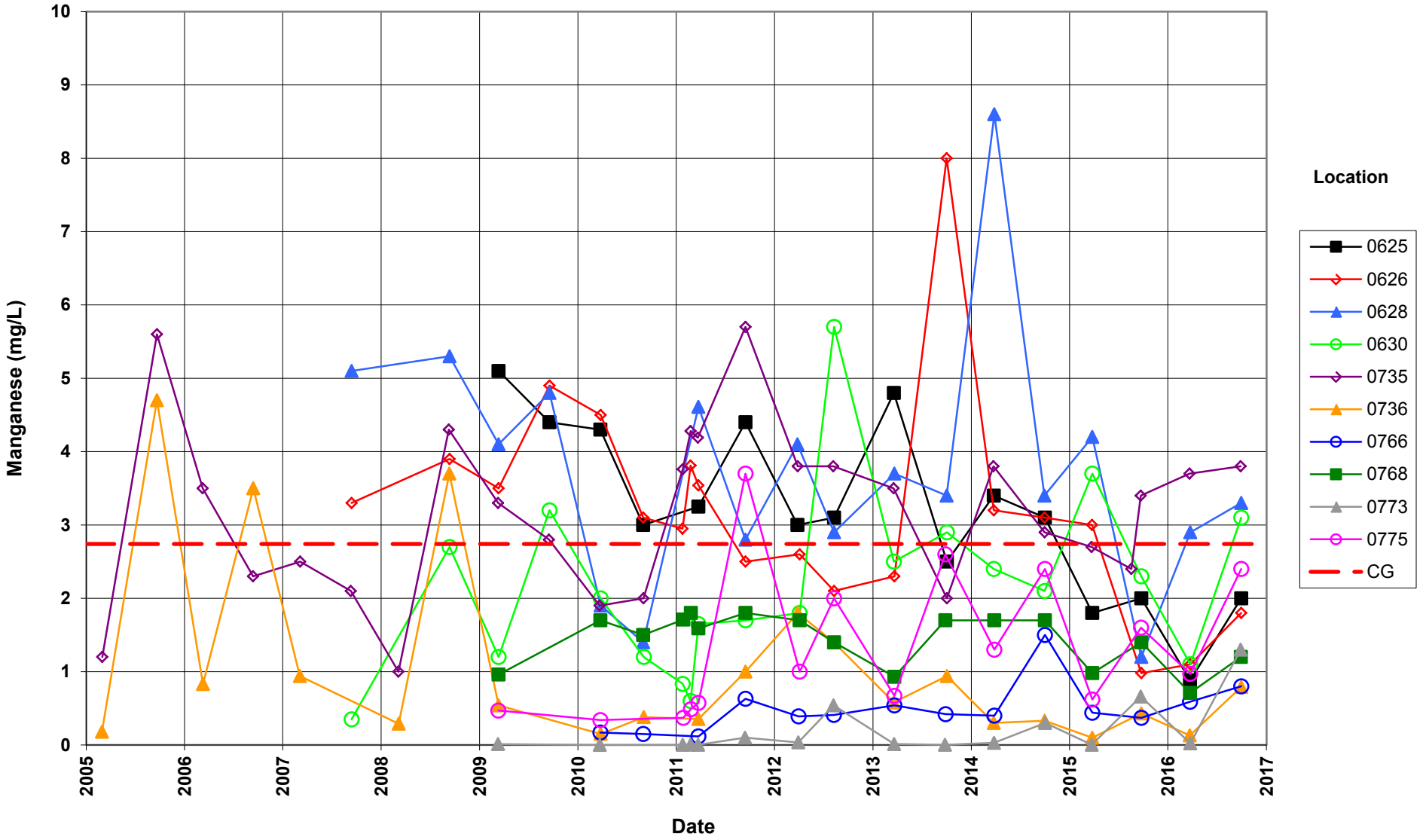
## Shiprock Disposal Site (Floodplain)
## Ammonia Total as N Concentration



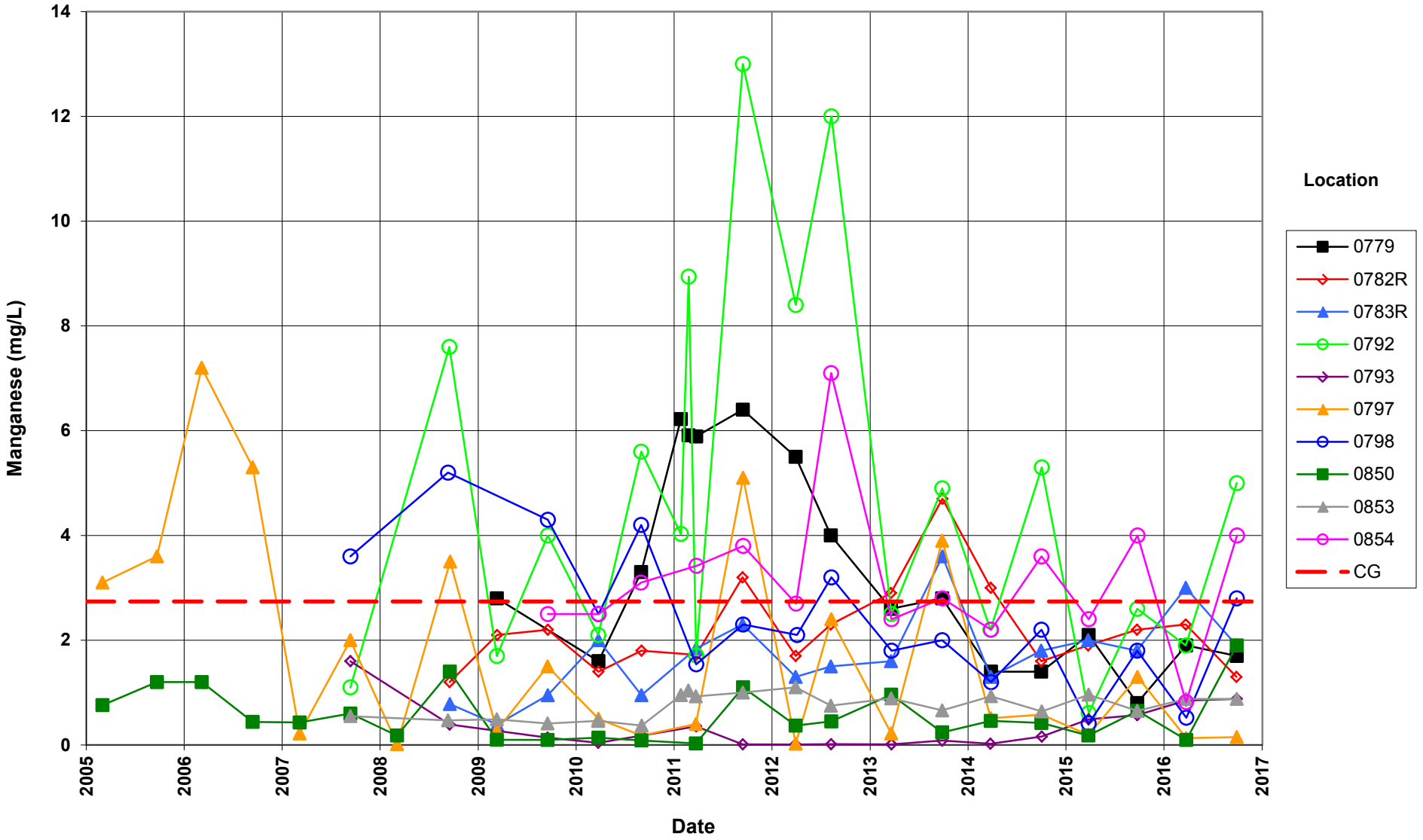
**Shiprock Disposal Site (Floodplain)**
**Manganese Concentration**
Cleanup Goal (CG) = 2.74 mg/L

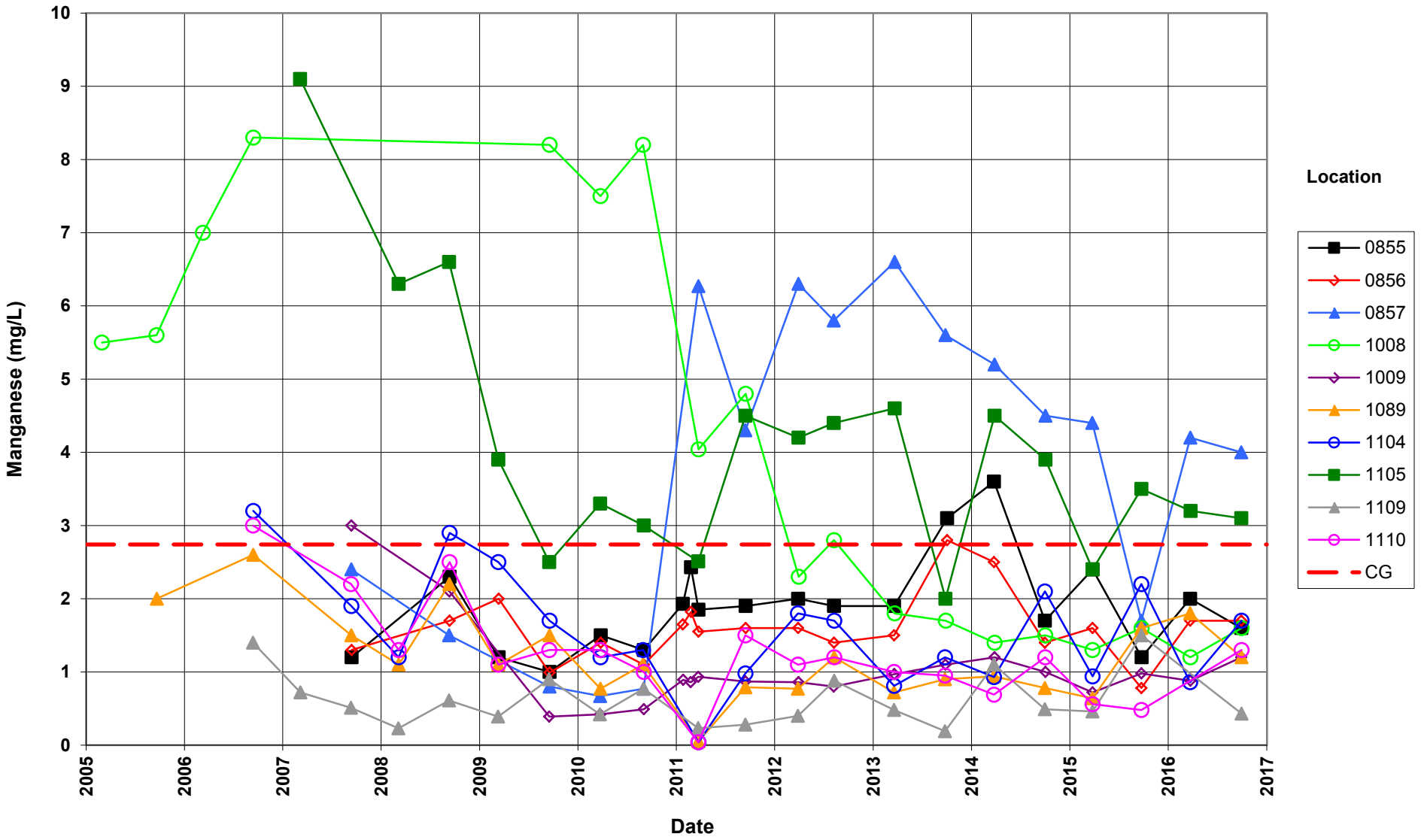


**Shiprock Disposal Site (Floodplain)**
**Manganese Concentration**
Cleanup Goal (CG) = 2.74 mg/L

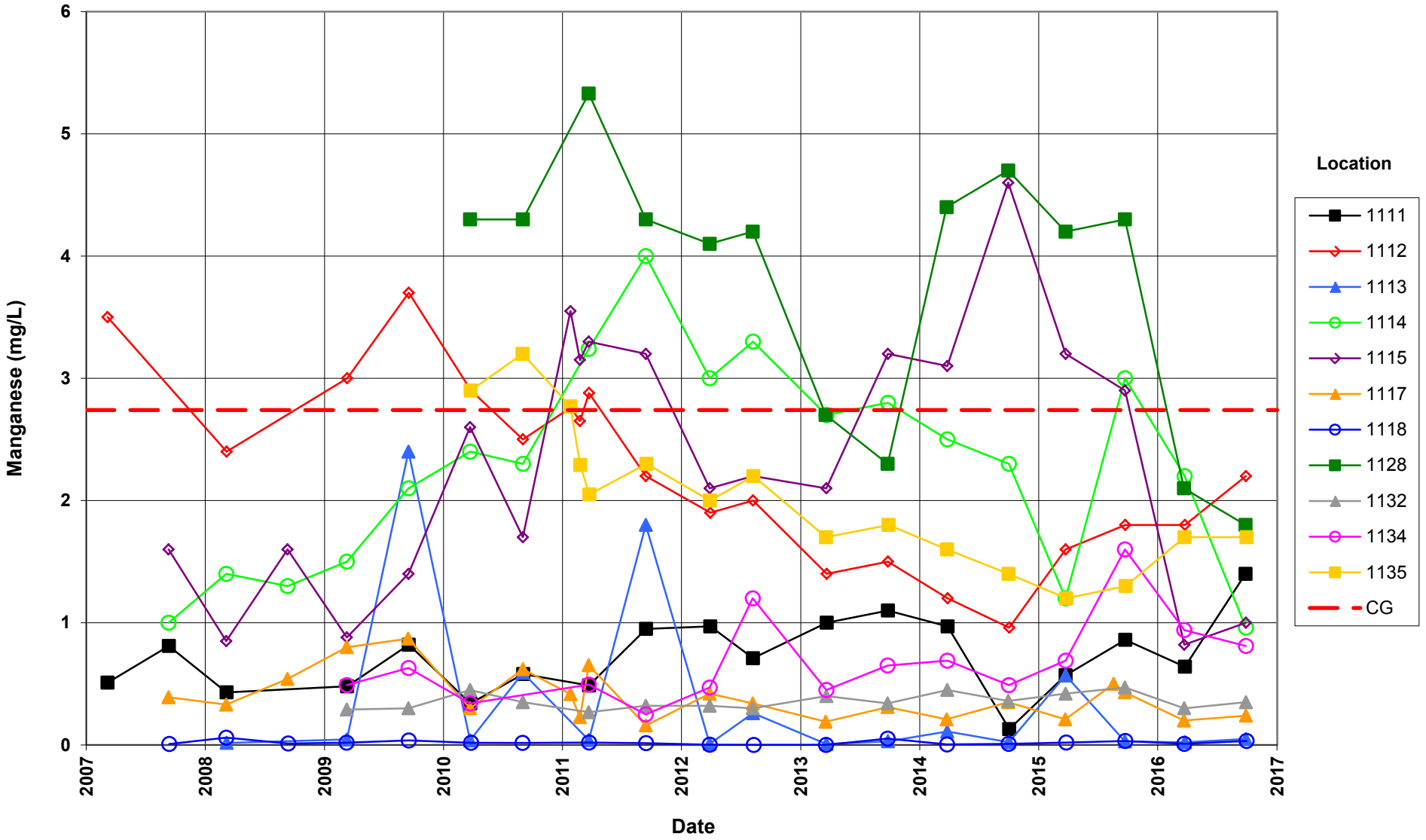


**Shiprock Disposal Site (Floodplain)**
**Manganese Concentration**
Cleanup Goal (CG) = 2.74 mg/L

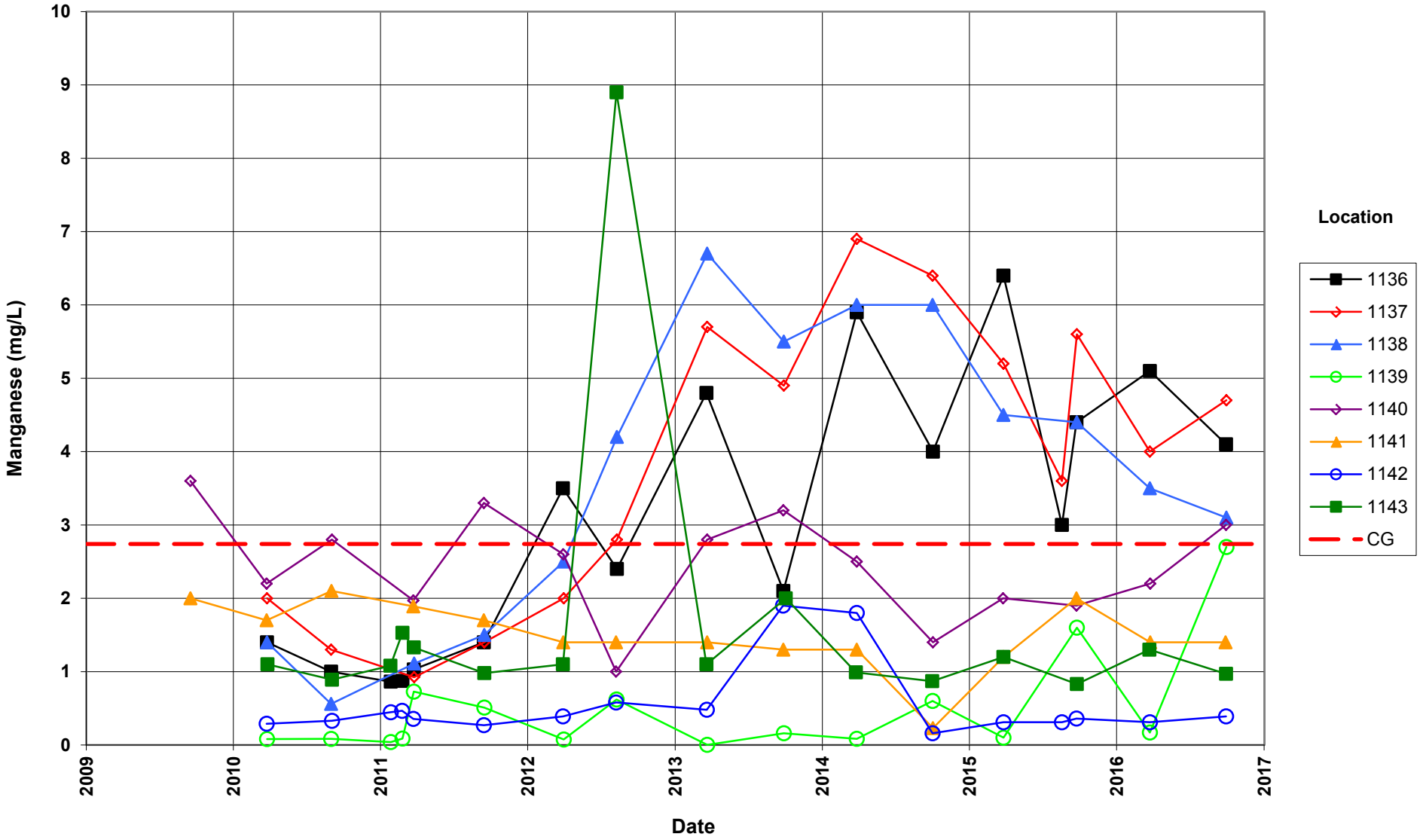



Shiprock Disposal Site (Floodplain)
Manganese Concentration
Cleanup Goal (CG) = 2.74 mg/L
Manganese (mg/L)
Date
Location
0855
0856
0857
1008
1009
1089
1104
1105
1109
1110
CG

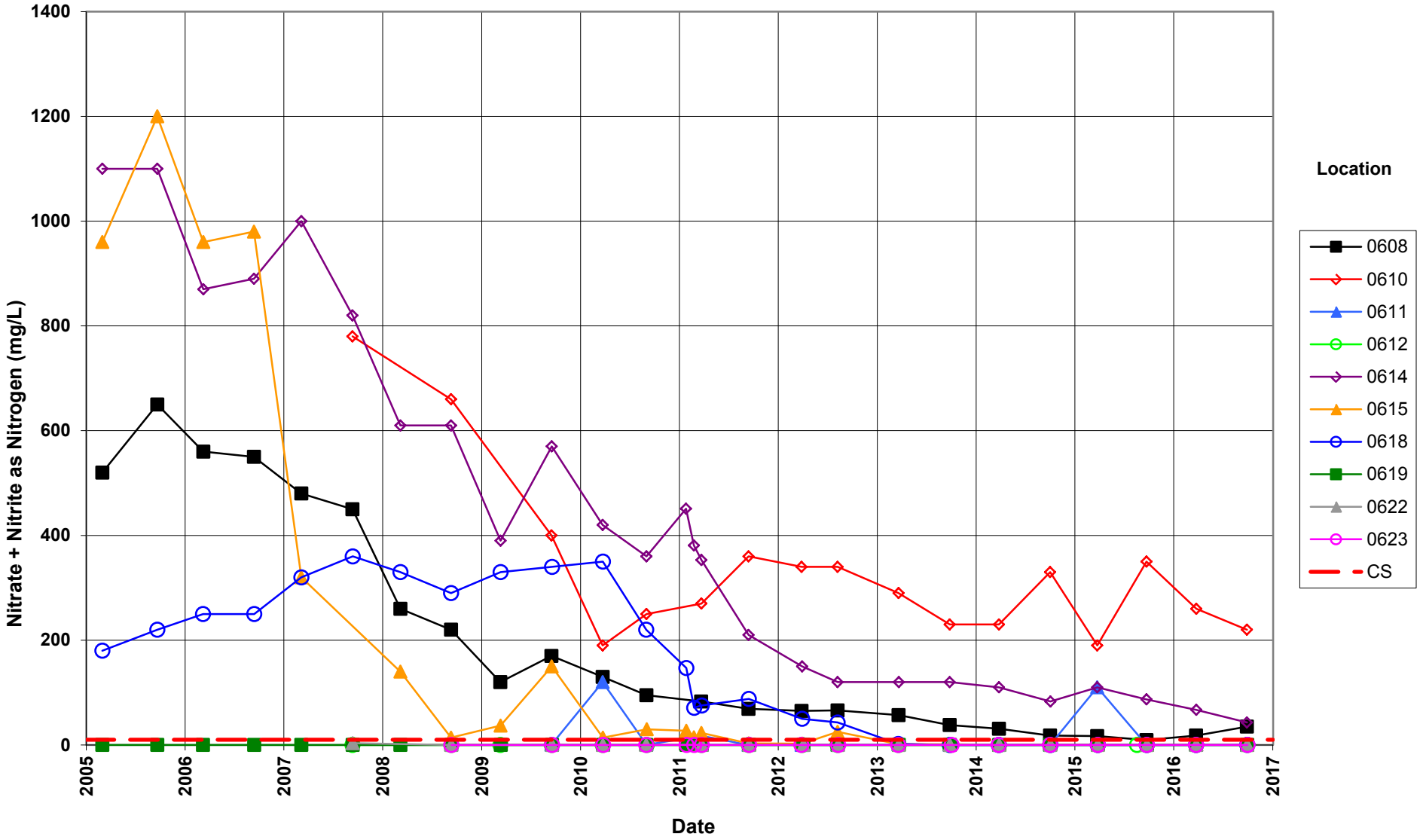
**Shiprock Disposal Site (Floodplain)**
**Manganese Concentration**
Cleanup Goal (CG) = 2.74 mg/L



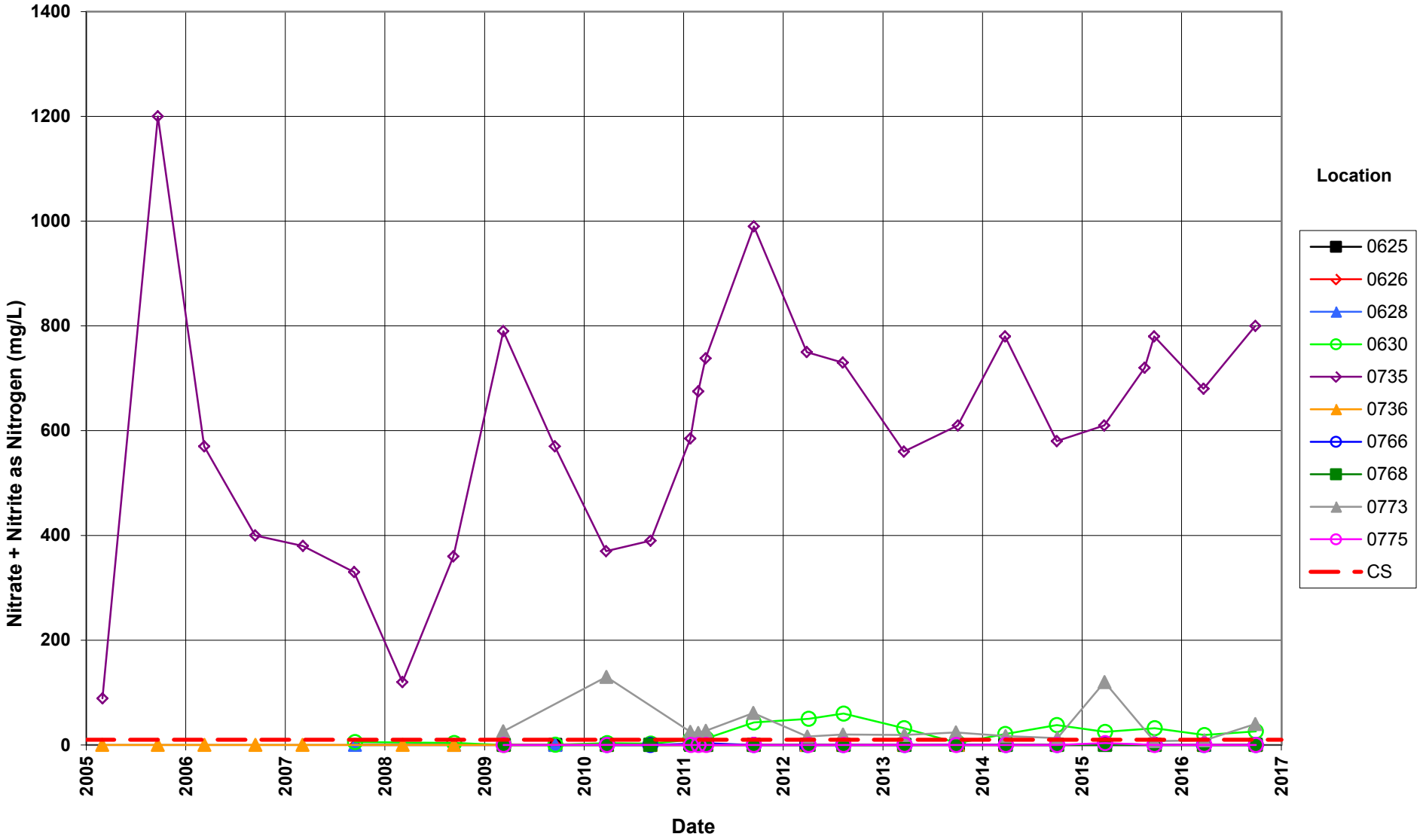
**Shiprock Disposal Site (Floodplain)**
**Manganese Concentration**
Cleanup Goal (CG) = 2.74 mg/L



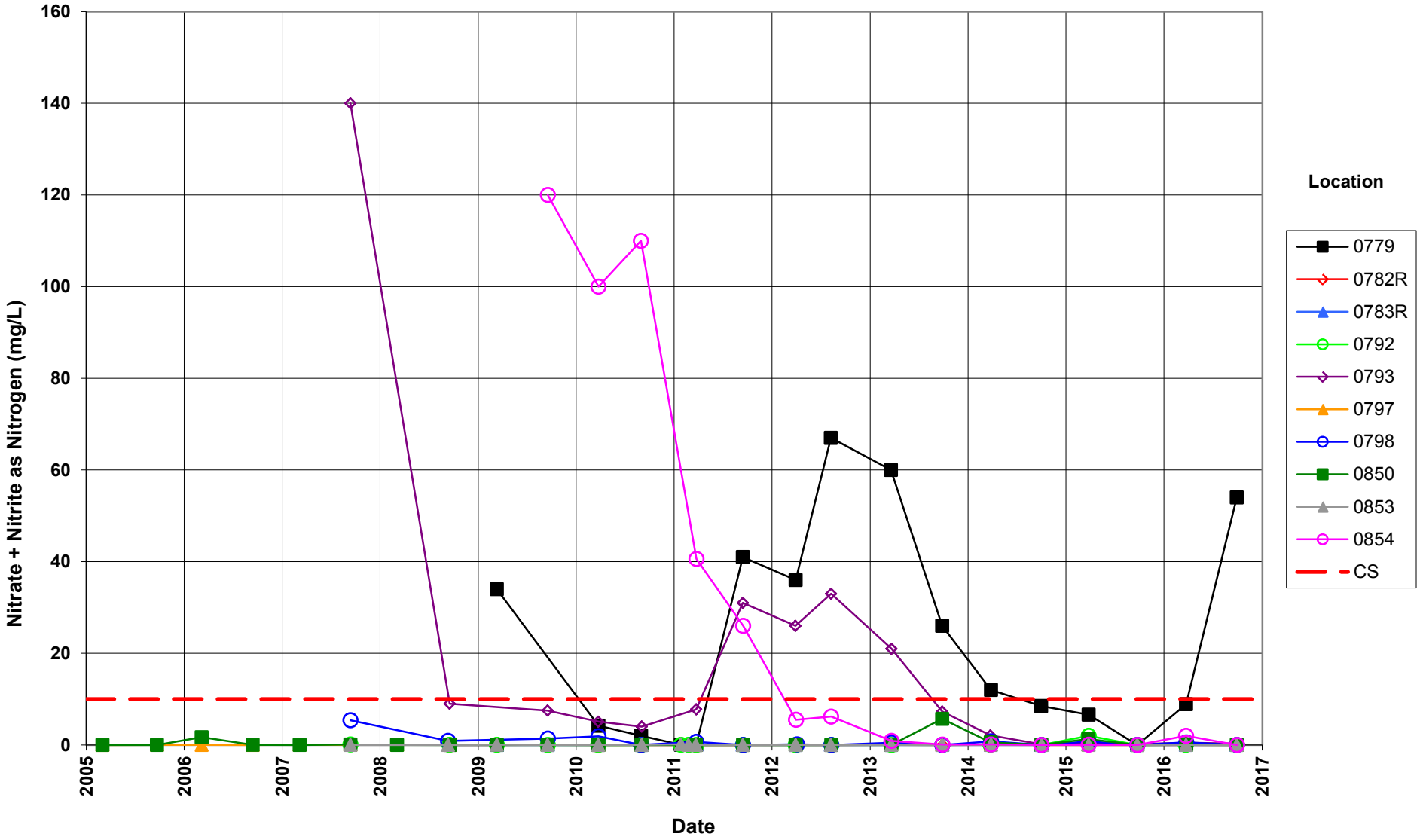
**Shiprock Disposal Site (Floodplain)**
**Nitrate + Nitrite as Nitrogen Concentration**
Compliance Standard (CS) = 10 mg/L



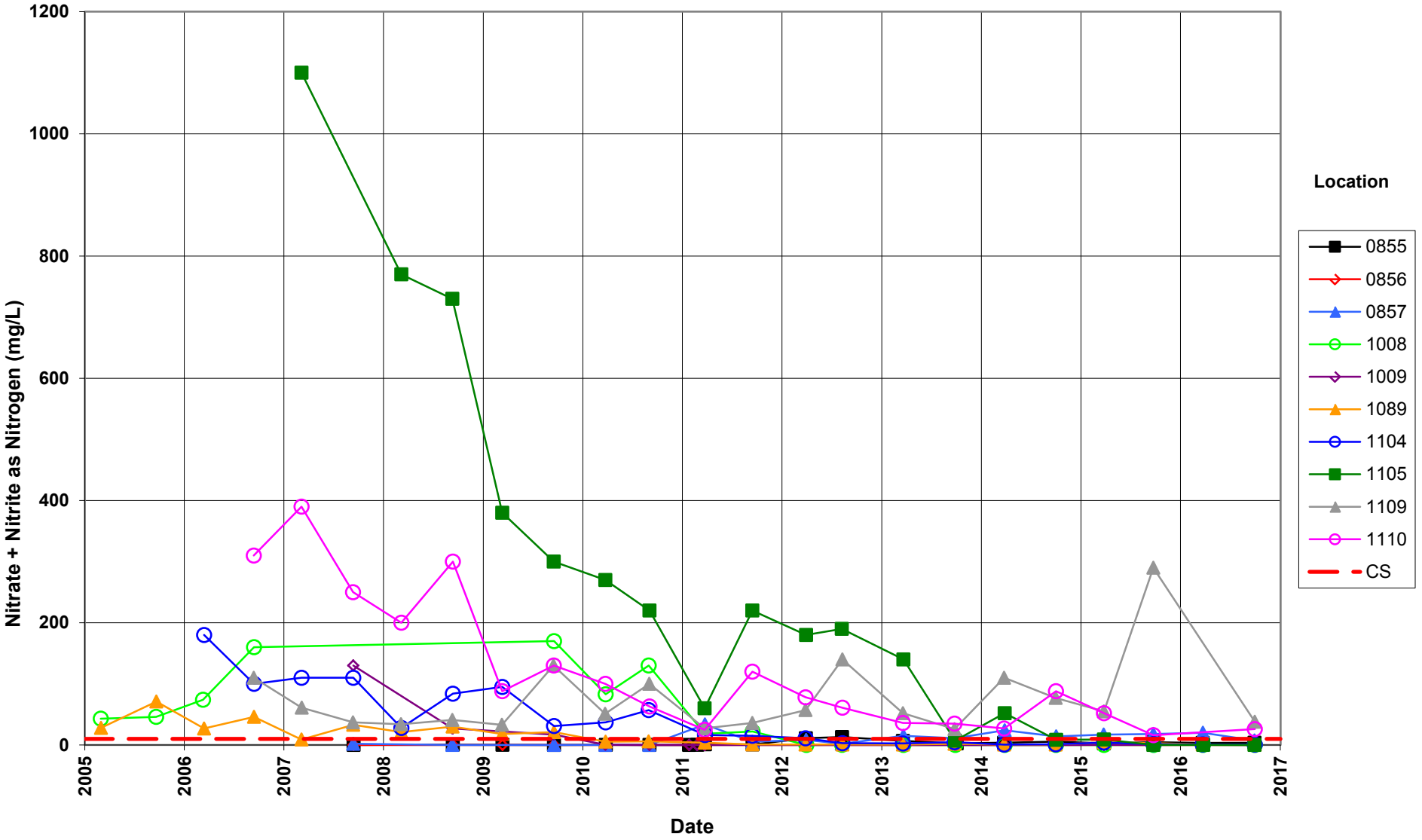
**Shiprock Disposal Site (Floodplain)**
**Nitrate + Nitrite as Nitrogen Concentration**
Compliance Standard (CS) = 10 mg/L



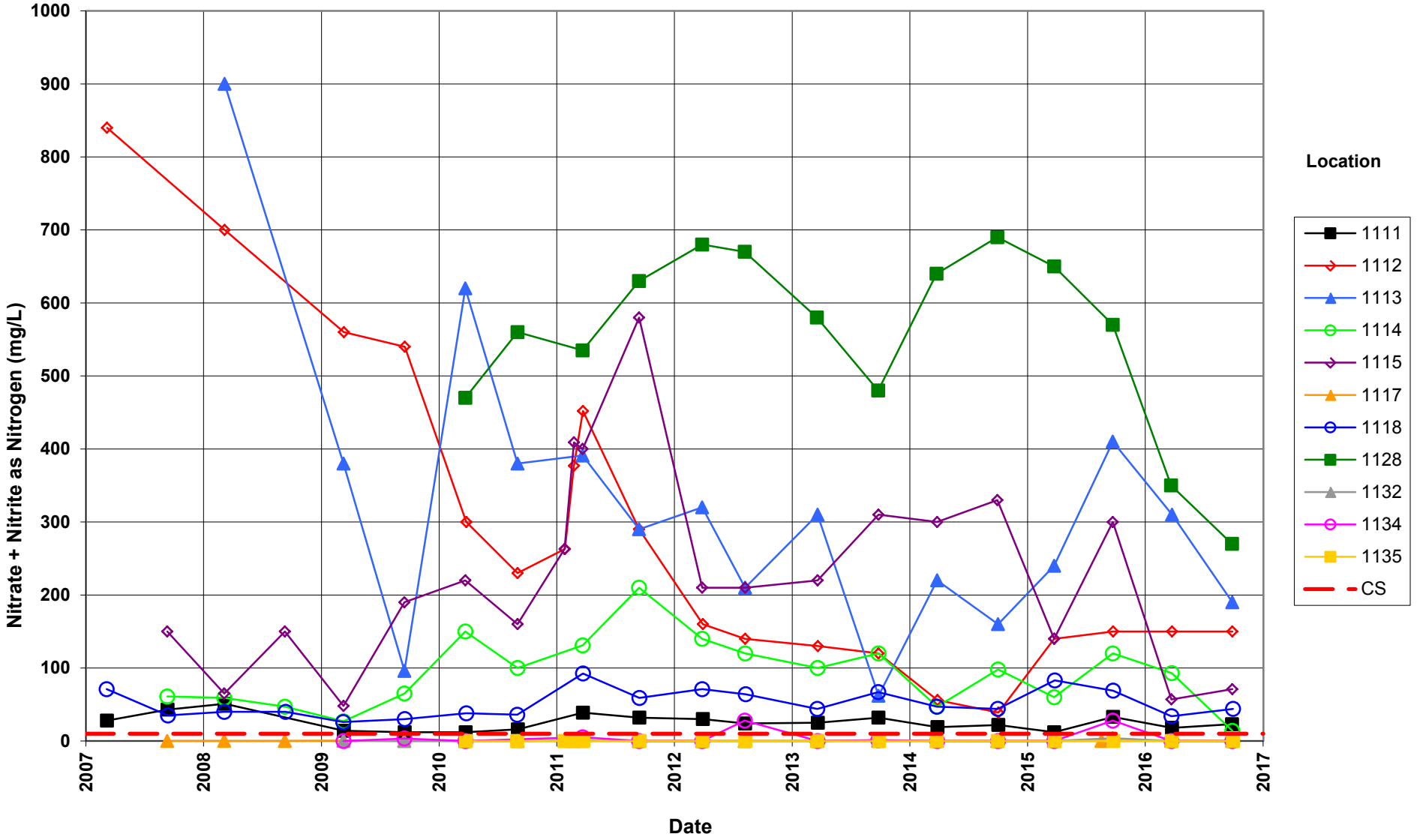
**Shiprock Disposal Site (Floodplain)**
**Nitrate + Nitrite as Nitrogen Concentration**
Compliance Standard (CS) = 10 mg/L



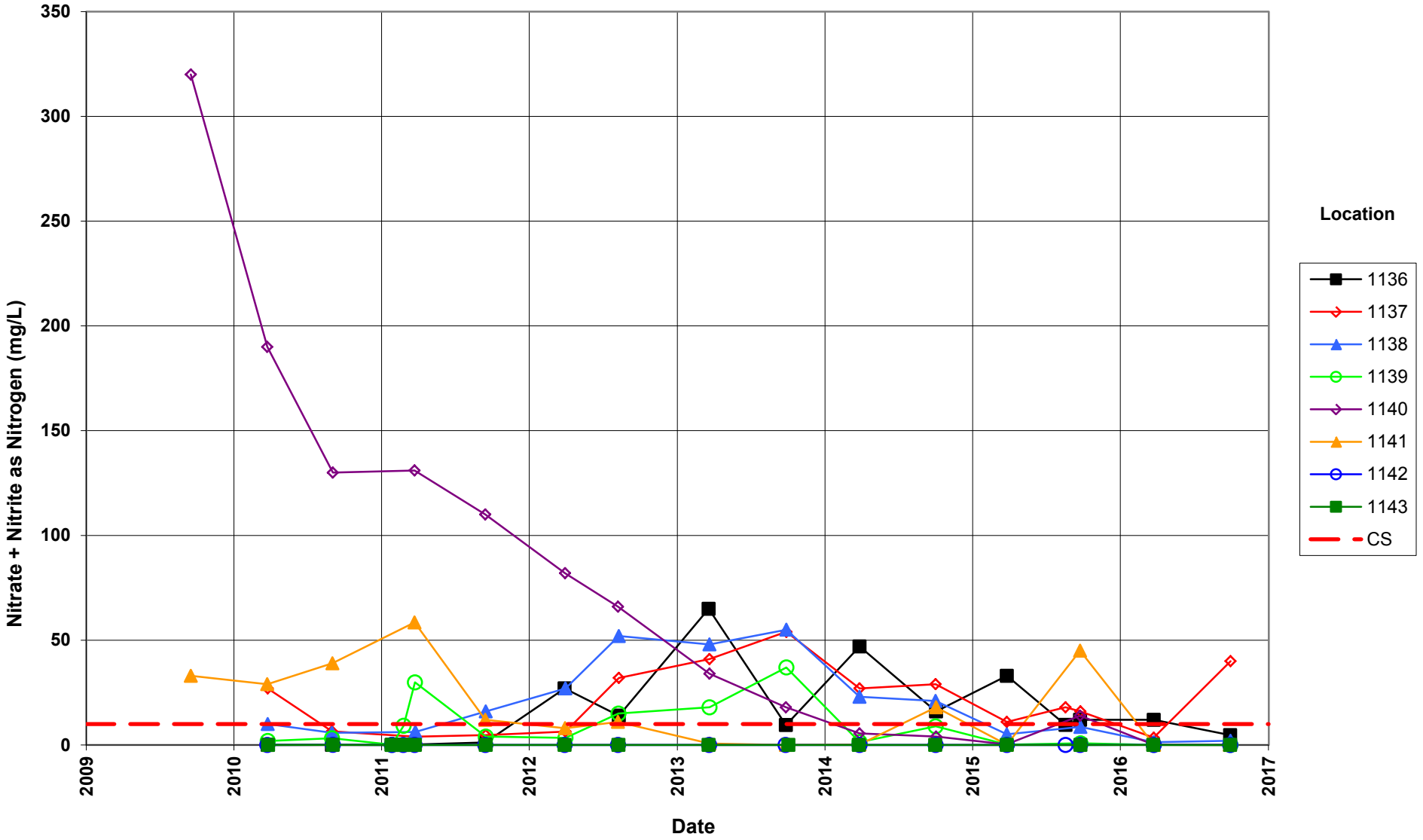
## Shiprock Disposal Site (Floodplain)
## Nitrate + Nitrite as Nitrogen Concentration
Compliance Standard (CS) = 10 mg/L



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

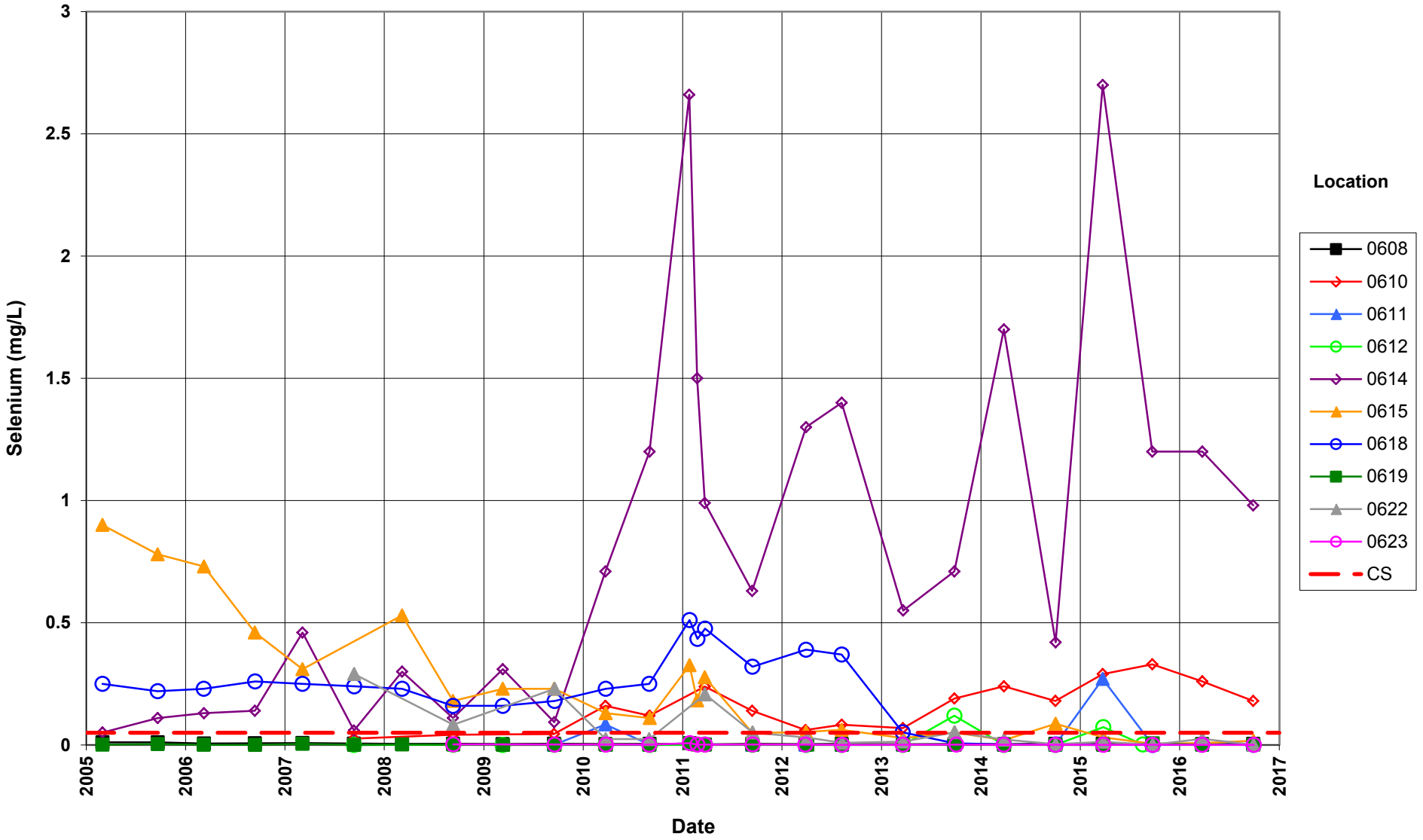


**Shiprock Disposal Site (Floodplain)**
**Nitrate + Nitrite as Nitrogen Concentration**
Compliance Standard (CS) = 10 mg/L

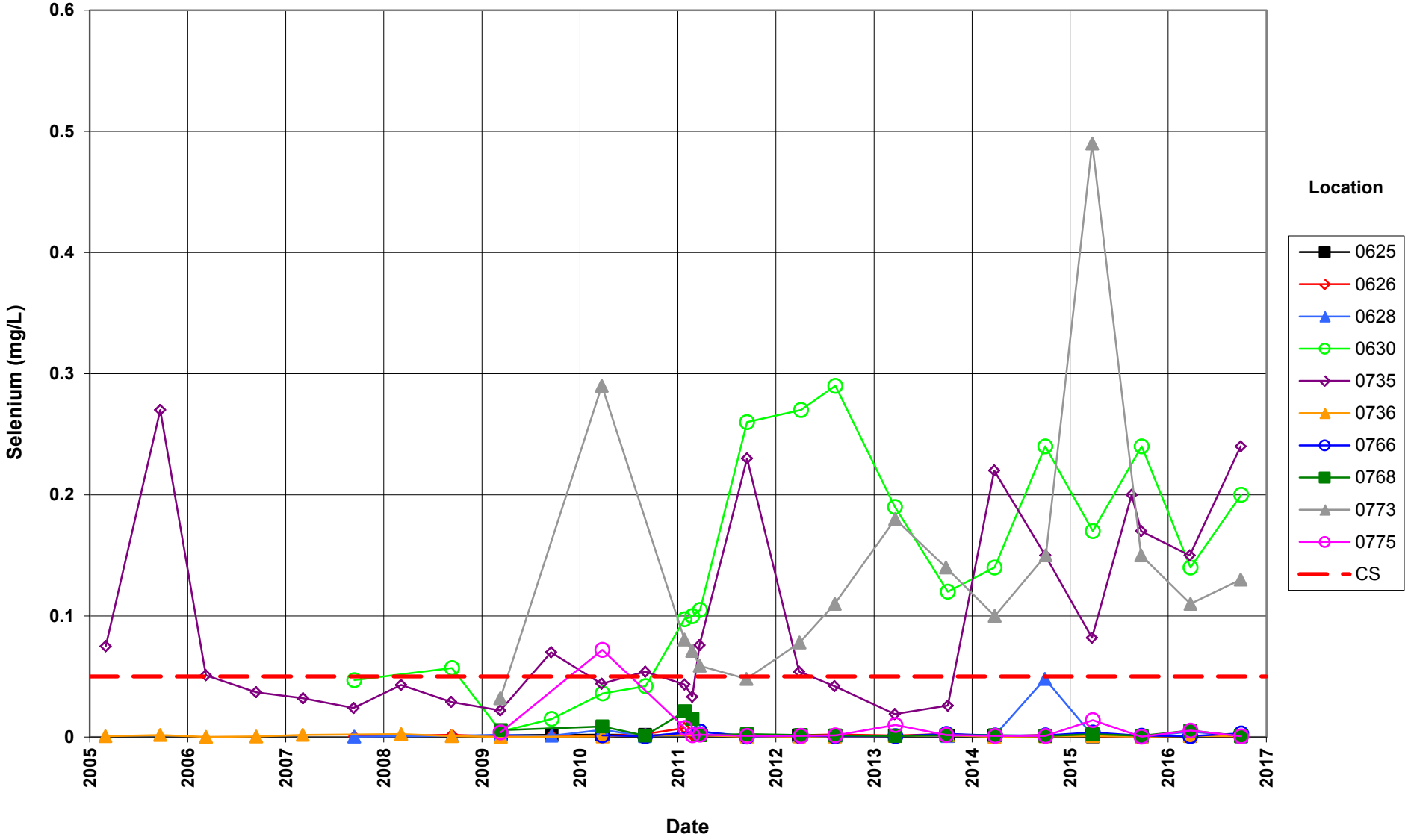


## Shiprock Disposal Site (Floodplain)
## Selenium Concentration

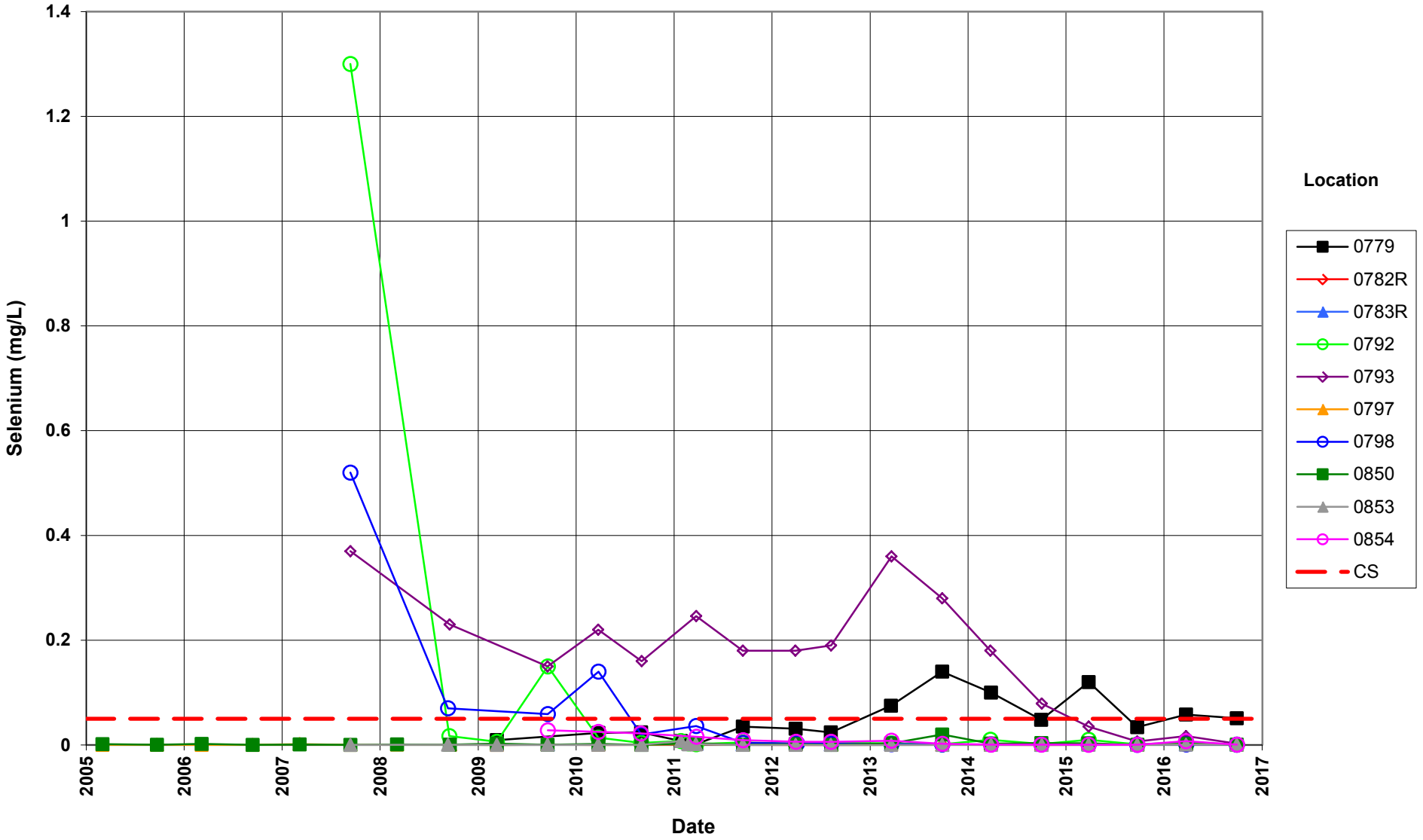
Compliance Standard (CS) = 0.05 mg/L



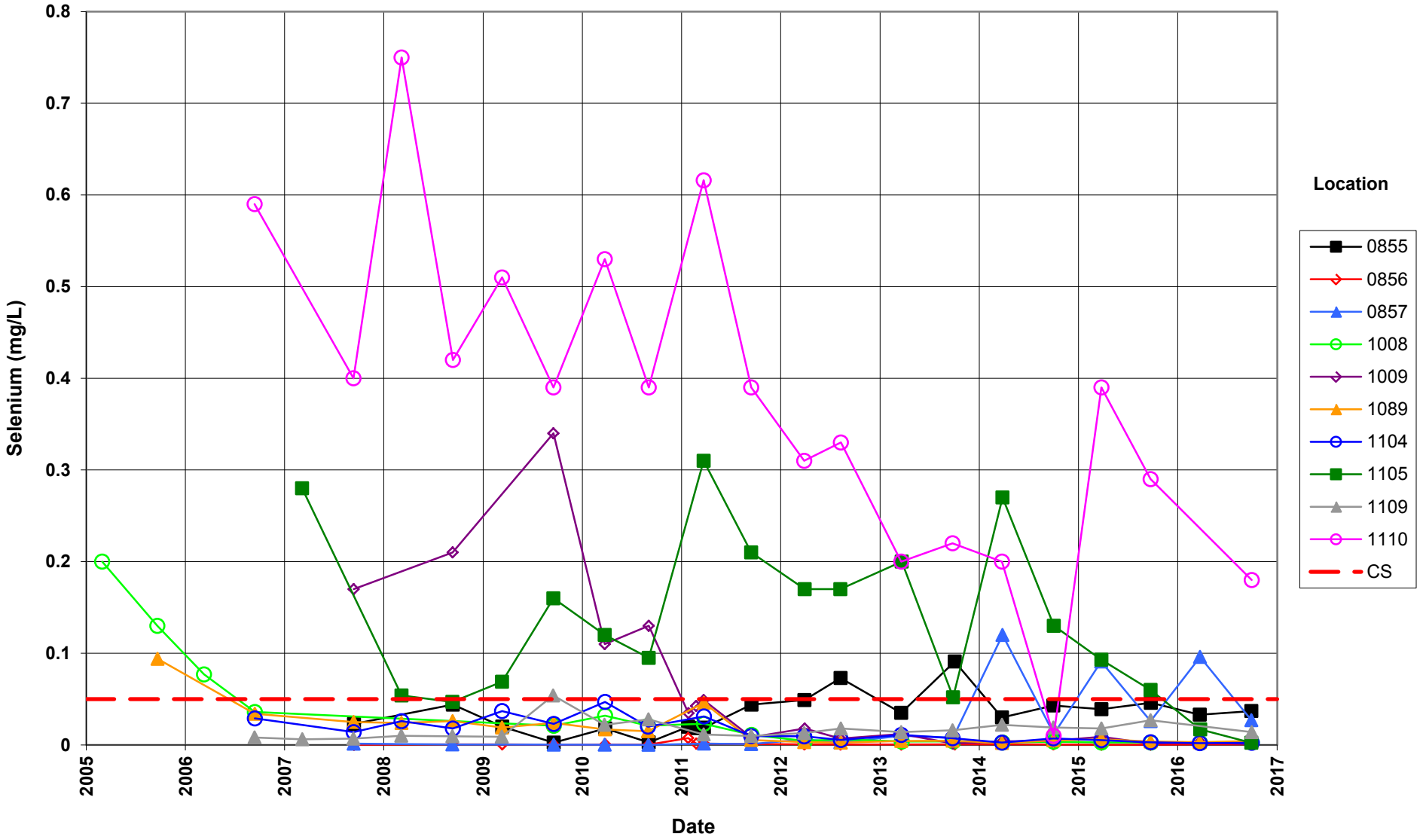
**Shiprock Disposal Site (Floodplain)**
**Selenium Concentration**
Compliance Standard (CS) = 0.05 mg/L



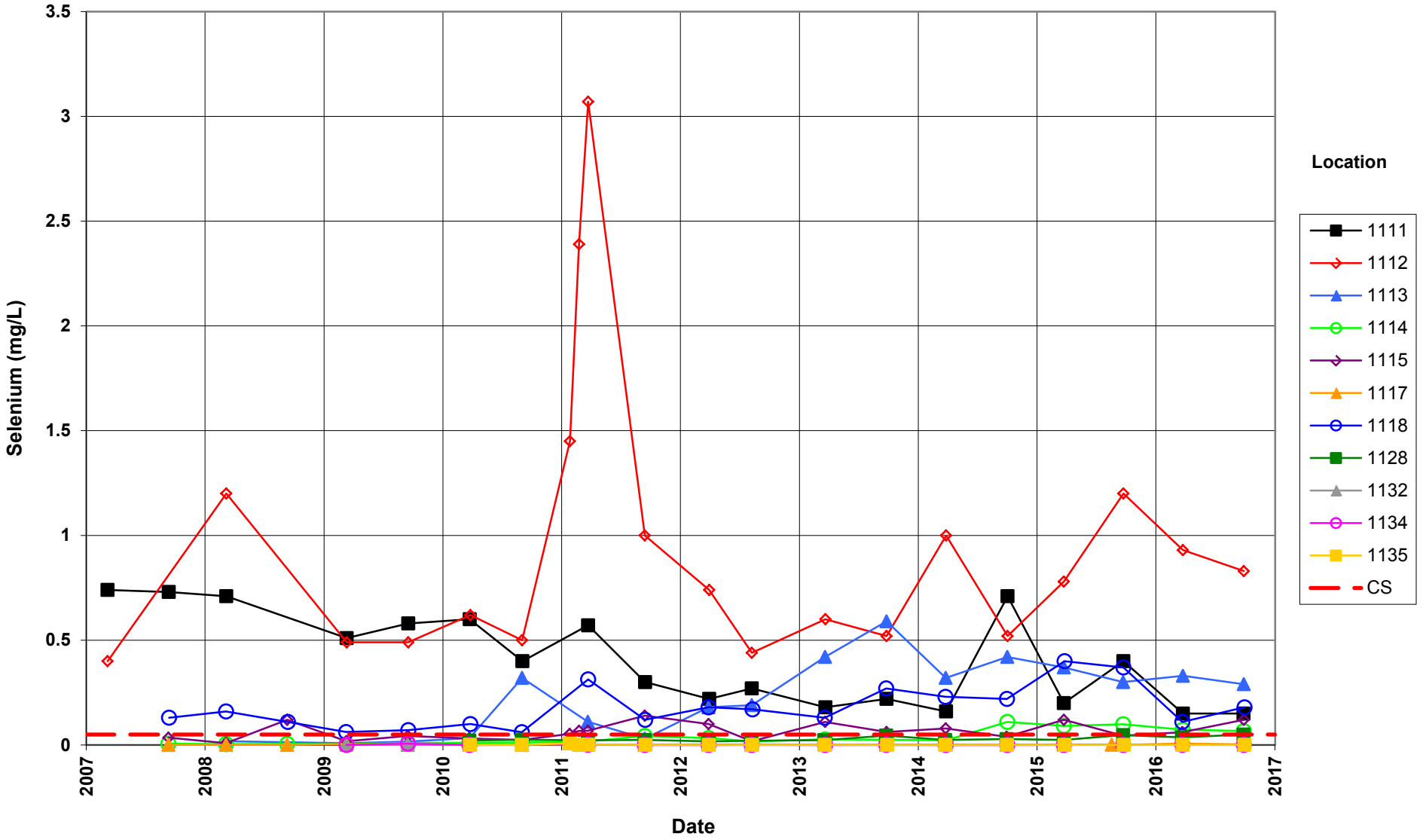
**Shiprock Disposal Site (Floodplain)**
**Selenium Concentration**
Compliance Standard (CS) = 0.05 mg/L



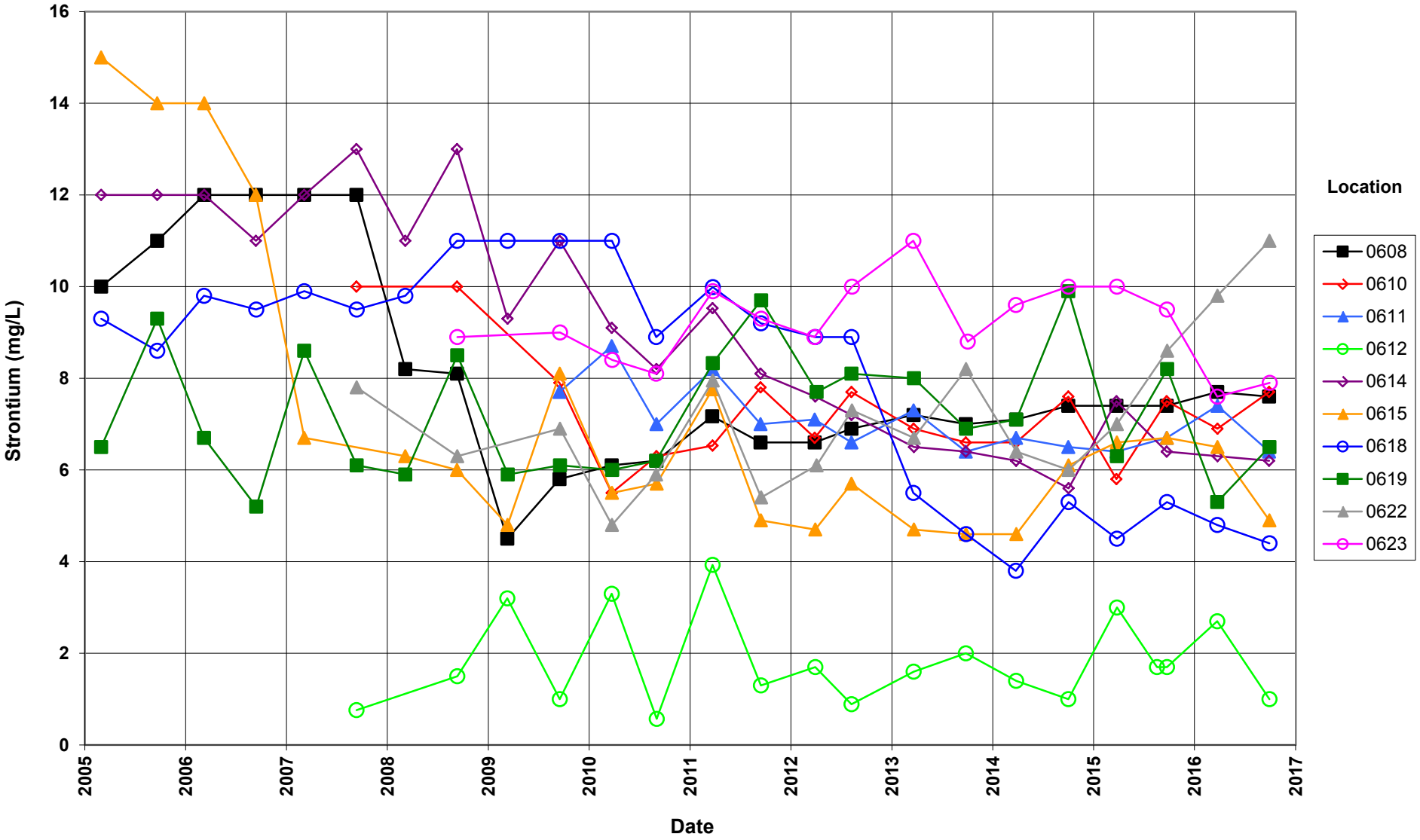
## Shiprock Disposal Site (Floodplain)
## Selenium Concentration
Compliance Standard (CS) = 0.05 mg/L

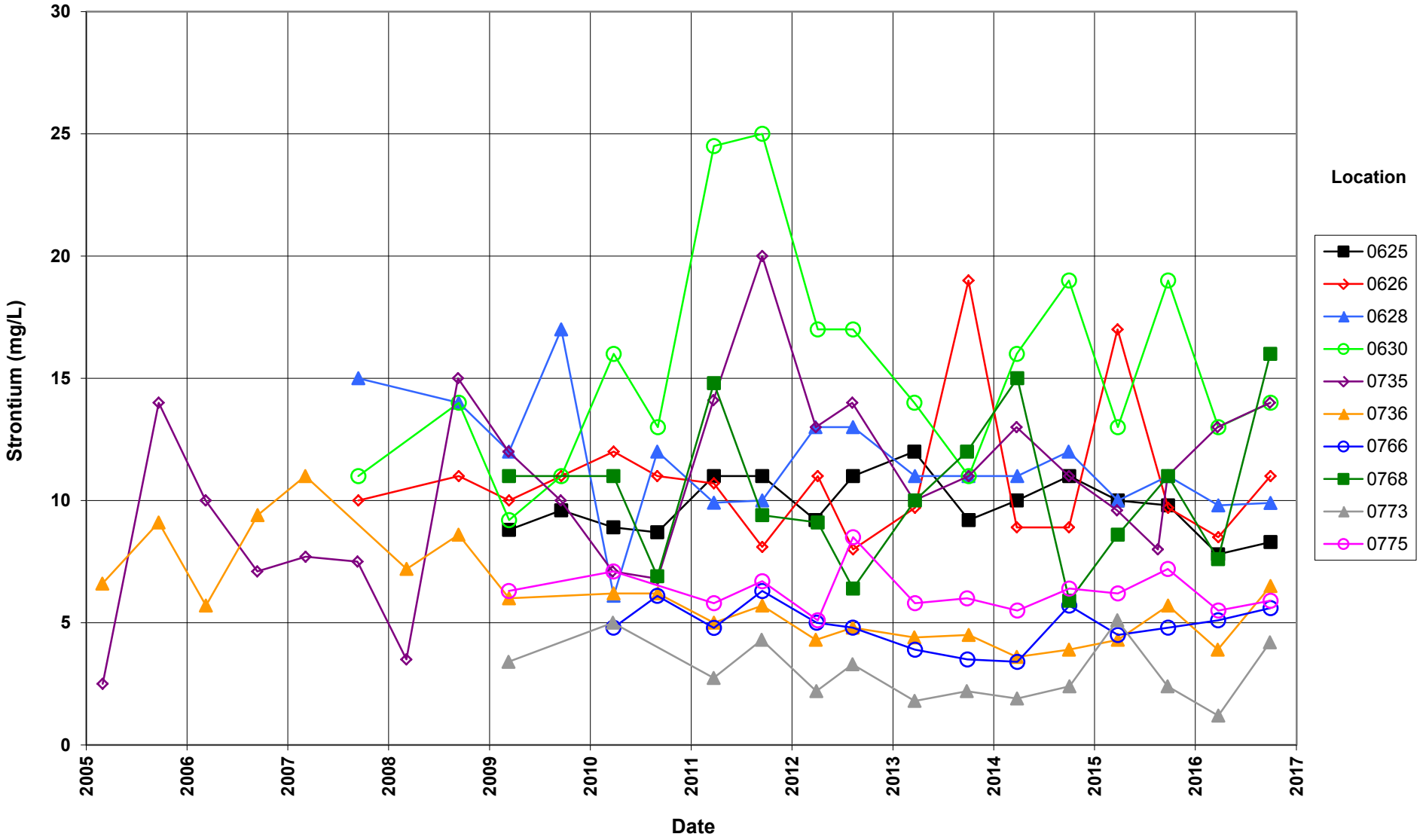


**Shiprock Disposal Site (Floodplain)**
**Selenium Concentration**
Compliance Standard (CS) = 0.05 mg/L

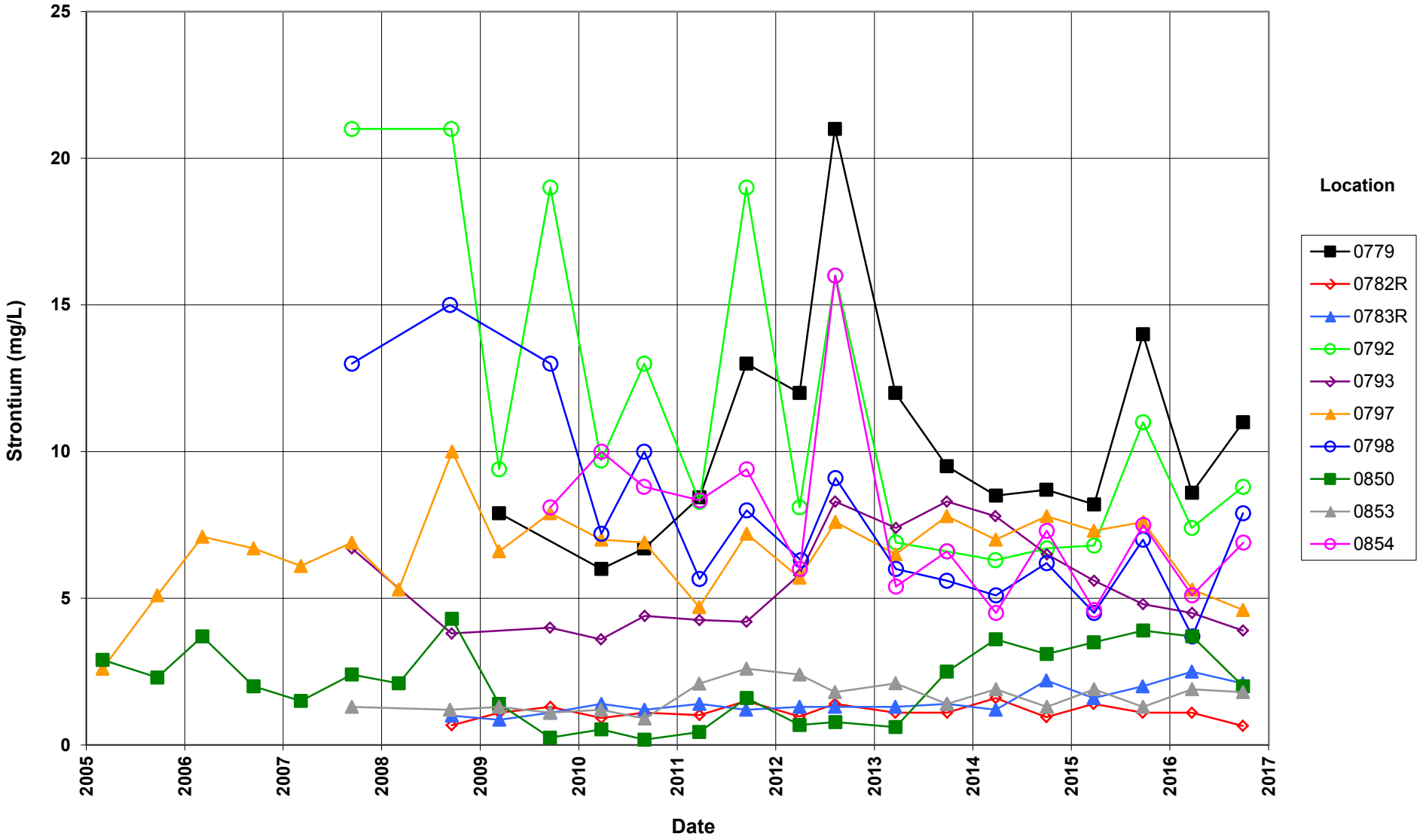



Shiprock Disposal Site (Floodplain)
Selenium Concentration
Compliance Standard (CS) = 0.05 mg/L
Selenium (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
2128
2898
2899
2900
3128
3636
3898
3899
3900
CS

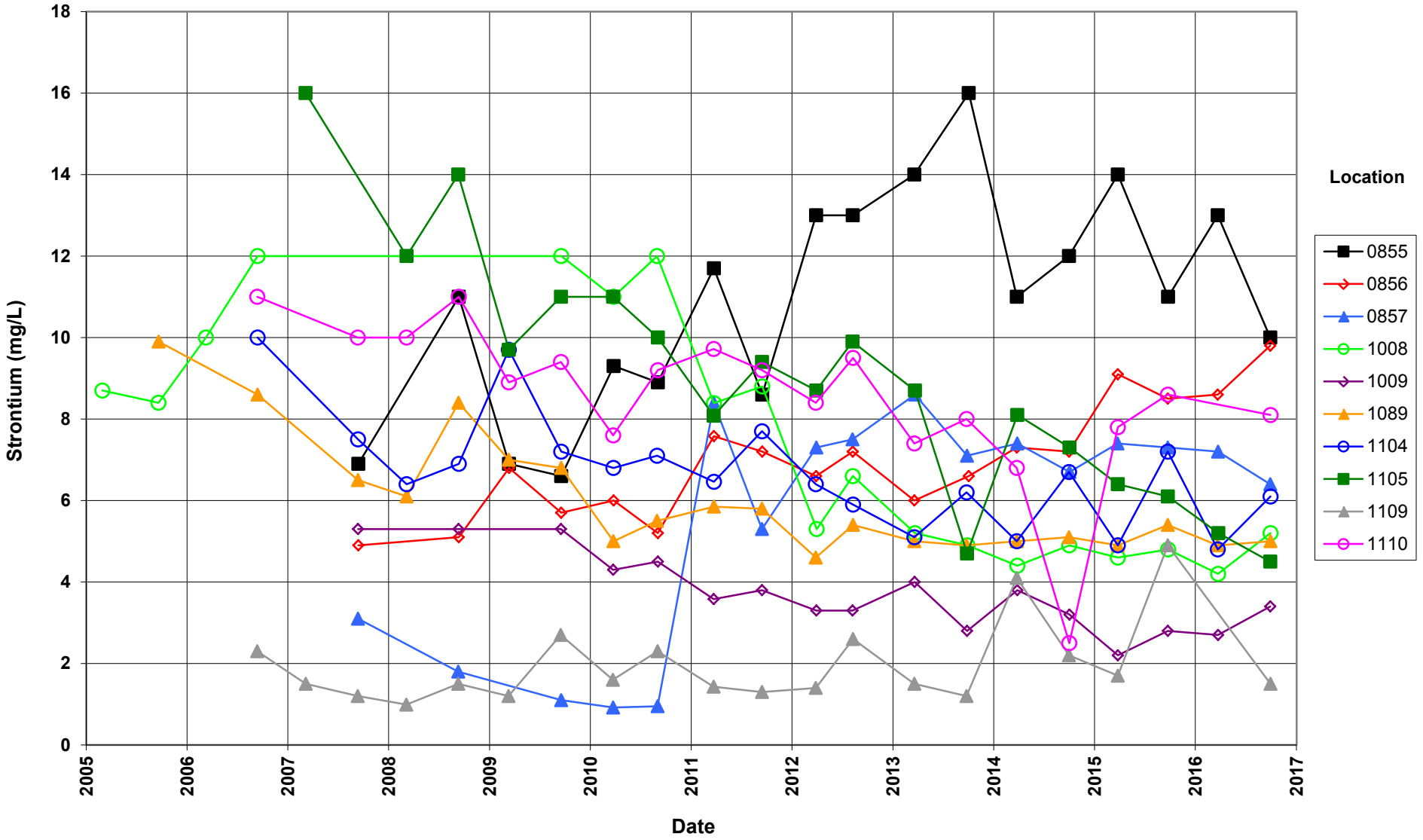

Shiprock Disposal Site (Floodplain)
Strontium Concentration
Strontium (mg/L)
Date
Location
0608
0610
0611
0612
0614
0615
0618
0619
0622
0623
0
2
4
6
8
10
12
14
16
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

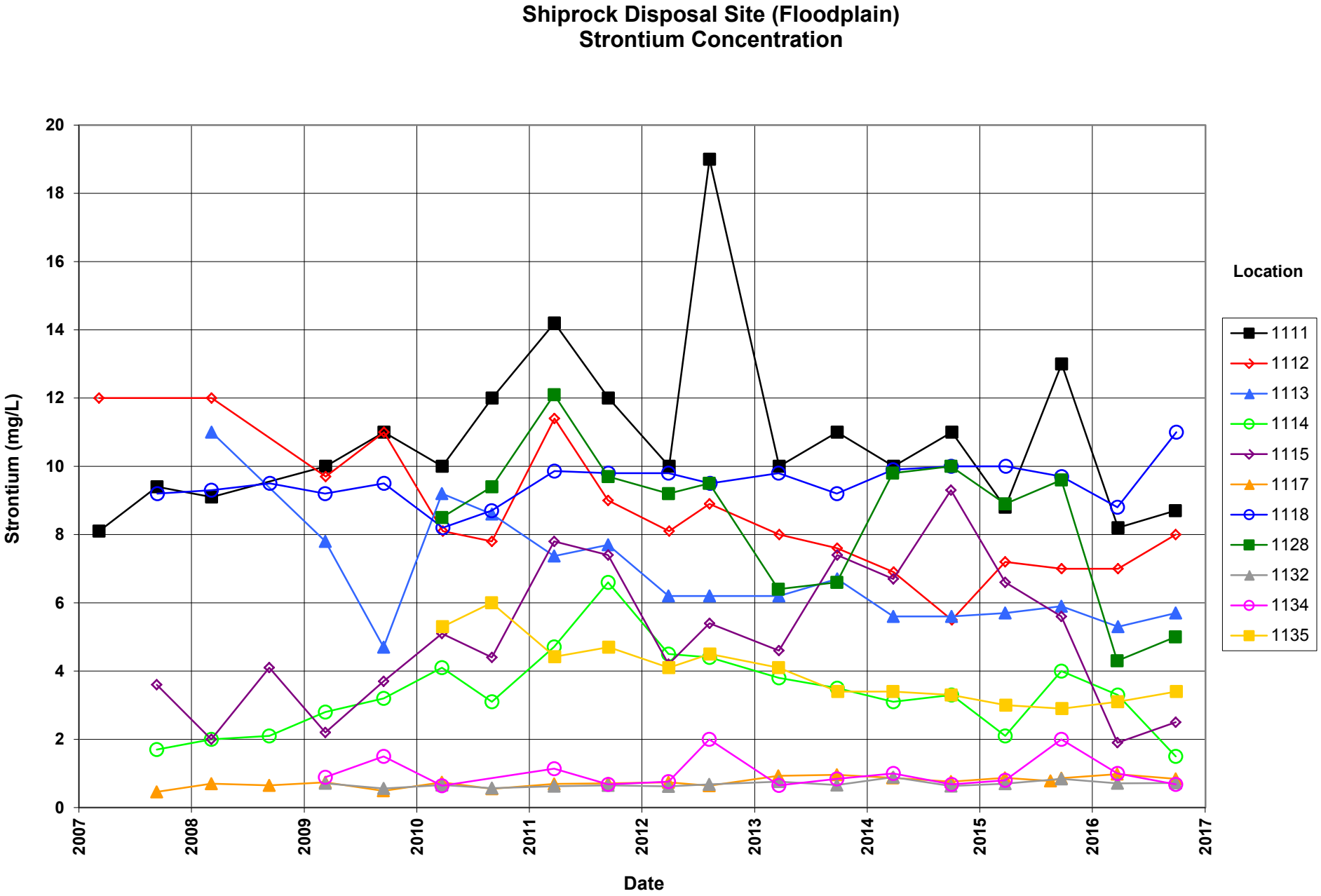

Shiprock Disposal Site (Floodplain)
Strontium Concentration
Strontium (mg/L)
30
25
20
15
10
5
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
0625
0626
0628
0630
0735
0736
0766
0768
0773
0775

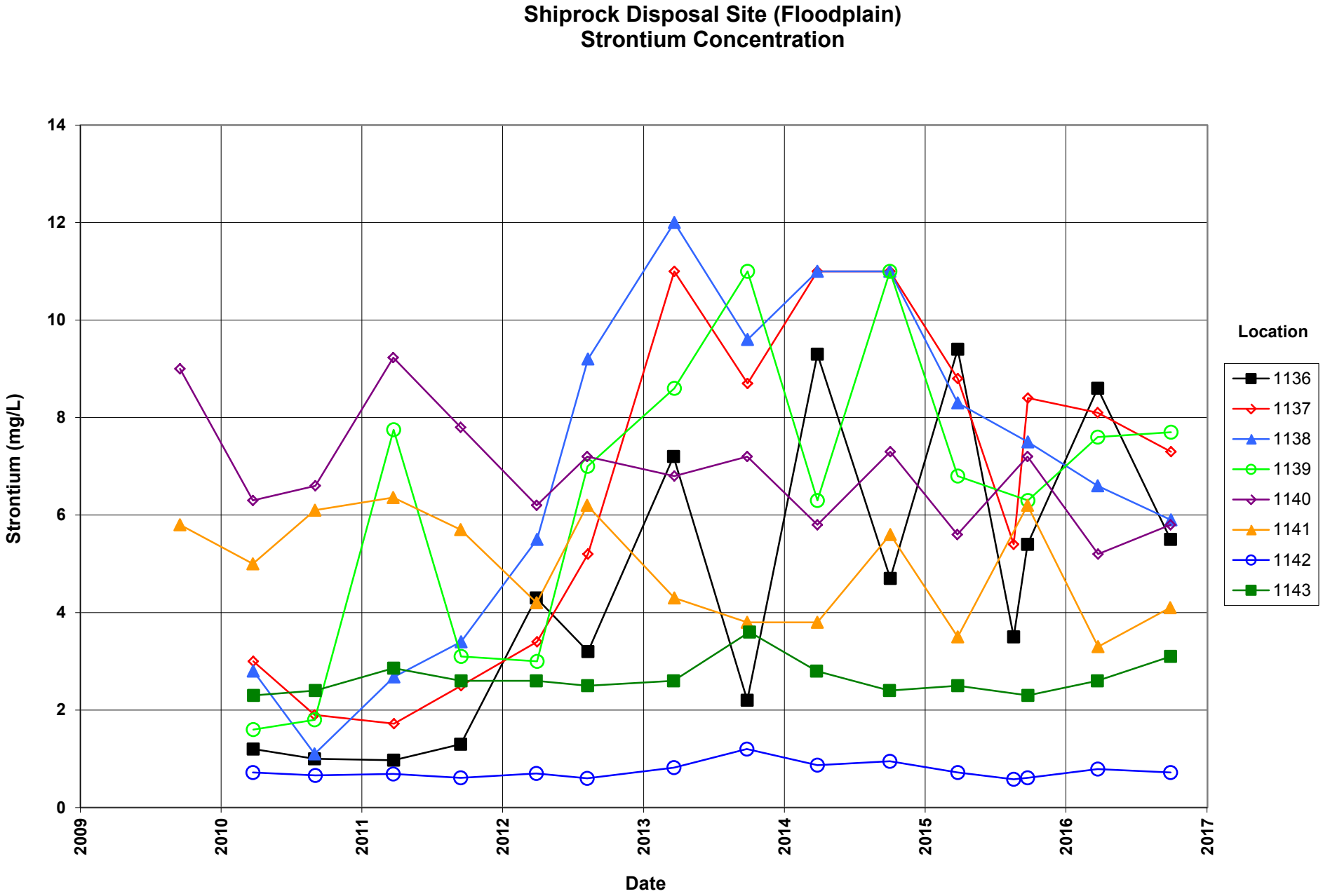
## Shiprock Disposal Site (Floodplain)
## Strontium Concentration



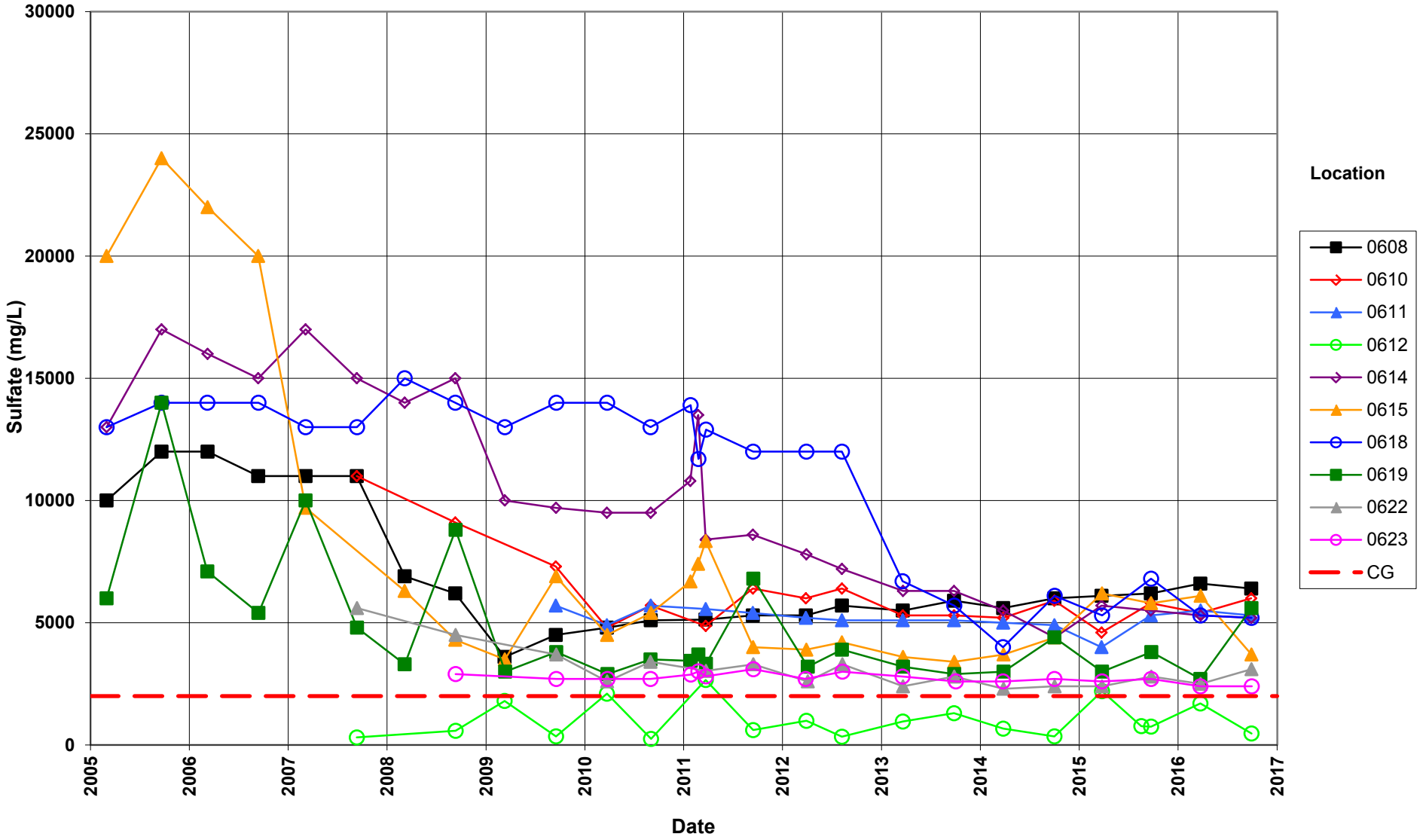
## Shiprock Disposal Site (Floodplain)
## Strontium Concentration



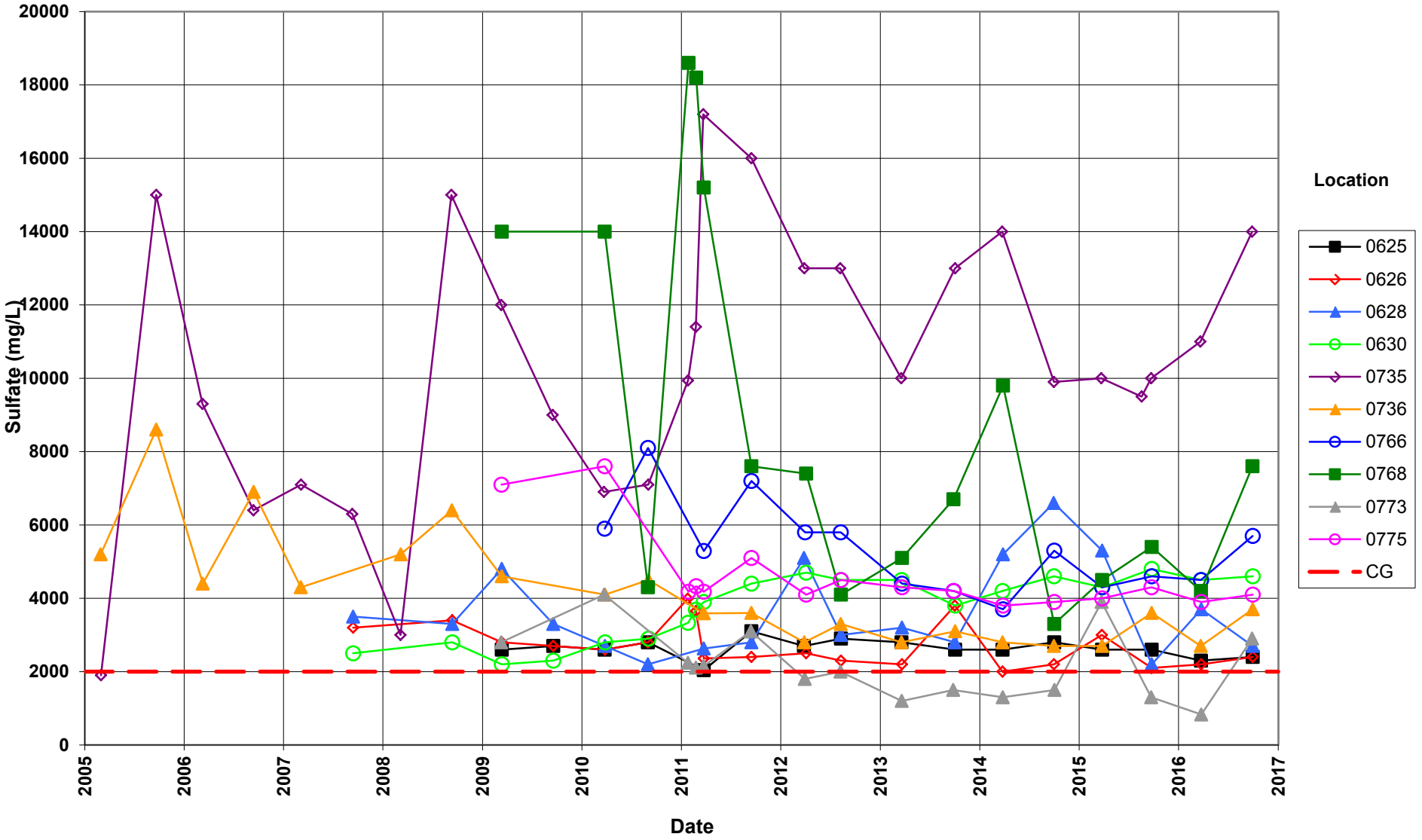

Shiprock Disposal Site (Floodplain)
Strontium Concentration
Strontium (mg/L)
Date
Location
1111
1112
1113
1114
1115
1117
1118
1128
1132
1134
1135
0
2
4
6
8
10
12
14
16
18
20
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


Shiprock Disposal Site (Floodplain)
Strontium Concentration
Strontium (mg/L)
0
2
4
6
8
10
12
14
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
1136
1137
1138
1139
1140
1141
1142
1143

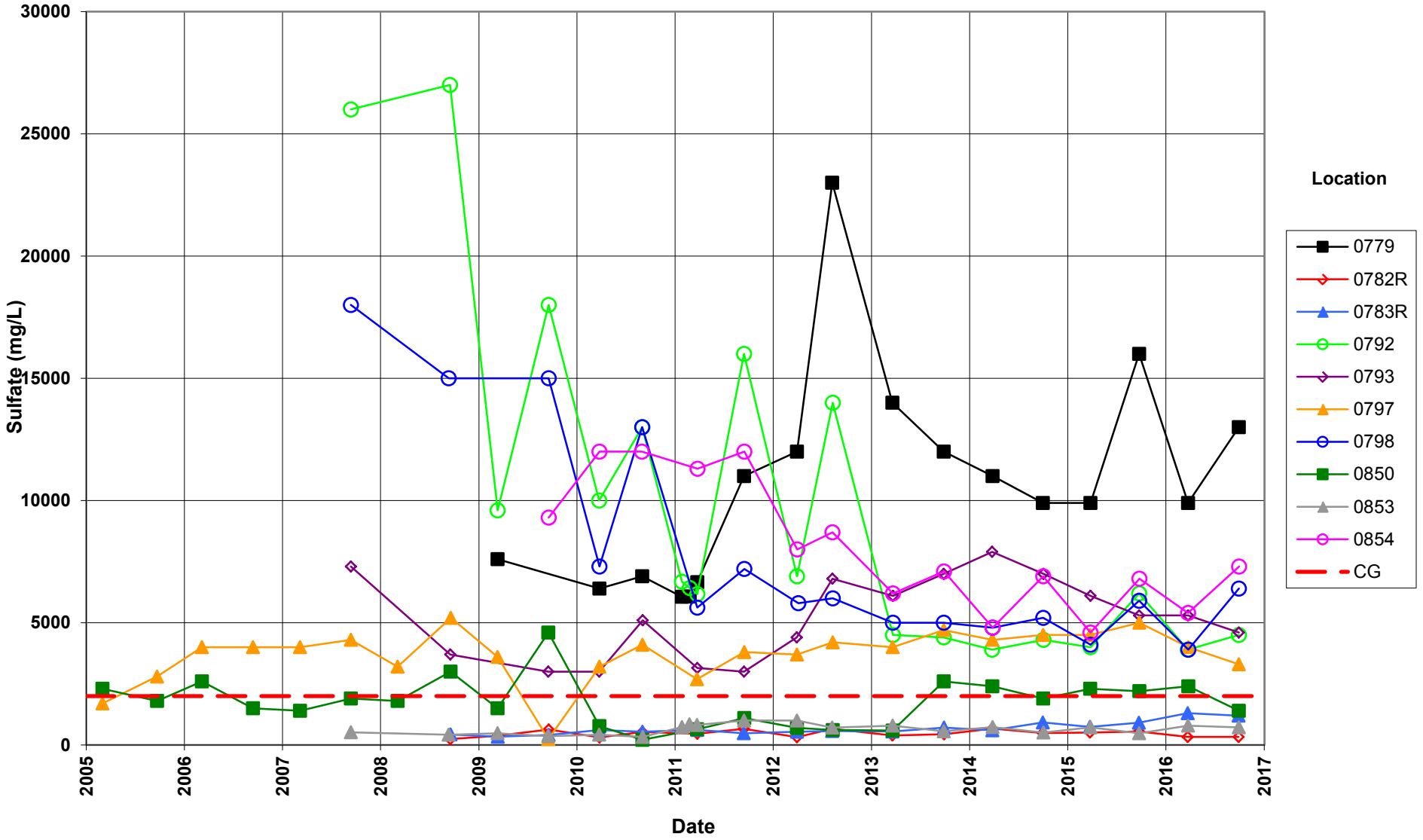
**Shiprock Disposal Site (Floodplain)**
**Sulfate Concentration**
Cleanup Goal (CG) = 2,000 mg/L

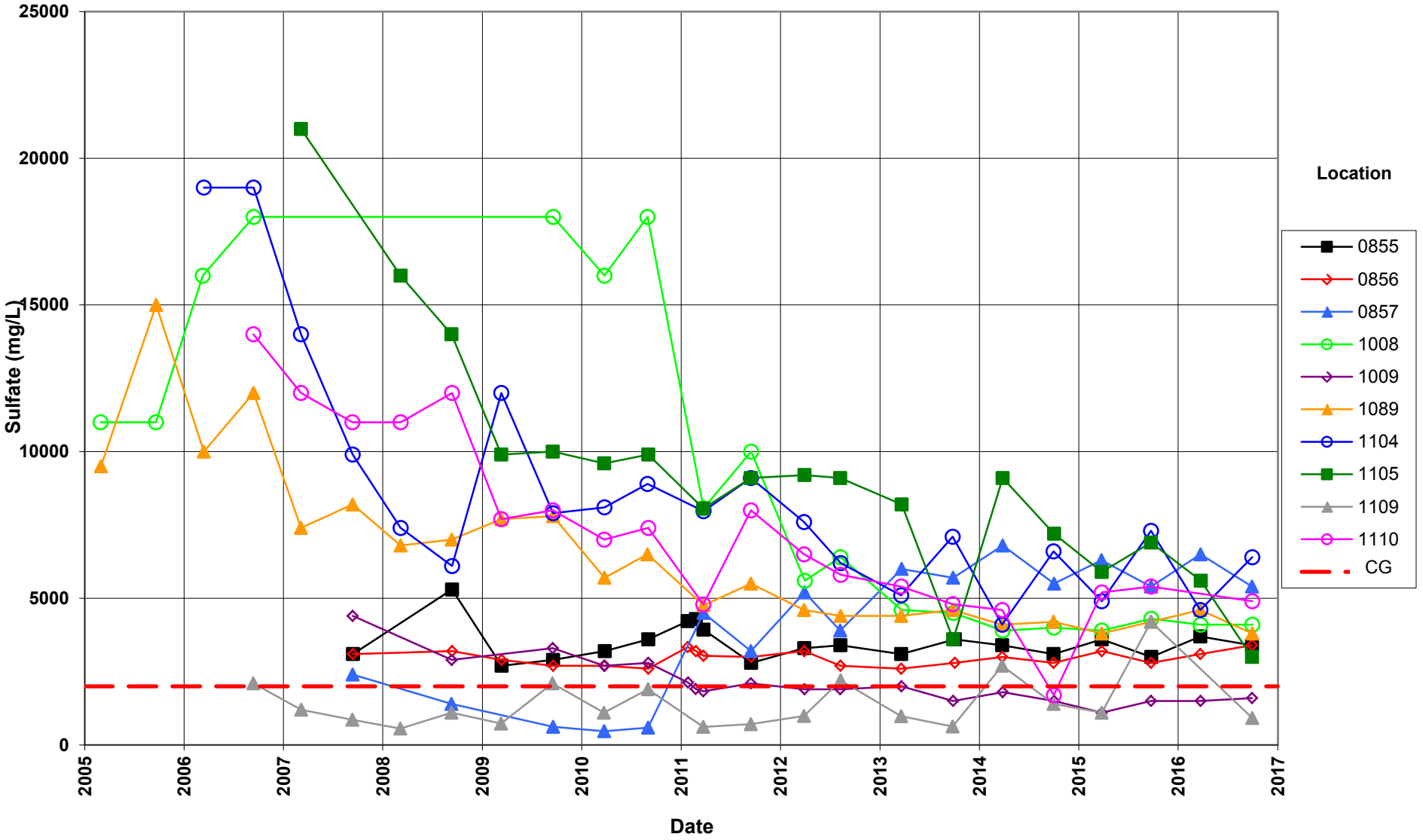


**Shiprock Disposal Site (Floodplain)**
**Sulfate Concentration**
Cleanup Goal (CG) = 2,000 mg/L

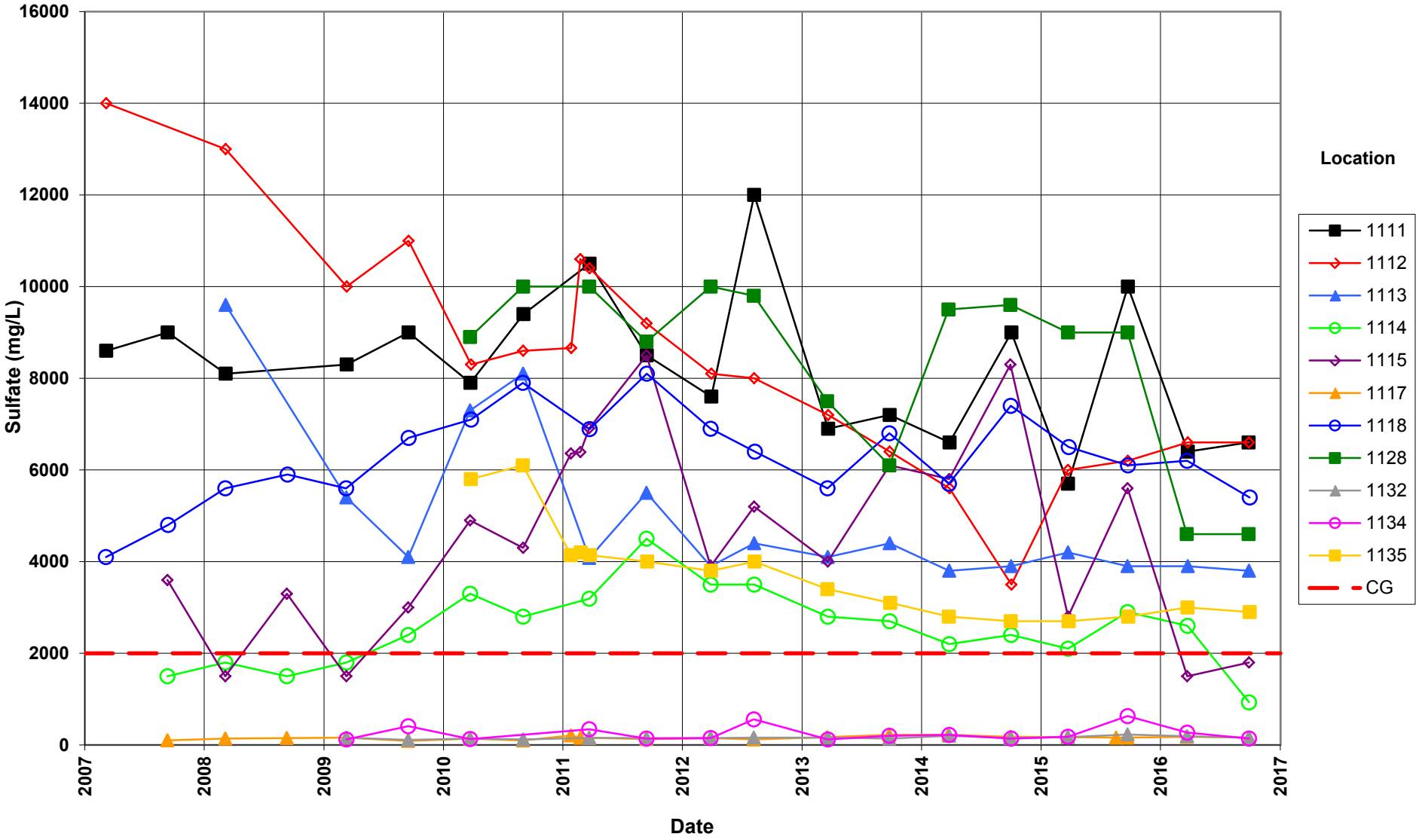


**Shiprock Disposal Site (Floodplain)**
**Sulfate Concentration**
Cleanup Goal (CG) = 2,000 mg/L

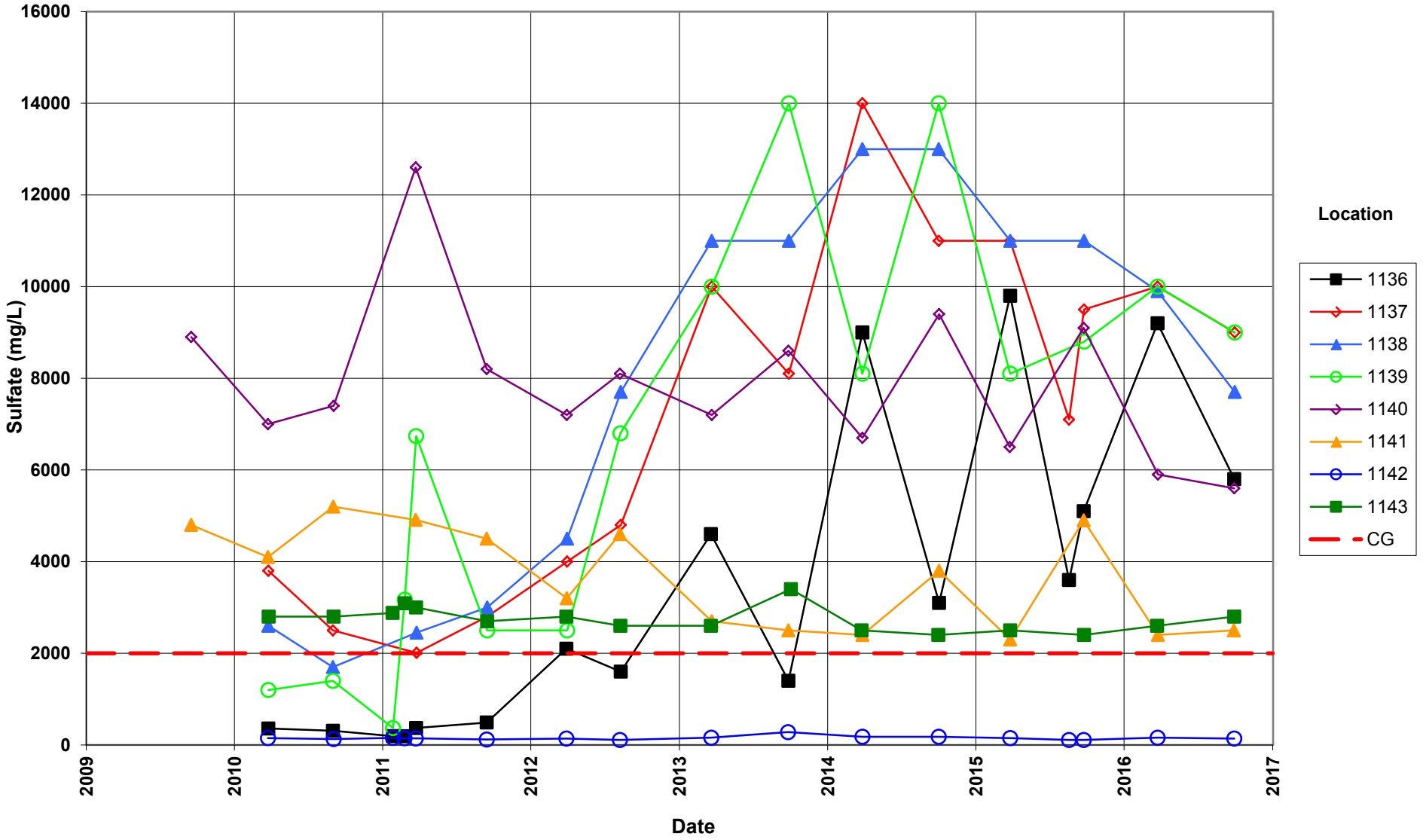



Shiprock Disposal Site (Floodplain)
Sulfate Concentration
Cleanup Goal (CG) = 2,000 mg/L
Sulfate (mg/L)
25000
20000
15000
10000
5000
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Date
Location
0855
0856
0857
1008
1009
1089
1104
1105
1109
1110
CG

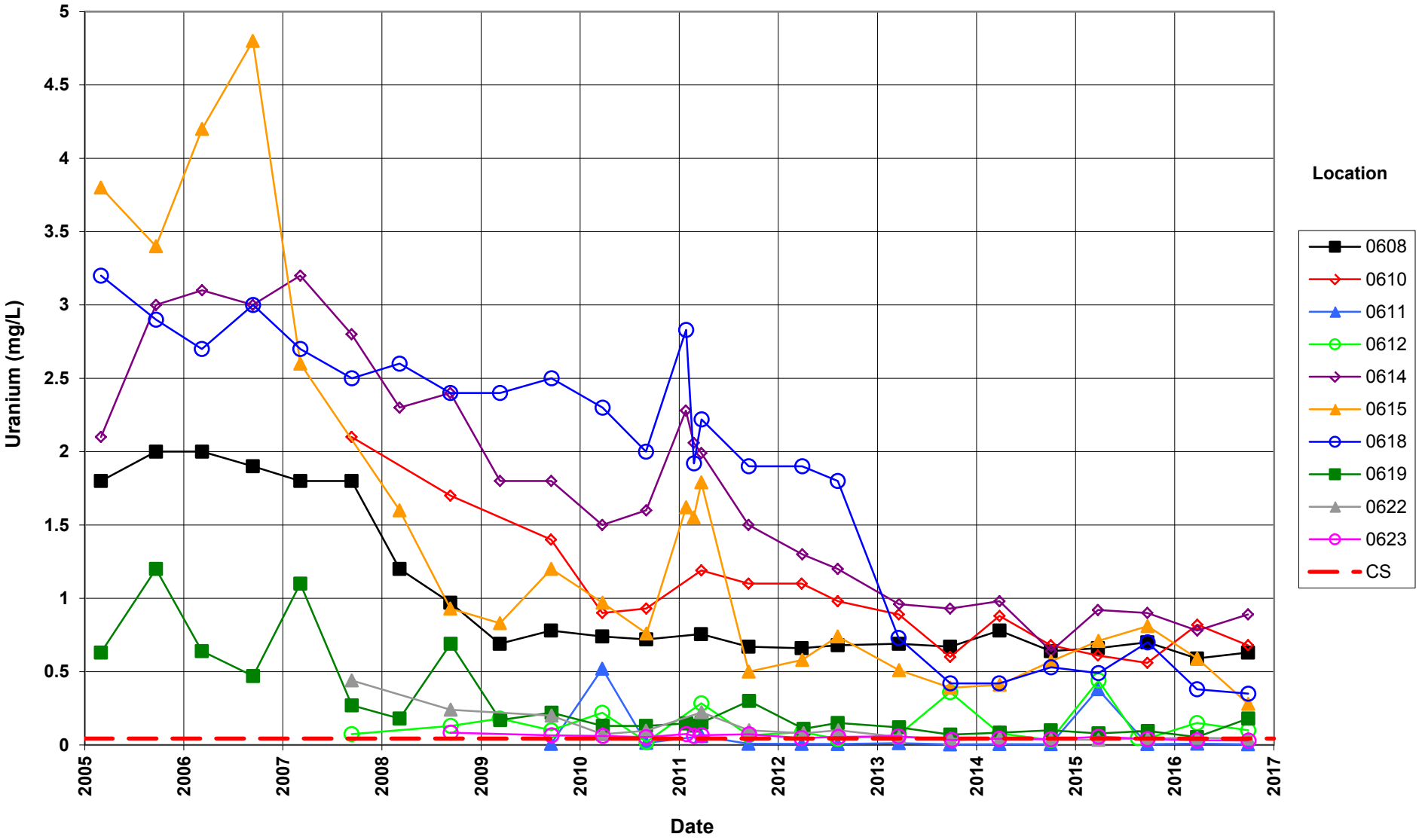
**Shiprock Disposal Site (Floodplain)**
**Sulfate Concentration**
Cleanup Goal (CG) = 2,000 mg/L



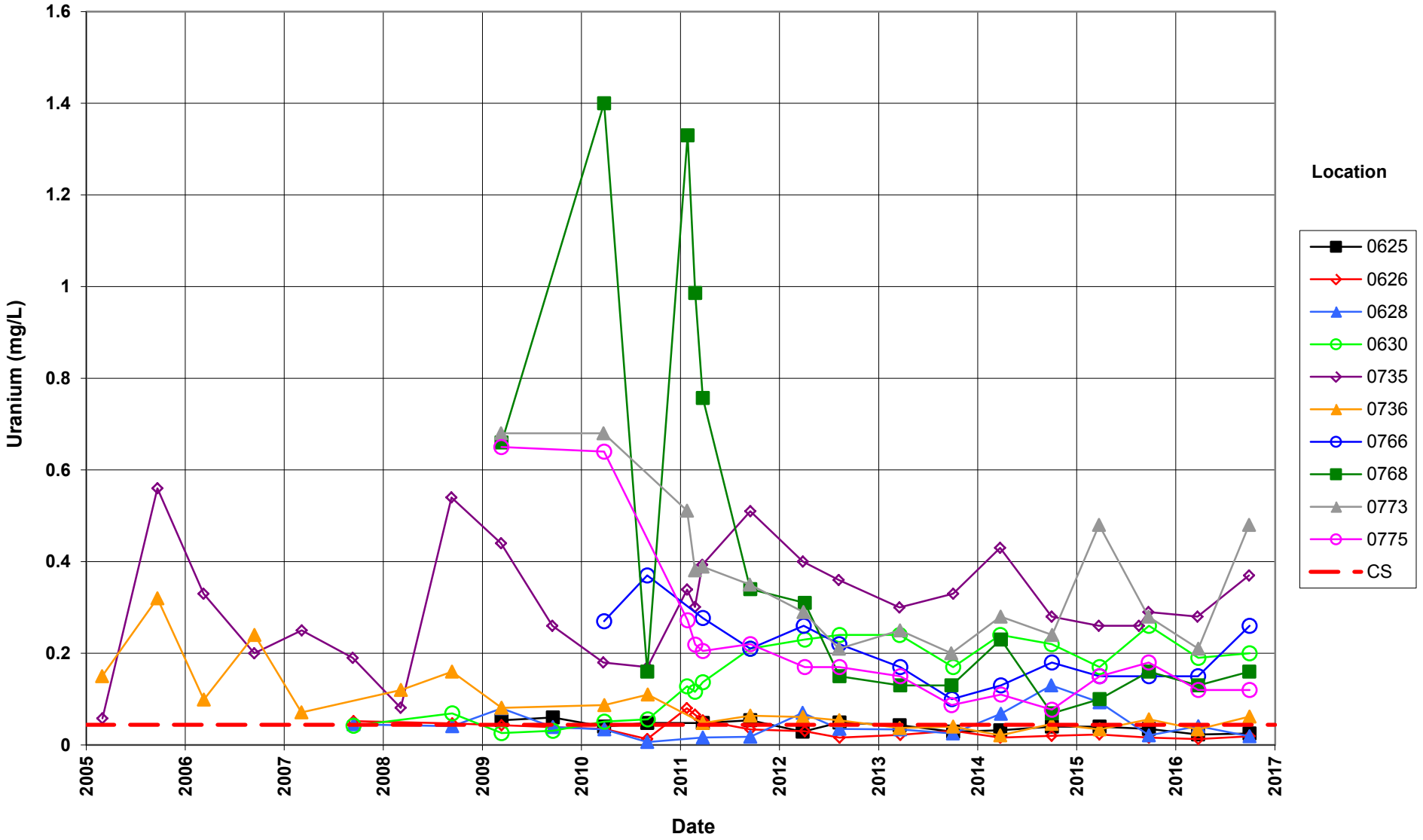
**Shiprock Disposal Site (Floodplain)**
**Sulfate Concentration**
Cleanup Goal (CG) = 2,000 mg/L



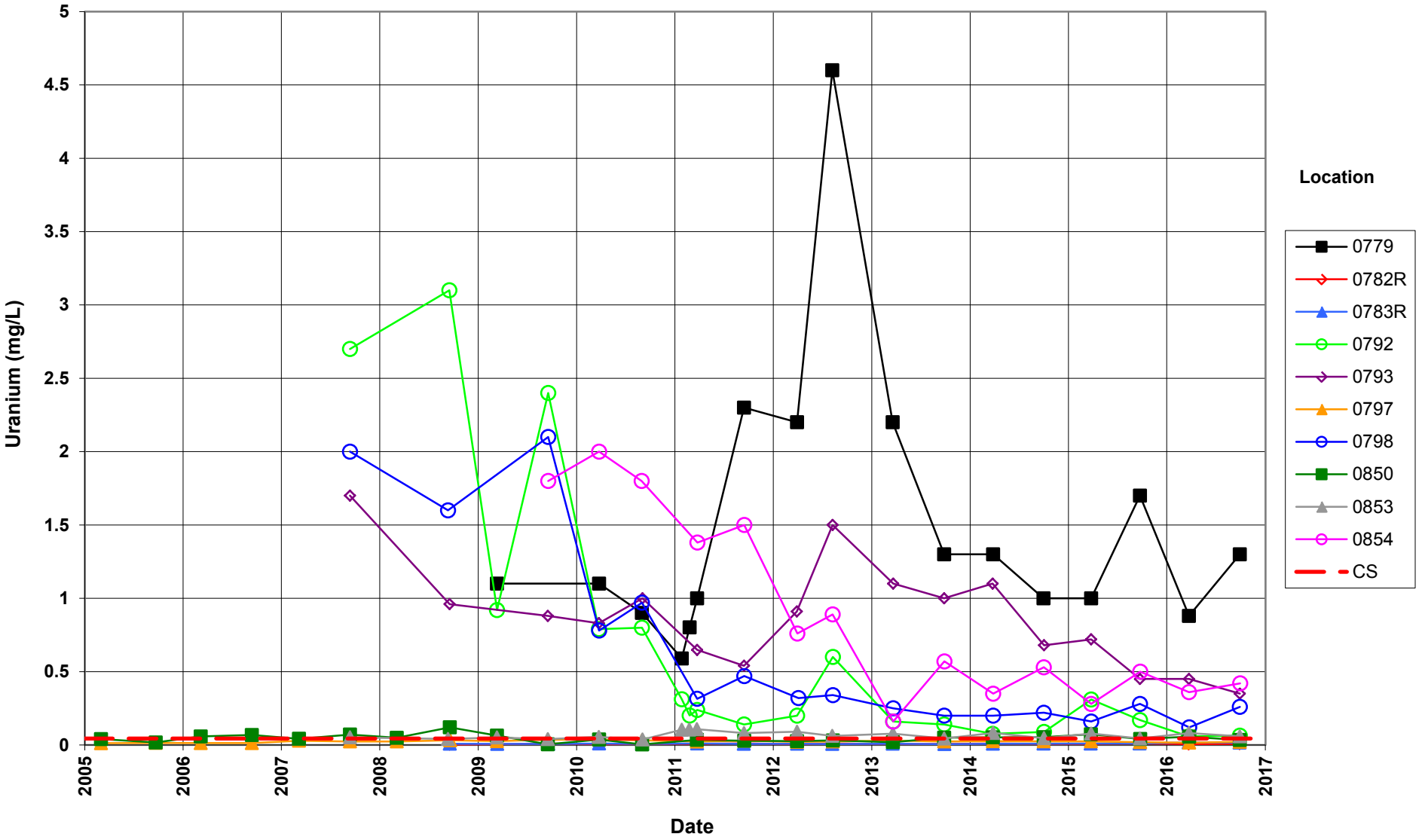
**Shiprock Disposal Site (Floodplain)**
**Uranium Concentration**
Compliance Standard (CS) = 0.044 mg/L



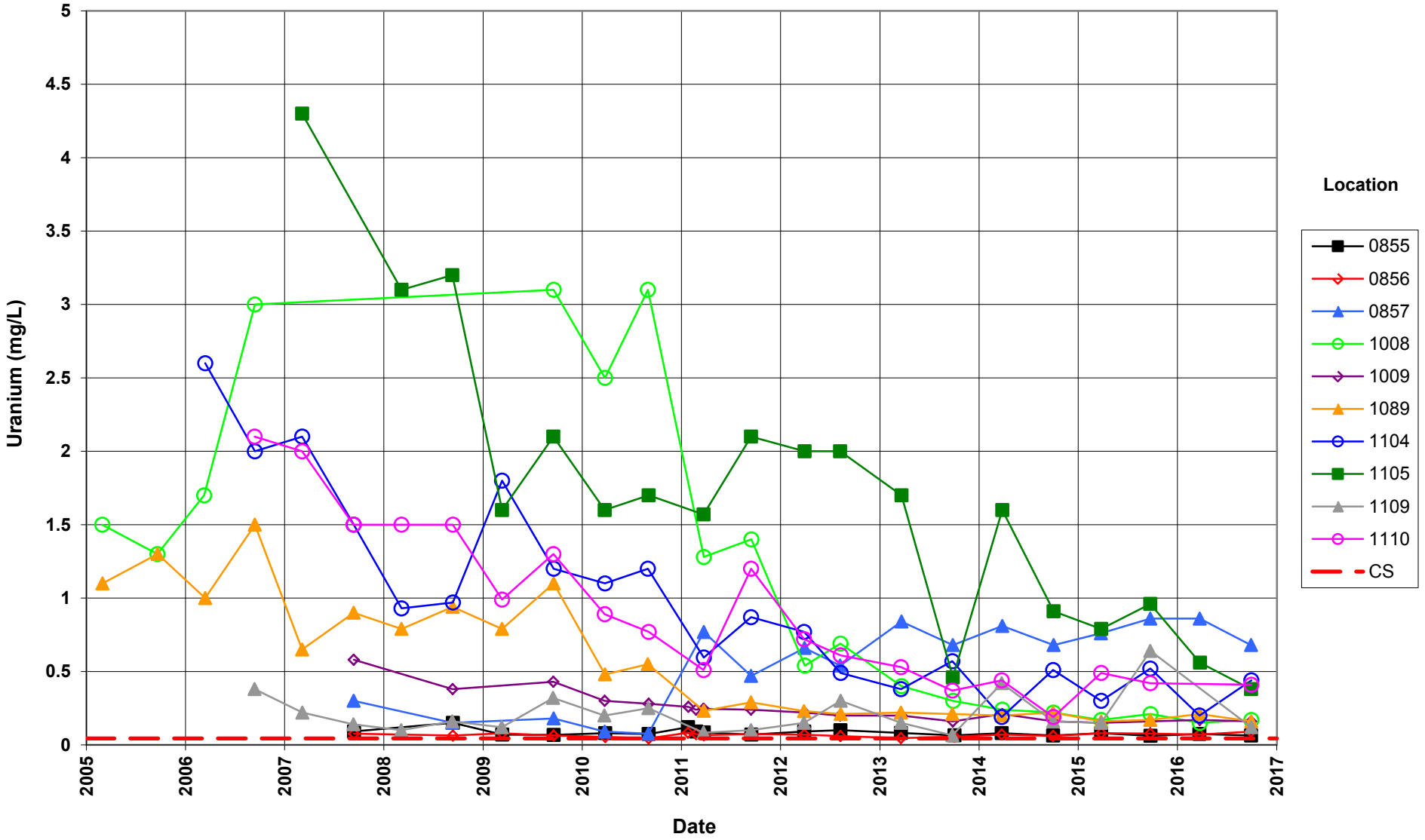
**Shiprock Disposal Site (Floodplain)**
**Uranium Concentration**
Compliance Standard (CS) = 0.044 mg/L



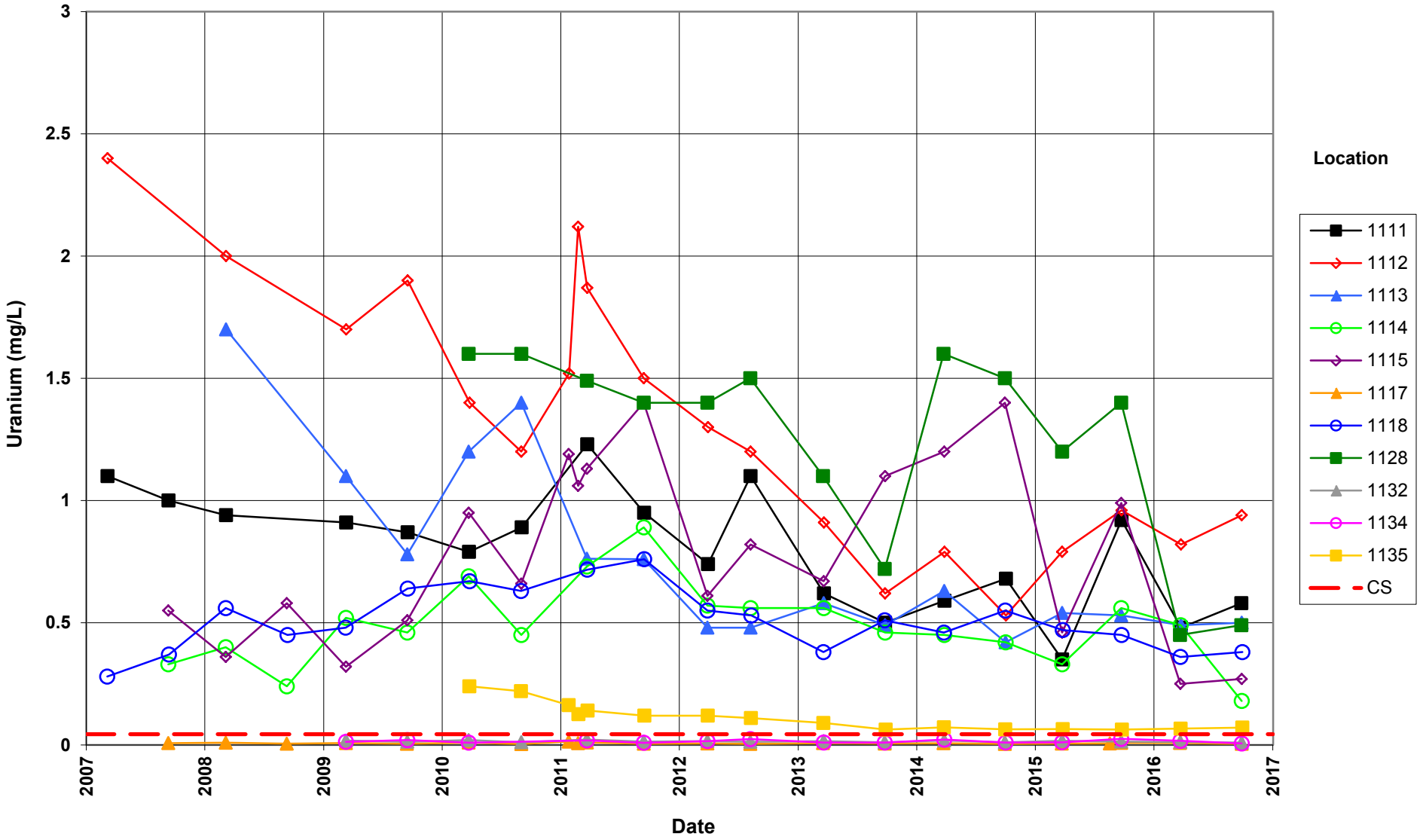
**Shiprock Disposal Site (Floodplain)**
**Uranium Concentration**
Compliance Standard (CS) = 0.044 mg/L



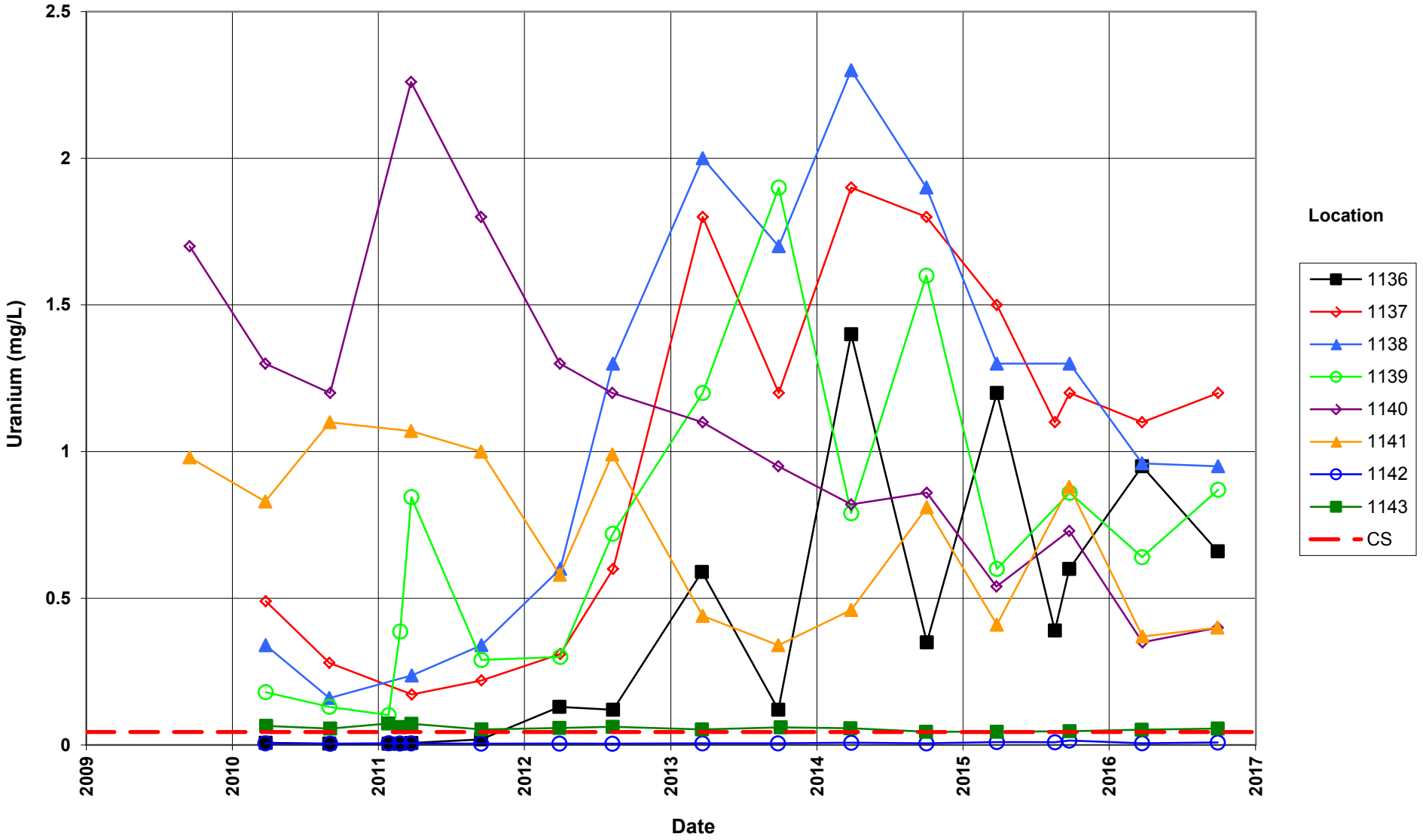
**Shiprock Disposal Site (Floodplain)**
**Uranium Concentration**
Compliance Standard (CS) = 0.044 mg/L



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



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



# Attachment 4

# Assessment of Anomalous Data

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# Potential Outliers Report

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**Potential Outliers Report**

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

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

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

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

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

Twelve analytical results were identified as potential outliers (see the Data Validation Outliers Reports on the following pages). There is no indication that there are errors associated with the data identified as potential outliers and the data from this event are acceptable as qualified.

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

**Comparison: Historical Data Beginning 1/1/2006 for Filtered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 0899 | 0001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 0.0120 | | | 0.940 | | | 0.320 | | | 14 | 0 | Yes |
| SHP01 | 0965 | 0001 | 09/27/2016 | Ammonia Total as N | 0.130 | | | 0.1000 | U | J | 0.0297 | J | U | 21 | 21 | NA |
| SHP01 | 0967 | 0001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 0.380 | | | 1.20 | | | 0.420 | | | 5 | 0 | No |
| SHP01 | 0967 | 0001 | 09/28/2016 | Sulfate | 120 | | | 280 | | | 130 | | | 5 | 0 | No |

STATISTICAL TESTS:
The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test
Outliers are identified using Dixon's Test when there are 25 or fewer data points.
Outliers are identified using Rosner's Test when there are 26 or more data points.
See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

NA: Data are not normally or lognormally distributed.

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 0610 | N001 | 09/27/2016 | Calcium | 560 | | F | 520 | | F | 430 | | F | 17 | 0 | Yes |
| SHP01 | 0614 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 43.0 | | F | 1000 | | F | 67.0 | | F | 24 | 0 | No |
| SHP01 | 0614 | N001 | 09/27/2016 | Sodium | 810 | | F | 3200 | | F | 850 | | F | 24 | 0 | No |
| SHP01 | 0615 | N001 | 09/28/2016 | Ammonia Total as N | 0.1000 | U | F | 39.0 | | F | 0.110 | | F | 23 | 0 | Yes |
| SHP01 | 0615 | N001 | 09/28/2016 | Chloride | 67.0 | | F | 870 | | F | 75.0 | | F | 23 | 0 | NA |
| SHP01 | 0615 | N001 | 09/28/2016 | Uranium | 0.280 | | F | 4.80 | | F | 0.390 | | F | 23 | 0 | No |
| SHP01 | 0618 | N001 | 09/28/2016 | Ammonia Total as N | 13.0 | | F | 72.0 | | F | 14.0 | | F | 25 | 0 | No |
| SHP01 | 0618 | N002 | 09/28/2016 | Ammonia Total as N | 12.0 | | F | 72.0 | | F | 14.0 | | F | 25 | 0 | No |
| SHP01 | 0618 | N001 | 09/28/2016 | Uranium | 0.350 | | F | 3.00 | | F | 0.380 | | F | 25 | 0 | NA |
| SHP01 | 0618 | N002 | 09/28/2016 | Uranium | 0.340 | | F | 3.00 | | F | 0.380 | | F | 25 | 0 | NA |
| SHP01 | 0622 | N001 | 09/28/2016 | Selenium | 0.00078 | J | F | 0.290 | | F | 0.00150 | | F | 16 | 0 | No |
| SHP01 | 0622 | N001 | 09/28/2016 | Strontium | 11.0 | | F | 9.80 | | F | 4.80 | | F | 16 | 0 | No |
| SHP01 | 0623 | N001 | 09/29/2016 | Sodium | 850 | | F | 1160 | | F | 920 | | F | 19 | 0 | NA |
| SHP01 | 0623 | N001 | 09/29/2016 | Uranium | 0.0300 | | F | 0.0840 | | FQ | 0.0320 | | F | 19 | 0 | No |
| SHP01 | 0625 | N001 | 09/29/2016 | Sodium | 850 | | F | 1190 | | F | 890 | | F | 15 | 0 | NA |
| SHP01 | 0630 | N001 | 09/29/2016 | Potassium | 22.0 | | F | 20.0 | | F | 8.95 | | JF | 19 | 0 | No |
| SHP01 | 0735 | N002 | 09/27/2016 | Potassium | 110 | | F | 100.0 | | F | 25.0 | | F | 31 | 1 | NA |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 0735 | N001 | 09/27/2016 | Potassium | 110 | | F | 100.0 | | F | 25.0 | | F | 31 | 1 | NA |
| SHP01 | 0735 | N001 | 09/27/2016 | Selenium | 0.240 | | F | 0.230 | | F | 0.0190 | | F | 31 | 0 | NA |
| SHP01 | 0766 | N001 | 09/29/2016 | Ammonia Total as N | 0.270 | | F | 0.220 | | F | 0.0881 | J | UF | 13 | 7 | NA |
| SHP01 | 0768 | N001 | 09/28/2016 | Calcium | 480 | | F | 423 | | F | 180 | | F | 17 | 0 | No |
| SHP01 | 0768 | N001 | 09/28/2016 | Strontium | 16.0 | | F | 15.0 | | F | 5.90 | | F | 14 | 0 | No |
| SHP01 | 0773 | N001 | 09/27/2016 | Manganese | 1.30 | | FQ | 0.660 | | FQ | 0.00057 | U | F | 16 | 5 | No |
| SHP01 | 0782R | N001 | 09/27/2016 | Strontium | 0.650 | | F | 1.60 | | F | 0.670 | | F | 16 | 0 | No |
| SHP01 | 0783R | N001 | 09/27/2016 | Potassium | 11.0 | | F | 6.30 | | F | 3.20 | | F | 16 | 0 | Yes |
| SHP01 | 0783R | N001 | 09/27/2016 | Sodium | 350 | | F | 290 | | F | 100.0 | | F | 16 | 0 | No |
| SHP01 | 0792 | N001 | 09/28/2016 | Selenium | 0.00066 | U | F | 1.30 | | F | 0.00110 | | F | 20 | 3 | NA |
| SHP01 | 0793 | N001 | 09/28/2016 | Magnesium | 320 | | F | 1000 | | F | 380 | | F | 16 | 0 | No |
| SHP01 | 0793 | N001 | 09/28/2016 | Selenium | 0.00260 | | F | 0.370 | | F | 0.00660 | | F | 16 | 0 | No |
| SHP01 | 0793 | N001 | 09/28/2016 | Uranium | 0.350 | | F | 1.70 | | F | 0.450 | | F | 16 | 0 | No |
| SHP01 | 0797 | N001 | 09/28/2016 | Calcium | 240 | | FQ | 620 | | FQ | 249 | | FQ | 21 | 0 | No |
| SHP01 | 0797 | N001 | 09/28/2016 | Strontium | 4.60 | | FQ | 10.00 | | FQ | 4.70 | | FQ | 21 | 0 | No |
| SHP01 | 0850 | N001 | 09/28/2016 | Manganese | 1.90 | | F | 1.40 | | FQ | 0.0287 | | JF | 21 | 0 | No |
| SHP01 | 0854 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 0.01000 | U | F | 120 | | F | 0.0150 | | F | 15 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 0856 | N001 | 09/28/2016 | Strontium | 9.80 | | F | 9.10 | | F | 4.90 | | F | 18 | 0 | No |
| SHP01 | 0856 | N001 | 09/28/2016 | Sulfate | 3400 | | F | 3340 | | F | 2600 | | F | 20 | 0 | No |
| SHP01 | 0856 | N001 | 09/28/2016 | Uranium | 0.0900 | | F | 0.0833 | | F | 0.0440 | | F | 20 | 0 | No |
| SHP01 | 0857 | N001 | 09/28/2016 | Potassium | 50.0 | | F | 49.0 | | F | 10.00 | | F | 17 | 0 | No |
| SHP01 | 1009 | N001 | 09/28/2016 | Selenium | 0.00066 | U | F | 0.340 | | F | 0.00150 | | F | 19 | 0 | No |
| SHP01 | 1089 | N001 | 09/29/2016 | Calcium | 310 | | | 490 | | F | 320 | | | 21 | 0 | NA |
| SHP01 | 1089 | N001 | 09/29/2016 | Magnesium | 130 | | | 1200 | | | 150 | | | 21 | 0 | NA |
| SHP01 | 1104 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 0.600 | | | 180 | | F | 0.640 | | | 21 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Calcium | 380 | | F | 560 | | F | 400 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Chloride | 68.0 | | F | 1100 | | F | 97.0 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Magnesium | 310 | | F | 3600 | | F | 350 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 0.0220 | | F | 1100 | | F | 0.140 | | F | 21 | 0 | NA |
| SHP01 | 1105 | N001 | 09/28/2016 | Selenium | 0.00240 | | F | 0.310 | | F | 0.0170 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Sodium | 530 | | F | 4400 | | F | 670 | | F | 20 | 0 | Yes |
| SHP01 | 1105 | N001 | 09/28/2016 | Strontium | 4.50 | | F | 16.0 | | F | 4.70 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Sulfate | 3000 | | F | 21000 | | F | 3600 | | F | 20 | 0 | No |
| SHP01 | 1105 | N001 | 09/28/2016 | Uranium | 0.380 | | F | 4.30 | | F | 0.460 | | F | 20 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| | | | | | **Current** | | | **Historical Maximum** | | | **Historical Minimum** | | | **Number of Data Points** | | **Statistical Outlier** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Qualifiers* | | | *Qualifiers* | | | *Qualifiers* | | | | |
| Site Code | Location Code | Sample ID | Sample Date | Analyte | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 1111 | N001 | 09/26/2016 | Manganese | 1.40 | | F | 1.10 | | F | 0.130 | | F | 19 | 0 | No |
| SHP01 | 1113 | N001 | 09/27/2016 | Magnesium | 470 | | F | 1900 | | F | 480 | | F | 17 | 0 | NA |
| SHP01 | 1114 | N001 | 09/27/2016 | Ammonia Total as N | 30.0 | | F | 440 | | F | 37.0 | | F | 19 | 0 | NA |
| SHP01 | 1114 | N001 | 09/27/2016 | Chloride | 38.0 | | F | 170 | | F | 51.0 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Magnesium | 130 | | F | 700 | | F | 190 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Manganese | 0.960 | | F | 4.00 | | F | 1.000 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 14.0 | | F | 210 | | F | 27.0 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Sodium | 190 | | F | 770 | | F | 210 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Strontium | 1.50 | | F | 6.60 | | F | 1.70 | | F | 19 | 0 | No |
| SHP01 | 1114 | N001 | 09/27/2016 | Sulfate | 930 | | F | 4500 | | F | 1500 | | F | 19 | 0 | Yes |
| SHP01 | 1114 | N001 | 09/27/2016 | Uranium | 0.180 | | F | 0.890 | | F | 0.240 | | F | 19 | 0 | No |
| SHP01 | 1118 | N001 | 09/29/2016 | Strontium | 11.0 | | | 10.00 | | | 8.20 | | | 21 | 0 | No |
| SHP01 | 1128 | N001 | 09/26/2016 | Chloride | 230 | | F | 380 | | F | 240 | | F | 16 | 0 | No |
| SHP01 | 1128 | N001 | 09/26/2016 | Manganese | 1.80 | | F | 5.33 | | F | 2.10 | | F | 16 | 0 | NA |
| SHP01 | 1128 | N001 | 09/26/2016 | Nitrate + Nitrite as Nitrogen | 270 | | F | 690 | | F | 350 | | F | 16 | 0 | Yes |
| SHP01 | 1128 | N001 | 09/26/2016 | Selenium | 0.0500 | | F | 0.0470 | | F | 0.0150 | | F | 16 | 0 | No |
| SHP01 | 1132 | N001 | 09/27/2016 | Ammonia Total as N | 0.360 | | F | 1.40 | | F | 0.620 | | F | 17 | 0 | NA |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098030

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP01 | 1132 | N001 | 09/27/2016 | Uranium | 0.00980 | | F | 0.0221 | | F | 0.0110 | | F | 17 | 0 | No |
| SHP01 | 1134 | N001 | 09/27/2016 | Ammonia Total as N | 0.470 | | F | 1.90 | | FJ | 0.560 | | F | 15 | 0 | No |
| SHP01 | 1134 | N001 | 09/27/2016 | Uranium | 0.00630 | | F | 0.0250 | | F | 0.00900 | | F | 15 | 0 | No |
| SHP01 | 1139 | N001 | 09/29/2016 | Manganese | 2.70 | | F | 1.60 | | F | 0.00230 | B | F | 15 | 1 | No |
| SHP01 | 1139 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 0.0110 | | F | 37.0 | | F | 0.0620 | | F | 15 | 0 | No |
| SHP01 | 1139 | N001 | 09/29/2016 | Selenium | 0.00066 | U | F | 0.0252 | N | F | 0.001 | | F | 15 | 1 | No |
| SHP01 | 1140 | N001 | 09/28/2016 | Chloride | 120 | | F | 461 | | F | 140 | | F | 15 | 0 | No |
| SHP01 | 1140 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 0.0450 | | F | 320 | | F | 0.0510 | | F | 15 | 0 | NA |
| SHP01 | 1140 | N001 | 09/28/2016 | Sulfate | 5600 | | F | 12600 | | F | 5900 | | F | 15 | 0 | No |
| SHP01 | 1141 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 0.01000 | U | F | 58.5 | | F | 0.0120 | | F | 14 | 0 | No |
| SHP01 | 1141 | N001 | 09/27/2016 | Selenium | 0.00500 | | F | 0.706 | N | F | 0.0130 | | F | 14 | 0 | No |

STATISTICAL TESTS:
The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test
Outliers are identified using Dixon's Test when there are 25 or fewer data points.
Outliers are identified using Rosner's Test when there are 26 or more data points.
See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

NA: Data are not normally or lognormally distributed.

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | Lab | Data | Result | Lab | Data | Result | Lab | Data | N | N Below Detect | |
| SHP02 | 0600 | N001 | 09/27/2016 | Manganese | 0.220 | | FQ | 0.690 | | FQ | 0.230 | B | FQ | 15 | 0 | NA |
| SHP02 | 0602 | N001 | 09/27/2016 | Ammonia Total as N | 43.0 | | FQ | 380 | | F | 57.0 | | FQ | 17 | 0 | NA |
| SHP02 | 0602 | N001 | 09/27/2016 | Magnesium | 1000 | | FQ | 2500 | | F | 1100 | | FQ | 17 | 0 | No |
| SHP02 | 0602 | N001 | 09/27/2016 | Manganese | 0.540 | | FQ | 1.80 | | F | 0.650 | | FQ | 17 | 0 | NA |
| SHP02 | 0603 | N001 | 09/28/2016 | Calcium | 1300 | | F | 1200 | | F | 710 | | F | 18 | 0 | No |
| SHP02 | 0603 | N001 | 09/28/2016 | Magnesium | 760 | | F | 750 | | F | 420 | | F | 18 | 0 | NA |
| SHP02 | 0603 | N001 | 09/28/2016 | Potassium | 180 | | F | 160 | | F | 100.0 | | F | 18 | 0 | No |
| SHP02 | 0603 | N001 | 09/28/2016 | Strontium | 7.40 | | F | 6.40 | | F | 2.40 | | F | 18 | 0 | No |
| SHP02 | 0725 | N001 | 09/27/2016 | Calcium | 370 | | F | 340 | | F | 230 | | F | 19 | 0 | No |
| SHP02 | 0813 | N001 | 09/27/2016 | Ammonia Total as N | 92.0 | | F | 89.0 | | F | 18.8 | | JF | 20 | 0 | No |
| SHP02 | 0813 | N001 | 09/27/2016 | Potassium | 220 | | F | 180 | | F | 100.0 | | F | 20 | 0 | Yes |
| SHP02 | 0813 | N001 | 09/27/2016 | Selenium | 0.350 | | F | 0.180 | | F | 0.0146 | E | JF | 20 | 0 | Yes |
| SHP02 | 0814 | 0001 | 09/26/2016 | Nitrate + Nitrite as Nitrogen | 700 | | FQ | 1000 | | FQ | 710 | | FQ | 16 | 0 | No |
| SHP02 | 0815 | N001 | 09/26/2016 | Ammonia Total as N | 1.90 | | F | 1.70 | | F | 0.1000 | U | F | 18 | 7 | No |
| SHP02 | 0815 | N001 | 09/26/2016 | Nitrate + Nitrite as Nitrogen | 510 | | F | 888 | | F | 560 | | F | 18 | 0 | No |
| SHP02 | 0816 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 6.30 | | F | 61.0 | | F | 9.80 | | F | 17 | 0 | No |
| SHP02 | 0816 | N001 | 09/29/2016 | Potassium | 21.0 | | F | 19.0 | | F | 6.80 | | FQ | 17 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| | | | | | **Current** | | | **Historical Maximum** | | | **Historical Minimum** | | | **Number of Data Points** | | **Statistical Outlier** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Qualifiers* | | | *Qualifiers* | | | *Qualifiers* | | | | |
| Site Code | Location Code | Sample ID | Sample Date | Analyte | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP02 | 0817 | N001 | 09/27/2016 | Potassium | 320 | | FQ | 310 | | JFQ | 210 | | FQ | 22 | 0 | No |
| SHP02 | 0817 | N001 | 09/27/2016 | Strontium | 13.0 | | FQ | 12.0 | | F | 10.00 | | F | 22 | 0 | NA |
| SHP02 | 0818 | N002 | 09/28/2016 | Ammonia Total as N | 44.0 | | | 240 | | | 47.0 | | | 28 | 0 | NA |
| SHP02 | 0818 | N001 | 09/28/2016 | Ammonia Total as N | 43.0 | | | 240 | | | 47.0 | | | 28 | 0 | NA |
| SHP02 | 0818 | N002 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 510 | | | 1700 | | | 570 | | | 29 | 0 | NA |
| SHP02 | 0818 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 490 | | | 1700 | | | 570 | | | 29 | 0 | NA |
| SHP02 | 0818 | N002 | 09/28/2016 | Sodium | 4300 | | | 4200 | | | 2900 | | | 27 | 0 | No |
| SHP02 | 0818 | N001 | 09/28/2016 | Sodium | 4400 | | | 4200 | | | 2900 | | | 27 | 0 | No |
| SHP02 | 0819 | N001 | 09/27/2016 | Magnesium | 1700 | | FQ | 1600 | | F | 1100 | | FQ | 17 | 0 | No |
| SHP02 | 0819 | N001 | 09/27/2016 | Strontium | 11.0 | | FQ | 10.00 | | F | 7.50 | | FQ | 17 | 0 | No |
| SHP02 | 0819 | N001 | 09/27/2016 | Sulfate | 15000 | | FQ | 14000 | | F | 8000 | | FQ | 17 | 0 | NA |
| SHP02 | 0819 | N001 | 09/27/2016 | Uranium | 2.10 | | FQ | 1.80 | | FQ | 0.760 | | FQ | 17 | 0 | No |
| SHP02 | 0820 | 0001 | 09/27/2016 | Manganese | 0.290 | | FQ | 1.60 | | FQ | 0.320 | | FQ | 11 | 0 | No |
| SHP02 | 0820 | 0001 | 09/27/2016 | Potassium | 42.0 | | FQ | 39.0 | | FQ | 16.0 | B | FQ | 11 | 0 | No |
| SHP02 | 0820 | 0001 | 09/27/2016 | Sulfate | 4000 | | FQ | 6200 | | FQ | 4200 | | FQ | 11 | 0 | No |
| SHP02 | 0820 | 0001 | 09/27/2016 | Uranium | 0.130 | | FQ | 0.110 | | FQ | 0.0590 | | FQ | 11 | 0 | No |
| SHP02 | 0822 | 0001 | 09/27/2016 | Chloride | 8600 | | FQ | 8300 | | FQ | 6000 | | FQ | 12 | 0 | Yes |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| Site Code | Location Code | Sample ID | Sample Date | Analyte | Current | Qualifiers | | Historical Maximum | Qualifiers | | Historical Minimum | Qualifiers | | Number of Data Points | | Statistical Outlier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP02 | 0824 | N001 | 09/27/2016 | Chloride | 9100 | | FQ | 8400 | | FQ | 3730 | | FQ | 14 | 0 | No |
| SHP02 | 0824 | N001 | 09/27/2016 | Sodium | 6900 | | FQ | 6500 | | FQ | 4100 | | FQ | 14 | 0 | No |
| SHP02 | 0824 | N001 | 09/27/2016 | Strontium | 22.0 | | FQ | 21.0 | | FQ | 13.0 | | FQ | 14 | 0 | No |
| SHP02 | 0825 | N001 | 09/27/2016 | Manganese | 0.990 | | FQ | 0.840 | | FQ | 0.210 | | FQ | 10 | 0 | No |
| SHP02 | 0825 | N001 | 09/27/2016 | Sodium | 7200 | | FQ | 7100 | | FQ | 5600 | | FQ | 10 | 0 | No |
| SHP02 | 0825 | N001 | 09/27/2016 | Strontium | 24.0 | | FQ | 22.0 | | FQ | 18.0 | | FQ | 10 | 0 | No |
| SHP02 | 0828 | N001 | 09/27/2016 | Manganese | 2.60 | | FQ | 1.90 | | F | 0.0002 | B | UF | 15 | 3 | No |
| SHP02 | 0828 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 1.000 | | FQ | 177 | | F | 1.20 | | F | 15 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Chloride | 26.0 | | FQ | 990 | | FQ | 53.0 | | | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Magnesium | 580 | | FQ | 1600 | | F | 600 | | FQ | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 4.30 | | FQ | 680 | | FQ | 14.0 | | | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Selenium | 0.0900 | | FQ | 4.10 | | FQ | 0.180 | E | J | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Sodium | 1100 | | FQ | 3200 | | F | 1500 | | | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Sulfate | 5600 | | FQ | 13000 | | F | 6400 | | FQ | 5 | 0 | No |
| SHP02 | 0832 | 0001 | 09/27/2016 | Uranium | 0.0400 | | FQ | 0.170 | | F | 0.0440 | | FQ | 5 | 0 | No |
| SHP02 | 0833 | N001 | 09/27/2016 | Calcium | 480 | | F | 460 | | F | 400 | | F | 17 | 0 | No |
| SHP02 | 0833 | N001 | 09/27/2016 | Chloride | 160 | | F | 610 | | FQ | 180 | | F | 17 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| | | | | | **Current** | | | **Historical Maximum** | | | **Historical Minimum** | | | **Number of Data Points** | | **Statistical Outlier** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Qualifiers* | | | *Qualifiers* | | | *Qualifiers* | | | | |
| Site Code | Location Code | Sample ID | Sample Date | Analyte | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP02 | 0833 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 61.0 | | F | 1260 | | F | 70.0 | | F | 17 | 0 | NA |
| SHP02 | 0833 | N001 | 09/27/2016 | Sodium | 830 | | F | 1900 | | F | 840 | | F | 17 | 0 | No |
| SHP02 | 0835 | N001 | 09/27/2016 | Magnesium | 17.0 | | F | 430 | | F | 19.0 | | F | 22 | 0 | NA |
| SHP02 | 0835 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 0.140 | | F | 110 | | F | 0.280 | | F | 22 | 0 | NA |
| SHP02 | 0835 | N001 | 09/27/2016 | Potassium | 1.70 | | F | 22.0 | | F | 1.80 | | F | 22 | 0 | NA |
| SHP02 | 0835 | N001 | 09/27/2016 | Sodium | 24.0 | | F | 957 | | F | 27.0 | | F | 22 | 0 | NA |
| SHP02 | 0835 | N001 | 09/27/2016 | Uranium | 0.00280 | | F | 0.0880 | | F | 0.00310 | | F | 22 | 0 | NA |
| SHP02 | 0836 | N001 | 09/27/2016 | Calcium | 560 | | F | 550 | | F | 480 | | F | 22 | 0 | No |
| SHP02 | 0836 | N001 | 09/27/2016 | Chloride | 120 | | F | 100.0 | | F | 32.0 | | F | 22 | 0 | NA |
| SHP02 | 0836 | N001 | 09/27/2016 | Sodium | 570 | | F | 520 | | F | 250 | | F | 22 | 0 | No |
| SHP02 | 0836 | N001 | 09/27/2016 | Strontium | 8.00 | | F | 7.30 | | F | 5.50 | | F | 22 | 0 | No |
| SHP02 | 0836 | N001 | 09/27/2016 | Sulfate | 3200 | | F | 2900 | | F | 2500 | | F | 22 | 0 | Yes |
| SHP02 | 0837 | N001 | 09/27/2016 | Manganese | 1.30 | | F | 4.90 | | F | 2.10 | | F | 18 | 0 | Yes |
| SHP02 | 0837 | N001 | 09/27/2016 | Selenium | 0.910 | | F | 0.800 | | F | 0.0990 | | F | 18 | 0 | No |
| SHP02 | 0838 | N001 | 09/27/2016 | Nitrate + Nitrite as Nitrogen | 57.0 | | F | 590 | | F | 62.0 | | F | 21 | 0 | NA |
| SHP02 | 0838 | N001 | 09/27/2016 | Selenium | 0.180 | | F | 4.71 | E | F | 0.190 | | F | 21 | 0 | NA |
| SHP02 | 0841 | N001 | 09/29/2016 | Chloride | 640 | | F | 1300 | | F | 710 | | F | 24 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| | | | | | **Current** | | | **Historical Maximum** | | | **Historical Minimum** | | | **Number of Data Points** | | **Statistical Outlier** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Qualifiers* | | | *Qualifiers* | | | *Qualifiers* | | | | |
| Site Code | Location Code | Sample ID | Sample Date | Analyte | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP02 | 0841 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 350 | | F | 920 | | F | 440 | | F | 24 | 0 | No |
| SHP02 | 0843 | N001 | 09/27/2016 | Potassium | 15.0 | | F | 14.0 | | FQ | 6.90 | | F | 17 | 0 | No |
| SHP02 | 0844 | N001 | 09/27/2016 | Potassium | 75.0 | | F | 69.0 | | F | 38.0 | B | F | 18 | 0 | No |
| SHP02 | 0844 | N001 | 09/27/2016 | Strontium | 15.0 | | F | 14.0 | | F | 11.0 | | FQ | 18 | 0 | No |
| SHP02 | 0848 | N001 | 09/26/2016 | Manganese | 2.40 | | F | 3.50 | | F | 2.50 | | F | 18 | 0 | No |
| SHP02 | 0848 | N001 | 09/26/2016 | Uranium | 0.0140 | | F | 0.0280 | | F | 0.0150 | | F | 18 | 0 | No |
| SHP02 | 1007 | 0001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 410 | | FQ | 913 | | FQ | 490 | | FQ | 16 | 0 | No |
| SHP02 | 1007 | 0001 | 09/28/2016 | Selenium | 0.00850 | | FQ | 0.366 | E | FQ | 0.0210 | | FQ | 16 | 0 | No |
| SHP02 | 1049 | N001 | 09/28/2016 | Calcium | 440 | | F | 430 | | F | 360 | | F | 14 | 0 | No |
| SHP02 | 1049 | N001 | 09/28/2016 | Strontium | 11.0 | | F | 10.2 | | F | 8.90 | | F | 14 | 0 | No |
| SHP02 | 1057 | N001 | 09/26/2016 | Selenium | 0.0150 | | F | 0.330 | | F | 0.0220 | | F | 16 | 0 | No |
| SHP02 | 1059 | N001 | 09/28/2016 | Manganese | 0.0440 | J | FQ | 0.140 | | FQ | 0.0480 | B | FQ | 17 | 0 | No |
| SHP02 | 1059 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 280 | | FQ | 420 | | FQ | 290 | | FQ | 17 | 0 | No |
| SHP02 | 1070 | N002 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 440 | | | 970 | | | 510 | | J | 24 | 0 | No |
| SHP02 | 1070 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 470 | | | 970 | | | 510 | | J | 24 | 0 | No |
| SHP02 | 1071 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 460 | | | 3400 | | | 470 | | | 22 | 0 | No |
| SHP02 | 1074 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 830 | | FQ | 1500 | | FQ | 970 | | FQ | 17 | 0 | No |

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

**Comparison: Historical Data Beginning 1/1/2006—Excluding Unfiltered Surface Water Samples**

Laboratory: ALS Laboratory Group

RIN: 16098031

Report Date: 12/13/2016

| | | | | | **Current** | | | **Historical Maximum** | | | **Historical Minimum** | | | **Number of Data Points** | | **Statistical Outlier** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Qualifiers* | | | *Qualifiers* | | | *Qualifiers* | | | | |
| Site Code | Location Code | Sample ID | Sample Date | Analyte | Result | *Lab* | *Data* | Result | *Lab* | *Data* | Result | *Lab* | *Data* | N | N Below Detect | |
| SHP02 | 1078 | N001 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 340 | | | 830 | | | 400 | | | 27 | 0 | No |
| SHP02 | 1078 | N002 | 09/29/2016 | Nitrate + Nitrite as Nitrogen | 340 | | | 830 | | | 400 | | | 27 | 0 | No |
| SHP02 | 1079 | N001 | 09/26/2016 | Calcium | 310 | | F | 980 | | F | 450 | | F | 24 | 0 | No |
| SHP02 | 1079 | N001 | 09/26/2016 | Nitrate + Nitrite as Nitrogen | 24.0 | | F | 400 | | F | 35.0 | | F | 24 | 0 | No |
| SHP02 | 1079 | N001 | 09/26/2016 | Selenium | 0.0750 | E | JF | 0.710 | | F | 0.200 | | | 24 | 0 | NA |
| SHP02 | 1079 | N001 | 09/26/2016 | Strontium | 3.40 | | F | 11.0 | | F | 4.20 | | F | 24 | 0 | No |
| SHP02 | 1091 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 530 | | | 2300 | | | 670 | | | 21 | 0 | No |
| SHP02 | 1092 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 390 | | | 2900 | | | 420 | | | 21 | 0 | No |
| SHP02 | 1093R | N001 | 09/28/2016 | Chloride | 770 | | | 740 | | | 53.0 | | | 21 | 0 | NA |
| SHP02 | 1095 | N001 | 09/26/2016 | Calcium | 900 | | | 867 | | | 640 | | | 22 | 0 | No |
| SHP02 | 1096 | N001 | 09/28/2016 | Nitrate + Nitrite as Nitrogen | 450 | | | 780 | | | 470 | | | 27 | 0 | No |
| SHP02 | MW1 | N001 | 09/27/2016 | Potassium | 31.0 | | FQ | 25.0 | | FQ | 7.20 | B | FQ | 16 | 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.