WM-00073

# Data Validation Package

## February 2013
## Groundwater and Surface Water Sampling at the Tuba City, Arizona, Disposal Site

May 2013

U.S. DEPARTMENT OF ENERGY
Legacy Management

FSME 20

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# Sampling Event Summary

**Site:** Tuba City, Arizona, Disposal Site

**Sampling Period:** February 12-13, 2013

The groundwater compliance strategy for the Tuba City Disposal Site is defined in the 1999 *Phase I Ground Water Compliance Action Plan for the Tuba City, Arizona, UMTRA Site.* Samples are collected and analyzed on a semiannual basis to evaluate the performance of the Phase I remediation system.

Sampling and analysis were conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated).

U.S. Environmental Protection Agency (EPA) groundwater standards were exceeded in samples collected from monitoring wells as listed in Table 1.

The data from this sampling event are generally consistent with previously obtained values and are acceptable for general use as qualified. Data anomalies are not significant with respect to the known nature and extent of contamination and progress of remedial action at the site. The data from this sampling event will be incorporated into the annual performance evaluation report that will present a comprehensive hydrologic summary and evaluation of groundwater remedial action performance at the Tuba City site through March 2013.

*Table 1. Tuba City Monitoring Wells with Analyte Concentrations that Exceed EPA Standard*

| Analyte | Standard (mg/L) | Location | Concentration (mg/L) |
|---|---|---|---|
| Molybdenum | 0.1 | 0262 | 0.94 |
| Molybdenum | 0.1 | 0287 | 0.14 |
| Nitrate + Nitrite as Nitrogen | 10 | 0262 | 180 |
| Nitrate + Nitrite as Nitrogen | 10 | 0263 | 230 |
| Nitrate + Nitrite as Nitrogen | 10 | 0264 | 11 |
| Nitrate + Nitrite as Nitrogen | 10 | 0265 | 190 |
| Nitrate + Nitrite as Nitrogen | 10 | 0267 | 300 |
| Nitrate + Nitrite as Nitrogen | 10 | 0268 | 39 |
| Nitrate + Nitrite as Nitrogen | 10 | 0273 | 43 |
| Nitrate + Nitrite as Nitrogen | 10 | 0275 | 240 |
| Nitrate + Nitrite as Nitrogen | 10 | 0281 | 24 |
| Nitrate + Nitrite as Nitrogen | 10 | 0282 | 47 |
| Nitrate + Nitrite as Nitrogen | 10 | 0286 | 220 |
| Nitrate + Nitrite as Nitrogen | 10 | 0287 | 260 |
| Nitrate + Nitrite as Nitrogen | 10 | 0288 | 54 |
| Nitrate + Nitrite as Nitrogen | 10 | 0289 | 27 |
| Nitrate + Nitrite as Nitrogen | 10 | 0290 | 70 |
| Nitrate + Nitrite as Nitrogen | 10 | 0691 | 73 |
| Nitrate + Nitrite as Nitrogen | 10 | 0906 | 460 |
| Nitrate + Nitrite as Nitrogen | 10 | 0908 | 190 |

*Table 1 (continued). Tuba City Monitoring Wells with Analyte Concentrations that Exceed EPA Standard*

| Analyte | Standard (mg/L) | Location | Concentration (mg/L) |
|---|---|---|---|
| Nitrate + Nitrite as Nitrogen | 10 | 0929 | 14 |
| Nitrate + Nitrite as Nitrogen | 10 | 0930 | 25 |
| Nitrate + Nitrite as Nitrogen | 10 | 0934 | 350 |
| Nitrate + Nitrite as Nitrogen | 10 | 0935 | 190 |
| Nitrate + Nitrite as Nitrogen | 10 | 0938 | 320 |
| Nitrate + Nitrite as Nitrogen | 10 | 0940 | 340 |
| Nitrate + Nitrite as Nitrogen | 10 | 0941 | 270 |
| Nitrate + Nitrite as Nitrogen | 10 | 0942 | 190 |
| Selenium | 0.01 | 0262 | 0.11 |
| Selenium | 0.01 | 0263 | 0.048 |
| Selenium | 0.01 | 0267 | 0.054 |
| Selenium | 0.01 | 0273 | 0.017 |
| Selenium | 0.01 | 0275 | 0.036 |
| Selenium | 0.01 | 0286 | 0.039 |
| Selenium | 0.01 | 0287 | 0.098 |
| Selenium | 0.01 | 0290 | 0.010 |
| Selenium | 0.01 | 0906 | 0.034 |
| Selenium | 0.01 | 0908 | 0.022 |
| Selenium | 0.01 | 0935 | 0.012 |
| Selenium | 0.01 | 0938 | 0.083 |
| Selenium | 0.01 | 0940 | 0.076 |
| Selenium | 0.01 | 0941 | 0.11 |
| Selenium | 0.01 | 0942 | 0.055 |
| Uranium | 0.044 | 0262 | 0.88 |
| Uranium | 0.044 | 0263 | 0.26 |
| Uranium | 0.044 | 0265 | 0.062 |
| Uranium | 0.044 | 0267 | 0.071 |
| Uranium | 0.044 | 0268 | 0.082 |
| Uranium | 0.044 | 0273 | 0.044 |
| Uranium | 0.044 | 0275 | 0.42 |
| Uranium | 0.044 | 0286 | 0.40 |
| Uranium | 0.044 | 0287 | 0.27 |
| Uranium | 0.044 | 0290 | 0.055 |
| Uranium | 0.044 | 0691 | 0.077 |
| Uranium | 0.044 | 0906 | 0.46 |
| Uranium | 0.044 | 0908 | 0.087 |
| Uranium | 0.044 | 0934 | 0.15 |
| Uranium | 0.044 | 0935 | 0.14 |
| Uranium | 0.044 | 0938 | 0.31 |
| Uranium | 0.044 | 0940 | 0.56 |
| Uranium | 0.044 | 0941 | 0.25 |
| Uranium | 0.044 | 0942 | 0.54 |

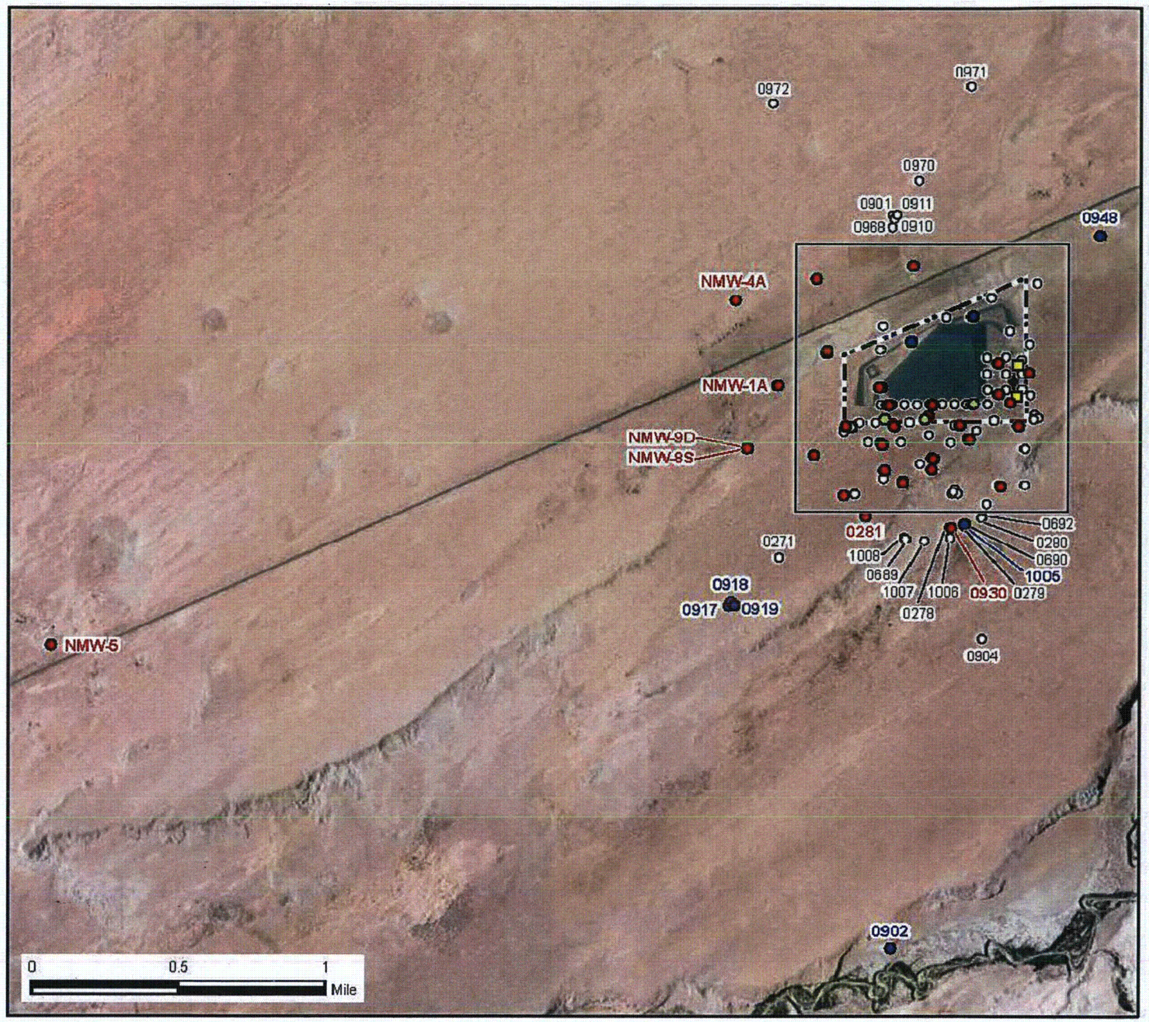
mg/L = milligrams per liter

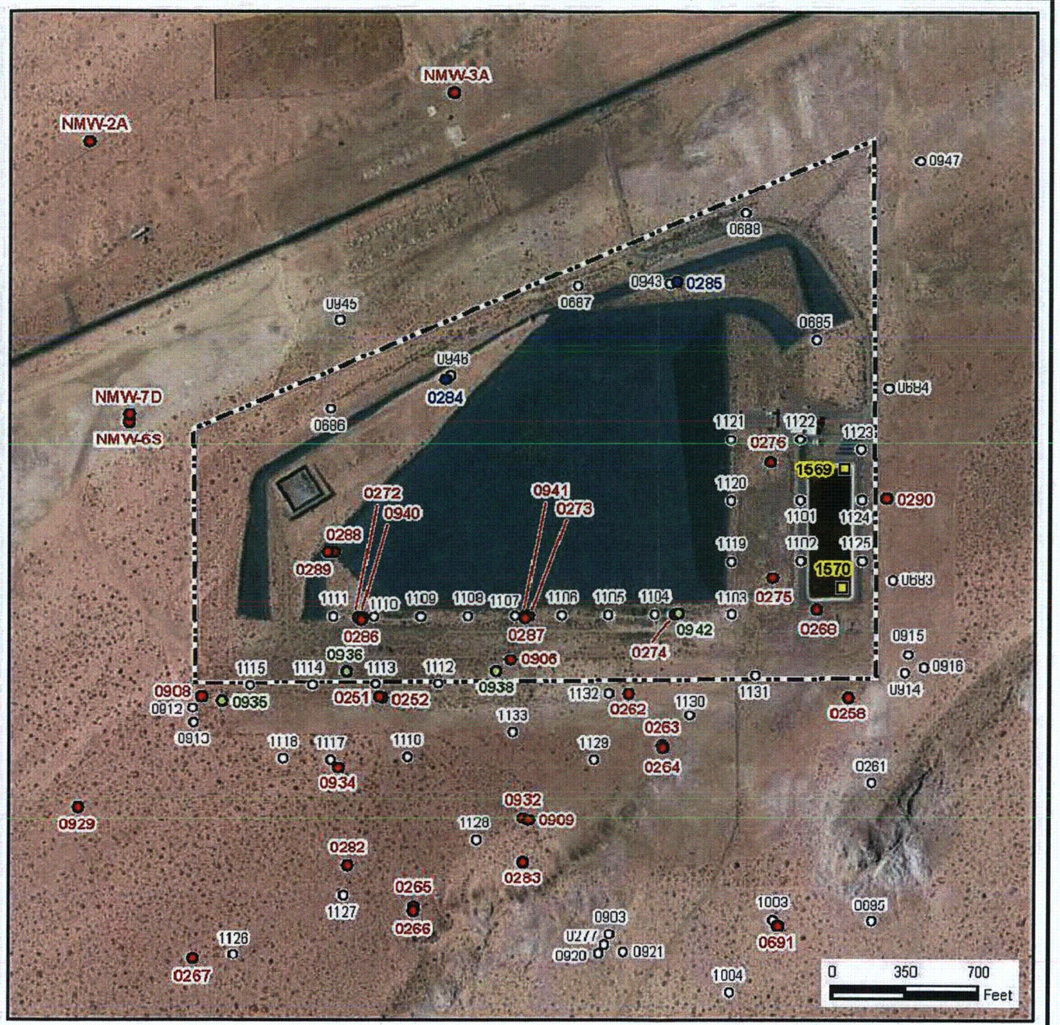
T R Bartlett

Tim Bartlett
Site Hydrologist, S.M. Stoller Corporation

5/13/13

Date




**LEGEND**

- MONITORING WELL TO BE SAMPLED
- EXTRACTION WELL TO BE SAMPLED
- MONITORING WELL - WATER LEVEL ONLY
- SURFACE LOCATION TO BE SAMPLED
- EXISTING WELL
- SITE BOUNDARY

N

| | |
|---|---|
| U.S. DEPARTMENT OF ENERGY<br>GRAND JUNCTION, COLORADO | Work Performed by<br>S.M. Stoller Corporation<br>Under DOE Contract<br>No. DE-AM01-07LM00040 |
| Planned Sampling Map<br>Tuba City, AZ, Disposal Site<br>February 2013 | |
| DATE PREPARED:<br>January 17, 2013 | FILENAME:<br>S0962700 |

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*Tuba City, Arizona, Disposal Site, Sample Location Map*

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# Data Assessment Summary

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# Water Sampling Field Activities Verification Checklist

| | | | |
|---|---|---|---|
| **Project** | Tuba City, Arizona | **Date(s) of Water Sampling** | February 12-13, 2013 |
| **Date(s) of Verification** | March 6, 2013 | **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 January 18, 2013.<br>• Program Directive No. TUB-2013-01. |
| 2. Were the sampling locations specified in the planning documents sampled? | No | Monitoring wells 0283 and 0909 did not have enough water to sample. The pump at extraction well 0936 was not functioning. |
| 3. Were calibrations conducted as specified in the above-named documents? | Yes | Pre-trip calibrations were performed on February 7, 2013. (Pre-trip pH calibration: a span outside acceptance range was caused by a typo. No data qualification is necessary.) |
| 4. Was an operational check of the field equipment conducted daily? | Yes | |
| Did the operational checks meet criteria? | Yes | |
| 5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified? | Yes | |
| 6. Were wells categorized correctly? | No | A Cat I location was mis-categorized as Cat II (well NMW-6S). |
| 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 stabilize prior to sampling? | No | Only one measurement was collected while purging a Cat I well (well 0275). Associated data are qualified as "J" (estimated). |
| 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 | Duplicates were collected from locations 0268, 1569, and NMW-1A. |
| 10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment? | NA | All samples were collected with dedicated equipment. |
| 11. Were trip blanks prepared and included with each shipment of VOC samples? | NA | |
| 12. Were the true identities of the QC samples documented? | Yes | QC sample identification is in the trip report and the field data sheets. |
| 13. Were samples collected in the containers specified? | Yes | |
| 14. Were samples filtered and preserved as specified? | No | Program Directive TUB-2013-01 requires that the surface water samples collected at pond locations 1569 and 1570 be filtered. These samples were inadvertently not filtered. |
| 15. Were the number and types of samples collected as specified? | Yes | |
| 16. Were chain of custody records completed and was sample custody maintained? | Yes | |
| 17. Was all pertinent information documented on the field data sheets? | Yes | |
| 18. Was the presence or absence of ice in the cooler documented at every sample location? | Yes | |
| 19. Were water levels measured at the locations specified in the planning documents? | No | The water level at well 0948 was not taken. The water level at this well fluctuates widely because it is pumped. |

## Laboratory Performance Assessment

General Information

| | |
|---|---|
| Requisition No.: | 13025097 |
| Sample Event: | February 12-13, 2013 |
| Site: | Tuba City, Arizona |
| Laboratory: | ALS Laboratory Group, Fort Collins, Colorado |
| Work Order Nos.: | 1302205 |
| Analysis: | Metals and Inorganics |
| Validator: | Gretchen Baer |
| Review Date: | March 6, 2013 |

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/PRO/S04325, continually updated) "Standard Practice for Validation of Laboratory Data." The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 2.

*Table 2. Analytes and Methods*

| Analyte | Line Item Code | Prep Method | Analytical Method |
|---|---|---|---|
| Ammonia as N | WCH-A-005 | EPA 350.1 | EPA 350.1 |
| Arsenic, Molybdenum, Selenium, Uranium | LMM-02 | SW-846 3005A | SW-846 6020A |
| Calcium, Iron, Magnesium, Manganese, Potassium, Silica, Sodium | LMM-01 | SW-846 3005A | SW-846 6010B |
| Chloride, Sulfate | MIS-A-045 | SW-846 9056 | SW-846 9056 |
| Nitrite + Nitrate as N | WCH-A-022 | EPA 353.2 | EPA 353.2 |
| Total Dissolved Solids | WCH-A-033 | EPA 160.1 | EPA 160.1 |

Data Qualifier Summary

Analytical results were qualified as listed in Table 3. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

*Table 3. Data Qualifiers*

| Sample Number | Location | Analyte | Flag | Reason |
|---|---|---|---|---|
| 1302205-1 | 0251 | Iron | U | Less than 5 times the calibration blank |
| 1302205-2 | 0252 | Iron | U | Less than 5 times the calibration blank |
| 1302205-5 | 0263 | Iron | U | Less than 5 times the calibration blank |
| 1302205-10 | 0268 | Arsenic | J | Serial dilution has negative bias |
| 1302205-10 | 0268 | Iron | U | Less than 5 times the calibration blank |
| 1302205-12 | 0273 | Iron | U | Less than 5 times the calibration blank |
| 1302205-13 | 0274 | Iron | U | Less than 5 times the calibration blank |
| 1302205-14 | 0275 | Iron | U | Less than 5 times the calibration blank |
| 1302205-15 | 0276 | Iron | U | Less than 5 times the calibration blank |
| 1302205-16 | 0281 | Iron | U | Less than 5 times the calibration blank |
| 1302205-17 | 0282 | Iron | U | Less than 5 times the calibration blank |
| 1302205-18 | 0286 | Iron | U | Less than 5 times the calibration blank |
| 1302205-20 | 0288 | Iron | U | Less than 5 times the calibration blank |
| 1302205-21 | 0289 | Arsenic | J | Serial dilution has positive bias |
| 1302205-23 | 0691 | Iron | U | Less than 5 times the calibration blank |
| 1302205-27 | 0930 | Iron | U | Less than 5 times the calibration blank |
| 1302205-38 | 1569 | Arsenic | J | Field duplicate RSD greater than 20% |
| 1302205-40 | NMW-1A Dup | Manganese | J | Field duplicate range greater than PQL |
| 1302205-40 | NMW-1A Dup | Sodium | J | Field duplicate RSD greater than 20% |
| 1302205-41 | 0268 Dup | Arsenic | J | Serial dilution has negative bias |
| 1302205-41 | 0268 Dup | Iron | U | Less than 5 times the calibration blank |
| 1302205-42 | 1569 Dup | Arsenic | J | Field duplicate RSD greater than 20% |
| 1302205-42 | 1569 Dup | Iron | U | Less than 5 times the calibration blank |
| 1302205-43 | NMW-1A | Manganese | J | Field duplicate range greater than PQL |
| 1302205-43 | NMW-1A | Sodium | J | Field duplicate RSD greater than 20% |
| 1302205-46 | NMW-4A | Iron | U | Less than 5 times the calibration blank |
| 1302205-50 | NMW-8S | Iron | U | Less than 5 times the calibration blank |
| All | All | Manganese | J | Serial dilution has negative bias |
| All | All | Sodium | J | Serial dilution has negative bias |

## Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 51 samples on February 15, 2013, accompanied by a Chain of Custody form. 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 with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The Chain of Custody forms had no errors or omissions, with the following exceptions. The filtration status for location 0267 was listed incorrectly. The sample time for location NMW-8S differed from the time written on the bottle labels.

Preservation and Holding Times

The sample shipment was received intact with the temperatures inside the iced coolers at 2.0 and 2.8 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

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

Laboratory Instrument Calibration

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

*Method EPA 160.1*
There is no initial or continuing calibration requirement associated with the determination of total dissolved solids.

*Method EPA 350.1*
The initial calibrations for ammonia as N were performed February 21, 2013, using six calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency and all calibration check results met the acceptance criteria.

*Method EPA 353.2*
The initial calibrations for nitrate + nitrite as N were performed February 27, 2013, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency and all calibration check results met the acceptance criteria.

*Method SW-846 6010B*
Calibrations for calcium, iron, magnesium, manganese, potassium, silica, and sodium were performed February 25, 2013, using three calibration standards. The correlation coefficient

values were greater than 0.995. The absolute values of the intercepts were less than or only slightly above 3 times the MDL, with the exception of the intercepts for calcium, potassium, silicon, and sodium. These intercepts were less than 3 times the reporting limits and all results were above the reporting limits. Initial and continuing calibration verification checks were made at the required frequency and all calibration check results 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 associated with the samples were within the acceptance range.

*Method SW-846 6020A*
Calibrations for arsenic, molybdenum, selenium, and uranium were performed February 25, 2013, using four calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than or only slightly above 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency and all calibration check results 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. 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 for chloride and sulfate were performed February 25, 2013, using five calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency and all calibration check results 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 PQL for all analytes. In cases where a blank concentration exceeds the MDL, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

For manganese, some calibration blanks were negative and the absolute values were greater than the MDL but less than the PQL. All manganese results are qualified for serial dilutions with low biases, so no further qualification is necessary.

Inductively Coupled Plasma Interference Check Sample Analysis

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

Matrix Spike Analysis

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

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 PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria, demonstrating acceptable laboratory precision.

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the MDL. All evaluated serial dilution data were acceptable with the following exceptions. The percent difference for all evaluated manganese and sodium dilutions were outside the acceptance range of ±10 percent with biases of about -30 percent and -13 percent, respectively. The percent differences for two of the arsenic dilutions were above the range with biases of -23 percent and +11 percent. Because of the possible reduced accuracy due to matrix interference, 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 ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

The EDD file arrived on March 1, 2013. 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. An incorrect filtration status for location 0267 was provided to the laboratory on the Chain of Custody. The filtration status was corrected in the SEEPro database.

Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in milliequivalents per liter. Table 4 shows the total anion and cation results from this event and the charge balance, which is a relative percent difference calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

*Table 4. Comparison of Major Anions and Cations*

| Location | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|
| 0251 | 2.1 | 2.3 | 3.9 |
| 0252 | 1.8 | 1.8 | 0.6 |
| 0258 | 2.7 | 2.6 | 2.6 |
| 0262 | 63.5 | 66.3 | 2.1 |
| 0263 | 89.6 | 91.1 | 0.9 |
| 0264 | 5.3 | 5.4 | 0.8 |
| 0265 | 47.2 | 48.3 | 1.2 |
| 0266 | 2.3 | 2.0 | 6.3 |
| 0267 | 111.9 | 110.2 | 0.8 |
| 0268 | 14.5 | 15.0 | 1.8 |
| 0272 | 2.5 | 2.7 | 2.9 |
| 0273 | 11.1 | 11.1 | 0.1 |
| 0274 | 2.7 | 2.6 | 1.2 |
| 0275 | 77.7 | 80.8 | 2.0 |
| 0276 | 2.8 | 2.8 | 1.4 |
| 0281 | 6.2 | 6.5 | 2.2 |
| 0282 | 10.0 | 10.3 | 1.7 |
| 0286 | 91.3 | 95.2 | 2.1 |
| 0287 | 73.6 | 75.5 | 1.3 |
| 0288 | 12.8 | 13.4 | 2.2 |
| 0289 | 10.3 | 8.7 | 8.1 |
| 0290 | 22.1 | 22.4 | 0.6 |
| 0691 | 24.4 | 24.0 | 0.9 |
| 0906 | 93.5 | 96.0 | 1.3 |
| 0908 | 86.4 | 89.9 | 2.0 |
| 0929 | 3.6 | 3.8 | 3.0 |
| 0930 | 7.4 | 7.1 | 2.0 |
| 0932 | 3.4 | 4.1 | 10.6 |
| 0934 | 104.5 | 104.0 | 0.2 |
| 0935 | 77.2 | 79.8 | 1.7 |
| 0938 | 102.7 | 106.4 | 1.8 |
| 0940 | 182.9 | 183.2 | 0.1 |
| 0941 | 73.2 | 71.7 | 1.1 |
| 0942 | 95.4 | 105.6 | 5.1 |
| 1569 | 865.9 | 977.7 | 6.1 |

*Table 4 (continued). Comparison of Major Anions and Cations*

| Location | Cations (meq/L) | Anions (meq/L) | Charge Balance (%) |
|---|---|---|---|
| 1570 | 3107.4 | 4054.4 | 13.2 |
| NMW-1A | 2.7 | 2.5 | 3.7 |
| NMW-2A | 2.6 | 2.5 | 2.4 |
| NMW-3A | 2.5 | 2.4 | 2.1 |
| NMW-4A | 2.5 | 2.6 | 1.4 |
| NMW-5 | 3.5 | 3.6 | 1.4 |
| NMW-6S | 2.6 | 2.5 | 2.3 |
| NMW-7D | 1.9 | 2.4 | 9.6 |
| NMW-8S | 2.5 | 2.5 | 1.2 |
| NMW-9D | 3.0 | 3.1 | 0.8 |

meq/L = milliequivalents per liter

Two locations (1570, which is at the evaporation pond, and well 0932) had charge balances slightly greater than 10 percent. There were no analytical errors identified during the review of the laboratory data.

# SAMPLE MANAGEMENT SYSTEM

## General Data Validation Report

RIN: 13025097 Lab Code: PAR Validator: Gretchen Baer Validation Date: 3/6/2013

Project: Tuba City Analysis Type: ☑ Metals ☑ General Chem ☐ Rad ☐ Organics

# of Samples: 51 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 | There are 0 holding time failures. |
| ☑ Detection Limits | The reported detection limits are equal to or below contract requirements. |
| ☐ Field/Trip Blanks | |
| ☑ Field Duplicates | There were 3 duplicates evaluated. |

# SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 13025097 **Lab Code:** PAR **Date Due:** 3/15/2013

**Matrix:** Water **Site Code:** TUB01 **Date Completed:** 3/4/2013

| 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 | 02/25/2013 | | | | | OK | 109.0 | 107.0 | 108.0 | 1.0 | | 11.0 | |
| Arsenic | ICP/MS | 02/25/2013 | -0.0350 | 1.0000 | OK | OK | OK | 108.0 | 111.0 | 110.0 | 1.0 | | 23.0 | |
| Arsenic | ICP/MS | 02/25/2013 | | | | | OK | 105.0 | 107.0 | 110.0 | 2.0 | 110.0 | 1.0 | 91.0 |
| Calcium | ICP/ES | 02/25/2013 | | | | | OK | 98.0 | 99.0 | 100.0 | 0.0 | 102.0 | 3.0 | 101.0 |
| Calcium | ICP/ES | 02/25/2013 | -0.1080 | 1.0000 | OK | OK | OK | 97.0 | 91.0 | 96.0 | 1.0 | | 4.0 | |
| Calcium | ICP/ES | 02/25/2013 | | | | | OK | 97.0 | 104.0 | 82.0 | 4.0 | 102.0 | 1.0 | 99.0 |
| Iron | ICP/ES | 02/25/2013 | | | | | OK | 97.0 | 100.0 | 100.0 | 0.0 | 104.0 | | 98.0 |
| Iron | ICP/ES | 02/25/2013 | -0.0140 | 1.0000 | OK | OK | OK | 97.0 | 95.0 | 97.0 | 2.0 | 105.0 | | 96.0 |
| Iron | ICP/ES | 02/25/2013 | | | | | OK | 97.0 | 96.0 | 92.0 | 3.0 | | | |
| Magnesium | ICP/ES | 02/25/2013 | | | | | OK | 97.0 | 99.0 | 99.0 | 0.0 | | 1.0 | |
| Magnesium | ICP/ES | 02/25/2013 | | | | | OK | 96.0 | 94.0 | 96.0 | 1.0 | 104.0 | 0.0 | 101.0 |
| Magnesium | ICP/ES | 02/25/2013 | -0.0760 | 1.0000 | OK | OK | OK | 97.0 | 96.0 | 91.0 | 3.0 | 103.0 | 3.0 | 98.0 |
| Manganese | ICP/ES | 02/25/2013 | | | | | OK | 98.0 | 100.0 | 100.0 | 0.0 | | | |
| Manganese | ICP/ES | 02/25/2013 | | | | | OK | 98.0 | 96.0 | 97.0 | 1.0 | 97.0 | 35.0 | 104.0 |
| Manganese | ICP/ES | 02/25/2013 | -0.0010 | 1.0000 | OK | OK | OK | 98.0 | 96.0 | 93.0 | 3.0 | 96.0 | 23.0 | 102.0 |
| Molybdenum | ICP/MS | 02/25/2013 | -0.0040 | 1.0000 | OK | OK | OK | 101.0 | 102.0 | 102.0 | 0.0 | | | |
| Molybdenum | ICP/MS | 02/25/2013 | | | | | OK | 100.0 | 105.0 | 102.0 | 2.0 | | | |

# SAMPLE MANAGEMENT SYSTEM

## Metals Data Validation Worksheet

**RIN:** 13025097 **Lab Code:** PAR **Date Due:** 3/15/2013

**Matrix:** Water **Site Code:** TUB01 **Date Completed:** 3/4/2013

| 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 | | | | | | | | |
| Molybdenum | ICP/MS | 02/25/2013 | | | | | OK | 101.0 | 102.0 | 100.0 | 2.0 | 102.0 | | 109.0 |
| Potassium | ICP/ES | 02/25/2013 | | | | | OK | 95.0 | 98.0 | 97.0 | 1.0 | | | |
| Potassium | ICP/ES | 02/25/2013 | | | | | OK | 94.0 | 101.0 | 103.0 | 1.0 | | | 76.0 |
| Potassium | ICP/ES | 02/25/2013 | -2.9880 | 1.0000 | OK | OK | OK | 95.0 | 104.0 | 101.0 | 2.0 | | | 74.0 |
| Selenium | ICP/MS | 02/25/2013 | -0.1350 | 1.0000 | OK | OK | OK | 101.0 | 100.0 | 102.0 | 2.0 | | 3.0 | |
| Selenium | ICP/MS | 02/25/2013 | | | | | OK | 103.0 | 105.0 | 98.0 | 7.0 | | 6.0 | |
| Selenium | ICP/MS | 02/25/2013 | | | | | OK | 100.0 | 105.0 | 99.0 | 6.0 | 98.0 | | 125.0 |
| Silicon | ICP/ES | 02/25/2013 | | | | | OK | 102.0 | 109.0 | 109.0 | 0.0 | 96.0 | 0.0 | 101.0 |
| Silicon | ICP/ES | 02/25/2013 | -0.1310 | 1.0000 | OK | OK | OK | 101.0 | 81.0 | 90.0 | 1.0 | 95.0 | 2.0 | 83.0 |
| Silicon | ICP/ES | 02/25/2013 | | | | | OK | 101.0 | | | 3.0 | | 1.0 | |
| Sodium | ICP/ES | 02/25/2013 | | | | | OK | 94.0 | 97.0 | 96.0 | 1.0 | | 14.0 | 81.0 |
| Sodium | ICP/ES | 02/25/2013 | | | | | OK | 93.0 | 98.0 | 99.0 | 1.0 | | 14.0 | |
| Sodium | ICP/ES | 02/25/2013 | -0.1150 | 1.0000 | OK | OK | OK | 94.0 | 97.0 | 93.0 | 2.0 | | 11.0 | 76.0 |
| Uranium | ICP/MS | 02/25/2013 | 0.0000 | 1.0000 | OK | OK | OK | 104.0 | 106.0 | 105.0 | 0.0 | 106.0 | 2.0 | 100.0 |
| Uranium | ICP/MS | 02/25/2013 | | | | | OK | 104.0 | 102.0 | 101.0 | 0.0 | | 5.0 | |
| Uranium | ICP/MS | 02/25/2013 | | | | | OK | 103.0 | | | 1.0 | | 2.0 | |

# SAMPLE MANAGEMENT SYSTEM

## Wet Chemistry Data Validation Worksheet

**RIN:** 13025097 **Lab Code:** PAR **Date Due:** 3/15/2013

**Matrix:** Water **Site Code:** TUB01 **Date Completed:** 3/4/2013

| 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 | 02/21/2013 | -0.013 | 1.0000 | OK | OK | OK | 96.00 | 93.0 | 94.0 | 1.00 | |
| AMMONIA AS N | 02/21/2013 | | | | | OK | 96.00 | 83.0 | 79.0 | 5.00 | |
| AMMONIA AS N | 02/21/2013 | | | | | OK | 95.00 | 86.0 | 87.0 | 1.00 | |
| CHLORIDE | 02/25/2013 | -0.103 | 0.9999 | OK | OK | OK | 96.00 | 102.0 | 101.0 | 0 | |
| CHLORIDE | 02/25/2013 | | | | | OK | 96.00 | 100.0 | 100.0 | 0 | |
| CHLORIDE | 02/25/2013 | | | | | | | 100.0 | | | |
| CHLORIDE | 02/26/2013 | | | | | OK | 97.00 | 99.0 | 100.0 | 2.00 | |
| CHLORIDE | 02/26/2013 | | | | | | | 98.0 | | | |
| Nitrate+Nitrite as N | 02/27/2013 | 0.000 | 0.9998 | OK | OK | OK | 98.00 | 91.0 | 104.0 | 5.00 | |
| Nitrate+Nitrite as N | 02/27/2013 | | | | | OK | 97.00 | 80.0 | 81.0 | 0 | |
| Nitrate+Nitrite as N | 02/27/2013 | | | | | OK | 97.00 | | | | |
| SULFATE | 02/25/2013 | 0.311 | 1.0000 | OK | OK | OK | 103.00 | 106.0 | 105.0 | 0 | |
| SULFATE | 02/25/2013 | | | | | OK | 102.00 | 107.0 | 106.0 | 1.00 | |
| SULFATE | 02/25/2013 | | | | | | | 108.0 | | | |
| SULFATE | 02/26/2013 | | | | | OK | 104.00 | 106.0 | 104.0 | 0 | |

## SAMPLE MANAGEMENT SYSTEM

## Wet Chemistry Data Validation Worksheet

**RIN:** 13025097 **Lab Code:** PAR **Date Due:** 3/15/2013

**Matrix:** Water **Site Code:** TUB01 **Date Completed:** 3/4/2013

| Analyte | Date Analyzed | CALIBRATION | | | | Method Blank | LCS %R | MS %R | MSD %R | DUP RPD | Serial Dil. %R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Int. | R^2 | CCV | CCB | | | | | | |
| SULFATE | 02/26/2013 | | | | | | | 105.0 | | | |
| TOTAL DISSOLVED SOLIDS | 02/19/2013 | | | | | OK | 105.00 | | | 0 | |
| TOTAL DISSOLVED SOLIDS | 02/19/2013 | | | | | | | | | 1.00 | |
| TOTAL DISSOLVED SOLIDS | 02/21/2013 | | | | | OK | 103.00 | | | 1.00 | |
| TOTAL DISSOLVED SOLIDS | 02/21/2013 | | | | | OK | 104.00 | | | 2.00 | |
| TOTAL DISSOLVED SOLIDS | 02/21/2013 | | | | | | | | | 2.00 | |

## Sampling Quality Control Assessment

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

Sampling Protocol

Sample results for all monitoring wells met the Category I or II low-flow sampling criteria and were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. All monitoring wells are equipped with either dedicated downhole and pump head tubing or a bladder pump.

Extraction wells (0935, 0938, and 0942) are spigot samples and are designated as Category IV.

These 22 wells were classified as Category II: 0251, 0258, 0262, 0263, 0264, 0266, 0273, 0274, 0281, 0282, 0286, 0287, 0288, 0289, 0290, 0906, 0908, 0929, 0934, 0941, NMW-7D, and NMW-9D. The sample results for these wells were qualified with a "Q" flag, indicating the data are qualitative because of the sampling technique. Only one set of readings was recorded at Category I well 0275, rather than three. All field measurements and laboratory results for this location are qualified with a "J" flag (estimated).

The three treatment plant locations 1202, 1205, and 1206, were sampled during off normal operating conditions and do not represent typical analysis results. Consequently, all field measurements and laboratory results are qualified with an "R" flag as rejected.

Equipment Blank Assessment

No equipment blanks were collected because all samples were collected using dedicated equipment.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. The relative percent difference (RPD) is not used to evaluate results that are less than 5 times the PQL. For these results (RPD is NA on the Field Duplicates report), the range should be no greater than the PQL. Duplicate samples were collected from locations 0268, 1569, and NMW-1A. The duplicate results met the criteria, with the exception of manganese and sodium at location NMW-1A and arsenic at location 1569. There were no analytical errors identified during the review of the data. The associated sample and duplicate results are qualified with a "J" flag as estimated values.

# SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

RIN: 13025097 Lab Code: PAR Project: Tuba City Validation Date: 3/6/2013

Duplicate: 2122 Sample: NMW-1A

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 0.1 | U | | 1 | 0.1 | U | | 1 | | | MG/L |
| Arsenic | 2.5 | | | 1 | 2.6 | | | 1 | 3.92 | | UG/L |
| Calcium | 33000 | | | 1 | 33000 | | | 1 | 0 | | UG/L |
| CHLORIDE | 9.9 | | | 1 | 9.9 | | | 1 | 0 | | MG/L |
| Iron | 4.9 | U | | 1 | 4.9 | U | | 1 | | | UG/L |
| Magnesium | 6200 | | | 1 | 6700 | | | 1 | 7.75 | | UG/L |
| Manganese | 5.5 | | | 1 | 14 | | | 1 | NA | | UG/L |
| Molybdenum | 0.39 | | | 1 | 0.43 | | | 1 | 9.76 | | UG/L |
| Nitrate+Nitrite as N | 3.5 | | | 5 | 3.5 | | | 5 | 0 | | MG/L |
| Potassium | 1100 | | | 1 | 1200 | | | 1 | 8.70 | | UG/L |
| Selenium | 1.3 | | | 1 | 1.3 | | | 1 | 0 | | UG/L |
| Silica | 11000 | | | 1 | 11000 | | | 1 | 0 | | UG/L |
| Silicon | 5200 | | | 1 | 5200 | | | 1 | 0 | | UG/L |
| Sodium | 11000 | | | 1 | 14000 | | | 1 | 24.00 | | UG/L |
| SULFATE | 14 | | | 1 | 14 | | | 1 | 0 | | MG/L |
| TOTAL DISSOLVED SOLIDS | 160 | | | 1 | 160 | | | 1 | 0 | | MG/L |
| Uranium | 1.6 | | | 1 | 1.9 | | | 1 | 17.14 | | UG/L |

Duplicate: 2723 Sample: 0268

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | 0.1 | U | | 1 | 0.1 | U | | 1 | | | MG/L |
| Arsenic | 1.2 | | | 1 | 1.3 | E | | 1 | 8.00 | | UG/L |
| Calcium | 200000 | | | 1 | 190000 | | | 1 | 5.13 | | UG/L |
| CHLORIDE | 23 | | | 20 | 24 | | | 10 | 4.26 | | MG/L |
| Iron | 13 | B | | 1 | 16 | B | | 1 | | | UG/L |
| Magnesium | 36000 | | | 1 | 35000 | | | 1 | 2.82 | | UG/L |
| Manganese | 0.59 | B | | 1 | 3.1 | B | | 1 | NA | | UG/L |
| Molybdenum | 0.31 | | | 1 | 0.36 | | | 1 | 14.93 | | UG/L |
| Nitrate+Nitrite as N | 40 | | | 50 | 39 | | | 20 | 2.53 | | MG/L |
| Potassium | 3500 | | | 1 | 3400 | | | 1 | 2.90 | | UG/L |
| Selenium | 2.8 | | | 1 | 3.1 | | | 1 | 10.17 | | UG/L |
| Silica | 13000 | | | 1 | 13000 | | | 1 | 0 | | UG/L |
| Silicon | 6300 | | | 1 | 6100 | | | 1 | 3.23 | | UG/L |
| Sodium | 33000 | | | 1 | 33000 | E | | 1 | 0 | | UG/L |
| SULFATE | 360 | | | 20 | 370 | | | 10 | 2.74 | | MG/L |
| TOTAL DISSOLVED SOLIDS | 960 | | | 1 | 970 | | | 1 | 1.04 | | MG/L |

# SAMPLE MANAGEMENT SYSTEM

## Validation Report: Field Duplicates

RIN: 13025097 Lab Code: PAR Project: Tuba City Validation Date: 3/6/2013

Duplicate: 2723 Sample: 0268

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Uranium | 82 | | | 1 | 80 | | | 1 | 2.47 | | UG/L |

Duplicate: 2724 Sample: 1569

| Analyte | Sample Result | Flag | Error | Dilution | Duplicate Result | Flag | Error | Dilution | RPD | RER | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS N | | | | | 150 | | | 50 | | | MG/L |
| Arsenic | 17 | | | 100 | 23 | | | 50 | 30.00 | | UG/L |
| Calcium | 740000 | | | 100 | 810000 | | | 100 | 9.03 | | UG/L |
| CHLORIDE | 28000 | | | 2000 | 30000 | | | 2000 | 6.90 | | MG/L |
| Iron | 490 | U | | 100 | 2200 | B | | 100 | | | UG/L |
| Magnesium | 2100000 | | | 100 | 2300000 | | | 100 | 9.09 | | UG/L |
| Manganese | 42000 | | | 100 | 47000 | | | 100 | 11.24 | | UG/L |
| Molybdenum | 130 | | | 100 | 120 | | | 50 | 8.00 | | UG/L |
| Nitrate+Nitrite as N | 1200 | | | 1000 | 1300 | | | 1000 | 8.00 | | MG/L |
| Potassium | 150000 | | | 100 | 160000 | | | 100 | 6.45 | | UG/L |
| Selenium | 220 | | | 100 | 210 | | | 50 | 4.65 | | UG/L |
| Silica | | | | | 40000 | | | 100 | | | UG/L |
| Silicon | | | | | 19000 | | | 100 | | | UG/L |
| Sodium | 1.5E+07 | | | 100 | 1.3E+07 | | | 500 | 14.29 | | UG/L |
| SULFATE | 4800 | | | 1000 | 5200 | | | 1000 | 8.00 | | MG/L |
| TOTAL DISSOLVED SOLIDS | 58000 | | | 1 | 59000 | | | 1 | 1.71 | | MG/L |
| Uranium | 1600 | | | 100 | 1700 | | | 50 | 6.06 | | UG/L |

## Certification

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

Laboratory Coordinator: Steve Donivan — Date: 5-13-2013

Data Validation Lead: Gretchen Baer — Date: 5-13-2013

# Attachment 1
# Assessment of Anomalous Data

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# Potential Outliers Report

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**Potential Outliers Report**

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

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

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

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

Fourteen laboratory results from five locations were identified as potential outliers. These results were identified as potentially anomalous because of upward trending in the data. Six of the results were reported at groundwater location 0268; multiple analytes at this location have increased significantly since 2011. There were no anomalies identified during data validation for the previous sampling event in August 2012. The laboratory results for this RIN are acceptable as qualified.

Potential anomalies in the field parameters were also examined for patterns of repeated high or low bias, which suggest a systematic error due to instrument malfunction. No such patterns were found and all field data from this event are acceptable as qualified.

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**Data Validation Outliers Report - No Field Parameters**
**Comparison: All Historical Data**
Laboratory: ALS Laboratory Group
RIN: 13025097
Report Date: 4/5/2013

| | | | | | 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 | |
| TUB01 | 0251 | N001 | 02/12/2013 | Magnesium | 5.7 | | FQ | 9.78 | | L | 5.77 | | QF | 25 | 0 | No |
| TUB01 | 0258 | N001 | 02/13/2013 | Iron | 0.14 | | FQ | 0.03 | U | FQ | 0.003 | B | UFQ | 17 | 17 | No |
| TUB01 | 0263 | N001 | 02/12/2013 | Arsenic | 0.003 | | FQ | 0.0023 | | FQ | 0.00084 | | F | 18 | 1 | No |
| TUB01 | 0263 | N001 | 02/12/2013 | Magnesium | 530 | | FQ | 508 | | QF | 220 | | F | 19 | 0 | No |
| TUB01 | 0263 | N001 | 02/12/2013 | Silica | 21 | | FQ | 19.6 | | QF | 13 | | F | 19 | 0 | No |
| TUB01 | 0263 | N001 | 02/12/2013 | Silicon | 9.6 | | FQ | 8.5 | | FQ | 6 | | F | 15 | 0 | Yes |
| TUB01 | 0263 | N001 | 02/12/2013 | Sodium | 330 | | JFQ | 319 | E | QF | 140 | | | 19 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Calcium | 69 | | FQ | 68 | | FQ | 40.2 | | | 19 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Magnesium | 14 | | FQ | 13 | | FQ | 8.48 | | | 19 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Selenium | 0.0022 | | FQ | 0.00208 | B | QF | 0.001 | | | 19 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Sulfate | 96 | | FQ | 81 | | FQJ | 37.7 | | | 19 | 0 | Yes |
| TUB01 | 0264 | N001 | 02/12/2013 | Total Dissolved Solids | 340 | | FQ | 330 | | FQJ | 245 | | | 19 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Uranium | 0.0043 | | FQ | 0.00423 | | QF | 0.0027 | | FQ | 19 | 0 | No |
| TUB01 | 0265 | N001 | 02/12/2013 | Selenium | 0.0075 | | F | 0.0072 | | FQ | 0.0036 | | F | 20 | 0 | No |
| TUB01 | 0266 | N001 | 02/12/2013 | Iron | 0.1 | | FQ | 0.071 | | F | 0.0014 | U | FQ | 19 | 18 | No |
| TUB01 | 0266 | N001 | 02/12/2013 | Total Dissolved Solids | 120 | | FQ | 160 | | FQ | 129 | | QF | 18 | 0 | No |
| TUB01 | 0267 | 0001 | 02/12/2013 | Molybdenum | 0.000093 | B | F | 0.003 | U | | 0.00011 | | F | 26 | 18 | No |

**Data Validation Outliers Report - No Field Parameters**
**Comparison: All Historical Data**
Laboratory: ALS Laboratory Group
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0267 | 0001 | 02/12/2013 | Silicon | 12 | | F | 11 | | F | 9.1 | | F | 17 | 0 | No |
| TUB01 | 0268 | N002 | 02/13/2013 | Chloride | 24 | | F | 23.6 | | F | 10 | | F | 25 | 0 | No |
| TUB01 | 0268 | N002 | 02/13/2013 | Selenium | 0.0031 | | F | 0.00246 | B | F | 0.0012 | | F | 28 | 0 | Yes |
| TUB01 | 0268 | N001 | 02/13/2013 | Selenium | 0.0028 | | F | 0.00246 | B | F | 0.0012 | | F | 28 | 0 | Yes |
| TUB01 | 0268 | N002 | 02/13/2013 | Silicon | 6.1 | | F | 5.7 | | F | 4 | | F | 18 | 0 | Yes |
| TUB01 | 0268 | N001 | 02/13/2013 | Silicon | 6.3 | | F | 5.7 | | F | 4 | | F | 18 | 0 | Yes |
| TUB01 | 0268 | N002 | 02/13/2013 | Sulfate | 370 | | F | 363 | | F | 15 | | | 28 | 0 | No |
| TUB01 | 0268 | N002 | 02/13/2013 | Total Dissolved Solids | 970 | | F | 914 | | F | 140 | | | 25 | 0 | Yes |
| TUB01 | 0268 | N001 | 02/13/2013 | Total Dissolved Solids | 960 | | F | 914 | | F | 140 | | | 25 | 0 | Yes |
| TUB01 | 0275 | N001 | 02/12/2013 | Silicon | 8.4 | | FJ | 8.1 | | F | 3 | | F | 14 | 0 | No |
| TUB01 | 0281 | 0001 | 02/12/2013 | Chloride | 19 | | FQ | 30 | | FQ | 21 | | F | 17 | 0 | No |
| TUB01 | 0281 | 0001 | 02/12/2013 | Manganese | 0.008 | | JFQ | 0.14 | | FQ | 0.01 | | FQ | 17 | 0 | No |
| TUB01 | 0281 | 0001 | 02/12/2013 | Sodium | 12 | | JFQ | 30 | | FQ | 14 | | FQ | 17 | 0 | No |
| TUB01 | 0281 | 0001 | 02/12/2013 | Uranium | 0.0054 | | FQ | 0.00875 | | QF | 0.0055 | | FQ | 17 | 0 | No |
| TUB01 | 0286 | N001 | 02/12/2013 | Arsenic | 0.0024 | | FQ | 0.002 | | FQ | 0.00041 | | F | 10 | 2 | No |
| TUB01 | 0286 | N001 | 02/12/2013 | Silicon | 8.5 | | FQ | 8.4 | | FQ | 5.7 | | FQ | 8 | 0 | No |
| TUB01 | 0287 | N001 | 02/12/2013 | Molybdenum | 0.14 | | FQ | 0.134 | | QF | 0.023 | | FQ | 10 | 0 | No |

**Data Validation Outliers Report - No Field Parameters**
**Comparison: All Historical Data**
Laboratory: ALS Laboratory Group
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0287 | N001 | 02/12/2013 | Silicon | 8.5 | | FQ | 8.2 | | FQ | 7.2 | | FQ | 8 | 0 | No |
| TUB01 | 0287 | N001 | 02/12/2013 | Sodium | 360 | | JFQ | 340 | | FQ | 170 | | FQ | 10 | 0 | No |
| TUB01 | 0287 | N001 | 02/12/2013 | Sulfate | 1900 | | FQ | 1800 | | FQJ | 1200 | | FQ | 10 | 0 | No |
| TUB01 | 0287 | N001 | 02/12/2013 | Uranium | 0.27 | | FQ | 0.24 | | FQ | 0.17 | | FQ | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | Magnesium | 32 | | FQ | 63 | | FQ | 33.3 | | QF | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | Sodium | 37 | | JFQ | 74 | | FQ | 39 | | FQ | 10 | 0 | No |
| TUB01 | 0290 | 0001 | 02/13/2013 | Potassium | 4.2 | | FQ | 4 | | FQ | 1.1 | | FQJ | 10 | 0 | No |
| TUB01 | 0290 | 0001 | 02/13/2013 | Silicon | 7.4 | | FQ | 7.2 | | FQ | 5.4 | | FQ | 8 | 0 | No |
| TUB01 | 0290 | 0001 | 02/13/2013 | Sodium | 61 | | JFQ | 57 | | FQ | 13 | | FQ | 10 | 0 | No |
| TUB01 | 0290 | 0001 | 02/13/2013 | Sulfate | 580 | | FQ | 550 | | FQ | 19 | | FQ | 10 | 0 | No |
| TUB01 | 0290 | 0001 | 02/13/2013 | Uranium | 0.055 | | FQ | 0.05 | | FQ | 0.0014 | | FQ | 10 | 0 | No |
| TUB01 | 0691 | N001 | 02/12/2013 | Calcium | 360 | | F | 353 | | F | 81 | | F | 27 | 0 | No |
| TUB01 | 0691 | N001 | 02/12/2013 | Sulfate | 640 | | F | 638 | | F | 91 | | F | 30 | 0 | No |
| TUB01 | 0691 | N001 | 02/12/2013 | Uranium | 0.077 | | F | 0.071 | | F | 0.0083 | | FQ | 30 | 0 | No |
| TUB01 | 0908 | N001 | 02/12/2013 | Molybdenum | 0.00014 | | FQ | 0.12 | | | 0.00028 | B | QF | 51 | 36 | No |
| TUB01 | 0930 | N001 | 02/12/2013 | Calcium | 100 | | F | 85 | | F | 49 | | F | 27 | 0 | Yes |
| TUB01 | 0930 | N001 | 02/12/2013 | Magnesium | 21 | | F | 18 | | F | 10 | | F | 27 | 0 | Yes |

**Data Validation Outliers Report - No Field Parameters**
**Comparison: All Historical Data**
Laboratory: ALS Laboratory Group
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0930 | N001 | 02/12/2013 | Nitrate + Nitrite as Nitrogen | 25 | | F | 23 | | F | 1.5 | | F | 18 | 0 | No |
| TUB01 | 0930 | N001 | 02/12/2013 | Sulfate | 140 | | F | 110 | | F | 40 | | | 31 | 0 | Yes |
| TUB01 | 0930 | N001 | 02/12/2013 | Total Dissolved Solids | 500 | | F | 450 | | F | 230 | | F | 27 | 0 | Yes |
| TUB01 | 0930 | N001 | 02/12/2013 | Uranium | 0.0054 | | F | 0.00475 | | F | 0.0019 | | | 31 | 0 | No |
| TUB01 | 0934 | N001 | 02/12/2013 | Nitrate + Nitrite as Nitrogen | 350 | | FQ | 520 | | FQJ | 357 | | QF | 20 | 0 | No |
| TUB01 | 0935 | N001 | 02/13/2013 | Manganese | 0.94 | | J | 0.79 | | | 0.264 | | F | 32 | 0 | No |
| TUB01 | 0938 | N001 | 02/13/2013 | Ammonia Total as N | 4.1 | | | 2.83 | | F | 0.1 | U | F | 14 | 9 | No |
| TUB01 | 0938 | N001 | 02/13/2013 | Selenium | 0.083 | | | 0.0767 | | | 0.028 | | | 21 | 0 | No |
| TUB01 | 0938 | N001 | 02/13/2013 | Sodium | 380 | | J | 352 | | F | 120 | | | 21 | 0 | No |
| TUB01 | 0938 | N001 | 02/13/2013 | Sulfate | 3100 | | | 2800 | | | 950 | | F | 21 | 0 | No |
| TUB01 | 0940 | N001 | 02/12/2013 | Ammonia Total as N | 74 | | F | 42 | | FQJ | 0.1 | U | FQ | 5 | 1 | No |
| TUB01 | 0940 | N001 | 02/12/2013 | Molybdenum | 0.00057 | | F | 0.01 | U | F | 0.0011 | B | L | 23 | 9 | No |
| TUB01 | 0940 | N001 | 02/12/2013 | Nitrate + Nitrite as Nitrogen | 340 | | F | 496 | | FQ | 420 | | FQJ | 5 | 0 | No |
| TUB01 | 0941 | N001 | 02/12/2013 | Calcium | 1000 | | FQ | 960 | | FQ | 122 | | F | 32 | 0 | No |
| TUB01 | 0941 | N001 | 02/12/2013 | Magnesium | 170 | | FQ | 150 | | FQ | 28.3 | | F | 32 | 0 | No |
| TUB01 | 0941 | N001 | 02/12/2013 | Silica | 19 | | FQ | 18.4 | | FQ | 14 | | FQ | 26 | 0 | Yes |
| TUB01 | 0941 | N001 | 02/12/2013 | Silicon | 8.9 | | FQ | 8 | | FQ | 6.4 | | FQ | 14 | 0 | Yes |

**Data Validation Outliers Report - No Field Parameters**
**Comparison: All Historical Data**
Laboratory: ALS Laboratory Group
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0941 | N001 | 02/12/2013 | Sulfate | 1700 | | FQ | 1600 | | FQJ | 225 | | | 36 | 0 | No |
| TUB01 | 0942 | N001 | 02/13/2013 | Arsenic | 0.0044 | | | 0.00429 | B | | 0.0013 | | F | 21 | 0 | No |
| TUB01 | 0942 | N001 | 02/13/2013 | Molybdenum | 0.0046 | | | 0.0794 | | F | 0.0051 | | | 37 | 0 | No |
| TUB01 | 1569 | N002 | 02/13/2013 | Arsenic | 0.023 | | J | 3.4 | | | 0.041 | | | 21 | 0 | No |
| TUB01 | 1569 | N001 | 02/13/2013 | Arsenic | 0.017 | | J | 3.4 | | | 0.041 | | | 21 | 0 | No |
| TUB01 | 1569 | N001 | 02/13/2013 | Nitrate + Nitrite as Nitrogen | 1200 | | | 17000 | | | 2900 | | | 18 | 0 | No |
| TUB01 | 1569 | N002 | 02/13/2013 | Nitrate + Nitrite as Nitrogen | 1300 | | | 17000 | | | 2900 | | | 18 | 0 | No |

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

**Data Validation Outliers Report - Field Parameters Only**
**Comparison: All Historical Data**
Laboratory: Field Measurements
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0258 | N001 | 02/13/2013 | Alkalinity, Total (as $CaCO_3$) | 80 | | FQ | 107 | | FQ | 83 | | FQ | 18 | 0 | No |
| TUB01 | 0258 | N001 | 02/13/2013 | Turbidity | 9.3 | | FQ | 8.83 | | FQ | 0.69 | | FQ | 17 | 0 | No |
| TUB01 | 0262 | N001 | 02/13/2013 | Turbidity | 28.3 | | FQ | 9.34 | | FQ | 0.47 | | FQ | 18 | 0 | No |
| TUB01 | 0264 | N001 | 02/12/2013 | Temperature | 13.7 | | FQ | 21.8 | | | 14.05 | | FQ | 19 | 0 | No |
| TUB01 | 0267 | 0001 | 02/12/2013 | Alkalinity, Total (As $CaCO_3$) | 640 | | F | 1142 | | | 734 | | F | 27 | 0 | No |
| TUB01 | 0268 | N001 | 02/13/2013 | pH | 6.92 | | F | 8.05 | | | 6.94 | | F | 26 | 0 | No |
| TUB01 | 0272 | N001 | 02/13/2013 | pH | 7.35 | | F | 8.16 | | F | 7.47 | | F | 16 | 0 | No |
| TUB01 | 0275 | N001 | 02/12/2013 | Alkalinity, Total (As $CaCO_3$) | 475 | | F | 670 | | F | 482 | | F | 16 | 0 | No |
| TUB01 | 0275 | N001 | 02/12/2013 | pH | 6.63 | | F | 6.57 | | F | 6.26 | | F | 16 | 0 | No |
| TUB01 | 0281 | N001 | 02/12/2013 | Turbidity | 480 | | FQ | 25.4 | | FQ | 2.89 | | FQ | 15 | 0 | Yes |
| TUB01 | 0288 | N001 | 02/12/2013 | Alkalinity, Total (As $CaCO_3$) | 186 | | FQ | 336 | | FQ | 240 | | FQ | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | pH | 7.11 | | FQ | 6.96 | | FQ | 6.58 | | FQ | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | Specific Conductance | 1312 | | FQ | 2432 | | FQ | 1339 | | FQ | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | Temperature | 12.54 | | FQ | 18.64 | | FQ | 13.6 | | FQ | 10 | 0 | No |
| TUB01 | 0288 | N001 | 02/12/2013 | Turbidity | 8.68 | | FQ | 7.53 | | FQ | 1.81 | | FQ | 10 | 0 | Yes |
| TUB01 | 0289 | N001 | 02/12/2013 | Alkalinity, Total (As $CaCO_3$) | 168 | | FQ | 268 | | FQ | 185 | | FQ | 10 | 0 | No |
| TUB01 | 0289 | N001 | 02/12/2013 | pH | 7.31 | | FQ | 7.19 | | FQ | 6.88 | | FQ | 10 | 0 | No |

**Data Validation Outliers Report - Field Parameters Only**
**Comparison: All Historical Data**
Laboratory: Field Measurements
RIN: 13025097
Report Date: 4/5/2013

| 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 | |
| TUB01 | 0290 | N001 | 02/13/2013 | pH | 6.87 | | FQ | 8.35 | | FQ | 6.93 | | FQ | 10 | 0 | No |
| TUB01 | 0290 | N001 | 02/13/2013 | Turbidity | 38.2 | | FQ | 24.2 | | FQ | 3.43 | | FQ | 9 | 0 | No |
| TUB01 | 0930 | N001 | 02/12/2013 | Alkalinity, Total (As $CaCO_3$) | 75 | | F | 130 | | F | 81 | | | 32 | 0 | No |
| TUB01 | 0930 | N001 | 02/12/2013 | Specific Conductance | 725 | | F | 636 | | F | 293 | | F | 28 | 0 | Yes |
| TUB01 | 0940 | N001 | 02/12/2013 | pH | 6.72 | | F | 6.59 | | FQ | 5.48 | | L | 21 | 0 | No |
| TUB01 | 0941 | N001 | 02/12/2013 | Specific Conductance | 5401 | | FQ | 5100 | | QF | 1130 | | | 32 | 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.

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# Attachment 2
# Data Presentation

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# Groundwater Quality Data

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**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0251 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 | 02/12/2013 | N001 | 200 - 300 | 78 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.0026 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 200 - 300 | 27 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 200 - 300 | 6.5 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.024 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 200 - 300 | 5.7 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.014 | E | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.00023 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 200 - 300 | 3.5 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 200 - 300 | 90 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 200 - 300 | 7.94 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 200 - 300 | 1.8 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 200 - 300 | 0.00092 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 200 - 300 | 10 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 200 - 300 | 4.9 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 200 - 300 | 5.2 | E | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 200 - 300 | 230 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0251 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 200 | - | 300 | 13 | | FQ | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 200 | - | 300 | 16 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 200 | - | 300 | 140 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 200 | - | 300 | 2.2 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 200 | - | 300 | 0.0016 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0252 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3 ) | mg/L | 02/12/2013 | N001 | 400 - 500 | 67 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.0027 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 400 - 500 | 21 | | F | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 400 - 500 | 4.7 | | F | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.011 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 400 - 500 | 4.1 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.0071 | | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.00016 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 400 - 500 | 2.4 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 400 - 500 | 90 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 400 - 500 | 8.05 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 400 - 500 | 1.8 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 400 - 500 | 0.00072 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 400 - 500 | 10 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 400 - 500 | 4.8 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 400 - 500 | 8.6 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 400 - 500 | 210 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0252 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 400 | - | 500 | 7.1 | | F | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 400 | - | 500 | 15.6 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 400 | - | 500 | 120 | | F | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 400 | - | 500 | 1.33 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 400 | - | 500 | 0.002 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0258 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 | 02/13/2013 | N001 | 159 - 199 | 80 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.0028 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 159 - 199 | 33 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 159 - 199 | 12 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.14 | | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 159 - 199 | 7.2 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.002 | B | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.00054 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 159 - 199 | 3.4 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 159 - 199 | 180 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 159 - 199 | 7.81 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 159 - 199 | 1.4 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.0016 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 159 - 199 | 13 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 159 - 199 | 6 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 159 - 199 | 10 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 159 - 199 | 330 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0258 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 159 - 199 | 19 | | FQ | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 159 - 199 | 14.4 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 159 - 199 | 180 | | FQ | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 159 - 199 | 9.3 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 159 - 199 | 0.0014 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0262 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 | 02/13/2013 | 0001 | 60 - 100 | 240 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.0018 | | FQ | # | 0.00015 | |
| Calcium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 790 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/13/2013 | 0001 | 60 - 100 | 100 | | FQ | # | 10 | |
| Iron | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.025 | U | FQ | # | 0.025 | |
| Magnesium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 180 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.00057 | U | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.94 | | FQ | # | 0.00032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | 0001 | 60 - 100 | 180 | | FQ | # | 1 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 60 - 100 | 240 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 60 - 100 | 6.73 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 5.8 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.11 | | FQ | # | 0.00032 | |
| Silica | mg/L | 02/13/2013 | 0001 | 60 - 100 | 16 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/13/2013 | 0001 | 60 - 100 | 7.3 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 210 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 60 - 100 | 4380 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0262 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | 0001 | 60 - 100 | 2200 | | FQ | # | 25 | |
| Temperature | C | 02/13/2013 | N001 | 60 - 100 | 14.3 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | 0001 | 60 - 100 | 4600 | | FQ | # | 80 | |
| Turbidity | NTU | 02/13/2013 | N001 | 60 - 100 | 28.3 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | 0001 | 60 - 100 | 0.88 | | FQ | # | 0.000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0263 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 | 02/12/2013 | N001 | 60 - 100 | 559 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.003 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 60 - 100 | 630 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 60 - 100 | 110 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.036 | B | UFQ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 60 - 100 | 530 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.00057 | U | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.048 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 60 - 100 | 230 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 60 - 100 | 98.7 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 60 - 100 | 6.81 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 60 - 100 | 6.4 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.048 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 60 - 100 | 21 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 60 - 100 | 9.6 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 60 - 100 | 330 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 60 - 100 | 6126 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0263 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 60 | - | 100 | 2900 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 60 | - | 100 | 15.08 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 60 | - | 100 | 6000 | | FQ | # | 80 | |
| Turbidity | NTU | 02/12/2013 | N001 | 60 | - | 100 | 6.84 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 60 | - | 100 | 0.26 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0264 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 | 02/12/2013 | N001 | 160 - 200 | 109 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0023 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 160 - 200 | 69 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 160 - 200 | 15 | | FQ | # | 0.4 | |
| Iron | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 160 - 200 | 14 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.00011 | U | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.00042 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 160 - 200 | 11 | | FQ | # | 0.1 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 160 - 200 | 75.1 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 160 - 200 | 7.9 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 160 - 200 | 1.8 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0022 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 160 - 200 | 13 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 160 - 200 | 6.2 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 160 - 200 | 15 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 160 - 200 | 547 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0264 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 160 - 200 | 96 | | FQ | # | 1 | |
| Temperature | C | 02/12/2013 | N001 | 160 - 200 | 13.7 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 160 - 200 | 340 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 160 - 200 | 2.99 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0043 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0265 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 | 02/12/2013 | N001 | 60 - 100 | 320 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.0013 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 60 - 100 | 550 | | F | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 60 - 100 | 120 | | F | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 60 - 100 | 180 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.000086 | B | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 60 - 100 | 190 | | F | # | 1 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 60 - 100 | 110 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 60 - 100 | 6.75 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 60 - 100 | 5.8 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.0075 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 60 - 100 | 16 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 60 - 100 | 7.3 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 60 - 100 | 110 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 60 - 100 | 3380 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0265 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 60 - 100 | 1200 | | F | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 60 - 100 | 15.5 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 60 - 100 | 3200 | | F | # | 80 | |
| Turbidity | NTU | 02/12/2013 | N001 | 60 - 100 | 1.22 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 60 - 100 | 0.062 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0266 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 | 02/12/2013 | N001 | 160 - 200 | 64 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.002 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 160 - 200 | 28 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 160 - 200 | 7.7 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.1 | | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 160 - 200 | 7.1 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0021 | B | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.00026 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 160 - 200 | 3.4 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 160 - 200 | 93 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 160 - 200 | 8 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 160 - 200 | 1.8 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.001 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 160 - 200 | 12 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 160 - 200 | 5.8 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 160 - 200 | 5.1 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 160 - 200 | 250 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0266 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 160 - 200 | 12 | | FQ | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 160 - 200 | 15.1 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 160 - 200 | 120 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 160 - 200 | 5.34 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 160 - 200 | 0.0017 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0267 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 | 02/12/2013 | 0001 | 60 - 100 | 640 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.004 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 620 | | F | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | 0001 | 60 - 100 | 110 | | F | # | 20 | |
| Iron | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.025 | U | F | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 770 | | F | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.026 | | JF | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.000093 | B | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | 0001 | 60 - 100 | 300 | | F | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 60 - 100 | 130 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 60 - 100 | 6.4 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 8.9 | | F | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.054 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | 0001 | 60 - 100 | 25 | | F | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | 0001 | 60 - 100 | 12 | | F | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 400 | | JF | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 60 - 100 | 6780 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0267 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | 0001 | 60 - 100 | 3500 | | F | # | 50 | |
| Temperature | C | 02/12/2013 | N001 | 60 - 100 | 15.5 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | 0001 | 60 - 100 | 7400 | | F | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 60 - 100 | 23.5 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | 0001 | 60 - 100 | 0.071 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0268 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 | 02/13/2013 | N001 | 200 - 300 | 200 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.1 | U | F | # | 0.1 | |
| Ammonia Total as N | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.0012 | | JF | # | 0.000015 | |
| Arsenic | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.0013 | E | JF | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 200 - 300 | 200 | | F | # | 0.012 | |
| Calcium | mg/L | 02/13/2013 | N002 | 200 - 300 | 190 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 200 - 300 | 23 | | F | # | 4 | |
| Chloride | mg/L | 02/13/2013 | N002 | 200 - 300 | 24 | | F | # | 2 | |
| Iron | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.013 | B | UF | # | 0.0049 | |
| Iron | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.016 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 200 - 300 | 36 | | F | # | 0.013 | |
| Magnesium | mg/L | 02/13/2013 | N002 | 200 - 300 | 35 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.00059 | B | JF | # | 0.00011 | |
| Manganese | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.0031 | B | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.00031 | | F | # | 0.000032 | |
| Molybdenum | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.00036 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 200 - 300 | 40 | | F | # | 0.5 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0268 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N002 | 200 - 300 | 39 | | F | # | 0.2 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 200 - 300 | 145 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 200 - 300 | 6.92 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 200 - 300 | 3.5 | | F | # | 0.11 | |
| Potassium | mg/L | 02/13/2013 | N002 | 200 - 300 | 3.4 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.0028 | | F | # | 0.000032 | |
| Selenium | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.0031 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 200 - 300 | 13 | | F | # | 0.0095 | |
| Silica | mg/L | 02/13/2013 | N002 | 200 - 300 | 13 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 200 - 300 | 6.3 | | F | # | 0.0044 | |
| Silicon | mg/L | 02/13/2013 | N002 | 200 - 300 | 6.1 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 200 - 300 | 33 | | JF | # | 0.0066 | |
| Sodium | mg/L | 02/13/2013 | N002 | 200 - 300 | 33 | E | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 200 - 300 | 1260 | | F | # | | |
| Sulfate | mg/L | 02/13/2013 | N001 | 200 - 300 | 360 | | F | # | 10 | |
| Sulfate | mg/L | 02/13/2013 | N002 | 200 - 300 | 370 | | F | # | 5 | |
| Temperature | C | 02/13/2013 | N001 | 200 - 300 | 16.1 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 200 - 300 | 960 | | F | # | 40 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0268 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 02/13/2013 | N002 | 200 - 300 | 970 | | F | # | 40 | |
| Turbidity | NTU | 02/13/2013 | N001 | 200 - 300 | 1.9 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 200 - 300 | 0.082 | | F | # | 0.0000029 | |
| Uranium | mg/L | 02/13/2013 | N002 | 200 - 300 | 0.08 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0272 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 | 02/13/2013 | N001 | 159.1 - 179.1 | 94 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.002 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 8.2 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 7 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.00018 | B | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.00024 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 3.9 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 159.1 - 179.1 | 190 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 159.1 - 179.1 | 7.35 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 1.2 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.0011 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 12 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 5.5 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 5.7 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 159.1 - 179.1 | 275 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0272 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 13 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 159.1 - 179.1 | 15.4 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 150 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 159.1 - 179.1 | 1.25 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 159.1 - 179.1 | 0.0015 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0273 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 | 02/12/2013 | N001 | 153 - 173 | 149 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.0014 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 153 - 173 | 150 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 153 - 173 | 39 | | FQ | # | 2 | |
| Iron | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.0073 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 153 - 173 | 28 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.00011 | U | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.023 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 153 - 173 | 43 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 153 - 173 | 104.7 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 153 - 173 | 7.5 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 153 - 173 | 2.5 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.017 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 153 - 173 | 14 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 153 - 173 | 6.4 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 153 - 173 | 28 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 153 - 173 | 1085 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0273 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 153 - 173 | 190 | | FQ | # | 5 | |
| Temperature | C | 02/12/2013 | N001 | 153 - 173 | 14.38 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 153 - 173 | 740 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 153 - 173 | 2.77 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 153 - 173 | 0.044 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0274 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 | 02/12/2013 | N001 | 149 - 169 | 86 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.0025 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 149 - 169 | 34 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 149 - 169 | 11 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.017 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 149 - 169 | 6.6 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.00059 | B | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.0004 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 149 - 169 | 3.5 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 149 - 169 | 80.5 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 149 - 169 | 7.99 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 149 - 169 | 1.1 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.0014 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 149 - 169 | 12 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 149 - 169 | 5.4 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 149 - 169 | 9.7 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 149 - 169 | 286 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0274 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 149 - 169 | 17 | | FQ | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 149 - 169 | 14.73 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 149 - 169 | 160 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 149 - 169 | 2.58 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 149 - 169 | 0.0017 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0275 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 | 02/12/2013 | N001 | 158.2 - 178.2 | 475 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 28 | | FJ | # | 1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 0.001 | | FJ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 720 | | FJ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 150 | | FJ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 0.068 | B | UFJ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 320 | | FJ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 9.6 | | JF | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 0.00028 | | FJ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 240 | | FJ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 158.2 - 178.2 | 105.2 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 158.2 - 178.2 | 6.63 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 16 | | FJ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 0.036 | | FJ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 18 | | FJ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 8.4 | | FJ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 300 | | JF | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 158.2 - 178.2 | 5774 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0275 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 2400 | | FJ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 158.2 - 178.2 | 14.55 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 5400 | | FJ | # | 80 | |
| Turbidity | NTU | 02/12/2013 | N001 | 158.2 - 178.2 | 0.99 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 158.2 - 178.2 | 0.42 | | FJ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0276 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 | 02/12/2013 | N001 | 154.5 - 174.5 | 93 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.003 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 34 | | F | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 12 | | F | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.013 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 6.6 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.00075 | B | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.00047 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 3.3 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 154.5 - 174.5 | 64.3 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 154.5 - 174.5 | 7.97 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 1.1 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.0017 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 12 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 5.5 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 11 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 154.5 - 174.5 | 294 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0276 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 19 | | F | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 154.5 - 174.5 | 15.12 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 160 | | F | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 154.5 - 174.5 | 2.63 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 154.5 - 174.5 | 0.0017 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0281 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 | 02/12/2013 | 0001 | 70.5 - 80.5 | 110 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.00061 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 87 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 19 | | FQ | # | 1 | |
| Iron | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.022 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 16 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.008 | | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.00076 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 24 | | FQ | # | 0.2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 70.5 - 80.5 | 110 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 70.5 - 80.5 | 7.4 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 1.6 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 0.0018 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 14 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 6.6 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | 0001 | 70.5 - 80.5 | 12 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 70.5 - 80.5 | 680 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0281 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | 0001 | 70.5 | - | 80.5 | 99 | | FQ | # | 2.5 | |
| Temperature | C | 02/12/2013 | N001 | 70.5 | - | 80.5 | 15.2 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | 0001 | 70.5 | - | 80.5 | 430 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 70.5 | - | 80.5 | 480 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | 0001 | 70.5 | - | 80.5 | 0.0054 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0282 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 | 02/12/2013 | N001 | 74.1 - 84.1 | 124 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.00019 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 140 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 48 | | FQ | # | 1 | |
| Iron | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.034 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 27 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.0015 | B | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.00031 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 47 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 74.1 - 84.1 | 110 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 74.1 - 84.1 | 7.52 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 2.3 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 0.0017 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 14 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 6.7 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 74.1 - 84.1 | 16 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 74.1 - 84.1 | 965 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0282 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 74.1 | - | 84.1 | 150 | | FQ | # | 2.5 | |
| Temperature | C | 02/12/2013 | N001 | 74.1 | - | 84.1 | 15.6 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 74.1 | - | 84.1 | 700 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 74.1 | - | 84.1 | 4.51 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 74.1 | - | 84.1 | 0.008 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0286 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 | 02/12/2013 | N001 | 93.2 - 103.2 | 593 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 7.8 | | FQ | # | 0.2 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 0.0024 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 670 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 110 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 0.13 | B | UFQ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 550 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 4.4 | | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 0.0006 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 220 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 93.2 - 103.2 | 131.8 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 93.2 - 103.2 | 6.68 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 12 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 0.039 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 18 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 8.5 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 270 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 93.2 - 103.2 | 6843 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0286 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 3100 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 93.2 - 103.2 | 15.5 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 6200 | | FQ | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 93.2 - 103.2 | 5.04 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 93.2 - 103.2 | 0.4 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0287 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 | 02/12/2013 | N001 | 100.7 - 110.7 | 544 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.38 | | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.002 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 910 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 230 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.025 | U | FQ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 150 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.0074 | B | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.14 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 260 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 100.7 - 110.7 | 146.7 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 100.7 - 110.7 | 6.73 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 6.6 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.098 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 18 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 8.5 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 360 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 100.7 - 110.7 | 5698 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0287 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 1900 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 100.7 - 110.7 | 14.87 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 5200 | | FQ | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 100.7 - 110.7 | 5.38 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 100.7 - 110.7 | 0.27 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0288 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 | 02/12/2013 | N001 | 104 - 114 | 186 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.00069 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 104 - 114 | 170 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 104 - 114 | 21 | | FQ | # | 2 | |
| Iron | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.041 | B | UFQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 104 - 114 | 32 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.00079 | B | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.00015 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 104 - 114 | 54 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 104 - 114 | 212.4 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 104 - 114 | 7.11 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 104 - 114 | 3.1 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.0024 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 104 - 114 | 15 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 104 - 114 | 7 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 104 - 114 | 37 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 104 - 114 | 1312 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0288 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 104 - 114 | 250 | | FQ | # | 5 | |
| Temperature | C | 02/12/2013 | N001 | 104 - 114 | 12.54 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 104 - 114 | 870 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 104 - 114 | 8.68 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 104 - 114 | 0.011 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0289 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 | 02/12/2013 | N001 | 148.3 - 158.3 | 168 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.001 | E | JFQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 140 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 18 | | FQ | # | 1 | |
| Iron | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 25 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.0086 | E | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.00049 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 27 | | FQ | # | 0.2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 148.3 - 158.3 | 162.7 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 148.3 - 158.3 | 7.31 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 2.7 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.0019 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 15 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 6.9 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 26 | E | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 148.3 - 158.3 | 1037 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0289 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 140 | | FQ | # | 2.5 | |
| Temperature | C | 02/12/2013 | N001 | 148.3 - 158.3 | 14.17 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 600 | | FQ | # | 40 | |
| Turbidity | NTU | 02/12/2013 | N001 | 148.3 - 158.3 | 1.26 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 148.3 - 158.3 | 0.013 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0290 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 | 02/13/2013 | 0001 | 102.7 - 112.7 | 185 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.0014 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 310 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 56 | | FQ | # | 4 | |
| Iron | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 47 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.00011 | U | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.00019 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 70 | | FQ | # | 0.5 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 102.7 - 112.7 | 170 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 102.7 - 112.7 | 6.87 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 4.2 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.01 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 16 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 7.4 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 61 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 102.7 - 112.7 | 1800 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0290 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 580 | | FQ | # | 10 | |
| Temperature | C | 02/13/2013 | N001 | 102.7 - 112.7 | 15.3 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 1600 | | FQ | # | 40 | |
| Turbidity | NTU | 02/13/2013 | N001 | 102.7 - 112.7 | 38.2 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | 0001 | 102.7 - 112.7 | 0.055 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0691 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 | 02/12/2013 | N001 | 55 - 95 | 196 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.0014 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 55 - 95 | 360 | | F | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 55 - 95 | 54 | | F | # | 4 | |
| Iron | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.051 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 55 - 95 | 54 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.25 | | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.0004 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 55 - 95 | 73 | | F | # | 0.5 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 55 - 95 | 130 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 55 - 95 | 7 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 55 - 95 | 4.3 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.0044 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 55 - 95 | 16 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 55 - 95 | 7.3 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 55 - 95 | 44 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 55 - 95 | 1865 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0691 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 55 - 95 | 640 | | F | # | 10 | |
| Temperature | C | 02/12/2013 | N001 | 55 - 95 | 15.2 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 55 - 95 | 1700 | | F | # | 40 | |
| Turbidity | NTU | 02/12/2013 | N001 | 55 - 95 | 5.67 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 55 - 95 | 0.077 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0906 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 | 02/13/2013 | N001 | 44 - 64 | 744 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.0014 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 44 - 64 | 970 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/13/2013 | N001 | 44 - 64 | 160 | | FQ | # | 10 | |
| Iron | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.025 | U | FQ | # | 0.025 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 44 - 64 | 350 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.033 | | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.0017 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 44 - 64 | 460 | | FQ | # | 5 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 44 - 64 | 250 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 44 - 64 | 6.42 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 44 - 64 | 8.3 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.034 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 44 - 64 | 15 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/13/2013 | N001 | 44 - 64 | 7.1 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/13/2013 | N001 | 44 - 64 | 370 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 44 - 64 | 7040 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0906 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 44 - 64 | 2100 | | FQ | # | 25 | |
| Temperature | C | 02/13/2013 | N001 | 44 - 64 | 16.5 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 44 - 64 | 6800 | | FQ | # | 200 | |
| Turbidity | NTU | 02/13/2013 | N001 | 44 - 64 | 6.64 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 44 - 64 | 0.46 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0908 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 | 02/12/2013 | N001 | 52 - 67 | 599 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 52 - 67 | 75 | | FQ | # | 2 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.0011 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 52 - 67 | 610 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 52 - 67 | 66 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.025 | U | FQ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 52 - 67 | 460 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.15 | | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.00014 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 52 - 67 | 190 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 52 - 67 | 113.7 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 52 - 67 | 6.76 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 52 - 67 | 24 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.022 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 52 - 67 | 20 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 52 - 67 | 9.5 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 52 - 67 | 280 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 52 - 67 | 6135 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0908 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 52 - 67 | 3000 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 52 - 67 | 14.72 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 52 - 67 | 5600 | | FQ | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 52 - 67 | 2.99 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 52 - 67 | 0.087 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0929 WELL No Log Information.

| 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 | 02/12/2013 | N001 | 48.2 - 88.2 | 90 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.0017 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 49 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 16 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 8.1 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.00011 | U | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.00029 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 14 | | FQ | # | 0.1 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 48.2 - 88.2 | 95 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 48.2 - 88.2 | 7.69 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 1.5 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 0.0023 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 12 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 5.8 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 48.2 - 88.2 | 10 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 48.2 - 88.2 | 400 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0929 WELL No Log Information.

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 48.2 | - | 88.2 | 27 | | FQ | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 48.2 | - | 88.2 | 15.5 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 48.2 | - | 88.2 | 240 | | FQ | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 48.2 | - | 88.2 | 2.13 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 48.2 | - | 88.2 | 0.0017 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0930 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 | 02/12/2013 | N001 | 20 - 50 | 75 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.0015 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 20 - 50 | 100 | | F | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 20 - 50 | 32 | | F | # | 1 | |
| Iron | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.01 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 20 - 50 | 21 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.00016 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 20 - 50 | 25 | | F | # | 0.2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 20 - 50 | 155 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 20 - 50 | 7.51 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 20 - 50 | 2.4 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.0023 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 20 - 50 | 14 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 20 - 50 | 6.4 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 20 - 50 | 14 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 20 - 50 | 725 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0930 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 20 - 50 | 140 | | F | # | 2.5 | |
| Temperature | C | 02/12/2013 | N001 | 20 - 50 | 15.1 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 20 - 50 | 500 | | F | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 20 - 50 | 1.83 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 20 - 50 | 0.0054 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0932 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 | 02/12/2013 | N001 | 112.5 - 132.5 | 130 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.0015 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 42 | | F | # | 0.012 | |
| Chloride | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 13 | | F | # | 0.2 | |
| Iron | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 8.3 | | F | # | 0.013 | |
| Manganese | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.00051 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 6.5 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 112.5 - 132.5 | 90 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 112.5 - 132.5 | 7.83 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 1.5 | | F | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.0015 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 12 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 5.4 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 12 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 112.5 - 132.5 | 370 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0932 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 34 | | F | # | 0.5 | |
| Temperature | C | 02/12/2013 | N001 | 112.5 - 132.5 | 16 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 210 | | F | # | 20 | |
| Turbidity | NTU | 02/12/2013 | N001 | 112.5 - 132.5 | 1.33 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 112.5 - 132.5 | 0.0018 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0934 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 | 02/12/2013 | N001 | 45 - 90 | 505 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.00066 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 45 - 90 | 740 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 45 - 90 | 230 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 45 - 90 | 750 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.0055 | | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.00054 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 45 - 90 | 350 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 45 - 90 | 125 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 45 - 90 | 6.54 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 45 - 90 | 9.8 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.0097 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 45 - 90 | 17 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/12/2013 | N001 | 45 - 90 | 7.9 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/12/2013 | N001 | 45 - 90 | 130 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 45 - 90 | 6350 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0934 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 45 - 90 | 3000 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 45 - 90 | 15.9 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 45 - 90 | 6800 | | FQ | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 45 - 90 | 2.51 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 45 - 90 | 0.15 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0935 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 | 02/13/2013 | N001 | 50 - 90 | 490 | | | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 50 - 90 | 42 | | | # | 1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.0027 | | | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 50 - 90 | 680 | | | # | 0.06 | |
| Chloride | mg/L | 02/13/2013 | N001 | 50 - 90 | 81 | | | # | 10 | |
| Iron | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.025 | U | | # | 0.025 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 50 - 90 | 320 | | | # | 0.065 | |
| Manganese | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.94 | | J | # | 0.00057 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.00062 | | | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 50 - 90 | 190 | | | # | 2 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 50 - 90 | 205 | | | # | | |
| pH | s.u. | 02/13/2013 | N001 | 50 - 90 | 6.78 | | | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 50 - 90 | 18 | | | # | 0.54 | |
| Selenium | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.012 | | | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 50 - 90 | 22 | | | # | 0.047 | |
| Silicon | mg/L | 02/13/2013 | N001 | 50 - 90 | 10 | | | # | 0.022 | |
| Sodium | mg/L | 02/13/2013 | N001 | 50 - 90 | 310 | | J | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 50 - 90 | 5070 | | | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0935 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 50 - 90 | 2600 | | | # | 25 | |
| Temperature | C | 02/13/2013 | N001 | 50 - 90 | 14.5 | | | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 50 - 90 | 5100 | | | # | 200 | |
| Turbidity | NTU | 02/13/2013 | N001 | 50 - 90 | 5.63 | | | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 50 - 90 | 0.14 | | | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0938 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 | 02/13/2013 | N001 | 40 - 95 | 698 | | | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 40 - 95 | 4.1 | | | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.0019 | | | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 40 - 95 | 890 | | | # | 0.06 | |
| Chloride | mg/L | 02/13/2013 | N001 | 40 - 95 | 180 | | | # | 10 | |
| Iron | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.025 | U | | # | 0.025 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 40 - 95 | 500 | | | # | 0.065 | |
| Manganese | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.64 | | J | # | 0.00057 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.0031 | | | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 40 - 95 | 320 | | | # | 2 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 40 - 95 | 180 | | | # | | |
| pH | s.u. | 02/13/2013 | N001 | 40 - 95 | 6.67 | | | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 40 - 95 | 12 | | | # | 0.54 | |
| Selenium | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.083 | | | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 40 - 95 | 16 | | | # | 0.047 | |
| Silicon | mg/L | 02/13/2013 | N001 | 40 - 95 | 7.7 | | | # | 0.022 | |
| Sodium | mg/L | 02/13/2013 | N001 | 40 - 95 | 380 | | J | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 40 - 95 | 6545 | | | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0938 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 40 - 95 | 3100 | | | # | 25 | |
| Temperature | C | 02/13/2013 | N001 | 40 - 95 | 16.5 | | | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 40 - 95 | 6800 | | | # | 200 | |
| Turbidity | NTU | 02/13/2013 | N001 | 40 - 95 | 2.67 | | | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 40 - 95 | 0.31 | | | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0940 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 | 02/12/2013 | N001 | 45 - 60 | 760 | | F | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 45 - 60 | 74 | | F | # | 2 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 45 - 60 | 0.0025 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 45 - 60 | 530 | | F | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 45 - 60 | 150 | | F | # | 20 | |
| Iron | mg/L | 02/12/2013 | N001 | 45 - 60 | 0.025 | U | F | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 45 - 60 | 1600 | | F | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 45 - 60 | 23 | | JF | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 45 - 60 | 0.00057 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 45 - 60 | 340 | | F | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 45 - 60 | 123.9 | | F | # | | |
| pH | s.u. | 02/12/2013 | N001 | 45 - 60 | 6.72 | | F | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 45 - 60 | 33 | | F | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 45 - 60 | 0.076 | | F | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 45 - 60 | 17 | | F | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 45 - 60 | 8.1 | | F | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 45 - 60 | 430 | | JF | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 45 - 60 | 10482 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0940 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | | | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 45 | - | 60 | 6700 | | F | # | 50 | |
| Temperature | C | 02/12/2013 | N001 | 45 | - | 60 | 15.63 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 45 | - | 60 | 11000 | | F | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 45 | - | 60 | 1.22 | | F | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 45 | - | 60 | 0.56 | | F | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0941 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 | 02/12/2013 | N001 | 45 - 65 | 595 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.002 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/12/2013 | N001 | 45 - 65 | 1000 | | FQ | # | 0.06 | |
| Chloride | mg/L | 02/12/2013 | N001 | 45 - 65 | 180 | | FQ | # | 10 | |
| Iron | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.025 | U | FQ | # | 0.025 | |
| Magnesium | mg/L | 02/12/2013 | N001 | 45 - 65 | 170 | | FQ | # | 0.065 | |
| Manganese | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.057 | | JFQ | # | 0.00057 | |
| Molybdenum | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.027 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/12/2013 | N001 | 45 - 65 | 270 | | FQ | # | 2 | |
| Oxidation Reduction Potential | mV | 02/12/2013 | N001 | 45 - 65 | 155.6 | | FQ | # | | |
| pH | s.u. | 02/12/2013 | N001 | 45 - 65 | 6.77 | | FQ | # | | |
| Potassium | mg/L | 02/12/2013 | N001 | 45 - 65 | 5.8 | | FQ | # | 0.54 | |
| Selenium | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.11 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/12/2013 | N001 | 45 - 65 | 19 | | FQ | # | 0.047 | |
| Silicon | mg/L | 02/12/2013 | N001 | 45 - 65 | 8.9 | | FQ | # | 0.022 | |
| Sodium | mg/L | 02/12/2013 | N001 | 45 - 65 | 210 | | JFQ | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/12/2013 | N001 | 45 - 65 | 5401 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0941 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/12/2013 | N001 | 45 - 65 | 1700 | | FQ | # | 25 | |
| Temperature | C | 02/12/2013 | N001 | 45 - 65 | 14.91 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/12/2013 | N001 | 45 - 65 | 5000 | | FQ | # | 200 | |
| Turbidity | NTU | 02/12/2013 | N001 | 45 - 65 | 8.6 | | FQ | # | | |
| Uranium | mg/L | 02/12/2013 | N001 | 45 - 65 | 0.25 | | FQ | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0942 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 | 02/13/2013 | N001 | 54 - 74 | 612 | | | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 54 - 74 | 89 | | | # | 2 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 54 - 74 | 0.0044 | | | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 54 - 74 | 620 | | | # | 0.06 | |
| Chloride | mg/L | 02/13/2013 | N001 | 54 - 74 | 170 | | | # | 10 | |
| Iron | mg/L | 02/13/2013 | N001 | 54 - 74 | 0.025 | U | | # | 0.025 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 54 - 74 | 440 | | | # | 0.065 | |
| Manganese | mg/L | 02/13/2013 | N001 | 54 - 74 | 4.4 | | J | # | 0.00057 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 54 - 74 | 0.0046 | | | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 54 - 74 | 190 | | | # | 2 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 54 - 74 | 195 | | | # | | |
| pH | s.u. | 02/13/2013 | N001 | 54 - 74 | 6.54 | | | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 54 - 74 | 23 | | | # | 0.54 | |
| Selenium | mg/L | 02/13/2013 | N001 | 54 - 74 | 0.055 | | | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 54 - 74 | 18 | | | # | 0.047 | |
| Silicon | mg/L | 02/13/2013 | N001 | 54 - 74 | 8.4 | | | # | 0.022 | |
| Sodium | mg/L | 02/13/2013 | N001 | 54 - 74 | 490 | | J | # | 0.033 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 54 - 74 | 6390 | | | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 0942 WELL

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 54 - 74 | 3600 | | | # | 25 | |
| Temperature | C | 02/13/2013 | N001 | 54 - 74 | 16 | | | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 54 - 74 | 6300 | | | # | 200 | |
| Turbidity | NTU | 02/13/2013 | N001 | 54 - 74 | 1.65 | | | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 54 - 74 | 0.54 | | | # | 0.00029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-1A WELL NAVAJO MONITORING WELL NMW-1A; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 167.5 - 187.5 | 83 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.1 | U | F | # | 0.1 | |
| Ammonia Total as N | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.0025 | | F | # | 0.000015 | |
| Arsenic | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.0026 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 33 | | F | # | 0.012 | |
| Calcium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 9.9 | | F | # | 0.2 | |
| Chloride | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 9.9 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.0049 | U | F | # | 0.0049 | |
| Iron | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 6.2 | | F | # | 0.013 | |
| Magnesium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 6.7 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.0055 | | JF | # | 0.00011 | |
| Manganese | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.014 | | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.00039 | | F | # | 0.000032 | |
| Molybdenum | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.00043 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 3.5 | | F | # | 0.05 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-1A WELL NAVAJO MONITORING WELL NMW-1A; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 3.5 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 167.5 - 187.5 | 52.7 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 167.5 - 187.5 | 7.97 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 1.1 | | F | # | 0.11 | |
| Potassium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 1.2 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.0013 | | F | # | 0.000032 | |
| Selenium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.0013 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 11 | | F | # | 0.0095 | |
| Silica | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 11 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 5.2 | | F | # | 0.0044 | |
| Silicon | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 5.2 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 11 | | JF | # | 0.0066 | |
| Sodium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 14 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 167.5 - 187.5 | 270 | | F | # | | |
| Sulfate | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 14 | | F | # | 0.5 | |
| Sulfate | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 14 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 167.5 - 187.5 | 14.98 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 160 | | F | # | 20 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-1A WELL NAVAJO MONITORING WELL NMW-1A; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 160 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 167.5 - 187.5 | 0.97 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 167.5 - 187.5 | 0.0016 | | F | # | 0.0000029 | |
| Uranium | mg/L | 02/13/2013 | N002 | 167.5 - 187.5 | 0.0019 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-2A WELL NAVAJO MONITORING WELL NMW-2A; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 140.46 - 160.46 | 83 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.0022 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 9.5 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 5.7 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.0013 | B | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.00048 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 3.4 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 140.46 - 160.46 | 75.4 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 140.46 - 160.46 | 7.9 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 1 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.0012 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 11 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 5.3 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 10 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 140.46 - 160.46 | 269 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-2A WELL NAVAJO MONITORING WELL NMW-2A; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 14 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 140.46 - 160.46 | 11.79 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 150 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 140.46 - 160.46 | 1.91 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 140.46 - 160.46 | 0.0014 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-3A WELL NAVAJO MONITORING WELL NMW-3A; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 190.62 - 210.62 | 83 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.0024 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 8.9 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 6 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.00038 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 3.3 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 190.62 - 210.62 | 83.4 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 190.62 - 210.62 | 8.08 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.93 | B | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.0011 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 12 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 5.4 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 8.1 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 190.62 - 210.62 | 266 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-3A WELL NAVAJO MONITORING WELL NMW-3A; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 13 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 190.62 - 210.62 | 13.75 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 150 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 190.62 - 210.62 | 1.36 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 190.62 - 210.62 | 0.0012 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-4A WELL NAVAJO MONITORING WELL NMW-4A; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 170.46 - 190.46 | 87 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.0022 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 9.7 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.02 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 5.6 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.00029 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 3.7 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 170.46 - 190.46 | 67.1 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 170.46 - 190.46 | 8.06 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 1.2 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.0012 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 11 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 5 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 8.1 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 170.46 - 190.46 | 266 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-4A WELL NAVAJO MONITORING WELL NMW-4A; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 14 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 170.46 - 190.46 | 11.39 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 160 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 170.46 - 190.46 | 2.65 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 170.46 - 190.46 | 0.0013 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-5 WELL NAVAJO MONITORING WELL NMW-5; NMW-5 Herbert Chief; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 34.95 - 54.95 | 78 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.0037 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 39 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 19 | | F | # | 0.4 | |
| Iron | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 8.9 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.0011 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 2.7 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 34.95 - 54.95 | 115.3 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 34.95 - 54.95 | 7.81 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 1.4 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.0027 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 10 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 4.9 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 18 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 34.95 - 54.95 | 380 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-5 WELL NAVAJO MONITORING WELL NMW-5; NMW-5 Herbert Chief; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 63 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 34.95 - 54.95 | 14.03 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 230 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 34.95 - 54.95 | 1.69 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 34.95 - 54.95 | 0.0049 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-6S WELL NAVAJO MONITORING WELL NMW-6S; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 167.62 - 187.62 | 79 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.0017 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 35 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 11 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.0049 | U | F | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 6.1 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.00012 | B | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.00043 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 3.7 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 167.62 - 187.62 | 53.1 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 167.62 - 187.62 | 7.88 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 1.2 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.0015 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 12 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 5.4 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 7.8 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 167.62 - 187.62 | 282 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-6S WELL NAVAJO MONITORING WELL NMW-6S; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 17 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 167.62 - 187.62 | 14.97 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 170 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 167.62 - 187.62 | 1.21 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 167.62 - 187.62 | 0.0013 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-7D WELL NAVAJO MONITORING WELL NMW-7D; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 278.19 - 283.19 | 86 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.0023 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 26 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 6.7 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 5 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.00011 | U | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.00024 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 3.3 | | FQ | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 278.19 - 283.19 | 56.7 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 278.19 - 283.19 | 7.83 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 1.2 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.0012 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 12 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 5.7 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 4.5 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 278.19 - 283.19 | 215 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-7D WELL NAVAJO MONITORING WELL NMW-7D; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 10 | | FQ | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 278.19 - 283.19 | 14.15 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 120 | | FQ | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 278.19 - 283.19 | 1.25 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 278.19 - 283.19 | 0.00093 | | FQ | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-8S WELL NAVAJO MONITORING WELL NMW_8S; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 149.43 - 169.43 | 80 | | F | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.1 | U | F | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.0027 | | F | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 33 | | F | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 10 | | F | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.007 | B | UF | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 5.5 | | F | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.00011 | U | JF | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.00035 | | F | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 3.7 | | F | # | 0.05 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 149.43 - 169.43 | 43.5 | | F | # | | |
| pH | s.u. | 02/13/2013 | N001 | 149.43 - 169.43 | 8.04 | | F | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 1.3 | | F | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.0013 | | F | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 11 | | F | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 5 | | F | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 8.7 | | JF | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 149.43 - 169.43 | 267 | | F | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-8S WELL NAVAJO MONITORING WELL NMW_8S; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 15 | | F | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 149.43 - 169.43 | 15.26 | | F | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 160 | | F | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 149.43 - 169.43 | 1.33 | | F | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 149.43 - 169.43 | 0.0014 | | F | # | 0.0000029 | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-9D WELL NAVAJO MONITORING WELL NMW-9D; Owned by NNEPA

| 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 | 02/13/2013 | N001 | 265.52 - 270.52 | 98 | | FQ | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.1 | U | FQ | # | 0.1 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.00076 | | FQ | # | 0.000015 | |
| Calcium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 35 | | FQ | # | 0.012 | |
| Chloride | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 11 | | FQ | # | 0.2 | |
| Iron | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.0049 | U | FQ | # | 0.0049 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 7 | | FQ | # | 0.013 | |
| Manganese | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.14 | | JFQ | # | 0.00011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.0021 | | FQ | # | 0.000032 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 1.8 | | FQ | # | 0.01 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 265.52 - 270.52 | 54.8 | | FQ | # | | |
| pH | s.u. | 02/13/2013 | N001 | 265.52 - 270.52 | 7.51 | | FQ | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 1.4 | | FQ | # | 0.11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.00088 | | FQ | # | 0.000032 | |
| Silica | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 13 | | FQ | # | 0.0095 | |
| Silicon | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 6.2 | | FQ | # | 0.0044 | |
| Sodium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 15 | | JFQ | # | 0.0066 | |
| Specific Conductance | umhos /cm | 02/13/2013 | N001 | 265.52 - 270.52 | 325 | | FQ | # | | |

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: NMW-9D WELL NAVAJO MONITORING WELL NMW-9D; Owned by NNEPA

| Parameter | Units | Sample Date | Sample ID | Depth Range (Ft BLS) | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 32 | | FQ | # | 0.5 | |
| Temperature | C | 02/13/2013 | N001 | 265.52 - 270.52 | 15.09 | | FQ | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 190 | | FQ | # | 20 | |
| Turbidity | NTU | 02/13/2013 | N001 | 265.52 - 270.52 | 0.93 | | FQ | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 265.52 - 270.52 | 0.0014 | | FQ | # | 0.0000029 | |

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

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

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

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

# Surface Water Quality Data

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**Surface Water Quality Data by Location (USEE102) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 1569 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 | 02/13/2013 | N001 | 112 | | | # | | |
| Ammonia Total as N | mg/L | 02/13/2013 | N002 | 150 | | | # | 5 | |
| Arsenic | mg/L | 02/13/2013 | N001 | 0.017 | | J | # | 0.0015 | |
| Arsenic | mg/L | 02/13/2013 | N002 | 0.023 | | J | # | 0.00074 | |
| Calcium | mg/L | 02/13/2013 | N001 | 740 | | | # | 1.2 | |
| Calcium | mg/L | 02/13/2013 | N002 | 810 | | | # | 1.2 | |
| Chloride | mg/L | 02/13/2013 | N001 | 28000 | | | # | 400 | |
| Chloride | mg/L | 02/13/2013 | N002 | 30000 | | | # | 400 | |
| Iron | mg/L | 02/13/2013 | N001 | 0.49 | U | | # | 0.49 | |
| Iron | mg/L | 02/13/2013 | N002 | 2.2 | B | U | # | 0.49 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 2100 | | | # | 1.3 | |
| Magnesium | mg/L | 02/13/2013 | N002 | 2300 | | | # | 1.3 | |
| Manganese | mg/L | 02/13/2013 | N001 | 42 | | J | # | 0.011 | |
| Manganese | mg/L | 02/13/2013 | N002 | 47 | | J | # | 0.011 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 0.13 | | | # | 0.0032 | |
| Molybdenum | mg/L | 02/13/2013 | N002 | 0.12 | | | # | 0.0016 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 1200 | | | # | 10 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N002 | 1300 | | | # | 10 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 450 | | | # | | |
| pH | s.u. | 02/13/2013 | N001 | 6.7 | | | # | | |

**Surface Water Quality Data by Location (USEE102) FOR SITE TUB01, Tuba City Disposal Site**
REPORT DATE: 4/11/2013
Location: 1569 SURFACE LOCATION

| Parameter | Units | Sample Date | Sample ID | Result | Qualifiers Lab | Qualifiers Data | Qualifiers QA | Detection Limit | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|
| Potassium | mg/L | 02/13/2013 | N001 | 150 | | | # | 11 | |
| Potassium | mg/L | 02/13/2013 | N002 | 160 | | | # | 11 | |
| Selenium | mg/L | 02/13/2013 | N001 | 0.22 | | | # | 0.0032 | |
| Selenium | mg/L | 02/13/2013 | N002 | 0.21 | | | # | 0.0016 | |
| Silica | mg/L | 02/13/2013 | N002 | 40 | | | # | 0.95 | |
| Silicon | mg/L | 02/13/2013 | N002 | 19 | | | # | 0.44 | |
| Sodium | mg/L | 02/13/2013 | N001 | 15000 | | J | # | 0.66 | |
| Sodium | mg/L | 02/13/2013 | N002 | 13000 | | J | # | 3.3 | |
| Specific Conductance | umhos/cm | 02/13/2013 | N001 | 74600 | | | # | | |
| Sulfate | mg/L | 02/13/2013 | N001 | 4800 | | | # | 500 | |
| Sulfate | mg/L | 02/13/2013 | N002 | 5200 | | | # | 500 | |
| Temperature | C | 02/13/2013 | N001 | 9.5 | | | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 58000 | | | # | 2000 | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N002 | 59000 | | | # | 2000 | |
| Turbidity | NTU | 02/13/2013 | N001 | 8.75 | | | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 1.6 | | | # | 0.00029 | |
| Uranium | mg/L | 02/13/2013 | N002 | 1.7 | | | # | 0.00015 | |

**Surface Water Quality Data by Location (USEE102) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/11/2013

Location: 1570 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 | 02/13/2013 | N001 | 0 | | | # | | |
| Arsenic | mg/L | 02/13/2013 | N001 | 1.3 | | | # | 0.0017 | |
| Calcium | mg/L | 02/13/2013 | N001 | 960 | | | # | 1.4 | |
| Chloride | mg/L | 02/13/2013 | N001 | 120000 | | | # | 2000 | |
| Iron | mg/L | 02/13/2013 | N001 | 20 | | | # | 0.57 | |
| Magnesium | mg/L | 02/13/2013 | N001 | 11000 | | | # | 1.5 | |
| Manganese | mg/L | 02/13/2013 | N001 | 210 | | J | # | 0.013 | |
| Molybdenum | mg/L | 02/13/2013 | N001 | 0.76 | | | # | 0.0037 | |
| Nitrate + Nitrite as Nitrogen | mg/L | 02/13/2013 | N001 | 5000 | | | # | 50 | |
| Oxidation Reduction Potential | mV | 02/13/2013 | N001 | 560 | | | # | | |
| pH | s.u. | 02/13/2013 | N001 | 1.81 | | | # | | |
| Potassium | mg/L | 02/13/2013 | N001 | 920 | | | # | 13 | |
| Selenium | mg/L | 02/13/2013 | N001 | 1 | | | # | 0.0038 | |
| Sodium | mg/L | 02/13/2013 | N001 | 49000 | | J | # | 38 | |
| Specific Conductance | umhos/cm | 02/13/2013 | N001 | 169000 | | | # | | |
| Sulfate | mg/L | 02/13/2013 | N001 | 15000 | | | # | 1000 | |
| Temperature | C | 02/13/2013 | N001 | 11.8 | | | # | | |
| Total Dissolved Solids | mg/L | 02/13/2013 | N001 | 230000 | | | # | 4000 | |
| Turbidity | NTU | 02/13/2013 | N001 | 3.79 | | | # | | |
| Uranium | mg/L | 02/13/2013 | N001 | 6.9 | | | # | 0.00034 | |

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. |

# Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site
REPORT DATE: 4/11/2013

| 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 |
|---|---|---|---|---|---|---|---|
| 0251 | | 5061.25 | 02/12/2013 | 16:40:50 | 89.33 | 4971.92 | |
| 0252 | | 5061.3 | 02/12/2013 | 16:30:55 | 69.89 | 4991.41 | |
| 0258 | | 5055.56 | 02/13/2013 | 09:10:09 | 96.53 | 4959.03 | |
| 0261 | | 5069.69 | 02/11/2013 | 17:01:00 | 128.31 | 4941.38 | |
| 0262 | | 5061.99 | 02/13/2013 | 08:40:39 | 50.13 | 5011.86 | |
| 0263 | | 5063.1 | 02/12/2013 | 16:25:53 | 54.65 | 5008.45 | |
| 0264 | | 5062.19 | 02/12/2013 | 16:55:42 | 84.70 | 4977.49 | |
| 0265 | | 5053.88 | 02/12/2013 | 13:45:51 | 81.08 | 4972.8 | |
| 0266 | | 5053.32 | 02/12/2013 | 14:10:53 | 97.79 | 4955.53 | |
| 0267 | | 5053.4 | 02/12/2013 | 11:50:41 | 62.17 | 4991.23 | |
| 0268 | | 5067.24 | 02/13/2013 | 13:00:52 | 96.44 | 4970.8 | |
| 0271 | | 5046.72 | 02/11/2013 | 17:26:00 | 55.12 | 4991.6 | |
| 0272 | | 5064.24 | 02/13/2013 | 10:40:36 | 94.61 | 4969.63 | |
| 0273 | | 5064.74 | 02/12/2013 | 09:50:43 | 96.79 | 4967.95 | |
| 0274 | | 5064.42 | 02/12/2013 | 11:50:14 | 89.29 | 4975.13 | |
| 0275 | | 5062.64 | 02/12/2013 | 14:00:02 | 71.28 | 4991.36 | |
| 0276 | | 5067.55 | 02/12/2013 | 14:40:55 | 86.31 | 4981.24 | |
| 0277 | | 4982.35 | 02/12/2013 | 10:41:00 | 36.07 | 4946.28 | |
| 0278 | | 4956.09 | 02/12/2013 | 08:47:00 | 22.82 | 4933.27 | |
| 0279 | | 4951.04 | 02/12/2013 | 08:53:00 | 25.44 | 4925.6 | |
| 0280 | | 4951.52 | 02/12/2013 | 09:48:00 | 27.59 | 4923.93 | |
| 0281 | | 5051 | 02/12/2013 | 11:20:40 | 70.65 | 4980.35 | |
| 0282 | | 5060.04 | 02/12/2013 | 14:40:56 | 83.4 | 4976.64 | |
| 0283 | | 5057.97 | 02/12/2013 | 13:19:00 | | | D |
| 0284 | | 5098.72 | 02/11/2013 | 16:35:00 | 29.38 | 5069.34 | |
| 0285 | | 5096.47 | 02/11/2013 | 17:56:00 | | | D |
| 0286 | | 5063.99 | 02/12/2013 | 12:15:57 | 73.70 | 4990.29 | |
| 0287 | | 5065.65 | 02/12/2013 | 09:30:40 | 58.73 | 5006.92 | |

STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site
REPORT DATE: 4/11/2013

| 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 |
|---|---|---|---|---|---|---|---|
| 0288 | | 5072.54 | 02/11/2013 | 16:46:00 | 56.31 | 5016.23 | |
| 0288 | | 5072.54 | 02/12/2013 | 08:30:26 | 56.49 | 5016.05 | |
| 0289 | | 5070.82 | 02/11/2013 | 16:58:00 | 57.08 | 5013.74 | |
| 0289 | | 5070.82 | 02/12/2013 | 08:50:46 | 57.25 | 5013.57 | |
| 0290 | | 5068.91 | 02/13/2013 | 09:35:25 | 87.18 | 4981.73 | |
| 0683 | | 5070.64 | 02/11/2013 | 16:46:00 | 97.56 | 4973.08 | |
| 0684 | | 5070.05 | 02/11/2013 | 16:42:00 | 71.29 | 4998.76 | |
| 0685 | | 5072.44 | 02/11/2013 | 17:00:00 | 49.91 | 5022.53 | |
| 0686 | | 5107.97 | 02/11/2013 | 16:36:00 | 68.77 | 5039.2 | |
| 0687 | | 5109.82 | 02/11/2013 | 17:59:00 | 56.84 | 5052.98 | |
| 0688 | | 5106.98 | 02/11/2013 | 18:01:00 | 64.41 | 5042.57 | |
| 0689 | | 4981.63 | 02/12/2013 | 08:31:00 | 39.49 | 4942.14 | |
| 0690 | | 4950.87 | 02/12/2013 | 09:45:00 | 24.74 | 4926.13 | |
| 0691 | | 4979.41 | 02/12/2013 | 10:30:50 | 41.30 | 4938.11 | |
| 0692 | | 4953.31 | 02/12/2013 | 09:52:00 | 25.80 | 4927.51 | |
| 0695 | | 4976.83 | 02/12/2013 | 09:57:00 | 50.62 | 4926.21 | |
| 0901 | U | 5105.46 | 02/13/2013 | 10:39:00 | 47.92 | 5057.54 | |
| 0902 | N | 4737.42 | 02/12/2013 | 08:28:00 | 29.83 | 4707.59 | |
| 0903 | D | 4983.33 | 02/12/2013 | 10:44:00 | 32.59 | 4950.74 | |
| 0904 | N | 4904.11 | 02/12/2013 | 08:29:00 | 23.03 | 4881.08 | |
| 0906 | O | 5062.1 | 02/13/2013 | 16:00:56 | 49.29 | 5012.81 | |
| 0908 | D | 5058.14 | 02/12/2013 | 15:50:20 | 58.18 | 4999.96 | |
| 0910 | U | 5106.7 | 02/13/2013 | 10:42:00 | 51.09 | 5055.61 | |
| 0911 | U | 5106.96 | 02/11/2013 | 17:59:00 | 47.28 | 5059.68 | |
| 0912 | D | 5059.97 | 02/11/2013 | 17:24:00 | 61.90 | 4998.07 | |
| 0913 | D | 5060.16 | 02/11/2013 | 17:06:00 | 66.47 | 4993.69 | |
| 0914 | D | 5070.1 | 02/11/2013 | 16:51:00 | 111.70 | 4958.4 | |
| 0915 | D | 5070.84 | 02/11/2013 | 16:55:00 | 107.91 | 4962.93 | |

STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site
REPORT DATE: 4/11/2013

| 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 |
|---|---|---|---|---|---|---|---|
| 0916 | D | 5070 | 02/11/2013 | 16:58:00 | 118.00 | 4952 | |
| 0917 | D | 5048.02 | 02/11/2013 | 17:36:00 | 69.53 | 4978.49 | |
| 0918 | D | 5049.63 | 02/11/2013 | 17:38:00 | | | D |
| 0919 | D | 5048.56 | 02/11/2013 | 17:32:00 | 146.40 | 4902.16 | |
| 0920 | D | 4982.97 | 02/12/2013 | 10:09:00 | 34.59 | 4948.38 | |
| 0921 | D | 4979.08 | 02/12/2013 | 10:45:00 | 39.77 | 4939.31 | |
| 0929 | D | 5060.82 | 02/12/2013 | 12:10:58 | 61.16 | 4999.66 | |
| 0930 | D | 4954.96 | 02/12/2013 | 09:45:50 | 21.08 | 4933.88 | |
| 0932 | D | 5057.32 | 02/12/2013 | 15:55:33 | 102.40 | 4954.92 | |
| 0934 | D | 5059.73 | 02/12/2013 | 15:00:18 | 76.35 | 4983.38 | |
| 0940 | D | 5064.77 | 02/12/2013 | 12:30:34 | 59.71 | 5005.06 | |
| 0941 | D | 5065.97 | 02/12/2013 | 09:15:41 | 56.71 | 5009.26 | |
| 0943 | U | 5098.05 | 02/11/2013 | 17:53:00 | 54.70 | 5043.35 | |
| 0945 | U | 5140.49 | 02/11/2013 | 16:33:00 | 91.60 | 5048.89 | |
| 0946 | C | 5100.5 | 02/11/2013 | 16:34:00 | 52.99 | 5047.51 | |
| 0947 | U | 5097.01 | 02/11/2013 | 16:35:00 | 68.05 | 5028.96 | |
| 0968 | U | 5107 | 02/13/2013 | 10:44:00 | 52.08 | 5054.92 | |
| 1003 | | 4976.58 | 02/12/2013 | 10:05:00 | 38.73 | 4937.85 | |
| 1004 | | 4961.55 | 02/12/2013 | 09:53:00 | 24.81 | 4936.74 | |
| 1005 | | 4947.83 | 02/12/2013 | 09:46:00 | 21.05 | 4926.78 | |
| 1006 | | 4947.08 | 02/12/2013 | 08:44:00 | 16.65 | 4930.43 | |
| 1008 | | 4980.52 | 02/12/2013 | 08:38:00 | 37.69 | 4942.83 | |
| 1107 | | 5059.51 | 02/12/2013 | 08:41:00 | 22.86 | 5036.65 | |
| NMW-1A | | 5150.95 | 02/13/2013 | 13:40:30 | 114.80 | 5036.15 | |
| NMW-2A | | 5121.69 | 02/13/2013 | 09:35:28 | 70.44 | 5051.25 | |
| NMW-3A | | 5168.51 | 02/13/2013 | 08:55:41 | 112.75 | 5055.76 | |
| NMW-4A | | 5137.44 | 02/13/2013 | 10:15:02 | 80.52 | 5056.92 | |
| NMW-5 | | 4985.85 | 02/13/2013 | 08:10:32 | 16.48 | 4969.37 | |

STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site
REPORT DATE: 4/11/2013

| 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 |
|---|---|---|---|---|---|---|---|
| NMW-6S | | 5145.93 | 02/13/2013 | 13:10:42 | 107.95 | 5037.98 | |
| NMW-7D | | 5147.13 | 02/13/2013 | 11:40:10 | 117.55 | 5029.58 | |
| NMW-8S | | 5114.87 | 02/13/2013 | 14:45:10 | 89.02 | 5025.85 | |
| NMW-9D | | 5115.92 | 02/13/2013 | 14:15:32 | 90.21 | 5025.71 | |

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

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

# Time-Concentration Graphs

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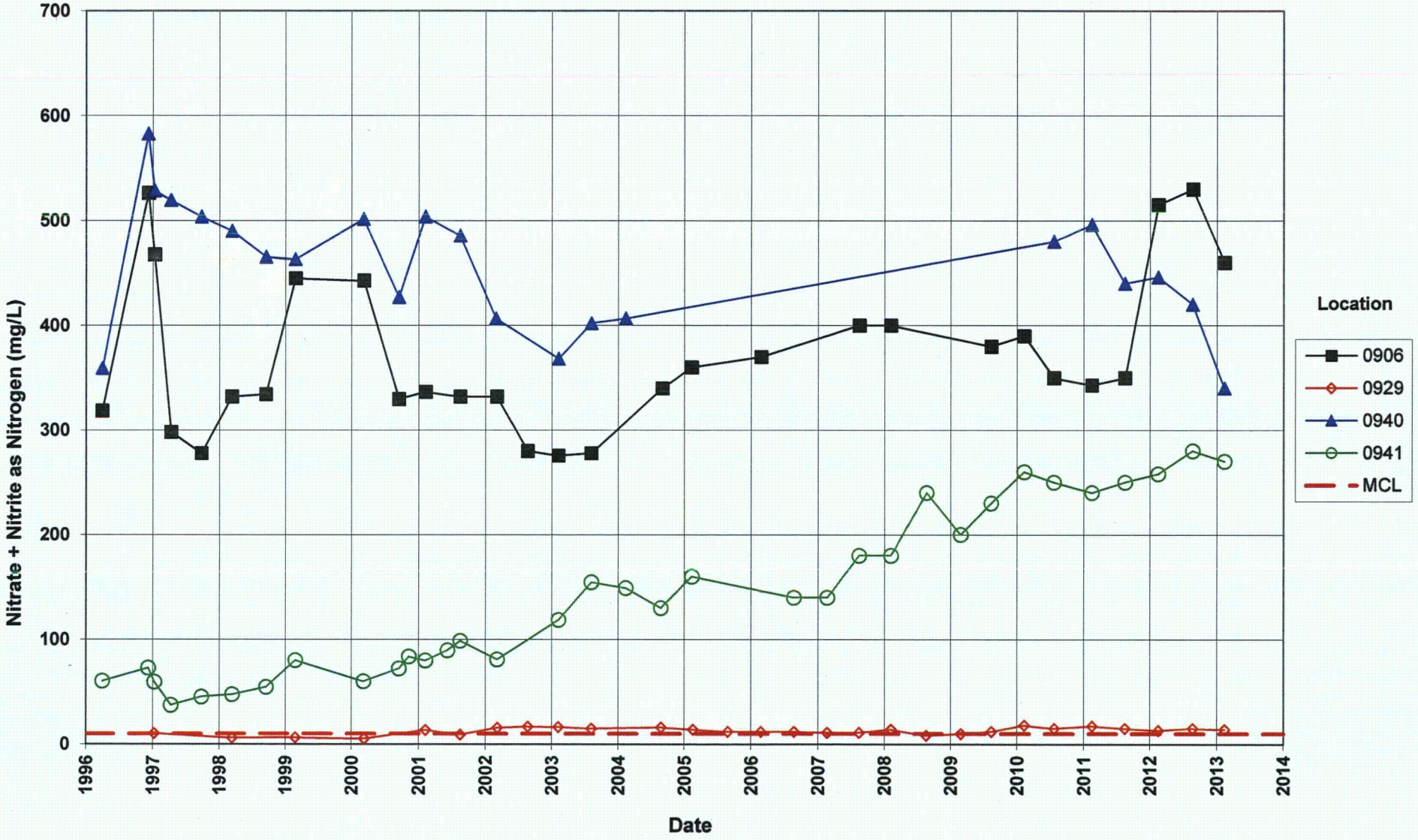
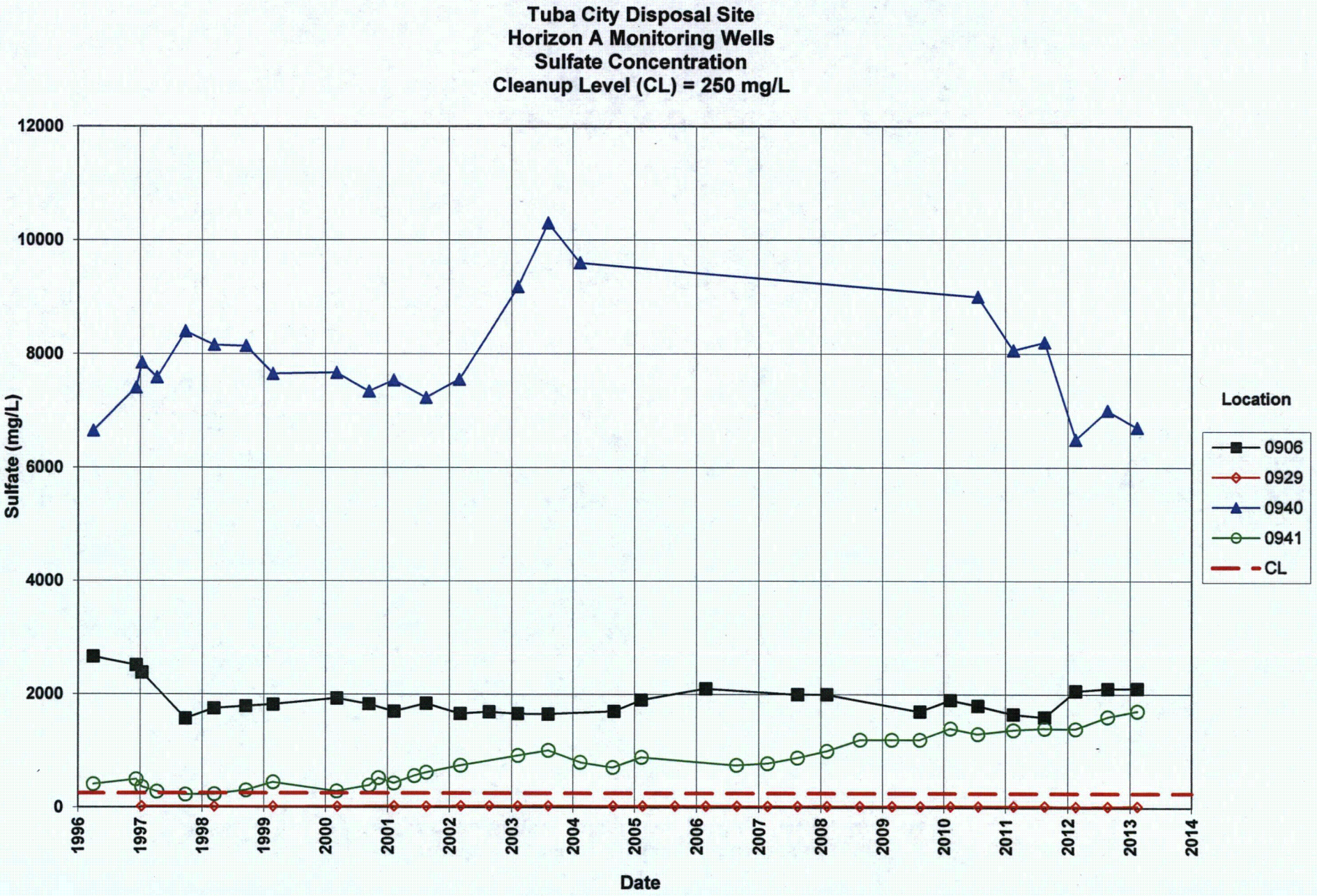
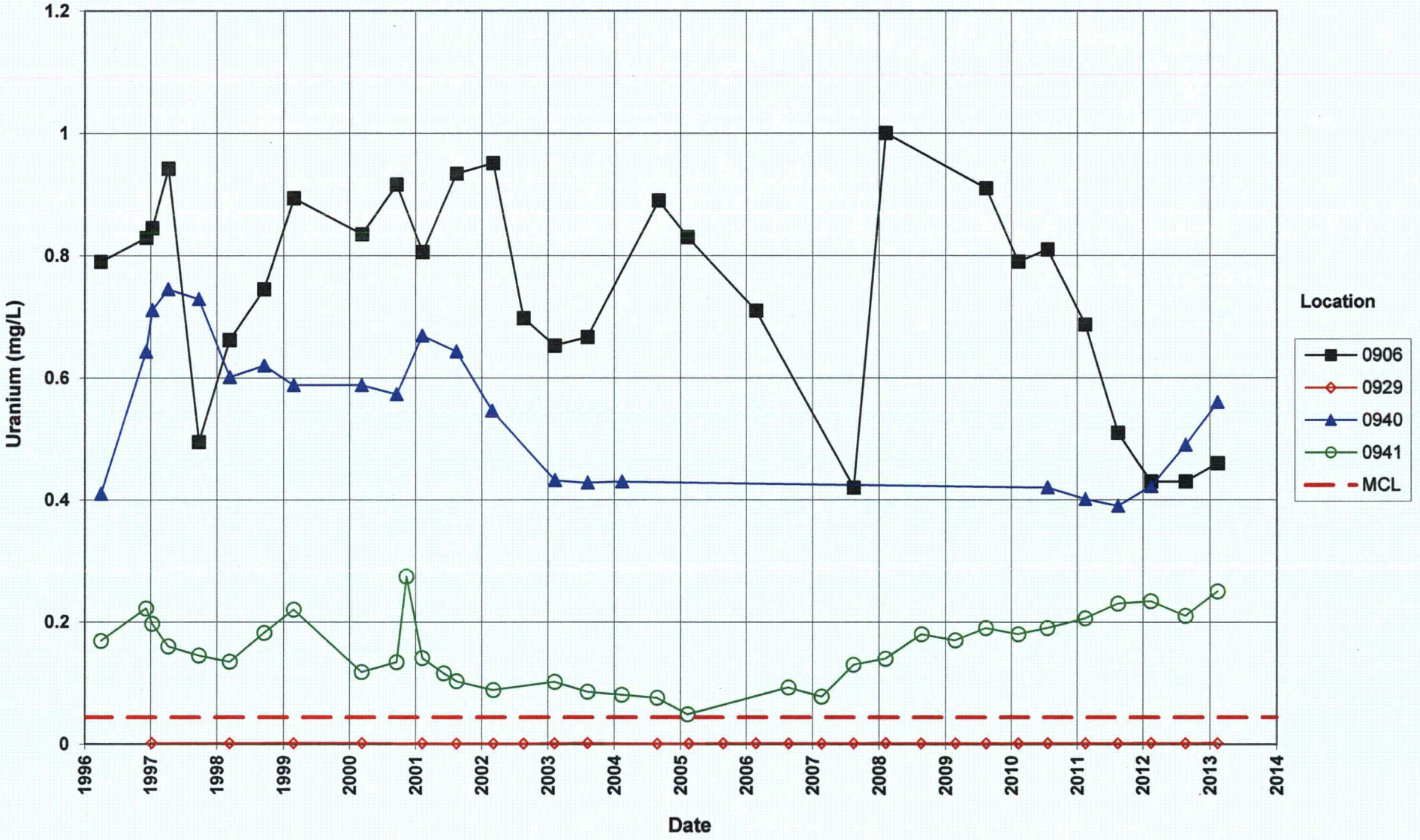
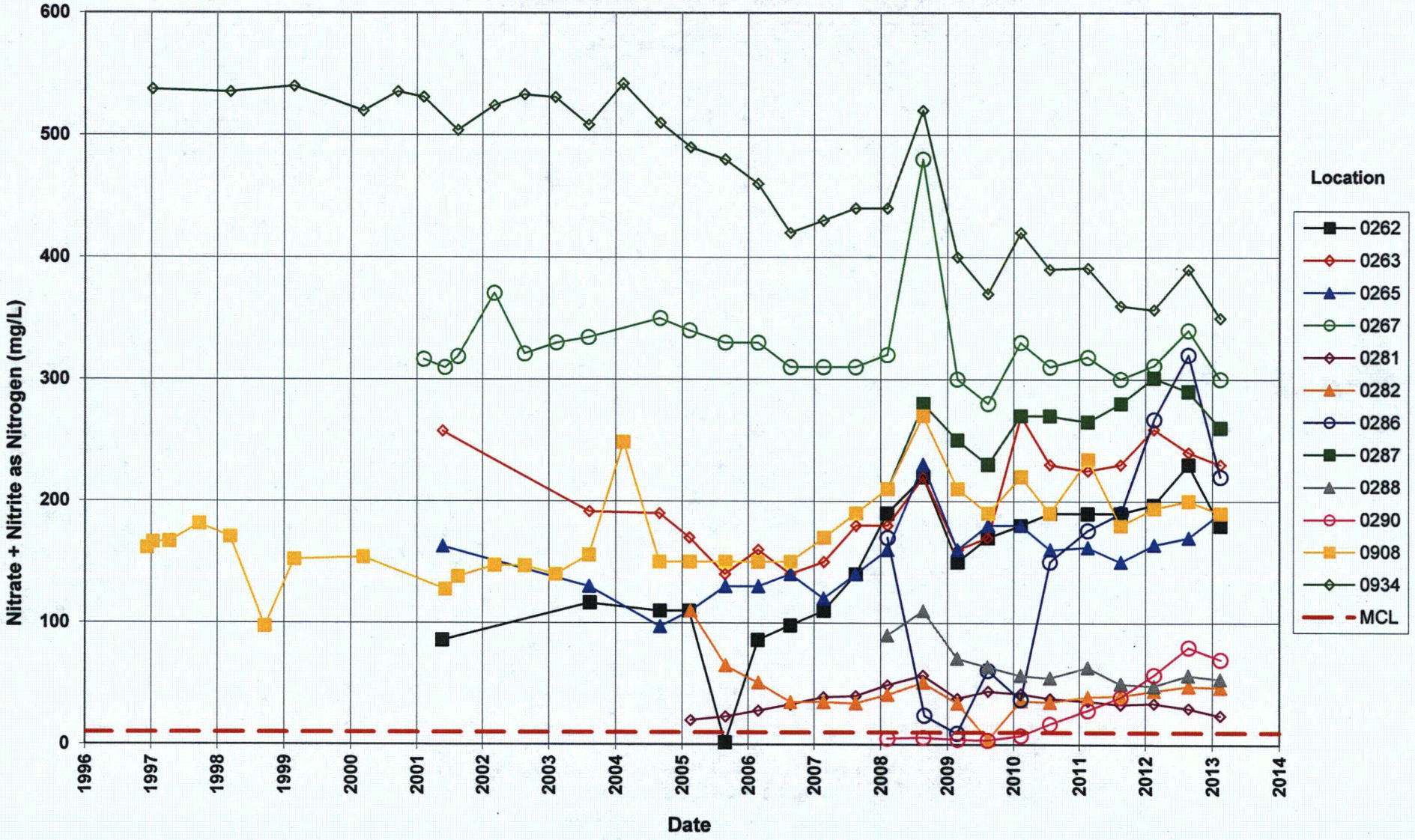
**Tuba City Disposal Site**
**Horizon A Monitoring Wells**
**Nitrate + Nitrite as Nitrogen Concentration**
**Maximum Concentration Limit (MCL) = 10.0 mg/L**

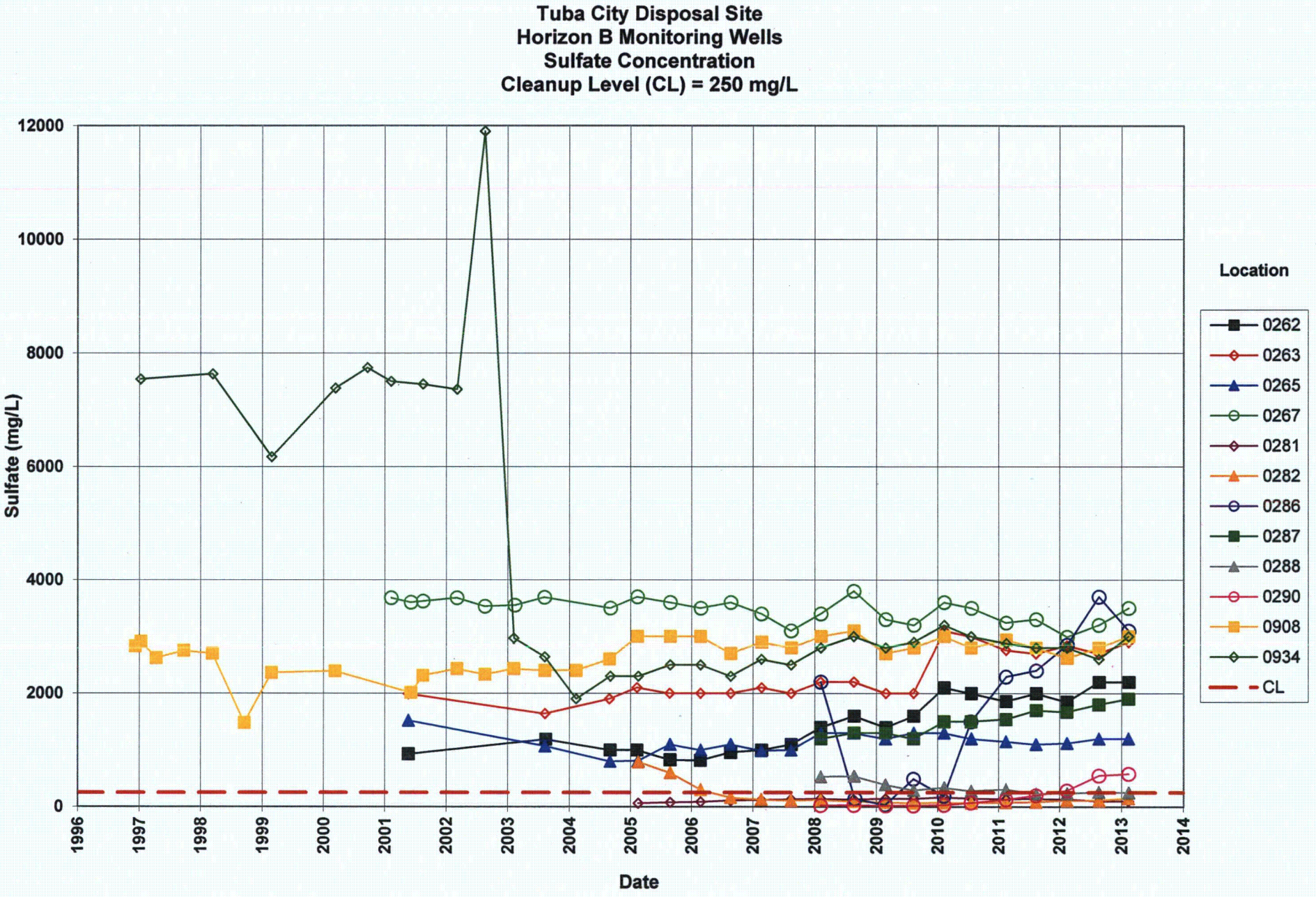


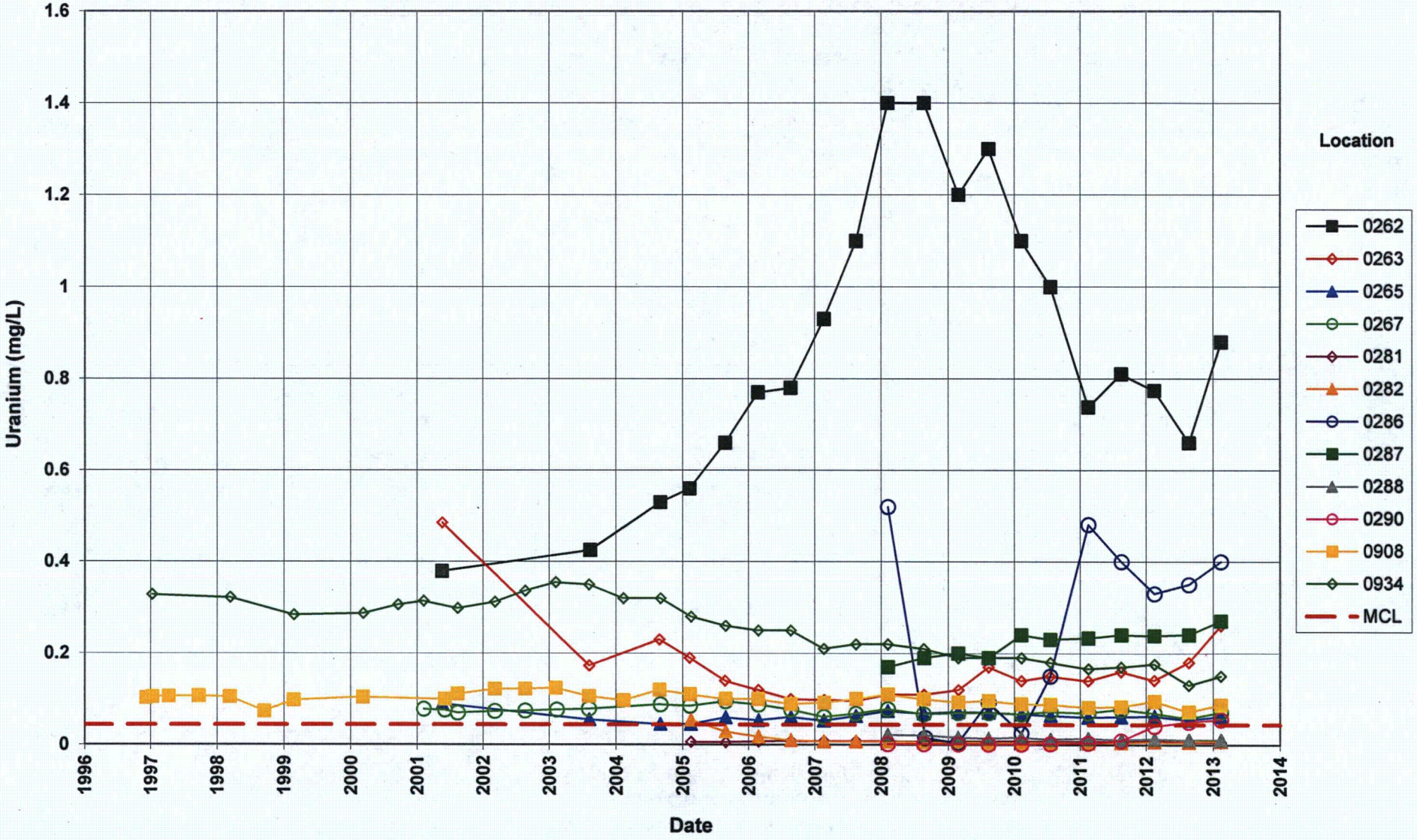

Tuba City Disposal Site
Horizon A Monitoring Wells
Sulfate Concentration
Cleanup Level (CL) = 250 mg/L
Sulfate (mg/L)
12000
10000
8000
6000
4000
2000
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0906
0929
0940
0941
CL

**Tuba City Disposal Site**
**Horizon A Monitoring Wells**
**Uranium Concentration**
**Maximum Concentration Limit (MCL) = 0.044 mg/L**

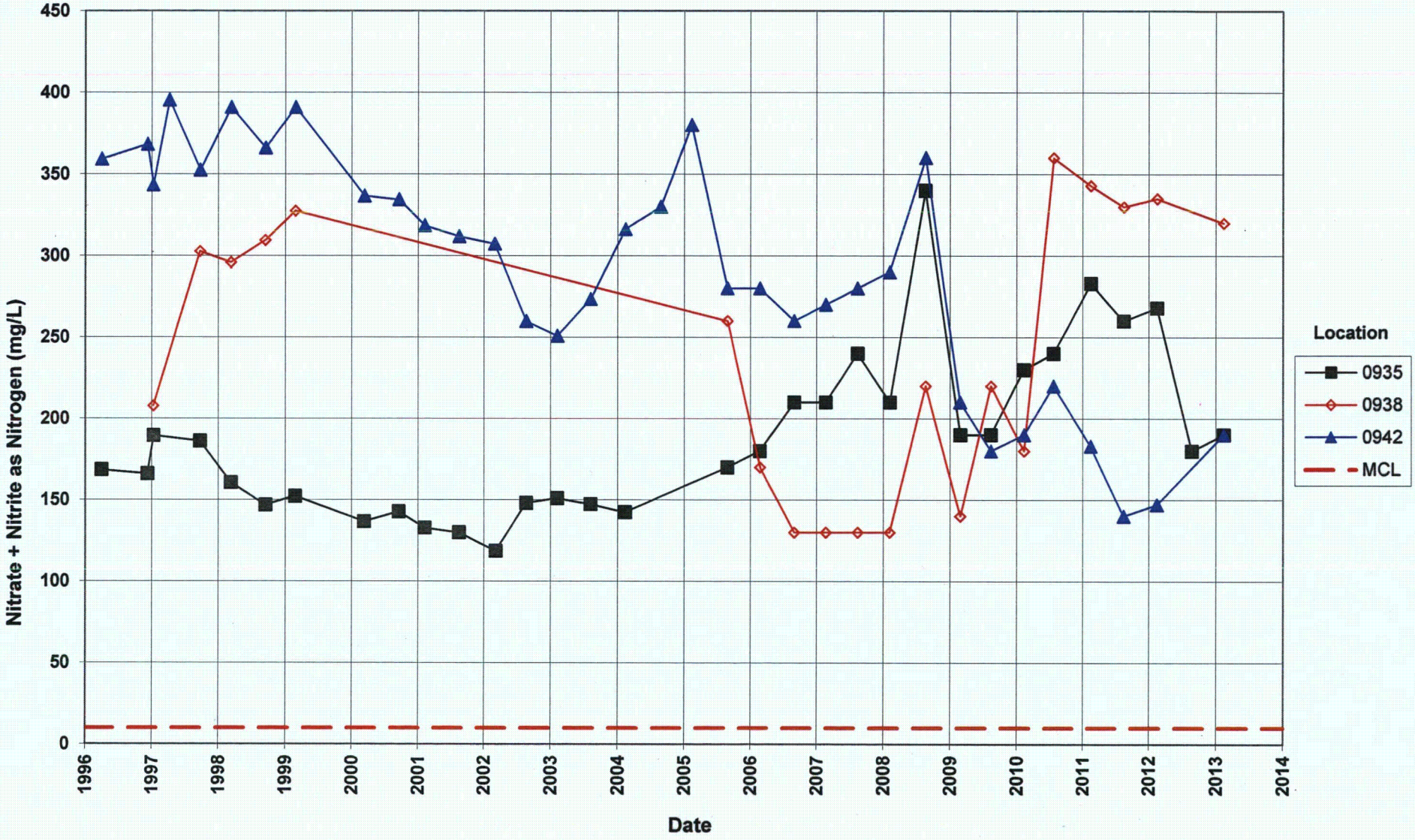


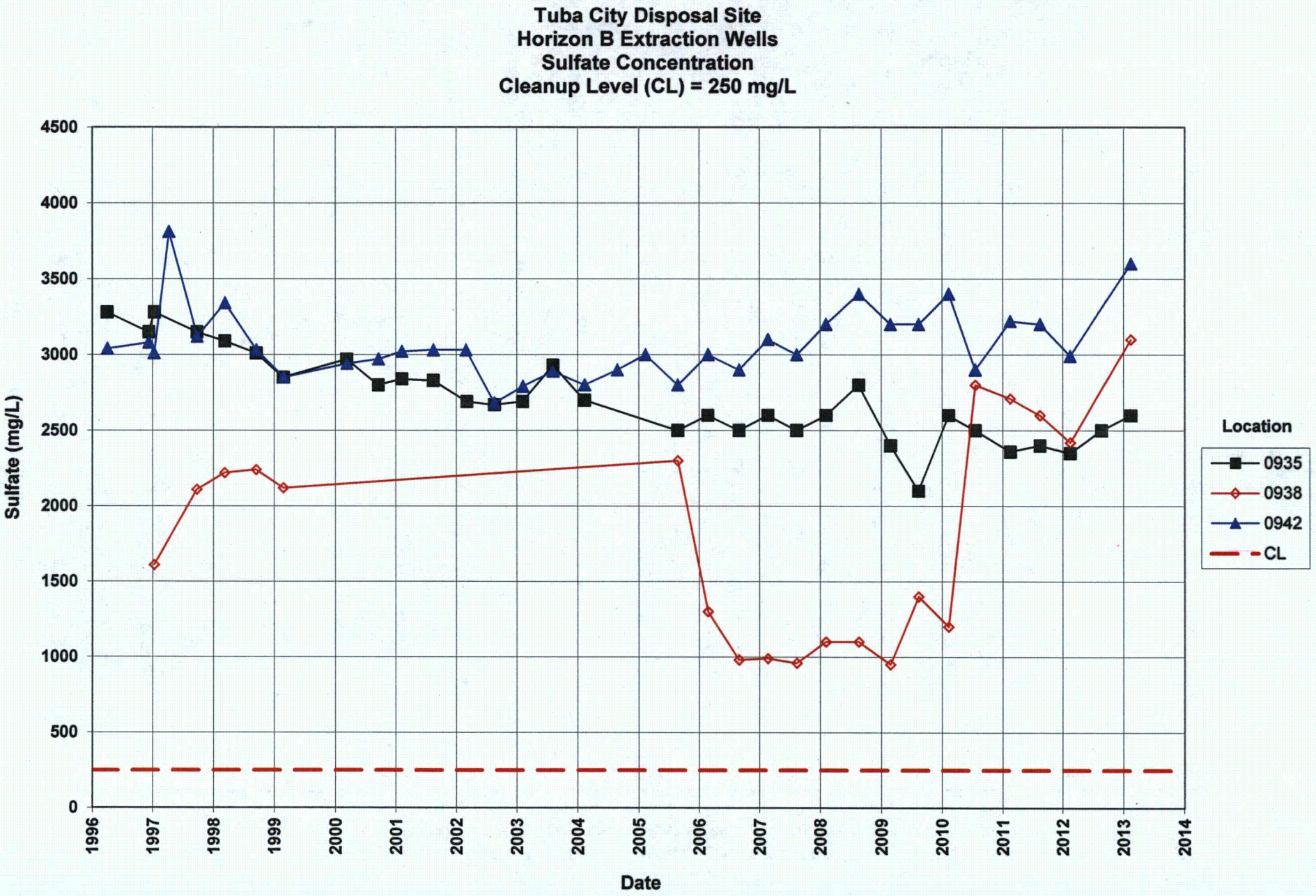

Tuba City Disposal Site
Horizon B Monitoring Wells
Nitrate + Nitrite as Nitrogen Concentration
Maximum Concentration Limit (MCL) = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
600
500
400
300
200
100
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0262
0263
0265
0267
0281
0282
0286
0287
0288
0290
0908
0934
MCL

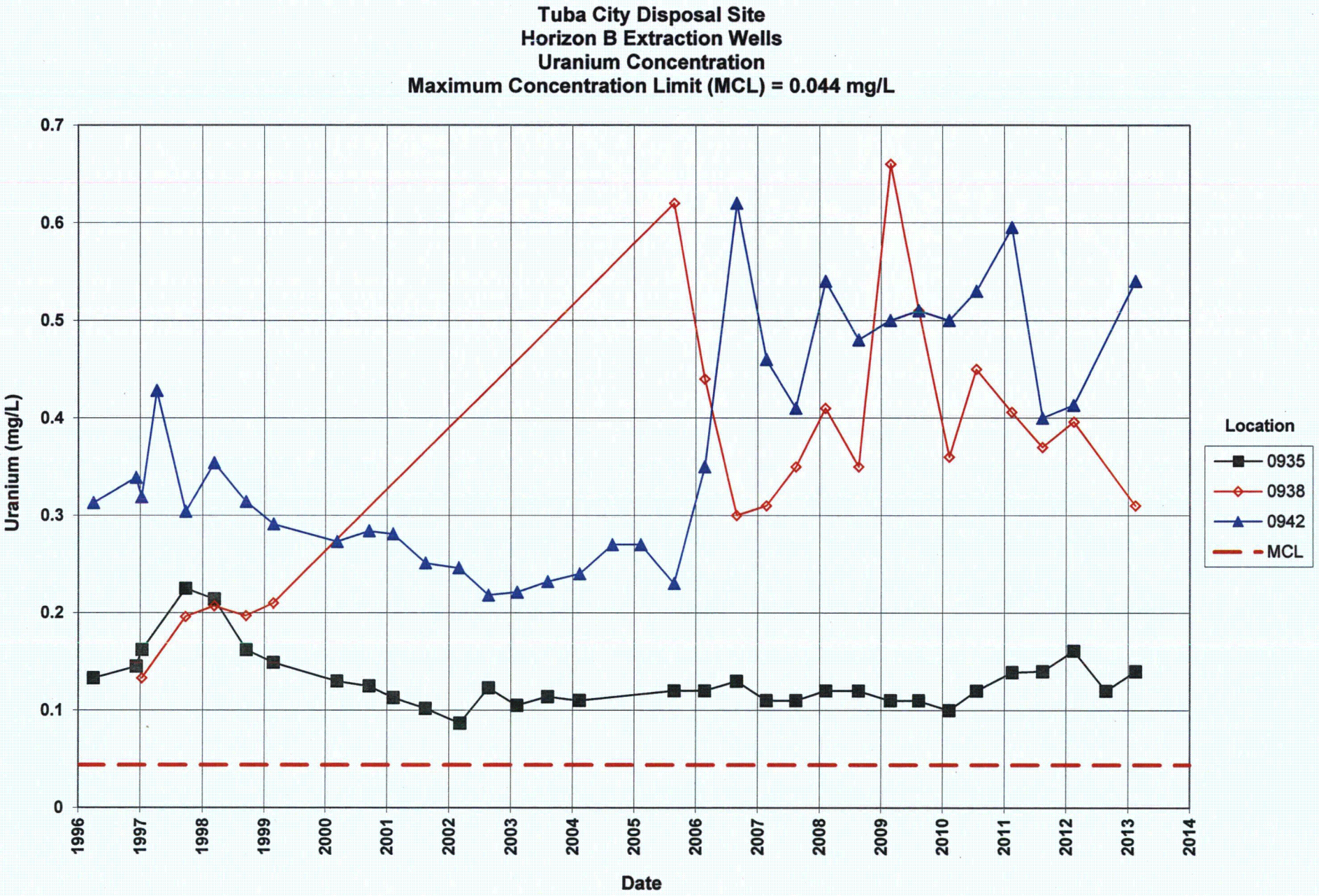

Tuba City Disposal Site
Horizon B Monitoring Wells
Sulfate Concentration
Cleanup Level (CL) = 250 mg/L
Sulfate (mg/L)
12000
10000
8000
6000
4000
2000
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0262
0263
0265
0267
0281
0282
0286
0287
0288
0290
0908
0934
CL


Tuba City Disposal Site
Horizon B Monitoring Wells
Uranium Concentration
Maximum Concentration Limit (MCL) = 0.044 mg/L
Uranium (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0262
0263
0265
0267
0281
0282
0286
0287
0288
0290
0908
0934
MCL

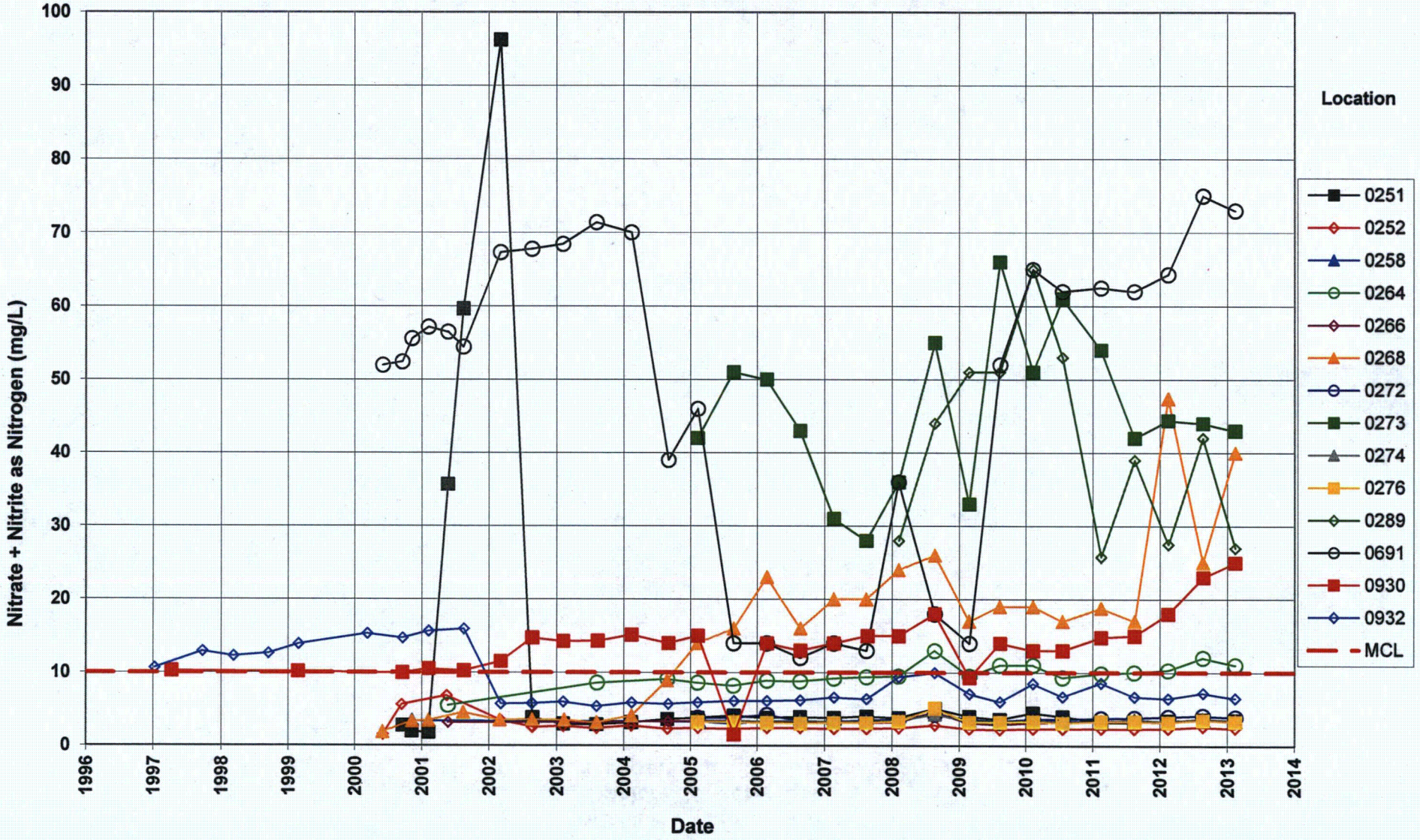
**Tuba City Disposal Site**
**Horizon B Extraction Wells**
**Nitrate + Nitrite as Nitrogen Concentration**
**Maximum Concentration Limit (MCL) = 10.0 mg/L**



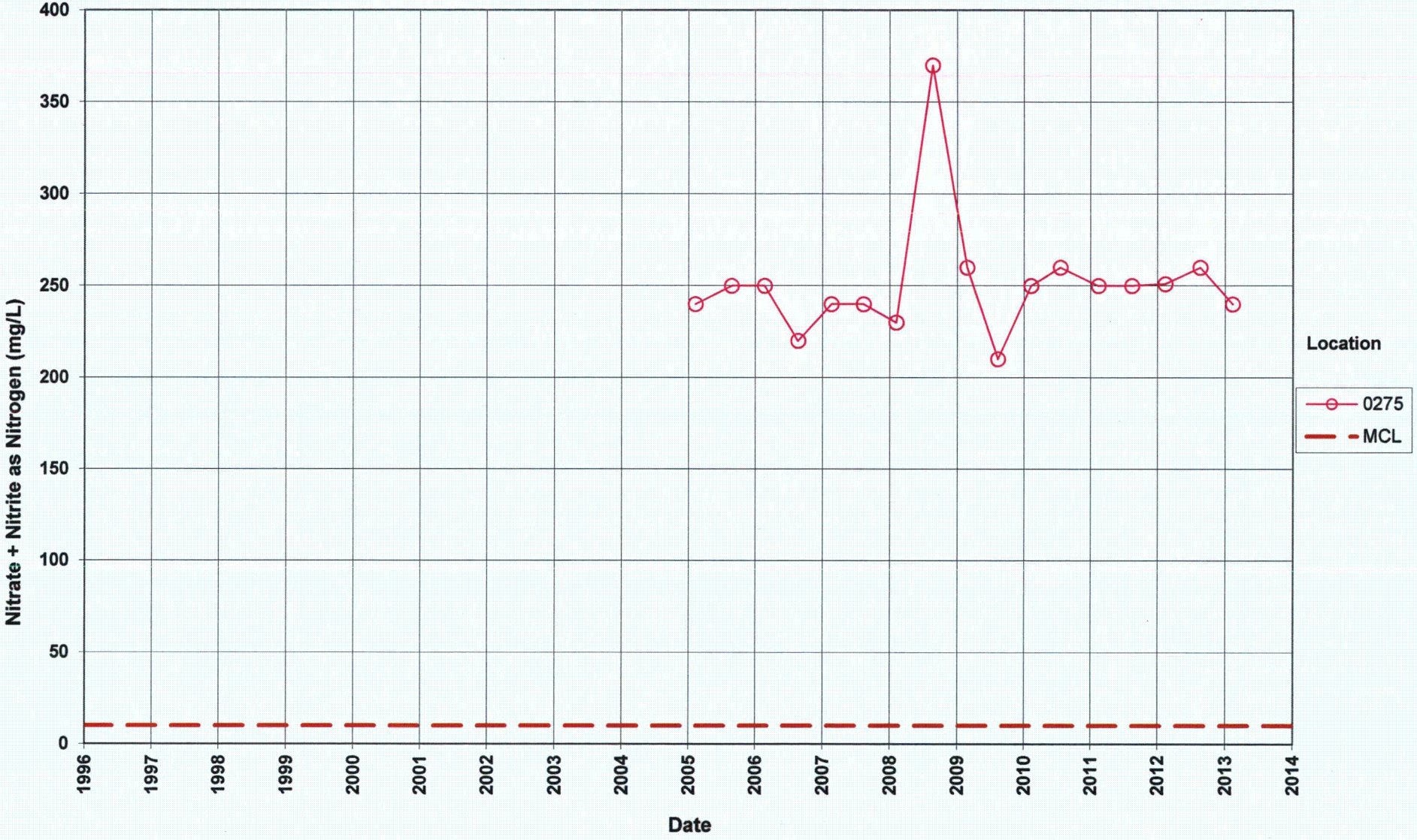

Tuba City Disposal Site
Horizon B Extraction Wells
Sulfate Concentration
Cleanup Level (CL) = 250 mg/L
Sulfate (mg/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0935
0938
0942
CL

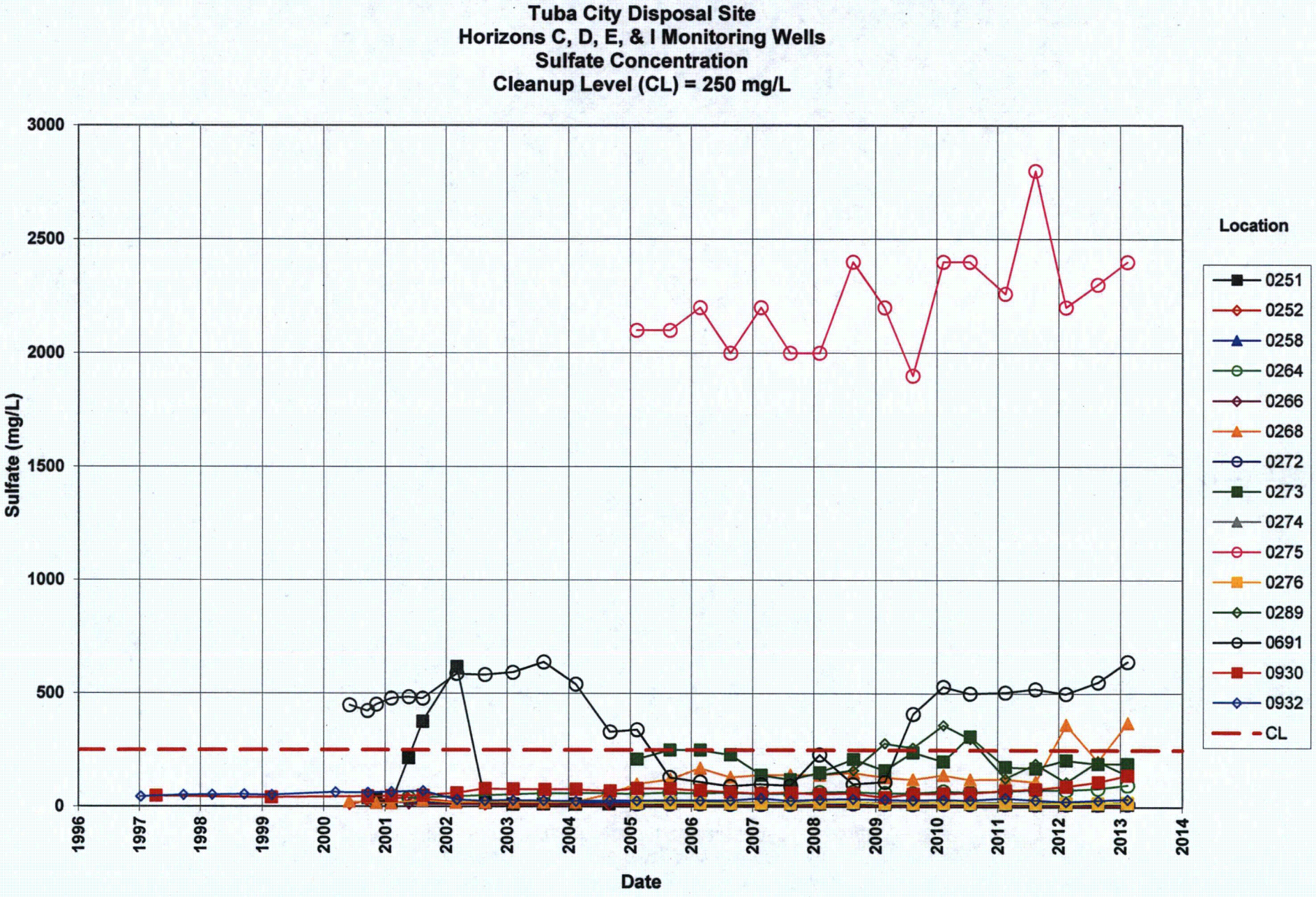

Tuba City Disposal Site
Horizon B Extraction Wells
Uranium Concentration
Maximum Concentration Limit (MCL) = 0.044 mg/L
Uranium (mg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0935
0938
0942
MCL

**Tuba City Disposal Site**
**Horizons C, D, E, & I Monitoring Wells**
**Nitrate + Nitrite as Nitrogen Concentration**
**Maximum Concentration Limit (MCL) = 10.0 mg/L**

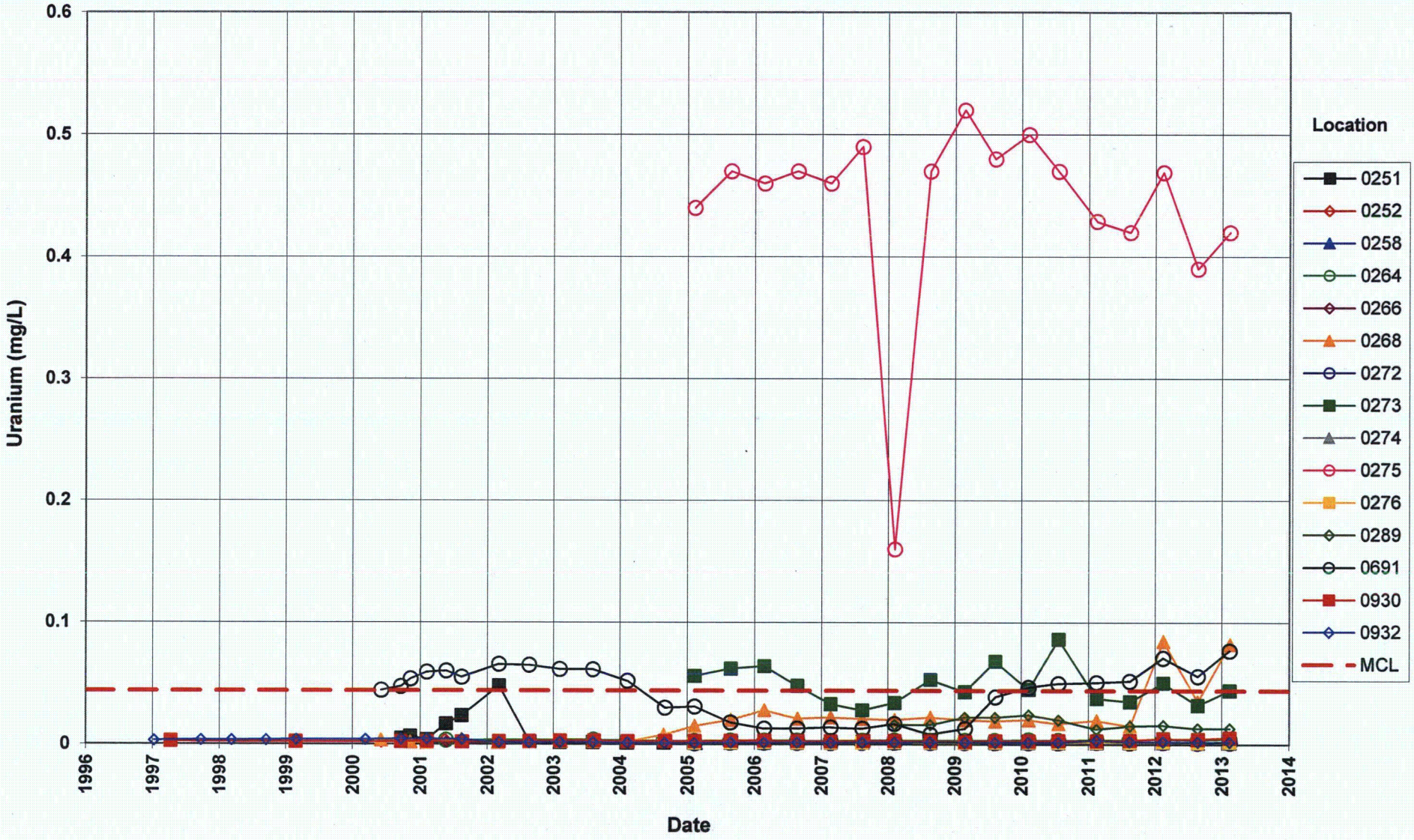


**Tuba City Disposal Site**
**Horizons C, D, E, & I Monitoring Wells**
**Nitrate + Nitrite as Nitrogen Concentration**
**Maximum Concentration Limit (MCL) = 10.0 mg/L**

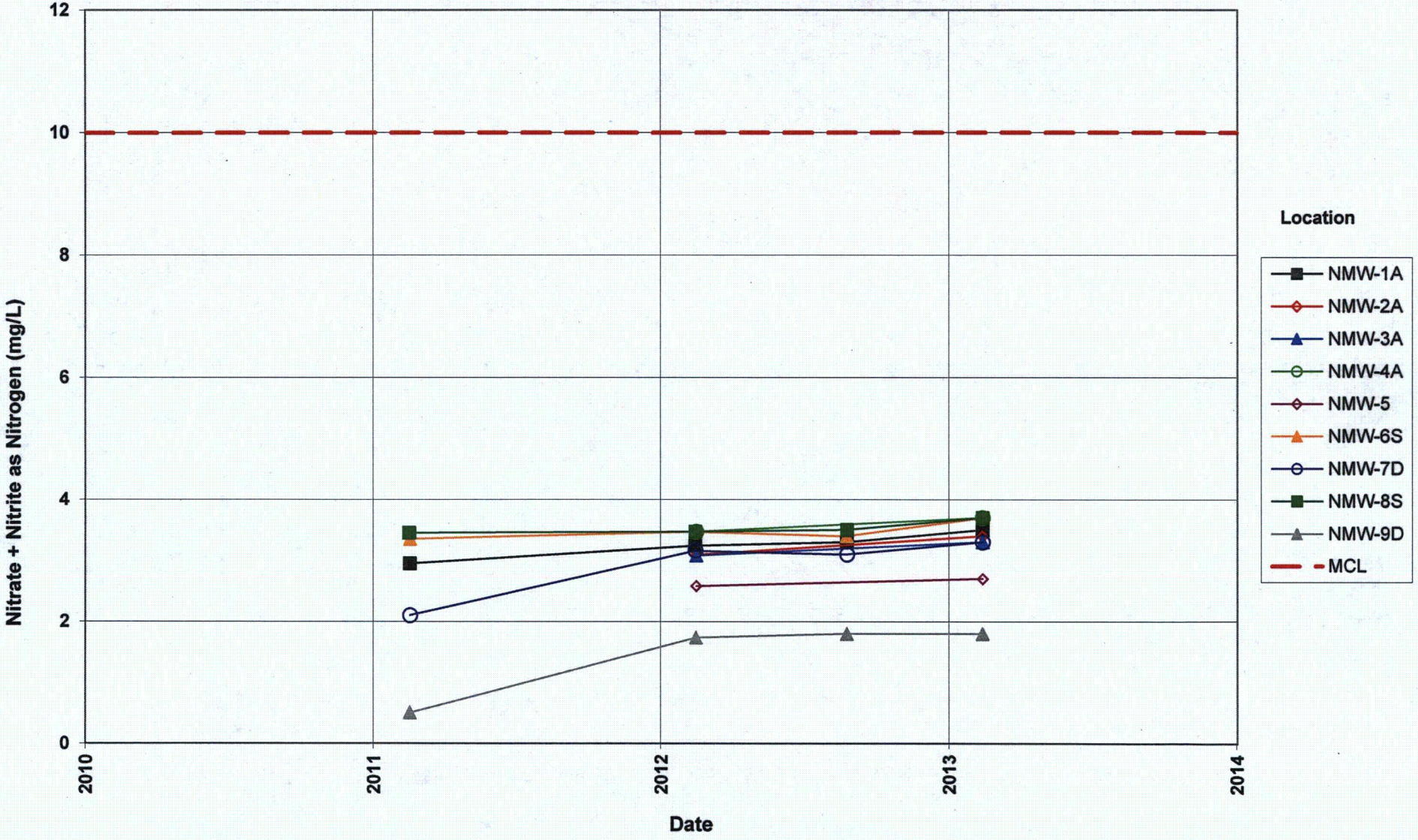



Tuba City Disposal Site
Horizons C, D, E, & I Monitoring Wells
Sulfate Concentration
Cleanup Level (CL) = 250 mg/L
Sulfate (mg/L)
3000
2500
2000
1500
1000
500
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0251
0252
0258
0264
0266
0268
0272
0273
0274
0275
0276
0289
0691
0930
0932
CL

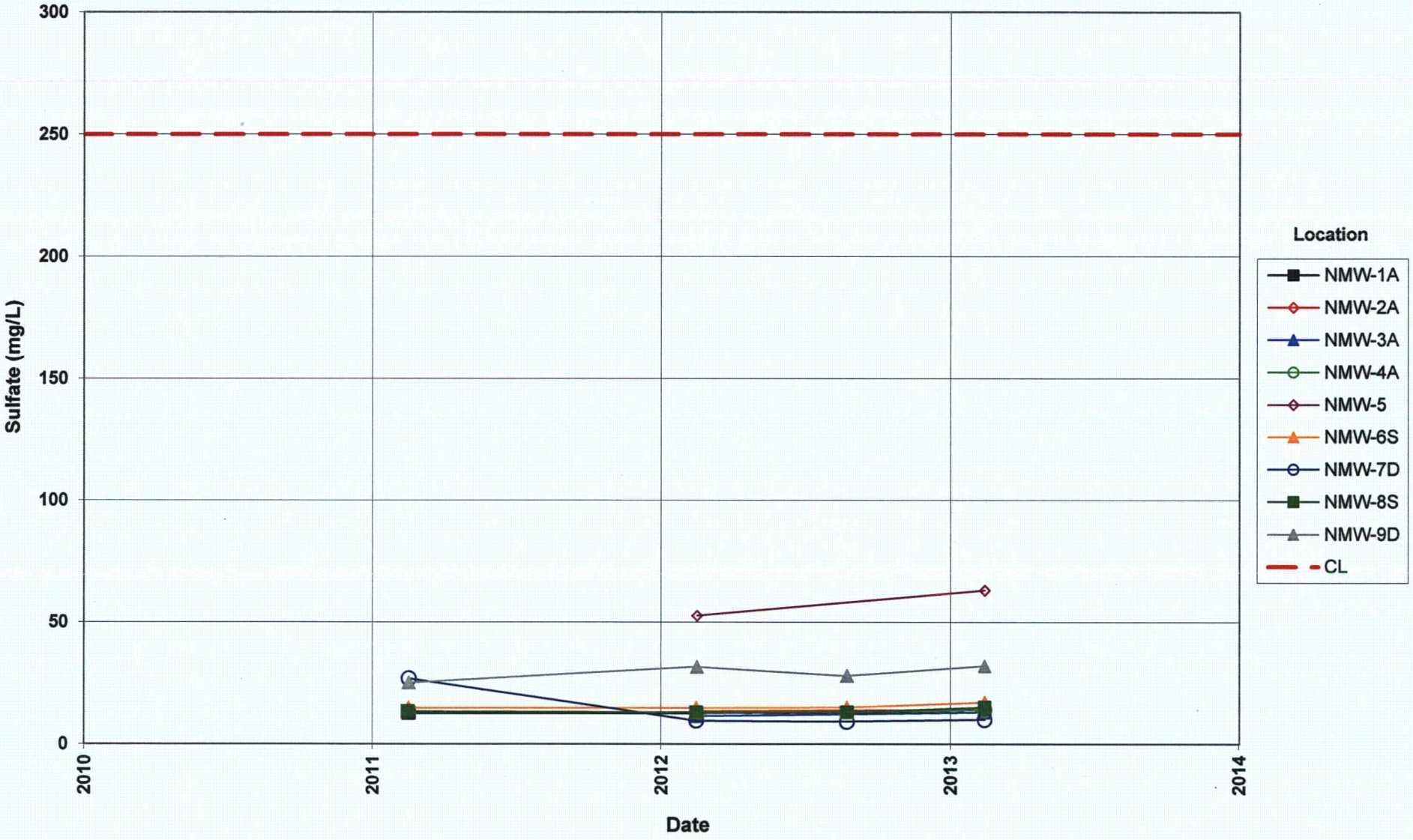
**Tuba City Disposal Site**
**Horizons C, D, E, & I Monitoring Wells**
**Uranium Concentration**
**Maximum Concentration Limit (MCL) = 0.044 mg/L**



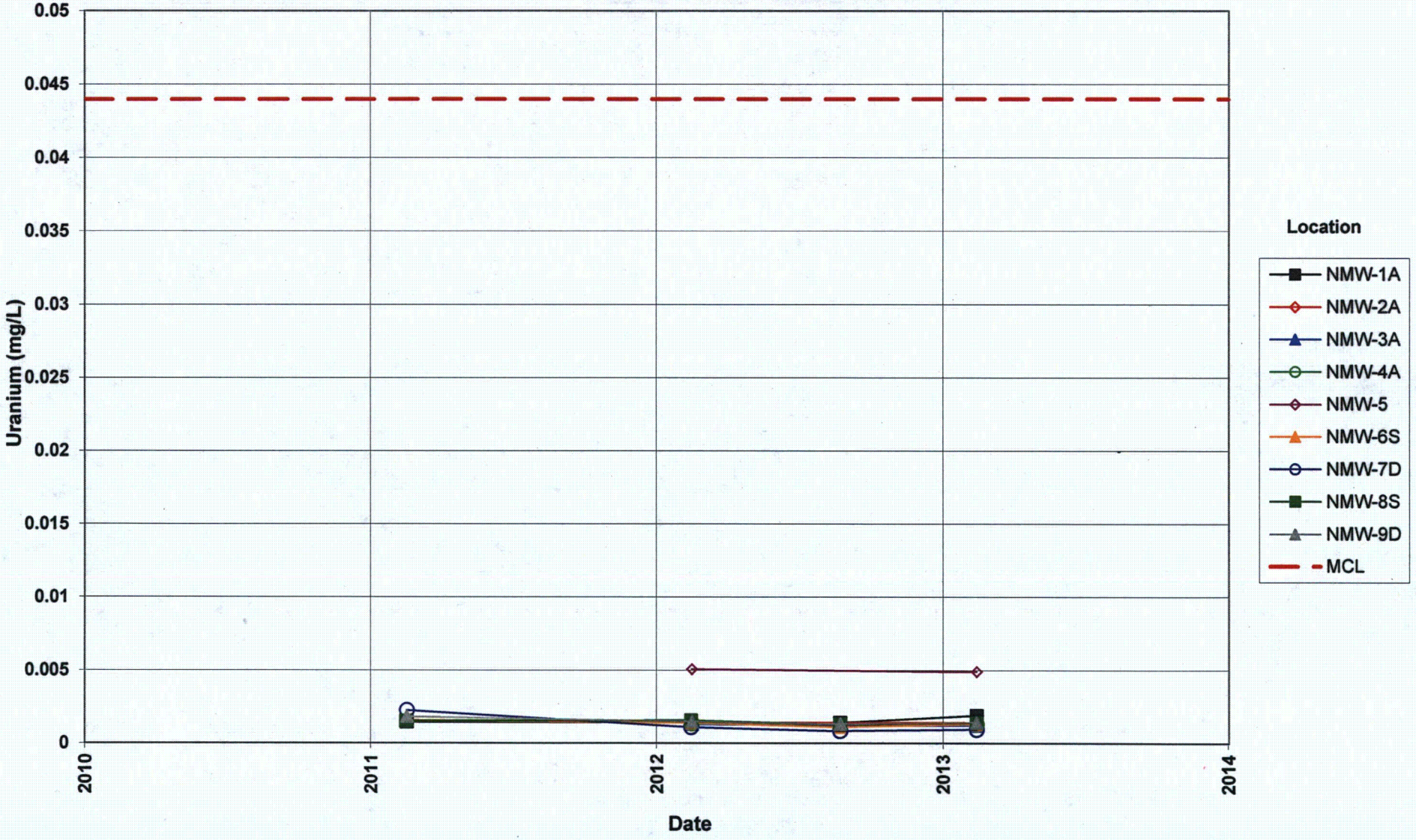
**Tuba City Disposal Site**
**Navajo Monitoring Wells**
**Nitrate + Nitrite as Nitrogen Concentration**
**Maximum Concentration Limit (MCL) = 10.0 mg/L**



**Tuba City Disposal Site**
**Navajo Monitoring Wells**
**Sulfate Concentration**
**Cleanup Level (CL) = 250 mg/L**



**Tuba City Disposal Site**
**Navajo Monitoring Wells**
**Uranium Concentration**
**Maximum Concentration Limit (MCL) = 0.044 mg/L**



# Attachment 3
# Sampling and Analysis Work Order

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Stoller

*established 1959*

Task Order LM00-501
Control Number 13-0282

January 18, 2013

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

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
February 2013 Environmental Sampling at the Tuba City, Arizona,
Disposal Site - Revised

REFERENCE: Task Order LM00-501-02-122-402, Tuba City, Arizona, Disposal Site

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Tuba City, Arizona. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Tuba City site. Water quality data will be collected from monitoring wells and surface locations at this site as part of the routine environmental sampling currently scheduled to begin the week of February 11, 2013.

The following lists show the monitoring wells (with zone of completion) and surface locations scheduled to be sampled during this event.

**Monitoring Wells***

| | | | | | | |
|---|---|---|---|---|---|---|
| 251 Na | 266 Na | 276 Na | 289 Na | 930 Na | 940 Na | NMW-4A Ss |
| 252 Na | 267 Na | 281 Na | 290 Na | 932 Na | 941 Na | NMW-5 Al |
| 258 Na | 268 Na | 282 Na | 691 Na | 934 Na | 942 Na | NMW-6S Ss |
| 262 Na | 272 Na | 283 Na | 906 Na | 935 Na | NMW-1A Ss | NMW-7D Ss |
| 263 Na | 273 Na | 286 Na | 908 Na | 936 Na | NMW-2A Ss | NMW-8S Ss |
| 264 Na | 274 Na | 287 Na | 909 Na | 938 Na | NMW-3A Ss | NMW-9D Ss |
| 265 Na | 275 Na | 288 Na | 929 Na | | | |

*NOTE: Al = alluvium; Na = Navajo sandstone; Ss = sandstone

**Surface locations**

| | |
|---|---|
| 1569 | 1570 |

**Treatment System Locations**

| | | |
|---|---|---|
| 1202 | 1205 | 1206 |

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All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. In addition, water levels will be collected from all wells on site.

Please contact me at (970) 248-6378 if you have any questions or concerns.

Sincerely,

Mark Plessinger
Site Lead

CJ/lcg/lb

Enclosures (3)

cc: (electronic)
Karl Stoeckle, DOE
Steve Donivan, Stoller
Lauren Goodknight, Stoller
Mark Plessinger, Stoller
EDD Delivery
rc-grand.junction
File: TUB410.02 (A)

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## Sampling Frequencies for Locations at Tuba City, Arizona

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|---|---|---|---|---|---|---|
| *Monitoring Wells* | | | | | | |
| 251 | | X | | | | |
| 252 | | X | | | | |
| 258 | | X | | | | |
| 262 | | X | | | | |
| 263 | | X | | | | |
| 264 | | X | | | | |
| 265 | | X | | | | |
| 266 | | X | | | | |
| 267 | | X | | | | |
| 268 | | X | | | | |
| 272 | | X | | | | |
| 273 | | X | | | | |
| 274 | | X | | | | |
| 275 | | X | | | | |
| 276 | | X | | | | |
| 281 | | X | | | | |
| 282 | | X | | | | |
| 283 | | X | | | | |
| 284 | | | | | X | Water level only |
| 285 | | | | | X | Water level only |
| 286 | | X | | | | |
| 287 | | X | | | | |
| 288 | | X | | | | |
| 289 | | X | | | | |
| 290 | | X | | | | |
| 691 | | X | | | | |
| 902 | | | | | X | Water level only |
| 906 | | X | | | | DATA LOGGER |
| 908 | | X | | | | DATA LOGGER |
| 909 | | X | | | | DATA LOGGER |
| 917 | | | | | X | Water level only |
| 918 | | | | | X | Water level only |
| 919 | | | | | X | Water level only |
| 929 | | X | | | | |
| 930 | | X | | | | |
| 932 | | X | | | | |
| 934 | | X | | | | DATA LOGGER |
| 935 | | X | | | | Converted to extraction well 7/05 |
| 936 | | X | | | | DATA LOGGER |
| 938 | | X | | | | Converted to extraction well 7/05 |
| 940 | | X | | | | DATA LOGGER |
| 941 | | X | | | | DATA LOGGER |
| 942 | | X | | | | DATA LOGGER |
| 948 | | | | | X | Water level only |
| 1005 | | | | | X | Water level only |

## Sampling Frequencies for Locations at Tuba City, Arizona

| Location ID | Quarterly | Semiannually | Annually | Biennially | Not Sampled | Notes |
|---|---|---|---|---|---|---|
| ***Monitoring Wells*** | | | | | | |
| NMW-1A | | X | | | | Added by T. Bartlett 1/24/12 |
| NMW-2A | | X | | | | |
| NMW-3A | | X | | | | |
| NMW-4A | | X | | | | |
| NMW-5 | | X | | | | |
| NMW-6S | | X | | | | Added by T. Bartlett 1/24/12 |
| NMW-7D | | X | | | | Added by T. Bartlett 1/24/12 |
| NMW-8S | | X | | | | Added by T. Bartlett 1/24/12 |
| NMW-9D | | X | | | | Added by T. Bartlett 1/24/12 |
| ***Surface Locations*** | | | | | | |
| 1569 | | X | | | | Evap pond - North |
| 1570 | | X | | | | Evap pond - South |
| ***Treatment System Locations*** | | | | | | |
| 1202 | | X | | | | |
| 1205 | | X | | | | Treatment system distillate, verify location with system operators |
| 1206 | | X | | | | |

Semi-annual sampling conducted in February and August; Annual sampling conducted in August.

## Constituent Sampling Breakdown

| Site | Tuba City | | | | |
|---|---|---|---|---|---|
| Analyte | Groundwater | Surface Water | Required Detection Limit (mg/L) | Analytical Method | Line Item Code |
| **Approx. No. Samples/yr** | 143 | 9 | | | |
| *Field Measurements* | | | | | |
| Alkalinity | X | X | | | |
| Dissolved Oxygen | | | | | |
| Redox Potential | X | X | | | |
| pH | X | X | | | |
| Specific Conductance | X | X | | | |
| Turbidity | X | | | | |
| Temperature | X | X | | | |
| *Laboratory Measurements* | | | | | |
| Aluminum | | | | | |
| Ammonia as N (NH3-N) | X | | 0.1 | EPA 350.1 | WCH-A-005 |
| Arsenic | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Calcium | X | X | 5 | SW-846 6010 | LMM-01 |
| Chloride | X | X | 0.5 | SW-846 9056 | WCH-A-039 |
| Chromium | | | | | |
| Gross Alpha | | | | | |
| Gross Beta | | | | | |
| Iron | X | X | 0.05 | SW-846 6020 | LMM-02 |
| Lead | | | | | |
| Magnesium | X | X | 5 | SW-846 6010 | LMM-01 |
| Manganese | X | X | 0.005 | SW-846 6010 | LMM-01 |
| Molybdenum | X | X | 0.003 | SW-846 6020 | LMM-02 |
| 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 | X | | 0.2 | SW-846 6010 | LMM-01 |
| Sodium | X | X | 1 | SW-846 6010 | LMM-01 |
| Strontium | | | | | |
| Sulfate | X | X | 0.5 | SW-846 9056 | MIS-A-044 |
| Sulfide | | | | | |
| Total Dissolved Solids | X | X | 10 | SM2540 C | WCH-A-033 |
| Total Organic Carbon | | | | | |
| Uranium | X | X | 0.0001 | SW-846 6020 | LMM-02 |
| Vanadium | | | | | |
| Zinc | | | | | |
| **Total No. of Analytes** | 16 | 14 | | | |

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

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# Attachment 4
# Trip Report

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Stoller

established 1959

# Memorandum

DATE: February 25, 2013

TO: Mark Plessinger

FROM: Jeff Price

SUBJECT: Trip Report

**Site:** Tuba City, Arizona

**Dates of Sampling Event:** February 11-14, 2013

**Team Members:** Kent Moe, Joe Trevino, Jeff Price, Dan Sellers. Levon Benally, Jr., (Navajo Nation, UMTRA Program) was on site to observe the sampling event.

**Number of Locations Sampled:** 51 locations were identified on the sampling notification letter. A total of 48 locations were sampled as follows.

| | Sampled Locations | Planned Locations |
|---|---|---|
| Monitoring wells | 40 | 42 |
| Extraction wells | 3 | 4 |
| Evaporation Pond | 2 | 2 |
| Treatment System locations | 3 | 3 |

**Locations Not Sampled/Reason:** A total of 3 locations were not sampled.
- Monitoring well 0283 was dry, and well 0909 did not have enough water to sample.
- The pump at extraction well 0936 was not functioning.

**Location Specific Information:** Extraction wells 0935, 0938, and 0942 were sampled; however, there are electrical control problems that need to be diagnosed. These control problems were communicated to the plant operators.

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

| False ID | True ID | Ticket Number | Sample Type | Analyte List | Associated Matrix |
|---|---|---|---|---|---|
| 2122 | NMW-1A | LDT 833 | Duplicate | Monitoring Well list | Groundwater |
| 2723 | 0268 | LDT 868 | Duplicate | Monitoring Well list | Groundwater |
| 2724 | 1569 | LDT 869 | Duplicate | Evaporation Pond | Evaporation Pond |

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**Report Identification Number (RIN) Assigned:** Samples were assigned to RIN 13025097 (ALS Fort Collins). Field data sheets can be found in Crow\sms\13025097 in the FieldData folder.

**Sample Shipment:** Samples were shipped overnight via FedEx to ALS Laboratory Group, Fort Collins, CO, from Tuba City, Arizona, February 14, 2013.

**Water Level Measurements:** Water levels were measured in all monitoring wells. The water level data can be found in Crow\sms\13025097.

**Well Inspection Summary:** All wells were in good condition.

**Field Variance:** Program Directive TUB-2012-01 requires that the surface water samples collected at pond locations 1569 and 1570 be filtered. These samples were inadvertently not filtered. All other samples were collected according to the *Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites.*

**Equipment:** All equipment functioned properly. Monitoring wells were sampled with a dedicated bladder pump. Extraction wells have dedicated submersible pumps and were sampled at taps. The evaporation pond was sampled using a peristaltic pump and dedicated tubing. Treatment system samples were collected by opening a valve. Field data were collected using the Field Data Collection System.

**Water Level Transducers (Dataloggers):** Water level transducer data was successfully downloaded from the following well locations: 0263, 0264, 0265, 0274, 0287, 0908, 0929, 0934, 0941, 0943, and 0946. At location 0286, communication with the Troll 4000 datalogger could not be established, therefore data could not be recovered. The inoperable datalogger was removed and replaced with an operable Troll 4000.

Because of communication problems and general age of the transducers, it is necessary to replace all seven troll 4000s with Level Troll 300s. There is an inventory of Level Troll 300s ready to be installed, however, non-vented quick disconnect communication cables need to be purchased (two 100 ft and five 75 ft cables).

**Institutional Controls:**

**Fences, Gates, and Locks:** Acceptable
**Signs**: Acceptable
**Trespassing/Site Disturbances:** None observed

**Site Issues:** Cell phone service (Verizon) was weak and was not available at all areas of the site.

**Disposal Cell/Drainage Structure Integrity:** No issues observed
**Vegetation/Noxious Weed Concerns:** None observed
**Maintenance Requirements:** None observed
**Safety Issues:** None
**Access Issues:** Erosion around the monitoring well area south of the fenced site, resulting from last summer's heavy rainstorm, still needs to be repaired.

**Corrective Action Required/Taken:** None

(GB/lcg)

cc: (electronic)
Richard Bush, DOE
Timothy Bartlett, Stoller
Steve Donivan, Stoller
Susan Kamp, Stoller
EDD Delivery

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## Data Validation Package for the Tuba City, Arizona, Disposal Site, February 2013

The U.S. Department of Energy (DOE) has prepared a Data Validation Package containing the groundwater and surface water monitoring data generated from the February 2013 sampling event at the Tuba City, Arizona, Disposal Site. This package includes worksheets and reports that document the sampling activities and validation procedures conducted. **At your request, you are receiving a hard copy of the report.**

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

U.S. DEPARTMENT OF ENERGY | Legacy Management