

# Data Validation Package

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**February 2011  
Groundwater and Surface Water  
Sampling at the Tuba City, Arizona,  
Disposal Site**

**May 2011**



**U.S. DEPARTMENT OF  
ENERGY**

Legacy  
Management

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

Potential Outliers Report

## **Attachment 2—Data Presentation**

Groundwater Quality Data  
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# Sampling Event Summary

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

**Sampling Period:** February 15-16, 2011

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*. To evaluate the performance of the Phase I plan, samples are collected and analyzed on a semiannual basis. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites (LMS/PLN/S04351, continually updated)*. 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. U.S. Environmental Protection Agency (EPA) groundwater standards were exceeded in samples collected from monitoring wells as listed in Table 1.

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

Analyte	Standard (mg/L)	Location	Concentration (mg/L)
Molybdenum	0.1	0262	0.95
Molybdenum	0.1	0287	0.12
Molybdenum	0.1	0936	0.22
Nitrate + Nitrite as Nitrogen	10	0262	190
Nitrate + Nitrite as Nitrogen	10	0263	225
Nitrate + Nitrite as Nitrogen	10	0265	162
Nitrate + Nitrite as Nitrogen	10	0267	318
Nitrate + Nitrite as Nitrogen	10	0268	19
Nitrate + Nitrite as Nitrogen	10	0273	54
Nitrate + Nitrite as Nitrogen	10	0275	250
Nitrate + Nitrite as Nitrogen	10	0281	36
Nitrate + Nitrite as Nitrogen	10	0282	39
Nitrate + Nitrite as Nitrogen	10	0286	176
Nitrate + Nitrite as Nitrogen	10	0287	265
Nitrate + Nitrite as Nitrogen	10	0288	64
Nitrate + Nitrite as Nitrogen	10	0289	26
Nitrate + Nitrite as Nitrogen	10	0290	28
Nitrate + Nitrite as Nitrogen	10	0691	63
Nitrate + Nitrite as Nitrogen	10	0906	343
Nitrate + Nitrite as Nitrogen	10	0908	234
Nitrate + Nitrite as Nitrogen	10	0929	17
Nitrate + Nitrite as Nitrogen	10	0930	15
Nitrate + Nitrite as Nitrogen	10	0934	391
Nitrate + Nitrite as Nitrogen	10	0935	283
Nitrate + Nitrite as Nitrogen	10	0936	180
Nitrate + Nitrite as Nitrogen	10	0938	343
Nitrate + Nitrite as Nitrogen	10	0940	496

Table 1 (continued). Tuba City Wells with Analyte Concentrations that Exceed EPA Standards

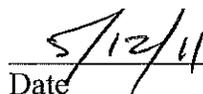
Analyte	Standard (mg/L)	Location	Concentration (mg/L)
Nitrate + Nitrite as Nitrogen	10	0941	240
Nitrate + Nitrite as Nitrogen	10	0942	183
Selenium	0.01	0263	0.046
Selenium	0.01	0267	0.063
Selenium	0.01	0273	0.017
Selenium	0.01	0275	0.034
Selenium	0.01	0286	0.026
Selenium	0.01	0287	0.119
Selenium	0.01	0906	0.021
Selenium	0.01	0908	0.028
Selenium	0.01	0935	0.013
Selenium	0.01	0936	0.032
Selenium	0.01	0938	0.072
Selenium	0.01	0940	0.090
Selenium	0.01	0941	0.117
Selenium	0.01	0942	0.086
Uranium	0.044	0262	0.738
Uranium	0.044	0263	0.140
Uranium	0.044	0265	0.061
Uranium	0.044	0267	0.070
Uranium	0.044	0275	0.429
Uranium	0.044	0286	0.481
Uranium	0.044	0287	0.233
Uranium	0.044	0691	0.051
Uranium	0.044	0906	0.681
Uranium	0.044	0908	0.082
Uranium	0.044	0934	0.166
Uranium	0.044	0935	0.139
Uranium	0.044	0936	0.320
Uranium	0.044	0938	0.406
Uranium	0.044	0940	0.401
Uranium	0.044	0941	0.206
Uranium	0.044	0942	0.595

Concentrations are expressed in milligrams per liter (mg/L).

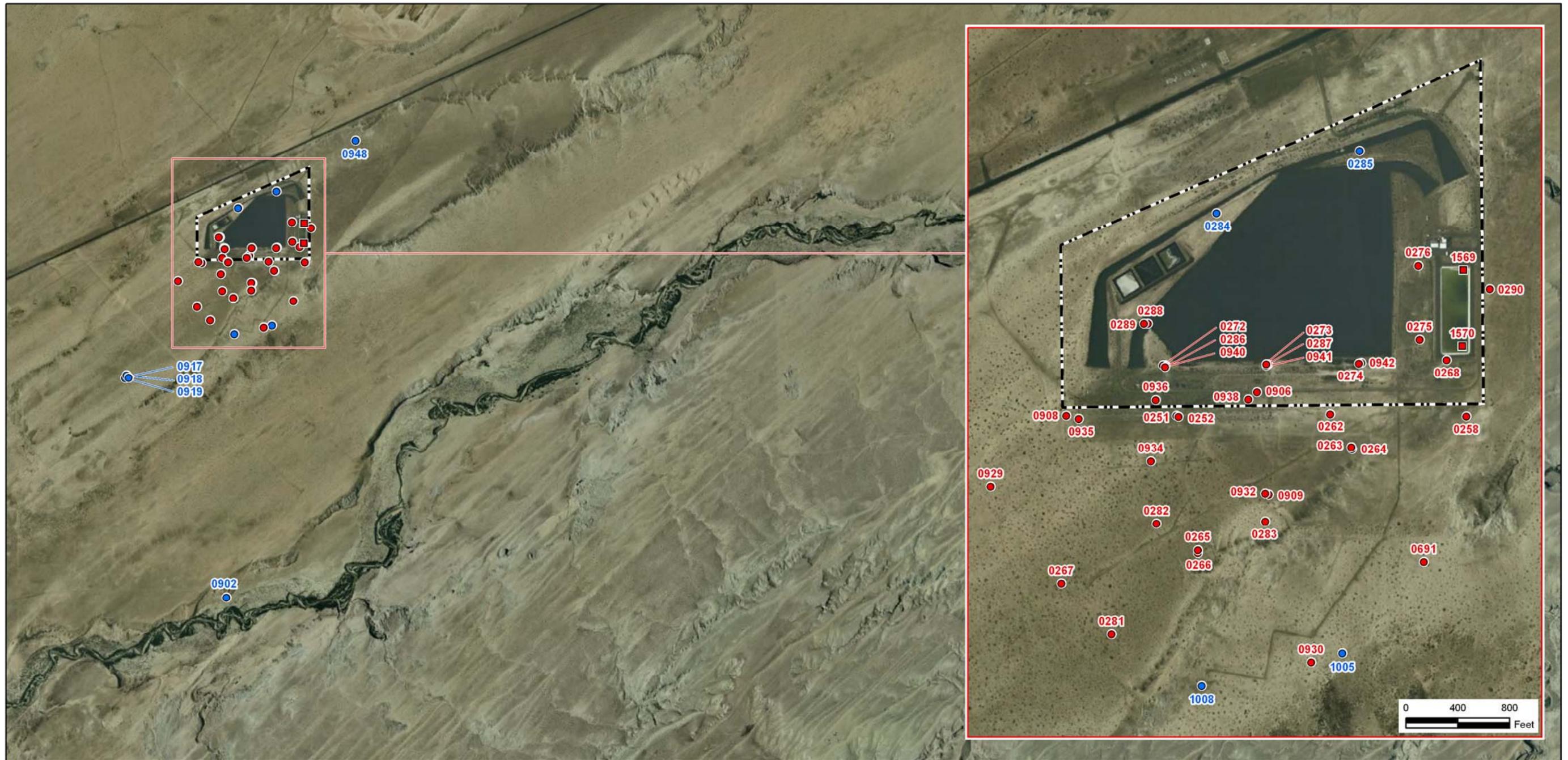
The data from this sampling event will be incorporated into the annual performance evaluation report that will present a comprehensive hydrologic summary and evaluation of groundwater remedial action performance at the Tuba City site through March 2011.



Tim Bartlett  
Site Hydrologist, S.M. Stoller Corporation

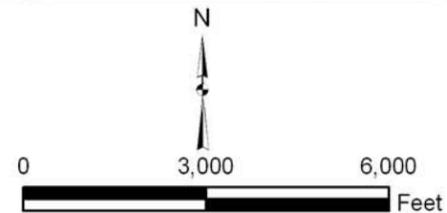


Date



**LEGEND**

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



U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by <b>S.M. Stoller Corporation</b> Under DOE Contract No. DE-AM01-07LM00060
<b>Planned Sampling Map</b> Tuba City, AZ, Disposal Site February 2011	
DATE PREPARED: January 7, 2011	FILENAME: S0731600

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Tuba City, Arizona, Site Location Map

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# Data Assessment Summary

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### Water Sampling Field Activities Verification Checklist

<b>Project</b>	<u>Tuba City, Arizona</u>	<b>Date(s) of Water Sampling</b>	<u>February 15-16, 2011</u>
<b>Date(s) of Verification</b>	<u>April 8, 2011</u>	<b>Name of Verifier</b>	<u>Steve Donovan</u>

	<b>Response (Yes, No, NA)</b>	<b>Comments</b>
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	<u>Yes</u>	<u>Work Order Letter dated January 12, 2011.</u>
2. Were the sampling locations specified in the planning documents sampled?	<u>No</u>	<u>Monitoring wells 0283 and 0909 were dry and not sampled.</u>
3. Was a pre-trip calibration conducted as specified in the above-named documents?	<u>Yes</u>	<u>Pre-trip calibration was performed February 11, 2011.</u>
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	<u>Yes</u>	<u>No</u>
	<u>No</u>	<u>ORP calibration for instrument "G" did not meet the criteria.</u>
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	<u>No</u>	<u>Alkalinity was not measured at well 0268.</u>
6. Was the category of the well documented?	<u>Yes</u>	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>Yes</u>	
Did the water level stabilize prior to sampling?	<u>No</u>	<u>Water level did not stabilize in well 0252.</u>
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>Yes</u>	
Was the flow rate less than 500 mL/min?	<u>No</u>	<u>Flow rate exceeded 500 mL/min at well NMW-8S.</u>
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	<u>NA</u>	

### 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	Three duplicate samples were collected.
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 QC samples assigned a fictitious site identification number? Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	Location IDs 2122, 2723, and 2724 were used for QC samples.
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the "Date Signed" fields (FDCS)?	No	Eight field data sheets were not signed.
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

## Laboratory Performance Assessment

### General Information

Requisition No.: 11023601  
Sample Event: February 15-16, 2011  
Site(s): Tuba City, Arizona  
Laboratory: GEL Laboratories, Charleston, South Carolina  
Work Order No.: 272572  
Analysis: Metals and Inorganics  
Validator: Steve Donivan  
Review Date: April 5, 2011

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
272572005	0263	Arsenic	J	Negative method blank
272572009	0267	Arsenic	J	Negative method blank
272572012	0273	Arsenic	J	Negative method blank
272572019	0287	Arsenic	J	Negative method blank
272572021	0289	Molybdenum	U	Less than 5 times the calibration blank
272572021	0289	Potassium	J	Serial dilution failure
272572022	0290	Molybdenum	U	Less than 5 times the method blank
272572023	0691	Molybdenum	U	Less than 5 times the method blank
272572024	0908	Molybdenum	U	Less than 5 times the method blank
272572025	0940	Molybdenum	U	Less than 5 times the method blank
272572026	0929	Molybdenum	U	Less than 5 times the method blank
272572027	0930	Molybdenum	U	Less than 5 times the method blank
272572028	0932	Molybdenum	U	Less than 5 times the method blank
272572029	0934	Molybdenum	U	Less than 5 times the method blank
272572036	0272 Duplicate	Molybdenum	U	Less than 5 times the method blank
272572037	0932 Duplicate	Molybdenum	U	Less than 5 times the method blank
272572039	0276 Duplicate	Molybdenum	U	Less than 5 times the method blank

### Sample Shipping/Receiving

GEL Laboratories in Charleston, South Carolina, received 45 samples on February 18-19, 2011, accompanied by Chain of Custody forms. Copies of the eight 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 sample date and/or time for sample JDQ 425 differed from what was written on the bottle labels. The laboratory used the correct dates and times from the Chain of Custody for log in.

### Preservation and Holding Times

The sample shipments were received intact with temperatures inside the iced coolers between 2.0 °C and 4.0 °C, which comply with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. The laboratory noted that the unpreserved aliquots for locations 1569 and 1570 were received with pH values that were below the expected range of 4-9. This is typical for samples from these locations and these pH values do not indicate field preservation errors. All samples were analyzed within the applicable holding times.

## Laboratory Instrument Calibration

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

### *Method EPA 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 on March 7-8, 2011, 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 method detection limit (MDL). Initial and continuing calibration verification checks were made at the required frequency resulting in 17 verification checks. All calibration verification checks met the acceptance criteria.

### *Method EPA 353.2*

The initial calibrations for nitrate + nitrite as N were performed on February 21, 2011, 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 resulting in 11 verification checks. All calibration verification checks met the acceptance criteria.

### *Method SW-846 6010B*

Calibrations for calcium, iron, magnesium, manganese, potassium, silica, and sodium were performed March 1-9, 2011 using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. The correlation coefficients and intercepts were not provided by the laboratory. Initial and continuing calibration verification checks were made at the required frequency resulting in 23 verification checks. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit and all results were within the acceptance range.

### *Method SW-846 6020A*

Calibrations for arsenic, molybdenum, selenium, and uranium were performed on March 11-16, 2011 using two calibration standards. Initial and continuing calibration verification checks were made at the required frequency resulting in 11 verification checks. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit 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 on January 18, 2011, 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 resulting in 22 verification checks. All calibration checks met the acceptance criteria.

#### Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and initial and continuing calibration blank results associated with the samples were below the practical quantitation limits (PQLs) for all analytes with these exceptions. Some chloride calibration blanks were slightly above the PQLs. All samples associated with these blanks had chloride concentrations greater than 10 times the blank. 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 arsenic, the values of some blank results were negative and the absolute values were greater than the MDLs. Associated samples with results less than 5 times the MDL are flagged with a “J” as estimated values.

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

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

#### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike recoveries met the recovery and precision 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 the PQL should be less than 20 percent. For results that are less than 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 practical quantitation limit for method 6010 or greater than 100 times the practical quantitation limit for method 6020. All evaluated serial dilution data were acceptable with the following exception. The percent potassium difference was above the acceptance range of 10 percent for sample 0289, which may indicate a matrix interference. The associated sample potassium result is qualified with a “J” flag as an estimated value.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The required detection limits were achieved for all analytes.

### 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 21, 2011. 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.

### 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 (meq/L). 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	2.22	2.54	6.74
0252	1.84	2.09	6.31
0258	2.97	3.03	1.15
0263	86.03	88.38	1.34
0264	4.60	5.48	8.73
0265	45.44	46.21	0.84
0266	2.40	2.80	7.61
0267	104.13	111.43	3.39
0268	NA	NA	NA
0272	2.64	2.87	4.24
0273	11.60	11.75	0.61
0274	2.91	3.03	2.00
0275	76.88	80.65	2.39
0276	2.90	3.80	13.43
0281	8.74	8.79	0.28
0282	7.78	8.36	3.56
0286	73.99	76.33	1.55
0287	69.00	68.69	0.23
0288	15.23	16.84	5.01
0289	9.56	9.46	0.51
0290	8.05	8.03	0.14
0691	19.58	20.74	2.88
0906	84.12	82.40	1.04
0908	83.41	91.77	4.78
0929	3.86	4.23	4.59
0930	4.87	5.45	5.67
0932	3.90	4.65	8.77
0934	115.09	108.12	3.12
0935	80.71	85.58	2.93
0936	46.33	48.46	2.25
0938	95.22	98.01	1.44
0940	214.79	223.73	2.04
0941	62.49	61.80	0.56
0942	91.90	98.01	3.22
NMW-1A	2.55	2.13	8.92
NMW-6S	2.73	2.40	6.49
NMW-7D	2.56	2.55	0.24
NMW-8S	2.55	2.59	0.76
NMW-9D	3.45	2.38	18.31

The charge balance value for most locations was less than 10 percent. No alkalinity measurement was made at location 0268, preventing calculation of the charge balance. At two locations, the charge balances were above 10 percent; there were no analytical errors identified during the review of the associated data.

# SAMPLE MANAGEMENT SYSTEM

## General Data Validation Report

RIN: 11023601 Lab Code: GEN Validator: Validation Date: 4/5/2011

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

# of Samples: 45 Matrix: Water Requested Analysis Completed: Yes

### Chain of Custody

Present: OK Signed: OK Dated: OK

### Sample

Integrity: OK Preservation: OK Temperature: OK

### Select Quality Parameters

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

All analyses were completed within the applicable holding times.

There are 0 detection limit failures.

There were 3 duplicates evaluated.

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

RIN: 11023601      Lab Code: GEN      Date Due: 3/19/2011  
 Matrix: Water      Site Code: TUB      Date Completed: 3/18/2011

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	ICV	CCV	ICB	CCB								
Arsenic	ICP/MS	03/11/2011			OK	OK	OK	OK	98.2	97.8			103.0		95.0	
Arsenic	ICP/MS	03/12/2011			OK	OK	OK	OK	88.0	94.8			107.0			
Arsenic	ICP/MS	03/12/2011							86.3	98.3			114.0		99.0	
Calcium	ICP/AES	03/01/2011	0.0000	1.0000	OK	OK	OK	OK	102.0			0.0	96.0	3.6	98.0	
Calcium	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	97.1			1.0	97.0	0.0	103.0	
Calcium	ICP/AES	03/04/2011							99.2	86.9		1.0	96.0		104.0	
Iron	ICP/AES	03/01/2011	0.0000	1.0000	OK	OK	OK	OK	101.0	98.3			95.0		99.0	
Iron	ICP/AES	03/01/2011							109.0	105.0						
Iron	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	95.5	92.5						
Magnesium	ICP/AES	03/01/2011	0.0000	1.0000	OK	OK	OK	OK	100.0	93.3		4.0	94.0	0.5	92.0	
Magnesium	ICP/AES	03/01/2011							108.0	80.4		0.0	95.0	1.9		
Magnesium	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	98.2	92.6		1.0	95.0		98.0	
Manganese	ICP/AES	03/01/2011							98.2	96.4		4.0	100.0	2.0		
Manganese	ICP/AES	03/01/2011							102.0	98.2					105.0	
Manganese	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	95.5	91.8			100.0		105.0	
Molybdenum	ICP/MS	03/11/2011			OK	OK	OK	OK	114.0	117.0		5.0		4.9		
Molybdenum	ICP/MS	03/14/2011			OK	OK	OK	OK	100.0	109.0		2.0	103.0		101.0	
Molybdenum	ICP/MS	03/15/2011			OK	OK	OK	OK	115.0	118.0		21.0	102.0		101.0	

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

RIN: 11023601      Lab Code: GEN      Date Due: 3/19/2011  
 Matrix: Water      Site Code: TUB      Date Completed: 3/18/2011

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	ICV	CCV	ICB	CCB									
Potassium	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	OK	98.7	93.8		2.0	114.0	4.7	88.0	
Potassium	ICP/AES	03/04/2011								100.0	97.3		5.0	113.0	13.7		
Potassium	ICP/AES	03/04/2011								94.9	90.0		3.0	112.0			
Selenium	ICP/MS	03/12/2011			OK	OK	OK	OK	OK	91.5	94.3			110.0		116.0	
Selenium	ICP/MS	03/12/2011								88.5	92.2			101.0		105.0	
Selenium	ICP/MS	03/15/2011			OK	OK	OK	OK	OK	94.8	92.8			111.0		92.0	
Silica	ICP/AES	03/01/2011	0.0000	1.0000	OK	OK	OK	OK	OK	96.5	92.2		1.0	104.0	5.3	103.0	
Silica	ICP/AES	03/01/2011								99.9	91.9		0.0		3.1		
Silica	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	OK	94.2	94.1		1.0				
Sodium	ICP/AES	03/04/2011	0.0000	1.0000	OK	OK	OK	OK	OK	94.5	89.7		3.0	106.0	5.4	105.0	
Sodium	ICP/AES	03/04/2011								99.4	88.3		2.0	106.0	7.9		
Sodium	ICP/AES	03/04/2011								95.2	84.7		0.0	105.0			
Uranium	ICP/MS	03/11/2011			OK	OK	OK	OK	OK	98.1				99.0	7.7	98.0	
Uranium	ICP/MS	03/12/2011			OK	OK	OK	OK	OK		95.2		4.0		7.3		
Uranium	ICP/MS	03/14/2011			OK	OK	OK	OK	OK	99.3	111.0		13.0	93.0		90.0	
Uranium	ICP/MS	03/16/2011			OK	OK	OK	OK	OK	108.0	107.0		2.0	107.0		104.0	

## Sampling Quality Control Assessment

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

### Sampling Protocol

Sample results for monitoring wells that met the Category I or II low-flow sampling criteria were qualified with an “F” flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. All monitoring wells are equipped with either dedicated downhole and pump-head tubing or a bladder pump. Extraction wells (0935, 0936, 0938, and 0942) are spigot samples and are designated as Category IV.

All monitoring wells met the Category I criteria and were sampled with dedicated tubing using the low-flow purge procedure with the following exceptions.

- Water level stability requirements were not met at well 0252.
- The following 22 wells were classified as Category II: 0251, 0258, 0262, 0263, 0264, 0265, 0266, 0273, 0274, 0281, 0282, 0286, 0287, 0288, 0289, 0290, 0906, 0908, 0929, 0934, 0940, and 0941.

The sample results for these wells were qualified with a “Q” flag, indicating the data are qualitative because of the sampling technique.

### Field Measurements

The oxidation/reduction potential (ORP) daily calibration check results for instrument “G” did not meet the acceptance criteria on February 15-16, 2011. The ORP data collected with this instrument (0258, 0262, 0263, 0264, 0265, 0266, 0267, 0281, 0282, 0290, 0691, 0929, 0930, 0932, 0934, NMW-1A, NMW-6S, NMW-7D, NMW-8S, and NMW-9D) are qualified with a “J” flag as estimated values.

### Equipment Blank Assessment

No equipment blanks were collected. All groundwater and surface water samples were collected using dedicated equipment and equipment blanks were not required.

### Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than the PQL, the range should be no greater than the PQL. Duplicate samples were collected from locations 0272, 0276, and 0932. The duplicate results met the criteria, demonstrating acceptable overall precision.

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

RIN: 11023601    Lab Code: GEN    Project: Tuba City    Validation Date: 4/5/2011

Duplicate: 2122

Sample: 0272

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Arsenic	1.70	U		1.00	3.4	B		1.00			ug/L
Calcium	33500			1.00	34800			1.00	3.81		ug/L
Chloride	7.70			1.00	7.69			1.00	0.13		mg/L
Iron	30.0	U		1.00	30.0	U		1.00			ug/L
Magnesium	7540			1.00	7590			1.00	0.66		ug/L
Manganese	2.00	U		1.00	2.00	U		1.00			ug/L
Molybdenum	0.483	B		1.00	2.05	B		1.00			ug/L
NH3 as N	0.016	U		1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	3.74			10.00	3.66			10.00	2.16		mg/L
Potassium	1700	BE		1.00	1830	BE		1.00	7.37		ug/L
Selenium	1.50	U		1.00	1.50	U		1.00			ug/L
Silica	11600			1.00	11700			1.00	0.86		ug/L
Sodium	6990			1.00	7240			1.00	3.51		ug/L
Sulfate	12.0			1.00	12.0			1.00	0		mg/L
Total Dissolved Solids	144			1.00	150			1.00	4.08		mg/L
Uranium	1.55			1.00	1.93			1.00	21.84		ug/L

Duplicate: 2723

Sample: 0932

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Arsenic	2.63	B		1.00	2.95	B		1.00			ug/L
Calcium	49700			1.00	48800			1.00	1.83		ug/L
Chloride	11.5			2.00	12.2			1.00	5.91		mg/L
Iron	30.0	U		1.00	30.0	U		1.00			ug/L
Magnesium	10500			1.00	10400			1.00	0.96		ug/L
Manganese	2.00	U		1.00	2.00	U		1.00			ug/L
Molybdenum	0.358	B		1.00	1.86	B		1.00			ug/L
NH3 as N	0.016	U		1.00	0.124			1.00			mg/L
NO2+NO3 as N	8.40			50.00	8.59			10.00	2.24		mg/L
Potassium	1910	BE		1.00	2110	BE		1.00	9.95		ug/L
Selenium	1.62	B		1.00	1.50	U		1.00			ug/L
Silica	11900			1.00	12800			1.00	7.29		ug/L
Sodium	11600			1.00	12200			1.00	5.04		ug/L
Sulfate	37.6			2.00	38.2			2.00	1.58		mg/L
Total Dissolved Solids	216			1.00	226			1.00	4.52		mg/L
Uranium	2.57			1.00	3.29			1.00	24.57		ug/L

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

RIN: 11023601    Lab Code: GEN    Project: Tuba City    Validation Date: 4/5/2011

Duplicate: 2724

Sample: 0276

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Arsenic	1.70	U		1.00	3.99	B		1.00			ug/L
Calcium	33900			1.00	34800			1.00	2.62		ug/L
Chloride	11.0			1.00	11.0			1.00	0		mg/L
Iron	30.0	U		1.00	30.0	U		1.00			ug/L
Magnesium	7140			1.00	7140			1.00	0		ug/L
Manganese	2.00	U		1.00	2.00	U		1.00			ug/L
Molybdenum	0.681	B		1.00	2.04	B		1.00			ug/L
NH3 as N	0.046	J		1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	3.19			10.00	3.30			10.00	3.39		mg/L
Potassium	1510	BE		1.00	1570	BE		1.00	3.90		ug/L
Selenium	2.02	B		1.00	1.50	U		1.00			ug/L
Silica	11600			1.00	11700			1.00	0.86		ug/L
Sodium	13300			1.00	13800			1.00	3.69		ug/L
Sulfate	17.4			1.00	17.3			1.00	0.58		mg/L
Total Dissolved Solids	174			1.00	163			1.00	6.53		mg/L
Uranium	1.72			1.00	1.79			1.00	3.99		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 Donovan 5-12-2011  
Steve Donovan Date

Data Validation Lead: Steve Donovan 5-12-2011  
Steve Donovan Date

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**Attachment 1**  
**Assessment of Anomalous Data**

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## **Potential Outliers Report**

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## Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers 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 SEEPro database. The application compares the new data set 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.

Twenty-one laboratory results and four field measurements were identified as potentially anomalous. Most of these data are from Category II wells where the data are qualitative because of the sampling technique. Other results were identified as potentially anomalous because of a downward or upward trend in the data.

Data from four locations were listed on the Anomalous Data Review Checksheet for further review in the January 2011 Data Validation Package. Locations 0684, 1004, and 1103 were not included in this sampling event; the manganese data from location 0938 were confirmed.

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

**Comparison: All Historical Data**

Laboratory: GEL Laboratories

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Data Points	Outlier	
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	
TUB01	0251	N001	02/16/2011	Chloride	6.05		FQ	17.5			6.15		F	22	0	No
TUB01	0251	N001	02/16/2011	Nitrate + Nitrite as Nitrogen	3.27		FQ	5.1	N	FQ	3.6		F	14	0	No
TUB01	0252	N001	02/16/2011	Chloride	4.46		FQ	5.68			4.5		F	22	0	No
TUB01	0258	N001	02/15/2011	Magnesium	7.52		FQ	7.5		F	6.7		FQ	13	0	No
TUB01	0258	N001	02/15/2011	Molybdenum	0.00112	B	FQ	0.00077	B	UF	0.00037	B	FQ	13	7	Yes
TUB01	0258	N001	02/15/2011	Sodium	12.6		FQ	12.5			10		FQ	13	0	No
TUB01	0262	N001	02/15/2011	Magnesium	171		FQ	160		FQ	71		FQ	15	0	No
TUB01	0262	N001	02/15/2011	Silica	19.3		FQ	19		FQ	14		F	15	0	No
TUB01	0262	N001	02/15/2011	Sodium	232		FQ	230		FQ	73.7			15	0	No
TUB01	0263	N001	02/15/2011	Ammonia Total as N	0.019	J	FQ	0.1	U	F	0.1	U	F	13	13	No
TUB01	0263	N001	02/15/2011	Magnesium	442		FQ	440		FQ	220		F	15	0	No
TUB01	0263	N001	02/15/2011	Silica	19.1		FQ	19			13		F	15	0	Yes
TUB01	0264	N001	02/15/2011	Sulfate	68.7		FQ	68		FQ	37.7			15	0	No
TUB01	0266	N001	02/15/2011	Chloride	7.16		FQ	8.5		F	7.2		QF	15	0	No
TUB01	0266	N001	02/15/2011	Magnesium	7.65		FQ	7.6	N	FJ	6.6		FQ	15	0	No
TUB01	0266	N001	02/15/2011	Selenium	0.0015	U	FQ	0.0013	B	FQ	0.00065			15	0	No
TUB01	0267	N001	02/16/2011	Arsenic	0.00466	B	FJ	0.0039		F	0.0018		F	18	0	No
TUB01	0267	N001	02/16/2011	Magnesium	711		F	932		F	750		F	19	0	No
TUB01	0267	N001	02/16/2011	Manganese	0.01	U	F	0.153			0.022		F	22	0	No
TUB01	0267	N001	02/16/2011	Selenium	0.0626		F	0.058		F	0.04		F	22	0	No
TUB01	0268	N001	02/15/2011	Silica	11.9		F	11.4			8.5		F	24	0	No
TUB01	0272	N001	02/15/2011	Selenium	0.0015	U	F	0.0013		F	0.00071		F	15	0	No
TUB01	0272	N001	02/15/2011	Sodium	6.99		F	6.8		F	5.6		F	15	0	No
TUB01	0273	N001	02/15/2011	Arsenic	0.00262	B	FQJ	0.0017		FQ	0.00053		FQ	12	0	Yes
TUB01	0273	N001	02/15/2011	Silica	14.7		FQ	14		FQ	11		FQ	12	0	No

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

**Comparison: All Historical Data**

Laboratory: GEL Laboratories

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Data Points	N Below Detect	
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	Outlier
TUB01	0274	N001	02/15/2011	Iron	0.0491	B	FQ	0.036	B	FQ	0.0014	U	FQ	12	11	No
TUB01	0274	N001	02/15/2011	Sodium	11.7		FQ	11		FQ	9.6		FQ	12	0	No
TUB01	0275	N001	02/15/2011	Manganese	10.1		F	9.8		F	2.2		F	12	0	No
TUB01	0275	N001	02/15/2011	Selenium	0.0338		F	0.031		F	0.017		F	12	0	No
TUB01	0275	N001	02/15/2011	Silica	19.1		F	17		F	6.5		F	12	0	No
TUB01	0275	N001	02/15/2011	Sodium	299		F	280		F	89		F	12	0	No
TUB01	0276	N001	02/15/2011	Ammonia Total as N	0.046	J	F	0.1	U	F	0.1	U	F	13	13	No
TUB01	0276	N001	02/15/2011	Magnesium	7.14		F	7.1		F	6		F	13	0	No
TUB01	0276	N001	02/15/2011	Selenium	0.00202	B	F	0.0019		F	0.00099		F	13	0	No
TUB01	0276	N001	02/15/2011	Sodium	13.3		F	13		F	11		F	13	0	No
TUB01	0276	N001	02/15/2011	Uranium	0.00172		F	0.0017		F	0.0013		F	13	0	No
TUB01	0281	N001	02/16/2011	Iron	0.637		FQ	0.26		FQ	0.017	B	UFQ	13	6	Yes
TUB01	0281	N001	02/16/2011	Manganese	0.0127		FQ	0.14		FQ	0.014		QF	13	0	No
TUB01	0281	N001	02/16/2011	Sodium	18.5		FQ	30		FQ	19		FQ	13	0	No
TUB01	0282	N001	02/15/2011	Chloride	36.4		FQ	94		F	38		FQ	12	0	No
TUB01	0282	N001	02/15/2011	Molybdenum	0.000435	B	FQ	0.0048		F	0.0005		FQ	12	5	No
TUB01	0286	0001	02/15/2011	Ammonia Total as N	19.8		FQ	2.1		FQ	0.1	U	F	6	3	Yes
TUB01	0286	0001	02/15/2011	Magnesium	284		FQ	240		FQ	10		FQ	6	0	No
TUB01	0286	0001	02/15/2011	Manganese	2.86		FQ	0.92		FQ	0.0036	B	FQ	6	0	Yes
TUB01	0286	0001	02/15/2011	Nitrate + Nitrite as Nitrogen	176		FQ	170		FQ	9.2		FQ	6	0	No
TUB01	0286	0001	02/15/2011	Potassium	12.2	E	FQ	12		FQ	1.8		FQ	6	0	No
TUB01	0286	0001	02/15/2011	Silica	18.5		FQ	18		FQ	12		FQ	6	0	No
TUB01	0286	0001	02/15/2011	Sodium	279		FQ	220		FQ	9.7		FQ	6	0	No
TUB01	0286	0001	02/15/2011	Sulfate	2290		FQ	2200		FQ	34		FQ	7	0	No
TUB01	0286	0001	02/15/2011	Total Dissolved Solids	5010		FQ	4200		FQ	250		FQ	6	0	No

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

**Comparison: All Historical Data**

Laboratory: GEL Laboratories

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Data Points	N Below Detect	
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	Outlier
TUB01	0287	N001	02/15/2011	Arsenic	0.00538		FQJ	0.0017		FQ	0.00093		FQ	6	0	Yes
TUB01	0287	N001	02/15/2011	Magnesium	152		FQ	140		FQ	110		FQ	6	0	No
TUB01	0287	N001	02/15/2011	Molybdenum	0.122		FQ	0.097		FQ	0.023		FQ	6	0	No
TUB01	0287	N001	02/15/2011	Silica	19.5		FQ	18		FQ	15		FQ	6	0	No
TUB01	0287	N001	02/15/2011	Sodium	273		FQ	230		FQ	170		FQ	6	0	No
TUB01	0287	N001	02/15/2011	Sulfate	1540		FQ	1500		FQ	905			7	0	No
TUB01	0288	N001	02/15/2011	Calcium	193		FQ	330		FQ	200		FQ	6	0	No
TUB01	0288	N001	02/15/2011	Chloride	23.8		FQ	44			24		FQ	7	0	No
TUB01	0288	N001	02/15/2011	Selenium	0.00242	B	FQ	0.0033		FQ	0.0025		FQ	6	0	No
TUB01	0288	N001	02/15/2011	Total Dissolved Solids	1080		FQ	1600		FQ	1200		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Ammonia Total as N	0.049	J	FQ	0.1	U	F	0.1	U	F	6	6	No
TUB01	0289	N001	02/15/2011	Chloride	18.4		FQ	41			21		FQ	7	0	No
TUB01	0289	N001	02/15/2011	Manganese	0.0254		FQ	0.022		FQ	0.012		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Molybdenum	0.00112	B	UFQ	0.00099	B	FQJ	0.00032		FQ	6	1	No
TUB01	0289	N001	02/15/2011	Nitrate + Nitrite as Nitrogen	25.8		FQ	65		FQ	28		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Potassium	2.6	BE	FQJ	4.1		FQ	3.2		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Selenium	0.00222	B	FQ	0.0036		FQ	0.0024		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Silica	15.9		FQ	15		F	14		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Sodium	34.2		FQ	45		FQ	36		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Sulfate	125		FQ	656			140		FQ	7	0	No
TUB01	0289	N001	02/15/2011	Total Dissolved Solids	557		FQ	1200		FQ	590		FQ	6	0	No
TUB01	0289	N001	02/15/2011	Uranium	0.0123		FQ	0.0684			0.016		F	7	0	No
TUB01	0290	N001	02/16/2011	Calcium	109		FQ	67		FQ	35		FQ	6	0	Yes
TUB01	0290	N001	02/16/2011	Chloride	27		FQ	23		FQ	13		FQ	7	0	No
TUB01	0290	N001	02/16/2011	Magnesium	19		FQ	11		FQ	5.8		FQ	6	0	Yes

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

**Comparison: All Historical Data**

Laboratory: GEL Laboratories

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical Outlier
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		N	N Below Detect	
						Lab	Data		Lab	Data		Lab	Data			
TUB01	0290	N001	02/16/2011	Nitrate + Nitrite as Nitrogen	28.3		FQ	17		FQ	3.6		FQ	6	0	No
TUB01	0290	N001	02/16/2011	Potassium	2.63	BE	FQ	1.8		FQ	1.1		FQJ	6	0	Yes
TUB01	0290	N001	02/16/2011	Selenium	0.00323	B	FQ	0.0025		FQ	0.0014	E	FQ	6	0	No
TUB01	0290	N001	02/16/2011	Silica	14.9		FQ	13		FQ	11		FQ	6	0	No
TUB01	0290	N001	02/16/2011	Sodium	22.5		FQ	17	E	FQ	13		FQ	6	0	No
TUB01	0290	N001	02/16/2011	Sulfate	126		FQ	71		FQ	19		FQ	7	0	No
TUB01	0290	N001	02/16/2011	Total Dissolved Solids	522		FQ	340		FQ	180		FQ	6	0	Yes
TUB01	0290	N001	02/16/2011	Uranium	0.00368		FQ	0.00339			0.0014		FQ	7	0	No
TUB01	0906	N001	02/15/2011	Ammonia Total as N	0.032	J	FQ	0.1	U	FQ	0.1	U	FQ	8	8	No
TUB01	0929	N001	02/16/2011	Ammonia Total as N	0.023	J	FQ	0.1	U	F	0.1	U	F	13	13	No
TUB01	0929	N001	02/16/2011	Arsenic	0.00316	B	FQ	0.0017	B	FQ	0.001		F	16	0	Yes
TUB01	0930	N001	02/15/2011	Arsenic	0.00407	B	F	0.0016		F	0.00097		F	18	0	No
TUB01	0932	N001	02/15/2011	Arsenic	0.00263	B	F	0.0016			0.00092		F	19	0	Yes
TUB01	0932	N001	02/15/2011	Sodium	11.6		F	14.4			12		F	27	0	No
TUB01	0935	N001	02/16/2011	Ammonia Total as N	60.4		F	98			63			11	0	No
TUB01	0935	N001	02/16/2011	Arsenic	0.00395	B	F	0.0019			0.0005	B	JF	15	0	No
TUB01	0935	N001	02/16/2011	Chloride	89.2		F	87			65			27	0	No
TUB01	0935	N001	02/16/2011	Iron	0.136		F	0.051	B		0.00097	B	U	31	26	Yes
TUB01	0935	N001	02/16/2011	Selenium	0.0131		F	0.0396			0.0159			30	0	No
TUB01	0936	N001	02/15/2011	Arsenic	0.00219	B	F	0.0011	B	FQ	0.00022		U	11	2	Yes
TUB01	0936	N001	02/15/2011	Molybdenum	0.223		F	0.01	U	F	0.00056	B	U	20	12	No
TUB01	0936	N001	02/15/2011	Nitrate + Nitrite as Nitrogen	181		F	550		FQ	200			6	0	No
TUB01	0936	N001	02/15/2011	Potassium	5.79	E	F	31.2			7.2		J	16	0	No
TUB01	0938	N001	02/15/2011	Ammonia Total as N	2.83		F	1.3			0.1	U	F	11	9	No
TUB01	0938	N001	02/15/2011	Arsenic	0.00341	B	F	0.0016			0.00087			11	0	Yes

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

**Comparison: All Historical Data**

Laboratory: GEL Laboratories

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical Outlier
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		N	N Below Detect	
						Lab	Data		Lab	Data		Lab	Data			
TUB01	0938	N001	02/15/2011	Manganese	0.887		F	0.74			0.0092	B	F	17	0	No
TUB01	0938	N001	02/15/2011	Selenium	0.0719		F	0.066	S		0.028			18	0	Yes
TUB01	0938	N001	02/15/2011	Sodium	352		F	350			120			18	0	Yes
TUB01	0940	0001	02/15/2011	Manganese	10.4		FQ	64.8		F	26		FQ	16	0	Yes
TUB01	0941	N001	02/15/2011	Ammonia Total as N	0.027	J	FQ	0.12		FQ	0.1	U	FQ	11	10	No
TUB01	0941	N001	02/15/2011	Arsenic	0.00257	B	FQ	0.0018	B	F	0.00083		FQ	14	0	No
TUB01	0941	N001	02/15/2011	Magnesium	148		FQ	140		FQ	28.3		F	28	0	No
TUB01	0941	N001	02/15/2011	Selenium	0.117		FQ	0.099		FQ	0.0182		L	33	0	No
TUB01	0941	N001	02/15/2011	Silica	18.4		FQ	17		QF	14		FQ	22	0	No
TUB01	0942	N001	02/15/2011	Selenium	0.086		F	0.0725			0.025	S		34	0	Yes
TUB01	0942	N001	02/15/2011	Total Dissolved Solids	5840		F	8490		F	6130		F	30	0	No
TUB01	1569	N001	02/15/2011	Iron	9.8			9.2			0.0008	U		21	11	No
TUB01	1570	N001	02/15/2011	Iron	13.1			11			0.0008	U		26	17	Yes

Data Validation Outliers Report - Field Parameters Only

Comparison: All Historical Data

Laboratory: Field Measurements

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical Outlier
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		N	N Below Detect	
						Lab	Data		Lab	Data		Lab	Data			
TUB01	0262	N001	02/15/2011	pH	6.58		FQ	7.9			6.65		FQ	16	0	No
TUB01	0263	N001	02/15/2011	Alkalinity, Total (As CaCO3)	538		FQ	518		FQ	287		FQ	16	0	No
TUB01	0264	N001	02/15/2011	Alkalinity, Total (As CaCO3)	147		FQ	135		FQ	90		FQ	16	0	No
TUB01	0264	N001	02/15/2011	Specific Conductance	562		FQ	512		FQ	397		FQ	15	0	Yes
TUB01	0272	N001	02/15/2011	pH	7.47		F	8.16		F	7.48		F	12	0	No
TUB01	0274	N001	02/15/2011	pH	7.72		FQ	8.38		FQ	7.73		FQ	12	0	No
TUB01	0274	N001	02/15/2011	Turbidity	8.51		FQ	6.1		FQ	0.38		FQ	12	0	Yes
TUB01	0275	N001	02/15/2011	pH	6.26		F	6.57		F	6.29		F	12	0	No
TUB01	0275	N001	02/15/2011	Specific Conductance	5880		F	5839		F	4880		F	12	0	No
TUB01	0286	0001	02/15/2011	Alkalinity, Total (As CaCO3)	683		FQ	652		FQ	102		F	6	0	No
TUB01	0286	N001	02/15/2011	Oxidation Reduction Potential	240		FQ	213.9		FQ	126			6	0	No
TUB01	0286	N001	02/15/2011	pH	6.34		FQ	7.14		FQ	6.35			7	0	No
TUB01	0286	N001	02/15/2011	Specific Conductance	5290		FQ	5204		FQ	511		FQ	8	0	No
TUB01	0286	N001	02/15/2011	Turbidity	29		FQ	9.18			2.08		FQ	6	0	Yes
TUB01	0287	N001	02/15/2011	pH	6.41		FQ	6.74		FQ	6.43			7	0	No
TUB01	0287	N001	02/15/2011	Specific Conductance	5400		FQ	5224		FQ	3447			8	0	No
TUB01	0288	N001	02/15/2011	Temperature	13.6		FQ	18.64		FQ	13.8		FQ	7	0	No
TUB01	0289	N001	02/15/2011	Specific Conductance	1007		FQ	2321			1013		FQ	8	0	No
TUB01	0289	N001	02/15/2011	Turbidity	6.55		FQ	5.97			0.92		FQ	7	0	No
TUB01	0290	N001	02/16/2011	Alkalinity, Total (As CaCO3)	131		FQ	119		FQ	71			7	0	No
TUB01	0290	N001	02/16/2011	Oxidation Reduction Potential	209.7		FQ	187.5		FQ	84			7	0	No
TUB01	0290	N001	02/16/2011	Specific Conductance	812		FQ	561		FQ	273		FQ	8	0	No
TUB01	0930	N001	02/15/2011	Temperature	14.38		F	20.79		F	14.7		F	24	0	No

**Data Validation Outliers Report - Field Parameters Only**

**Comparison: All Historical Data**

Laboratory: Field Measurements

RIN: 11023601

Report Date: 4/12/2011

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of		Statistical Outlier
					Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Data Points		
						Lab	Data		Lab	Data		Lab	Data	N	N Below Detect	
TUB01	0938	N001	02/15/2011	Specific Conductance	7150		F	6665			3126			17	0	No
TUB01	0940	N001	02/15/2011	Turbidity	16.5		FQ	8.88		L	0.42		F	17	1	No
TUB01	0941	N001	02/15/2011	Alkalinity, Total (As CaCO3)	570		FQ	492		FQ	118		F	35	0	No
TUB01	0942	N001	02/15/2011	Turbidity	5.4		F	3.41			0.13		F	30	2	Yes
TUB01	1569	N001	02/15/2011	pH	0.45			8.24			0.99			18	0	No
TUB01	1569	N001	02/15/2011	Specific Conductance	200000			197637			6044			18	0	No
TUB01	1570	N001	02/15/2011	pH	0.33			8.18			1.02			19	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.

# **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: 4/13/2011

Location: 0251 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0	-	0	95		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0	-	0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0	-	0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0	-	0	28		FQ	#	0.05	
Chloride	mg/L	02/16/2011	N001	0	-	0	6.05		FQ	#	0.066	
Iron	mg/L	02/16/2011	N001	0	-	0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0	-	0	5.92		FQ	#	0.11	
Manganese	mg/L	02/16/2011	N001	0	-	0	0.006		FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0	-	0	0.00126	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0	-	0	3.27		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/16/2011	N001	0	-	0	220		FQ	#		
pH	s.u.	02/16/2011	N001	0	-	0	7.97		FQ	#		
Potassium	mg/L	02/16/2011	N001	0	-	0	2.36	BE	FQ	#	0.05	
Selenium	mg/L	02/16/2011	N001	0	-	0	0.0015	U	FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0	-	0	10.4		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0	-	0	6.36		FQ	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0	-	0	230		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0	-	0	11.5		FQ	#	0.1	
Temperature	C	02/16/2011	N001	0	-	0	16.2		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0	-	0	139		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0	-	0	2.61		FQ	#		
Uranium	mg/L	02/16/2011	N001	0	-	0	0.00162		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0252 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0	-	0	83		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0	-	0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0	-	0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0	-	0	20.4		FQ	#	0.05	
Chloride	mg/L	02/16/2011	N001	0	-	0	4.46		FQ	#	0.066	
Iron	mg/L	02/16/2011	N001	0	-	0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0	-	0	3.99	B	FQ	#	0.11	
Manganese	mg/L	02/16/2011	N001	0	-	0	0.0077		FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0	-	0	0.000822	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0	-	0	2.32		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/16/2011	N001	0	-	0	200		FQ	#		
pH	s.u.	02/16/2011	N001	0	-	0	7.98		FQ	#		
Potassium	mg/L	02/16/2011	N001	0	-	0	2.19	BE	FQ	#	0.05	
Selenium	mg/L	02/16/2011	N001	0	-	0	0.0015	U	FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0	-	0	9.35		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0	-	0	10.1		FQ	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0	-	0	200		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0	-	0	6.62		FQ	#	0.1	
Temperature	C	02/16/2011	N001	0	-	0	15.3		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0	-	0	119		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0	-	0	1.22		FQ	#		
Uranium	mg/L	02/16/2011	N001	0	-	0	0.00187		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0258 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	104		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	35.1		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	12		FQ	#	0.066	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.1		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	7.52		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.00112	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.33		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	146.6		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.86		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.82	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0015	U	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	12.2		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	12.6		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	292		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	18.1		FQ	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	15.47		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	172		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	5.79		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00132		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0262 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	418		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	1.74		FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	765		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	121		FQ	#	0.66	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.62		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.034	B	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	171		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.00745		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.951		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	190		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	201.3		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.58		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	6.3	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0817		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	19.3		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	232		FQ	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	4945		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1860		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.4		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	4610		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	2.36		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.738		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0263 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0	-	0	538		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0	-	0	0.019	J	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0	-	0	0.00184	B	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0	-	0	743		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0	-	0	145		FQ	#	0.66	
Iron	mg/L	02/15/2011	N001	0	-	0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0	-	0	442		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0	-	0	0.01	U	FQ	#	0.01	
Molybdenum	mg/L	02/15/2011	N001	0	-	0	0.0335		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0	-	0	225		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0	-	0	199.1		FQJ	#		
pH	s.u.	02/15/2011	N001	0	-	0	6.57		FQ	#		
Potassium	mg/L	02/15/2011	N001	0	-	0	6.57	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0	-	0	0.0461		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0	-	0	19.1		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0	-	0	286		FQ	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0	-	0	6185		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0	-	0	2760		FQ	#	10	
Temperature	C	02/15/2011	N001	0	-	0	16.45		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0	-	0	5950		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0	-	0	6.24		FQ	#		
Uranium	mg/L	02/15/2011	N001	0	-	0	0.14		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0264 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	147		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	58.6		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	14.4		FQ	#	0.066	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	8.1		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	11.9		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000931	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	9.85		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	153.1		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.61		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00151	B	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	12.3		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	14.8		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	562		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	68.7		FQ	#	0.5	
Temperature	C	02/15/2011	N001	0 - 0	16.38		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	305		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	2.39		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00344		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0265 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	350		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	522		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	131		FQ	#	0.66	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	13.21		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	175		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000518	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	162		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	199.2		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.59		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	4.84	BE	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00605		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	17.3		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	112		FQ	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	3850		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1150		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.25		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	3200		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	4.47		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0606		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0266 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	107		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	28.8		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	7.16		FQ	#	0.066	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	8.06		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	7.65		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000564	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.26		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	160.4		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.89		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2.36	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0015	U	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	12		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	6.36		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	240		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	10.8		FQ	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	16.13		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	134		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	0.77		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00158		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0267 WELL

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	904		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.00466	B	FJ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	571		F	#	0.25	
Chloride	mg/L	02/16/2011	N001	0 - 0	113		F	#	0.66	
Dissolved Oxygen	mg/L	02/16/2011	N001	0 - 0	6.18		F	#		
Iron	mg/L	02/16/2011	N001	0 - 0	0.0629	B	F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	711		F	#	0.55	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.01	U	F	#	0.01	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000455	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	318		F	#	2.5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	257.5		FJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	6.38		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	8.06	E	F	#	0.25	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0626		F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	26.9		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	390		F	#	0.5	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	7695		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	3240		F	#	20	
Temperature	C	02/16/2011	N001	0 - 0	14.66		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	7410		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	2.34		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.0699		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0268 WELL

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	93.2		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	16.3		F	#	0.066	
Iron	mg/L	02/15/2011	N001	0 - 0	0.0436	B	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	18.5		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000481	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	18.8		F	#	0.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	205		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.43		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	4.37	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00197	B	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	11.9		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	17.9		F	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	680		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	122		F	#	1	
Temperature	C	02/15/2011	N001	0 - 0	16.3		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	451		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	2.46		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0194		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0272 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	107		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Ammonia Total as N	mg/L	02/15/2011	N002	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Arsenic	mg/L	02/15/2011	N002	0 - 0	0.0034	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	33.5		F	#	0.05	
Calcium	mg/L	02/15/2011	N002	0 - 0	34.8		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	7.7		F	#	0.066	
Chloride	mg/L	02/15/2011	N002	0 - 0	7.69		F	#	0.066	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Iron	mg/L	02/15/2011	N002	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	7.54		F	#	0.11	
Magnesium	mg/L	02/15/2011	N002	0 - 0	7.59		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Manganese	mg/L	02/15/2011	N002	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000483	B	F	#	0.000165	
Molybdenum	mg/L	02/15/2011	N002	0 - 0	0.00205	B	UF	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.74		F	#	0.1	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N002	0 - 0	3.66		F	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	180		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.47		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.7	BE	F	#	0.05	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0272 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Potassium	mg/L	02/15/2011	N002	0 - 0	1.83	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Selenium	mg/L	02/15/2011	N002	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	11.6		F	#	0.053	
Silica	mg/L	02/15/2011	N002	0 - 0	11.7		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	6.99		F	#	0.1	
Sodium	mg/L	02/15/2011	N002	0 - 0	7.24		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	260		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	12		F	#	0.1	
Sulfate	mg/L	02/15/2011	N002	0 - 0	12		F	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	16		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	144		F	#	2.38	
Total Dissolved Solids	mg/L	02/15/2011	N002	0 - 0	150		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	1.81		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00155		F	#	0.000067	
Uranium	mg/L	02/15/2011	N002	0 - 0	0.00193		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0273 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	160		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00262	B	FQJ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	155		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	36.4		FQ	#	0.66	
Iron	mg/L	02/15/2011	N001	0 - 0	0.0593	B	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	29.8		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.0266		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	54		FQ	#	0.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	185		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.21		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2.84	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.017		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	14.7		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	30.9		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	1100		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	176		FQ	#	1	
Temperature	C	02/15/2011	N001	0 - 0	16.7		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	705		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	4.36		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0377		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0274 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	110		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	35.3		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	10		FQ	#	0.066	
Iron	mg/L	02/15/2011	N001	0 - 0	0.0491	B	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	7.35		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000651	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.24		FQ	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	175		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.72		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.5	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0015	U	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	11.8		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	11.7		FQ	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	280		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	15.3		FQ	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	16.1		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	158		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	8.51		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00163		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0275 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	590		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	25.5		F	#	0.4	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	688		F	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	140		F	#	0.66	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	332		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	10.1		F	#	0.01	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000407	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	250		F	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	235		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.26		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	16.3	E	F	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0338		F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	19.1		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	299		F	#	0.5	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	5880		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	2260		F	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.3		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	5200		F	#	4.76	
Turbidity	NTU	02/15/2011	N001	0 - 0	2.16		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.429		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0276 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	145		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.046	J	F	#	0.016	
Ammonia Total as N	mg/L	02/15/2011	N002	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Arsenic	mg/L	02/15/2011	N002	0 - 0	0.00399	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	33.9		F	#	0.05	
Calcium	mg/L	02/15/2011	N002	0 - 0	34.8		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	11		F	#	0.066	
Chloride	mg/L	02/15/2011	N002	0 - 0	11		F	#	0.066	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Iron	mg/L	02/15/2011	N002	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	7.14		F	#	0.11	
Magnesium	mg/L	02/15/2011	N002	0 - 0	7.14		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Manganese	mg/L	02/15/2011	N002	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000681	B	F	#	0.000165	
Molybdenum	mg/L	02/15/2011	N002	0 - 0	0.00204	B	UF	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.19		F	#	0.1	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N002	0 - 0	3.3		F	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	195		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.73		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.51	BE	F	#	0.05	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0276 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Potassium	mg/L	02/15/2011	N002	0 - 0	1.57	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00202	B	F	#	0.0015	
Selenium	mg/L	02/15/2011	N002	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	11.6		F	#	0.053	
Silica	mg/L	02/15/2011	N002	0 - 0	11.7		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	13.3		F	#	0.1	
Sodium	mg/L	02/15/2011	N002	0 - 0	13.8		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	290		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	17.4		F	#	0.1	
Sulfate	mg/L	02/15/2011	N002	0 - 0	17.3		F	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	16.5		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	174		F	#	2.38	
Total Dissolved Solids	mg/L	02/15/2011	N002	0 - 0	163		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	1.95		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00172		F	#	0.000067	
Uranium	mg/L	02/15/2011	N002	0 - 0	0.00179		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0281 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	135		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	120		FQ	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	23.4		FQ	#	0.66	
Dissolved Oxygen	mg/L	02/16/2011	N001	0 - 0	6.16		FQ	#		
Iron	mg/L	02/16/2011	N001	0 - 0	0.637		FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	23		FQ	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.0127		FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.00083	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	35.8		FQ	#	0.5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	199.9		FQJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.35		FQ	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	2.16	BE	FQ	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.00183	B	FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	14.7		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	18.5		FQ	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	860		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	138		FQ	#	1	
Temperature	C	02/16/2011	N001	0 - 0	15.25		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	567		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	9.02		FQ	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00705		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0282 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	149		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	105		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	36.4		FQ	#	0.66	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.73		FQ	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.0341	B	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	22.3		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000435	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	39.1		FQ	#	0.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	172.8		FQJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.52		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2.52	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00171	B	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	14.7		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	14.8		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	823		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	74.9		FQ	#	1	
Temperature	C	02/15/2011	N001	0 - 0	15.58		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	547		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	3.71		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00424		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0286 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	0001	0 - 0	683		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	0001	0 - 0	19.8		FQ	#	0.4	
Arsenic	mg/L	02/15/2011	0001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	0001	0 - 0	737		FQ	#	0.25	
Chloride	mg/L	02/15/2011	0001	0 - 0	85.9		FQ	#	0.66	
Iron	mg/L	02/15/2011	0001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	0001	0 - 0	284		FQ	#	0.11	
Manganese	mg/L	02/15/2011	0001	0 - 0	2.86		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	0001	0 - 0	0.000645	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	0001	0 - 0	176		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	240		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.34		FQ	#		
Potassium	mg/L	02/15/2011	0001	0 - 0	12.2	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	0001	0 - 0	0.0257		FQ	#	0.0015	
Silica	mg/L	02/15/2011	0001	0 - 0	18.5		FQ	#	0.053	
Sodium	mg/L	02/15/2011	0001	0 - 0	279		FQ	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	5290		FQ	#		
Sulfate	mg/L	02/15/2011	0001	0 - 0	2290		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.2		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	0001	0 - 0	5010		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	29		FQ	#		
Uranium	mg/L	02/15/2011	0001	0 - 0	0.481		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0287 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	610		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.103		FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00538		FQJ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	891		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	195		FQ	#	6.6	
Iron	mg/L	02/15/2011	N001	0 - 0	0.113		FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	152		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.0116		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.122		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	265		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	220		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.41		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	6.08	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.119		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	19.5		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	273		FQ	#	0.5	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	5400		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1540		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.5		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	4910		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	5.74		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.233		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0288 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	261		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	193		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	23.8		FQ	#	1.32	
Iron	mg/L	02/15/2011	N001	0 - 0	0.0725	B	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	41.2		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.00446	B	FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000301	B	FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	63.5		FQ	#	0.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	228		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.84		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	3.41	BE	FQ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00242	B	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	16.6		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	48.8		FQ	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	1880		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	308		FQ	#	2	
Temperature	C	02/15/2011	N001	0 - 0	13.6		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	1080		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	3.95		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0138		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0289 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	225		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.049	J	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	121		FQ	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	18.4		FQ	#	0.66	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	23.9		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.0254		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.00112	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	25.8		FQ	#	1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	210		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.12		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2.6	BE	FQJ	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00222	B	FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	15.9		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	34.2		FQ	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	1007		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	125		FQ	#	1	
Temperature	C	02/15/2011	N001	0 - 0	14.4		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	557		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	6.55		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0123		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0290 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	131		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	109		FQ	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	27		FQ	#	0.66	
Dissolved Oxygen	mg/L	02/16/2011	N001	0 - 0	10.23		FQ	#		
Iron	mg/L	02/16/2011	N001	0 - 0	0.0981	B	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	19		FQ	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.00411	B	FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000542	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	28.3		FQ	#	1	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	209.7		FQJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.41		FQ	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	2.63	BE	FQ	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.00323	B	FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	14.9		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	22.5		FQ	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	812		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	126		FQ	#	1	
Temperature	C	02/16/2011	N001	0 - 0	15.3		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	522		FQ	#	2.38	
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00368		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0691 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	219		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	278		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	49.1		F	#	1.32	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.69		F	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	47.3		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.00648		F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000311	B	UF	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	62.5		F	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	169.1		FJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.04		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	3.96	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00287	B	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	15		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	39.5		F	#	0.1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	1819		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	505		F	#	2	
Temperature	C	02/15/2011	N001	0 - 0	15.51		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	1370		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	0.7		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.0509		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0906 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	1007		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.032	J	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	907		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	121		FQ	#	0.66	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	312		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.0553		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.00394		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	343		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	233.1		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.26		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	7.65	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0205		FQ	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	17.3		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	299		FQ	#	0.5	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	6353		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1650		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.42		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	5760		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	4.05		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.687		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0908 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	0001	0 - 0	600		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	0001	0 - 0	56.6		FQ	#	0.8	
Arsenic	mg/L	02/16/2011	0001	0 - 0	0.00419	B	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	0001	0 - 0	561		FQ	#	0.25	
Chloride	mg/L	02/16/2011	0001	0 - 0	65.7		FQ	#	0.66	
Iron	mg/L	02/16/2011	0001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	0001	0 - 0	463		FQ	#	0.11	
Manganese	mg/L	02/16/2011	0001	0 - 0	0.14		FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	0001	0 - 0	0.000427	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	0001	0 - 0	234		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	220		FQ	#		
pH	s.u.	02/16/2011	N001	0 - 0	6.45		FQ	#		
Potassium	mg/L	02/16/2011	0001	0 - 0	21.2	E	FQ	#	0.25	
Selenium	mg/L	02/16/2011	0001	0 - 0	0.0283		FQ	#	0.0015	
Silica	mg/L	02/16/2011	0001	0 - 0	20.7		FQ	#	0.053	
Sodium	mg/L	02/16/2011	0001	0 - 0	293		FQ	#	0.5	
Specific Conductance	umhos /cm	02/16/2011	N001	0 - 0	6490		FQ	#		
Sulfate	mg/L	02/16/2011	0001	0 - 0	2940		FQ	#	10	
Temperature	C	02/16/2011	N001	0 - 0	14.6		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	0001	0 - 0	5570		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	23.5		FQ	#		
Uranium	mg/L	02/16/2011	0001	0 - 0	0.0815		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0929 WELL No Log Information.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	99		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.023	J	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.00316	B	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	50.8		FQ	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	16.4		FQ	#	0.066	
Dissolved Oxygen	mg/L	02/16/2011	N001	0 - 0	8.83		FQ	#		
Iron	mg/L	02/16/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	9.13		FQ	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.002	U	FQ	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000451	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	17.2		FQ	#	0.5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	189.5		FQJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.68		FQ	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	2.02	BE	FQ	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.00241	B	FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	11.6		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	11.9		FQ	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	407		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	26.8		FQ	#	0.1	
Temperature	C	02/16/2011	N001	0 - 0	15.94		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	284		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	3.01		FQ	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00146		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0930 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	117		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00407	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	62.3		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	19.6		F	#	0.132	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.24		F	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	14.3		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000277	B	UF	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	14.8		F	#	0.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	156.3		FJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.68		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	2.2	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0026	B	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	12.7		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	12.1		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	503		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	72.2		F	#	0.2	
Temperature	C	02/15/2011	N001	0 - 0	14.38		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	300		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	0.53		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00293		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0932 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	147		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Ammonia Total as N	mg/L	02/15/2011	N002	0 - 0	0.124		F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00263	B	F	#	0.0017	
Arsenic	mg/L	02/15/2011	N002	0 - 0	0.00295	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	49.7		F	#	0.05	
Calcium	mg/L	02/15/2011	N002	0 - 0	48.8		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	11.5		F	#	0.132	
Chloride	mg/L	02/15/2011	N002	0 - 0	12.2		F	#	0.066	
Dissolved Oxygen	mg/L	02/15/2011	N001	0 - 0	9.4		F	#		
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Iron	mg/L	02/15/2011	N002	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	10.5		F	#	0.11	
Magnesium	mg/L	02/15/2011	N002	0 - 0	10.4		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Manganese	mg/L	02/15/2011	N002	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000358	B	UF	#	0.000165	
Molybdenum	mg/L	02/15/2011	N002	0 - 0	0.00186	B	UF	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	8.4		F	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N002	0 - 0	8.59		F	#	0.1	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	146.2		FJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.69		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.91	BE	F	#	0.05	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0932 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Potassium	mg/L	02/15/2011	N002	0 - 0	2.11	BE	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.00162	B	F	#	0.0015	
Selenium	mg/L	02/15/2011	N002	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	11.9		F	#	0.053	
Silica	mg/L	02/15/2011	N002	0 - 0	12.8		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	11.6		F	#	0.1	
Sodium	mg/L	02/15/2011	N002	0 - 0	12.2		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	371		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	37.6		F	#	0.2	
Sulfate	mg/L	02/15/2011	N002	0 - 0	38.2		F	#	0.2	
Temperature	C	02/15/2011	N001	0 - 0	16.44		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	216		F	#	2.38	
Total Dissolved Solids	mg/L	02/15/2011	N002	0 - 0	226		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	0.54		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00257		F	#	0.000067	
Uranium	mg/L	02/15/2011	N002	0 - 0	0.00329		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0934 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	689		FQ	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	FQ	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.0017	U	FQ	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	742		FQ	#	0.5	
Chloride	mg/L	02/16/2011	N001	0 - 0	229		FQ	#	13.2	
Dissolved Oxygen	mg/L	02/16/2011	N001	0 - 0	10.87		FQ	#		
Iron	mg/L	02/16/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	865		FQ	#	1.1	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.02	U	FQ	#	0.02	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000619	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	391		FQ	#	5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	242		FQJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	6.55		FQ	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	8.86	E	FQ	#	0.5	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.00974		FQ	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	21		FQ	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	154		FQ	#	1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	7468		FQ	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	2880		FQ	#	20	
Temperature	C	02/16/2011	N001	0 - 0	15.92		FQ	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	6890		FQ	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	3.76		FQ	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.166		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0935 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	686		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	60.4		F	#	0.8	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.00395	B	F	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	686		F	#	0.25	
Chloride	mg/L	02/16/2011	N001	0 - 0	89.2		F	#	6.6	
Iron	mg/L	02/16/2011	N001	0 - 0	0.136		F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	332		F	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.602		F	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000165	U	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	283		F	#	2.5	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	250		F	#		
pH	s.u.	02/16/2011	N001	0 - 0	6.42		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	17.7	E	F	#	0.25	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0131		F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	23.2		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	331		F	#	0.5	
Specific Conductance	umhos /cm	02/16/2011	N001	0 - 0	6000		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	2360		F	#	10	
Temperature	C	02/16/2011	N001	0 - 0	16.3		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	5380		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	6.33		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.139		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0936 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	501		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	3.51		F	#	0.16	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00219	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	441		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	70.6		F	#	0.66	
Iron	mg/L	02/15/2011	N001	0 - 0	0.289		F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	249		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	2.12		F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.223		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	181		F	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	230		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.67		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	5.79	E	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0315		F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	17.6		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	79.3		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	3800		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1130		F	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.5		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	3450		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	5.21		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.32		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0938 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	618		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	2.83		F	#	0.16	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00341	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	845		F	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	168		F	#	6.6	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	453		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.887		F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.00623		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	343		F	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	230		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.51		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	11.3	E	F	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0719		F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	16.8		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	352		F	#	0.5	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	7150		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	2710		F	#	10	
Temperature	C	02/15/2011	N001	0 - 0	17.2		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	6630		F	#	4.76	
Turbidity	NTU	02/15/2011	N001	0 - 0	5.05		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.406		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0940 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	0001	0 - 0	780		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	0001	0 - 0	2.5		FQ	#	0.16	
Arsenic	mg/L	02/15/2011	0001	0 - 0	0.00366	B	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	0001	0 - 0	557		FQ	#	0.5	
Chloride	mg/L	02/15/2011	0001	0 - 0	174		FQ	#	6.6	
Iron	mg/L	02/15/2011	0001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	0001	0 - 0	2060		FQ	#	1.1	
Manganese	mg/L	02/15/2011	0001	0 - 0	10.4		FQ	#	0.02	
Molybdenum	mg/L	02/15/2011	0001	0 - 0	0.00133	B	UFQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	0001	0 - 0	496		FQ	#	5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	232		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.51		FQ	#		
Potassium	mg/L	02/15/2011	0001	0 - 0	20.9	E	FQ	#	0.5	
Selenium	mg/L	02/15/2011	0001	0 - 0	0.0897		FQ	#	0.0015	
Silica	mg/L	02/15/2011	0001	0 - 0	19.2		FQ	#	0.053	
Sodium	mg/L	02/15/2011	0001	0 - 0	388		FQ	#	1	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	13020		FQ	#		
Sulfate	mg/L	02/15/2011	0001	0 - 0	8060		FQ	#	50	
Temperature	C	02/15/2011	N001	0 - 0	16.3		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	0001	0 - 0	14600		FQ	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	16.5		FQ	#		
Uranium	mg/L	02/15/2011	0001	0 - 0	0.401		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0941 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	570		FQ	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.027	J	FQ	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00257	B	FQ	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	860		FQ	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	168		FQ	#	6.6	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	FQ	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	148		FQ	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.0268		FQ	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.0144		FQ	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	240		FQ	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	215		FQ	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.53		FQ	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	5.59	E	FQ	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.117		FQ	#	0.003	
Silica	mg/L	02/15/2011	N001	0 - 0	18.4		FQ	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	167		FQ	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	4950		FQ	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	1370		FQ	#	10	
Temperature	C	02/15/2011	N001	0 - 0	16.3		FQ	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	4160		FQ	#	4.76	
Turbidity	NTU	02/15/2011	N001	0 - 0	9.54		FQ	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.206		FQ	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: 0942 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	658		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	101		F	#	4	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00298	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	575		F	#	0.25	
Chloride	mg/L	02/15/2011	N001	0 - 0	168		F	#	6.6	
Iron	mg/L	02/15/2011	N001	0 - 0	0.0344	B	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	411		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	3.73		F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.00721		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	183		F	#	2.5	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	260		F	#		
pH	s.u.	02/15/2011	N001	0 - 0	6.4		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	23.7	E	F	#	0.25	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.086		F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	17.8		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	496		F	#	0.5	
Specific Conductance	umhos/cm	02/15/2011	N001	0 - 0	6910		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	3220		F	#	10	
Temperature	C	02/15/2011	N001	0 - 0	15.7		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	5840		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	5.4		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.595		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: NMW-1A WELL NAVAJO MONITORING WELL NMW-1A

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	70		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.00262	B	F	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	32.2		F	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	9.04		F	#	0.066	
Iron	mg/L	02/16/2011	N001	0 - 0	0.0498	B	F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	5.85		F	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.00332	B	F	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.000556	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	2.95		F	#	0.05	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	105.7		FJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.8		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	1.5	B	F	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	10.7		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	9.65		F	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	272		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	12.7		F	#	0.1	
Temperature	C	02/16/2011	N001	0 - 0	15.67		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	170		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	1.73		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00146		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: NMW-6S WELL NAVAJO MONITORING WELL NMW-6S

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	78		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	35		F	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	10.3		F	#	0.066	
Iron	mg/L	02/16/2011	N001	0 - 0	0.0405	B	F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	6.15		F	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.0106		F	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.00187	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	3.35		F	#	0.05	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	-96.2		FJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.92		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	1.73	B	F	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	11.8		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	10		F	#	0.1	
Specific Conductance	umhos /cm	02/16/2011	N001	0 - 0	243		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	14.9		F	#	0.1	
Temperature	C	02/16/2011	N001	0 - 0	15.86		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	168		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	1.24		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00157		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: NMW-7D WELL NAVAJO MONITORING WELL NMW-7D

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	80		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.00207	B	F	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	28.7		F	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	8.33		F	#	0.066	
Iron	mg/L	02/16/2011	N001	0 - 0	0.131		F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	5.58		F	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.0285		F	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.00932		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	2.1		F	#	0.05	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	-3.02		FJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.46		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	2.56	B	F	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	14.6		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	13.8		F	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	263		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	26.9		F	#	0.1	
Temperature	C	02/16/2011	N001	0 - 0	16.23		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	187		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	1.2		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00225		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: NMW-8S WELL NAVAJO MONITORING WELL NMW\_8S

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0 - 0	90		F	#		
Ammonia Total as N	mg/L	02/15/2011	N001	0 - 0	0.016	U	F	#	0.016	
Arsenic	mg/L	02/15/2011	N001	0 - 0	0.00248	B	F	#	0.0017	
Calcium	mg/L	02/15/2011	N001	0 - 0	32.3		F	#	0.05	
Chloride	mg/L	02/15/2011	N001	0 - 0	9.3		F	#	0.066	
Iron	mg/L	02/15/2011	N001	0 - 0	0.03	U	F	#	0.03	
Magnesium	mg/L	02/15/2011	N001	0 - 0	5.42		F	#	0.11	
Manganese	mg/L	02/15/2011	N001	0 - 0	0.002	U	F	#	0.002	
Molybdenum	mg/L	02/15/2011	N001	0 - 0	0.000347	B	F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	0 - 0	3.45		F	#	0.05	
Oxidation Reduction Potential	mV	02/15/2011	N001	0 - 0	99.8		FJ	#		
pH	s.u.	02/15/2011	N001	0 - 0	7.4		F	#		
Potassium	mg/L	02/15/2011	N001	0 - 0	1.76	B	F	#	0.05	
Selenium	mg/L	02/15/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/15/2011	N001	0 - 0	10.4		F	#	0.053	
Sodium	mg/L	02/15/2011	N001	0 - 0	10.2		F	#	0.1	
Specific Conductance	umhos /cm	02/15/2011	N001	0 - 0	277		F	#		
Sulfate	mg/L	02/15/2011	N001	0 - 0	13.4		F	#	0.1	
Temperature	C	02/15/2011	N001	0 - 0	15.91		F	#		
Total Dissolved Solids	mg/L	02/15/2011	N001	0 - 0	145		F	#	2.38	
Turbidity	NTU	02/15/2011	N001	0 - 0	1.5		F	#		
Uranium	mg/L	02/15/2011	N001	0 - 0	0.00151		F	#	0.000067	

**Groundwater Quality Data by Location (USEE100) FOR SITE TUB01, Tuba City Disposal Site**

REPORT DATE: 4/13/2011

Location: NMW-9D WELL NAVAJO MONITORING WELL NMW-9D

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/16/2011	N001	0 - 0	74		F	#		
Ammonia Total as N	mg/L	02/16/2011	N001	0 - 0	0.035	J	F	#	0.016	
Arsenic	mg/L	02/16/2011	N001	0 - 0	0.0017	U	F	#	0.0017	
Calcium	mg/L	02/16/2011	N001	0 - 0	35.5		F	#	0.05	
Chloride	mg/L	02/16/2011	N001	0 - 0	12.1		F	#	0.066	
Iron	mg/L	02/16/2011	N001	0 - 0	0.619		F	#	0.03	
Magnesium	mg/L	02/16/2011	N001	0 - 0	7.25		F	#	0.11	
Manganese	mg/L	02/16/2011	N001	0 - 0	0.62		F	#	0.002	
Molybdenum	mg/L	02/16/2011	N001	0 - 0	0.0162		F	#	0.000165	
Nitrate + Nitrite as Nitrogen	mg/L	02/16/2011	N001	0 - 0	0.505		F	#	0.05	
Oxidation Reduction Potential	mV	02/16/2011	N001	0 - 0	-170.6		FJ	#		
pH	s.u.	02/16/2011	N001	0 - 0	7.53		F	#		
Potassium	mg/L	02/16/2011	N001	0 - 0	1.95	B	F	#	0.05	
Selenium	mg/L	02/16/2011	N001	0 - 0	0.0015	U	F	#	0.0015	
Silica	mg/L	02/16/2011	N001	0 - 0	15.7		F	#	0.053	
Sodium	mg/L	02/16/2011	N001	0 - 0	23.6		F	#	0.1	
Specific Conductance	umhos/cm	02/16/2011	N001	0 - 0	326		F	#		
Sulfate	mg/L	02/16/2011	N001	0 - 0	25.1		F	#	0.1	
Temperature	C	02/16/2011	N001	0 - 0	15.65		F	#		
Total Dissolved Solids	mg/L	02/16/2011	N001	0 - 0	230		F	#	2.38	
Turbidity	NTU	02/16/2011	N001	0 - 0	1.98		F	#		
Uranium	mg/L	02/16/2011	N001	0 - 0	0.00182		F	#	0.000067	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

## **Surface Water Quality Data**

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

REPORT DATE: 4/13/2011

Location: 1569 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0			#		
Arsenic	mg/L	02/15/2011	N001	2.23			#	0.17	
Calcium	mg/L	02/15/2011	N001	316			#	10	
Chloride	mg/L	02/15/2011	N001	170000			#	660	
Iron	mg/L	02/15/2011	N001	9.8			#	6	
Magnesium	mg/L	02/15/2011	N001	16400			#	22	
Manganese	mg/L	02/15/2011	N001	307			#	0.4	
Molybdenum	mg/L	02/15/2011	N001	2.78			#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	10600			#	100	
Oxidation Reduction Potential	mV	02/15/2011	N001	596			#		
pH	s.u.	02/15/2011	N001	0.45			#		
Potassium	mg/L	02/15/2011	N001	897	E		#	10	
Selenium	mg/L	02/15/2011	N001	2.42			#	0.15	
Silica	mg/L	02/15/2011	N001	67.6			#	10.6	
Sodium	mg/L	02/15/2011	N001	67200			#	20	
Specific Conductance	umhos/cm	02/15/2011	N001	200000			#		
Sulfate	mg/L	02/15/2011	N001	32300			#	100	
Temperature	C	02/15/2011	N001	13.7			#		
Total Dissolved Solids	mg/L	02/15/2011	N001	360000			#	4.76	
Turbidity	NTU	02/15/2011	N001	9.36			#		
Uranium	mg/L	02/15/2011	N001	7.86			#	0.0067	

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

REPORT DATE: 4/13/2011

Location: 1570 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	02/15/2011	N001	0			#		
Arsenic	mg/L	02/15/2011	N001	2.37			#	0.17	
Calcium	mg/L	02/15/2011	N001	383			#	10	
Chloride	mg/L	02/15/2011	N001	177000			#	660	
Iron	mg/L	02/15/2011	N001	13.1			#	6	
Magnesium	mg/L	02/15/2011	N001	18900			#	22	
Manganese	mg/L	02/15/2011	N001	351			#	0.4	
Molybdenum	mg/L	02/15/2011	N001	3.02			#	0.0165	
Nitrate + Nitrite as Nitrogen	mg/L	02/15/2011	N001	11300			#	100	
Oxidation Reduction Potential	mV	02/15/2011	N001	530			#		
pH	s.u.	02/15/2011	N001	0.33			#		
Potassium	mg/L	02/15/2011	N001	1040	E		#	10	
Selenium	mg/L	02/15/2011	N001	2.59			#	0.15	
Silica	mg/L	02/15/2011	N001	80.7			#	10.6	
Sodium	mg/L	02/15/2011	N001	76000			#	20	
Specific Conductance	umhos/cm	02/15/2011	N001	205000			#		
Sulfate	mg/L	02/15/2011	N001	30600			#	100	
Temperature	C	02/15/2011	N001	14.2			#		
Total Dissolved Solids	mg/L	02/15/2011	N001	361000			#	4.76	
Turbidity	NTU	02/15/2011	N001	8.97			#		
Uranium	mg/L	02/15/2011	N001	7.05			#	0.0067	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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## **Static Water Level Data**

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**STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site**  
**REPORT DATE: 4/13/2011**

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
000I		5064.56	02/15/2011	08:28:00	48.67	5015.89	
000J		5063.46	02/15/2011	08:19:00	44.1	5019.36	
000M		5063.7	02/15/2011	08:30:00	49.26	5014.44	
0251		5061.25	02/16/2011	11:20:17	66.05	4995.2	
0252		5061.3	02/16/2011	09:40:49	69.65	4991.65	
0258		5055.56	02/15/2011	10:34:31	101.64	4953.92	
0261		5069.69	02/16/2011	13:28:00	129.51	4940.18	
0262		5061.99	02/15/2011	11:42:50	53.44	5008.55	
0263		5063.1	02/15/2011	10:52:58	61.04	5002.06	
0264		5062.19	02/15/2011	11:25:10	85.39	4976.8	
0265		5053.88	02/15/2011	16:04:23	80	4973.88	
0266		5053.32	02/15/2011	15:45:02	93.74	4959.58	
0267		5053.4	02/16/2011	08:39:35	62.33	4991.07	
0268		5067.24	02/15/2011	13:10:56	95.2	4972.04	
0271		5046.72	02/16/2011	10:56:00	54.86	4991.86	
0272		5064.24	02/15/2011	16:20:41	60.2	5004.04	
0273		5064.74	02/15/2011	14:45:39	55.24	5009.5	
0274		5064.42	02/15/2011	13:55:50	58.79	5005.63	
0275		5062.64	02/15/2011	13:40:59	79.42	4983.22	
0276		5067.55	02/15/2011	12:40:30	65.43	5002.12	
0281		5051	02/16/2011	09:04:07	69.82	4981.18	
0282		5060.04	02/15/2011	16:51:21	83.29	4976.75	
0283		5057.97	02/15/2011	14:27:00			B
0284		5098.72	02/15/2011	08:32:00	29.41	5069.31	
0285		5096.47	02/15/2011	08:01:00			D
0286		5063.99	02/15/2011	15:40:31	60.3	5003.69	
0287		5065.65	02/15/2011	14:15:51	51.03	5014.62	
0288		5072.54	02/15/2011	09:15:48	55.93	5016.61	

**STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site**  
**REPORT DATE: 4/13/2011**

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
0289		5070.82	02/15/2011	09:45:41	55.73	5015.09	
0290		5068.91	02/16/2011	09:33:07	91.53	4977.38	
0683		5070.64	02/16/2011	13:37:00	104.36	4966.28	
0684		5070.05	02/16/2011	13:42:00	69.65	5000.4	
0685		5072.44	02/15/2011	07:53:00	38.21	5034.23	
0686		5107.97	02/15/2011	08:40:00	62.34	5045.63	
0687		5109.82	02/15/2011	08:09:00	53.07	5056.75	
0688		5106.98	02/15/2011	08:04:00	59.26	5047.72	
0691		4979.41	02/15/2011	09:54:03	42.98	4936.43	
0695		4976.83	02/15/2011	08:45:00	50.77	4926.06	
0901	U	5105.46	02/15/2011	12:56:00	48.12	5057.34	
0904	N	4904.11	02/15/2011	08:28:00	22.95	4881.16	
0906	O	5062.1	02/15/2011	17:15:16	52.33	5009.77	
0908	D	5058.14	02/16/2011	09:00:05	60.53	4997.61	
0909	D	5057.17	02/15/2011	14:15:00			B
0910	U	5106.7	02/15/2011	12:58:00	50.88	5055.82	
0911	U	5106.96	02/15/2011	12:53:00	47.31	5059.65	
0912	D	5059.97	02/16/2011	08:13:00	61.71	4998.26	
0913	D	5060.16	02/16/2011	08:44:00	66.51	4993.65	
0917	D	5048.02	02/16/2011	08:15:00	69.41	4978.61	
0918	D	5049.63	02/16/2011	10:23:00			D
0919	D	5048.56	02/16/2011	10:55:00	146.26	4902.3	
0929	D	5060.82	02/16/2011	10:32:39	62.25	4998.57	
0930	D	4954.96	02/15/2011	09:10:31	21.69	4933.27	
0932	D	5057.32	02/15/2011	14:11:57	100.68	4956.64	
0934	D	5059.73	02/16/2011	09:54:30	76	4983.73	
0935	D	5061.5	02/16/2011	08:40:31	58.41	5003.09	
0936	D	5062.3	02/15/2011	11:00:56	70.9	4991.4	

**STATIC WATER LEVELS (USEE700) FOR SITE TUB01, Tuba City Disposal Site**  
**REPORT DATE: 4/13/2011**

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
0940	D	5064.77	02/15/2011	16:00:14	59.75	5005.02	
0941	D	5065.97	02/15/2011	15:00:09	50.75	5015.22	
0942	D	5066.45	02/15/2011	10:30:25	44.54	5021.91	
0943	U	5098.05	02/15/2011	07:57:00	50.19	5047.86	
0945	U	5140.49	02/15/2011	08:14:00	88.22	5052.27	
0946	C	5100.5	02/15/2011	08:38:00	45.44	5055.06	
0947	U	5097.01	02/16/2011	13:45:00	68.02	5028.99	
0948	U	5117.8	02/16/2011	13:50:00	175	4942.8	
0968	U	5107	02/15/2011	11:54:00	52.02	5054.98	
0970	U	5109.53	02/15/2011	13:01:00	51.03	5058.5	
0971	U	5104	02/15/2011	13:04:00	27.81	5076.19	
0972	U	5141.07	02/15/2011	16:20:00	0	5141.07	
1116		5053.74	02/15/2011	13:26:00	82.53	4971.21	
1117		5054.95	02/16/2011	08:35:00	73.45	4981.5	
1118		5055.11	02/16/2011	13:26:00	68.39	4986.72	
NMW-1A		5223.78	02/16/2011	17:30:05	174.98	5048.8	
NMW-6S		5218.49	02/16/2011	12:15:34	108	5110.49	
NMW-7D		5219.67	02/16/2011	14:30:43	117.68	5101.99	
NMW-8S		5188.16	02/15/2011	16:30:18	89	5099.16	
NMW-9D		5188.76	02/16/2011	10:45:44	90	5098.76	

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

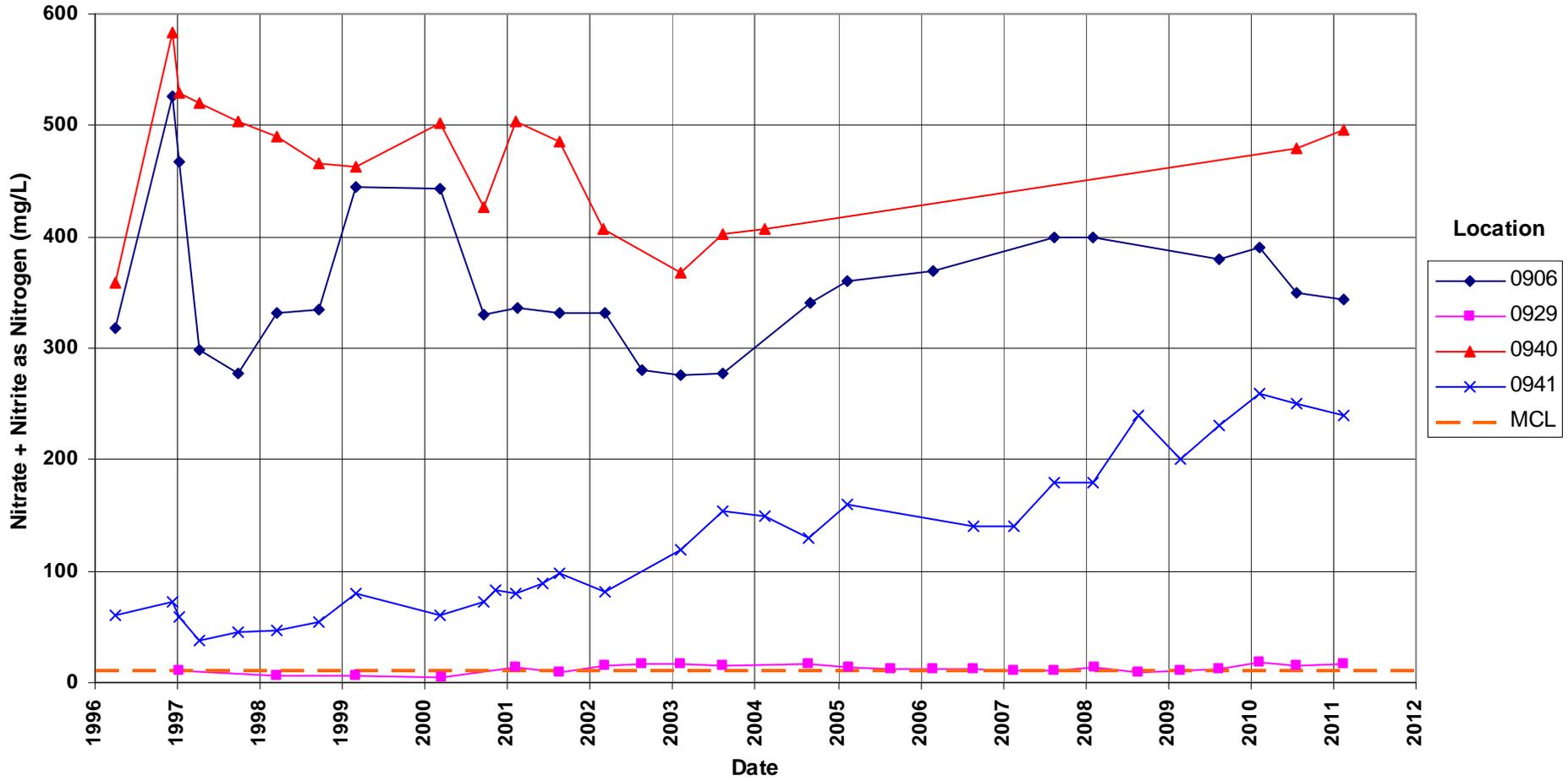
WATER LEVEL FLAGS: B Water level is below the top of the pump  
                               D Dry

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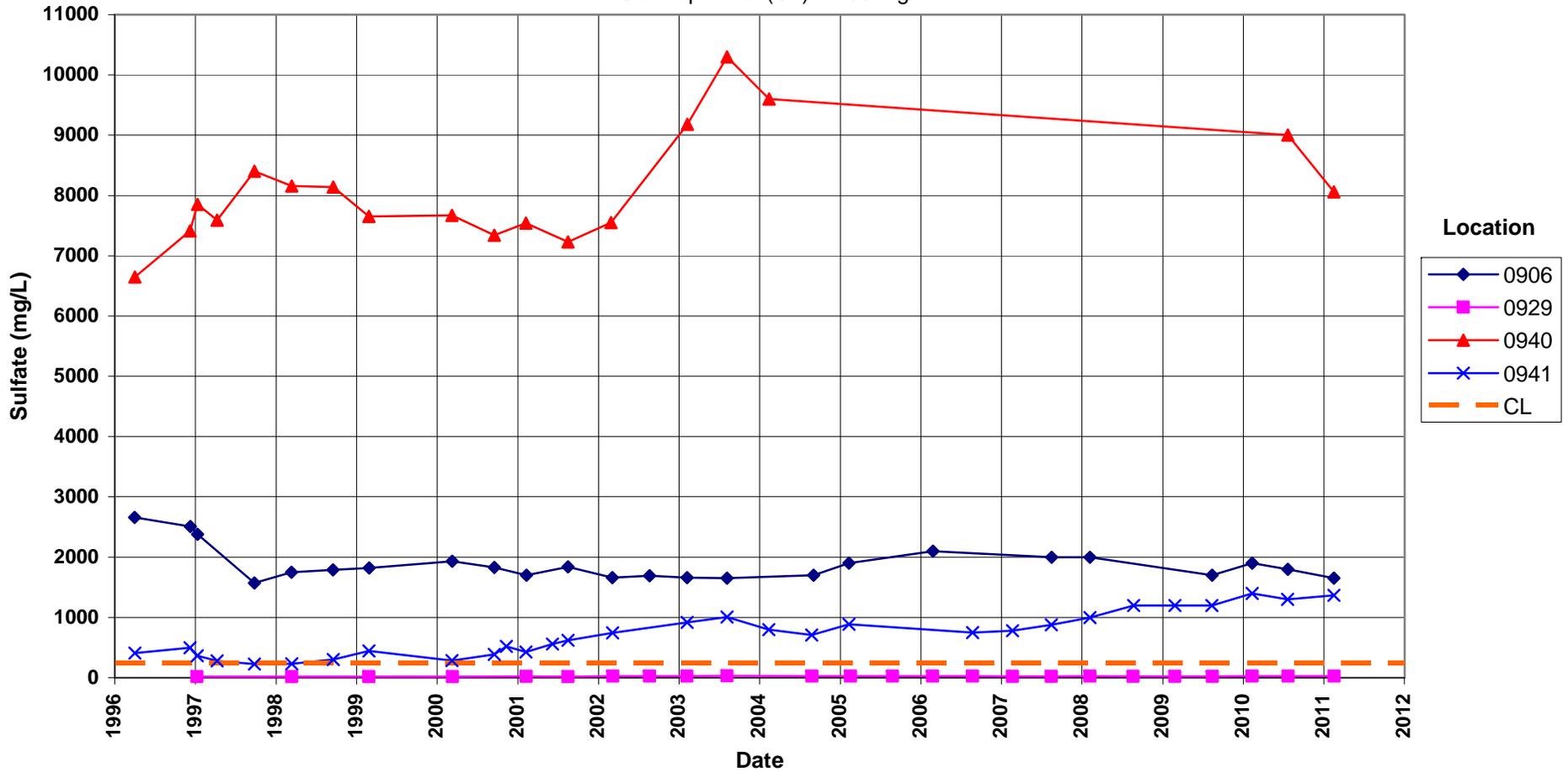
## **Time-Concentration Graphs**

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

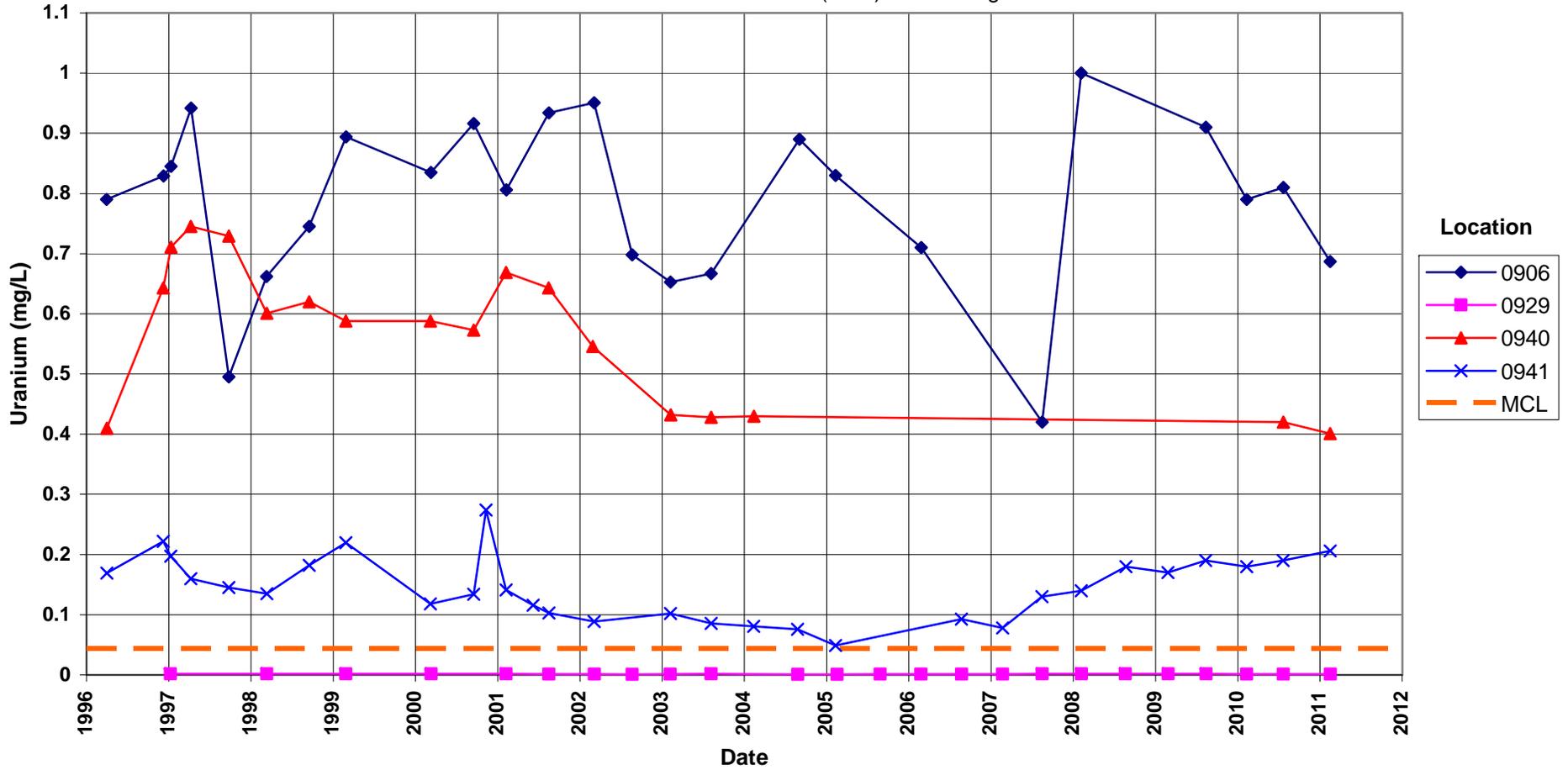


**Tuba City Disposal Site  
Horizon A Monitoring Wells  
Sulfate Concentration**  
Cleanup Level (CL) = 250 mg/L

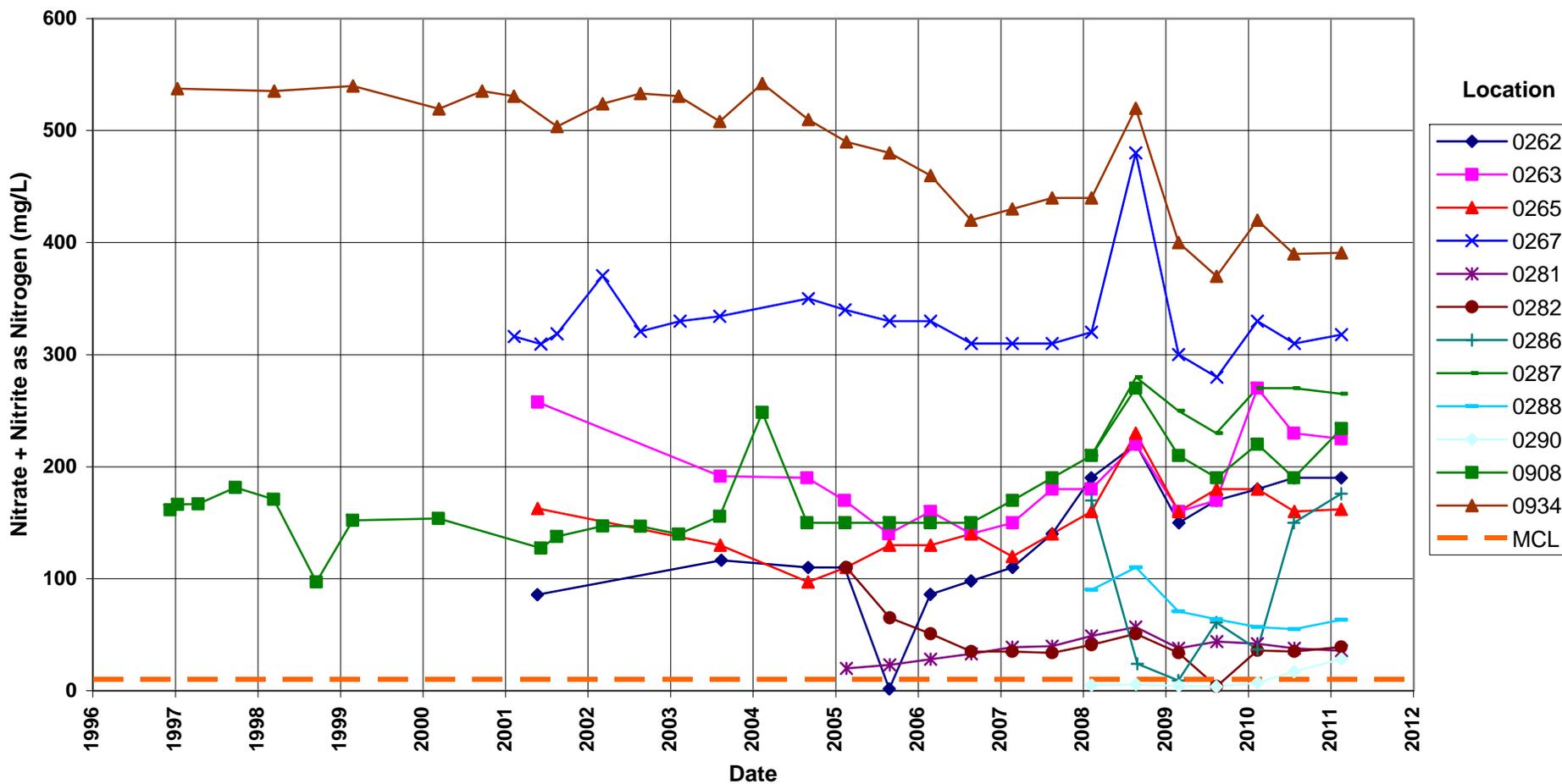


# Tuba City Disposal Site Horizon A Monitoring Wells Uranium Concentration

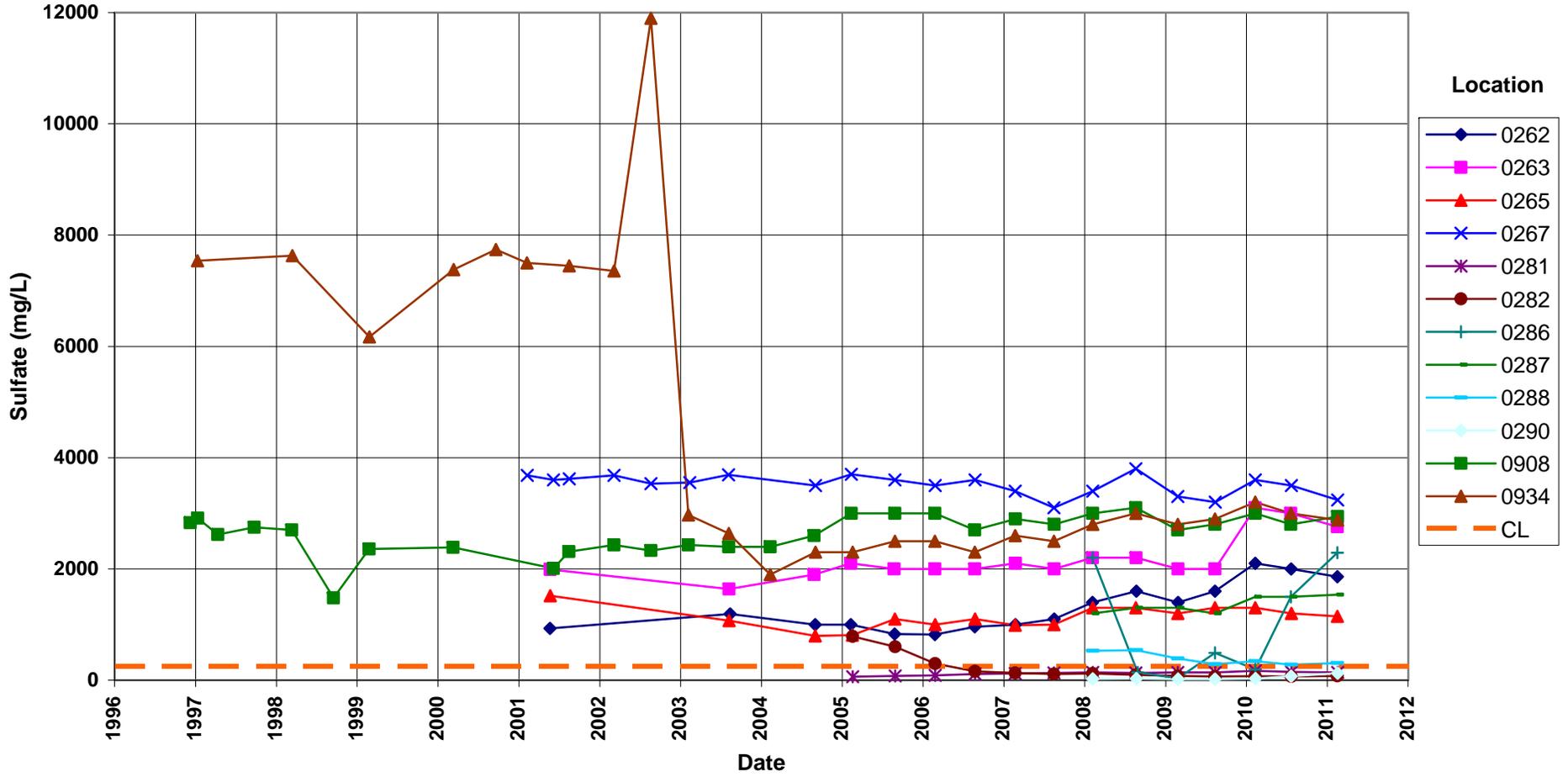
Maximum Contaminant Level (MCL) = 0.044 mg/L



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

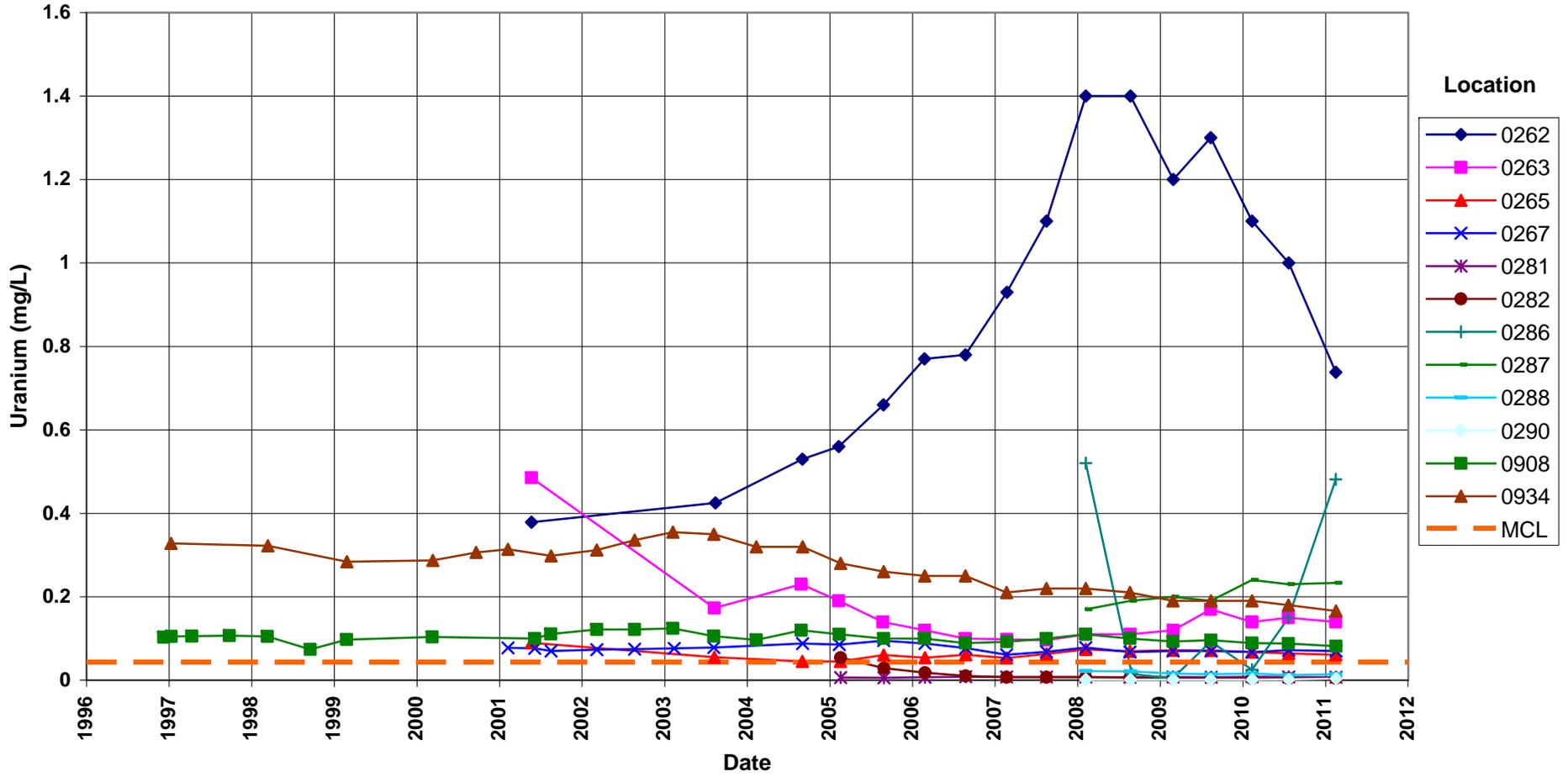


**Tuba City Disposal Site  
Horizon B Monitoring Wells  
Sulfate Concentration**  
Cleanup Level (CL) = 250 mg/L

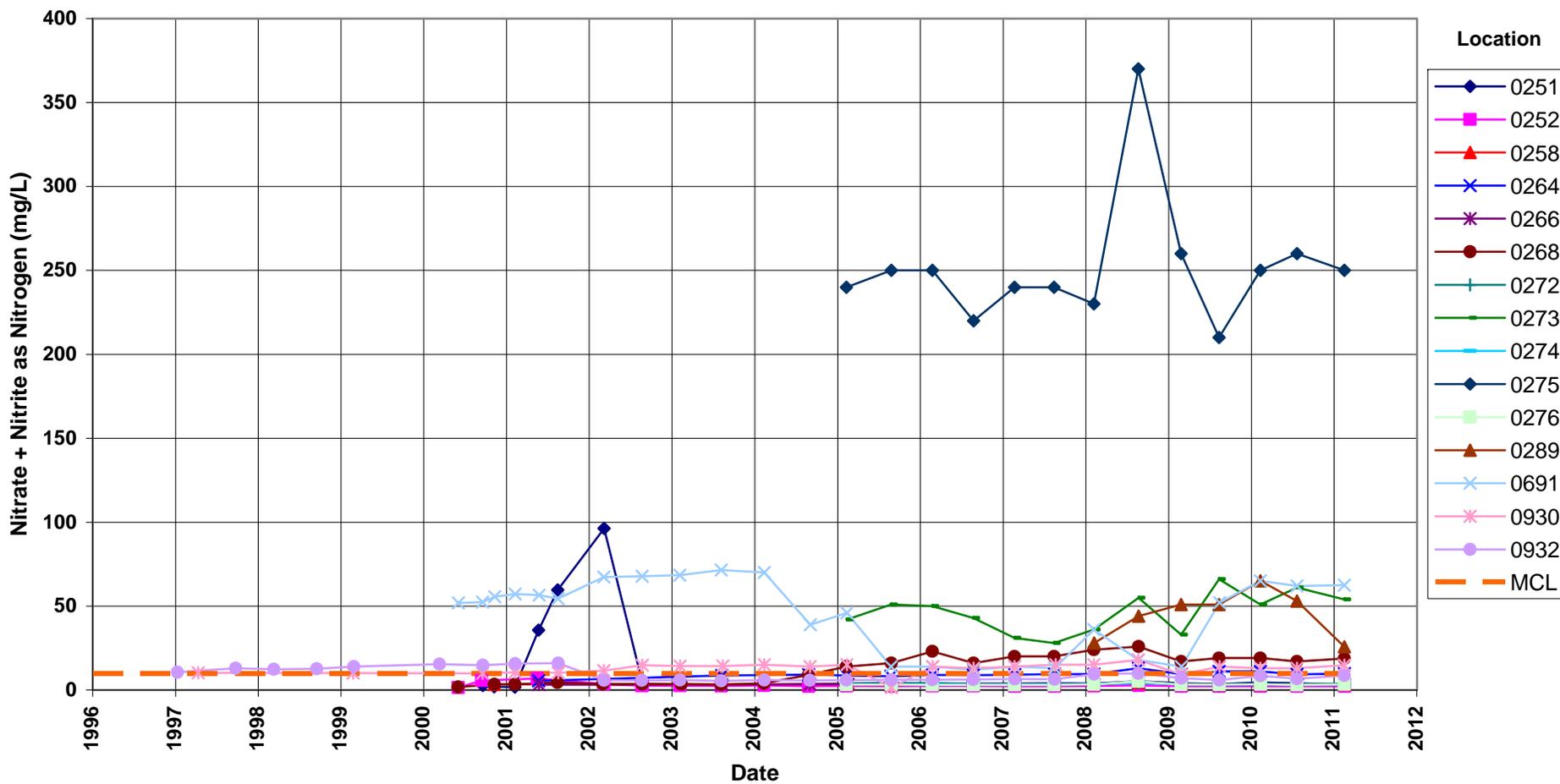


# Tuba City Disposal Site Horizon B Monitoring Wells Uranium Concentration

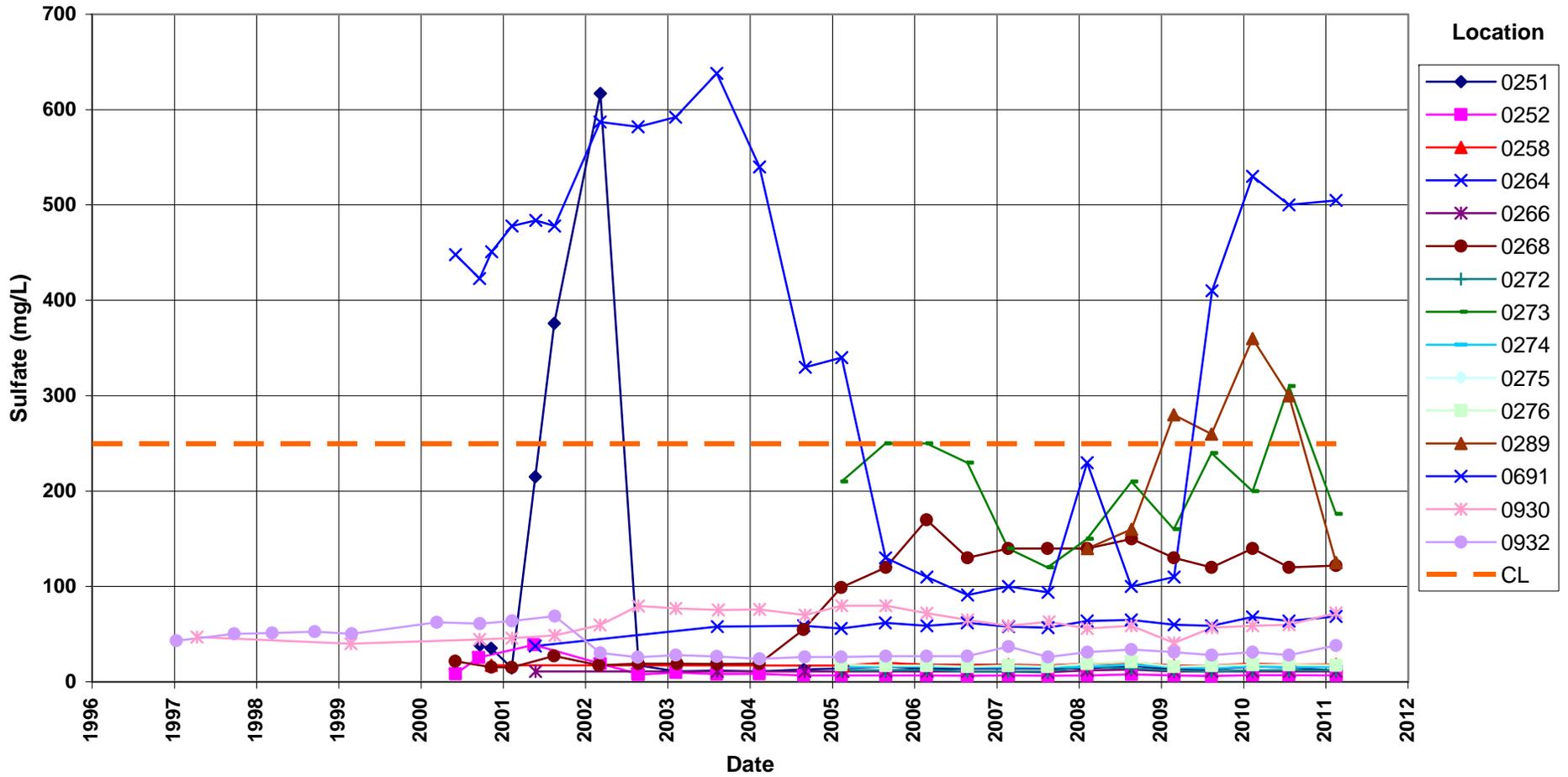
Maximum Contaminant Level (MCL) = 0.044 mg/L



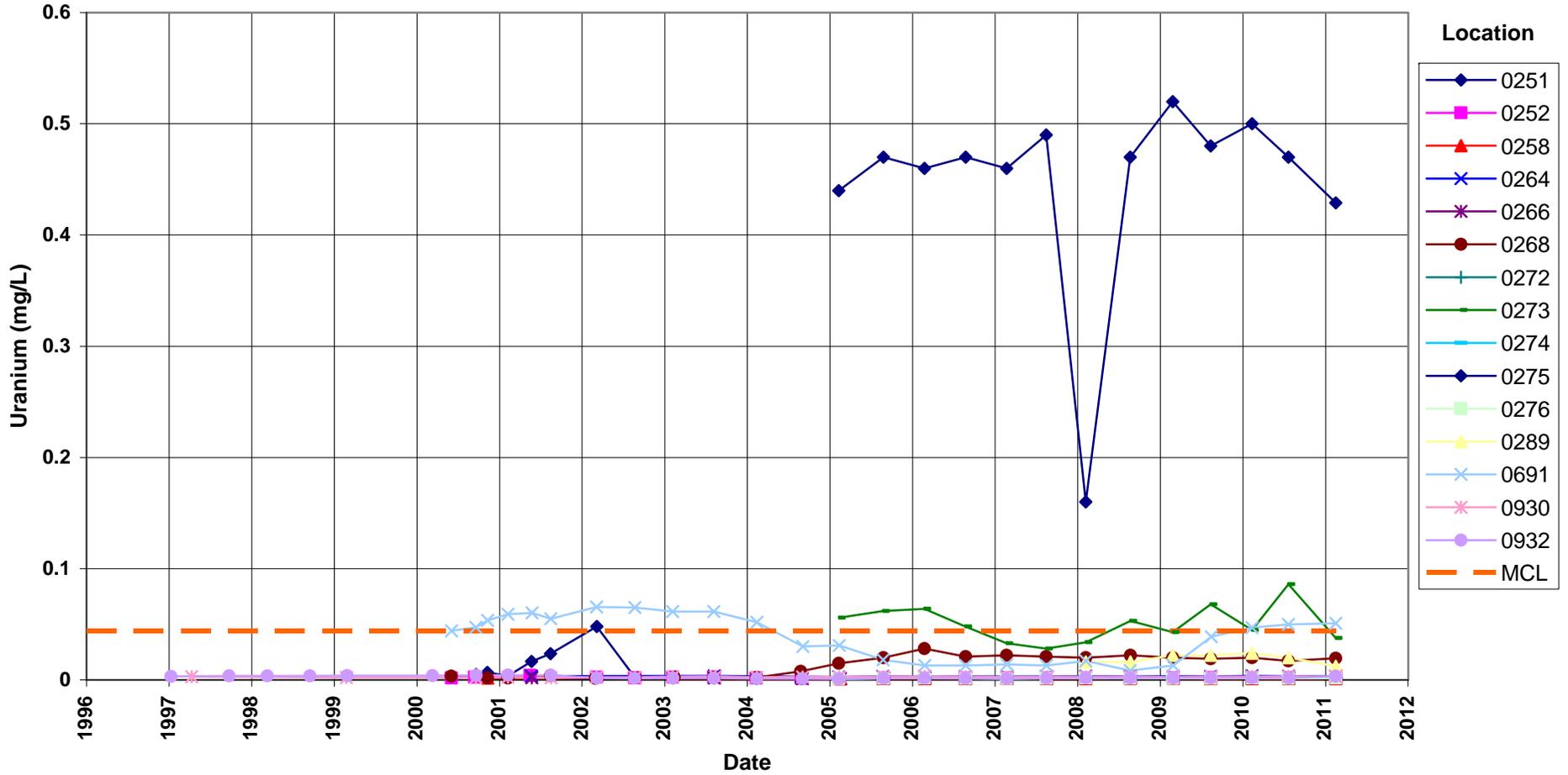
**Tuba City Disposal Site**  
**Horizons C, D & E Monitoring Wells**  
**Nitrate + Nitrite as Nitrogen Concentration**  
 Maximum Contaminant Level (MCL) = 10.0 mg/L



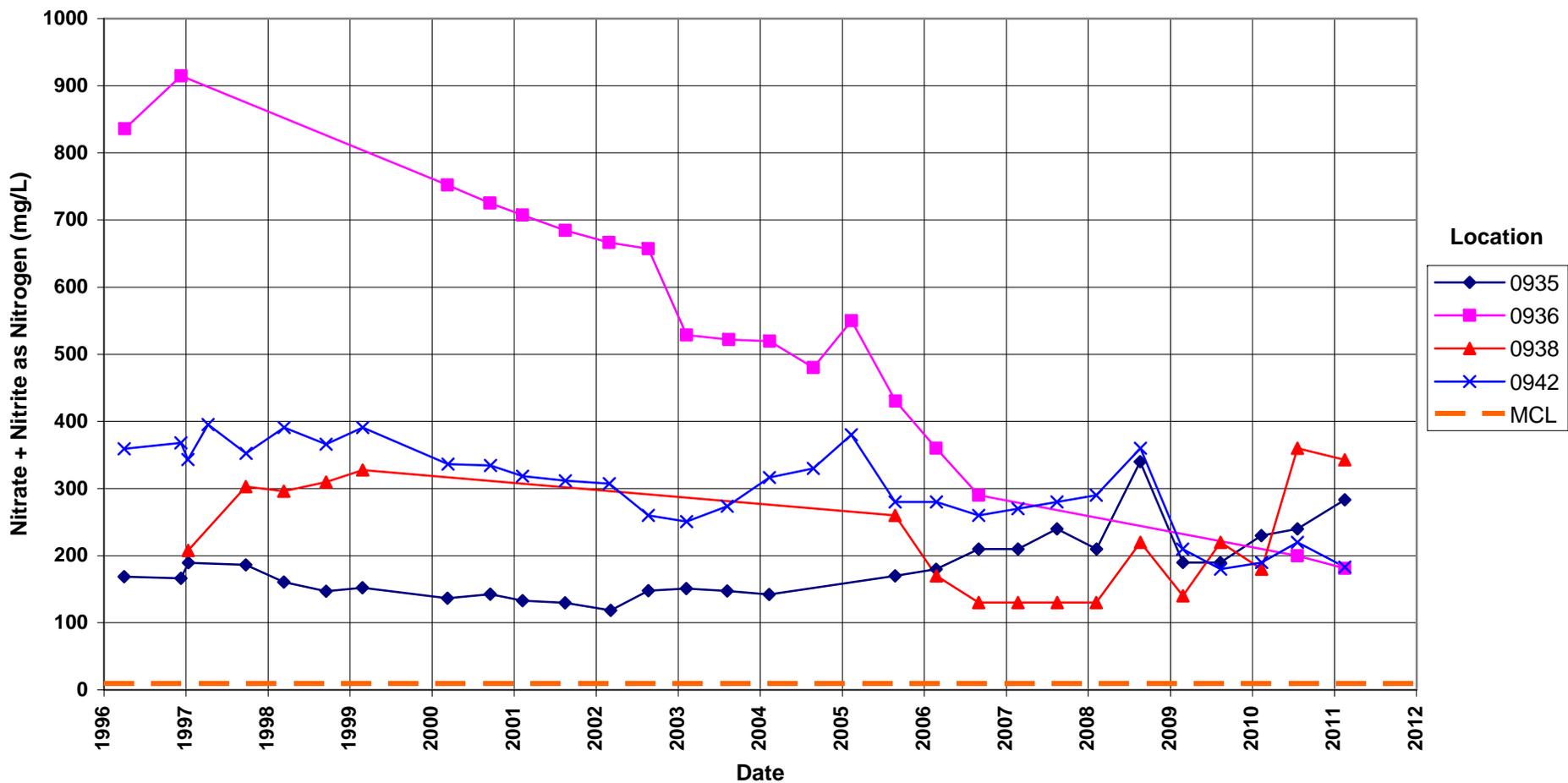
**Tuba City Disposal Site  
Horizons C, D & E Monitoring Wells  
Sulfate Concentration**  
Cleanup Level (CL) = 250 mg/L



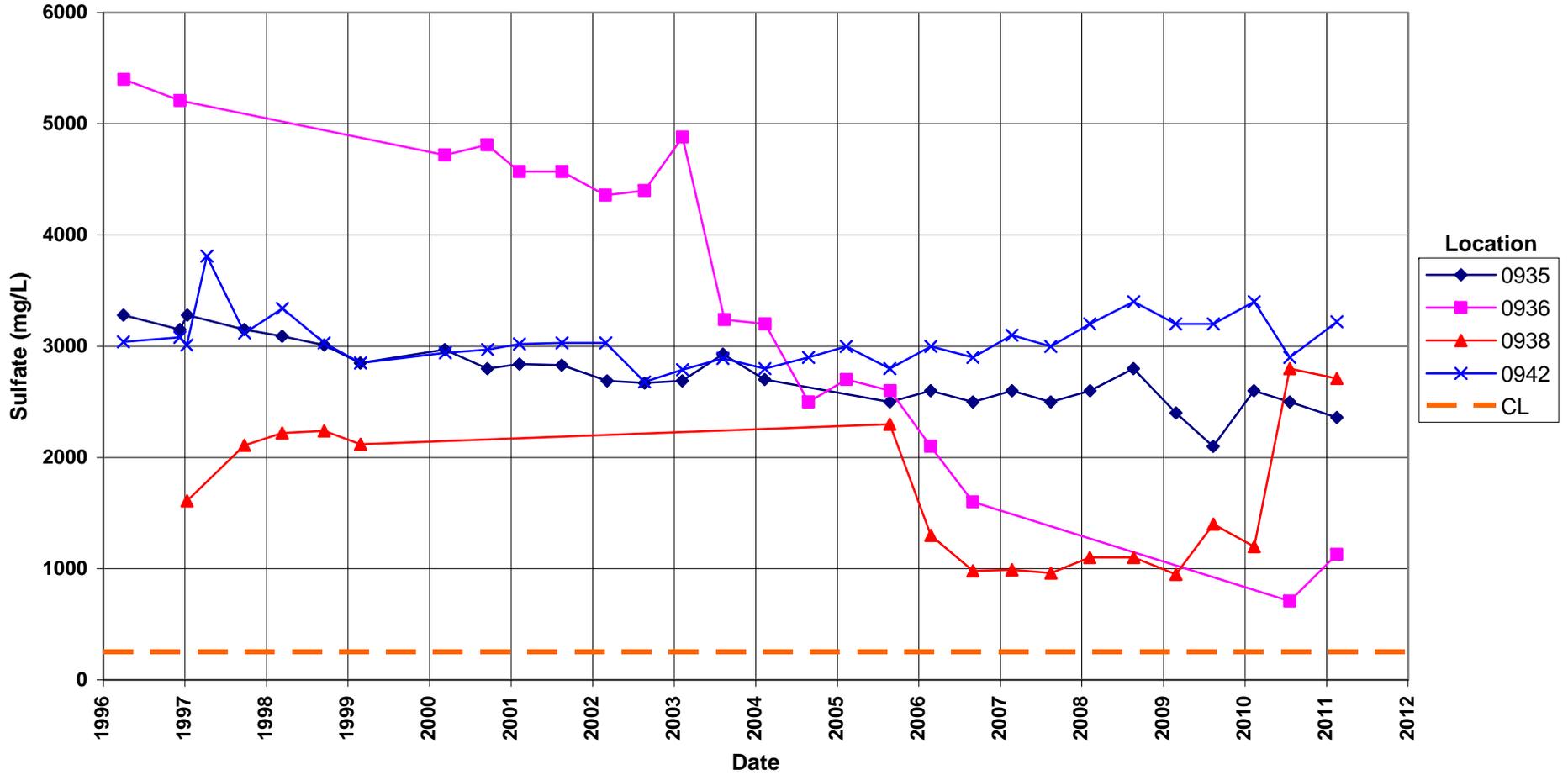
**Tuba City Disposal Site  
Horizons C, D & E Monitoring Wells  
Uranium Concentration**  
Maximum Contaminant Level (MCL) = 0.044 mg/L



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

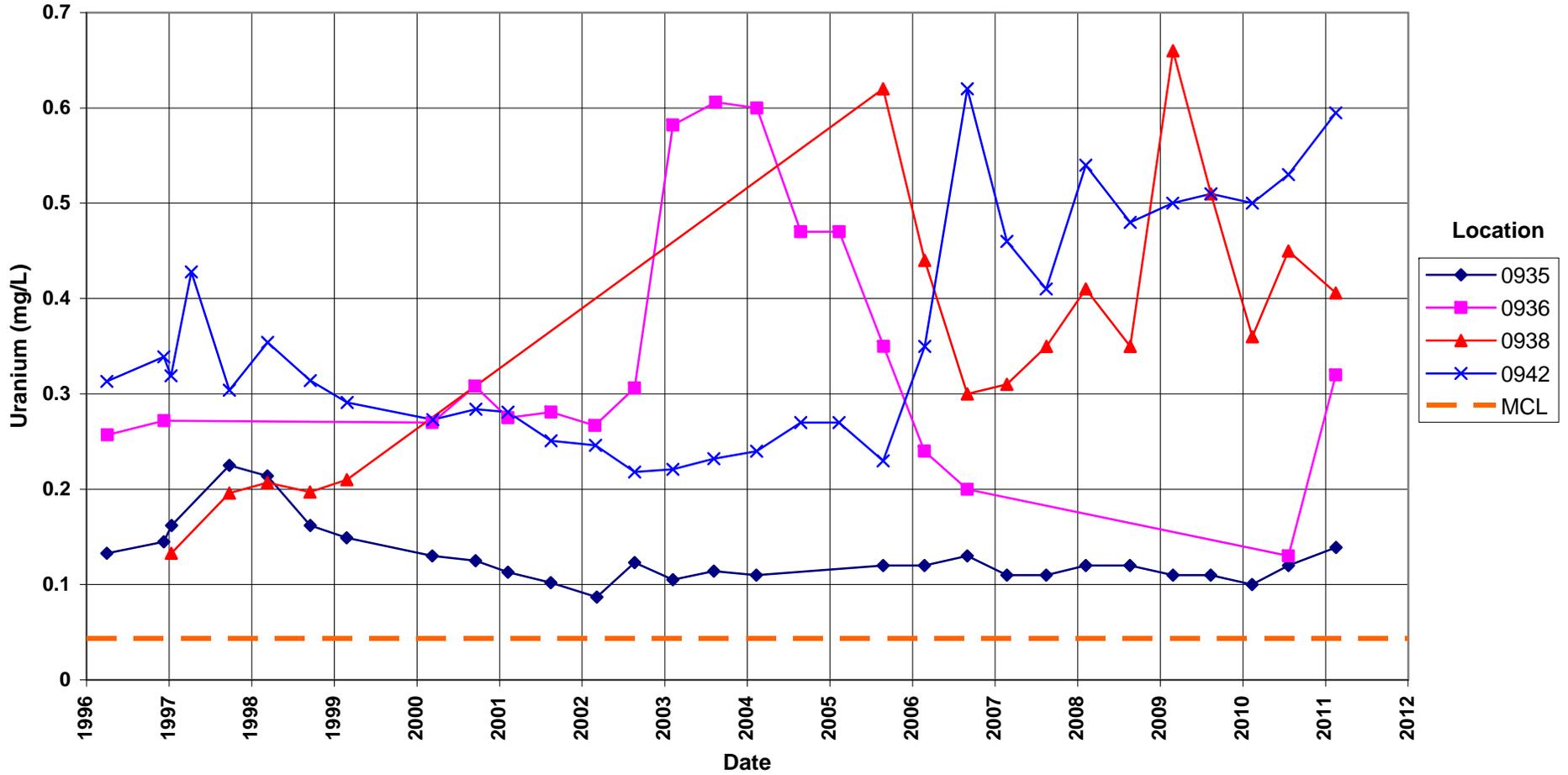


**Tuba City Disposal Site  
Horizon B Extraction Wells  
Sulfate Concentration**  
Cleanup Level (CL) = 250 mg/L



# Tuba City Disposal Site Horizon B Extraction Wells Uranium Concentration

Maximum Contaminant Level (MCL) = 0.044 mg/L



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

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established 1959

Task Order LM00-501  
Control Number 11-0252

January 12, 2011

U.S. Department of Energy  
Office of Legacy Management  
ATTN: Richard Bush  
Site Manager  
2597 B 3/4 Road  
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)  
February 2011 Environmental Sampling at Tuba City, Arizona

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

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Tuba City, AZ. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Tuba City disposal 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 14, 2011.

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	265 Na	274 Na	283 Na	290 Na	929 Na	936 Na
252 Na	266 Na	275 Na	286 Na	691 Na	930 Na	938 Na
258 Na	267 Na	276 Na	287 Na	906 Na	932 Na	940 Na
262 Na	268 Na	281 Na	288 Na	908 Na	934 Na	941 Na
263 Na	272 Na	282 Na	289 Na	909 Na	935 Na	942 Na
264 Na	273 Na					

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

**Surface locations**

1569      1570

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.

The S.M. Stoller Corporation      2597 B 3/4 Road      Grand Junction, CO 81503      (970) 248-6000      Fax: (970) 248-6040

Richard Bush  
Control Number 11-0252  
Page 2

Please call me at (970) 248-6568 if you have any questions.

Sincerely,



Carl Jacobson  
Acting Programmatic Lead

CJ/lcg/lb

Enclosures (3)

cc: (electronic)  
Steve Donovan, Stoller  
Lauren Goodknight, Stoller  
Carl Jacobson, Stoller  
EDD Delivery  
re-grand.junction  
File: TUB 410.02(A)

### Sampling Frequencies for Locations at Tuba City, Arizona

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>Monitoring Wells</b>						
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
1008					X	Water level only
<b>Surface Locations</b>						
1569		X				Evap pond - North
1570		X				Evap pond - South

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

## Constituent Sampling Breakdown

Site	Tuba City		Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Analyte	Groundwater	Surface Water			
<b>Approx. No. Samples/yr</b>	143	9			
<i>Field Measurements</i>					
Alkalinity	X	X			
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X				
Temperature	X	X			
<i>Laboratory Measurements</i>					
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					
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					
<b>Total No. of Analytes</b>	16	14			

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

# **Attachment 4 Trip Report**

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*Memorandum*

**DATE:** February 28, 2011

**TO:** Carl Jacobson

**FROM:** Jeff Walters

**SUBJECT:** Trip Report

**Site:** Tuba City, AZ

**Dates of Sampling Event:** February 14-16, 2011

**Team Members:** Kent Moe, Jeff Price, Dan Sellers, Joe Trevino, and Jeff Walters

**Number of Locations Sampled:** Samples for 40 monitoring wells, 2 surface water locations, and 3 duplicates were collected for As, Ca, Fe, Mg, Mn, Mo, K, Se, Na, U, SiO<sub>2</sub>, Cl, SO<sub>4</sub>, (NO<sub>3</sub>+NO<sub>2</sub>)-N, (NH<sub>3</sub>-N), and TDS.

**Locations Not Sampled/Reason:** Monitoring wells 0283 and 0909 were not sampled. Both were dry.

**Location Specific Information:**

Date	Time	Sample ID	Ticket Number	Matrix	Notes
2/16/11	1120	0251	JDZ 104	Groundwater	Cat II
2/16/11	0940	0252	JDZ 105	Groundwater	Cat I
2/15/11	1034	0258	JDZ 106	Groundwater	Cat II
2/15/11	1142	0262	JDZ 107	Groundwater	Cat II
2/15/11	1052	0263	JDZ 108	Groundwater	Cat II
2/15/11	1125	0264	JDZ 109	Groundwater	Cat II
2/15/11	1604	0265	JDZ 110	Groundwater	Cat II
2/15/11	1545	0266	JDZ 111	Groundwater	Cat II
2/16/11	0839	0267	JDZ 112	Groundwater	Cat I
2/15/11	1310	0268	JDZ 113	Groundwater	Cat I
2/15/11	1620	0272	JDZ 114	Groundwater	Cat I
2/15/11	1445	0273	JDZ 115	Groundwater	Cat II
2/15/11	1325	0274	JDZ 116	Groundwater	Cat II
2/15/11	1340	0275	JDZ 117	Groundwater	Cat I
2/15/11	1240	0276	JDZ 118	Groundwater	Cat I
2/16/11	0904	0281	JDZ 119	Groundwater	Cat II

Date	Time	Sample ID	Ticket Number	Matrix	Notes
2/15/11	1651	0282	JDZ 120	Groundwater	Cat II
2/15/11	-----	0283	JDZ 142	-----	Dry. Not Sampled
2/15/11	1540	0286	JDZ 121	Groundwater	Cat II
2/15/11	1415	0287	JDZ 122	Groundwater	Cat II
2/15/11	0915	0288	JDZ 123	Groundwater	Cat II
2/15/11	0945	0289	JDZ 124	Groundwater	Cat II
2/16/11	0933	0290	JDZ 125	Groundwater	Cat II
2/15/11	0954	0691	JDZ 126	Groundwater	Cat I
2/15/11	1715	0906	JDZ 141	Groundwater	Cat II
2/16/11	0900	0908	JDZ 127	Groundwater	Cat II
2/15/11	-----	0909	JDZ 128	-----	Dry. Not Sampled
2/16/11	1032	0929	JDZ 129	Groundwater	Cat II
2/15/11	0910	0930	JDZ 130	Groundwater	Cat I
2/15/11	1411	0932	JDZ 131	Groundwater	Cat I
2/16/11	0954	0934	JDZ 132	Groundwater	Cat II
2/16/11	0840	0935	JDZ 133	Groundwater	Extraction Well
2/15/11	1100	0936	JDZ 143	Groundwater	Extraction Well
2/15/11	1115	0938	JDZ 134	Groundwater	Extraction Well
2/15/11	1600	0940	JDZ 144	Groundwater	Cat II
2/15/11	1500	0941	JDZ 135	Groundwater	Cat II
2/15/11	1030	0942	JDZ 136	Groundwater	Extraction Well
2/15/11	1740	1569	JDZ 137	Surface water	-----
2/15/11	1730	1570	JDZ 138	Surface water	-----
2/16/11	1730	NMW-1A	JDQ 425	Groundwater	Cat I. Collected with IINA-BA
2/16/11	1215	NMW-6S	JDQ 426	Groundwater	Cat I. Collected with IINA-BA
2/16/11	1430	NMW-7D	JDQ 427	Groundwater	Cat I. Collected with IINA-BA
2/15/11	1630	NMW-8S	JDQ 428	Groundwater	Cat I. Collected with IINA-BA
2/16/11	1045	NMW-9D	JDQ 429	Groundwater	Cat I. Collected with IINA-BA

**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	Associated Matrix
2122	0272	JDQ 430	Duplicate	Groundwater
2723	0932	JDZ 139	Duplicate	Groundwater
2724	0276	JDZ 140	Duplicate	Groundwater

**RIN Number Assigned:** All samples were assigned to RIN 11023601.

**Sample Shipment:** Samples were shipped overnight via FedEx from Grand Junction to GEL Laboratories in Charleston, SC on February 17, 2011. Samples collected with IINA-BA (contractor to the Navajo EPA) were shipped overnight via FedEx from Grand Junction to GEL Laboratories in Charleston, SC on February 18, 2011.

**Water Level Measurements:** Water levels collected in all sampled wells are in the Field Data Collection System (FDCCS) Water Sampling Logs. Water levels in all wells not sampled were collected using the PDAs and are in SEEPro.

**Well Inspection Summary:** Inspections were performed at all wells accessed for sampling or water levels. All wells were in good condition unless otherwise noted in the FDCCS Water Sampling Logs or PDA inspection reports.

**Field Variance:** Extraction wells 0935, 0936, 0938, and 0942 were off prior to sampling. These wells were started and allowed to pump about one casing volume prior to sampling. Monitoring wells 0286, 0908, and 0940 were filtered due to turbidities greater than 10 NTUs. Monitoring wells NMW-1A, NMW-6S, NMW-7D, NMW-8S, and NMW-9D were purged prior to sampling by IINA-BA. The purge volumes were higher than what is normally purged when using the low flow procedure.

**Equipment:** Most wells were sampled using the low flow procedure through dedicated bladder pumps. The extraction wells were sampled through dedicated submersible pumps. Surface water samples were collected through dedicated tubing and a peristaltic pump. All equipment functioned properly.

**Institutional Controls:**

**Fences, Gates, Locks:** All appeared in nominal working condition.

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

**Site Issues:**

**Disposal Cell/Drainage Structure Integrity:** None observed.

**Vegetation/Noxious Weed Concerns:** None observed.

**Maintenance Requirements:** None observed.

**Access Issues:** None.

**Safety Issues:** None.

**Corrective Action Taken:** None

(JWW/lcg)

cc: (electronic)  
Richard Bush, DOE  
Timothy Bartlett, Stoller  
Steve Donovan, Stoller  
EDD Delivery

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