LMS/SHP/S04483

Data Validation Package

March 2008
Groundwater and Surface Water Sampling at the Shiprock, New Mexico, Disposal Site

July 2008

U.S. Department of Energy
Office of Legacy Management

Work Performed by the S.M. Stoller Corporation Under DOE Contract No. DE–AM01–07LM00060 for the U.S. Department of Energy Office of Legacy Management.

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Sampling Event Summary

Site: Shiprock, New Mexico, Disposal Site

Sampling Period: March 3-6, 2008

Groundwater and surface water sampling and analysis are performed semiannually at the Shiprock Disposal Site as specified in the *Refinement of Conceptual Model and Recommendations for Improving Remediation Efficiency at the Shiprock, New Mexico, Site*. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* and the *Environmental Procedures Catalog*. Monitoring of terrace locations is performed to determine the effectiveness of active remediation. Monitoring of floodplain locations is performed to determine the progress of the natural flushing process and the effectiveness of groundwater removal to prevent contaminants from reaching the San Juan River.

The contaminants of concern (COCs) for the Shiprock Disposal Site are ammonia, manganese, nitrate + nitrite as N, selenium, strontium, sulfate, and uranium. Wells with contaminant concentrations that exceeded groundwater standards or proposed alternate concentration limits are listed in Table 1. Review of these data does not indicate any unexpected movement of contaminated groundwater. Time-concentration graphs of the COCs for the groundwater locations listed in Table 1 (excluding extraction wells) are included in this report.

Table 1. Shiprock Locations that Exceed Standards

Comparison to UMTRCA Maximum Groundwater Concentration Standards
Laboratory: PARAGON (Fort Collins, CO)
Requisition Index Number (RIN): 08021395
Report Date: 05/21/2008

Analyte	Standard[a]	Site Code	Location	Concentration
Nitrate + Nitrite as Nitrogen	10	SHP01	0608	260
			0614	610
			0615	140
			0618	330
			0735	120
			1105	770
			1111	51
			1112	700
			1113	900
			1114	59
			1115	65
			1116	490
Selenium	0.01	SHP01	0614	0.3
			0615	0.53
			0618	0.23
			0735	0.043
			1105	0.054
			1111	0.71
			1112	1.2
			1113	0.018
			1116	0.01

Comparison to UMTRCA Maximum Groundwater Concentration Standards
Laboratory: PARAGON (Fort Collins, CO)
Requisition Index Number (RIN): 08021395
Report Date: 05/21/2008

Analyte	Standard[a]	Site Code	Location	Concentration
Uranium	0.044	SHP01	0608	1.2
			0614	2.3
			0615	1.6
			0618	2.6
			0619	0.18
			0734	0.085
			0735	0.081
			0736	0.12
			0850	0.049
			1105	3.1
			1111	0.94
			1112	2
			1113	1.7
			1114	0.4
			1115	0.36
			1116	1
Nitrate + Nitrite as Nitrogen	10	SHP02	0730	170
			0817	370
			0830	33
			0835	110
			0836	15
			0838	130
			0841	720
			0846	33
			1057	1600
			1079	52
Selenium	0.01	SHP02	0830	0.022
			0835	0.27
			0836	0.099
			0838	0.48
			0841	3
			0846	0.28
			1057	0.22
			1079	0.2
Uranium	0.044	SHP02	0817	5.6
			0835	0.088
			0836	0.055
			0838	0.051
			0841	0.13
			1057	0.052

[a]Standards are listed in 40 CFR 192.02 Table 1 to Subpart A; units are in mg/L.

Floodplain surface water analyte concentrations were compared to statistical benchmark values derived using data from location 0898, which is upstream of the site on the San Juan River. As shown in Table 2, benchmark values were not exceeded for the point-of-exposure river location 0940 or locations 0897 and 1205 which are adjacent to the site.

Table 2. Floodplain River Locations

Analyte	Benchmark (mg/L)	0897 (mg/L)	0940 (mg/L)	1205 (mg/L)
Ammonia-N	0.05	ND[a]	ND[a]	ND[a]
Manganese	0.0396	0.0051	0.006	0.0029
Nitrate-N	1.0	0.23	0.19	0.18
Selenium	0.0019	0.0006	0.0004	0.0006
Strontium	1.2	0.47	0.47	0.45
Sulfate	220	77	76	74
Uranium	0.056	0.001	0.001	0.0009

[a]ND = Not Detected.

David Miller
Site Lead, S.M. Stoller

8/18/08
Date

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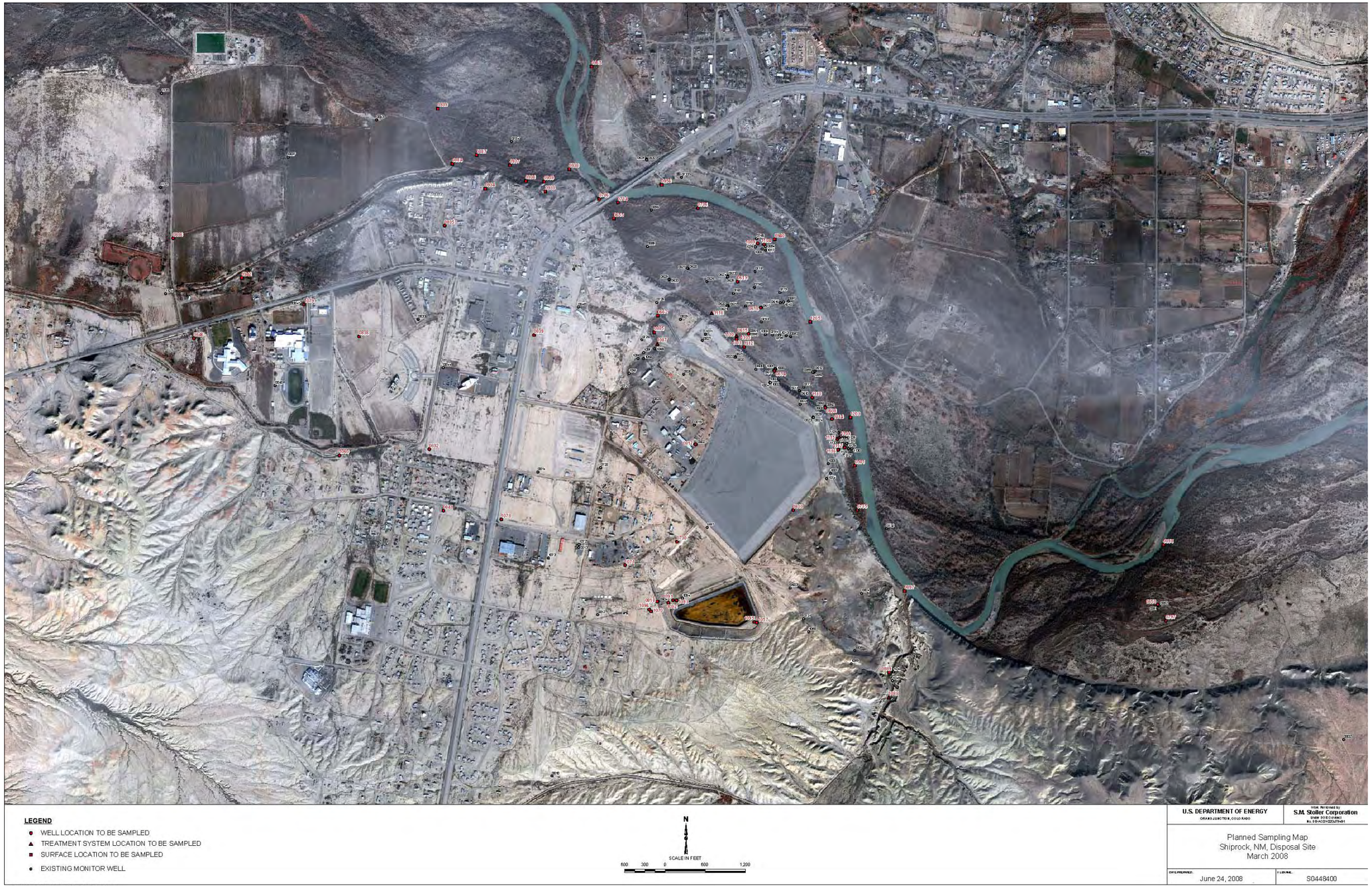

Shiprock, New Mexico, Disposal Site Sample Monitoring Locations

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Shiprock, New Mexico	**Date(s) of Water Sampling**	March 3-6, 2008
Date(s) of Verification	May 7, 2008	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOPs, instructions.		Work Order Letter dated January 31, 2008.
2. Were the sampling locations specified in the planning documents sampled?	No	Surface water locations 0885, 0932, 0933, 0934, 0936, and 0942 were dry. Surface water location 0884 was not sampled because a manhole was overflowing sewage into the wash. Surface water location 0786 was not accessible because of high flow in the San Juan River. Monitor wells 0832 and 1060 were dry, and monitor well 0839 was buried under new gravel placed at the fairgrounds.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on February 28, 2008.
4. Was an operational check of the field equipment conducted twice daily?	Yes	
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	No	Field measurements were not collected at location 0939 because of flooding conditions.
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	The turbidity criteria was not met at well 0850.
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

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?	NA	
Was one pump/tubing volume removed prior to sampling?	NA	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicates were collected from locations 0841, 1057, and 1215.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location IDs 2573, 2574, 2604, and 2605 were used for QC samples.
Was the true identity of the samples recorded on the Quality Assurance Sample Log?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	No	A TDS sample was not collected from location 0850.
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?	No	There was only one signature at location 0938.
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

Report Number (RIN):	08021395
Sample Event:	March 3-6, 2008
Site(s):	Shiprock, New Mexico
Laboratory:	Paragon Analytics, Fort Collins, Colorado
Work Order No.:	0803032
Analysis:	Metals and Wet Chemistry
Validator:	Steve Donivan
Review Date:	May 5, 2008

This validation was performed according to the *Environmental Procedures Catalog*, "Standard Practice for Validation of Laboratory Data," GT-9(P). 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 3.

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Calcium, Magnesium, Manganese, Potassium, Sodium, Strontium	LMM-01	SW-846 3005A	SW-846 6010B
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Nitrate + Nitrite as N	WCH-A-022	MCAWW 353.2	MCAWW 353.2
Selenium, Uranium	LMM-02	SW-846 3005A	SW-846 6020A
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids	WCH-A-033	MCAWW 160.1	MCAWW 160.1

Data Qualifier Summary

Analytical results were qualified as listed in Table 4. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 4. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
0803032-1	0655	Potassium	J	Matrix spike failure
0803032-28	0608	Nitrate-N	J	Matrix spike failure
0803032-33	0734	Potassium	J	Matrix spike failure
0803032-41	1111	Ammonia-N	J	Matrix spike failure
0803032-52	Equipment Blank	Potassium	U	Less than 5 times the method blank
0803032-52	Equipment Blank	Sodium	U	Less than 5 times the method blank
0803032-52	Equipment Blank	Strontium	U	Less than 5 times the method blank
0803032-52	Equipment Blank	Uranium	U	Less than 5 times the method blank
0803032-56	0830	Calcium	J	Serial dilution failure
0803032-56	0830	Manganese	J	Serial dilution failure
0803032-61	1091	Ammonia-N	J	Matrix spike failure

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 65 water samples on March 6, 2008, and March 7, 2008, accompanied by Chain of Custody (COC) forms. The COC forms were checked to confirm that all of the samples were listed on the forms and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC forms and the sample tickets had no errors or omissions, with the following exceptions. The ticket number on the COC did not match the ticket number on the bottle for sample 0803032-63, the ticket number from the COC was used. The requested analyses for sample 0803032-65 listed on the COC included TDS, but TDS was not listed on the sample ticket. The sample was logged in using the information from the sample ticket.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers at 1.0 and 0.6 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the required holding time.

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.

Method MCAWW 160.1

There are no initial or continuing calibration requirements associated with the determination of total dissolved solids.

Method MCAWW 350.1

Calibrations were performed for ammonia as N on March 11, 2008, 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 11 verification checks. All calibration checks met the acceptance criteria.

Method MCAWW 353.2

Calibrations were performed for nitrate + nitrite as N on March 10 and 12, 2008, 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 14 verification checks. All calibration checks met the acceptance criteria.

Method SW-846 6010B

Calibrations for calcium, magnesium, manganese, potassium, sodium, and strontium were performed on March 11, 14, 18, and 31, 2008, using single point calibration. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 40 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 (PQL) and all results were within the acceptance range.

Method SW-846 6020A

Calibrations were performed for selenium on March 10 and 12, 2008, and for uranium on March 12, 2008, 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. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 20 verification checks for selenium and 10 checks for uranium. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method SW-846 9056

Calibrations were performed for chloride and sulfate on March 5, 2008, using five calibration

standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 24 verification checks. All calibration checks met the acceptance criteria.

Method and Calibration Blanks

Method blanks (MB) 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 MB and initial and continuing calibration blank (ICB and CCB) results associated with the samples were below the PQL with the exception of several chloride and sulfate CCBs. The samples associated with these CCBs had chloride and sulfate concentrations greater than 10 times the blanks. 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 magnesium, manganese, and strontium, some calibration blanks were negative and the absolute values were greater than the MDL but less than the PQL. All magnesium and strontium results were greater than 5 times the MDL and no results are qualified.

Inductively Coupled Plasma (ICP) Interference Check Sample Analysis

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for all analytes as a measure of method performance in the sample matrix. The MS 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 criteria for all analytes evaluated with the following exceptions.

The potassium MS/MSD recoveries for samples 0655 and 0734 did not meet the acceptance criteria. The sample potassium results are qualified with a "J" flag as estimated values.

The ammonia MS recovery for samples 1091 and 1111 did not meet the acceptance criteria. The sample ammonia results are qualified with a "J" flag as estimated values.

The nitrate MS recovery for sample 0608 did not meet the acceptance criteria. The sample nitrate result is qualified with a "J" flag as an estimated value.

Laboratory Replicate Analysis

The laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the laboratory replicate sample and MSD sample results for all analytes were less than 20 percent, indicating acceptable laboratory precision.

Laboratory Control Samples

Laboratory control samples (LCSs) were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The LCS results were acceptable for all 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 100 times the PQL for ICP-MS or greater than 50 times the PQL for ICP. All evaluated serial dilution data were acceptable with the following exceptions. For sample 0830, the serial dilution analysis did not meet the acceptance criteria for calcium and manganese, and for sample 0655 the criteria was not met for potassium. The associated results are qualified with a "J" flag as estimated values.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. 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 chloride and sulfate data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

The EDD file arrived on April 28, 2008. 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 5 shows the total cation and anion results from this event and the charge balance, which is an RPD calculation. Typically, a charge balance difference of 10 percent is considered acceptable.

Table 5. Comparison of Major Anions and Cations

Site Code	Location	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
SHP01	0501	3.52	3.62	1.51
SHP01	0608	169.37	179.81	2.99
SHP01	0614	316.77	360.70	6.48
SHP01	0615	144.95	158.11	4.34
SHP01	0618	318.54	373.35	7.92
SHP01	0619	69.67	80.92	7.47
SHP01	0655	79.51	87.64	4.86
SHP01	0734	147.47	167.60	6.39
SHP01	0735	74.36	82.80	5.37
SHP01	0736	100.99	118.18	7.84
SHP01	0797	70.39	78.12	5.21
SHP01	0850	40.19	47.22	8.05
SHP01	0887	4.56	12.57	46.76
SHP01	0897	3.69	4.51	10.06
SHP01	0898	3.73	4.22	6.13
SHP01	0937	4.31	4.82	5.54
SHP01	0938	3.64	3.87	3.13
SHP01	0939	4.40	2.74	23.26
SHP01	0940	3.64	4.29	8.15
SHP01	0956	3.61	4.10	6.37
SHP01	0959	4.33	4.78	4.96
SHP01	0965	3.68	3.96	3.68
SHP01	1089	142.69	159.56	5.58
SHP01	1104	152.13	174.46	6.84
SHP01	1105	360.15	419.67	7.63
SHP01	1109	17.76	18.78	2.78
SHP01	1110	239.56	273.74	6.66
SHP01	1111	177.71	199.94	5.89
SHP01	1112	315.23	345.02	4.51
SHP01	1113	270.35	282.52	2.20
SHP01	1114	47.11	51.24	4.20
SHP01	1115	41.20	43.89	3.16
SHP01	1116	181.73	187.97	1.69
SHP01	1117	5.94	6.51	4.56
SHP01	1118	115.76	137.14	8.45
SHP01	1203	3.65	3.90	3.36
SHP01	1205	3.65	3.78	1.75
SHP02	0662	39.89	44.74	5.73
SHP02	0730	50.46	52.12	1.62
SHP02	0817	297.29	370.27	10.93
SHP02	0818	379.05	401.07	2.82
SHP02	0830	34.98	37.22	3.10
SHP02	0835	97.39	104.92	3.72
SHP02	0836	62.62	65.89	2.54
SHP02	0838	75.82	84.54	5.44

Table 5 (continued). Comparison of Major Anions and Cations

Site Code	Location	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
SHP02	0841	720.73	792.18	4.72
SHP02	0846	53.40	52.84	0.52
SHP02	0889	450.60	581.84	12.71
SHP02	1057	541.13	517.31	2.25
SHP02	1070	455.45	397.65	6.78
SHP02	1071	284.87	276.07	1.57
SHP02	1078	374.20	395.54	2.77
SHP02	1079	48.14	49.51	1.41
SHP02	1087	204.70	211.24	1.57
SHP02	1088	390.65	469.92	9.21
SHP02	1091	421.28	408.28	1.57
SHP02	1092	346.87	354.54	1.09
SHP02	1093	336.47	327.12	1.41
SHP02	1095	287.17	293.06	1.01
SHP02	1096	335.33	357.84	3.25
SHP02	1215	869.01	991.01	6.56

The charge balance value was greater than ten percent for five locations. Further review of the data for these locations did not indicate any errors in the data. Locations 0887, 0889, 0897, and 0939 are surface water locations where flooding conditions were encountered resulting in samples with high turbidity. The sample from well 0817 was collected unfiltered with relatively high turbidity. The turbidity of the samples may have constituted an interference during the alkalinity measurement resulting in higher change balance differences.

SAMPLE MANAGEMENT SYSTEM

EDD Non-Conformance Report

Report Date: 5/5/2008

EDD File:

EDD Errors: No errors detected

Record	Table	Error Type	Field	Error Description

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 08021395 **Lab Code:** PAR **Validator:** Steve Donivan **Validation Date:** 5/5/2008

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

# of Samples: 65 **Matrix:** WATER **Requested Analysis Completed:** Yes

Chain of Custody

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

Sample

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

Select Quality Parameters

☑ Holding Times	All analyses were completed within the applicable holding times.
☑ Detection Limits	The reported detection limits are equal to or below contract requirements.
☑ Field/Trip Blanks	There was 1 trip/equipment blank evaluated.
☑ Field Duplicates	There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08021395 **Lab Code:** PAR **Date Due:** 4/5/2008

Matrix: Water **Site Code:** SHP **Date Completed:** 4/7/2008

Analyte	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								
CALCIUM	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	100.0	122.0	142.0	2.0	106.0	2.0	106.0
CALCIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK	OK	98.0	119.0	136.0	1.0	104.0	2.0	109.0
CALCIUM	03/14/2008									137.0	148.0	1.0	106.0	12.0	
CALCIUM	03/18/2008	0.0000	1.0000	OK	OK	OK	OK			106.0	107.0	0.0	105.0	2.0	110.0
CALCIUM	03/31/2008	0.0000	1.0000	OK	OK	OK	OK	OK	103.0	100.0	105.0	3.0	104.0	6.0	106.0
MAGNESIUM	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	102.0	102.0	107.0	2.0	108.0	6.0	105.0
MAGNESIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK	OK	99.0	93.0	94.0	1.0	106.0	2.0	106.0
MAGNESIUM	03/14/2008									144.0	148.0	0.0	110.0		
MAGNESIUM	03/18/2008	0.0000	1.0000	OK	OK	OK	OK	OK	104.0	109.0	112.0	2.0	108.0	3.0	108.0
MAGNESIUM	03/31/2008	0.0000	1.0000	OK	OK	OK	OK			102.0	107.0	4.0	103.0	5.0	104.0
MANGANESE	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	100.0	99.0	105.0	2.0	99.0	5.0	101.0
MANGANESE	03/14/2008	0.0000	1.0000	OK	OK	OK	OK	OK	99.0	103.0	107.0	1.0	98.0	5.0	109.0
MANGANESE	03/14/2008									126.0	131.0	0.0	101.0	42.0	
MANGANESE	03/18/2008	0.0000	1.0000	OK	OK	OK	OK	OK	104.0	104.0	107.0	2.0	101.0		111.0
MANGANESE	03/31/2008	0.0000	1.0000	OK	OK	OK	OK			100.0	103.0	3.0	94.0		105.0
POTASSIUM	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	98.0	162.0	163.0	1.0		24.0	85.6
POTASSIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK	OK	96.0	103.0	102.0	0.0		10.0	109.0
POTASSIUM	03/14/2008									163.0	163.0	0.0			

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08021395 **Lab Code:** PAR **Date Due:** 4/5/2008

Matrix: Water **Site Code:** SHP **Date Completed:** 4/7/2008

Analyte	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	03/18/2008	0.0000	1.0000	OK	OK	OK	OK	OK	98.0	115.0	118.0	3.0			
POTASSIUM	03/31/2008	0.0000	1.0000							113.0	117.0	3.0			
SELENIUM	03/10/2008	0.0000	1.0000	OK	OK	OK	OK		102.0	109.0	106.0	2.0	96.0		104.0
SELENIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK		92.0	96.0	101.0	4.0	97.0		105.0
SELENIUM	03/14/2008								94.0	90.0	94.0	2.0	97.0		
SELENIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK		89.0	102.0	103.0	1.0			105.0
SELENIUM	03/14/2008								86.0	118.0	117.0	1.0			
SODIUM	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	99.0	131.0	225.0	3.0		1.0	90.0
SODIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK		97.0	103.0	101.0	0.0		4.0	91.0
SODIUM	03/14/2008								99.0	-54.0	113.0	3.0			
SODIUM	03/18/2008	0.0000	1.0000	OK	OK	OK	OK			107.0	110.0	2.0		10.0	94.0
SODIUM	03/31/2008	0.0000	1.0000	OK	OK	OK	OK			102.0	106.0	2.0		10.0	93.0
STRONTIUM	03/11/2008	0.0000	1.0000	OK	OK	OK	OK	OK	100.0	148.0	196.0	2.0	99.0	3.0	82.0
STRONTIUM	03/14/2008	0.0000	1.0000	OK	OK	OK	OK	OK	99.0	97.0	97.0	0.0	99.0	3.0	103.0
STRONTIUM	03/14/2008									149.0	152.0	0.0	101.0		
STRONTIUM	03/18/2008	0.0000	1.0000	OK	OK	OK	OK	OK	102.0	96.0	98.0	1.0	101.0	2.0	107.0
STRONTIUM	03/31/2008	0.0000	1.0000	OK	OK	OK	OK			92.0	94.0	1.0	97.0	4.0	106.0
URANIUM	03/12/2008	0.0000	1.0000	OK	OK	OK	OK		99.0	106.0	105.0	0.0	99.0	7.0	106.0

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08021395 **Lab Code:** PAR **Date Due:** 4/5/2008

Matrix: Water **Site Code:** SHP **Date Completed:** 4/7/2008

Analyte	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								
URANIUM	03/12/2008								103.0	140.0	116.0	4.0		2.0	
URANIUM	03/12/2008								105.0	111.0	115.0	3.0		7.0	
URANIUM	03/12/2008									110.0	101.0	2.0		2.0	

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 08021395 **Lab Code:** PAR **Date Due:** 4/5/2008

Matrix: Water **Site Code:** SHP **Date Completed:** 4/7/2008

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
AMMONIA AS N	03/11/2008	0.000	1.0000	OK	OK	OK	OK	OK	97.0	90.0	86.0	5.00	
AMMONIA AS N	03/11/2008							OK	98.0	67.0	62.0	7.00	
AMMONIA AS N	03/11/2008							OK	100.0	73.0	76.0	1.00	
AMMONIA AS N	03/11/2008							OK	101.0	94.0	93.0	1.00	
CHLORIDE	03/06/2008	0.000	0.9998	OK	OK	OK	OK	OK	100.0				
CHLORIDE	03/07/2008				OK		OK	OK	98.0	95.0	94.0	1.00	
CHLORIDE	03/10/2008				OK		OK	OK	97.0	104.0	103.0	1.00	
CHLORIDE	03/10/2008							OK	99.0	101.0	103.0	1.00	
NITRATE/NITRITE AS N	03/10/2008	0.000	1.0000	OK	OK	OK	OK	OK	95.0	103.0	108.0	3.00	
NITRATE/NITRITE AS N	03/10/2008							OK	98.0				
NITRATE/NITRITE AS N	03/12/2008	0.000	1.0000	OK	OK	OK	OK	OK	95.0	88.0	81.0	3.00	
NITRATE/NITRITE AS N	03/12/2008							OK	97.0	78.0	72.0	2.00	
SULFATE	03/06/2008	0.000	0.9998	OK	OK	OK	OK	OK	98.0				
SULFATE	03/07/2008				OK		OK	OK	95.0	107.0	103.0	1.00	
SULFATE	03/10/2008				OK		OK	OK	97.0	102.0	105.0	1.00	
SULFATE	03/10/2008							OK	97.0				

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 08021395 **Lab Code:** PAR **Date Due:** 4/5/2008

Matrix: Water **Site Code:** SHP **Date Completed:** 4/7/2008

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
TOTAL DISSOLVED SOLIDS	03/07/2008							OK	105.0				
TOTAL DISSOLVED SOLIDS	03/10/2008							OK	98.0			1.00	
TOTAL DISSOLVED SOLIDS	03/10/2008							OK	101.0			0	

Sampling Quality Control Assessment

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

Sampling Protocol

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

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

- Wells 0600, 0726, 0728, 0731, 0734, 0812, 0814, 0815, 0827, 0832, 0833, 0839, 0844, 1007, 1072, 1073, 1120, DM7, and MW1 were classified as Category III.
- Turbidity requirements were not met for well 0850.
- Water levels were not measured for wells 0730 and 0846.

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

Equipment Blank Assessment

An equipment blank was collected after completion of decontamination and prior to collection of environmental samples. This blank is useful in documenting adequate decontamination of sampling equipment. The following analytes were detected in the equipment blank (2574) that was associated with samples collected using a bailer: calcium, magnesium, manganese, selenium, and sulfate. Sample results that are less than 5 times the equipment blank concentration are qualified with a "U" flag as not detected. All sample results for these analytes were more than 5 times the equipment blank concentrations and do not require further qualification.

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. Duplicate samples were collected from locations 0841, 1057, and 1215. The U.S. Environmental Protection Agency recommended laboratory duplicate criterion is less than 20 percent relative difference for results that are greater than 5 times the PQL. The duplicate results were acceptable for all analytes. The chloride relative difference was 30 percent for sample 0841. These results were below 5 times the PQL because of the large dilutions required.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Equipment/Trip Blanks

RIN: 08021395 **Lab Code:** PAR **Project:** Shiprock **Validation Date:** 5/7/2008

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	0803032-52	SW6010	CALCIUM	220	B	1000	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
0803032-22	NFD 680	1070	380000	1		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	0803032-52	SW6010	MAGNESIUM	250	B	1000	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
0803032-22	NFD 680	1070	1400000	10		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	0803032-52	SW6010	MANGANESE	1.3	B	0.15	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
0803032-22	NFD 680	1070	430	1		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	0803032-52	SW6020	SELENIUM	0.043	B	0.019	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
0803032-22	NFD 680	1070	2100	500		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	0803032-52	SW9056	SULFATE	0.78		0.5	MG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
0803032-22	NFD 680	1070	14000	500		

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 08021395 **Lab Code:** PAR **Project:** Shiprock **Validation Date:** 5/5/2008

Duplicate: 2573 **Sample:** 1215

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
AMMONIA AS N	53			49					MG/L
CALCIUM	310000			310000			0		UG/L
CHLORIDE	1100			1100			0		MG/L
MAGNESIUM	2400000			2400000			0		UG/L
MANGANESE	1100			900			20.00		UG/L
NITRATE/NITRITE AS N	770			730			5.33		MG/L
POTASSIUM	270000			270000			0		UG/L
SELENIUM	860			880			2.30		UG/L
SODIUM	5100000			4600000			10.31		UG/L
STRONTIUM	6700			6700			0		UG/L
SULFATE	20000			19000			5.13		MG/L
URANIUM	1700			1700			0		UG/L

Duplicate: 2604 **Sample:** 0841

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
AMMONIA AS N	0.1	U		0.1	U				MG/L
CALCIUM	370000			400000			7.79		UG/L
CHLORIDE	1300			960			30.09		MG/L
MAGNESIUM	930000			900000			3.28		UG/L
MANGANESE	22			18			20.00		UG/L
NITRATE/NITRITE AS N	720			810			11.76		MG/L
POTASSIUM	100000			100000			0		UG/L
SELENIUM	3100			3000			3.28		UG/L
SODIUM	5600000			6500000			14.88		UG/L
STRONTIUM	7900			8100			2.50		UG/L
SULFATE	14000			15000			6.90		MG/L
TOTAL DISSOLVED SOLIDS	28000			28000			0		MG/L
URANIUM	130			130			0		UG/L

Duplicate: 2605 **Sample:** 1057

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
AMMONIA AS N	610			670			9.38		MG/L
CALCIUM	700000			710000			1.42		UG/L
CHLORIDE	390			390			0		MG/L
MAGNESIUM	1600000			1600000			0		UG/L
MANGANESE	13000			14000			7.41		UG/L

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 08021395 **Lab Code:** PAR **Project:** Shiprock **Validation Date:** 5/5/2008

Duplicate: 2605 **Sample:** 1057

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
NITRATE/NITRITE AS N	1600			1600			0		MG/L
POTASSIUM	220000			220000			0		UG/L
SELENIUM	220			220			0		UG/L
SODIUM	1200000			1200000			0		UG/L
STRONTIUM	9200			9200			0		UG/L
SULFATE	6100			6200			1.63		MG/L
TOTAL DISSOLVED SOLIDS	19000			18000			5.41		MG/L
URANIUM	52			54			3.77		UG/L

Certification

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

Laboratory Coordinator: Steve Donivan — Date: 8-11-2008

Data Validation Lead: Steve Donivan — Date: 8-11-2008

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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.

There were several potential outlier results identified that were not qualified as estimated values. These data are listed on the Anomalous Data Review Checksheet to be compared to future results.

Four of these results were from location 0956 that is a surface water location where run-off conditions would contribute to differences compared to previous sampling events.

Six of these results were from location 0838 where all of the analytical results were higher than the historical maximums. All of these results were uniformly high and the charge balance was less than ten percent. There is no evidence of data errors and the data for this event are acceptable as qualified.

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Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	0501	03/05/2008	Calcium	41			86			54			7	0	Yes	No
SHP01	0501	03/05/2008	Chloride	6			18			9.2		J	7	0	Yes	No
SHP01	0501	03/05/2008	Magnesium	7.4			16			7.6			7	0	Yes	No
SHP01	0501	03/05/2008	Potassium	2.4			3.88			2.8	N		7	0	Yes	No
SHP01	0501	03/05/2008	Sodium	18			59.3			24	E		7	0	Yes	No
SHP01	0501	03/05/2008	Strontium	0.44			1			0.61			7	0	Yes	No
SHP01	0501	03/05/2008	Sulfate	74			216			96		J	7	0	Yes	No
SHP01	0501	03/05/2008	Uranium	0.00087			0.0027			0.0011			7	0	Yes	No
SHP01	0608	03/06/2008	Calcium	360		F	490		F	382			24	0	Yes	No
SHP01	0608	03/06/2008	Chloride	230		F	430		F	268			24	0	Yes	Yes
SHP01	0608	03/06/2008	Manganese	3.2		F	9.44			3.9		F	21	0	Yes	No
SHP01	0608	03/06/2008	Nitrate + Nitrite as Nitrogen	260	N	FJ	650		F	450		F	8	0	Yes	Yes
SHP01	0608	03/06/2008	Selenium	0.0046		F	0.0308			0.0055		F	21	0	No	No
SHP01	0608	03/06/2008	Sodium	1400		F	3300			1500		F	24	0	No	No
SHP01	0608	03/06/2008	Strontium	8.2		F	12.1		F	10		F	19	0	No	Yes
SHP01	0608	03/06/2008	Sulfate	6900		F	12000		F	7493			26	0	No	Yes
SHP01	0608	03/06/2008	Total Dissolved Solids	12000		F	20000		F	17000		F	17	0	No	Yes
SHP01	0608	03/06/2008	Uranium	1.2		F	2.02			1.312			26	0	No	Yes

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	0614	03/06/2008	Calcium	390		F	524			415		F	24	0	Yes	No
SHP01	0614	03/06/2008	Nitrate + Nitrite as Nitrogen	610		F	1100		F	820		F	8	0	Yes	No
SHP01	0615	03/06/2008	Manganese	0.52		F	9.26			0.68		F	15	0	No	No
SHP01	0615	03/06/2008	Sodium	1100		F	6900			1600			21	0	Yes	No
SHP01	0615	03/06/2008	Strontium	6.3		F	17		F	6.7		F	15	0	Yes	No
SHP01	0615	03/06/2008	Total Dissolved Solids	11000		F	43500		F	14480			15	0	Yes	No
SHP01	0618	03/06/2008	Potassium	150		F	140		F	62.7			21	0	Yes	No
SHP01	0618	03/06/2008	Sulfate	15000		F	14131			5560			21	0	No	No
SHP01	0619	03/06/2008	Chloride	91			637			102		F	26	0	No	No
SHP01	0619	03/06/2008	Magnesium	140			1530			230		F	26	0	Yes (log)	No
SHP01	0619	03/06/2008	Manganese	1.3			6.42			1.7		F	25	0	Yes	No
SHP01	0619	03/06/2008	Sodium	1000			3500		F	1100		F	26	0	No	No
SHP01	0619	03/06/2008	Sulfate	3300			14000		F	3706			26	0	Yes	No
SHP01	0619	03/06/2008	Total Dissolved Solids	5300			22000		F	6700		F	22	0	No	No
SHP01	0619	03/06/2008	Uranium	0.18			1.8			0.1923			26	0	Yes (log)	No
SHP01	0655	03/04/2008	Chloride	130			124			35.8			15	0	Yes	No
SHP01	0734	03/05/2008	Manganese	4.5		F	3.1			0.0055	B	F	16	1	Yes (log)	No
SHP01	0734	03/05/2008	Selenium	0.0052		F	0.437		F	0.0075		FQ	16	0	No	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	0956	03/04/2008	Calcium	41			99			50.8			20	0	Yes	No
SHP01	0956	03/04/2008	Chloride	5.9			34			9.1			20	0	Yes (log)	Yes
SHP01	0956	03/04/2008	Magnesium	7.5			23.2			8.4			20	0	Yes (log)	Yes
SHP01	0956	03/04/2008	Sodium	20			95.4			23			20	0	No	No
SHP01	0956	03/04/2008	Strontium	0.46			1.2			0.57			20	0	Yes	No
SHP01	0956	03/04/2008	Sulfate	78			330			99			20	0	Yes (log)	Yes
SHP01	0956	03/04/2008	Uranium	0.00094			0.0037			0.0011			20	0	Yes (log)	Yes
SHP01	0959	03/04/2008	Calcium	47			550			51			10	0	No	Yes
SHP01	0959	03/04/2008	Potassium	2.6			20			4.9			10	0	No	Yes
SHP01	0959	03/04/2008	Sodium	25			1110			76			10	0	Yes	No
SHP01	0959	03/04/2008	Strontium	0.54			7.81			0.62			10	0	No	Yes
SHP01	0965	03/04/2008	Calcium	42			87			54			12	0	Yes	No
SHP01	0965	03/04/2008	Chloride	5.8			33.5			9.2			12	0	Yes (log)	No
SHP01	0965	03/04/2008	Magnesium	7.7			25.6			8.6			12	0	Yes (log)	No
SHP01	0965	03/04/2008	Potassium	2.4			3.8			2.7			12	0	Yes	No
SHP01	0965	03/04/2008	Sodium	20			102			24			12	0	No	No
SHP01	0965	03/04/2008	Strontium	0.47			1.23			0.59			12	0	Yes	No
SHP01	0965	03/04/2008	Sulfate	75			357			100			12	0	Yes (log)	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	0965	03/04/2008	Uranium	0.00096			0.0034			0.0012			12	0	Yes	No
SHP01	1089	03/06/2008	Calcium	350			500		F	378			6	0	Yes	No
SHP01	1089	03/06/2008	Chloride	220			690		F	255			13	0	Yes	No
SHP01	1089	03/06/2008	Magnesium	600			1700			700			6	0	Yes	No
SHP01	1089	03/06/2008	Manganese	1.1			2.6			1.5			5	0	Yes	No
SHP01	1089	03/06/2008	Sodium	1700			3700			1900			6	0	Yes	No
SHP01	1089	03/06/2008	Strontium	6.1			10			6.4			5	0	Yes	No
SHP01	1089	03/06/2008	Sulfate	6800			15000		F	7400			17	0	No	No
SHP01	1089	03/06/2008	Total Dissolved Solids	10000			25000			14000			5	0	Yes	No
SHP01	1104	03/06/2008	Sulfate	7400			19000			9727			5	0	Yes	No
SHP01	1104	03/06/2008	Uranium	0.93			2.6			1.4317			5	0	Yes	No
SHP01	1109	03/05/2008	Calcium	76			272			78.5			64	0	No	No
SHP01	1109	03/05/2008	Chloride	28			253			37			64	0	No	No
SHP01	1109	03/05/2008	Magnesium	92			1200			140			64	0	No	No
SHP01	1109	03/05/2008	Potassium	9			80.5			14			64	0	No	No
SHP01	1109	03/05/2008	Sodium	120			4200			190	E		64	0	No	No
SHP01	1109	03/05/2008	Sulfate	560			5748			860			64	0	No	No
SHP01	1109	03/05/2008	Uranium	0.1			0.9086			0.1037			64	0	No	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	1111	03/06/2008	Chloride	350		F	602			390		F	5	0	Yes	No
SHP01	1111	03/06/2008	Magnesium	960		F	1750			1100		F	5	0	Yes	No
SHP01	1111	03/06/2008	Sodium	1800		F	6100			2000		F	5	0	Yes	No
SHP01	1111	03/06/2008	Sulfate	8100		F	13185			8600		F	5	0	Yes	No
SHP01	1114	03/05/2008	Sodium	330		F	2800			350		F	6	0	Yes	No
SHP01	1115	03/05/2008	Calcium	130		F	327			180			6	0	Yes	No
SHP01	1115	03/05/2008	Chloride	56		F	304			128			6	0	Yes	No
SHP01	1115	03/05/2008	Magnesium	210		F	2000			410		F	6	0	Yes	No
SHP01	1115	03/05/2008	Potassium	31		F	162			66			6	0	Yes	No
SHP01	1115	03/05/2008	Sodium	270		F	2300			690		F	6	0	Yes	No
SHP01	1115	03/05/2008	Sulfate	1500		F	7742			3088			6	0	Yes	No
SHP01	1115	03/05/2008	Uranium	0.36		F	1.0403			0.4608			6	0	No	No
SHP01	1117	03/05/2008	Magnesium	12		F	29			13		F	5	0	Yes	No
SHP01	1117	03/05/2008	Potassium	1.8		F	3.7			2.25			5	0	Yes	No
SHP01	1117	03/05/2008	Sodium	32		F	950			35			5	0	Yes (log)	No
SHP01	1118	03/05/2008	Sulfate	5600			4800			4100			5	0	Yes	No
SHP01	1118	03/05/2008	Uranium	0.56			0.38			0.28			5	0	No	Yes
SHP01	1203	03/05/2008	Calcium	42			81			52			11	0	Yes	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP01	1203	03/05/2008	Chloride	6			18			9.1		J	11	0	Yes	No
SHP01	1203	03/05/2008	Sodium	19			3000			24			11	0	No	No
SHP01	1203	03/05/2008	Strontium	0.45			1			0.59			11	0	Yes	No
SHP01	1203	03/05/2008	Sulfate	74			209			96		J	13	0	Yes	No
SHP01	1203	03/05/2008	Uranium	0.00088			0.0031			0.0011			13	0	Yes	No
SHP01	1205	03/05/2008	Calcium	42			88			54.2			19	0	Yes	No
SHP01	1205	03/05/2008	Chloride	5.9			27			9.5			19	0	Yes	No
SHP01	1205	03/05/2008	Sodium	19			67.5			24			19	0	Yes (log)	Yes
SHP01	1205	03/05/2008	Strontium	0.45			1.1			0.6			19	0	Yes	No
SHP01	1205	03/05/2008	Sulfate	74			235			100			21	0	Yes	No
SHP01	1205	03/05/2008	Uranium	0.00088			0.0031			0.0011			21	0	Yes	No
SHP02	0662	03/05/2008	Manganese	0.075			0.0361			0.0014	B		25	5	Yes (log)	Yes
SHP02	0730	03/04/2008	Nitrate + Nitrite as Nitrogen	170		FQ	160		FQ	98		JF	7	0	Yes	No
SHP02	0730	03/04/2008	Selenium	0.0076		FQ	0.0175		L	0.0087		FQ	14	0	Yes	No
SHP02	0730	03/04/2008	Strontium	3.1		FQ	2.8		F	2.5		F	13	0	Yes	Yes
SHP02	0730	03/04/2008	Uranium	0.0072		FQ	0.0063		FQ	0.00056		F	17	0	Yes	No
SHP02	0817	03/05/2008	Manganese	2.3		F	2.21		L	1.8		F	14	0	Yes	No
SHP02	0817	03/05/2008	Nitrate + Nitrite as Nitrogen	370		F	1400		F	490		F	8	0	No	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP02	0817	03/05/2008	Potassium	290		F	250		F	184		F	14	0	Yes	No
SHP02	0817	03/05/2008	Sodium	680		F	2720		L	1200		FQ	14	0	No	Yes
SHP02	0818	03/04/2008	Calcium	480			687			510			8	0	Yes	No
SHP02	0818	03/04/2008	Nitrate + Nitrite as Nitrogen	1400			1900			1500			8	0	Yes	No
SHP02	0818	03/04/2008	Selenium	1.8			3.68			1.9			8	0	Yes	No
SHP02	0818	03/04/2008	Total Dissolved Solids	27000			30000			27700			6	0	No	No
SHP02	0836	03/03/2008	Manganese	2.5		F	2.3		F	1.24			20	0	Yes	No
SHP02	0836	03/03/2008	Nitrate + Nitrite as Nitrogen	15		F	14		F	3.6		F	7	0	Yes	No
SHP02	0838	03/04/2008	Chloride	170		F	160		F	12.8			19	0	Yes (log)	Yes
SHP02	0838	03/04/2008	Magnesium	240		F	210		F	87.6			19	0	Yes	No
SHP02	0838	03/04/2008	Nitrate + Nitrite as Nitrogen	130		F	110		F	32		F	9	0	Yes	No
SHP02	0838	03/04/2008	Potassium	18		F	13		F	4			19	0	Yes (log)	Yes
SHP02	0838	03/04/2008	Sodium	460		F	430		F	91.9			19	0	Yes (log)	Yes
SHP02	0838	03/04/2008	Strontium	7.9		F	7.3		F	3.51			19	0	Yes	No
SHP02	0838	03/04/2008	Sulfate	3100		F	2900		F	1180			22	0	Yes (log)	Yes
SHP02	0838	03/04/2008	Total Dissolved Solids	5700		F	5600		F	2000		F	17	0	Yes (log)	Yes
SHP02	0838	03/04/2008	Uranium	0.051		F	0.049		F	0.023			22	0	Yes (log)	Yes
SHP02	0841	03/04/2008	Chloride	1300		F	1000		F	557			22	0	Yes	Yes

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP02	0841	03/04/2008	Nitrate + Nitrite as Nitrogen	810		F	740		F	620		F	9	0	Yes	No
SHP02	0841	03/04/2008	Potassium	100		F	84		F	40			22	0	No	No
SHP02	0846	03/03/2008	Nitrate + Nitrite as Nitrogen	33		FQ	28		F	15		F	11	0	Yes	No
SHP02	1057	03/05/2008	Total Dissolved Solids	19000		F	25300			20000		F	8	0	Yes	No
SHP02	1057	03/05/2008	Total Dissolved Solids	18000		F	25300			20000		F	8	0	Yes	No
SHP02	1070	03/04/2008	Sulfate	14000			39000			15000			14	0	No	No
SHP02	1071	03/04/2008	Magnesium	1500			1400			1100			6	0	Yes	No
SHP02	1071	03/04/2008	Manganese	2.1			1.9			0.076			6	0	Yes	No
SHP02	1071	03/04/2008	Potassium	220			200			53.3	E	J	6	0	Yes	No
SHP02	1071	03/04/2008	Selenium	0.13			3.29			0.15			6	0	Yes	No
SHP02	1071	03/04/2008	Strontium	11			10.9			9.1			6	0	Yes	No
SHP02	1071	03/04/2008	Uranium	0.053			0.2			0.059			15	0	Yes	No
SHP02	1078	03/04/2008	Manganese	0.075			0.134			0.091			7	0	Yes	No
SHP02	1078	03/04/2008	Potassium	110			86			50.3	E	J	7	0	No	Yes
SHP02	1078	03/04/2008	Sodium	5800			5600			4200			7	0	Yes	No
SHP02	1088	03/05/2008	Magnesium	1300			1200			874			7	0	Yes	No
SHP02	1088	03/05/2008	Strontium	9.6			9.3			8.3			7	0	Yes	No
SHP02	1092	03/05/2008	Chloride	850			1584			1300			11	0	Yes	Yes

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08021395
Comparison: History Begin Date: 1/1/1998
Report Date: 9/29/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Number of Data Points N	Number of Data Points N Below Detect	Normally Distributed	Statistical Outlier
SHP02	1092	03/05/2008	Sulfate	9800			14642			12000			15	0	Yes	No
SHP02	1093	03/05/2008	Potassium	280			240			130			6	0	Yes	No
SHP02	1093	03/05/2008	Total Dissolved Solids	20000			33000			25000		J	5	0	Yes	No
SHP02	1093	03/05/2008	Uranium	0.11			0.1			0.063			16	0	Yes	No

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.		

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

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Anomalous Data Review Checksheet

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Anomalous Data Review Checksheet

Site: Shiprock, New Mexico **Sampling Data:** March 3-6, 2008

Reviewer: Steve Donivan (Name (print)) Steve Donivan (Signature) 11-7-2008 (Date)

Site Hydrologist: David Miller (Name (print)) (Signature) (Date)

Date of Review: May 20, 2008

Loc. No.	Analyte	Type of Anomaly	Disposition
0608	Chloride	Low	Compare to future results
0662	Manganese	High	Compare to future results
0730	Strontium	High	Compare to future results
0734	Manganese	High	Compare to future results
0838	Chloride	High	Compare to future results
0838	Potassium	High	Compare to future results
0838	Sodium	High	Compare to future results
0838	Sulfate	High	Compare to future results
0838	Total Dissolved Solids	High	Compare to future results
0838	Uranium	High	Compare to future results
0841	Chloride	High	Compare to future results
1205	Sodium	High	Compare to future results

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Attachment 2
Data Presentation

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Groundwater Quality Data
Floodplain Locations

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Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0608 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	10	-	15	555		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	10	-	15	170		F	#	10	
Calcium	mg/L	03/06/2008	N001	10	-	15	360		F	#	1	
Chloride	mg/L	03/06/2008	N001	10	-	15	230		F	#	20	
Magnesium	mg/L	03/06/2008	N001	10	-	15	910		F	#	10	
Manganese	mg/L	03/06/2008	N001	10	-	15	3.2		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	10	-	15	260	N	FJ	#	2	
Oxidation Reduction Potential	mV	03/06/2008	N001	10	-	15	238		F	#		
pH	s.u.	03/06/2008	N001	10	-	15	7.24		F	#		
Potassium	mg/L	03/06/2008	N001	10	-	15	130		F	#	1	
Selenium	mg/L	03/06/2008	N001	10	-	15	0.0046		F	#	0.000019	
Sodium	mg/L	03/06/2008	N001	10	-	15	1400		F	#	10	
Specific Conductance	umhos /cm	03/06/2008	N001	10	-	15	12290		F	#		
Strontium	mg/L	03/06/2008	N001	10	-	15	8.2		F	#	0.01	
Sulfate	mg/L	03/06/2008	N001	10	-	15	6900		F	#	50	
Temperature	C	03/06/2008	N001	10	-	15	8.41		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	10	-	15	12000		F	#	200	
Turbidity	NTU	03/06/2008	N001	10	-	15	4.31		F	#		
Uranium	mg/L	03/06/2008	N001	10	-	15	1.2		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0614 WELL SE part of floodplain, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	10	-	15	592		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	10	-	15	35		F	#	5	
Calcium	mg/L	03/06/2008	N001	10	-	15	390		F	#	1	
Chloride	mg/L	03/06/2008	N001	10	-	15	490		F	#	20	
Magnesium	mg/L	03/06/2008	N001	10	-	15	2300		F	#	10	
Manganese	mg/L	03/06/2008	N001	10	-	15	2.7		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	10	-	15	610		F	#	5	
Oxidation Reduction Potential	mV	03/06/2008	N001	10	-	15	232		F	#		
pH	s.u.	03/06/2008	N001	10	-	15	7.41		F	#		
Potassium	mg/L	03/06/2008	N001	10	-	15	210		F	#	1	
Selenium	mg/L	03/06/2008	N001	10	-	15	0.3		F	#	0.0019	
Sodium	mg/L	03/06/2008	N001	10	-	15	2300		F	#	10	
Specific Conductance	umhos /cm	03/06/2008	N001	10	-	15	19925		F	#		
Strontium	mg/L	03/06/2008	N001	10	-	15	11		F	#	0.1	
Sulfate	mg/L	03/06/2008	N001	10	-	15	14000		F	#	100	
Temperature	C	03/06/2008	N001	10	-	15	9.5		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	10	-	15	22000		F	#	1000	
Turbidity	NTU	03/06/2008	N001	10	-	15	2.88		F	#		
Uranium	mg/L	03/06/2008	N001	10	-	15	2.3		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0615 WELL S of floodplain fence, well nest

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	4.5	-	9.5	537		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	4.5	-	9.5	1.1		F	#	0.1	
Calcium	mg/L	03/06/2008	N001	4.5	-	9.5	440		F	#	1	
Chloride	mg/L	03/06/2008	N001	4.5	-	9.5	220		F	#	20	
Magnesium	mg/L	03/06/2008	N001	4.5	-	9.5	880		F	#	10	
Manganese	mg/L	03/06/2008	N001	4.5	-	9.5	0.52		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	4.5	-	9.5	140		F	#	1	
Oxidation Reduction Potential	mV	03/06/2008	N001	4.5	-	9.5	255		F	#		
pH	s.u.	03/06/2008	N001	4.5	-	9.5	7.68		F	#		
Potassium	mg/L	03/06/2008	N001	4.5	-	9.5	100		F	#	1	
Selenium	mg/L	03/06/2008	N001	4.5	-	9.5	0.53		F	#	0.0019	
Sodium	mg/L	03/06/2008	N001	4.5	-	9.5	1100		F	#	10	
Specific Conductance	umhos /cm	03/06/2008	N001	4.5	-	9.5	10187		F	#		
Strontium	mg/L	03/06/2008	N001	4.5	-	9.5	6.3		F	#	0.01	
Sulfate	mg/L	03/06/2008	N001	4.5	-	9.5	6300		F	#	50	
Temperature	C	03/06/2008	N001	4.5	-	9.5	8.29		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	4.5	-	9.5	11000		F	#	200	
Turbidity	NTU	03/06/2008	N001	4.5	-	9.5	1.5		F	#		
Uranium	mg/L	03/06/2008	N001	4.5	-	9.5	1.6		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0618 WELL Center of floodplain, well nest, just N of floodplain fence

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	11	-	16	929		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	11	-	16	41		F	#	5	
Calcium	mg/L	03/06/2008	N001	11	-	16	410		F	#	1	
Chloride	mg/L	03/06/2008	N001	11	-	16	670		F	#	20	
Magnesium	mg/L	03/06/2008	N001	11	-	16	1900		F	#	10	
Manganese	mg/L	03/06/2008	N001	11	-	16	8.3		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	11	-	16	330		F	#	2	
Oxidation Reduction Potential	mV	03/06/2008	N001	11	-	16	146		F	#		
pH	s.u.	03/06/2008	N001	11	-	16	6.87		F	#		
Potassium	mg/L	03/06/2008	N001	11	-	16	150		F	#	1	
Selenium	mg/L	03/06/2008	N001	11	-	16	0.23		F	#	0.00096	
Sodium	mg/L	03/06/2008	N001	11	-	16	3100		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	11	-	16	21216		F	#		
Strontium	mg/L	03/06/2008	N001	11	-	16	9.8		F	#	0.01	
Sulfate	mg/L	03/06/2008	N001	11	-	16	15000		F	#	100	
Temperature	C	03/06/2008	N001	11	-	16	12.88		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	11	-	16	22000		F	#	1000	
Turbidity	NTU	03/06/2008	N001	11	-	16	1.8		F	#		
Uranium	mg/L	03/06/2008	N001	11	-	16	2.6		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0619 WELL Center of floodplain

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	8	-	13	482			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	8	-	13	0.79			#	0.1	
Calcium	mg/L	03/06/2008	N001	8	-	13	270			#	1	
Chloride	mg/L	03/06/2008	N001	8	-	13	91			#	10	
Magnesium	mg/L	03/06/2008	N001	8	-	13	140			#	1	
Manganese	mg/L	03/06/2008	N001	8	-	13	1.3			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	8	-	13	0.061			#	0.01	
Oxidation Reduction Potential	mV	03/06/2008	N001	8	-	13	129			#		
pH	s.u.	03/06/2008	N001	8	-	13	7.23			#		
Potassium	mg/L	03/06/2008	N001	8	-	13	39			#	1	
Selenium	mg/L	03/06/2008	N001	8	-	13	0.0022			#	0.000019	
Sodium	mg/L	03/06/2008	N001	8	-	13	1000			#	10	
Specific Conductance	umhos /cm	03/06/2008	N001	8	-	13	6439			#		
Strontium	mg/L	03/06/2008	N001	8	-	13	5.9			#	0.01	
Sulfate	mg/L	03/06/2008	N001	8	-	13	3300			#	25	
Temperature	C	03/06/2008	N001	8	-	13	12.37			#		
Total Dissolved Solids	mg/L	03/06/2008	N001	8	-	13	5300			#	80	
Turbidity	NTU	03/06/2008	N001	8	-	13	2.47			#		
Uranium	mg/L	03/06/2008	N001	8	-	13	0.18			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0734 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	2	-	4	706		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	2	-	4	0.1	U	F	#	0.1	
Calcium	mg/L	03/05/2008	N001	2	-	4	480		F	#	5	
Chloride	mg/L	03/05/2008	N001	2	-	4	200		F	#	20	
Magnesium	mg/L	03/05/2008	N001	2	-	4	380		F	#	5	
Manganese	mg/L	03/05/2008	N001	2	-	4	4.5		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	2	-	4	0.21		F	#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	2	-	4	139		F	#		
pH	s.u.	03/05/2008	N001	2	-	4	7.24		F	#		
Potassium	mg/L	03/05/2008	N001	2	-	4	26	N	FJ	#	5	
Selenium	mg/L	03/05/2008	N001	2	-	4	0.0052		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	2	-	4	2100		F	#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	2	-	4	12036		F	#		
Strontium	mg/L	03/05/2008	N001	2	-	4	11		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	2	-	4	7100		F	#	50	
Temperature	C	03/05/2008	N001	2	-	4	7.83		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	2	-	4	11000		F	#	200	
Turbidity	NTU	03/05/2008	N001	2	-	4	2.18		F	#		
Uranium	mg/L	03/05/2008	N001	2	-	4	0.085		F	#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0735 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	3	-	8	391		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	3	-	8	7.3		F	#	0.5	
Calcium	mg/L	03/05/2008	N001	3	-	8	170		F	#	5	
Chloride	mg/L	03/05/2008	N001	3	-	8	140		F	#	10	
Magnesium	mg/L	03/05/2008	N001	3	-	8	310		F	#	5	
Manganese	mg/L	03/05/2008	N001	3	-	8	1		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	3	-	8	120		F	#	1	
Oxidation Reduction Potential	mV	03/05/2008	N001	3	-	8	278		F	#		
pH	s.u.	03/05/2008	N001	3	-	8	7.74		F	#		
Potassium	mg/L	03/05/2008	N001	3	-	8	25		F	#	5	
Selenium	mg/L	03/05/2008	N001	3	-	8	0.043		F	#	0.00019	
Sodium	mg/L	03/05/2008	N001	3	-	8	900		F	#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	3	-	8	6427		F	#		
Strontium	mg/L	03/05/2008	N001	3	-	8	3.5		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	3	-	8	3000		F	#	25	
Temperature	C	03/05/2008	N001	3	-	8	7.94		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	3	-	8	5500		F	#	80	
Turbidity	NTU	03/05/2008	N001	3	-	8	2.73		F	#		
Uranium	mg/L	03/05/2008	N001	3	-	8	0.081		F	#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0736 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	3	-	5	340		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	3	-	5	0.1	U	F	#	0.1	
Calcium	mg/L	03/06/2008	N001	3	-	5	450		F	#	5	
Chloride	mg/L	03/06/2008	N001	3	-	5	110		F	#	10	
Magnesium	mg/L	03/06/2008	N001	3	-	5	200		F	#	5	
Manganese	mg/L	03/06/2008	N001	3	-	5	0.29		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	3	-	5	0.084		F	#	0.01	
Oxidation Reduction Potential	mV	03/06/2008	N001	3	-	5	98		F	#		
pH	s.u.	03/06/2008	N001	3	-	5	7.39		F	#		
Potassium	mg/L	03/06/2008	N001	3	-	5	40		F	#	5	
Selenium	mg/L	03/06/2008	N001	3	-	5	0.0024	E	F	#	0.000019	
Sodium	mg/L	03/06/2008	N001	3	-	5	1400		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	3	-	5	8537		F	#		
Strontium	mg/L	03/06/2008	N001	3	-	5	7.2		F	#	0.05	
Sulfate	mg/L	03/06/2008	N001	3	-	5	5200		F	#	50	
Temperature	C	03/06/2008	N001	3	-	5	8.04		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	3	-	5	7600		F	#	80	
Turbidity	NTU	03/06/2008	N001	3	-	5	2.77		F	#		
Uranium	mg/L	03/06/2008	N001	3	-	5	0.12		F	#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0797 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	7.3	-	9.3	349		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	7.3	-	9.3	0.1	U	F	#	0.1	
Calcium	mg/L	03/04/2008	N001	7.3	-	9.3	310		F	#	1	
Chloride	mg/L	03/04/2008	N001	7.3	-	9.3	160		F	#	10	
Magnesium	mg/L	03/04/2008	N001	7.3	-	9.3	81		F	#	1	
Manganese	mg/L	03/04/2008	N001	7.3	-	9.3	0.016		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	7.3	-	9.3	0.06		F	#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	7.3	-	9.3	73		F	#		
pH	s.u.	03/04/2008	N001	7.3	-	9.3	8.19		F	#		
Potassium	mg/L	03/04/2008	N001	7.3	-	9.3	11		F	#	1	
Selenium	mg/L	03/04/2008	N001	7.3	-	9.3	0.00071		F	#	0.000019	
Sodium	mg/L	03/04/2008	N001	7.3	-	9.3	1100		F	#	10	
Specific Conductance	umhos /cm	03/04/2008	N001	7.3	-	9.3	6175		F	#		
Strontium	mg/L	03/04/2008	N001	7.3	-	9.3	5.3		F	#	0.01	
Sulfate	mg/L	03/04/2008	N001	7.3	-	9.3	3200		F	#	25	
Temperature	C	03/04/2008	N001	7.3	-	9.3	13.95		F	#		
Total Dissolved Solids	mg/L	03/04/2008	N001	7.3	-	9.3	5200		F	#	200	
Turbidity	NTU	03/04/2008	N001	7.3	-	9.3	2.56		F	#		
Uranium	mg/L	03/04/2008	N001	7.3	-	9.3	0.024		F	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0850 WELL Background area 1 mi E of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	5.6	-	15.4	318		FQ	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	5.6	-	15.4	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/04/2008	0001	5.6	-	15.4	140		FQ	#	2	
Chloride	mg/L	03/04/2008	0001	5.6	-	15.4	120		FQ	#	10	
Magnesium	mg/L	03/04/2008	0001	5.6	-	15.4	31		FQ	#	2	
Manganese	mg/L	03/04/2008	0001	5.6	-	15.4	0.18		FQ	#	0.00031	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	5.6	-	15.4	0.018		FQ	#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	5.6	-	15.4	-.2		FQ	#		
pH	s.u.	03/04/2008	N001	5.6	-	15.4	7.89		FQ	#		
Potassium	mg/L	03/04/2008	0001	5.6	-	15.4	5.9		FQ	#	2	
Selenium	mg/L	03/04/2008	0001	5.6	-	15.4	0.001		FQ	#	0.000095	
Sodium	mg/L	03/04/2008	0001	5.6	-	15.4	700		FQ	#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	5.6	-	15.4	425		FQ	#		
Strontium	mg/L	03/04/2008	0001	5.6	-	15.4	2.1		FQ	#	0.02	
Sulfate	mg/L	03/04/2008	0001	5.6	-	15.4	1800		FQ	#	25	
Temperature	C	03/04/2008	N001	5.6	-	15.4	13.73		FQ	#		
Turbidity	NTU	03/04/2008	N001	5.6	-	15.4	1000	>	FQ	#		
Uranium	mg/L	03/04/2008	0001	5.6	-	15.4	0.049		FQ	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1089 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	4.8	-	14.8	514			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	4.8	-	14.8	0.49			#	0.1	
Calcium	mg/L	03/06/2008	N001	4.8	-	14.8	350			#	5	
Chloride	mg/L	03/06/2008	N001	4.8	-	14.8	220			#	20	
Magnesium	mg/L	03/06/2008	N001	4.8	-	14.8	600			#	5	
Manganese	mg/L	03/06/2008	N001	4.8	-	14.8	1.1			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	4.8	-	14.8	21			#	0.2	
Oxidation Reduction Potential	mV	03/06/2008	N001	4.8	-	14.8	114.6			#		
pH	s.u.	03/06/2008	N001	4.8	-	14.8	7.49			#		
Potassium	mg/L	03/06/2008	N001	4.8	-	14.8	69			#	5	
Selenium	mg/L	03/06/2008	N001	4.8	-	14.8	0.024			#	0.000095	
Sodium	mg/L	03/06/2008	N001	4.8	-	14.8	1700			#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	4.8	-	14.8	11149			#		
Strontium	mg/L	03/06/2008	N001	4.8	-	14.8	6.1			#	0.05	
Sulfate	mg/L	03/06/2008	N001	4.8	-	14.8	6800			#	50	
Temperature	C	03/06/2008	N001	4.8	-	14.8	10.36			#		
Total Dissolved Solids	mg/L	03/06/2008	N001	4.8	-	14.8	10000			#	400	
Uranium	mg/L	03/06/2008	N001	4.8	-	14.8	0.79			#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1104 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	-	553			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	-	0.74			#	0.1	
Calcium	mg/L	03/06/2008	N001	-	350			#	5	
Chloride	mg/L	03/06/2008	N001	-	260			#	20	
Magnesium	mg/L	03/06/2008	N001	-	660			#	5	
Manganese	mg/L	03/06/2008	N001	-	1.2			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	-	28			#	0.2	
Oxidation Reduction Potential	mV	03/06/2008	N001	-	111			#		
pH	s.u.	03/06/2008	N001	-	7.43			#		
Potassium	mg/L	03/06/2008	N001	-	74			#	5	
Selenium	mg/L	03/06/2008	N001	-	0.026			#	0.000095	
Sodium	mg/L	03/06/2008	N001	-	1800			#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	-	11861			#		
Strontium	mg/L	03/06/2008	N001	-	6.4			#	0.05	
Sulfate	mg/L	03/06/2008	N001	-	7400			#	50	
Temperature	C	03/06/2008	N001	-	10.09			#		
Total Dissolved Solids	mg/L	03/06/2008	N001	-	12000			#	200	
Uranium	mg/L	03/06/2008	N001	-	0.93			#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1105 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	4.5	-	14.5	704		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	4.5	-	14.5	43		F	#	5	
Calcium	mg/L	03/06/2008	N001	4.5	-	14.5	410		F	#	5	
Chloride	mg/L	03/06/2008	N001	4.5	-	14.5	620		F	#	20	
Magnesium	mg/L	03/06/2008	N001	4.5	-	14.5	2500		F	#	50	
Manganese	mg/L	03/06/2008	N001	4.5	-	14.5	6.3		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	4.5	-	14.5	770		F	#	5	
Oxidation Reduction Potential	mV	03/06/2008	N001	4.5	-	14.5	263		F	#		
pH	s.u.	03/06/2008	N001	4.5	-	14.5	7.33		F	#		
Potassium	mg/L	03/06/2008	N001	4.5	-	14.5	180		F	#	5	
Selenium	mg/L	03/06/2008	N001	4.5	-	14.5	0.054		F	#	0.00019	
Sodium	mg/L	03/06/2008	N001	4.5	-	14.5	2900		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	4.5	-	14.5	22750		F	#		
Strontium	mg/L	03/06/2008	N001	4.5	-	14.5	12		F	#	0.05	
Sulfate	mg/L	03/06/2008	N001	4.5	-	14.5	16000		F	#	100	
Temperature	C	03/06/2008	N001	4.5	-	14.5	10.77		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	4.5	-	14.5	25000		F	#	1000	
Turbidity	NTU	03/06/2008	N001	4.5	-	14.5	1.73		F	#		
Uranium	mg/L	03/06/2008	N001	4.5	-	14.5	3.1		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1109 TREATMENT SYSTEM

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	0	-	0	195			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0	-	0	13			#	0.5	
Calcium	mg/L	03/05/2008	N001	0	-	0	76			#	5	
Chloride	mg/L	03/05/2008	N001	0	-	0	28			#	4	
Magnesium	mg/L	03/05/2008	N001	0	-	0	92			#	5	
Manganese	mg/L	03/05/2008	N001	0	-	0	0.23			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	0	-	0	34			#	0.2	
Oxidation Reduction Potential	mV	03/05/2008	N001	0	-	0	284			#		
pH	s.u.	03/05/2008	N001	0	-	0	8.07			#		
Potassium	mg/L	03/05/2008	N001	0	-	0	9			#	5	
Selenium	mg/L	03/05/2008	N001	0	-	0	0.01			#	0.000019	
Sodium	mg/L	03/05/2008	N001	0	-	0	120			#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	0	-	0	1666			#		
Strontium	mg/L	03/05/2008	N001	0	-	0	0.99			#	0.05	
Sulfate	mg/L	03/05/2008	N001	0	-	0	560			#	10	
Temperature	C	03/05/2008	N001	0	-	0	9.01			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	0	-	0	1100			#	20	
Uranium	mg/L	03/05/2008	N001	0	-	0	0.1			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1110 TREATMENT SYSTEM

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	0	-	0	887			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	0	-	0	8.8			#	0.5	
Calcium	mg/L	03/06/2008	N001	0	-	0	410			#	5	
Chloride	mg/L	03/06/2008	N001	0	-	0	450			#	20	
Magnesium	mg/L	03/06/2008	N001	0	-	0	1400			#	5	
Manganese	mg/L	03/06/2008	N001	0	-	0	1.3			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	0	-	0	200			#	2	
Oxidation Reduction Potential	mV	03/06/2008	N001	0	-	0	253			#		
pH	s.u.	03/06/2008	N001	0	-	0	7.68			#		
Potassium	mg/L	03/06/2008	N001	0	-	0	120			#	5	
Selenium	mg/L	03/06/2008	N001	0	-	0	0.75			#	0.0019	
Sodium	mg/L	03/06/2008	N001	0	-	0	2300			#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	0	-	0	16292			#		
Strontium	mg/L	03/06/2008	N001	0	-	0	10			#	0.05	
Sulfate	mg/L	03/06/2008	N001	0	-	0	11000			#	100	
Temperature	C	03/06/2008	N001	0	-	0	6.97			#		
Total Dissolved Solids	mg/L	03/06/2008	N001	0	-	0	19000			#	200	
Uranium	mg/L	03/06/2008	N001	0	-	0	1.5			#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1111 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	7	-	12	889		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	7	-	12	0.1	UN	FJ	#	0.1	
Calcium	mg/L	03/06/2008	N001	7	-	12	370		F	#	5	
Chloride	mg/L	03/06/2008	N001	7	-	12	350		F	#	20	
Magnesium	mg/L	03/06/2008	N001	7	-	12	960		F	#	5	
Manganese	mg/L	03/06/2008	N001	7	-	12	0.43		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	7	-	12	51		F	#	0.5	
Oxidation Reduction Potential	mV	03/06/2008	N001	7	-	12	244		F	#		
pH	s.u.	03/06/2008	N001	7	-	12	7.48		F	#		
Potassium	mg/L	03/06/2008	N001	7	-	12	70		F	#	5	
Selenium	mg/L	03/06/2008	N001	7	-	12	0.71		F	#	0.0019	
Sodium	mg/L	03/06/2008	N001	7	-	12	1800		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	7	-	12	12645		F	#		
Strontium	mg/L	03/06/2008	N001	7	-	12	9.1		F	#	0.05	
Sulfate	mg/L	03/06/2008	N001	7	-	12	8100		F	#	50	
Temperature	C	03/06/2008	N001	7	-	12	7.32		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	7	-	12	14000		F	#	200	
Turbidity	NTU	03/06/2008	N001	7	-	12	7.1		F	#		
Uranium	mg/L	03/06/2008	N001	7	-	12	0.94		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1112 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	7	-	12	542		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	7	-	12	26		F	#	2	
Calcium	mg/L	03/06/2008	N001	7	-	12	460		F	#	5	
Chloride	mg/L	03/06/2008	N001	7	-	12	480		F	#	20	
Magnesium	mg/L	03/06/2008	N001	7	-	12	2100		F	#	5	
Manganese	mg/L	03/06/2008	N001	7	-	12	2.4		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	7	-	12	700		F	#	5	
Oxidation Reduction Potential	mV	03/06/2008	N001	7	-	12	252		F	#		
pH	s.u.	03/06/2008	N001	7	-	12	7.41		F	#		
Potassium	mg/L	03/06/2008	N001	7	-	12	170		F	#	5	
Selenium	mg/L	03/06/2008	N001	7	-	12	1.2		F	#	0.0019	
Sodium	mg/L	03/06/2008	N001	7	-	12	2600		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	7	-	12	19750		F	#		
Strontium	mg/L	03/06/2008	N001	7	-	12	12		F	#	0.05	
Sulfate	mg/L	03/06/2008	N001	7	-	12	13000		F	#	100	
Temperature	C	03/06/2008	N001	7	-	12	8.71		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	7	-	12	21000		F	#	1000	
Turbidity	NTU	03/06/2008	N001	7	-	12	3.1		F	#		
Uranium	mg/L	03/06/2008	N001	7	-	12	2		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1113 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	7	-	12	355		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	7	-	12	0.21		F	#	0.1	
Calcium	mg/L	03/06/2008	N001	7	-	12	420		F	#	5	
Chloride	mg/L	03/06/2008	N001	7	-	12	400		F	#	20	
Magnesium	mg/L	03/06/2008	N001	7	-	12	1900		F	#	5	
Manganese	mg/L	03/06/2008	N001	7	-	12	0.017	B	F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	7	-	12	900		F	#	5	
Oxidation Reduction Potential	mV	03/06/2008	N001	7	-	12	222		F	#		
pH	s.u.	03/06/2008	N001	7	-	12	7.96		F	#		
Potassium	mg/L	03/06/2008	N001	7	-	12	230		F	#	5	
Selenium	mg/L	03/06/2008	N001	7	-	12	0.018		F	#	0.000019	
Sodium	mg/L	03/06/2008	N001	7	-	12	2000		F	#	50	
Specific Conductance	umhos /cm	03/06/2008	N001	7	-	12	18097		F	#		
Strontium	mg/L	03/06/2008	N001	7	-	12	11		F	#	0.05	
Sulfate	mg/L	03/06/2008	N001	7	-	12	9600		F	#	50	
Temperature	C	03/06/2008	N001	7	-	12	5.65		F	#		
Total Dissolved Solids	mg/L	03/06/2008	N001	7	-	12	19000		F	#	1000	
Turbidity	NTU	03/06/2008	N001	7	-	12	1.82		F	#		
Uranium	mg/L	03/06/2008	N001	7	-	12	1.7		F	#	0.005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1114 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	7	-	12	369		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	7	-	12	91		F	#	10	
Calcium	mg/L	03/05/2008	N001	7	-	12	110		F	#	5	
Chloride	mg/L	03/05/2008	N001	7	-	12	77		F	#	10	
Magnesium	mg/L	03/05/2008	N001	7	-	12	240		F	#	5	
Manganese	mg/L	03/05/2008	N001	7	-	12	1.4		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	7	-	12	59		F	#	0.5	
Oxidation Reduction Potential	mV	03/05/2008	N001	7	-	12	300		F	#		
pH	s.u.	03/05/2008	N001	7	-	12	7.71		F	#		
Potassium	mg/L	03/05/2008	N001	7	-	12	38		F	#	5	
Selenium	mg/L	03/05/2008	N001	7	-	12	0.0042		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	7	-	12	330		F	#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	7	-	12	4405		F	#		
Strontium	mg/L	03/05/2008	N001	7	-	12	2		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	7	-	12	1800		F	#	25	
Temperature	C	03/05/2008	N001	7	-	12	6.73		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	7	-	12	2800		F	#	40	
Turbidity	NTU	03/05/2008	N001	7	-	12	2.14		F	#		
Uranium	mg/L	03/05/2008	N001	7	-	12	0.4		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1115 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	7	-	12	322		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	7	-	12	68		F	#	10	
Calcium	mg/L	03/05/2008	N001	7	-	12	130		F	#	5	
Chloride	mg/L	03/05/2008	N001	7	-	12	56		F	#	10	
Magnesium	mg/L	03/05/2008	N001	7	-	12	210		F	#	5	
Manganese	mg/L	03/05/2008	N001	7	-	12	0.85		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	7	-	12	65		F	#	0.5	
Oxidation Reduction Potential	mV	03/05/2008	N001	7	-	12	308		F	#		
pH	s.u.	03/05/2008	N001	7	-	12	7.73		F	#		
Potassium	mg/L	03/05/2008	N001	7	-	12	31		F	#	5	
Selenium	mg/L	03/05/2008	N001	7	-	12	0.0088		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	7	-	12	270		F	#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	7	-	12	3628		F	#		
Strontium	mg/L	03/05/2008	N001	7	-	12	2		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	7	-	12	1500		F	#	25	
Temperature	C	03/05/2008	N001	7	-	12	9.95		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	7	-	12	2600		F	#	40	
Turbidity	NTU	03/05/2008	N001	7	-	12	7.17		F	#		
Uranium	mg/L	03/05/2008	N001	7	-	12	0.36		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1116 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	7	-	12	696		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	7	-	12	330		F	#	10	
Calcium	mg/L	03/05/2008	N001	7	-	12	400		F	#	5	
Chloride	mg/L	03/05/2008	N001	7	-	12	280		F	#	20	
Magnesium	mg/L	03/05/2008	N001	7	-	12	1000		F	#	5	
Manganese	mg/L	03/05/2008	N001	7	-	12	3.1		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	7	-	12	490		F	#	5	
Oxidation Reduction Potential	mV	03/05/2008	N001	7	-	12	333		F	#		
pH	s.u.	03/05/2008	N001	7	-	12	7.02		F	#		
Potassium	mg/L	03/05/2008	N001	7	-	12	140		F	#	5	
Selenium	mg/L	03/05/2008	N001	7	-	12	0.01		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	7	-	12	1200		F	#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	7	-	12	12977		F	#		
Strontium	mg/L	03/05/2008	N001	7	-	12	6.5		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	7	-	12	6300		F	#	50	
Temperature	C	03/05/2008	N001	7	-	12	10.96		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	7	-	12	12000		F	#	200	
Turbidity	NTU	03/05/2008	N001	7	-	12	8.88		F	#		
Uranium	mg/L	03/05/2008	N001	7	-	12	1		F	#	0.002	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1117 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	7	-	12	164		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	7	-	12	0.1	U	F	#	0.1	
Calcium	mg/L	03/05/2008	N001	7	-	12	70		F	#	1	
Chloride	mg/L	03/05/2008	N001	7	-	12	11		F	#	0.4	
Magnesium	mg/L	03/05/2008	N001	7	-	12	12		F	#	1	
Manganese	mg/L	03/05/2008	N001	7	-	12	0.33		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	7	-	12	0.063		F	#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	7	-	12	252		F	#		
pH	s.u.	03/05/2008	N001	7	-	12	8.07		F	#		
Potassium	mg/L	03/05/2008	N001	7	-	12	1.8		F	#	1	
Selenium	mg/L	03/05/2008	N001	7	-	12	0.00053		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	7	-	12	32		F	#	1	
Specific Conductance	umhos /cm	03/05/2008	N001	7	-	12	682		F	#		
Strontium	mg/L	03/05/2008	N001	7	-	12	0.7		F	#	0.01	
Sulfate	mg/L	03/05/2008	N001	7	-	12	140		F	#	1	
Temperature	C	03/05/2008	N001	7	-	12	8.49		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	7	-	12	350		F	#	20	
Turbidity	NTU	03/05/2008	N001	7	-	12	2.09		F	#		
Uranium	mg/L	03/05/2008	N001	7	-	12	0.0092		F	#	0.0001	

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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Groundwater Quality Data
Terrace Locations

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Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0730 WELL Just SW of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	26.93	-	36.93	0		FQ	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	26.93	-	36.93	73		FQ	#	10	
Calcium	mg/L	03/04/2008	N001	26.93	-	36.93	590		FQ	#	10	
Chloride	mg/L	03/04/2008	N001	26.93	-	36.93	15		FQ	#	2	
Magnesium	mg/L	03/04/2008	N001	26.93	-	36.93	140		FQ	#	1	
Manganese	mg/L	03/04/2008	N001	26.93	-	36.93	20		FQ	#	0.0015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	26.93	-	36.93	170		FQ	#	1	
Oxidation Reduction Potential	mV	03/04/2008	N001	26.93	-	36.93	376		FQ	#		
pH	s.u.	03/04/2008	N001	26.93	-	36.93	4.04		FQ	#		
Potassium	mg/L	03/04/2008	N001	26.93	-	36.93	22		FQ	#	1	
Selenium	mg/L	03/04/2008	N001	26.93	-	36.93	0.0076		FQ	#	0.000019	
Sodium	mg/L	03/04/2008	N001	26.93	-	36.93	84		FQ	#	1	
Specific Conductance	umhos /cm	03/04/2008	N001	26.93	-	36.93	4232		FQ	#		
Strontium	mg/L	03/04/2008	N001	26.93	-	36.93	3.1		FQ	#	0.01	
Sulfate	mg/L	03/04/2008	N001	26.93	-	36.93	1900		FQ	#	25	
Temperature	C	03/04/2008	N001	26.93	-	36.93	16.11		FQ	#		
Total Dissolved Solids	mg/L	03/04/2008	N001	26.93	-	36.93	3500		FQ	#	80	
Turbidity	NTU	03/04/2008	N001	26.93	-	36.93	1.67		FQ	#		
Uranium	mg/L	03/04/2008	N001	26.93	-	36.93	0.0072		FQ	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0817 WELL Just W of Disposal Cell, NECA yard

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	21.6	-	31.62	1899		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	21.6	-	31.62	900		F	#	50	
Calcium	mg/L	03/05/2008	N001	21.6	-	31.62	460		F	#	5	
Chloride	mg/L	03/05/2008	N001	21.6	-	31.62	510		F	#	20	
Magnesium	mg/L	03/05/2008	N001	21.6	-	31.62	2100		F	#	5	
Manganese	mg/L	03/05/2008	N001	21.6	-	31.62	2.3		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	21.6	-	31.62	370		F	#	5	
Oxidation Reduction Potential	mV	03/05/2008	N001	21.6	-	31.62	254		F	#		
pH	s.u.	03/05/2008	N001	21.6	-	31.62	6.52		F	#		
Potassium	mg/L	03/05/2008	N001	21.6	-	31.62	290		F	#	5	
Selenium	mg/L	03/05/2008	N001	21.6	-	31.62	0.0044		F	#	0.000019	
Sodium	mg/L	03/05/2008	N001	21.6	-	31.62	680		F	#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	21.6	-	31.62	21511		F	#		
Strontium	mg/L	03/05/2008	N001	21.6	-	31.62	12		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	21.6	-	31.62	14000		F	#	100	
Temperature	C	03/05/2008	N001	21.6	-	31.62	15.8		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	21.6	-	31.62	21000		F	#	200	
Turbidity	NTU	03/05/2008	N001	21.6	-	31.62	9.48		F	#		
Uranium	mg/L	03/05/2008	N001	21.6	-	31.62	5.6		F	#	0.01	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0818 WELL Just W of radon cover borrow pit

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	52	-	61.5	1012			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	52	-	61.5	140			#	10	
Calcium	mg/L	03/04/2008	N001	52	-	61.5	480			#	1	
Chloride	mg/L	03/04/2008	N001	52	-	61.5	1100			#	40	
Magnesium	mg/L	03/04/2008	N001	52	-	61.5	2400			#	10	
Manganese	mg/L	03/04/2008	N001	52	-	61.5	0.53			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	52	-	61.5	1400			#	10	
Oxidation Reduction Potential	mV	03/04/2008	N001	52	-	61.5	219			#		
pH	s.u.	03/04/2008	N001	52	-	61.5	6.93			#		
Potassium	mg/L	03/04/2008	N001	52	-	61.5	150			#	1	
Selenium	mg/L	03/04/2008	N001	52	-	61.5	1.8			#	0.0095	
Sodium	mg/L	03/04/2008	N001	52	-	61.5	3300			#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	52	-	61.5	25249			#		
Strontium	mg/L	03/04/2008	N001	52	-	61.5	15			#	0.1	
Sulfate	mg/L	03/04/2008	N001	52	-	61.5	12000			#	100	
Temperature	C	03/04/2008	N001	52	-	61.5	15.04			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	52	-	61.5	27000			#	400	
Turbidity	NTU	03/04/2008	N001	52	-	61.5	5.69			#		
Uranium	mg/L	03/04/2008	N001	52	-	61.5	0.12			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0830 WELL Just SE of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	7.7	-	17.7	0		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	7.7	-	17.7	1.3		F	#	0.1	
Calcium	mg/L	03/05/2008	N001	7.7	-	17.7	520	E	FJ	#	5	
Chloride	mg/L	03/05/2008	N001	7.7	-	17.7	55		F	#	4	
Magnesium	mg/L	03/05/2008	N001	7.7	-	17.7	44	E	F	#	5	
Manganese	mg/L	03/05/2008	N001	7.7	-	17.7	1.6	E	FJ	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	7.7	-	17.7	33		F	#	0.5	
Oxidation Reduction Potential	mV	03/05/2008	N001	7.7	-	17.7	301		F	#		
pH	s.u.	03/05/2008	N001	7.7	-	17.7	4.05		F	#		
Potassium	mg/L	03/05/2008	N001	7.7	-	17.7	3.8	B	F	#	5	
Selenium	mg/L	03/05/2008	N001	7.7	-	17.7	0.022		F	#	0.000095	
Sodium	mg/L	03/05/2008	N001	7.7	-	17.7	120	E	F	#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	7.7	-	17.7	2893		F	#		
Strontium	mg/L	03/05/2008	N001	7.7	-	17.7	0.34	E	F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	7.7	-	17.7	1600		F	#	10	
Temperature	C	03/05/2008	N001	7.7	-	17.7	9.96		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	7.7	-	17.7	2500		F	#	40	
Turbidity	NTU	03/05/2008	N001	7.7	-	17.7	1.82		F	#		
Uranium	mg/L	03/05/2008	N001	7.7	-	17.7	0.0039		F	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0835 WELL Housing area between 2nd Wash and 3rd Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/03/2008	N001	21.9	-	31.9	497		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/03/2008	N001	21.9	-	31.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/03/2008	N001	21.9	-	31.9	540		F	#	10	
Chloride	mg/L	03/03/2008	N001	21.9	-	31.9	210		F	#	20	
Magnesium	mg/L	03/03/2008	N001	21.9	-	31.9	430		F	#	1	
Manganese	mg/L	03/03/2008	N001	21.9	-	31.9	0.0047	B	F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/03/2008	N001	21.9	-	31.9	110		F	#	1	
Oxidation Reduction Potential	mV	03/03/2008	N001	21.9	-	31.9	222		F	#		
pH	s.u.	03/03/2008	N001	21.9	-	31.9	6.98		F	#		
Potassium	mg/L	03/03/2008	N001	21.9	-	31.9	22		F	#	1	
Selenium	mg/L	03/03/2008	N001	21.9	-	31.9	0.27		F	#	0.0019	
Sodium	mg/L	03/03/2008	N001	21.9	-	31.9	790		F	#	10	
Specific Conductance	umhos /cm	03/03/2008	N001	21.9	-	31.9	7401		F	#		
Strontium	mg/L	03/03/2008	N001	21.9	-	31.9	6.3		F	#	0.01	
Sulfate	mg/L	03/03/2008	N001	21.9	-	31.9	3900		F	#	50	
Temperature	C	03/03/2008	N001	21.9	-	31.9	15.68		F	#		
Total Dissolved Solids	mg/L	03/03/2008	N001	21.9	-	31.9	7200		F	#	200	
Turbidity	NTU	03/03/2008	N001	21.9	-	31.9	8.59		F	#		
Uranium	mg/L	03/03/2008	N001	21.9	-	31.9	0.088		F	#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0836 WELL SW part of Blueeyes Ranch, N of US Hwy 64

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/03/2008	N001	26.8	-	36.8	375		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/03/2008	N001	26.8	-	36.8	0.1	U	F	#	0.1	
Calcium	mg/L	03/03/2008	N001	26.8	-	36.8	490		F	#	10	
Chloride	mg/L	03/03/2008	N001	26.8	-	36.8	39		F	#	10	
Magnesium	mg/L	03/03/2008	N001	26.8	-	36.8	280		F	#	1	
Manganese	mg/L	03/03/2008	N001	26.8	-	36.8	2.5		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/03/2008	N001	26.8	-	36.8	15		F	#	0.1	
Oxidation Reduction Potential	mV	03/03/2008	N001	26.8	-	36.8	243		F	#		
pH	s.u.	03/03/2008	N001	26.8	-	36.8	6.96		F	#		
Potassium	mg/L	03/03/2008	N001	26.8	-	36.8	8.1		F	#	1	
Selenium	mg/L	03/03/2008	N001	26.8	-	36.8	0.099		F	#	0.00096	
Sodium	mg/L	03/03/2008	N001	26.8	-	36.8	340		F	#	10	
Specific Conductance	umhos /cm	03/03/2008	N001	26.8	-	36.8	4672		F	#		
Strontium	mg/L	03/03/2008	N001	26.8	-	36.8	6.1		F	#	0.01	
Sulfate	mg/L	03/03/2008	N001	26.8	-	36.8	2700		F	#	25	
Temperature	C	03/03/2008	N001	26.8	-	36.8	14.83		F	#		
Total Dissolved Solids	mg/L	03/03/2008	N001	26.8	-	36.8	4600		F	#	80	
Turbidity	NTU	03/03/2008	N001	26.8	-	36.8	5.71		F	#		
Uranium	mg/L	03/03/2008	N001	26.8	-	36.8	0.055		F	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0838 WELL W part of Dine College tract

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	21.9	-	31.9	296		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	21.9	-	31.9	0.1	U	F	#	0.1	
Calcium	mg/L	03/04/2008	N001	21.9	-	31.9	710		F	#	10	
Chloride	mg/L	03/04/2008	N001	21.9	-	31.9	170		F	#	10	
Magnesium	mg/L	03/04/2008	N001	21.9	-	31.9	240		F	#	1	
Manganese	mg/L	03/04/2008	N001	21.9	-	31.9	0.017		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	21.9	-	31.9	130		F	#	1	
Oxidation Reduction Potential	mV	03/04/2008	N001	21.9	-	31.9	175		F	#		
pH	s.u.	03/04/2008	N001	21.9	-	31.9	6.84		F	#		
Potassium	mg/L	03/04/2008	N001	21.9	-	31.9	18		F	#	1	
Selenium	mg/L	03/04/2008	N001	21.9	-	31.9	0.48		F	#	0.0019	
Sodium	mg/L	03/04/2008	N001	21.9	-	31.9	460		F	#	10	
Specific Conductance	umhos /cm	03/04/2008	N001	21.9	-	31.9	5880		F	#		
Strontium	mg/L	03/04/2008	N001	21.9	-	31.9	7.9		F	#	0.01	
Sulfate	mg/L	03/04/2008	N001	21.9	-	31.9	3100		F	#	25	
Temperature	C	03/04/2008	N001	21.9	-	31.9	13.96		F	#		
Total Dissolved Solids	mg/L	03/04/2008	N001	21.9	-	31.9	5700		F	#	200	
Turbidity	NTU	03/04/2008	N001	21.9	-	31.9	4.11		F	#		
Uranium	mg/L	03/04/2008	N001	21.9	-	31.9	0.051		F	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0841 WELL S of Multipurpose Center tract, W of US Hwy 666

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	42	-	52	770		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	42	-	52	0.1	U	F	#	0.1	
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N002	42	-	52	0.1	U	F	#	0.1	
Calcium	mg/L	03/04/2008	N001	42	-	52	370		F	#	1	
Calcium	mg/L	03/04/2008	N002	42	-	52	400		F	#	1	
Chloride	mg/L	03/04/2008	N001	42	-	52	1300		F	#	100	
Chloride	mg/L	03/04/2008	N002	42	-	52	960		F	#	40	
Magnesium	mg/L	03/04/2008	N001	42	-	52	930		F	#	10	
Magnesium	mg/L	03/04/2008	N002	42	-	52	900		F	#	10	
Manganese	mg/L	03/04/2008	N001	42	-	52	0.022		F	#	0.00015	
Manganese	mg/L	03/04/2008	N002	42	-	52	0.018		F	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	42	-	52	720		F	#	5	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N002	42	-	52	810		F	#	5	
Oxidation Reduction Potential	mV	03/04/2008	N001	42	-	52	169		F	#		
pH	s.u.	03/04/2008	N001	42	-	52	7.22		F	#		
Potassium	mg/L	03/04/2008	N001	42	-	52	100		F	#	1	
Potassium	mg/L	03/04/2008	N002	42	-	52	100		F	#	1	
Selenium	mg/L	03/04/2008	N001	42	-	52	3.1		F	#	0.019	
Selenium	mg/L	03/04/2008	N002	42	-	52	3		F	#	0.019	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0841 WELL S of Multipurpose Center tract, W of US Hwy 666

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sodium	mg/L	03/04/2008	N001	42	-	52	5600		F	#	50	
Sodium	mg/L	03/04/2008	N002	42	-	52	6500		F	#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	42	-	52	27133		F	#		
Strontium	mg/L	03/04/2008	N001	42	-	52	7.9		F	#	0.01	
Strontium	mg/L	03/04/2008	N002	42	-	52	8.1		F	#	0.01	
Sulfate	mg/L	03/04/2008	N001	42	-	52	14000		F	#	250	
Sulfate	mg/L	03/04/2008	N002	42	-	52	15000		F	#	100	
Temperature	C	03/04/2008	N001	42	-	52	14.97		F	#		
Total Dissolved Solids	mg/L	03/04/2008	N001	42	-	52	28000		F	#	400	
Total Dissolved Solids	mg/L	03/04/2008	N002	42	-	52	28000		F	#	400	
Turbidity	NTU	03/04/2008	N001	42	-	52	2.53		F	#		
Uranium	mg/L	03/04/2008	N001	42	-	52	0.13		F	#	0.0005	
Uranium	mg/L	03/04/2008	N002	42	-	52	0.13		F	#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0846 WELL Just W of elementary school, S of US Hwy 64

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/03/2008	N001	17.9	-	27.9	248		FQ	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/03/2008	N001	17.9	-	27.9	0.1	U	FQ	#	0.1	
Calcium	mg/L	03/03/2008	N001	17.9	-	27.9	530		FQ	#	10	
Chloride	mg/L	03/03/2008	N001	17.9	-	27.9	64		FQ	#	10	
Magnesium	mg/L	03/03/2008	N001	17.9	-	27.9	170		FQ	#	1	
Manganese	mg/L	03/03/2008	N001	17.9	-	27.9	0.0026	B	FQ	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/03/2008	N001	17.9	-	27.9	33		FQ	#	0.2	
Oxidation Reduction Potential	mV	03/03/2008	N001	17.9	-	27.9	218		FQ	#		
pH	s.u.	03/03/2008	N001	17.9	-	27.9	6.95		FQ	#		
Potassium	mg/L	03/03/2008	N001	17.9	-	27.9	9.6		FQ	#	1	
Selenium	mg/L	03/03/2008	N001	17.9	-	27.9	0.28		FQ	#	0.0019	
Sodium	mg/L	03/03/2008	N001	17.9	-	27.9	290		FQ	#	10	
Specific Conductance	umhos /cm	03/03/2008	N001	17.9	-	27.9	3949		FQ	#		
Strontium	mg/L	03/03/2008	N001	17.9	-	27.9	4.6		FQ	#	0.01	
Sulfate	mg/L	03/03/2008	N001	17.9	-	27.9	2100		FQ	#	25	
Temperature	C	03/03/2008	N001	17.9	-	27.9	15.08		FQ	#		
Total Dissolved Solids	mg/L	03/03/2008	N001	17.9	-	27.9	3700		FQ	#	80	
Turbidity	NTU	03/03/2008	N001	17.9	-	27.9	5.45		FQ	#		
Uranium	mg/L	03/03/2008	N001	17.9	-	27.9	0.036		FQ	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1057 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	36.66	-	41.66	537		F	#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	36.66	-	41.66	610		F	#	20	
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N002	36.66	-	41.66	670		F	#	20	
Calcium	mg/L	03/05/2008	N001	36.66	-	41.66	700		F	#	5	
Calcium	mg/L	03/05/2008	N002	36.66	-	41.66	710		F	#	5	
Chloride	mg/L	03/05/2008	N001	36.66	-	41.66	390		F	#	20	
Chloride	mg/L	03/05/2008	N002	36.66	-	41.66	390		F	#	20	
Magnesium	mg/L	03/05/2008	N001	36.66	-	41.66	1600		F	#	5	
Magnesium	mg/L	03/05/2008	N002	36.66	-	41.66	1600		F	#	5	
Manganese	mg/L	03/05/2008	N001	36.66	-	41.66	13		F	#	0.00076	
Manganese	mg/L	03/05/2008	N002	36.66	-	41.66	14		F	#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	36.66	-	41.66	1600		F	#	20	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N002	36.66	-	41.66	1600		F	#	20	
Oxidation Reduction Potential	mV	03/05/2008	N001	36.66	-	41.66	161		F	#		
pH	s.u.	03/05/2008	N001	36.66	-	41.66	6.69		F	#		
Potassium	mg/L	03/05/2008	N001	36.66	-	41.66	220		F	#	5	
Potassium	mg/L	03/05/2008	N002	36.66	-	41.66	220		F	#	5	
Selenium	mg/L	03/05/2008	N001	36.66	-	41.66	0.22		F	#	0.00096	
Selenium	mg/L	03/05/2008	N002	36.66	-	41.66	0.22		F	#	0.00096	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1057 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sodium	mg/L	03/05/2008	N001	36.66	-	41.66	1200		F	#	50	
Sodium	mg/L	03/05/2008	N002	36.66	-	41.66	1200		F	#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	36.66	-	41.66	20315		F	#		
Strontium	mg/L	03/05/2008	N001	36.66	-	41.66	9.2		F	#	0.05	
Strontium	mg/L	03/05/2008	N002	36.66	-	41.66	9.2		F	#	0.05	
Sulfate	mg/L	03/05/2008	N001	36.66	-	41.66	6100		F	#	50	
Sulfate	mg/L	03/05/2008	N002	36.66	-	41.66	6200		F	#	50	
Temperature	C	03/05/2008	N001	36.66	-	41.66	14.02		F	#		
Total Dissolved Solids	mg/L	03/05/2008	N001	36.66	-	41.66	19000		F	#	200	
Total Dissolved Solids	mg/L	03/05/2008	N002	36.66	-	41.66	18000		F	#	200	
Turbidity	NTU	03/05/2008	N001	36.66	-	41.66	1.79		F	#		
Uranium	mg/L	03/05/2008	N001	36.66	-	41.66	0.052		F	#	0.0001	
Uranium	mg/L	03/05/2008	N002	36.66	-	41.66	0.054		F	#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1070 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	52.5	-	62	690			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	52.5	-	62	7.6			#	0.5	
Calcium	mg/L	03/04/2008	N001	52.5	-	62	380			#	1	
Chloride	mg/L	03/04/2008	N001	52.5	-	62	1300			#	100	
Magnesium	mg/L	03/04/2008	N001	52.5	-	62	1400			#	10	
Manganese	mg/L	03/04/2008	N001	52.5	-	62	0.43			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	52.5	-	62	780			#	5	
Oxidation Reduction Potential	mV	03/04/2008	N001	52.5	-	62	368			#		
pH	s.u.	03/04/2008	N001	52.5	-	62	6.87			#		
Potassium	mg/L	03/04/2008	N001	52.5	-	62	120			#	1	
Selenium	mg/L	03/04/2008	N001	52.5	-	62	2.1			#	0.0095	
Sodium	mg/L	03/04/2008	N001	52.5	-	62	7300			#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	52.5	-	62	29700			#		
Strontium	mg/L	03/04/2008	N001	52.5	-	62	9.5			#	0.01	
Sulfate	mg/L	03/04/2008	N001	52.5	-	62	14000			#	250	
Temperature	C	03/04/2008	N001	52.5	-	62	14.5			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	52.5	-	62	31000			#	400	
Turbidity	NTU	03/04/2008	N001	52.5	-	62	19.6			#		
Uranium	mg/L	03/04/2008	N001	52.5	-	62	0.12			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1071 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	36.5	-	46	280			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	36.5	-	46	330			#	10	
Calcium	mg/L	03/04/2008	N001	36.5	-	46	1600			#	10	
Chloride	mg/L	03/04/2008	N001	36.5	-	46	350			#	40	
Magnesium	mg/L	03/04/2008	N001	36.5	-	46	1500			#	10	
Manganese	mg/L	03/04/2008	N001	36.5	-	46	2.1			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	36.5	-	46	2600			#	20	
Oxidation Reduction Potential	mV	03/04/2008	N001	36.5	-	46	199			#		
pH	s.u.	03/04/2008	N001	36.5	-	46	6.4			#		
Potassium	mg/L	03/04/2008	N001	36.5	-	46	220			#	1	
Selenium	mg/L	03/04/2008	N001	36.5	-	46	0.13			#	0.00096	
Sodium	mg/L	03/04/2008	N001	36.5	-	46	1200			#	10	
Specific Conductance	umhos /cm	03/04/2008	N001	36.5	-	46	22328			#		
Strontium	mg/L	03/04/2008	N001	36.5	-	46	11			#	0.1	
Sulfate	mg/L	03/04/2008	N001	36.5	-	46	3600			#	100	
Temperature	C	03/04/2008	N001	36.5	-	46	14.06			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	36.5	-	46	20000			#	400	
Turbidity	NTU	03/04/2008	N001	36.5	-	46	12.2			#		
Uranium	mg/L	03/04/2008	N001	36.5	-	46	0.053			#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1078 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	35.5	-	45	583			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	35.5	-	45	3.3			#	0.1	
Calcium	mg/L	03/04/2008	N001	35.5	-	45	400			#	1	
Chloride	mg/L	03/04/2008	N001	35.5	-	45	1200			#	100	
Magnesium	mg/L	03/04/2008	N001	35.5	-	45	1200			#	10	
Manganese	mg/L	03/04/2008	N001	35.5	-	45	0.075			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	35.5	-	45	820			#	5	
Oxidation Reduction Potential	mV	03/04/2008	N001	35.5	-	45	224			#		
pH	s.u.	03/04/2008	N001	35.5	-	45	7.08			#		
Potassium	mg/L	03/04/2008	N001	35.5	-	45	110			#	1	
Selenium	mg/L	03/04/2008	N001	35.5	-	45	2.6			#	0.019	
Sodium	mg/L	03/04/2008	N001	35.5	-	45	5800			#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	35.5	-	45	26041			#		
Strontium	mg/L	03/04/2008	N001	35.5	-	45	9.9			#	0.01	
Sulfate	mg/L	03/04/2008	N001	35.5	-	45	14000			#	250	
Temperature	C	03/04/2008	N001	35.5	-	45	15.06			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	35.5	-	45	28000			#	400	
Turbidity	NTU	03/04/2008	N001	35.5	-	45	6.12			#		
Uranium	mg/L	03/04/2008	N001	35.5	-	45	0.15			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1079 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	10.5	-	20	299			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	10.5	-	20	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	N001	10.5	-	20	490			#	10	
Chloride	mg/L	03/04/2008	N001	10.5	-	20	83			#	10	
Magnesium	mg/L	03/04/2008	N001	10.5	-	20	130			#	1	
Manganese	mg/L	03/04/2008	N001	10.5	-	20	0.007			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	10.5	-	20	52			#	0.5	
Oxidation Reduction Potential	mV	03/04/2008	N001	10.5	-	20	165			#		
pH	s.u.	03/04/2008	N001	10.5	-	20	6.86			#		
Potassium	mg/L	03/04/2008	N001	10.5	-	20	10			#	1	
Selenium	mg/L	03/04/2008	N001	10.5	-	20	0.2			#	0.00096	
Sodium	mg/L	03/04/2008	N001	10.5	-	20	290			#	10	
Specific Conductance	umhos /cm	03/04/2008	N001	10.5	-	20	3700			#		
Strontium	mg/L	03/04/2008	N001	10.5	-	20	5.1			#	0.01	
Sulfate	mg/L	03/04/2008	N001	10.5	-	20	1800			#	25	
Temperature	C	03/04/2008	N001	10.5	-	20	13.89			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	10.5	-	20	3300			#	80	
Turbidity	NTU	03/04/2008	N001	10.5	-	20	2.13			#		
Uranium	mg/L	03/04/2008	N001	10.5	-	20	0.029			#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1087 TREATMENT SYSTEM Sump from interceptor trenches in Bob Lee Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	0	-	0	654			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0	-	0	180			#	10	
Calcium	mg/L	03/05/2008	N001	0	-	0	410			#	5	
Chloride	mg/L	03/05/2008	N001	0	-	0	310			#	20	
Magnesium	mg/L	03/05/2008	N001	0	-	0	1400			#	5	
Manganese	mg/L	03/05/2008	N001	0	-	0	1.3			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	0	-	0	320			#	2	
Oxidation Reduction Potential	mV	03/05/2008	N001	0	-	0	286			#		
pH	s.u.	03/05/2008	N001	0	-	0	7.17			#		
Potassium	mg/L	03/05/2008	N001	0	-	0	150			#	5	
Selenium	mg/L	03/05/2008	N001	0	-	0	0.035			#	0.00019	
Sodium	mg/L	03/05/2008	N001	0	-	0	1200			#	5	
Specific Conductance	umhos /cm	03/05/2008	N001	0	-	0	13948			#		
Strontium	mg/L	03/05/2008	N001	0	-	0	8.8			#	0.05	
Sulfate	mg/L	03/05/2008	N001	0	-	0	8000			#	50	
Temperature	C	03/05/2008	N001	0	-	0	10.37			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	0	-	0	14000			#	200	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1087 TREATMENT SYSTEM Sump from interceptor trenches in Bob Lee Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Uranium	mg/L	03/05/2008	N001	0	-	0	0.62			#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	0	-	0	609			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0	-	0	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	N001	0	-	0	410			#	5	
Chloride	mg/L	03/05/2008	N001	0	-	0	1600			#	40	
Magnesium	mg/L	03/05/2008	N001	0	-	0	1300			#	5	
Manganese	mg/L	03/05/2008	N001	0	-	0	0.07			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	0	-	0	530			#	5	
Oxidation Reduction Potential	mV	03/05/2008	N001	0	-	0	486			#		
pH	s.u.	03/05/2008	N001	0	-	0	8.17			#		
Potassium	mg/L	03/05/2008	N001	0	-	0	81			#	5	
Selenium	mg/L	03/05/2008	N001	0	-	0	1.4			#	0.0038	
Sodium	mg/L	03/05/2008	N001	0	-	0	6000			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	0	-	0	29740			#		
Strontium	mg/L	03/05/2008	N001	0	-	0	9.6			#	0.05	
Sulfate	mg/L	03/05/2008	N001	0	-	0	18000			#	100	
Temperature	C	03/05/2008	N001	0	-	0	6.43			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	0	-	0	33000			#	400	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1088 TREATMENT SYSTEM Sump from interceptor trenches in Many Devils Wash

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Turbidity	NTU	03/05/2008	N001	0	-	0	3.23			#		
Uranium	mg/L	03/05/2008	N001	0	-	0	0.17			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1091 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	33	-	43	733			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	33	-	43	190	N	J	#	10	
Calcium	mg/L	03/05/2008	N001	33	-	43	500			#	5	
Chloride	mg/L	03/05/2008	N001	33	-	43	1300			#	40	
Magnesium	mg/L	03/05/2008	N001	33	-	43	2500			#	5	
Manganese	mg/L	03/05/2008	N001	33	-	43	1.2			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	33	-	43	1500			#	20	
Oxidation Reduction Potential	mV	03/05/2008	N001	33	-	43	272			#		
pH	s.u.	03/05/2008	N001	33	-	43	6.55			#		
Potassium	mg/L	03/05/2008	N001	33	-	43	110			#	5	
Selenium	mg/L	03/05/2008	N001	33	-	43	1			#	0.0019	
Sodium	mg/L	03/05/2008	N001	33	-	43	4000			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	33	-	43	27036			#		
Strontium	mg/L	03/05/2008	N001	33	-	43	15			#	0.05	
Sulfate	mg/L	03/05/2008	N001	33	-	43	12000			#	100	
Temperature	C	03/05/2008	N001	33	-	43	9.94			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	33	-	43	28000			#	1000	
Uranium	mg/L	03/05/2008	N001	33	-	43	0.12			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1092 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	33	-	43	614			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	33	-	43	500			#	10	
Calcium	mg/L	03/05/2008	N001	33	-	43	710			#	5	
Chloride	mg/L	03/05/2008	N001	33	-	43	850			#	40	
Magnesium	mg/L	03/05/2008	N001	33	-	43	1700			#	5	
Manganese	mg/L	03/05/2008	N001	33	-	43	12			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	33	-	43	1600			#	20	
Oxidation Reduction Potential	mV	03/05/2008	N001	33	-	43	46			#		
pH	s.u.	03/05/2008	N001	33	-	43	6.87			#		
Potassium	mg/L	03/05/2008	N001	33	-	43	200			#	5	
Selenium	mg/L	03/05/2008	N001	33	-	43	1.4			#	0.0038	
Sodium	mg/L	03/05/2008	N001	33	-	43	3000			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	33	-	43	25803			#		
Strontium	mg/L	03/05/2008	N001	33	-	43	12			#	0.05	
Sulfate	mg/L	03/05/2008	N001	33	-	43	9800			#	100	
Temperature	C	03/05/2008	N001	33	-	43	14.42			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	33	-	43	24000			#	1000	
Uranium	mg/L	03/05/2008	N001	33	-	43	0.11			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1093 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	31.17	-	34.5	547			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	31.17	-	34.5	860			#	50	
Calcium	mg/L	03/05/2008	N001	31.17	-	34.5	1000			#	5	
Chloride	mg/L	03/05/2008	N001	31.17	-	34.5	600			#	40	
Magnesium	mg/L	03/05/2008	N001	31.17	-	34.5	1800			#	5	
Manganese	mg/L	03/05/2008	N001	31.17	-	34.5	24			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	31.17	-	34.5	2500			#	20	
Oxidation Reduction Potential	mV	03/05/2008	N001	31.17	-	34.5	116.8			#		
pH	s.u.	03/05/2008	N001	31.17	-	34.5	6.73			#		
Potassium	mg/L	03/05/2008	N001	31.17	-	34.5	280			#	5	
Selenium	mg/L	03/05/2008	N001	31.17	-	34.5	0.38			#	0.0019	
Sodium	mg/L	03/05/2008	N001	31.17	-	34.5	1600			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	31.17	-	34.5	26934			#		
Strontium	mg/L	03/05/2008	N001	31.17	-	34.5	12			#	0.05	
Sulfate	mg/L	03/05/2008	N001	31.17	-	34.5	5800			#	100	
Temperature	C	03/05/2008	N001	31.17	-	34.5	12.03			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	31.17	-	34.5	20000			#	1000	
Uranium	mg/L	03/05/2008	N001	31.17	-	34.5	0.11			#	0.0005	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1095 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	39	-	49	468			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	39	-	49	850			#	50	
Calcium	mg/L	03/05/2008	N001	39	-	49	650			#	5	
Chloride	mg/L	03/05/2008	N001	39	-	49	440			#	20	
Magnesium	mg/L	03/05/2008	N001	39	-	49	1600			#	5	
Manganese	mg/L	03/05/2008	N001	39	-	49	26			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	39	-	49	1700			#	20	
Oxidation Reduction Potential	mV	03/05/2008	N001	39	-	49	185			#		
pH	s.u.	03/05/2008	N001	39	-	49	6.69			#		
Potassium	mg/L	03/05/2008	N001	39	-	49	220			#	5	
Selenium	mg/L	03/05/2008	N001	39	-	49	0.3			#	0.00096	
Sodium	mg/L	03/05/2008	N001	39	-	49	1300			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	39	-	49	22040			#		
Strontium	mg/L	03/05/2008	N001	39	-	49	8.4			#	0.05	
Sulfate	mg/L	03/05/2008	N001	39	-	49	7200			#	50	
Temperature	C	03/05/2008	N001	39	-	49	14.34			#		
Total Dissolved Solids	mg/L	03/05/2008	N001	39	-	49	16000			#	1000	
Uranium	mg/L	03/05/2008	N001	39	-	49	0.068			#	0.0001	

Groundwater Quality Data by Location (USEE100) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 1096 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	57.5	-	66.5	558			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	57.5	-	66.5	14			#	2	
Calcium	mg/L	03/04/2008	N001	57.5	-	66.5	400			#	1	
Chloride	mg/L	03/04/2008	N001	57.5	-	66.5	1100			#	100	
Magnesium	mg/L	03/04/2008	N001	57.5	-	66.5	1300			#	10	
Manganese	mg/L	03/04/2008	N001	57.5	-	66.5	0.18			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	57.5	-	66.5	630			#	5	
Oxidation Reduction Potential	mV	03/04/2008	N001	57.5	-	66.5	211			#		
pH	s.u.	03/04/2008	N001	57.5	-	66.5	6.99			#		
Potassium	mg/L	03/04/2008	N001	57.5	-	66.5	110			#	1	
Selenium	mg/L	03/04/2008	N001	57.5	-	66.5	2.1			#	0.0095	
Sodium	mg/L	03/04/2008	N001	57.5	-	66.5	4700			#	50	
Specific Conductance	umhos /cm	03/04/2008	N001	57.5	-	66.5	24550			#		
Strontium	mg/L	03/04/2008	N001	57.5	-	66.5	9.4			#	0.01	
Sulfate	mg/L	03/04/2008	N001	57.5	-	66.5	13000			#	250	
Temperature	C	03/04/2008	N001	57.5	-	66.5	16.69			#		
Total Dissolved Solids	mg/L	03/04/2008	N001	57.5	-	66.5	27000			#	400	
Turbidity	NTU	03/04/2008	N001	57.5	-	66.5	5.64			#		
Uranium	mg/L	03/04/2008	N001	57.5	-	66.5	0.11			#	0.0005	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

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Surface Water Quality Data
Floodplain Locations

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Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	0001	95			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	0001	41			#	1	
Chloride	mg/L	03/05/2008	0001	6			#	0.2	
Magnesium	mg/L	03/05/2008	0001	7.4			#	1	
Manganese	mg/L	03/05/2008	0001	0.0066			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	0001	0.2			#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	671			#		
pH	s.u.	03/05/2008	N001	6.29			#		
Potassium	mg/L	03/05/2008	0001	2.4			#	1	
Selenium	mg/L	03/05/2008	0001	0.00056			#	0.000095	
Sodium	mg/L	03/05/2008	0001	18			#	1	
Specific Conductance	umhos/cm	03/05/2008	N001	419			#		
Strontium	mg/L	03/05/2008	0001	0.44			#	0.01	
Sulfate	mg/L	03/05/2008	0001	74			#	0.5	
Temperature	C	03/05/2008	N001	4.59			#		
Turbidity	NTU	03/05/2008	N001	1000	>		#		
Uranium	mg/L	03/05/2008	0001	0.00087			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0655 SURFACE LOCATION Ditch in NW end of floodplain

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	N001	346			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	N001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	N001	310			#	1	
Chloride	mg/L	03/04/2008	N001	130			#	20	
Magnesium	mg/L	03/04/2008	N001	80			#	1	
Manganese	mg/L	03/04/2008	N001	0.97			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	N001	0.23			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	129			#		
pH	s.u.	03/04/2008	N001	8.01			#		
Potassium	mg/L	03/04/2008	N001	25	EN	J	#	1	
Selenium	mg/L	03/04/2008	N001	0.0056			#	0.000019	
Sodium	mg/L	03/04/2008	N001	1300			#	10	
Specific Conductance	umhos/cm	03/04/2008	N001	6889			#		
Strontium	mg/L	03/04/2008	N001	12			#	0.1	
Sulfate	mg/L	03/04/2008	N001	3700			#	50	
Temperature	C	03/04/2008	N001	5.23			#		
Turbidity	NTU	03/04/2008	N001	10.4			#		
Uranium	mg/L	03/04/2008	N001	0.09			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0887 SURFACE LOCATION Distributary channel of San Juan River; Adjusted 33 Ft. North of GPS Location

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/03/2008	0001	495			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/03/2008	0001	0.14			#	0.1	
Calcium	mg/L	03/03/2008	0001	46			#	1	
Chloride	mg/L	03/03/2008	0001	12			#	0.2	
Magnesium	mg/L	03/03/2008	0001	8.3			#	1	
Manganese	mg/L	03/03/2008	0001	0.0091			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/03/2008	0001	0.56			#	0.01	
Oxidation Reduction Potential	mV	03/03/2008	N001	183.2			#		
pH	s.u.	03/03/2008	N001	7.5			#		
Potassium	mg/L	03/03/2008	0001	4.9			#	1	
Selenium	mg/L	03/03/2008	0001	0.0011			#	0.000095	
Sodium	mg/L	03/03/2008	0001	33			#	1	
Specific Conductance	umhos/cm	03/03/2008	N001	454			#		
Strontium	mg/L	03/03/2008	0001	0.52			#	0.01	
Sulfate	mg/L	03/03/2008	0001	110			#	1	
Temperature	C	03/03/2008	N001	6.22			#		
Turbidity	NTU	03/03/2008	N001	1000	>		#		
Uranium	mg/L	03/03/2008	0001	0.0015			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	136			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	42			#	1	
Chloride	mg/L	03/04/2008	0001	6.1			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.8			#	1	
Manganese	mg/L	03/04/2008	0001	0.0051			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.23			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	66.6			#		
pH	s.u.	03/04/2008	N001	8.58			#		
Potassium	mg/L	03/04/2008	0001	2.4			#	1	
Selenium	mg/L	03/04/2008	0001	0.00061			#	0.000095	
Sodium	mg/L	03/04/2008	0001	20			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	373			#		
Strontium	mg/L	03/04/2008	0001	0.47			#	0.01	
Sulfate	mg/L	03/04/2008	0001	77			#	0.5	
Temperature	C	03/04/2008	N001	6.55			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.001			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0898 SURFACE LOCATION S. bank San Juan River, N of floodplain background area

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	118			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	42			#	1	
Chloride	mg/L	03/04/2008	0001	6.4			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.8			#	1	
Manganese	mg/L	03/04/2008	0001	0.0045	B		#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.17			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	188.6			#		
pH	s.u.	03/04/2008	N001	8.11			#		
Potassium	mg/L	03/04/2008	0001	2.5			#	1	
Selenium	mg/L	03/04/2008	0001	0.00055			#	0.000095	
Sodium	mg/L	03/04/2008	0001	21			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	365			#		
Strontium	mg/L	03/04/2008	0001	0.48			#	0.01	
Sulfate	mg/L	03/04/2008	0001	80			#	0.5	
Temperature	C	03/04/2008	N001	8.73			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.00096			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0937 SURFACE LOCATION Distributary channel of San Juan River

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	114			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	47			#	1	
Chloride	mg/L	03/04/2008	0001	7.5			#	0.2	
Magnesium	mg/L	03/04/2008	0001	9.7			#	1	
Manganese	mg/L	03/04/2008	0001	0.024			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.54			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	212			#		
pH	s.u.	03/04/2008	N001	7.55			#		
Potassium	mg/L	03/04/2008	0001	2.6			#	1	
Selenium	mg/L	03/04/2008	0001	0.0012			#	0.000095	
Sodium	mg/L	03/04/2008	0001	25			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	418			#		
Strontium	mg/L	03/04/2008	0001	0.53			#	0.01	
Sulfate	mg/L	03/04/2008	0001	110			#	1	
Temperature	C	03/04/2008	N001	4			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.0013			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0938 SURFACE LOCATION Distributary channel of San Juan River

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	104			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	41			#	1	
Chloride	mg/L	03/04/2008	0001	6.2			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.3			#	1	
Manganese	mg/L	03/04/2008	0001	0.0081			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.2			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	192			#		
pH	s.u.	03/04/2008	N001	6.27			#		
Potassium	mg/L	03/04/2008	0001	2.4			#	1	
Selenium	mg/L	03/04/2008	0001	0.00061			#	0.000095	
Sodium	mg/L	03/04/2008	0001	21			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	237			#		
Strontium	mg/L	03/04/2008	0001	0.46			#	0.01	
Sulfate	mg/L	03/04/2008	0001	77			#	0.5	
Temperature	C	03/04/2008	N001	4.09			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.00098			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0939 SURFACE LOCATION Distributary channel of San Juan River

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia (NH3) Un-ionized as N	mg/L	03/03/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/03/2008	0001	45			#	1	
Chloride	mg/L	03/03/2008	0001	7.6			#	0.2	
Magnesium	mg/L	03/03/2008	0001	8.2			#	1	
Manganese	mg/L	03/03/2008	0001	0.027			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/03/2008	0001	0.41			#	0.01	
Oxidation Reduction Potential	mV	03/03/2008	N001	195.8			#		
pH	s.u.	03/03/2008	N001	5.86			#		
Potassium	mg/L	03/03/2008	0001	2.8			#	1	
Selenium	mg/L	03/03/2008	0001	0.001			#	0.000095	
Sodium	mg/L	03/03/2008	0001	32			#	1	
Specific Conductance	umhos/cm	03/03/2008	N001	478			#		
Strontium	mg/L	03/03/2008	0001	0.53			#	0.01	
Sulfate	mg/L	03/03/2008	0001	120			#	1	
Temperature	C	03/03/2008	N001	5.98			#		
Turbidity	NTU	03/03/2008	N001	1000	>		#		
Uranium	mg/L	03/03/2008	0001	0.0016			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 666 bridge

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	126			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	42			#	1	
Chloride	mg/L	03/04/2008	0001	6.1			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.8			#	1	
Manganese	mg/L	03/04/2008	0001	0.006			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.19			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	92.2			#		
pH	s.u.	03/04/2008	N001	8.67			#		
Potassium	mg/L	03/04/2008	0001	2.4			#	1	
Selenium	mg/L	03/04/2008	0001	0.00044			#	0.000038	
Sodium	mg/L	03/04/2008	0001	19			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	429			#		
Strontium	mg/L	03/04/2008	0001	0.47			#	0.01	
Sulfate	mg/L	03/04/2008	0001	76			#	0.5	
Temperature	C	03/04/2008	N001	6.81			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.00095			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	115			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	41			#	1	
Chloride	mg/L	03/04/2008	0001	5.9			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.5			#	1	
Manganese	mg/L	03/04/2008	0001	0.01			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.17			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	45.1			#		
pH	s.u.	03/04/2008	N001	8.77			#		
Potassium	mg/L	03/04/2008	0001	2.4			#	1	
Selenium	mg/L	03/04/2008	0001	0.00051			#	0.000095	
Sodium	mg/L	03/04/2008	0001	20			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	375			#		
Strontium	mg/L	03/04/2008	0001	0.46			#	0.01	
Sulfate	mg/L	03/04/2008	0001	78			#	0.5	
Temperature	C	03/04/2008	N001	7.26			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.00094			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0959 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	112			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	47			#	1	
Chloride	mg/L	03/04/2008	0001	7.6			#	0.2	
Magnesium	mg/L	03/04/2008	0001	9.9			#	1	
Manganese	mg/L	03/04/2008	0001	0.029			#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.54			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	204.6			#		
pH	s.u.	03/04/2008	N001	7.84			#		
Potassium	mg/L	03/04/2008	0001	2.6			#	1	
Selenium	mg/L	03/04/2008	0001	0.0013			#	0.000095	
Sodium	mg/L	03/04/2008	0001	25			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	431			#		
Strontium	mg/L	03/04/2008	0001	0.54			#	0.01	
Sulfate	mg/L	03/04/2008	0001	110			#	1	
Temperature	C	03/04/2008	N001	4.1			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.0014			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/04/2008	0001	111			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/04/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/04/2008	0001	42			#	1	
Chloride	mg/L	03/04/2008	0001	5.8			#	0.2	
Magnesium	mg/L	03/04/2008	0001	7.7			#	1	
Manganese	mg/L	03/04/2008	0001	0.0042	B		#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/04/2008	0001	0.18			#	0.01	
Oxidation Reduction Potential	mV	03/04/2008	N001	41.2			#		
pH	s.u.	03/04/2008	N001	9.08			#		
Potassium	mg/L	03/04/2008	0001	2.4			#	1	
Selenium	mg/L	03/04/2008	0001	0.00057			#	0.000095	
Sodium	mg/L	03/04/2008	0001	20			#	1	
Specific Conductance	umhos/cm	03/04/2008	N001	488			#		
Strontium	mg/L	03/04/2008	0001	0.47			#	0.01	
Sulfate	mg/L	03/04/2008	0001	75			#	0.5	
Temperature	C	03/04/2008	N001	6.86			#		
Turbidity	NTU	03/04/2008	N001	1000	>		#		
Uranium	mg/L	03/04/2008	0001	0.00096			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1118 TREATMENT SYSTEM Sump - seep vault

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	0	-	0	560			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0	-	0	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	N001	0	-	0	410			#	5	
Chloride	mg/L	03/05/2008	N001	0	-	0	230			#	10	
Magnesium	mg/L	03/05/2008	N001	0	-	0	510			#	5	
Manganese	mg/L	03/05/2008	N001	0	-	0	0.06			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	0	-	0	40			#	0.5	
Oxidation Reduction Potential	mV	03/05/2008	N001	0	-	0	535			#		
pH	s.u.	03/05/2008	N001	0	-	0	7.8			#		
Potassium	mg/L	03/05/2008	N001	0	-	0	37			#	5	
Selenium	mg/L	03/05/2008	N001	0	-	0	0.16			#	0.00096	
Sodium	mg/L	03/05/2008	N001	0	-	0	1200			#	50	
Specific Conductance	umhos /cm	03/05/2008	N001	0	-	0	9193			#		
Strontium	mg/L	03/05/2008	N001	0	-	0	9.3			#	0.05	
Sulfate	mg/L	03/05/2008	N001	0	-	0	5600			#	50	
Temperature	C	03/05/2008	N001	0	-	0	5.02			#		
Uranium	mg/L	03/05/2008	N001	0	-	0	0.56			#	0.001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	0001	109			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	0001	42			#	1	
Chloride	mg/L	03/05/2008	0001	6			#	0.2	
Magnesium	mg/L	03/05/2008	0001	7.9			#	1	
Manganese	mg/L	03/05/2008	0001	0.0048	B		#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	0001	0.19			#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	593			#		
pH	s.u.	03/05/2008	N001	7.55			#		
Potassium	mg/L	03/05/2008	0001	2.4			#	1	
Selenium	mg/L	03/05/2008	0001	0.00048			#	0.000038	
Sodium	mg/L	03/05/2008	0001	19			#	1	
Specific Conductance	umhos/cm	03/05/2008	N001	387			#		
Strontium	mg/L	03/05/2008	0001	0.45			#	0.01	
Sulfate	mg/L	03/05/2008	0001	74			#	0.5	
Temperature	C	03/05/2008	N001	4.85			#		
Turbidity	NTU	03/05/2008	N001	1000	>		#		
Uranium	mg/L	03/05/2008	0001	0.00088			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 5/23/2008
Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	0001	103			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	0001	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	0001	42			#	1	
Chloride	mg/L	03/05/2008	0001	5.9			#	0.2	
Magnesium	mg/L	03/05/2008	0001	7.9			#	1	
Manganese	mg/L	03/05/2008	0001	0.0029	B		#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	0001	0.18			#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	552			#		
pH	s.u.	03/05/2008	N001	7.97			#		
Potassium	mg/L	03/05/2008	0001	2.4			#	1	
Selenium	mg/L	03/05/2008	0001	0.00059			#	0.000095	
Sodium	mg/L	03/05/2008	0001	19			#	1	
Specific Conductance	umhos/cm	03/05/2008	N001	364			#		
Strontium	mg/L	03/05/2008	0001	0.45			#	0.01	
Sulfate	mg/L	03/05/2008	0001	74			#	0.5	
Temperature	C	03/05/2008	N001	4.91			#		
Turbidity	NTU	03/05/2008	N001	1000	>		#		
Uranium	mg/L	03/05/2008	0001	0.00088			#	0.0001	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Surface Water Quality Data
Terrace Locations

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Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0662 SURFACE LOCATION Bob Lee Wash, just below outflow ditch confluence

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	75			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	N001	120			#	5	
Chloride	mg/L	03/05/2008	N001	56			#	10	
Magnesium	mg/L	03/05/2008	N001	19			#	5	
Manganese	mg/L	03/05/2008	N001	0.075			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	0.29			#	0.01	
Oxidation Reduction Potential	mV	03/05/2008	N001	504			#		
pH	s.u.	03/05/2008	N001	8.37			#		
Potassium	mg/L	03/05/2008	N001	12			#	5	
Selenium	mg/L	03/05/2008	N001	0.00017			#	0.000019	
Sodium	mg/L	03/05/2008	N001	730			#	5	
Specific Conductance	umhos/cm	03/05/2008	N001	4081			#		
Strontium	mg/L	03/05/2008	N001	12			#	0.05	
Sulfate	mg/L	03/05/2008	N001	2000			#	25	
Temperature	C	03/05/2008	N001	14.96			#		
Turbidity	NTU	03/05/2008	N001	29.1			#		
Uranium	mg/L	03/05/2008	N001	0.00062			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 5/23/2008
Location: 0889 SURFACE LOCATION Many Devils Wash, just below knickpoint

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/05/2008	N001	609			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/05/2008	N001	0.1	U		#	0.1	
Calcium	mg/L	03/05/2008	N001	400			#	5	
Chloride	mg/L	03/05/2008	N001	1700			#	40	
Magnesium	mg/L	03/05/2008	N001	1400			#	5	
Manganese	mg/L	03/05/2008	N001	0.017	B		#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/05/2008	N001	600			#	5	
Oxidation Reduction Potential	mV	03/05/2008	N001	520			#		
pH	s.u.	03/05/2008	N001	8.62			#		
Potassium	mg/L	03/05/2008	N001	82			#	5	
Selenium	mg/L	03/05/2008	N001	1.5			#	0.0038	
Sodium	mg/L	03/05/2008	N001	7200			#	50	
Specific Conductance	umhos/cm	03/05/2008	N001	32220			#		
Strontium	mg/L	03/05/2008	N001	9.8			#	0.05	
Sulfate	mg/L	03/05/2008	N001	23000			#	250	
Temperature	C	03/05/2008	N001	7.9			#		
Turbidity	NTU	03/05/2008	N001	7.05			#		
Uranium	mg/L	03/05/2008	N001	0.2			#	0.0005	

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

REPORT DATE: 5/23/2008

Location: 1215 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	03/06/2008	N001	493			#		
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N001	53			#	10	
Ammonia (NH3) Un-ionized as N	mg/L	03/06/2008	N002	49			#	10	
Calcium	mg/L	03/06/2008	N001	310			#	5	
Calcium	mg/L	03/06/2008	N002	310			#	5	
Chloride	mg/L	03/06/2008	N001	1100			#	40	
Chloride	mg/L	03/06/2008	N002	1100			#	40	
Magnesium	mg/L	03/06/2008	N001	2400			#	5	
Magnesium	mg/L	03/06/2008	N002	2400			#	5	
Manganese	mg/L	03/06/2008	N001	1.1			#	0.00076	
Manganese	mg/L	03/06/2008	N002	0.9			#	0.00076	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N001	770			#	5	
Nitrate + Nitrite as Nitrogen	mg/L	03/06/2008	N002	730			#	5	
Oxidation Reduction Potential	mV	03/06/2008	N001	196			#		
pH	s.u.	03/06/2008	N001	8.19			#		
Potassium	mg/L	03/06/2008	N001	270			#	5	
Potassium	mg/L	03/06/2008	N002	270			#	5	
Selenium	mg/L	03/06/2008	N001	0.86			#	0.0019	
Selenium	mg/L	03/06/2008	N002	0.88			#	0.0019	
Sodium	mg/L	03/06/2008	N001	5100			#	50	
Sodium	mg/L	03/06/2008	N002	4600			#	50	
Specific Conductance	umhos/cm	03/06/2008	N001	28846			#		
Strontium	mg/L	03/06/2008	N001	6.7			#	0.05	
Strontium	mg/L	03/06/2008	N002	6.7			#	0.05	

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

REPORT DATE: 5/23/2008

Location: 1215 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sulfate	mg/L	03/06/2008	N001	20000			#	100	
Sulfate	mg/L	03/06/2008	N002	19000			#	100	
Temperature	C	03/06/2008	N001	8.52			#		
Uranium	mg/L	03/06/2008	N001	1.7			#	0.005	
Uranium	mg/L	03/06/2008	N002	1.7			#	0.005	

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.

Equipment Blank Data

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BLANKS REPORT
LAB: PARAGON (Fort Collins, CO)
RIN: 08021395
Report Date: 5/23/2008

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Ammonia (NH3) Un-ionized as N	SHP02	0999	03/06/2008	N001	mg/L	0.1	U		0.1		E
Calcium	SHP02	0999	03/06/2008	N001	mg/L	0.22	B		1		E
Chloride	SHP02	0999	03/06/2008	N001	mg/L	0.2	U		0.2		E
Magnesium	SHP02	0999	03/06/2008	N001	mg/L	0.25	B		1		E
Manganese	SHP02	0999	03/06/2008	N001	mg/L	0.0013	B		0.00015		E
Nitrate + Nitrite as Nitrogen	SHP02	0999	03/06/2008	N001	mg/L	0.01	U		0.01		E
Potassium	SHP02	0999	03/06/2008	N001	mg/L	0.24	B	U	1		E
Selenium	SHP02	0999	03/06/2008	N001	mg/L	0.000043	B		0.000019		E
Sodium	SHP02	0999	03/06/2008	N001	mg/L	0.63	B	U	1		E
Strontium	SHP02	0999	03/06/2008	N001	mg/L	0.00094	B	U	0.01		E
Sulfate	SHP02	0999	03/06/2008	N001	mg/L	0.78			0.5		E
Uranium	SHP02	0999	03/06/2008	N001	mg/L	0.000082	B	U	0.0001		E

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

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

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

DATA QUALIFIERS:

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

SAMPLE TYPES:

E	Equipment Blank.

Static Water Level Data
Floodplain Locations

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Location Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0608	4893.35	03/06/2008		5.19	4888.16	
0614	4892.79	03/06/2008		7.04	4885.75	
0615	4892.23	03/06/2008		7.58	4884.65	
0618	4891.51	03/06/2008		6.5	4885.01	
0619	4892.19	03/06/2008		7.09	4885.1	
0734	4886.55	03/05/2008		4.3	4882.25	
0735	4895.85	03/05/2008		4.48	4891.37	
0736	4887.99	03/06/2008		6.15	4881.84	
0797	4908.04	03/04/2008		8.45	4899.59	
0850	4907.51	03/04/2008		7.8	4899.71	
0862	4893.83	03/06/2008	14:43:00	92.58	4801.25	
0863	4893	03/06/2008	14:44:00	88.3	4804.7	
1000	4892.17	03/06/2008	14:37:00	7.01	4885.16	
1001	4892.44	03/06/2008	14:38:00	8.54	4883.9	
1062	4892.51	03/06/2008	14:41:00	7.73	4884.78	
1105	NA	03/06/2008		7.56	NA	
1111	4889.85	03/06/2008		6.81	4883.04	
1112	4890.01	03/06/2008		6.68	4883.33	
1113	4892	03/06/2008		4.45	4887.55	
1114	4892.86	03/05/2008		4.55	4888.31	
1115	4895.59	03/05/2008		8.07	4887.52	
1116	4898.84	03/05/2008		11	4887.84	
1117	4896.7	03/05/2008		8.49	4888.21	

NA: Not Available

WATER LEVEL FLAGS: D Dry F FLOWING

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Static Water Level Data
Terrace Locations

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Location Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0730	4977.75	03/04/2008		36.23	4941.52	
0817	4957.34	03/05/2008		19.39	4937.95	
0830	4960.77	03/05/2008		17.85	4942.92	
0835	4930.48	03/03/2008		20.92	4909.56	
0836	4901.74	03/03/2008		25.95	4875.79	
0838	4937.7	03/04/2008		28.16	4909.54	
0841	4984.05	03/04/2008		45.77	4938.28	
0846	4934.57	03/04/2008	17:44:00	26.6	4907.97	
1057	4984.83	03/05/2008		39.29	4945.54	
1060	4970.62	03/05/2008	10:45:00	38.47	4932.15	
1067	4930.77	03/06/2008	15:09:00			D
1068	4927.97	03/06/2008	15:01:00	7.49	4920.48	
1069	4922.62	03/06/2008	15:03:00	4.74	4917.88	
1079	4925.22	03/04/2008		17.3	4907.92	

WATER LEVEL FLAGS: D Dry F FLOWING

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Time-Concentration Graphs
Floodplain Locations

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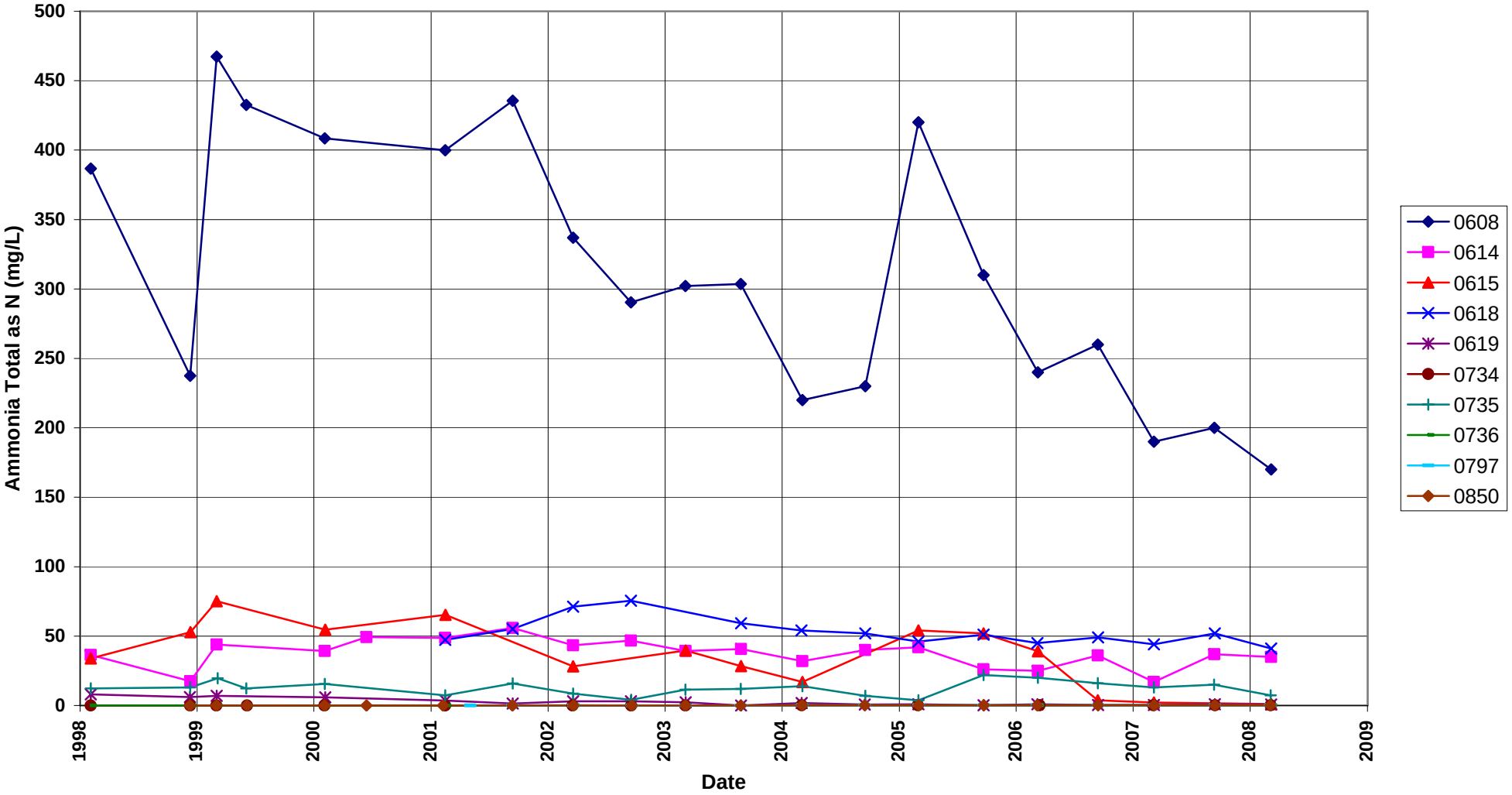
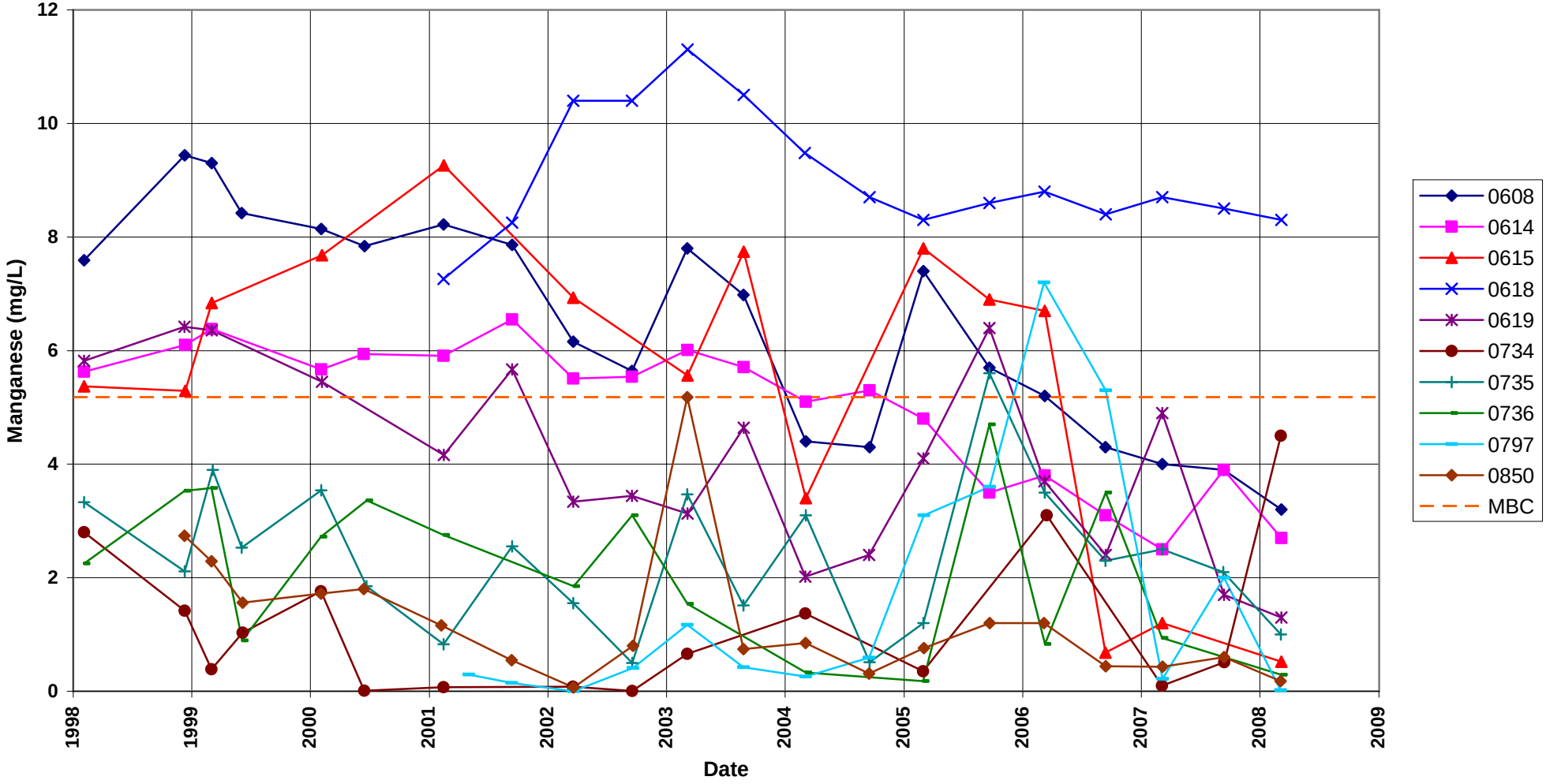
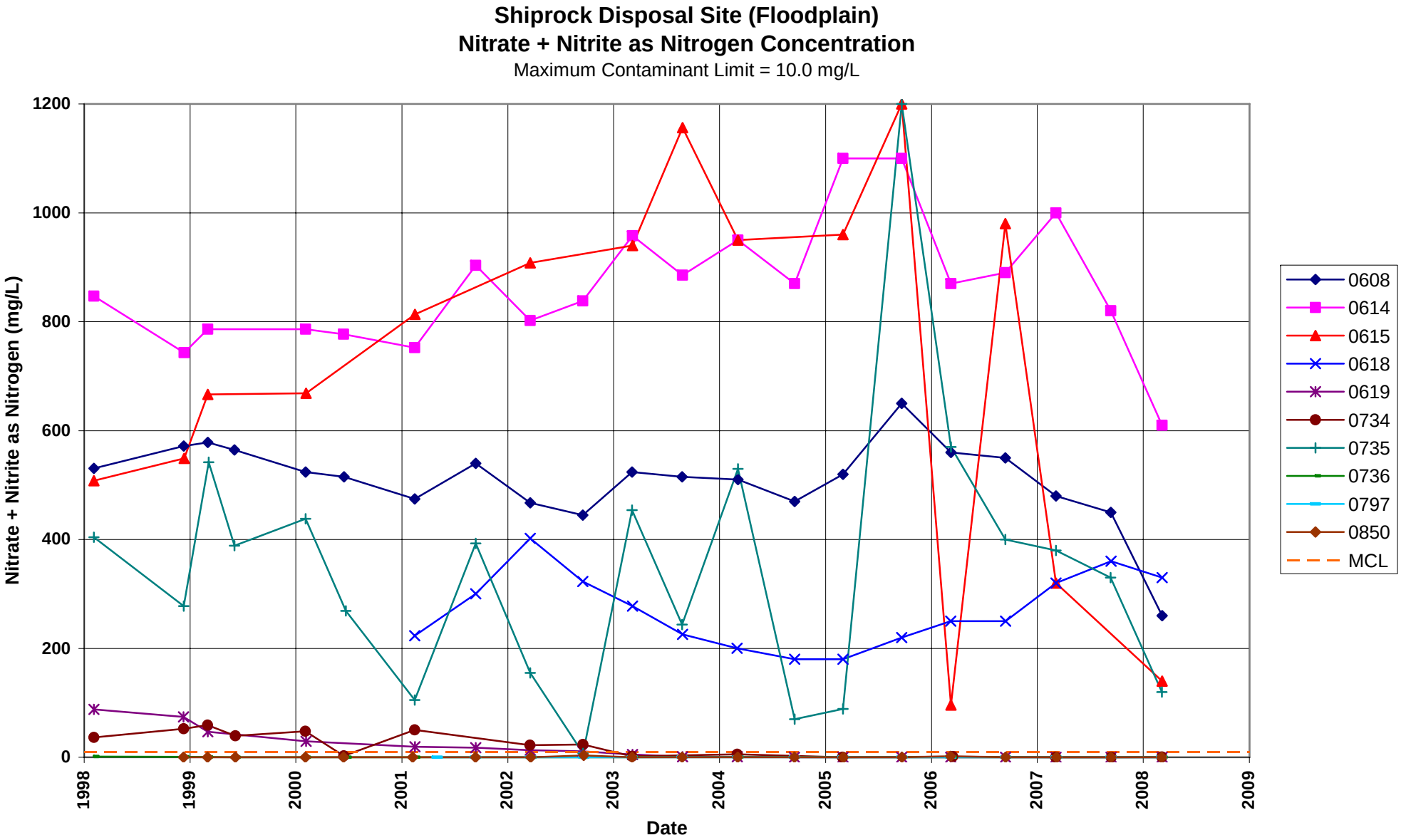
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration

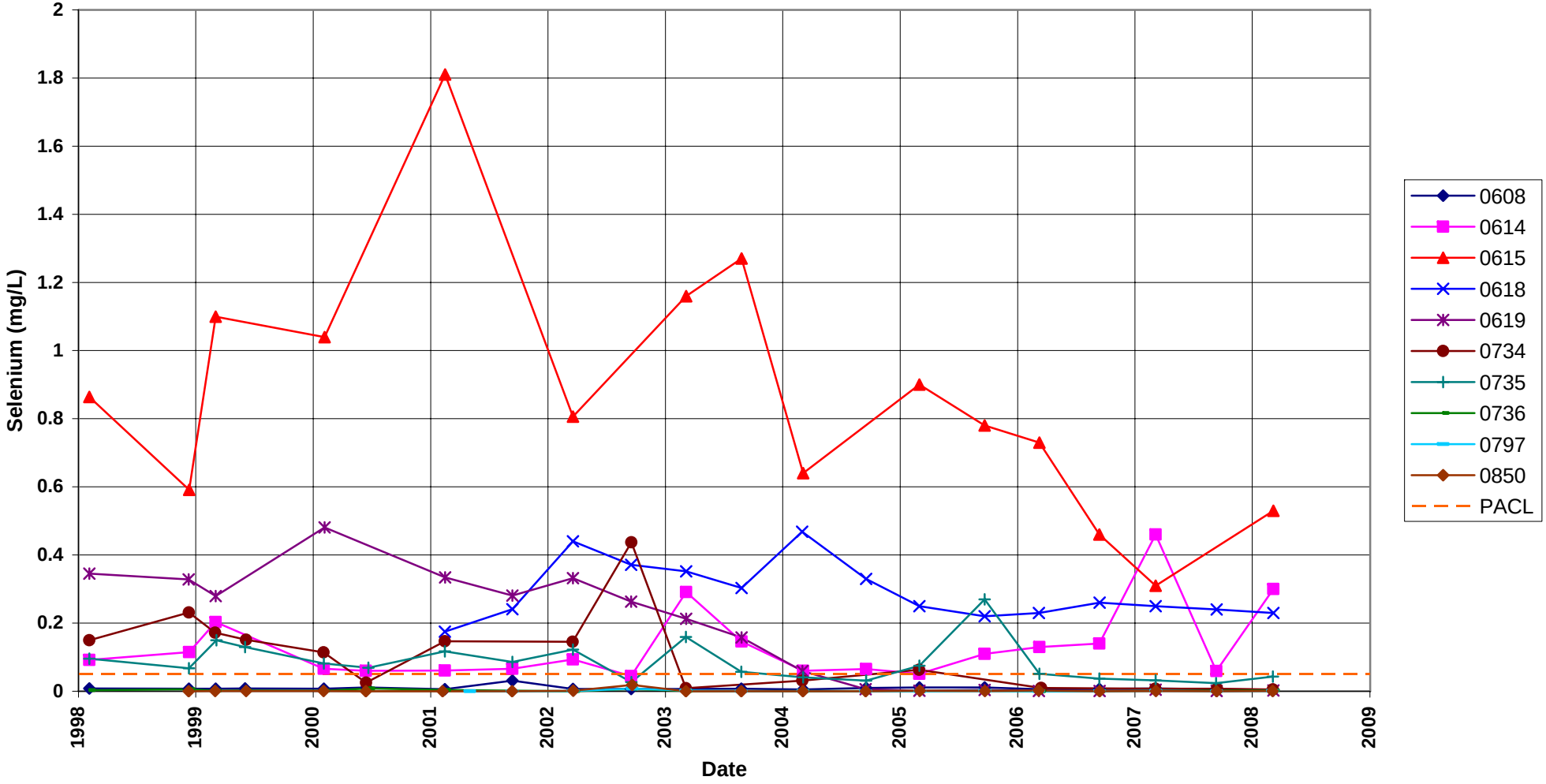


Shiprock Disposal Site (Floodplain)
Manganese Concentration
Maximum Background Concentration = 5.18 mg/L

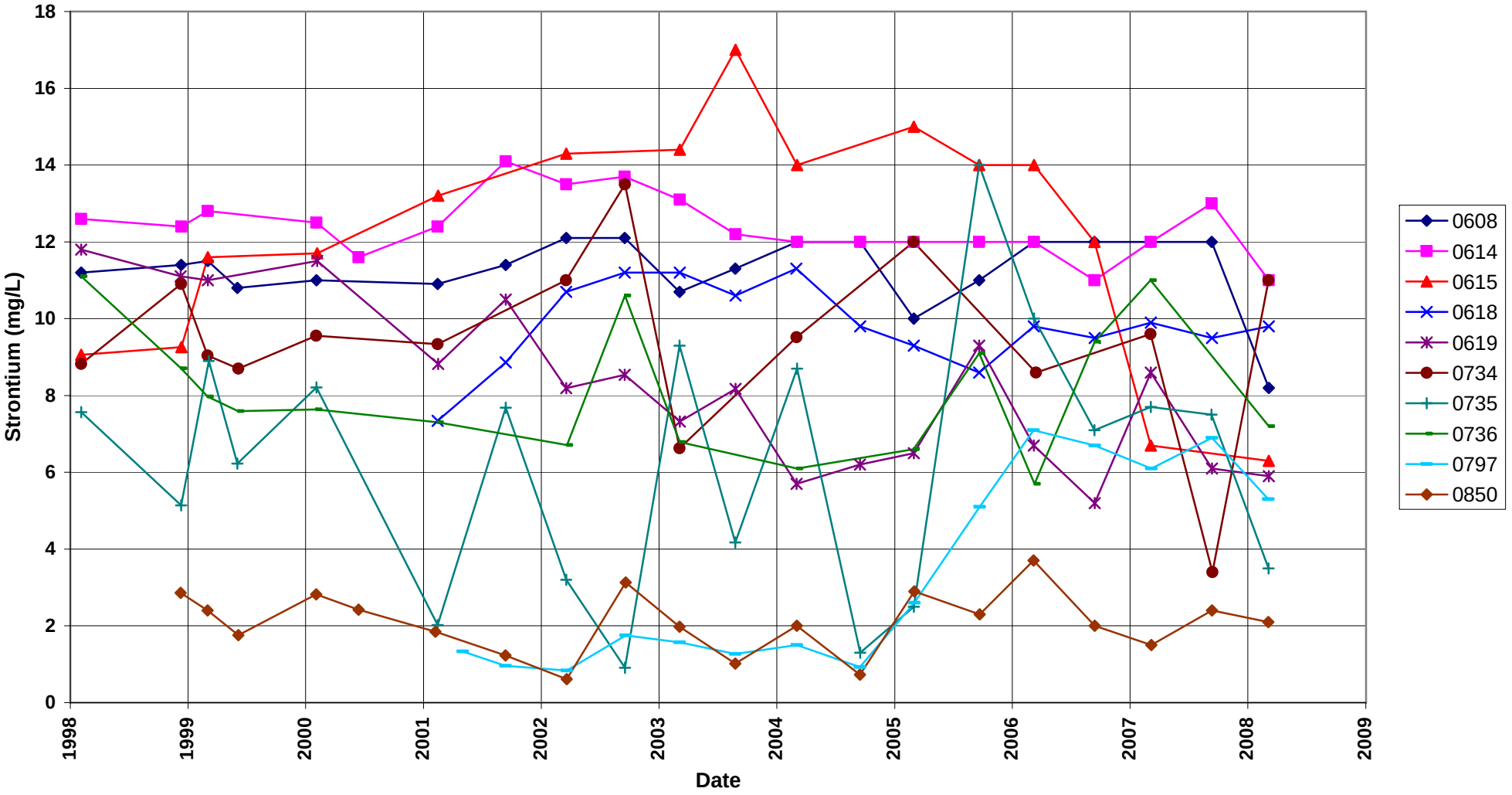



Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Limit = 10.0 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
1200
1000
800
600
400
200
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0608
0614
0615
0618
0619
0734
0735
0736
0797
0850
MCL

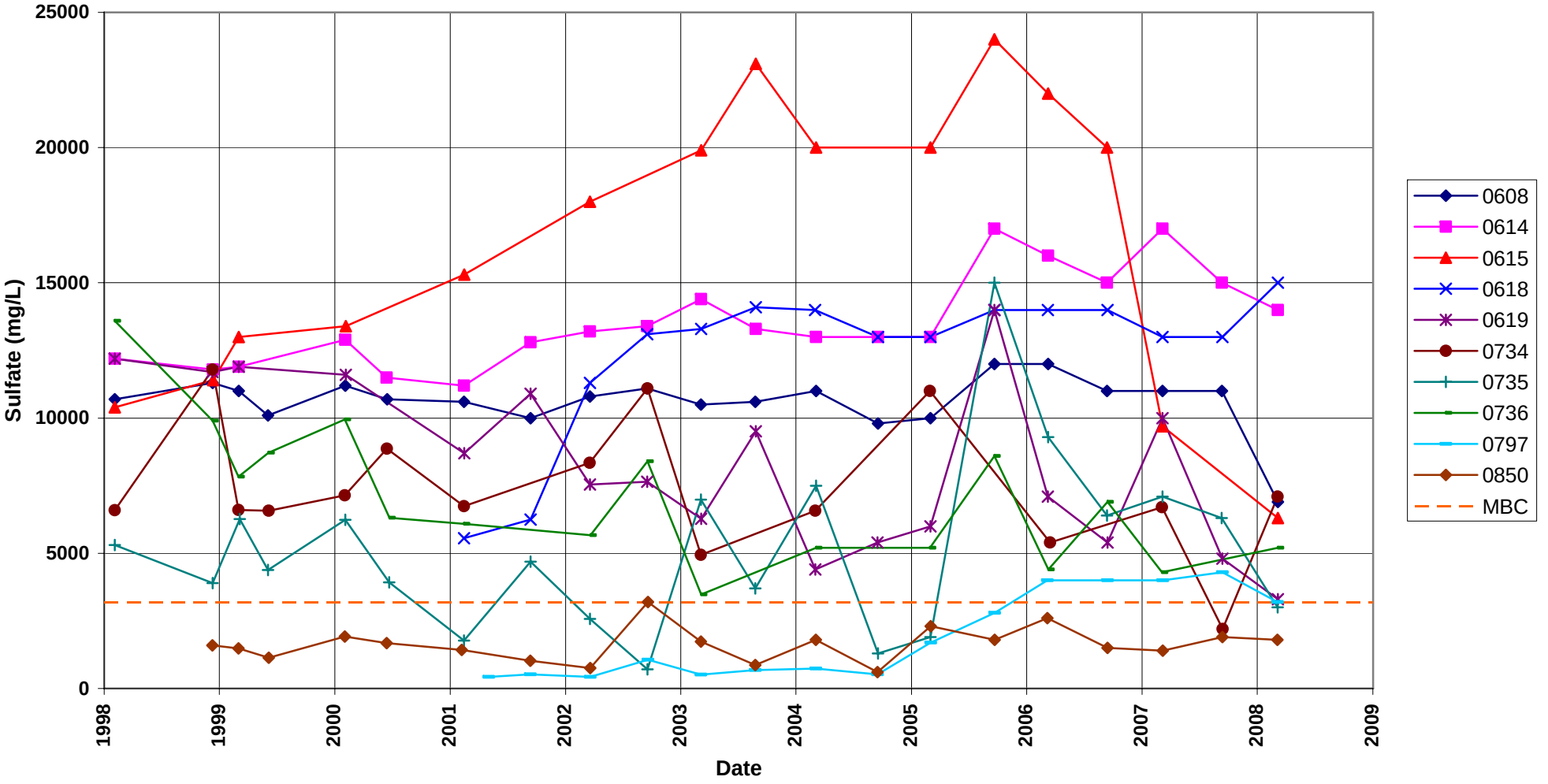
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Proposed Alternate Contaminant Limit = 0.05 mg/L



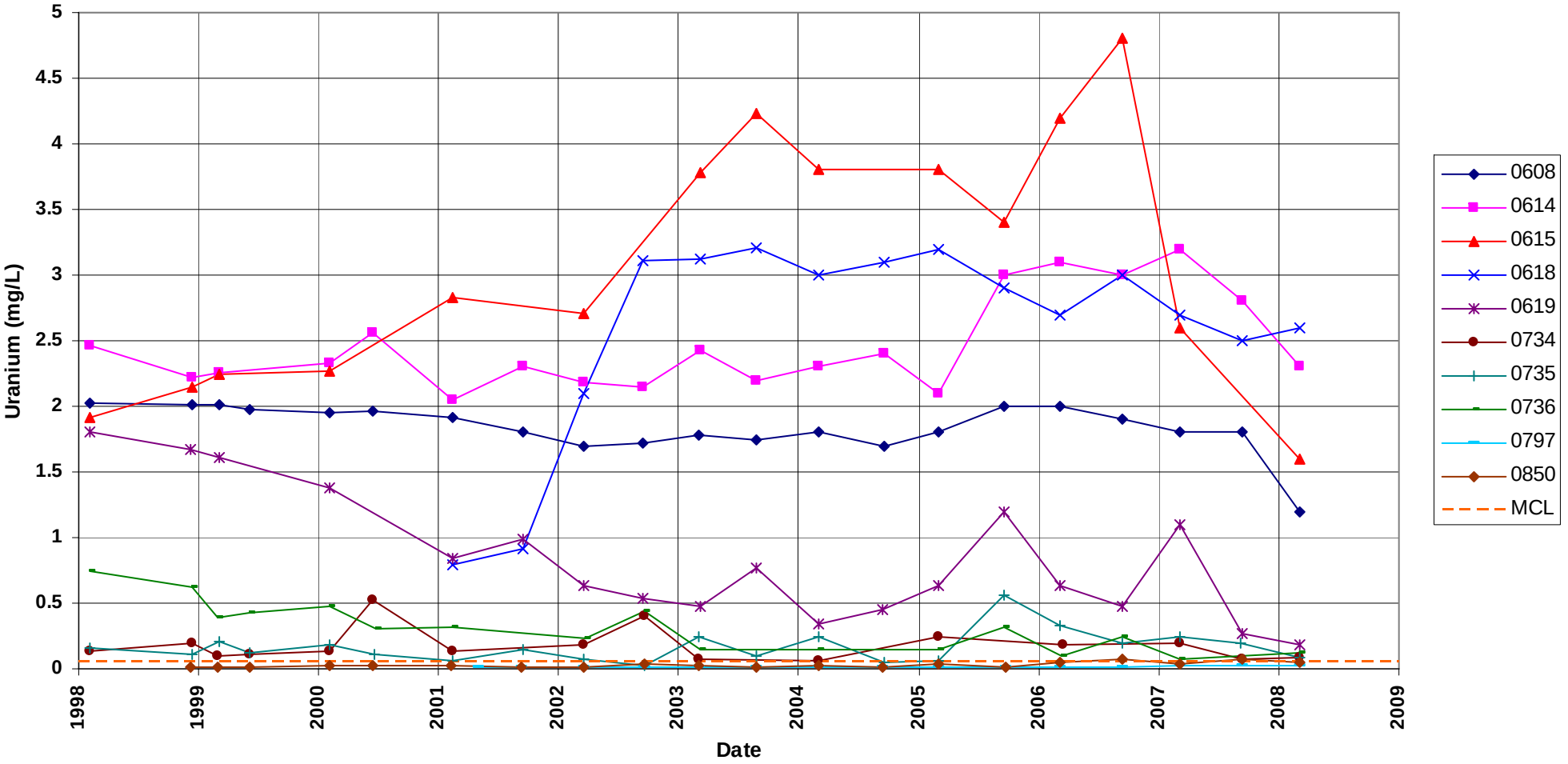
Shiprock Disposal Site (Floodplain)
Strontium Concentration



Shiprock Disposal Site (Floodplain)
Sulfate Concentration
Maximum Background Concentration = 3200 mg/L



Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum contaminant Limit = 0.044 mg/L



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Time-Concentration Graphs
Terrace Locations

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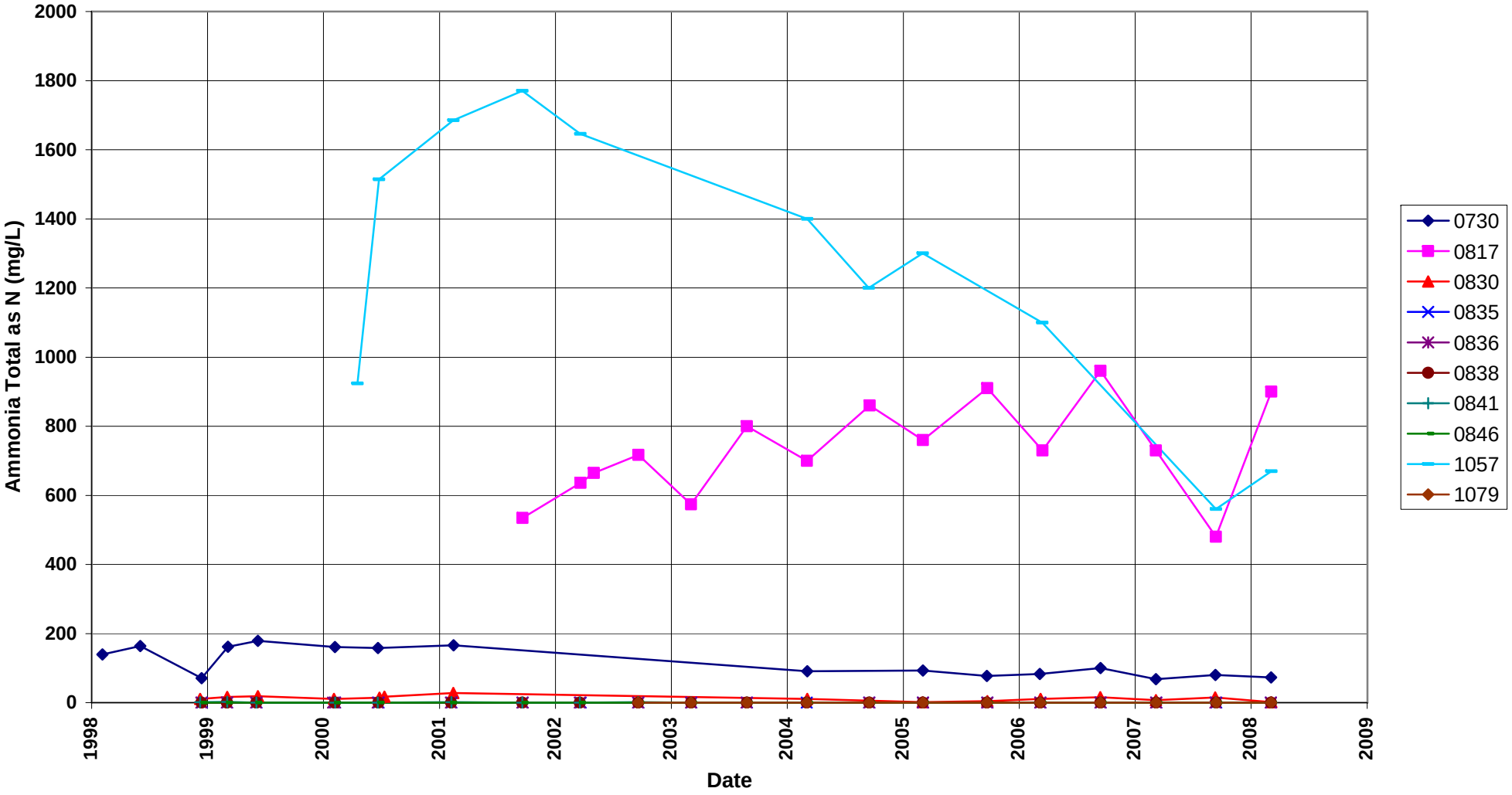
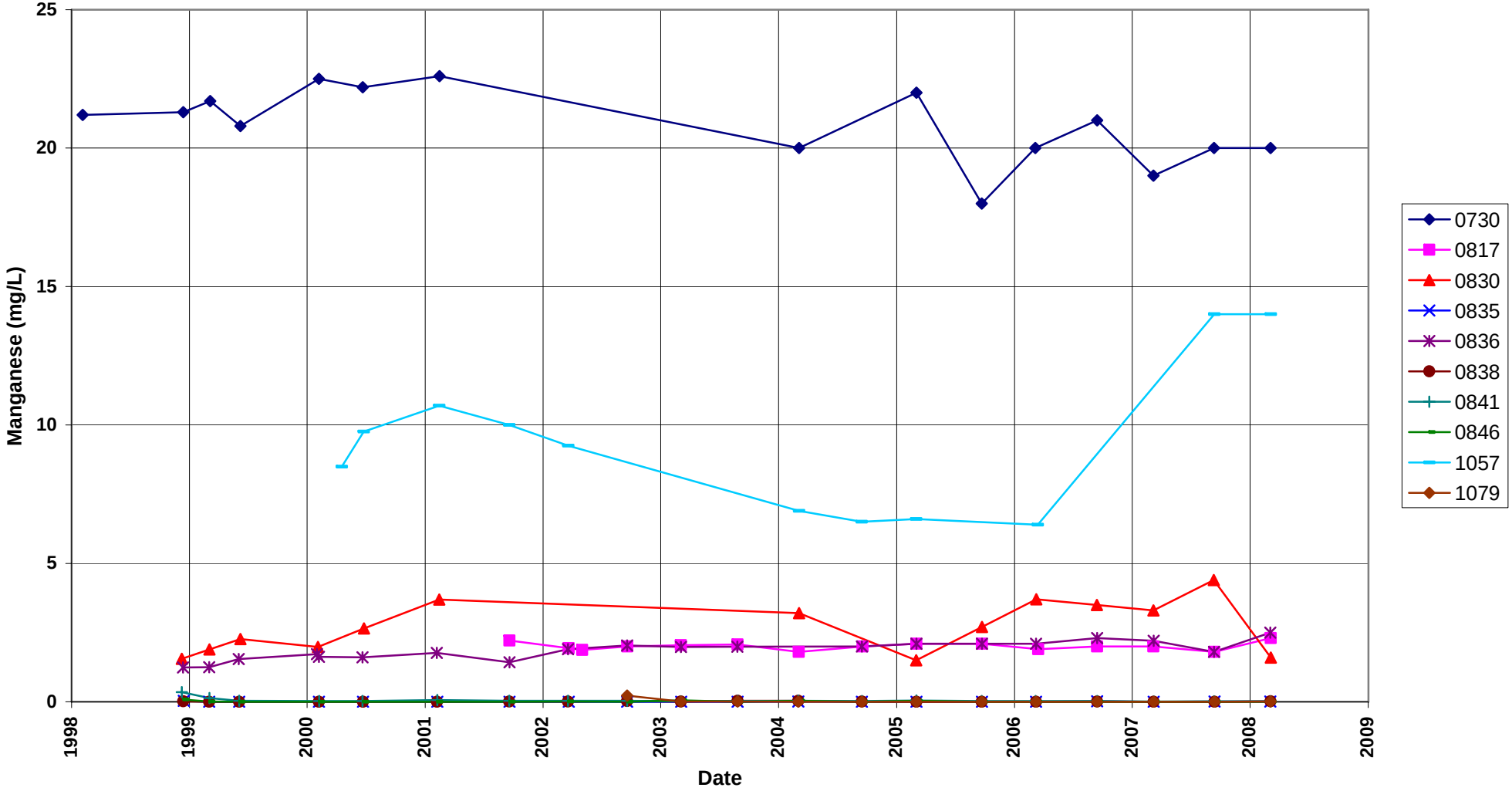
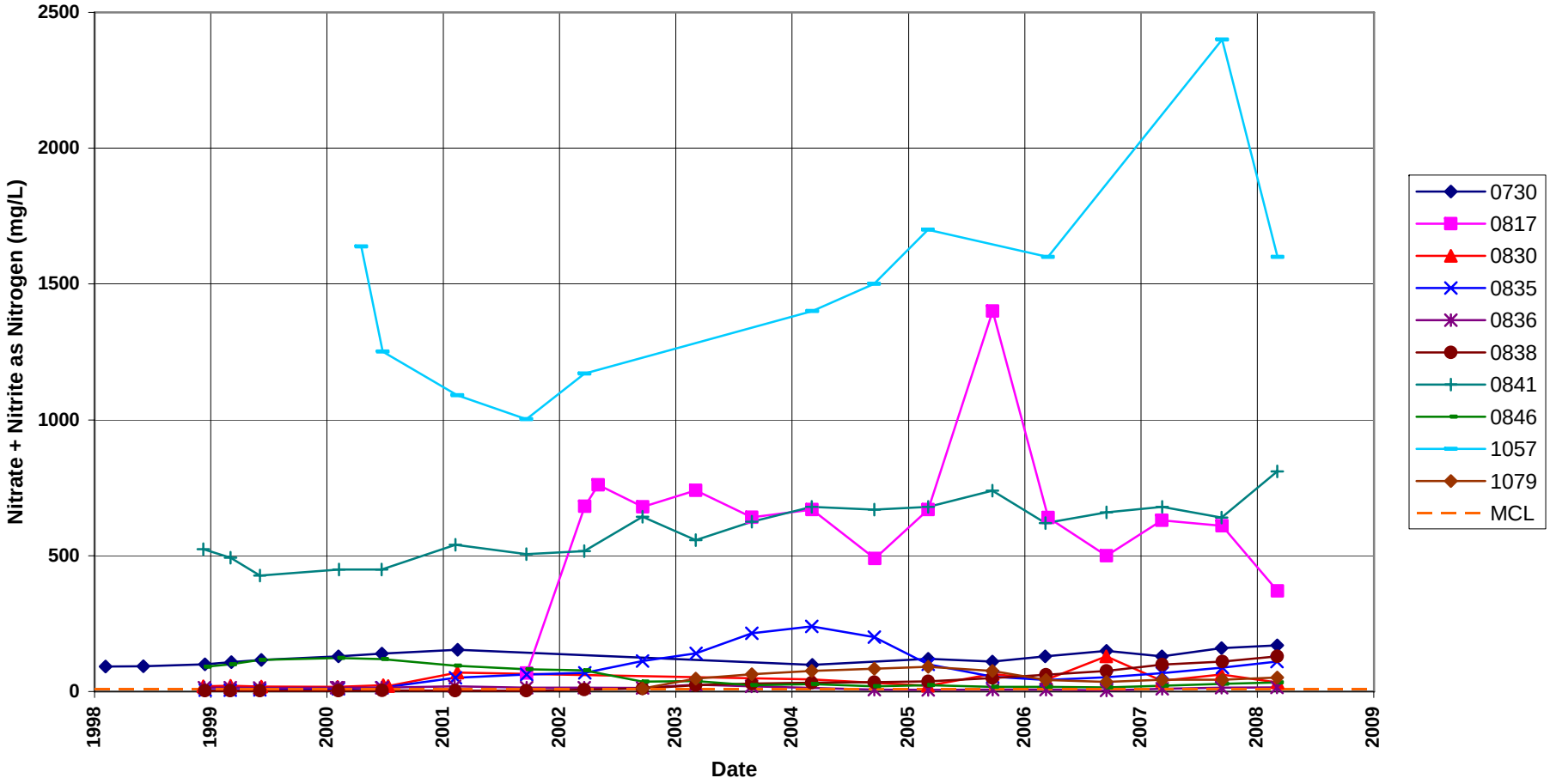
Shiprock Disposal Site (Terrace)
Ammonia Total as N Concentration



Shiprock Disposal Site (Terrace)
Manganese Concentration

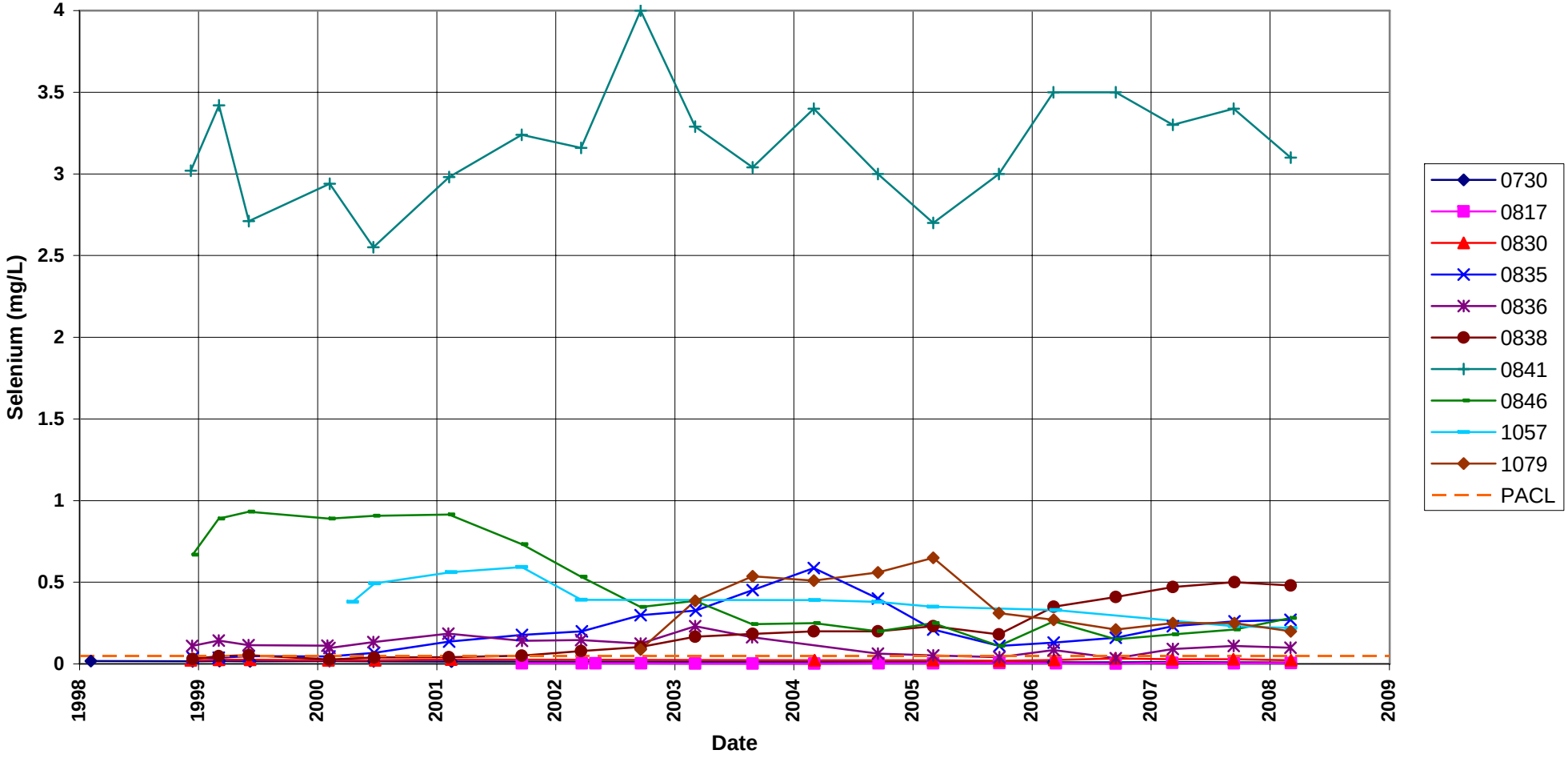


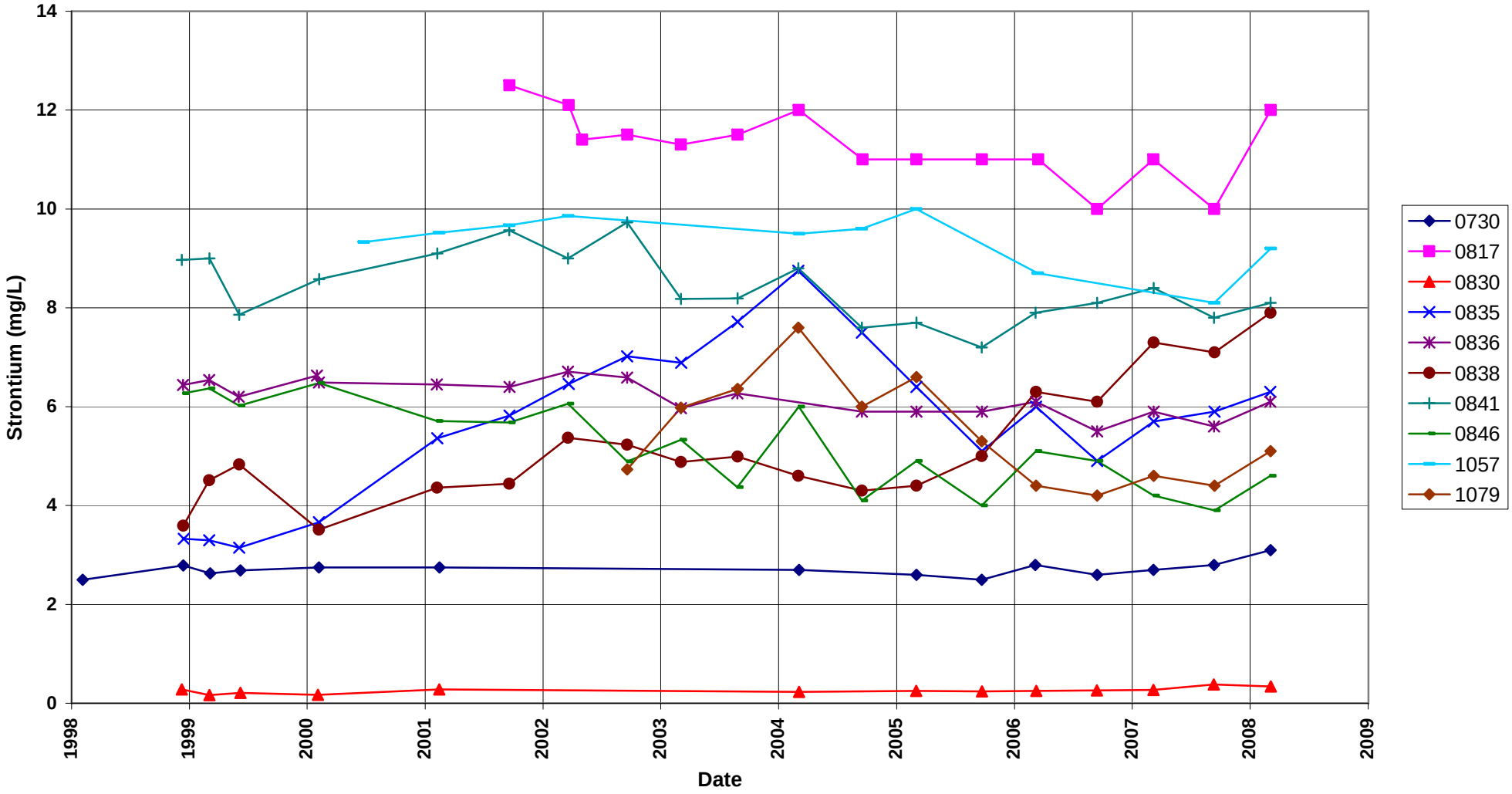
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Limit = 10.0 mg/L



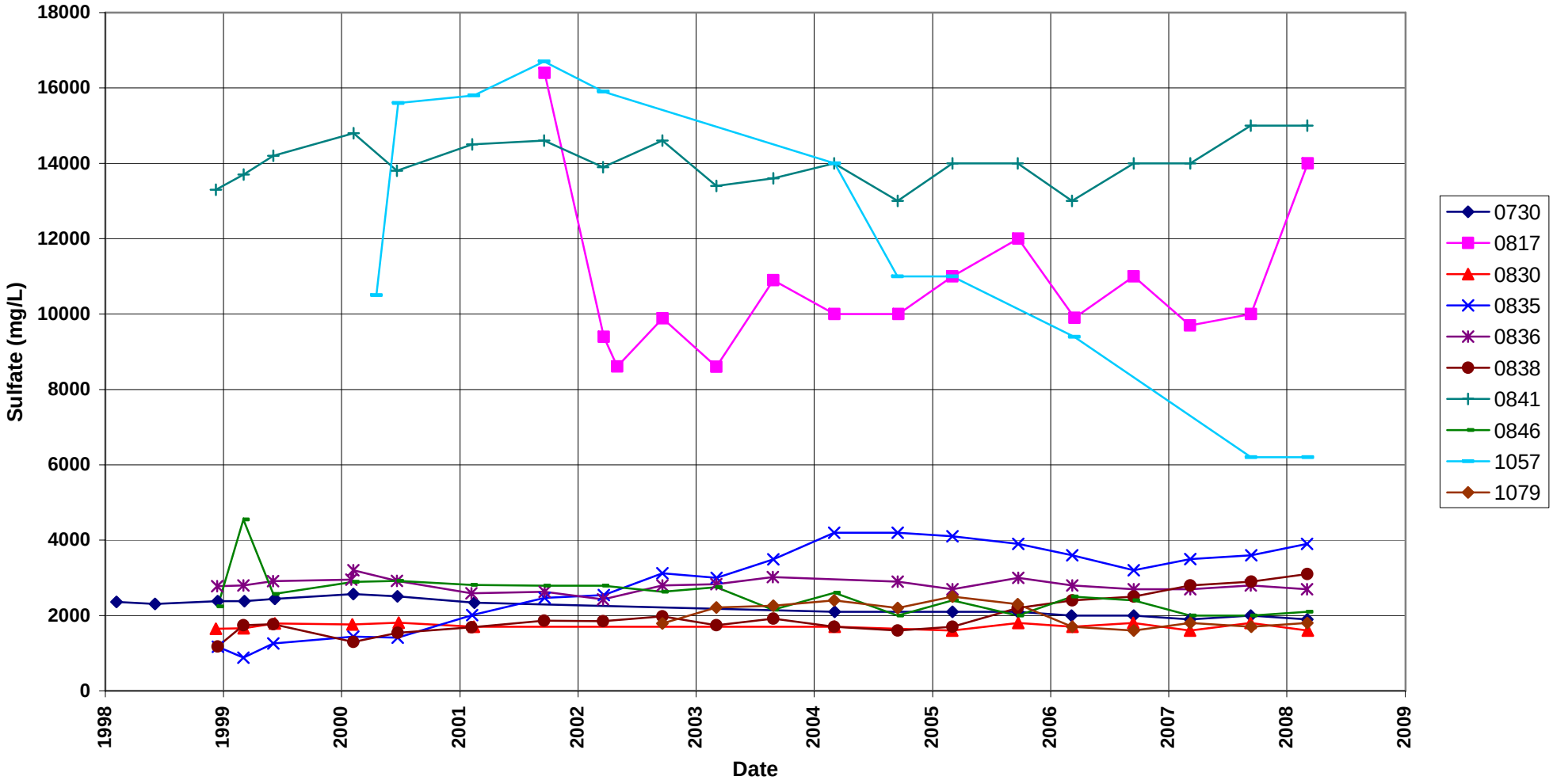
Shiprock Disposal Site (Terrace)
Selenium Concentration

Proposed Alternate Concentration Limit = 0.05 mg/L

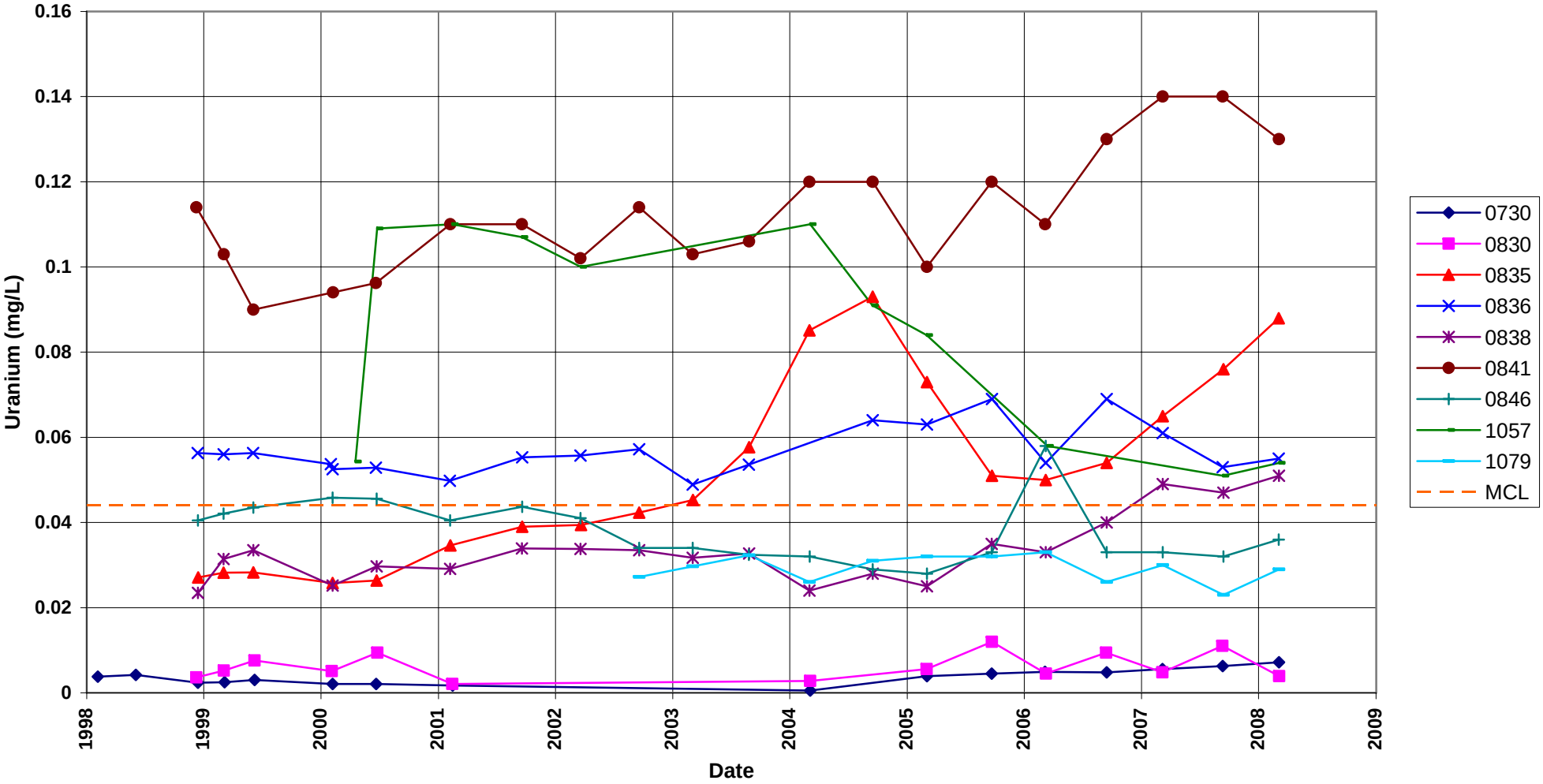



Shiprock Disposal Site (Terrace)
Strontium Concentration
Strontium (mg/L)
Date
0
2
4
6
8
10
12
14
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
0730
0817
0830
0835
0836
0838
0841
0846
1057
1079

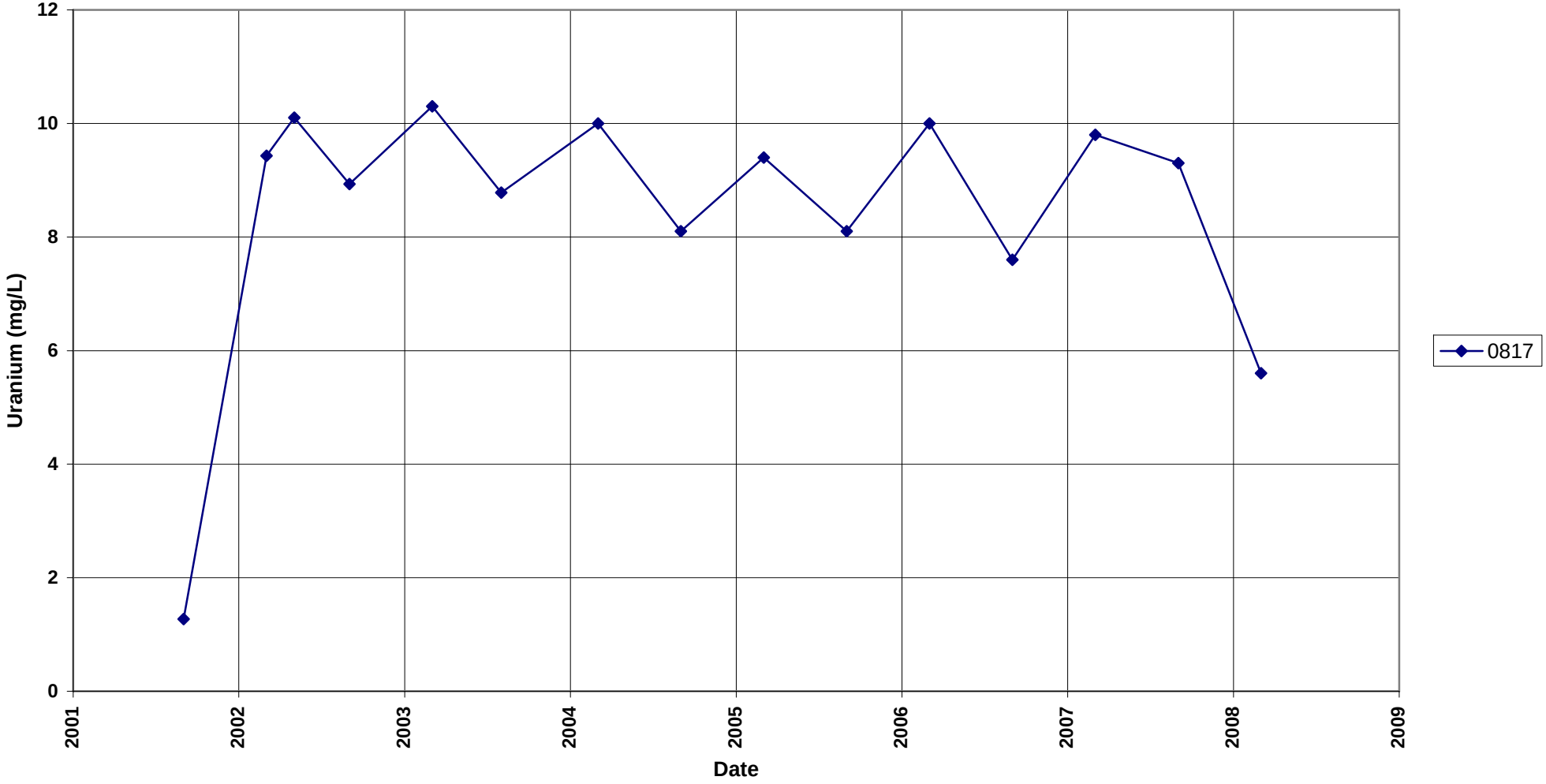
Shiprock Disposal Site (Terrace)
Sulfate Concentration



Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Limit = 0.044 mg/L



Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Limit = 0.044 mg/L



Attachment 3
Sampling and Analysis Work Order

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Stoller

established 1959

Task Order ST08-01-1-1-119
Control Number 1000-T08-0341

January 31, 2008

Tracy Ribeiro
Site Manager
U.S. Department of Energy
Grand Junction Office
2597 B ¾ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AC01-02GJ79491, Stoller
March 2008 Environmental Sampling at Shiprock, New Mexico

Reference: FY 2008 LM Task Order No. ST08-01-1-1-119

Dear Ms. Ribeiro:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, New Mexico. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring. Water quality data will be collected from monitor wells and surface locations at this site as part of the routine environmental sampling scheduled to begin the week of March 3, 2008.

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

Monitor Wells

SHP01

608 Km	619 Al	736 Al	1089 Al	1109 Nr	1112 Nr	1115 Nr
614 Al	734 Al	797 Al	1104 Nr	1110 Nr	1113 Nr	1116 Nr
615 Al	735 Al	850 Al	1105 Nr	1111 Nr	1114 Nr	1117 Nr
618 Al						

SHP02

730 Al	832 Al	839 Al	1060 Al	1078 Al/Km	1088 Nr	1093 Al
817 Km	835 Al	841 Al	1070 Al/Km	1079 Al	1091 Al	1095 Nr
818 Al	836 Al	846 Al	1071 Al/Km	1087 Nr	1092 Al	1096 Nr
830 Km	838 Al	1057 Al/Km				

*NOTE: Al = Alluvium; Km = Mancos Shale; Nr = No recovery of data for classifying

Surface Water (filtered)

SHP01

501	897	937	939	956	965	1203
655	898	938	940	959	1118	1205
887						

SHP02

662	884	889	933	934	936	942
786	885					

Water levels will be collected from additional (non-sampled) wells as shown in the attachment. All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management*. Access agreements are covered under the cooperative agreement.

If you have any questions, please call me at extension 6588 or Dave Miller at extension 6652.

Sincerely,

Clay Carpenter
Project Manager

CC/lcg/at
Enclosures (3)

cc: S. E. Donivan, Stoller (e)
L. C. Goodknight, Stoller (e)
D. E. Miller, Stoller (e)
EDD Delivery (e)

cc w/o enclosures:
Correspondence Control File (Thru C. Weston)

Constituent Sampling Breakdown

Site	Shiprock	
Analyte	**Ground Water**	**Surface Water**
Approx. No. Samples/yr	92	24
Field Measurements		
Alkalinity	X	X
Dissolved Oxygen	X	
Redox Potential	X	X
pH	X	X
Specific Conductance	X	X
Turbidity	X	
Temperature	X	X
Laboratory Measurements		
Aluminum		
Ammonia as N (NH3-N)	X	X
Antimony		
Arsenic		
Cadmium		
Calcium	X	X
Chloride	X	X
Chromium		
Cobalt		
Copper		
Fluoride		
Gamma Spec		
Gross Alpha		
Gross Beta		
Iron		
Lead		
Lead-210		
Magnesium	X	X
Manganese	X	X
Mercury		
Molybdenum		
Nickel		
Nickel-63		
Nitrate + Nitrite as N (NO3+NO2)-N	X	X
Organics		
Potassium	X	X
Radium-226		
Radium-228		
Radon-222		
Selenium	X	X
Silica		
Sodium	X	X
Strontium	X	X

Analyte	Ground Water	Surface Water
Sulfate	X	X
Sulfide		
Thallium		
Total Dissolved Solids	X	
Uranium	X	X
Uranium-234, -238		
Zinc		
Total Analytes	13	12

Note: All analyte samples are unfiltered unless turbidity is >10 NTUs. 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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Stoller established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: March 25, 2008

TO: David Miller

FROM: Sam E. Campbell

SUBJECT: Trip Report

Site: Shiprock, New Mexico, site.

Dates of Sampling Event: March 3 to March 7, 2008.

Team Members: Sam Campbell, Heidi Frasure, Chaz Gunning, and David Miller.

Number of Locations Sampled: 28 monitor wells, 15 extraction wells, and 18 surface water locations.

Locations Not Sampled/Reason: Surface water locations 0885, 0932, 0933, 0934, 0936, and 0942 were dry. Surface water location 0884 was not sampled because a manhole was overflowing sewage into the wash. Surface water location 0786 was not accessible because of high flow in the San Juan River. Monitor wells 0832 and 1060 were dry, and monitor well 0839 was buried under new gravel placed at the fairgrounds.

Location Specific Information: Monitor well 0730 was purged and sampled using Category III criteria; all other monitor wells were purged and sampled using Category I criteria

Samples collected from groundwater/surface water locations where the measured turbidity was less than 10 NTUs were not filtered, and all extraction well samples collected unfiltered. Location 0655 was not filtered per site lead.

A bailer was used to collect the sample from well 1070.

Alkalinity was not measured at surface location 0939; turbidity could not be achieved at well 0850 and the TDS sample was inadvertently missed.

The water level was collected from the top of the metal protective outer casing at well 0734.

A sample was collected from the evaporation pond (location 1215) per Site Lead direction.

Field Variance: The turbidity criterion was not met at well 0850, which needs redevelopment.

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

False ID	True ID	Sample Type	Ticket Number
2604	0841	Duplicate	NFD-676
2605	1057	Duplicate	NFD-689
2573	1215	Duplicate	NFD-698
2574	Equipment Blank	Equipment Blank	NFD-699

Requisition Numbers Assigned: All samples were assigned to report identification number (RIN) 08021395.

Water Level Measurements: Water levels were measured at all sampled monitor wells and 32 additional monitor wells. Data loggers were downloaded the week of March 17.

Well Inspection Summary: Monitor well 0828 still had casing approximately 10 feet above ground surface. Several monitor wells had missing/faded well IDs and were relabeled. All other wells were in good condition.

Equipment: One of the peristaltic pumps stopped functioning when using the internal battery; the pump was operated using external DC input.

The dedicated pump was pulled from monitor well 1060 because the well has been consistently dry over numerous sampling events.

Site Visitors: Joe Desormeau observed sampling activities during the week; no observations were noted.

Institutional Controls

Fences, Gates, Locks: No issues identified.
Signs: No missing/damaged signs were noted.
Trespassing/Site Disturbances: None

Site Issues: None

Disposal Cell/Drainage Structure Integrity: No issues identified.
Vegetation/Noxious Weed Concerns: No issues identified.
Maintenance Requirements: None.

Access Issues: None

Corrective Action Required/Taken: Monitor well 0839 needs to be located and gravel removed from the top of the well. Monitor well 0850 needs to be redeveloped. The peristaltic pump that malfunctioned needs to be repaired.

(SEC/lcg)

cc: J. Desormeau, DOE (e)
S. E. Donivan, Stoller (e)
EDD Delivery (e)