Data Validation Package

December 2010
Groundwater and Surface Water Sampling at the Monument Valley, Arizona, Processing Site

March 2011

U.S. DEPARTMENT OF ENERGY | Legacy Management

This page intentionally left blank

Contents

This page intentionally left blank

Sampling Event Summary

Site: Monument Valley, Arizona, Processing Site

Sampling Period: December 13–21, 2010

Forty-six groundwater samples and one surface water sample were collected at the Monument Valley, Arizona, Processing Site to monitor groundwater contaminants as specified in the 1999 *Final Site Observational Work Plan for the UMTRA Project Site at Monument Valley, Arizona*. Sampling and analysis were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated). Water levels were measured at each sampled well. Duplicate samples were collected from locations 0619, 0662, and 0772.

Time-concentration plots for ammonia as nitrogen, chloride, nitrate + nitrite as nitrogen, sulfate, uranium, and vanadium are included with the results data. The data from this sampling event are consistent with values previously obtained.

- Widely fluctuating uranium concentrations in wells 0657 and 0662 have been previously noted and this trend continues with the data from this sampling event. To better define the uranium concentration in this area, new wells (0733, 0734, 0735) were installed. The uranium concentration in well 0733 was below the standard, but above in wells 0734 and 0735.
- Nitrate + nitrite as nitrogen concentrations in wells 0662, 0761, 0762, 0764, and 0771 had been increasing through 2008, which was consistent with downgradient movement of the contaminant plume. Results from this event, however, demonstrate that nitrate + nitrite as nitrogen concentrations are leveling off or decreasing in these wells. New wells (0738, 0739, 0740) were installed to better define the downgradient edge of the nitrate + nitrite as N plume. The concentration in wells 0738 and 0739 was below the standard, but slightly above the standard in well 0740 on the west side of the valley.
- A de-nitrification treatment of well 0765 in September 2009 by the University of Arizona has decreased concentrations for most analytes at this location and in nearby well 0766, most notably nitrate + nitrite as nitrogen and sulfate.

Wells with analyte concentrations that exceeded U.S. Environmental Protection Agency groundwater standards are listed in Table 1.

The Navajo Nation's proposed cleanup standard for sulfate is 250 milligrams per liter (mg/L). The ratios of sulfate-to-chloride concentrations vary depending on whether the source is related to past millsite activities or if it occurs naturally. Tailings fluids were enriched in nitrate and sulfate but had relatively low chloride concentrations. A sulfate-to-chloride ratio greater than 10 is a good indication of groundwater contamination resulting from milling activities. The proposed sulfate treatment goal for Monument Valley will incorporate both criteria. The treatment goal will be achieved when the sulfate concentration is less than 250 mg/L *or* the sulfate-to-chloride ratio is less than 10. Table 2 lists sulfate concentrations and sulfate-to-chloride ratios.

Table 1. Monument Valley Locations That Exceed Standards

Analyte	Standard[a] (mg/L)	Site Code	Location	Concentration (mg/L)
Nitrate + Nitrite as Nitrogen	10	MON01	0606	209
			0648	66
			0653	42
			0655	146
			0656	16
			0662	15
			0669	20
			0740	16
			0741	101
			0742	111
			0744	124
			0761	29
			0762	96
			0764	40
			0766	54
			0770	15
			0771	166
Uranium	0.044	MON01	0662	0.250
			0734	0.137
			0735	0.186

[a] Standards are listed in 40 CFR 192.02 Table 1 to Subpart A.

Table 2. Sulfate Results

Location	Sulfate Concentration (mg/L)	Sulfate/Chloride	Treatment Goal Achieved?
0402	14.3	1	Yes
0602	102	8	Yes
0603	100	9	Yes
0604	101	10	Yes
0605	147	7	Yes
0606	391	13	No
0618	13.7	5	Yes
0619	36.8	9	Yes
0623	41.2	4	Yes
0648	824	39	No
0650	156	12	Yes
0651	107	9	Yes
0652	62.3	4	Yes
0653	995	44	No
0655	1070	55	No
0656	151	11	Yes
0657	34.1	6	Yes
0662	228	12	Yes
0669	116	14	Yes
0711	123	9	Yes
0715	64.5	7	Yes
0719	119	9	Yes
0727	82.9	8	Yes

Table 2 (continued). Sulfate Results

Location	Sulfate Concentration (mg/L)	Sulfate/Chloride	Treatment Goal Achieved?
0733	56.4	12	Yes
0734	107	20	Yes
0735	205	94	Yes
0738	180	12	Yes
0739	212	11	Yes
0740	973	25	No
0741	533	37	No
0742	532	35	No
0743	325	23	No
0744	449	32	No
0760	81.4	10	Yes
0761	397	33	No
0762	1470	24	No
0764	293	28	No
0765	29.6	2	Yes
0766	542	32	No
0767	32.6	7	Yes
0768	58.6	6	Yes
0770	188	13	Yes
0771	1290	72	No
0772	124	8	Yes
0774	38.4	9	Yes
0775	25.0	5	Yes
0776	34.2	7	Yes

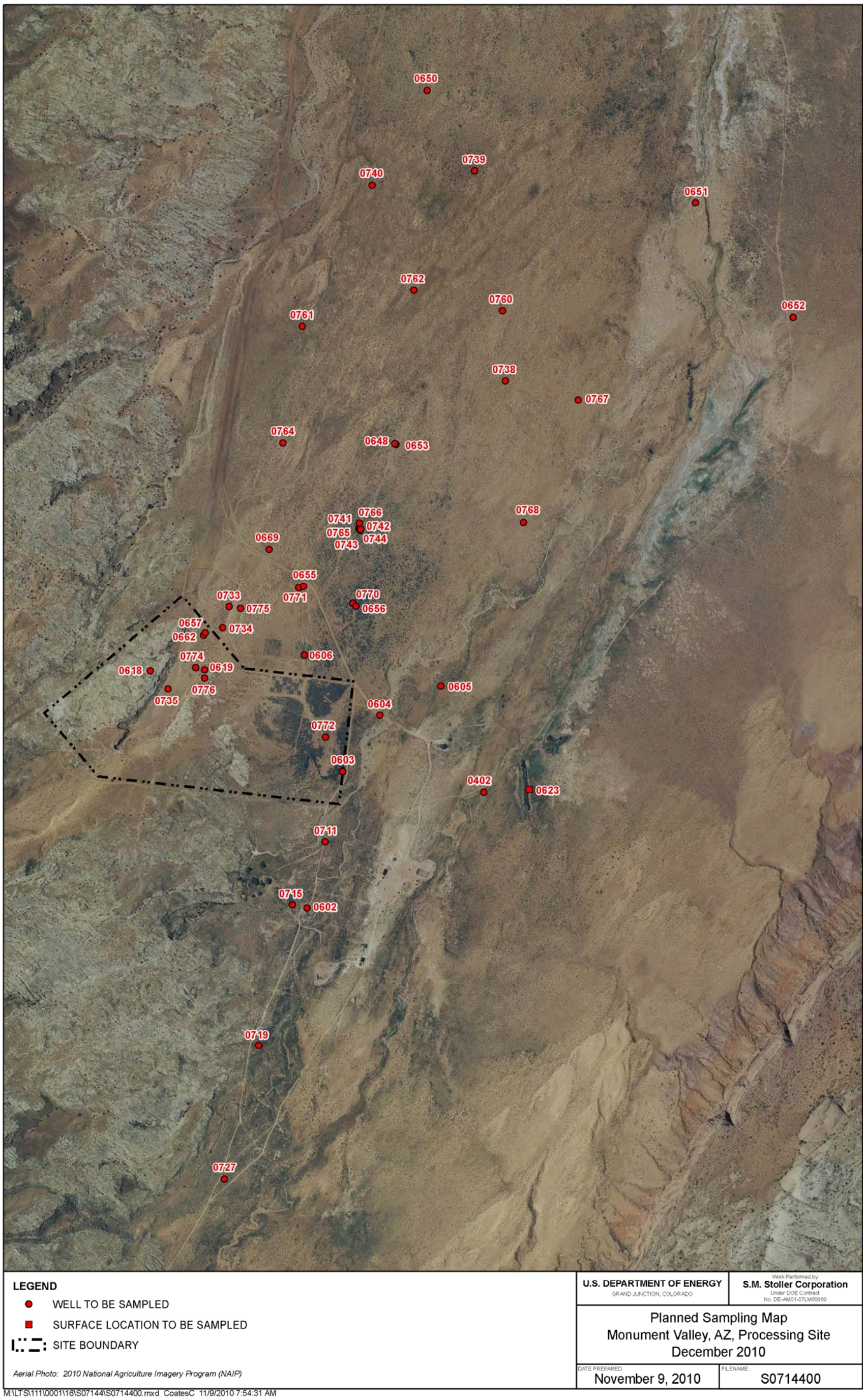
D Miller

David Miller
Site Lead, S.M. Stoller Corporation

3/18/11

Date

This page intentionally left blank



Monument Valley, Arizona, Processing Site Sample Locations

This page intentionally left blank

Data Assessment Summary

This page intentionally left blank

Water Sampling Field Activities Verification Checklist

Project	Monument Valley, Arizona	**Date(s) of Water Sampling**	December 13-21, 2010
Date(s) of Verification	February 16, 2011	**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 November 9, 2010.
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibrations were performed on December 10, 13, and 17, 2010.
4. Was an operational check of the field equipment conducted daily?	Yes	
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. 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?	No	Well 0669 did not meet the water level stabilization criterion. The data from this well is qualified as a Category II well.
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	The turbidity criterion was not met for 7 wells. Samples from these wells were filtered.
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?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicate samples were collected from wells 0619, 0662, and 0772.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	All samples were collected with dedicated equipment.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location IDs 2079, 2711, and 2856 were used for the duplicate samples.
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	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?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the “Date Signed” fields (FDCS)?	Yes	
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):	10113473
Sample Event:	December 13-21, 2010
Site(s):	Monument Valley, Arizona
Laboratory:	GEL Laboratories Charleston, South Carolina
Work Order No.:	268896
Analysis:	Metals and Wet Chemistry
Validator:	Steve Donivan
Review Date:	February 14, 2011

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/PRO/S04325, continually updated) "Standard Practice for Validation of Laboratory Data." The procedure was applied at Level 3, Data Validation. 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 Nitrogen	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Calcium, Iron, Magnesium, Manganese, Potassium, Sodium	LMM-01	SW-846 3005A	SW-846 6010B
Chloride	MIS-A-045	SW-856 9056	SW-856 9056
Nitrite + Nitrate as Nitrogen	WCH-A-022	MCAWW 353.2	MCAWW 353.2
Sulfate	MIS-A-045	SW-856 9056	SW-856 9056
Arsenic, Molybdenum, Uranium, Vanadium	LMM-02	SW-846 3005A	SW-846 6020A

Data Qualifier Summary

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

Table 4. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
268896001	0402	Ammonia as N	U	Less than 5 times the method blank
268896002	0602	Ammonia as N	U	Less than 5 times the method blank
268896004	0604	Ammonia as N	U	Less than 5 times the method blank
268896009	0623	Ammonia as N	U	Less than 5 times the method blank
268896018	0662	Ammonia as N	U	Less than 5 times the method blank
268896020	0711	Ammonia as N	U	Less than 5 times the method blank
268896031	0764	Sulfate	J	Matrix spike failure
268896031	0764	Vanadium	J	Negative method blank

Table 4 (continued). Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
268896038	0772	Chloride	J	Matrix spike failure
268896039	0774	Vanadium	J	Negative method blank
268896041	0776	Ammonia as N	U	Less than 5 times the method blank
268896044	0772 Duplicate	Chloride	J	Matrix spike failure
268896045	0733	Ammonia as N	U	Less than 5 times the method blank
268896047	0735	Ammonia as N	U	Less than 5 times the method blank
268896048	0738	Ammonia as N	U	Less than 5 times the method blank
268896049	0739	Ammonia as N	U	Less than 5 times the method blank
268896049	0739	Vanadium	J	Negative method blank
268896050	0740	Ammonia as N	U	Less than 5 times the method blank

Sample Shipping/Receiving

GEL Laboratories in Charleston, South Carolina, received 50 water samples between December 17—29, 2010, accompanied by Chain of Custody (COC) forms. Copies of the three air bills were included in the receiving documentation. The COC forms were checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC forms were complete with no errors or omissions. The laboratory noted that the bottles collected at location 0648 were labeled with an incorrect sample date; the laboratory used the correct date listed on the COC form.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced coolers at 3.0 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times with the following exception. Sample 0739 was initially analyzed for chloride within holding; however, the holding time had expired prior to a required reanalysis of diluted sample. The initial and diluted sample results are comparable and the data for this sample are not further qualified.

Laboratory Instrument Calibration

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

Method MCAWW 350.1, Ammonia as Nitrogen
Calibrations were performed using five calibration standards on December 20 and 22, 2010, and January 5, 2011. 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 21 verification checks. All calibration checks met the acceptance criteria.

Method MCAWW 353.2, Nitrite + Nitrate as Nitrogen
Calibrations were performed using five calibration standards on December 19, 2010, and January 3, 2011. 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 13 verification checks. All calibration checks met the acceptance criteria.

Method SW-846 6010, Calcium, Iron, Magnesium, Manganese, Potassium, Sodium
Calibrations for were performed on December 22, 2010, using four calibration standards. The correlation coefficient values were greater than 0.995. The absolute values of the intercepts were less than 3 times the MDL, with the exception of the intercepts for calcium, potassium, and sodium. These intercepts were less than 3 times the reporting limits and all results were near or above the reporting limits. Initial and continuing calibration verification checks were made at the required frequency resulting in 20 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, Arsenic, Molybdenum, Uranium, Vanadium
Calibrations were performed on January 13, 2011, using two standards. Initial and continuing calibration verification checks were made at the required frequency resulting in 9 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 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, Chloride, Sulfate
Calibrations were performed using six calibration standards on November 5and December 10, 2010. 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 31 verification checks. All calibration checks met the acceptance criteria.

Method and Calibration Blanks

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

results are qualified with a “U” flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration. For potassium, sodium, and vanadium some blanks were negative and the absolute values were greater than the MDL but less than the PQL. The associated sample results that are less than 5 times the MDL are qualified with a “J” flag as estimated values.

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

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes evaluated with the following exceptions. The ammonia as N spike recoveries from samples 0402 and 0733 were outside the acceptance range. The chloride spike recovery from sample 0772 duplicate and the sulfate recovery from sample 0764 exceeded the acceptance range. The associated sample results are qualified with a “J” flag as estimated values.

Laboratory Replicate Analysis

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

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the PQL for method 6010 or greater than 100 times the PQL for method 6020. The serial dilution results for sodium did not meet the acceptance criteria. All sodium results are qualified with a “J” flag as estimated values. All other evaluated serial dilution data were acceptable.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The required detection limits were met for all analytes with the exception of vanadium. The vanadium sample aliquots were diluted prior to analysis to reduce interferences resulting in elevated MDLs.

Completeness

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

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. All peak integrations, including manual integrations, were satisfactory.

Electronic Data Deliverable (EDD) File

A revised EDD file arrived on January 27, 2011. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure that all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 10113473 **Lab Code:** GEN **Validator:** Steve Donivan **Validation Date:** 2/16/2011

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

# of Samples: 50 **Matrix:** Water **Requested Analysis Completed:** Yes

Chain of Custody

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

Sample

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

Select Quality Parameters

☑ Holding Times	There are 1 holding time failures.
☑ Detection Limits	There are 46 detection limit failures.
☐ Field/Trip Blanks	
☑ Field Duplicates	There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

RIN: 10113473 Lab Code: GEN

Non-Compliance Report: Holding Times

Project: Monument Valley

Validation Date: 2/15/2011

				Holding Times			Criteria			Reported Dates		
Ticket	Location	Lab Sample ID	Method Code	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection to Preparation	Preparation to Analysis	Collection to Analysis	Collection Date	Preparation Date	Analysis Date
IMQ 966	0739	268896049	MIS-A-045			29			28	12/21/2010	01/19/2011	01/19/2011

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 10113473 **Lab Code:** GEN **Date Due:** 1/26/2011

Matrix: Water **Site Code:** MON **Date Completed:** 1/26/2011

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								
Arsenic	01/13/2011			OK	OK	OK	OK	OK	101.0	91.4			103.0		110.0
Arsenic	01/13/2011								98.3	104.0					
Arsenic	01/13/2011								102.0	101.0					
Calcium	12/22/2010	0.0000	1.0000	OK	OK	OK	OK	OK	101.0	103.0		0.0	97.0	1.0	104.0
Iron	12/22/2010	0.0000	1.0000	OK	OK	OK	OK	OK	96.9	94.6			97.0		103.0
Magnesium	12/22/2010	0.0000	1.0000	OK	OK	OK	OK	OK	100.0	100.0		0.0	96.0	0.4	109.0
Manganese	01/13/2011	0.0000	1.0000	OK	OK	OK	OK	OK	104.0	101.0			109.0		122.0
Manganese	01/13/2011								106.0	102.0			111.0		
Manganese	01/14/2011	0.0000	1.0000	OK	OK	OK	OK	OK	101.0	94.2			104.0		124.0
Molybdenum	01/13/2011			OK	OK	OK	OK	OK	97.0	94.9		13.0	103.0		104.0
Molybdenum	01/13/2011								96.1	98.6		16.0			
Molybdenum	01/13/2011								98.2	90.9					
Potassium	12/22/2010	0.0000	1.0000	OK	OK	OK	OK	OK	98.2	95.1		6.0	115.0		101.0
Sodium	12/22/2010	0.0000	1.0000	OK	OK	OK	OK	OK	98.4			2.0	110.0	1.2	98.0
Uranium	01/13/2011			OK	OK	OK	OK	OK	108.0	105.0		2.0	100.0	7.7	123.0
Uranium	01/13/2011								108.0	114.0		6.0		8.3	
Uranium	01/13/2011								108.0	101.0					
Uranium	01/18/2011			OK	OK	OK	OK	OK	115.0	122.0		5.0	110.0		128.0

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 10113473 **Lab Code:** GEN **Date Due:** 1/26/2011

Matrix: Water **Site Code:** MON **Date Completed:** 1/26/2011

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								
Vanadium	01/13/2011			OK	OK	OK	OK	OK	92.3	98.6			99.0	6.8	120.0
Vanadium	01/13/2011								92.5	103.0			102.0		
Vanadium	01/14/2011			OK	OK	OK	OK	OK	94.3	95.1			94.0		114.0
Vanadium	01/18/2011			OK	OK	OK	OK	OK	94.2	86.1		0.0	104.0		127.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 10113473 **Lab Code:** GEN **Date Due:** 1/26/2011

Matrix: Water **Site Code:** MON **Date Completed:** 1/26/2011

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
Chloride	12/20/2010	0.000	1.0000	OK	OK	OK	OK	OK	95.1				
Chloride	12/21/2010			OK	OK	OK	OK	OK	92.9	95.6		2	
Chloride	12/22/2010			OK	OK	OK	OK	OK	92.9				
Chloride	12/30/2010			OK	OK	OK	OK			110		0	
Chloride	12/30/2010									110		0	
Chloride	12/30/2010									109		0	
Chloride	12/31/2010			OK	OK	OK	OK			111		0	
Chloride	01/14/2011			OK	OK	OK	OK	OK	92				
Chloride	01/18/2011			OK	OK	OK	OK			99.3		0	
NH3 as N	12/20/2010	0.000	1.0000	OK	OK	OK	OK	OK	106	95.7	84.1	12	
NH3 as N	12/20/2010								96.1	98.1	92.1	6	
NH3 as N	12/20/2010									107	96.6	10	
NH3 as N	12/22/2010	0.000	1.0000	OK	OK	OK	OK	OK	101	101	102	0	
NH3 as N	12/22/2010									100	106	5	
NH3 as N	01/05/2011	0.000	1.0000	OK	OK	OK	OK	OK	101	108	111	2	
NO2+NO3 as N	12/19/2010	0.000	1.0000	OK	OK	OK	OK	OK	95.9	93.8		4	

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 10113473 **Lab Code:** GEN **Date Due:** 1/26/2011

Matrix: Water **Site Code:** MON **Date Completed:** 1/26/2011

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
NO2+NO3 as N	12/19/2010							OK	96.4	93.7		2	
NO2+NO3 as N	12/19/2010							OK	95.4	93.5		3	
NO2+NO3 as N	12/19/2010									93.2		4	
NO2+NO3 as N	12/19/2010									92.9			
NO2+NO3 as N	01/03/2011	0.000	1.0000	OK	OK	OK	OK	OK	91				
Sulfate	12/20/2010	0.000	1.0000	OK	OK	OK	OK	OK	97.8				
Sulfate	12/21/2010			OK	OK	OK	OK	OK	95	102		1	
Sulfate	12/22/2010			OK	OK	OK	OK	OK	95.3	104		0	
Sulfate	12/22/2010									113		0	
Sulfate	12/22/2010									104		0	
Sulfate	12/29/2010			OK	OK	OK	OK	OK	92				
Sulfate	12/30/2010			OK	OK	OK	OK			103		0	
Sulfate	12/30/2010									98		1	

Sampling Quality Control Assessment

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

Sampling Protocol

Wells were sampled with a peristaltic pump and dedicated tubing, a disposable bailer, or a dedicated bladder pump. The surface water location was sampled by pumping directly from the pond with dedicated tubing. All sample results for monitoring wells were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. Wells 0402, 0602, 0606, 0735, 0764, and 0771 were qualified with a "Q" flag indicating the data are qualitative because these wells were classified as Category II wells. Data from well 0669 were qualified with a "Q" flag because the water level criterion was not met during purging.

Equipment Blank Assessment

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

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. The relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than the PQL, the range should be no greater than the PQL. Duplicate samples were collected from locations 0619, 0662, and 0772. The duplicate results met the criteria, demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 10113473 **Lab Code:** GEN **Project:** Monument Valley **Validation Date:** 2/14/2011

Duplicate: 2079 **Sample:** 0662

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Chloride	18.4			1.00	18.4			1.00	0		mg/L
NH3 as N	0.066	J		1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	15.1			50.00	16.8			25.00	10.66		mg/L
Sulfate	228			10.00	222			10.00	2.67		mg/L
Uranium	250			5.00	251			5.00	0.40		ug/L
Vanadium	27.2			5.00	27.9			5.00			ug/L

Duplicate: 2711 **Sample:** 0619

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Chloride	4.05			1.00	4.07			1.00	0.49		mg/L
NH3 as N	0.110			1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	1.49			10.00	1.51			10.00	1.33		mg/L
Sulfate	36.8			1.00	36.8			1.00	0		mg/L
Uranium	19.5			5.00	19.8			5.00	1.53		ug/L
Vanadium	23.9			5.00	22.6			5.00			ug/L

Duplicate: 2856 **Sample:** 0772

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Arsenic	8.00	U		5.00	8.00	U		5.00			ug/L
Calcium	26600			1.00	27000			1.00	1.49		ug/L
Chloride	15.5			1.00	15.6			1.00	0.64		mg/L
Iron	30.0	U		1.00	30.0	U		1.00			ug/L
Magnesium	16400			1.00	16800			1.00	2.41		ug/L
Manganese	8.14			5.00	7.64			5.00			ug/L
Molybdenum	2.71	B		5.00	2.71	B		5.00			ug/L
NH3 as N	2.47			5.00	2.28			5.00	8.00		mg/L
NO2+NO3 as N	1.02			5.00	1.06			10.00	3.85		mg/L
Potassium	799	B		1.00	803	B		1.00	0.50		ug/L
Sodium	104000			1.00	105000			1.00	0.96		ug/L
Sulfate	124			10.00	124			10.00	0		mg/L
Uranium	7.61			5.00	7.57			5.00	0.53		ug/L
Vanadium	15.0	U		5.00	15.0	U		5.00			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 — Steve Donivan — 3-15-2011 — Date

Data Validation Lead: Steve Donivan — Steve Donivan — 3-15-2011 — Date

Attachment 1
Assessment of Anomalous Data

This page intentionally left blank

Potential Outliers Report

This page intentionally left blank

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.

The result for sulfate at well 0761 was identified as potential outlier (anomalously low) because of the low variability of the historical data. The sulfate concentration in this well is trending downward. The data for this event are acceptable as qualified.

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: GEL Laboratories
RIN: 10113473
Report Date: 2/16/2011

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
MON01	0402	0001	12/15/2010	Sulfate	14.3		FQ	23.9		F	17		FQ	8	0	No
MON01	0602	N001	12/15/2010	Nitrate + Nitrite as Nitrogen	0.715		FQ	2.3			0.73		F	5	0	No
MON01	0603	N001	12/15/2010	Molybdenum	0.00231	B	F	0.17		J	0.0028		F	12	8	No
MON01	0606	N001	12/15/2010	Ammonia Total as N	113		FQ	140		F	120		F	11	0	No
MON01	0618	N001	12/15/2010	Chloride	2.87			5		F	3			6	0	No
MON01	0618	N001	12/15/2010	Molybdenum	0.00104	B		0.19			0.0024		JFQ	5	2	No
MON01	0619	N001	12/14/2010	Ammonia Total as N	0.11		F	0.1	U	F	0.1	U	F	12	12	No
MON01	0619	N002	12/14/2010	Chloride	4.07		F	8			4.5		F	23	0	No
MON01	0619	N001	12/14/2010	Chloride	4.05		F	8			4.5		F	23	0	No
MON01	0648	N001	12/14/2010	Chloride	21		F	39.9		F	22		F	10	0	No
MON01	0648	N001	12/14/2010	Sulfate	824		F	1690			850		F	10	0	No
MON01	0648	N001	12/14/2010	Uranium	0.0104		F	0.01		F	0.0097		F	5	0	No
MON01	0648	N001	12/14/2010	Vanadium	0.015	U	F	0.012		F	0.0094		F	5	0	No
MON01	0653	N001	12/14/2010	Chloride	22.8		F	42		FJ	24		F	37	0	No
MON01	0656	N001	12/14/2010	Ammonia Total as N	41.3		F	59		F	43		F	11	0	No
MON01	0657	N001	12/14/2010	Ammonia Total as N	0.308		F	0.1	U	F	0.1	U	F	10	10	No
MON01	0669	N001	12/13/2010	Ammonia Total as N	3.74		FQ	3.3		F	1.5		F	13	0	No
MON01	0669	N001	12/13/2010	Nitrate + Nitrite as Nitrogen	20.4		FQ	16		F	5.5		F	13	0	No
MON01	0719	N001	12/15/2010	Ammonia Total as N	0.036	J	F	0.1	U	F	0.1	U	F	5	5	No
MON01	0719	N001	12/15/2010	Chloride	13.7		F	16		FQ	14		F	5	0	No

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: GEL Laboratories
RIN: 10113473
Report Date: 2/16/2011

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
MON01	0719	N001	12/15/2010	Uranium	0.00439		F	0.0038		F	0.0036		FQ	5	0	No
MON01	0719	N001	12/15/2010	Vanadium	0.015	U	F	0.0047		F	0.0042		F	5	0	No
MON01	0727	0001	12/15/2010	Sulfate	82.9		F	108			89		F	5	0	No
MON01	0760	0001	12/14/2010	Ammonia Total as N	0.24		F	0.1	U	F	0.1	U	F	11	10	No
MON01	0760	0001	12/14/2010	Chloride	8.32		F	12		FQ	9		FQ	17	0	No
MON01	0760	0001	12/14/2010	Sulfate	81.4		F	127			83		FQ	21	0	No
MON01	0761	N001	12/13/2010	Ammonia Total as N	0.086	J	F	0.1	U	F	0.1	U	F	13	13	No
MON01	0761	N001	12/13/2010	Chloride	11.9		F	19		F	13		F	15	0	No
MON01	0761	N001	12/13/2010	Sulfate	397		F	530		F	450		F	21	0	Yes
MON01	0761	N001	12/13/2010	Vanadium	0.015	U	F	0.013	U		0.0013		FJ	16	2	No
MON01	0762	N001	12/14/2010	Ammonia Total as N	0.051	J	F	0.1	U	F	0.1	U	F	12	12	No
MON01	0762	N001	12/14/2010	Uranium	0.013		F	0.012		F	0.0081			16	0	No
MON01	0762	N001	12/14/2010	Vanadium	0.015	U	F	0.013	U		0.0041	B		15	1	No
MON01	0764	N001	12/14/2010	Chloride	10.4		FQ	19.6		L	11		FQ	16	0	No
MON01	0764	N001	12/14/2010	Nitrate + Nitrite as Nitrogen	39.8		FQ	55		FQ	40		FQ	11	0	No
MON01	0765	0001	12/14/2010	Ammonia Total as N	102		F	150		F	110		FQ	11	0	No
MON01	0765	0001	12/14/2010	Vanadium	0.015	U	F	0.013	U		0.0011		JFQ	14	2	No
MON01	0767	N001	12/13/2010	Ammonia Total as N	0.683		F	0.15		F	0.1	U	F	11	7	No
MON01	0767	N001	12/13/2010	Chloride	4.6		F	6.2		F	4.95			17	0	No
MON01	0768	N001	12/13/2010	Ammonia Total as N	0.811		F	0.55		F	0.42		F	12	0	No

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: GEL Laboratories
RIN: 10113473
Report Date: 2/16/2011

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
MON01	0768	N001	12/13/2010	Chloride	10.4		F	106			11		F	18	0	No
MON01	0768	N001	12/13/2010	Sulfate	58.6		F	862			59		F	22	0	No
MON01	0770	N001	12/14/2010	Nitrate + Nitrite as Nitrogen	15		F	23		F	17		F	11	0	No
MON01	0770	N001	12/14/2010	Vanadium	0.015	U	F	0.004	U		0.00043		FJ	14	4	No
MON01	0771	N001	12/13/2010	Sulfate	1290		FQ	3710			1300		F	20	0	No
MON01	0772	N001	12/14/2010	Ammonia Total as N	2.47		F	7.9		F	2.6		F	12	0	No
MON01	0772	N002	12/14/2010	Ammonia Total as N	2.28		F	7.9		F	2.6		F	12	0	No
MON01	0772	N001	12/14/2010	Magnesium	16.4		F	16		F	9.92			5	0	No
MON01	0772	N002	12/14/2010	Magnesium	16.8		F	16		F	9.92			5	0	No
MON01	0772	N002	12/14/2010	Potassium	0.803	B	F	1.9		F	0.99	B	F	5	0	No
MON01	0772	N001	12/14/2010	Potassium	0.799	B	F	1.9		F	0.99	B	F	5	0	No
MON01	0774	N001	12/14/2010	Ammonia Total as N	0.279		F	0.1	U	F	0.1	U	F	12	12	No
MON01	0774	N001	12/14/2010	Chloride	4.16		F	8.77			4.4		F	17	0	No
MON01	0775	N001	12/14/2010	Chloride	4.62		F	8.68		L	5		F	11	0	No
MON01	0775	N001	12/14/2010	Vanadium	0.015	U	F	0.013	U	L	0.0006		F	6	4	No
MON01	0776	N001	12/14/2010	Chloride	4.84		F	6.51		F	4.9		F	12	0	No

Data Validation Outliers Report - Field Parameters Only

Comparison: All Historical Data

Laboratory: Field Measurements

RIN: 10113473

Report Date: 2/16/2011

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
MON01	0402	N001	12/15/2010	Oxidation Reduction Potential	209		FQ	135		FQ	-324		L	7	0	No
MON01	0402	N001	12/15/2010	Turbidity	10.2		FQ	85.9		L	19		FQ	6	0	No
MON01	0603	N001	12/15/2010	Turbidity	6.7		F	6.64		F	0.51			7	0	No
MON01	0606	N001	12/15/2010	pH	6.81		FQ	7.33			6.86			49	0	No
MON01	0618	N001	12/15/2010	Specific Conductance	450			432		FQ	240			5	0	No
MON01	0648	N001	12/14/2010	Oxidation Reduction Potential	229.5		F	201			57		F	7	0	No
MON01	0669	N001	12/13/2010	pH	7.03		FQ	7.76		F	7.11		L	31	0	No
MON01	0711	N001	12/15/2010	pH	7.52		F	7.94		F	7.73			5	0	No
MON01	0715	N001	12/15/2010	pH	7.56		F	8.01		F	7.64			5	0	No
MON01	0719	N001	12/15/2010	pH	7.47		F	7.89		F	7.65			5	0	No
MON01	0727	N001	12/15/2010	pH	7.52		F	7.96		F	7.73			5	0	No
MON01	0727	N001	12/15/2010	Specific Conductance	575		F	604		F	578		F	5	0	No
MON01	0761	N001	12/13/2010	Oxidation Reduction Potential	207		F	205			-17			19	0	No
MON01	0762	N001	12/14/2010	Oxidation Reduction Potential	227.3		F	208.5		F	-33			20	0	No
MON01	0765	N001	12/14/2010	Oxidation Reduction Potential	-257.6		F	218		F	-166.9		FQ	20	0	No
MON01	0770	N001	12/14/2010	Oxidation Reduction Potential	-80.4		F	203			-71			19	0	No
MON01	0772	N001	12/14/2010	pH	7.39		F	8.27			7.46			20	0	No
MON01	0775	N001	12/14/2010	Oxidation Reduction Potential	215.1		F	175		F	-97		L	9	0	No
MON01	0776	N001	12/14/2010	Oxidation Reduction Potential	214.2		F	182		F	23			10	0	No
MON01	0776	N001	12/14/2010	Turbidity	0.41		F	6.07		F	0.76		F	10	0	No

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

Attachment 2
Data Presentation

This page intentionally left blank

Groundwater Quality Data

This page intentionally left blank

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0402 WELL Tribal Well No. 08-0643.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	0001	5.17	-	9.63	0.104		UFQ	#	0.016	
Chloride	mg/L	12/15/2010	0001	5.17	-	9.63	13		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	0001	5.17	-	9.63	0.202	J	FQ	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	5.17	-	9.63	209		FQ	#		
pH	s.u.	12/15/2010	N001	5.17	-	9.63	8.23		FQ	#		
Specific Conductance	umhos /cm	12/15/2010	N001	5.17	-	9.63	554		FQ	#		
Sulfate	mg/L	12/15/2010	0001	5.17	-	9.63	14.3		FQ	#	0.1	
Temperature	C	12/15/2010	N001	5.17	-	9.63	12.75		FQ	#		
Turbidity	NTU	12/15/2010	N001	5.17	-	9.63	10.2		FQ	#		
Uranium	mg/L	12/15/2010	0001	5.17	-	9.63	0.00025	U	FQ	#	0.00025	
Vanadium	mg/L	12/15/2010	0001	5.17	-	9.63	0.015	U	FQ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0602 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	19.5	-	29.5	0.083	J	UFQ	#	0.016	
Chloride	mg/L	12/15/2010	N001	19.5	-	29.5	12.8		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	19.5	-	29.5	0.715		FQ	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	19.5	-	29.5	74.1		FQ	#		
pH	s.u.	12/15/2010	N001	19.5	-	29.5	7.44		FQ	#		
Specific Conductance	umhos /cm	12/15/2010	N001	19.5	-	29.5	646		FQ	#		
Sulfate	mg/L	12/15/2010	N001	19.5	-	29.5	102		FQ	#	1	
Temperature	C	12/15/2010	N001	19.5	-	29.5	14.62		FQ	#		
Turbidity	NTU	12/15/2010	N001	19.5	-	29.5	2.51		FQ	#		
Uranium	mg/L	12/15/2010	N001	19.5	-	29.5	0.00359		FQ	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	19.5	-	29.5	0.015	U	FQ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0603 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	12/15/2010	N001	43	-	53	198		F	#		
Ammonia Total as N	mg/L	12/15/2010	N001	43	-	53	0.309		F	#	0.016	
Arsenic	mg/L	12/15/2010	N001	43	-	53	0.008	U	F	#	0.008	
Calcium	mg/L	12/15/2010	N001	43	-	53	18		F	#	0.05	
Chloride	mg/L	12/15/2010	N001	43	-	53	11.7		F	#	0.066	
Iron	mg/L	12/15/2010	N001	43	-	53	0.0581	B	F	#	0.03	
Magnesium	mg/L	12/15/2010	N001	43	-	53	13.8		F	#	0.085	
Manganese	mg/L	12/15/2010	N001	43	-	53	0.00949		F	#	0.005	
Molybdenum	mg/L	12/15/2010	N001	43	-	53	0.00231	B	F	#	0.000835	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	43	-	53	0.35		F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	43	-	53	154.5		F	#		
pH	s.u.	12/15/2010	N001	43	-	53	7.84		F	#		
Potassium	mg/L	12/15/2010	N001	43	-	53	2.08	B	F	#	0.05	
Sodium	mg/L	12/15/2010	N001	43	-	53	93.4		F	#	0.1	
Specific Conductance	umhos /cm	12/15/2010	N001	43	-	53	635		F	#		
Sulfate	mg/L	12/15/2010	N001	43	-	53	100		F	#	1	
Temperature	C	12/15/2010	N001	43	-	53	15.27		F	#		
Turbidity	NTU	12/15/2010	N001	43	-	53	6.7		F	#		
Uranium	mg/L	12/15/2010	N001	43	-	53	0.003		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	43	-	53	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0604 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	13	-	28	0.053	J	UF	#	0.016	
Chloride	mg/L	12/14/2010	N001	13	-	28	10.4		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	13	-	28	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	13	-	28	-69.9		F	#		
pH	s.u.	12/14/2010	N001	13	-	28	7.86		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	13	-	28	603		F	#		
Sulfate	mg/L	12/14/2010	N001	13	-	28	101		F	#	1	
Temperature	C	12/14/2010	N001	13	-	28	15.56		F	#		
Turbidity	NTU	12/14/2010	N001	13	-	28	3.84		F	#		
Uranium	mg/L	12/14/2010	N001	13	-	28	0.00229		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	13	-	28	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0605 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	14	-	29	0.32		F	#	0.016	
Chloride	mg/L	12/13/2010	N001	14	-	29	19.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	14	-	29	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2010	N001	14	-	29	-89.2		F	#		
pH	s.u.	12/13/2010	N001	14	-	29	8.2		F	#		
Specific Conductance	umhos /cm	12/13/2010	N001	14	-	29	682		F	#		
Sulfate	mg/L	12/13/2010	N001	14	-	29	147		F	#	1	
Temperature	C	12/13/2010	N001	14	-	29	16.52		F	#		
Turbidity	NTU	12/13/2010	N001	14	-	29	4.09		F	#		
Uranium	mg/L	12/13/2010	N001	14	-	29	0.00025	U	F	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	14	-	29	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0606 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	32	-	42	113		FQ	#	1.6	
Chloride	mg/L	12/15/2010	N001	32	-	42	29.6		FQ	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	32	-	42	209		FQ	#	5	
Oxidation Reduction Potential	mV	12/15/2010	N001	32	-	42	146.2		FQ	#		
pH	s.u.	12/15/2010	N001	32	-	42	6.81		FQ	#		
Specific Conductance	umhos /cm	12/15/2010	N001	32	-	42	3016		FQ	#		
Sulfate	mg/L	12/15/2010	N001	32	-	42	391		FQ	#	2	
Temperature	C	12/15/2010	N001	32	-	42	14.07		FQ	#		
Turbidity	NTU	12/15/2010	N001	32	-	42	2.49		FQ	#		
Uranium	mg/L	12/15/2010	N001	32	-	42	0.00921		FQ	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	32	-	42	0.015	U	FQ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0618 WELL 12" DIA Steel CSG. Old Mill 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	12/15/2010	N001	-	150			#		
Ammonia Total as N	mg/L	12/15/2010	N001	-	0.393			#	0.016	
Arsenic	mg/L	12/15/2010	N001	-	0.008	U		#	0.008	
Calcium	mg/L	12/15/2010	N001	-	32.6			#	0.05	
Chloride	mg/L	12/15/2010	N001	-	2.87			#	0.066	
Iron	mg/L	12/15/2010	N001	-	0.03	U		#	0.03	
Magnesium	mg/L	12/15/2010	N001	-	17.4			#	0.085	
Manganese	mg/L	12/15/2010	N001	-	0.005	U		#	0.005	
Molybdenum	mg/L	12/15/2010	N001	-	0.00104	B		#	0.000835	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	-	0.944			#	0.1	
Oxidation Reduction Potential	mV	12/15/2010	N001	-	230			#		
pH	s.u.	12/15/2010	N001	-	7.12			#		
Potassium	mg/L	12/15/2010	N001	-	1.37	B		#	0.05	
Sodium	mg/L	12/15/2010	N001	-	6.94			#	0.1	
Specific Conductance	umhos /cm	12/15/2010	N001	-	450			#		
Sulfate	mg/L	12/15/2010	N001	-	13.7			#	0.1	
Temperature	C	12/15/2010	N001	-	14.5			#		
Turbidity	NTU	12/15/2010	N001	-	2.2			#		
Uranium	mg/L	12/15/2010	N001	-	0.00522			#	0.00025	
Vanadium	mg/L	12/15/2010	N001	-	0.0376			#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0619 WELL Water Use Permit No. 92-082.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	103.9	-	153.9	0.11		F	#	0.016	
Ammonia Total as N	mg/L	12/14/2010	N002	103.9	-	153.9	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2010	N001	103.9	-	153.9	4.05		F	#	0.066	
Chloride	mg/L	12/14/2010	N002	103.9	-	153.9	4.07		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	103.9	-	153.9	1.49		F	#	0.1	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N002	103.9	-	153.9	1.51		F	#	0.1	
Oxidation Reduction Potential	mV	12/14/2010	N001	103.9	-	153.9	213.6		F	#		
pH	s.u.	12/14/2010	N001	103.9	-	153.9	7.82		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	103.9	-	153.9	392		F	#		
Sulfate	mg/L	12/14/2010	N001	103.9	-	153.9	36.8		F	#	0.1	
Sulfate	mg/L	12/14/2010	N002	103.9	-	153.9	36.8		F	#	0.1	
Temperature	C	12/14/2010	N001	103.9	-	153.9	15.91		F	#		
Turbidity	NTU	12/14/2010	N001	103.9	-	153.9	0.4		F	#		
Uranium	mg/L	12/14/2010	N001	103.9	-	153.9	0.0195		F	#	0.00025	
Uranium	mg/L	12/14/2010	N002	103.9	-	153.9	0.0198		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	103.9	-	153.9	0.0239		F	#	0.015	
Vanadium	mg/L	12/14/2010	N002	103.9	-	153.9	0.0226		F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0648 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	38.5	-	88.5	5.99		F	#	0.08	
Chloride	mg/L	12/14/2010	N001	38.5	-	88.5	21		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	38.5	-	88.5	65.7		F	#	1	
Oxidation Reduction Potential	mV	12/14/2010	N001	38.5	-	88.5	229.5		F	#		
pH	s.u.	12/14/2010	N001	38.5	-	88.5	7.52		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	38.5	-	88.5	2291		F	#		
Sulfate	mg/L	12/14/2010	N001	38.5	-	88.5	824		F	#	5	
Temperature	C	12/14/2010	N001	38.5	-	88.5	15.81		F	#		
Turbidity	NTU	12/14/2010	N001	38.5	-	88.5	0.11		F	#		
Uranium	mg/L	12/14/2010	N001	38.5	-	88.5	0.0104		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	38.5	-	88.5	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0650 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	77.5	-	97.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2010	N001	77.5	-	97.5	13		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	77.5	-	97.5	2.08		F	#	0.25	
Oxidation Reduction Potential	mV	12/14/2010	N001	77.5	-	97.5	128.5		F	#		
pH	s.u.	12/14/2010	N001	77.5	-	97.5	8.24		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	77.5	-	97.5	750		F	#		
Sulfate	mg/L	12/14/2010	N001	77.5	-	97.5	156		F	#	1	
Temperature	C	12/14/2010	N001	77.5	-	97.5	15.82		F	#		
Turbidity	NTU	12/14/2010	N001	77.5	-	97.5	0.56		F	#		
Uranium	mg/L	12/14/2010	N001	77.5	-	97.5	0.0022		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	77.5	-	97.5	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0651 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	20	-	80	0.016	U	F	#	0.016	
Chloride	mg/L	12/15/2010	N001	20	-	80	11.5		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	20	-	80	0.147	J	F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	20	-	80	226.5		F	#		
pH	s.u.	12/15/2010	N001	20	-	80	8.27		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	20	-	80	644		F	#		
Sulfate	mg/L	12/15/2010	N001	20	-	80	107		F	#	1	
Temperature	C	12/15/2010	N001	20	-	80	15.06		F	#		
Turbidity	NTU	12/15/2010	N001	20	-	80	4.02		F	#		
Uranium	mg/L	12/15/2010	N001	20	-	80	0.00221		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	20	-	80	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0652 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	34	-	54	0.016	U	F	#	0.016	
Chloride	mg/L	12/15/2010	N001	34	-	54	14.6		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	34	-	54	4.45		F	#	0.25	
Oxidation Reduction Potential	mV	12/15/2010	N001	34	-	54	224.3		F	#		
pH	s.u.	12/15/2010	N001	34	-	54	7.88		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	34	-	54	576		F	#		
Sulfate	mg/L	12/15/2010	N001	34	-	54	62.3		F	#	1	
Temperature	C	12/15/2010	N001	34	-	54	14.98		F	#		
Turbidity	NTU	12/15/2010	N001	34	-	54	1		F	#		
Uranium	mg/L	12/15/2010	N001	34	-	54	0.00422		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	34	-	54	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0653 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	56	-	76	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2010	N001	56	-	76	22.8		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	56	-	76	41.7		F	#	1	
Oxidation Reduction Potential	mV	12/14/2010	N001	56	-	76	228.4		F	#		
pH	s.u.	12/14/2010	N001	56	-	76	7.49		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	56	-	76	2458		F	#		
Sulfate	mg/L	12/14/2010	N001	56	-	76	995		F	#	5	
Temperature	C	12/14/2010	N001	56	-	76	15.88		F	#		
Turbidity	NTU	12/14/2010	N001	56	-	76	0.38		F	#		
Uranium	mg/L	12/14/2010	N001	56	-	76	0.0106		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	56	-	76	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0655 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	38	-	58	125		F	#	1.6	
Chloride	mg/L	12/13/2010	N001	38	-	58	19.6		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	38	-	58	146		F	#	2.5	
Oxidation Reduction Potential	mV	12/13/2010	N001	38	-	58	207		F	#		
pH	s.u.	12/13/2010	N001	38	-	58	6.98		F	#		
Specific Conductance	umhos /cm	12/13/2010	N001	38	-	58	3587		F	#		
Sulfate	mg/L	12/13/2010	N001	38	-	58	1070		F	#	5	
Temperature	C	12/13/2010	N001	38	-	58	15.92		F	#		
Turbidity	NTU	12/13/2010	N001	38	-	58	1.47		F	#		
Uranium	mg/L	12/13/2010	N001	38	-	58	0.0124		F	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	38	-	58	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0656 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	38	-	58	41.3		F	#	0.8	
Chloride	mg/L	12/14/2010	N001	38	-	58	13.2		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	38	-	58	15.8		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	38	-	58	-56.6		F	#		
pH	s.u.	12/14/2010	N001	38	-	58	7.47		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	38	-	58	989		F	#		
Sulfate	mg/L	12/14/2010	N001	38	-	58	151		F	#	1	
Temperature	C	12/14/2010	N001	38	-	58	14.66		F	#		
Turbidity	NTU	12/14/2010	N001	38	-	58	1.03		F	#		
Uranium	mg/L	12/14/2010	N001	38	-	58	0.00561		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	38	-	58	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0657 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	121	-	136	0.308		F	#	0.016	
Chloride	mg/L	12/14/2010	N001	121	-	136	5.49		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	121	-	136	2.85		F	#	0.1	
Oxidation Reduction Potential	mV	12/14/2010	N001	121	-	136	218.4		F	#		
pH	s.u.	12/14/2010	N001	121	-	136	7.78		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	121	-	136	399		F	#		
Sulfate	mg/L	12/14/2010	N001	121	-	136	34.1		F	#	0.1	
Temperature	C	12/14/2010	N001	121	-	136	16.21		F	#		
Turbidity	NTU	12/14/2010	N001	121	-	136	0.3		F	#		
Uranium	mg/L	12/14/2010	N001	121	-	136	0.0102		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	121	-	136	0.073		F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0662 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	37.5 - 67.5	0.066	J	UF	#	0.016	
Ammonia Total as N	mg/L	12/14/2010	N002	37.5 - 67.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2010	N001	37.5 - 67.5	18.4		F	#	0.066	
Chloride	mg/L	12/14/2010	N002	37.5 - 67.5	18.4		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	37.5 - 67.5	15.1		F	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N002	37.5 - 67.5	16.8		F	#	0.25	
Oxidation Reduction Potential	mV	12/14/2010	N001	37.5 - 67.5	224.9		F	#		
pH	s.u.	12/14/2010	N001	37.5 - 67.5	7.38		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	37.5 - 67.5	962		F	#		
Sulfate	mg/L	12/14/2010	N001	37.5 - 67.5	228		F	#	1	
Sulfate	mg/L	12/14/2010	N002	37.5 - 67.5	222		F	#	1	
Temperature	C	12/14/2010	N001	37.5 - 67.5	16.23		F	#		
Turbidity	NTU	12/14/2010	N001	37.5 - 67.5	0.64		F	#		
Uranium	mg/L	12/14/2010	N001	37.5 - 67.5	0.25		F	#	0.00025	
Uranium	mg/L	12/14/2010	N002	37.5 - 67.5	0.251		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	37.5 - 67.5	0.0272		F	#	0.015	
Vanadium	mg/L	12/14/2010	N002	37.5 - 67.5	0.0279		F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0669 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	34	-	54	3.74		FQ	#	0.08	
Chloride	mg/L	12/13/2010	N001	34	-	54	8.12		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	34	-	54	20.4		FQ	#	0.25	
Oxidation Reduction Potential	mV	12/13/2010	N001	34	-	54	172		FQ	#		
pH	s.u.	12/13/2010	N001	34	-	54	7.03		FQ	#		
Specific Conductance	umhos /cm	12/13/2010	N001	34	-	54	780		FQ	#		
Sulfate	mg/L	12/13/2010	N001	34	-	54	116		FQ	#	1	
Temperature	C	12/13/2010	N001	34	-	54	16.3		FQ	#		
Turbidity	NTU	12/13/2010	N001	34	-	54	1.76		FQ	#		
Uranium	mg/L	12/13/2010	N001	34	-	54	0.00706		FQ	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	34	-	54	0.0514		FQ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0711 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	25.5	-	30.5	0.024	J	UF	#	0.016	
Chloride	mg/L	12/15/2010	N001	25.5	-	30.5	14.2		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	25.5	-	30.5	0.565		F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	25.5	-	30.5	56.1		F	#		
pH	s.u.	12/15/2010	N001	25.5	-	30.5	7.52		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	25.5	-	30.5	690		F	#		
Sulfate	mg/L	12/15/2010	N001	25.5	-	30.5	123		F	#	1	
Temperature	C	12/15/2010	N001	25.5	-	30.5	14.49		F	#		
Turbidity	NTU	12/15/2010	N001	25.5	-	30.5	5.65		F	#		
Uranium	mg/L	12/15/2010	N001	25.5	-	30.5	0.0038		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	25.5	-	30.5	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0715 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	16	-	21	0.034	J	F	#	0.016	
Chloride	mg/L	12/15/2010	N001	16	-	21	8.83		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	16	-	21	0.725		F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	16	-	21	73.6		F	#		
pH	s.u.	12/15/2010	N001	16	-	21	7.56		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	16	-	21	528		F	#		
Sulfate	mg/L	12/15/2010	N001	16	-	21	64.5		F	#	1	
Temperature	C	12/15/2010	N001	16	-	21	15.58		F	#		
Turbidity	NTU	12/15/2010	N001	16	-	21	3.2		F	#		
Uranium	mg/L	12/15/2010	N001	16	-	21	0.00315		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	16	-	21	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0719 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	19.35	-	24.35	0.036	J	F	#	0.016	
Chloride	mg/L	12/15/2010	N001	19.35	-	24.35	13.7		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	19.35	-	24.35	0.79		F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	19.35	-	24.35	71.8		F	#		
pH	s.u.	12/15/2010	N001	19.35	-	24.35	7.47		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	19.35	-	24.35	720		F	#		
Sulfate	mg/L	12/15/2010	N001	19.35	-	24.35	119		F	#	1	
Temperature	C	12/15/2010	N001	19.35	-	24.35	15.86		F	#		
Turbidity	NTU	12/15/2010	N001	19.35	-	24.35	1.04		F	#		
Uranium	mg/L	12/15/2010	N001	19.35	-	24.35	0.00439		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	19.35	-	24.35	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0727 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	0001	23.73	-	28.78	0.016	U	F	#	0.016	
Chloride	mg/L	12/15/2010	0001	23.73	-	28.78	9.77		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	0001	23.73	-	28.78	0.83		F	#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	23.73	-	28.78	63		F	#		
pH	s.u.	12/15/2010	N001	23.73	-	28.78	7.52		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	23.73	-	28.78	575		F	#		
Sulfate	mg/L	12/15/2010	0001	23.73	-	28.78	82.9		F	#	1	
Temperature	C	12/15/2010	N001	23.73	-	28.78	16.01		F	#		
Turbidity	NTU	12/15/2010	N001	23.73	-	28.78	27.5		F	#		
Uranium	mg/L	12/15/2010	0001	23.73	-	28.78	0.00209		F	#	0.00025	
Vanadium	mg/L	12/15/2010	0001	23.73	-	28.78	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0733 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	0001	49	-	54	0.023	J	UF	#	0.016	
Chloride	mg/L	12/21/2010	0001	49	-	54	4.58		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	0001	49	-	54	4.15		F	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	49	-	54	167		F	#		
pH	s.u.	12/21/2010	N001	49	-	54	7.63		F	#		
Specific Conductance	umhos /cm	12/21/2010	N001	49	-	54	540		F	#		
Sulfate	mg/L	12/21/2010	0001	49	-	54	56.4		F	#	0.5	
Temperature	C	12/21/2010	N001	49	-	54	14.5		F	#		
Turbidity	NTU	12/21/2010	N001	49	-	54	1000	>	F	#		
Uranium	mg/L	12/21/2010	0001	49	-	54	0.00649		F	#	0.000067	
Vanadium	mg/L	12/21/2010	0001	49	-	54	0.0322		F	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0734 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	0001	50	-	80	0.282		F	#	0.016	
Chloride	mg/L	12/21/2010	0001	50	-	80	5.4		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	0001	50	-	80	5.4		F	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	50	-	80	160		F	#		
pH	s.u.	12/21/2010	N001	50	-	80	7.61		F	#		
Specific Conductance	umhos /cm	12/21/2010	N001	50	-	80	625		F	#		
Sulfate	mg/L	12/21/2010	0001	50	-	80	107		F	#	0.5	
Temperature	C	12/21/2010	N001	50	-	80	15.2		F	#		
Turbidity	NTU	12/21/2010	N001	50	-	80	260		F	#		
Uranium	mg/L	12/21/2010	0001	50	-	80	0.137		F	#	0.00067	
Vanadium	mg/L	12/21/2010	0001	50	-	80	0.0153		F	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0735 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	0001	53.5	-	58.5	0.074	J	UFQ	#	0.016	
Chloride	mg/L	12/21/2010	0001	53.5	-	58.5	2.17		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	0001	53.5	-	58.5	7.53		FQ	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	53.5	-	58.5	205		FQ	#		
pH	s.u.	12/21/2010	N001	53.5	-	58.5	7.25		FQ	#		
Specific Conductance	umhos /cm	12/21/2010	N001	53.5	-	58.5	815		FQ	#		
Sulfate	mg/L	12/21/2010	0001	53.5	-	58.5	205		FQ	#	1	
Temperature	C	12/21/2010	N001	53.5	-	58.5	13		FQ	#		
Turbidity	NTU	12/21/2010	N001	53.5	-	58.5	300		FQ	#		
Uranium	mg/L	12/21/2010	0001	53.5	-	58.5	0.186		FQ	#	0.00067	
Vanadium	mg/L	12/21/2010	0001	53.5	-	58.5	0.0213		FQ	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0738 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	0001	26	-	31	0.031	J	UF	#	0.016	
Chloride	mg/L	12/21/2010	0001	26	-	31	14.9		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	0001	26	-	31	0.715	J	F	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	26	-	31	150		F	#		
pH	s.u.	12/21/2010	N001	26	-	31	8.09		F	#		
Specific Conductance	umhos /cm	12/21/2010	N001	26	-	31	875		F	#		
Sulfate	mg/L	12/21/2010	0001	26	-	31	180		F	#	1	
Temperature	C	12/21/2010	N001	26	-	31	16.2		F	#		
Turbidity	NTU	12/21/2010	N001	26	-	31	1000	>	F	#		
Uranium	mg/L	12/21/2010	0001	26	-	31	0.00035		F	#	0.000067	
Vanadium	mg/L	12/21/2010	0001	26	-	31	0.003	U	F	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0739 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	0001	33	-	38	0.102		UF	#	0.016	
Chloride	mg/L	12/21/2010	0001	33	-	38	18.8	H	F	#	0.132	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	0001	33	-	38	2.2		F	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	33	-	38	150		F	#		
pH	s.u.	12/21/2010	N001	33	-	38	8.03		F	#		
Specific Conductance	umhos /cm	12/21/2010	N001	33	-	38	950		F	#		
Sulfate	mg/L	12/21/2010	0001	33	-	38	212		F	#	1	
Temperature	C	12/21/2010	N001	33	-	38	16		F	#		
Turbidity	NTU	12/21/2010	N001	33	-	38	845		F	#		
Uranium	mg/L	12/21/2010	0001	33	-	38	0.00508		F	#	0.000067	
Vanadium	mg/L	12/21/2010	0001	33	-	38	0.00683	B	FJ	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0740 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/21/2010	N001	30	-	35	0.033	J	UF	#	0.016	
Chloride	mg/L	12/21/2010	N001	30	-	35	38.2		F	#	0.33	
Nitrate + Nitrite as Nitrogen	mg/L	12/21/2010	N001	30	-	35	15.8		F	#	0.25	
Oxidation Reduction Potential	mV	12/21/2010	N001	30	-	35	155		F	#		
pH	s.u.	12/21/2010	N001	30	-	35	7.59		F	#		
Specific Conductance	umhos /cm	12/21/2010	N001	30	-	35	2315		F	#		
Sulfate	mg/L	12/21/2010	N001	30	-	35	973		F	#	4	
Temperature	C	12/21/2010	N001	30	-	35	16.3		F	#		
Turbidity	NTU	12/21/2010	N001	30	-	35	8.88		F	#		
Uranium	mg/L	12/21/2010	N001	30	-	35	0.0124		F	#	0.000067	
Vanadium	mg/L	12/21/2010	N001	30	-	35	0.0157		F	#	0.003	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0741 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	50	-	80	113		F	#	1.6	
Chloride	mg/L	12/14/2010	N001	50	-	80	14.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	50	-	80	101		F	#	2.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	50	-	80	-44.4		F	#		
pH	s.u.	12/14/2010	N001	50	-	80	7.1		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	50	-	80	2560		F	#		
Sulfate	mg/L	12/14/2010	N001	50	-	80	533		F	#	10	
Temperature	C	12/14/2010	N001	50	-	80	14.85		F	#		
Turbidity	NTU	12/14/2010	N001	50	-	80	8.87		F	#		
Uranium	mg/L	12/14/2010	N001	50	-	80	0.0105		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	50	-	80	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0742 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	0001	50	-	80	118		F	#	1.6	
Chloride	mg/L	12/14/2010	0001	50	-	80	15		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	0001	50	-	80	111		F	#	2.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	50	-	80	-52.3		F	#		
pH	s.u.	12/14/2010	N001	50	-	80	7.08		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	50	-	80	2595		F	#		
Sulfate	mg/L	12/14/2010	0001	50	-	80	532		F	#	10	
Temperature	C	12/14/2010	N001	50	-	80	13.39		F	#		
Turbidity	NTU	12/14/2010	N001	50	-	80	158		F	#		
Uranium	mg/L	12/14/2010	0001	50	-	80	0.0105		F	#	0.00025	
Vanadium	mg/L	12/14/2010	0001	50	-	80	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0743 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	45	-	75	116		F	#	1.6	
Chloride	mg/L	12/14/2010	N001	45	-	75	14.1		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	45	-	75	0.075	J	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	45	-	75	-283.2		F	#		
pH	s.u.	12/14/2010	N001	45	-	75	6.46		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	45	-	75	3950		F	#		
Sulfate	mg/L	12/14/2010	N001	45	-	75	325		F	#	1	
Temperature	C	12/14/2010	N001	45	-	75	15.39		F	#		
Turbidity	NTU	12/14/2010	N001	45	-	75	8.94		F	#		
Uranium	mg/L	12/14/2010	N001	45	-	75	0.00032		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	45	-	75	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0744 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	0001	31	-	61	127		F	#	1.6	
Chloride	mg/L	12/14/2010	0001	31	-	61	14.2		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	0001	31	-	61	124		F	#	2.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	31	-	61	-158.3		F	#		
pH	s.u.	12/14/2010	N001	31	-	61	7		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	31	-	61	2644		F	#		
Sulfate	mg/L	12/14/2010	0001	31	-	61	449		F	#	10	
Temperature	C	12/14/2010	N001	31	-	61	14.03		F	#		
Turbidity	NTU	12/14/2010	N001	31	-	61	21.9		F	#		
Uranium	mg/L	12/14/2010	0001	31	-	61	0.0102		F	#	0.00025	
Vanadium	mg/L	12/14/2010	0001	31	-	61	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0760 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	0001	55	-	75	0.24		F	#	0.016	
Chloride	mg/L	12/14/2010	0001	55	-	75	8.32		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	0001	55	-	75	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	55	-	75	46.6		F	#		
pH	s.u.	12/14/2010	N001	55	-	75	8.25		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	55	-	75	530		F	#		
Sulfate	mg/L	12/14/2010	0001	55	-	75	81.4		F	#	1	
Temperature	C	12/14/2010	N001	55	-	75	15.81		F	#		
Turbidity	NTU	12/14/2010	N001	55	-	75	18.1		F	#		
Uranium	mg/L	12/14/2010	0001	55	-	75	0.00025	U	F	#	0.00025	
Vanadium	mg/L	12/14/2010	0001	55	-	75	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0761 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	39	-	49	0.086	J	F	#	0.016	
Chloride	mg/L	12/13/2010	N001	39	-	49	11.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	39	-	49	28.5		F	#	1	
Oxidation Reduction Potential	mV	12/13/2010	N001	39	-	49	207		F	#		
pH	s.u.	12/13/2010	N001	39	-	49	6.89		F	#		
Specific Conductance	umhos /cm	12/13/2010	N001	39	-	49	1361		F	#		
Sulfate	mg/L	12/13/2010	N001	39	-	49	397		F	#	10	
Temperature	C	12/13/2010	N001	39	-	49	15.02		F	#		
Turbidity	NTU	12/13/2010	N001	39	-	49	7.28		F	#		
Uranium	mg/L	12/13/2010	N001	39	-	49	0.0288		F	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	39	-	49	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0762 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	29	-	49	0.051	J	F	#	0.016	
Chloride	mg/L	12/14/2010	N001	29	-	49	60.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	29	-	49	96.3		F	#	2.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	29	-	49	227.3		F	#		
pH	s.u.	12/14/2010	N001	29	-	49	7.49		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	29	-	49	3880		F	#		
Sulfate	mg/L	12/14/2010	N001	29	-	49	1470		F	#	10	
Temperature	C	12/14/2010	N001	29	-	49	15.7		F	#		
Turbidity	NTU	12/14/2010	N001	29	-	49	6.2		F	#		
Uranium	mg/L	12/14/2010	N001	29	-	49	0.013		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	29	-	49	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0764 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	47	-	52	0.016	U	FQ	#	0.016	
Chloride	mg/L	12/14/2010	N001	47	-	52	10.4		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	47	-	52	39.8		FQ	#	2.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	47	-	52	222		FQ	#		
pH	s.u.	12/14/2010	N001	47	-	52	7.71		FQ	#		
Specific Conductance	umhos /cm	12/14/2010	N001	47	-	52	1219		FQ	#		
Sulfate	mg/L	12/14/2010	N001	47	-	52	293		FQJ	#	1	
Temperature	C	12/14/2010	N001	47	-	52	15.97		FQ	#		
Turbidity	NTU	12/14/2010	N001	47	-	52	4.54		FQ	#		
Uranium	mg/L	12/14/2010	N001	47	-	52	0.0133		FQ	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	47	-	52	0.015		FQJ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0765 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	0001	58.6	-	88.7	102		F	#	1.6	
Chloride	mg/L	12/14/2010	0001	58.6	-	88.7	15.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	0001	58.6	-	88.7	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	58.6	-	88.7	-257.6		F	#		
pH	s.u.	12/14/2010	N001	58.6	-	88.7	5.88		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	58.6	-	88.7	2047		F	#		
Sulfate	mg/L	12/14/2010	0001	58.6	-	88.7	29.6		F	#	0.1	
Temperature	C	12/14/2010	N001	58.6	-	88.7	12.92		F	#		
Turbidity	NTU	12/14/2010	N001	58.6	-	88.7	23.1		F	#		
Uranium	mg/L	12/14/2010	0001	58.6	-	88.7	0.000685		F	#	0.00025	
Vanadium	mg/L	12/14/2010	0001	58.6	-	88.7	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0766 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	47.2	-	57.2	103		F	#	1.6	
Chloride	mg/L	12/15/2010	N001	47.2	-	57.2	17.2		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	47.2	-	57.2	53.8		F	#	2.5	
Oxidation Reduction Potential	mV	12/15/2010	N001	47.2	-	57.2	-19		F	#		
pH	s.u.	12/15/2010	N001	47.2	-	57.2	7.29		F	#		
Specific Conductance	umhos /cm	12/15/2010	N001	47.2	-	57.2	2174		F	#		
Sulfate	mg/L	12/15/2010	N001	47.2	-	57.2	542		F	#	2.5	
Temperature	C	12/15/2010	N001	47.2	-	57.2	15.43		F	#		
Turbidity	NTU	12/15/2010	N001	47.2	-	57.2	9.56		F	#		
Uranium	mg/L	12/15/2010	N001	47.2	-	57.2	0.0193		F	#	0.00025	
Vanadium	mg/L	12/15/2010	N001	47.2	-	57.2	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0767 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	43.5	-	63.5	0.683		F	#	0.016	
Chloride	mg/L	12/13/2010	N001	43.5	-	63.5	4.6		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	43.5	-	63.5	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2010	N001	43.5	-	63.5	-66		F	#		
pH	s.u.	12/13/2010	N001	43.5	-	63.5	7.98		F	#		
Specific Conductance	umhos /cm	12/13/2010	N001	43.5	-	63.5	410		F	#		
Sulfate	mg/L	12/13/2010	N001	43.5	-	63.5	32.6		F	#	0.1	
Temperature	C	12/13/2010	N001	43.5	-	63.5	15.29		F	#		
Turbidity	NTU	12/13/2010	N001	43.5	-	63.5	0.92		F	#		
Uranium	mg/L	12/13/2010	N001	43.5	-	63.5	0.00051		F	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	43.5	-	63.5	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0768 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	24.4 - 44.4	0.811		F	#	0.016	
Chloride	mg/L	12/13/2010	N001	24.4 - 44.4	10.4		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	24.4 - 44.4	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2010	N001	24.4 - 44.4	-126		F	#		
pH	s.u.	12/13/2010	N001	24.4 - 44.4	8.21		F	#		
Specific Conductance	umhos /cm	12/13/2010	N001	24.4 - 44.4	474		F	#		
Sulfate	mg/L	12/13/2010	N001	24.4 - 44.4	58.6		F	#	1	
Temperature	C	12/13/2010	N001	24.4 - 44.4	15.42		F	#		
Turbidity	NTU	12/13/2010	N001	24.4 - 44.4	9.94		F	#		
Uranium	mg/L	12/13/2010	N001	24.4 - 44.4	0.00025	U	F	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	24.4 - 44.4	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0770 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	54.9	-	64.9	29.2		F	#	1.6	
Chloride	mg/L	12/14/2010	N001	54.9	-	64.9	14		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	54.9	-	64.9	15		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2010	N001	54.9	-	64.9	-80.4		F	#		
pH	s.u.	12/14/2010	N001	54.9	-	64.9	7.32		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	54.9	-	64.9	1016		F	#		
Sulfate	mg/L	12/14/2010	N001	54.9	-	64.9	188		F	#	1	
Temperature	C	12/14/2010	N001	54.9	-	64.9	15.53		F	#		
Turbidity	NTU	12/14/2010	N001	54.9	-	64.9	1.09		F	#		
Uranium	mg/L	12/14/2010	N001	54.9	-	64.9	0.00569		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	54.9	-	64.9	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0771 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/13/2010	N001	57.4	-	77.4	221		FQ	#	3.2	
Chloride	mg/L	12/13/2010	N001	57.4	-	77.4	18		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2010	N001	57.4	-	77.4	166		FQ	#	5	
Oxidation Reduction Potential	mV	12/13/2010	N001	57.4	-	77.4	184.8		FQ	#		
pH	s.u.	12/13/2010	N001	57.4	-	77.4	7		FQ	#		
Specific Conductance	umhos /cm	12/13/2010	N001	57.4	-	77.4	4413		FQ	#		
Sulfate	mg/L	12/13/2010	N001	57.4	-	77.4	1290		FQ	#	10	
Temperature	C	12/13/2010	N001	57.4	-	77.4	16.54		FQ	#		
Turbidity	NTU	12/13/2010	N001	57.4	-	77.4	1.09		FQ	#		
Uranium	mg/L	12/13/2010	N001	57.4	-	77.4	0.0141		FQ	#	0.00025	
Vanadium	mg/L	12/13/2010	N001	57.4	-	77.4	0.015	U	FQ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0772 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	12/14/2010	N001	7.4	-	27.4	245		F	#		
Ammonia Total as N	mg/L	12/14/2010	N001	7.4	-	27.4	2.47		F	#	0.08	
Ammonia Total as N	mg/L	12/14/2010	N002	7.4	-	27.4	2.28		F	#	0.08	
Arsenic	mg/L	12/14/2010	N001	7.4	-	27.4	0.008	U	F	#	0.008	
Arsenic	mg/L	12/14/2010	N002	7.4	-	27.4	0.008	U	F	#	0.008	
Calcium	mg/L	12/14/2010	N001	7.4	-	27.4	26.6		F	#	0.05	
Calcium	mg/L	12/14/2010	N002	7.4	-	27.4	27		F	#	0.05	
Chloride	mg/L	12/14/2010	N001	7.4	-	27.4	15.5		FJ	#	0.066	
Chloride	mg/L	12/14/2010	N002	7.4	-	27.4	15.6		FJ	#	0.066	
Iron	mg/L	12/14/2010	N001	7.4	-	27.4	0.03	U	F	#	0.03	
Iron	mg/L	12/14/2010	N002	7.4	-	27.4	0.03	U	F	#	0.03	
Magnesium	mg/L	12/14/2010	N001	7.4	-	27.4	16.4		F	#	0.085	
Magnesium	mg/L	12/14/2010	N002	7.4	-	27.4	16.8		F	#	0.085	
Manganese	mg/L	12/14/2010	N001	7.4	-	27.4	0.00814		F	#	0.005	
Manganese	mg/L	12/14/2010	N002	7.4	-	27.4	0.00764		F	#	0.005	
Molybdenum	mg/L	12/14/2010	N001	7.4	-	27.4	0.00271	B	F	#	0.000835	
Molybdenum	mg/L	12/14/2010	N002	7.4	-	27.4	0.00271	B	F	#	0.000835	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0772 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	7.4	-	27.4	1.02		F	#	0.05	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N002	7.4	-	27.4	1.06		F	#	0.1	
Oxidation Reduction Potential	mV	12/14/2010	N001	7.4	-	27.4	-53.5		F	#		
pH	s.u.	12/14/2010	N001	7.4	-	27.4	7.39		F	#		
Potassium	mg/L	12/14/2010	N001	7.4	-	27.4	0.799	B	F	#	0.05	
Potassium	mg/L	12/14/2010	N002	7.4	-	27.4	0.803	B	F	#	0.05	
Sodium	mg/L	12/14/2010	N001	7.4	-	27.4	104		F	#	0.1	
Sodium	mg/L	12/14/2010	N002	7.4	-	27.4	105		F	#	0.1	
Specific Conductance	umhos /cm	12/14/2010	N001	7.4	-	27.4	764		F	#		
Sulfate	mg/L	12/14/2010	N001	7.4	-	27.4	124		F	#	1	
Sulfate	mg/L	12/14/2010	N002	7.4	-	27.4	124		F	#	1	
Temperature	C	12/14/2010	N001	7.4	-	27.4	15.61		F	#		
Turbidity	NTU	12/14/2010	N001	7.4	-	27.4	1.73		F	#		
Uranium	mg/L	12/14/2010	N001	7.4	-	27.4	0.00761		F	#	0.00025	
Uranium	mg/L	12/14/2010	N002	7.4	-	27.4	0.00757		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	7.4	-	27.4	0.015	U	F	#	0.015	
Vanadium	mg/L	12/14/2010	N002	7.4	-	27.4	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0774 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	45	-	55	0.279		F	#	0.016	
Chloride	mg/L	12/14/2010	N001	45	-	55	4.16		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	45	-	55	1.63		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	45	-	55	213.5		F	#		
pH	s.u.	12/14/2010	N001	45	-	55	7.8		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	45	-	55	400		F	#		
Sulfate	mg/L	12/14/2010	N001	45	-	55	38.4		F	#	0.1	
Temperature	C	12/14/2010	N001	45	-	55	15.55		F	#		
Turbidity	NTU	12/14/2010	N001	45	-	55	2.44		F	#		
Uranium	mg/L	12/14/2010	N001	45	-	55	0.0335		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	45	-	55	0.0156		FJ	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0775 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	142	-	167	0.926		F	#	0.016	
Chloride	mg/L	12/14/2010	N001	142	-	167	4.62		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	142	-	167	0.58		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	142	-	167	215.1		F	#		
pH	s.u.	12/14/2010	N001	142	-	167	7.89		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	142	-	167	396		F	#		
Sulfate	mg/L	12/14/2010	N001	142	-	167	25		F	#	0.1	
Temperature	C	12/14/2010	N001	142	-	167	16.45		F	#		
Turbidity	NTU	12/14/2010	N001	142	-	167	0.53		F	#		
Uranium	mg/L	12/14/2010	N001	142	-	167	0.00295		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	142	-	167	0.015	U	F	#	0.015	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0776 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/14/2010	N001	99.5	-	149.5	0.022	J	UF	#	0.016	
Chloride	mg/L	12/14/2010	N001	99.5	-	149.5	4.84		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2010	N001	99.5	-	149.5	0.855		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2010	N001	99.5	-	149.5	214.2		F	#		
pH	s.u.	12/14/2010	N001	99.5	-	149.5	7.92		F	#		
Specific Conductance	umhos /cm	12/14/2010	N001	99.5	-	149.5	403		F	#		
Sulfate	mg/L	12/14/2010	N001	99.5	-	149.5	34.2		F	#	0.1	
Temperature	C	12/14/2010	N001	99.5	-	149.5	16.4		F	#		
Turbidity	NTU	12/14/2010	N001	99.5	-	149.5	0.41		F	#		
Uranium	mg/L	12/14/2010	N001	99.5	-	149.5	0.00907		F	#	0.00025	
Vanadium	mg/L	12/14/2010	N001	99.5	-	149.5	0.015	U	F	#	0.015	

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

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

U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

Validated according to quality assurance guidelines.

Surface Water Quality Data

This page intentionally left blank

Surface Water Quality Data by Location (USEE102) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011
Location: 0623 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	12/15/2010	N001	0.032	J	U	#	0.016	
Chloride	mg/L	12/15/2010	N001	9.75			#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2010	N001	0.05	U		#	0.05	
Oxidation Reduction Potential	mV	12/15/2010	N001	174.3			#		
pH	s.u.	12/15/2010	N001	7.38			#		
Specific Conductance	umhos/cm	12/15/2010	N001	575			#		
Sulfate	mg/L	12/15/2010	N001	41.2			#	1	
Temperature	C	12/15/2010	N001	6.97			#		
Turbidity	NTU	12/15/2010	N001	8.43			#		
Uranium	mg/L	12/15/2010	N001	0.00168			#	0.00025	
Vanadium	mg/L	12/15/2010	N001	0.015	U		#	0.015	

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

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

U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z	Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Static Water Level Data

This page intentionally left blank

STATIC WATER LEVELS (USEE700) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0402	U	4840.3	12/15/2010	11:00:14	4.74	4835.56
0602	U	4864.43	12/15/2010	10:50:41	9.88	4854.55
0603	U	4849.41	12/15/2010	11:30:48	11.79	4837.62
0604	C	4840.42	12/14/2010	15:50:01	10	4830.42
0605	C	4835.07	12/13/2010	16:10:55	11.54	4823.53
0606	D	4864.73	12/15/2010	09:55:30	37.22	4827.51
0619	O	4888.63	12/14/2010	12:45:53	59.16	4829.47
0648	N	4835.14	12/14/2010	14:15:02	35.18	4799.96
0650	D	4794.28	12/14/2010	16:25:19	20.33	4773.95
0651	C	4787.88	12/15/2010	10:20:49	6.06	4781.82
0652	C	4808.93	12/15/2010	09:55:40	19.29	4789.64
0653	D	4837.08	12/14/2010	14:35:08	36.97	4800.11
0655	D	4862.06	12/13/2010	15:35:28	41.87	4820.19
0656	D	4856.33	12/14/2010	15:30:21	38.1	4818.23
0657	O	4878.99	12/14/2010	11:10:52	51.89	4827.1
0662	D	4878.56	12/14/2010	10:45:44	51.23	4827.33
0669	D	4867.19	12/13/2010	16:30:20	51.5	4815.69
0711			12/15/2010	10:20:20	11.91	NA
0715			12/15/2010	10:40:45	11.28	NA
0719			12/15/2010	11:15:48	12.63	NA
0727			12/15/2010	11:50:30	14.65	NA
0733			12/21/2010	10:10:35	50.89	NA
0734			12/21/2010	09:40:42	52.19	NA
0735			12/21/2010	09:00:10	51.24	NA
0738			12/21/2010	10:55:52	16.83	NA
0739			12/21/2010	11:20:27	22.95	NA
0740			12/21/2010	11:45:32	27.38	NA
0741			12/14/2010	12:50:55	37.22	NA

STATIC WATER LEVELS (USEE700) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/16/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0742			12/14/2010	12:00:48	37.3	NA
0743			12/14/2010	13:20:42	36.86	NA
0744			12/14/2010	13:55:12	37.28	NA
0760	D	4814.8	12/14/2010	15:55:33	26.23	4788.57
0761	D	4835.02	12/13/2010	17:00:25	44	4791.02
0762	D	4820.74	12/14/2010	15:30:56	33.08	4787.66
0764	D	4851.53	12/14/2010	14:55:40	50.83	4800.7
0765	D	4848.45	12/14/2010	09:55:05	37.02	4811.43
0766	D	4847.97	12/15/2010	12:30:46	37.53	4810.44
0767	D	4808.25	12/13/2010	17:00:53	7.38	4800.87
0768	D	4820.73	12/13/2010	16:35:34	15.16	4805.57
0770	D	4857.26	12/14/2010	15:05:45	34.53	4822.73
0771	D	4863.26	12/13/2010	16:00:30	43.44	4819.82
0772	O	4847.6	12/14/2010	16:20:57	12.73	4834.87
0774	O	4880.14	12/14/2010	10:25:50	51.08	4829.06
0775	D	4879.68	12/14/2010	12:10:13	51.21	4828.47
0776	O	4883.33	12/14/2010	13:05:32	54.89	4828.44

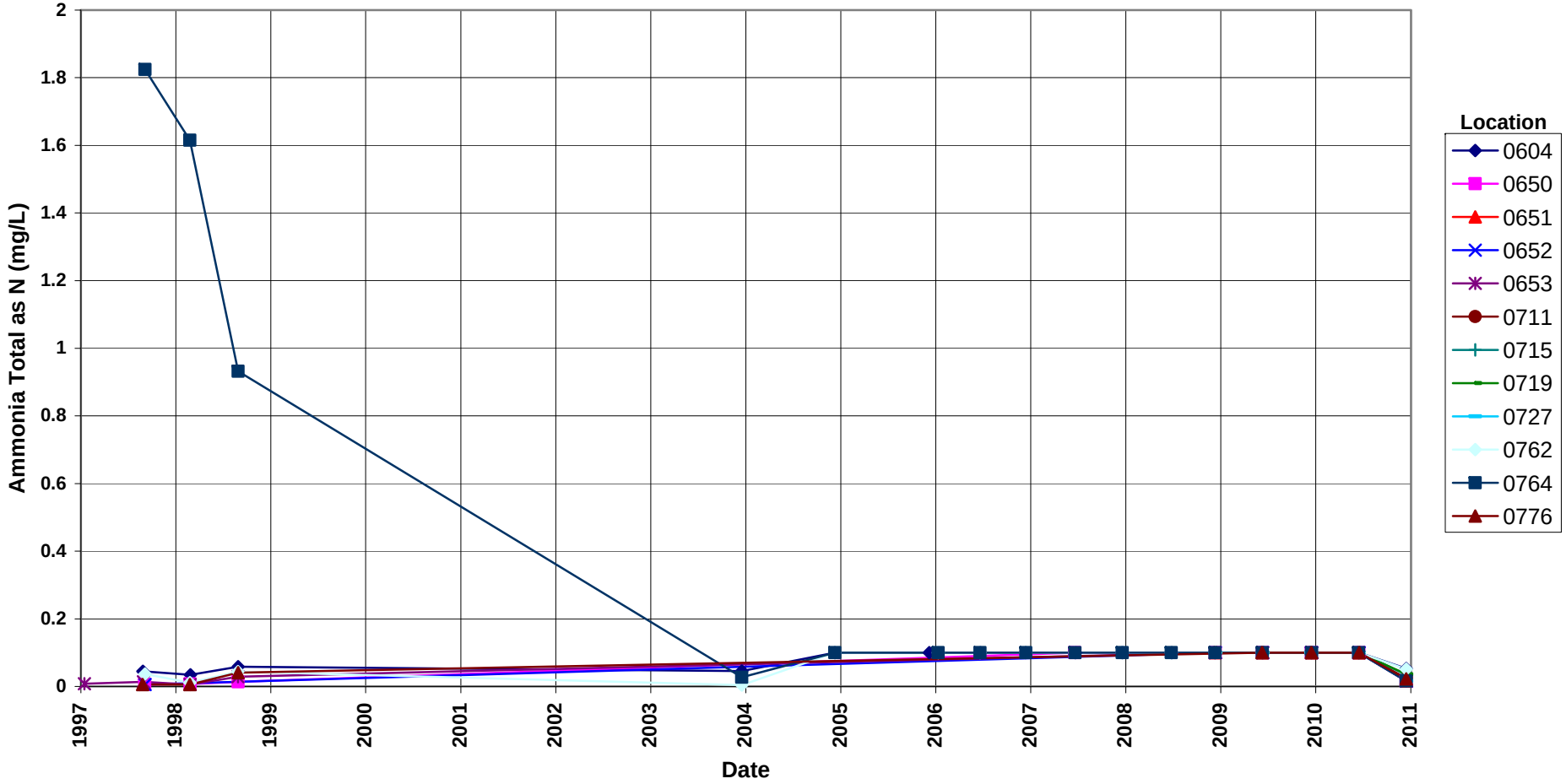
NA Top of casing elevation data not available

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

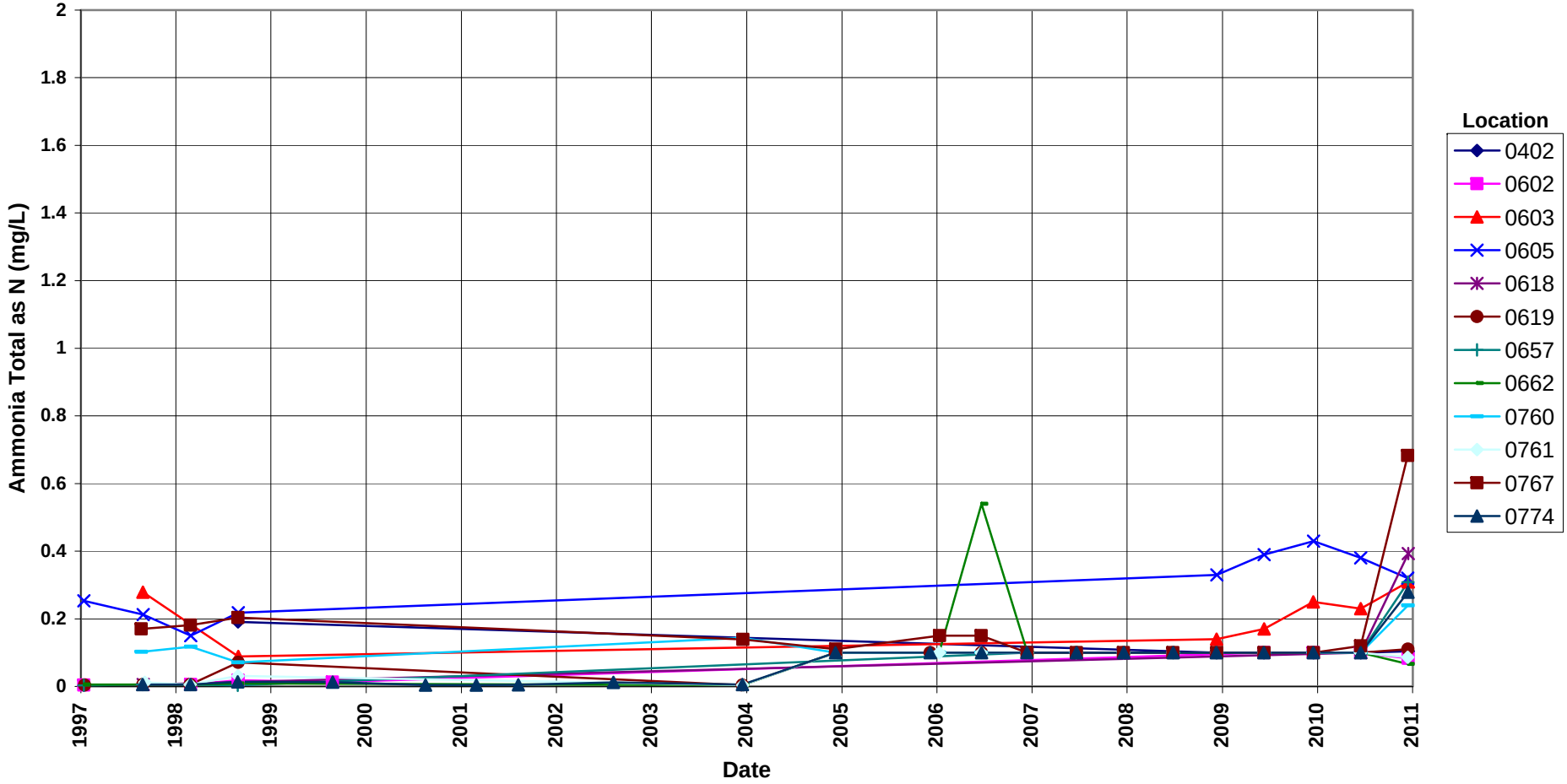
Time-Concentration Graphs

This page intentionally left blank

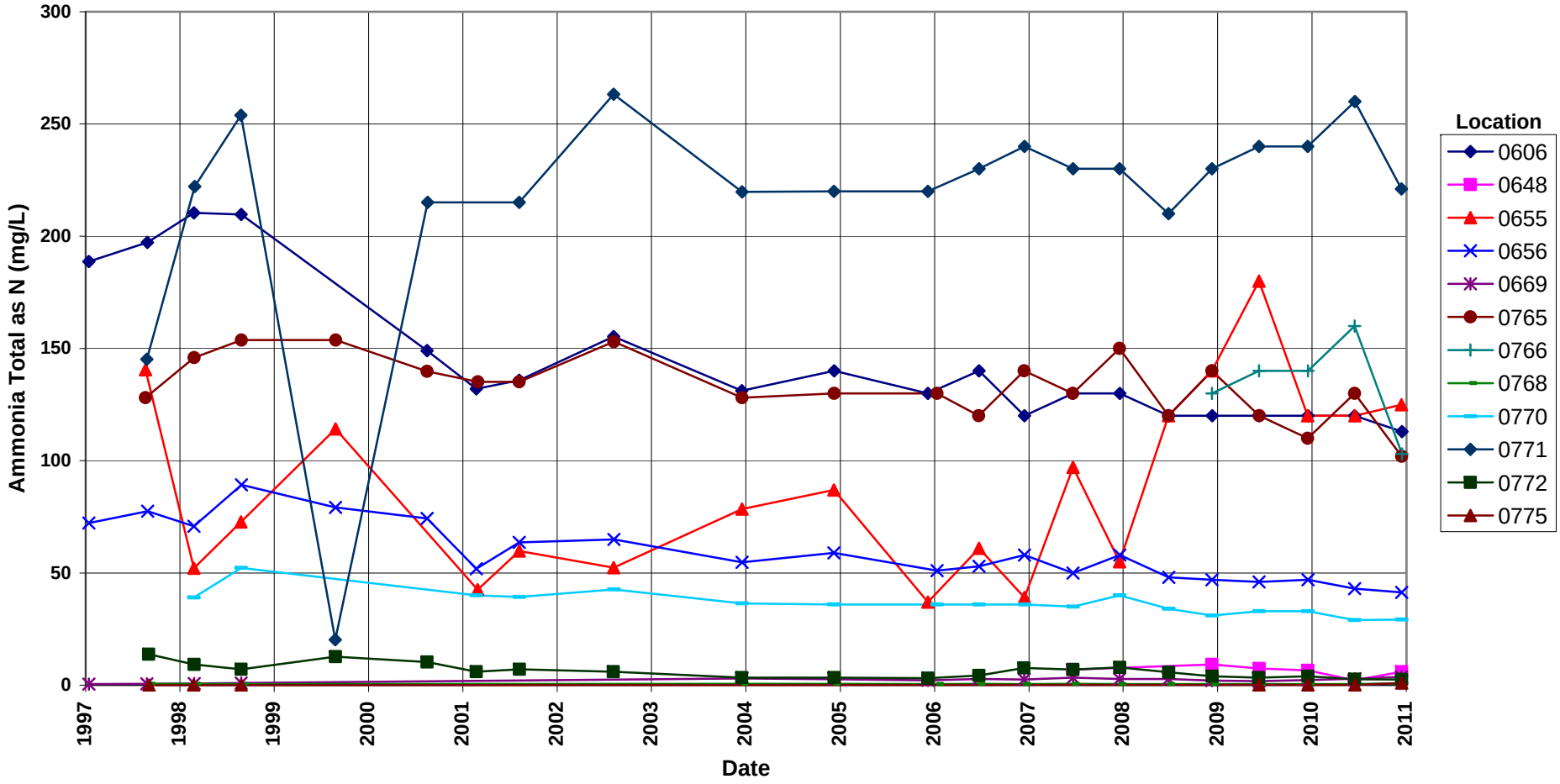
Monument Valley Processing Site
Ammonia Total as N Concentration



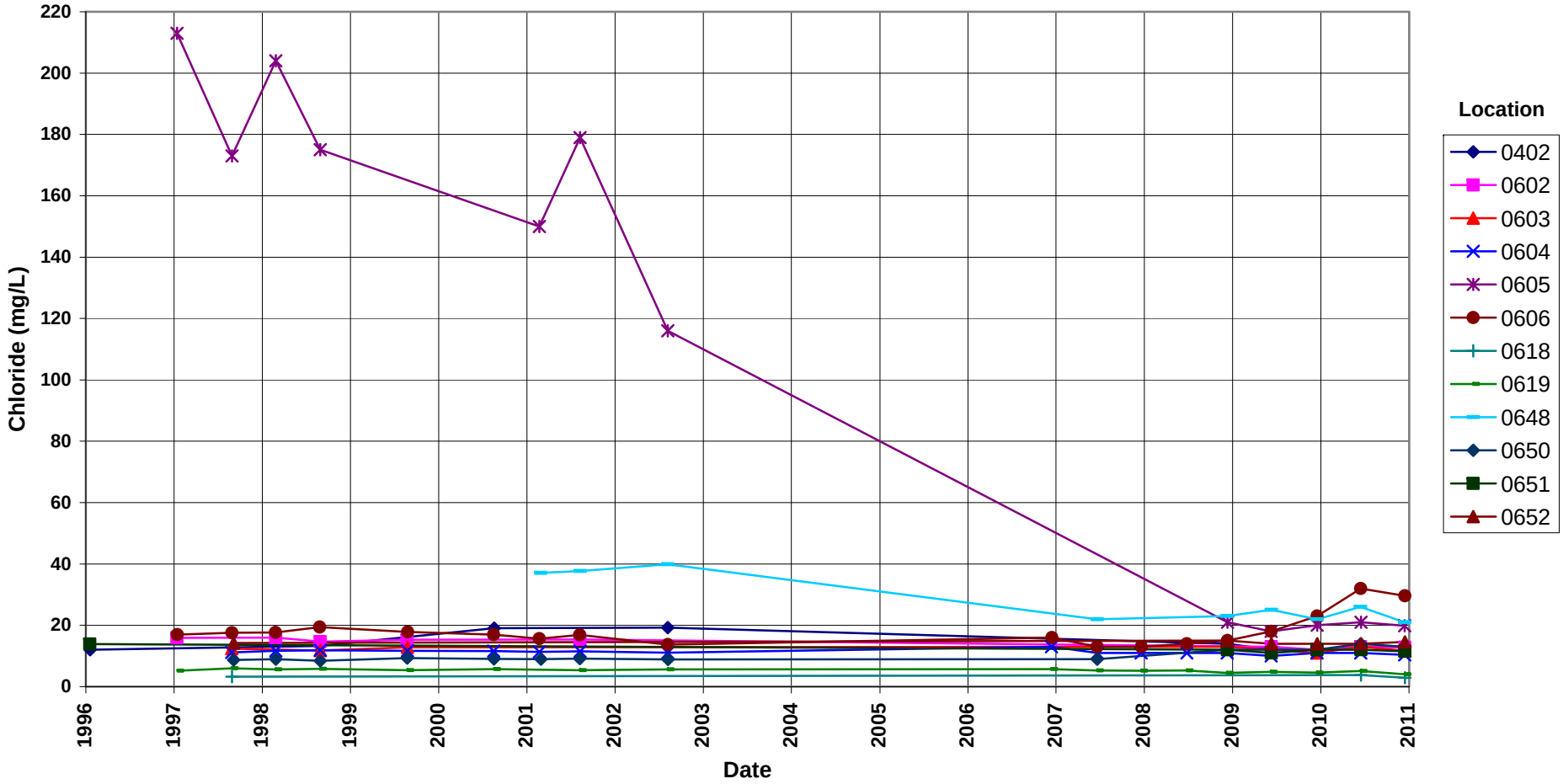
Monument Valley Processing Site
Ammonia Total as N Concentration



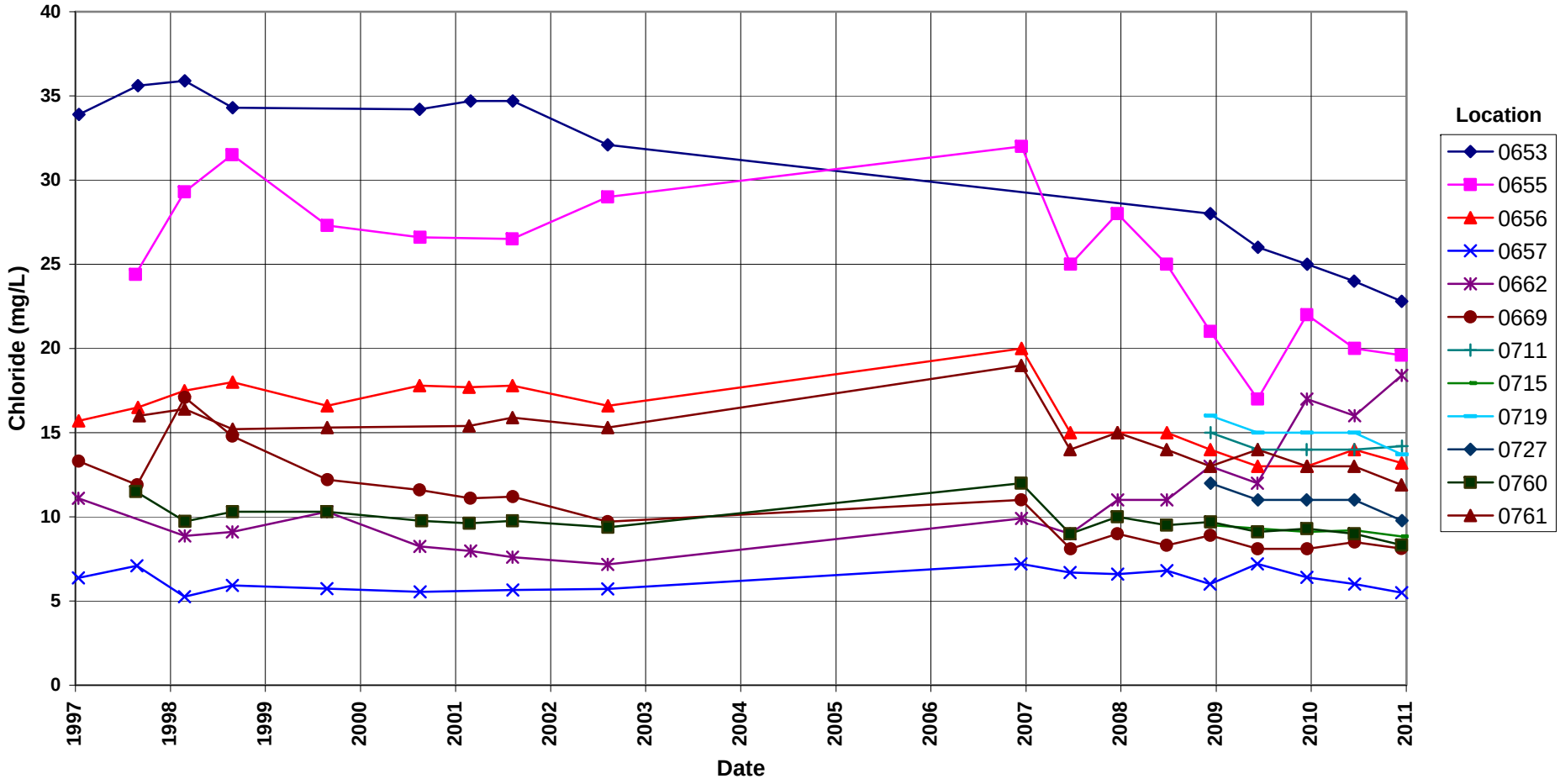
Monument Valley Processing Site
Ammonia Total as N Concentration

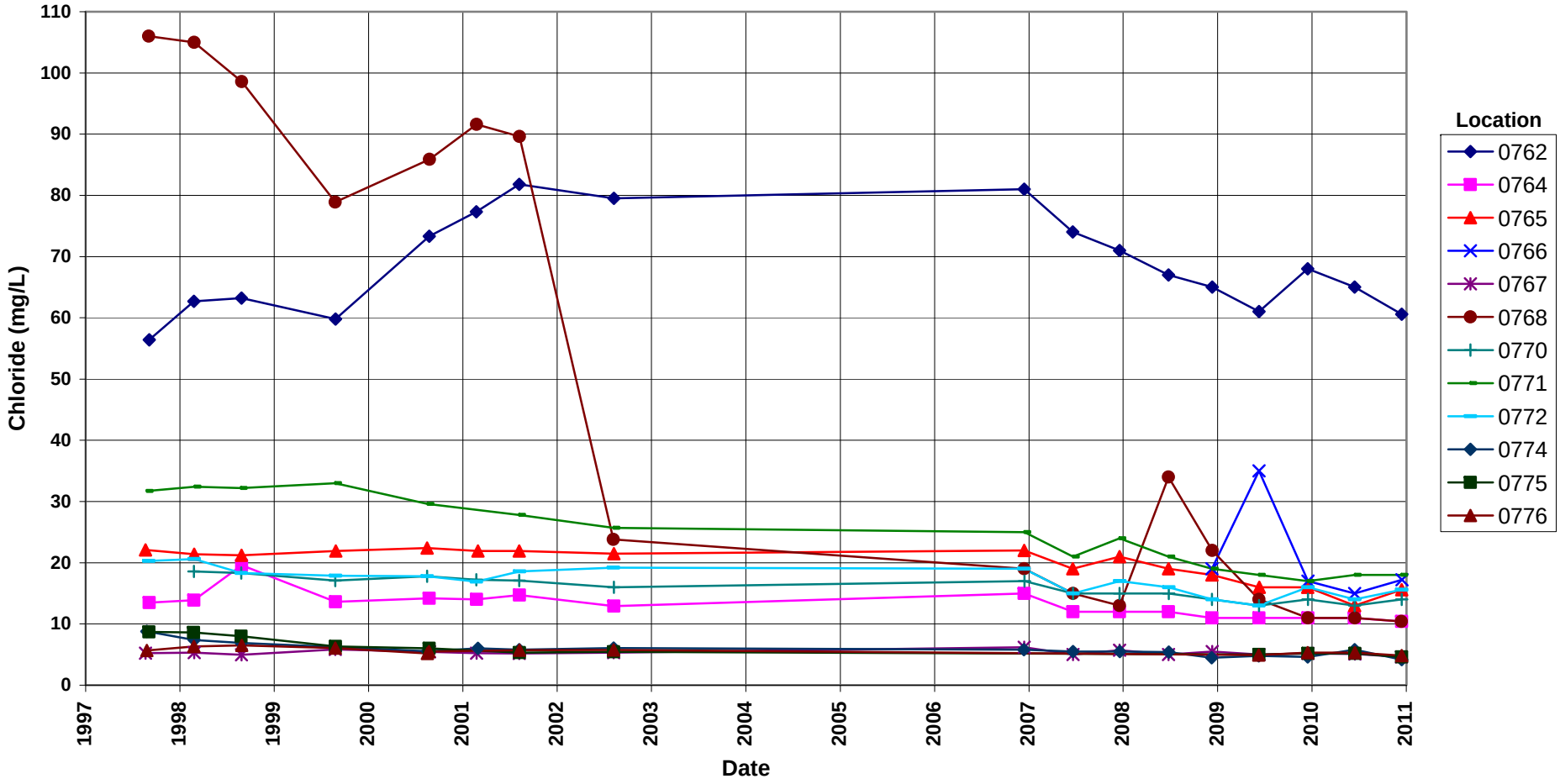


Monument Valley Processing Site
Chloride Concentration

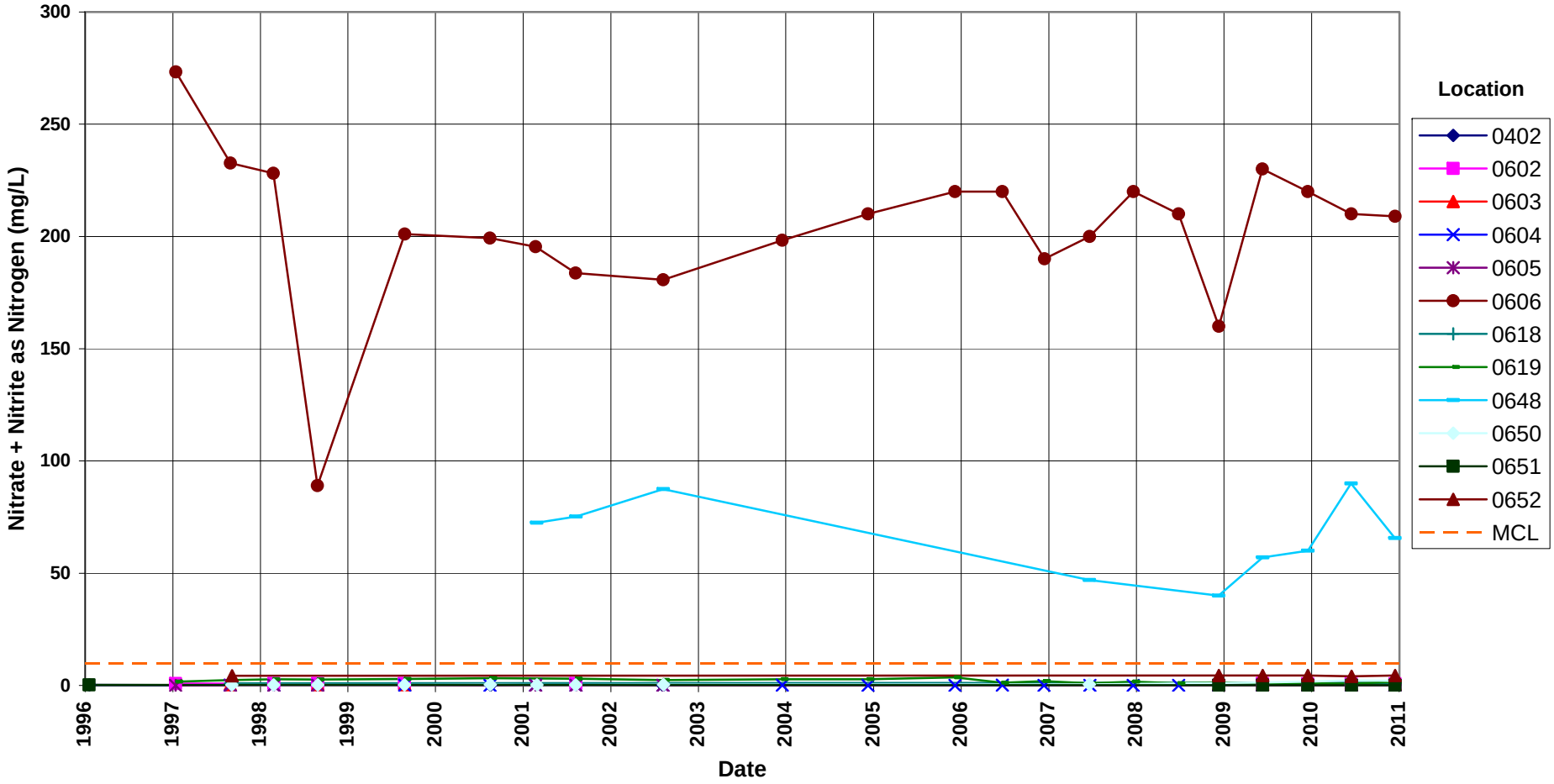


Monument Valley Processing Site
Chloride Concentration

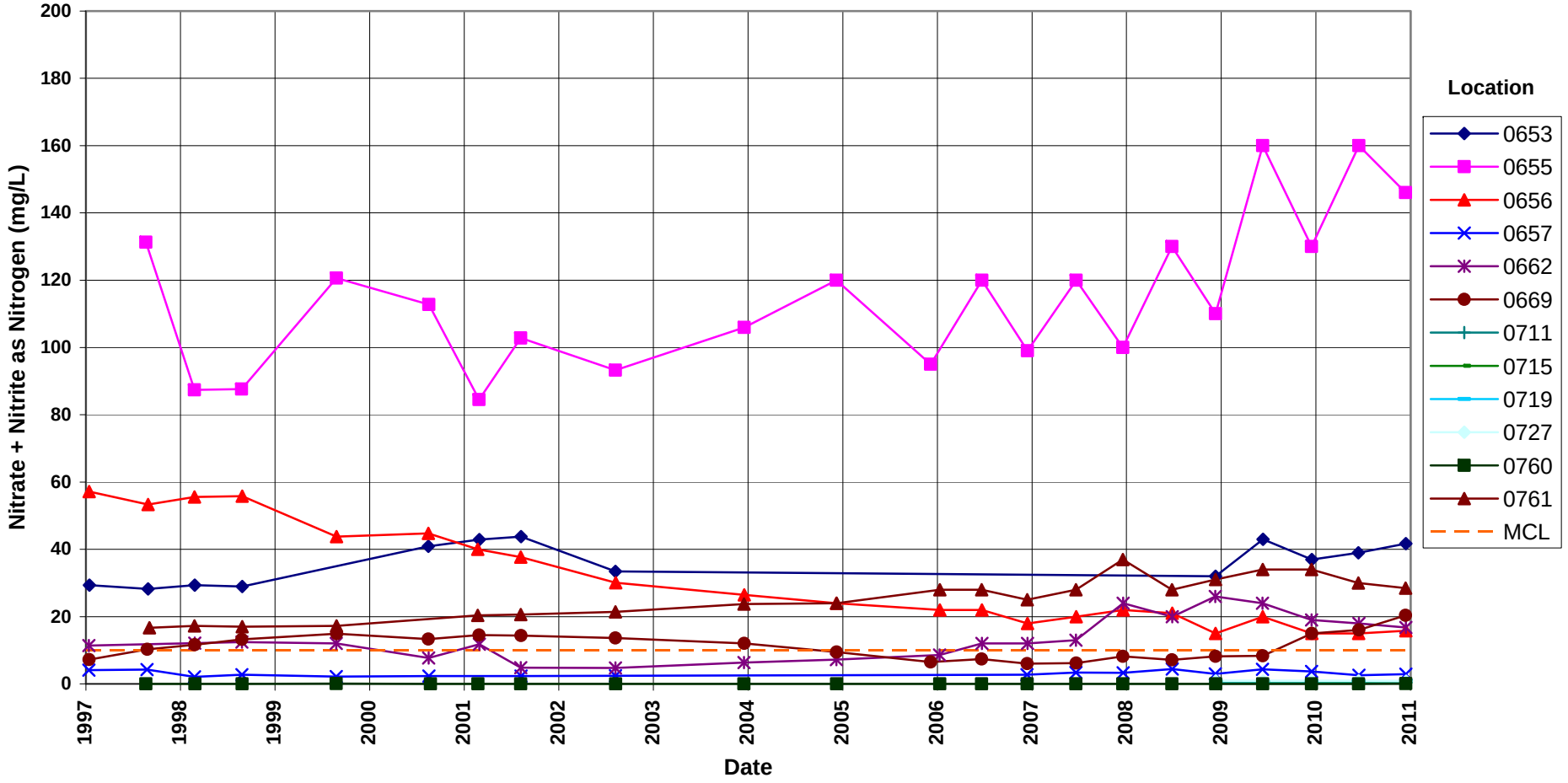



Monument Valley Processing Site
Chloride Concentration
Chloride (mg/L)
Date
Location
0762
0764
0765
0766
0767
0768
0770
0771
0772
0774
0775
0776

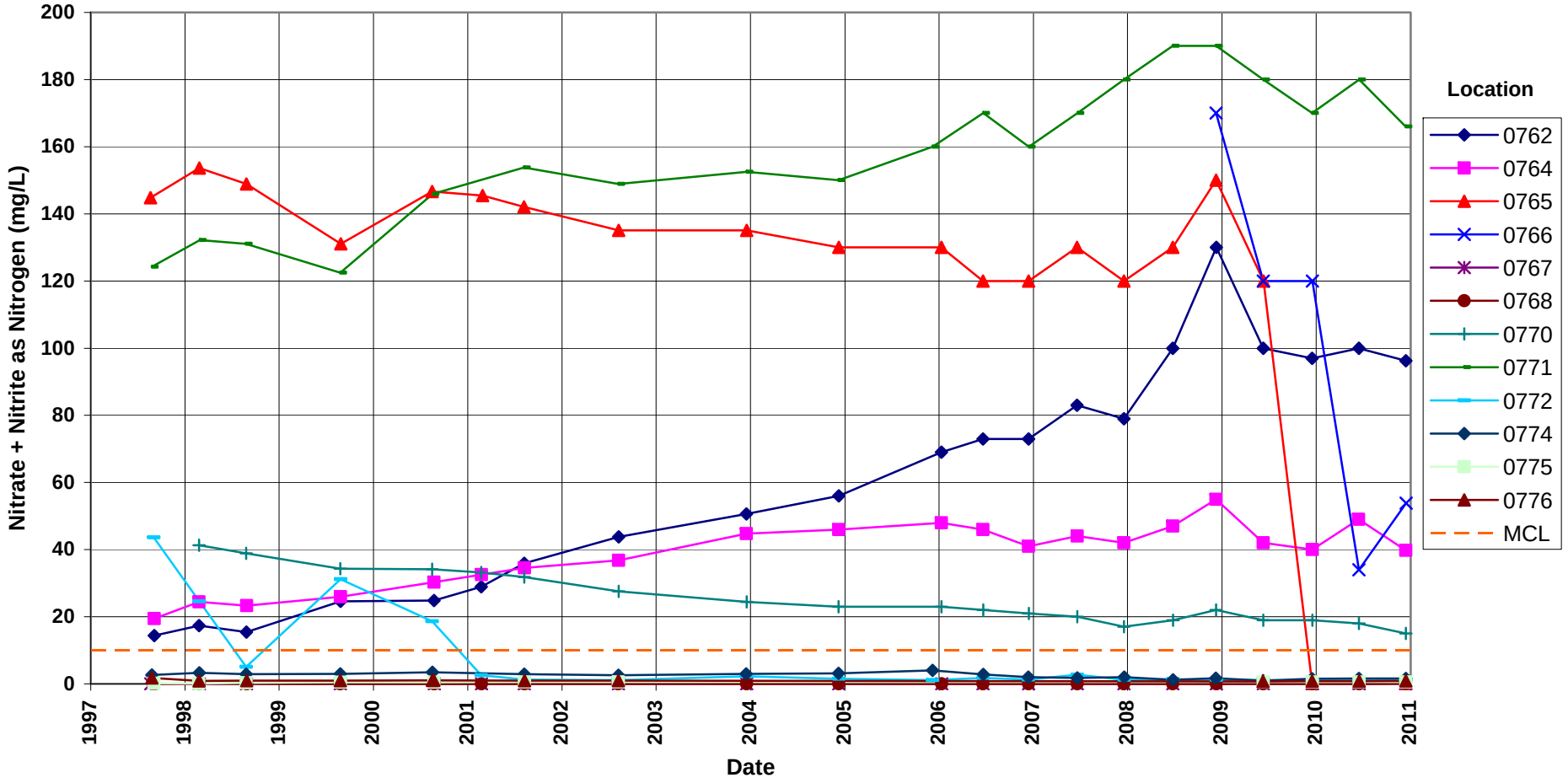
Monument Valley Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10 mg/L



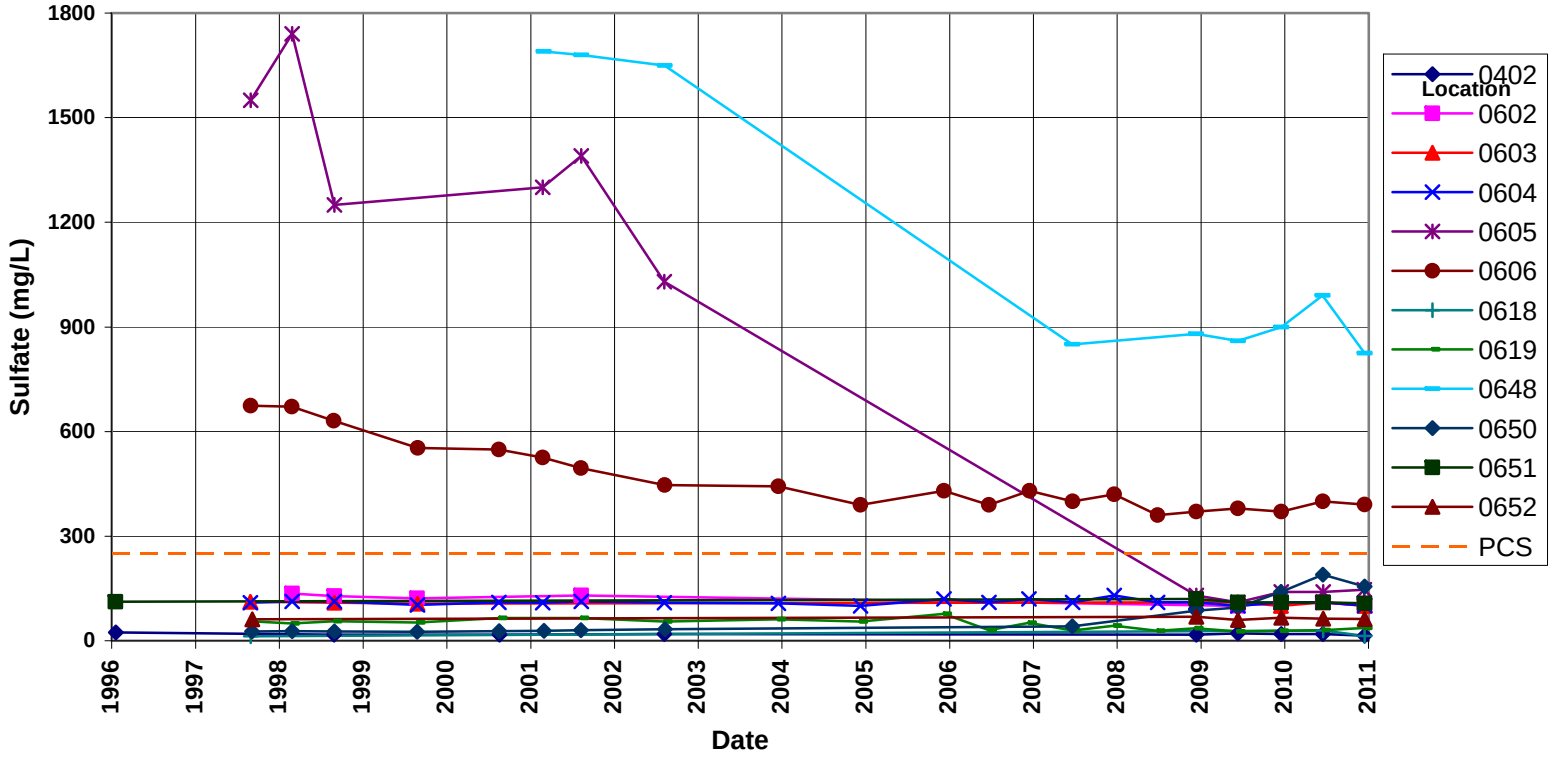
Monument Valley Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10 mg/L



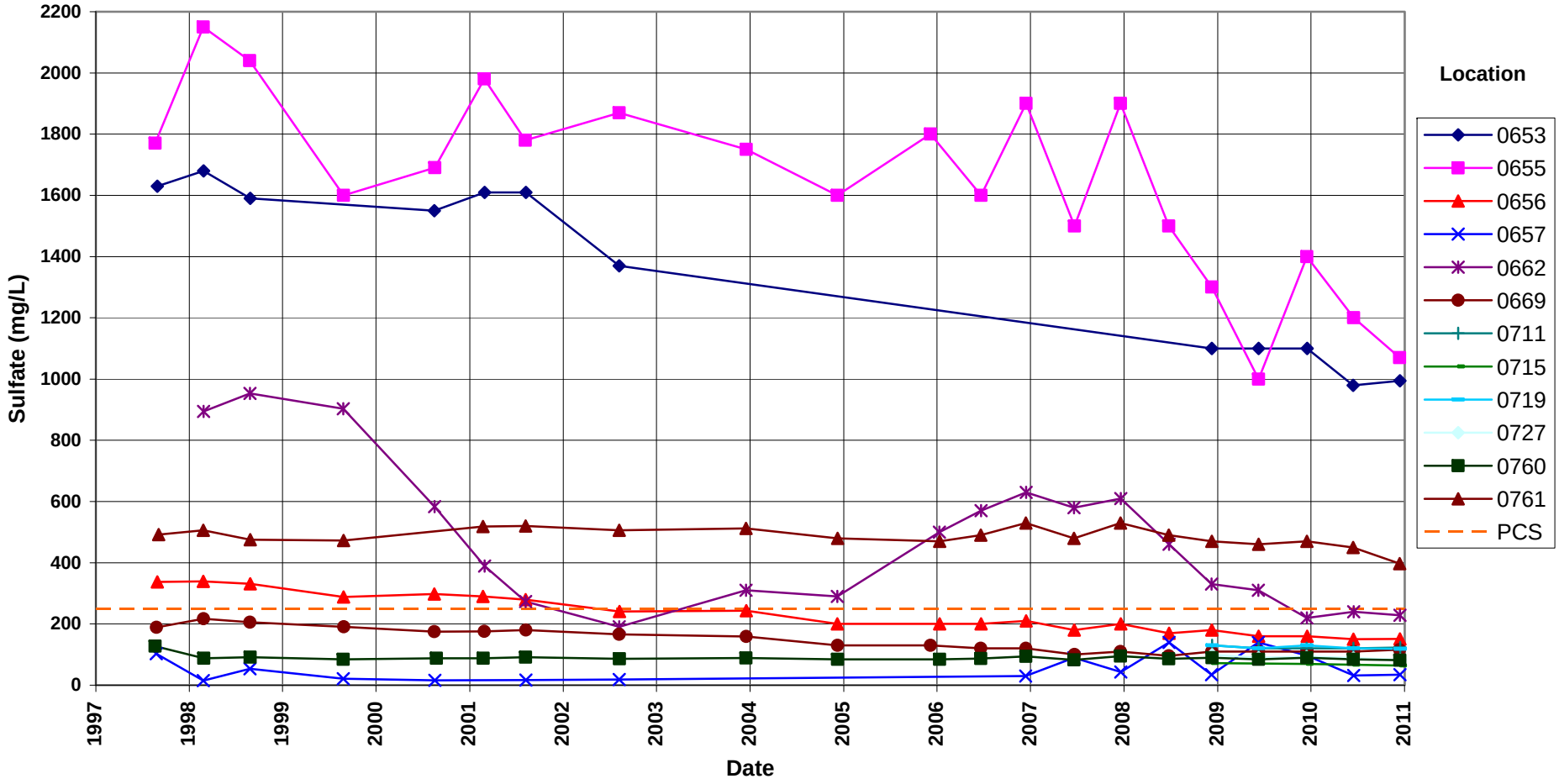
Monument Valley Processing Site
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10 mg/L



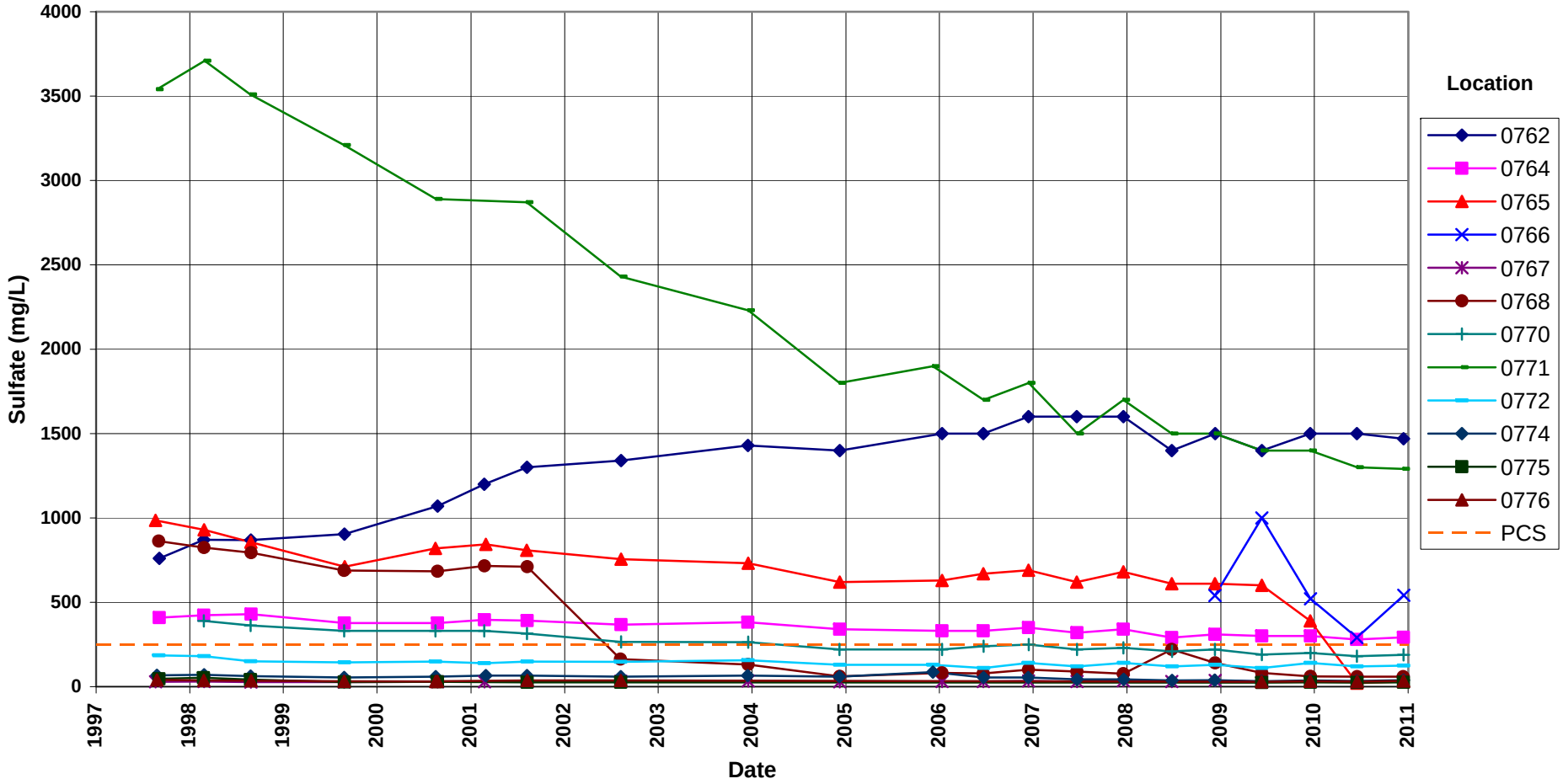
Monument Valley Processing Site
Sulfate Concentration
Proposed Cleanup Standard (PCS) = 250 mg/L



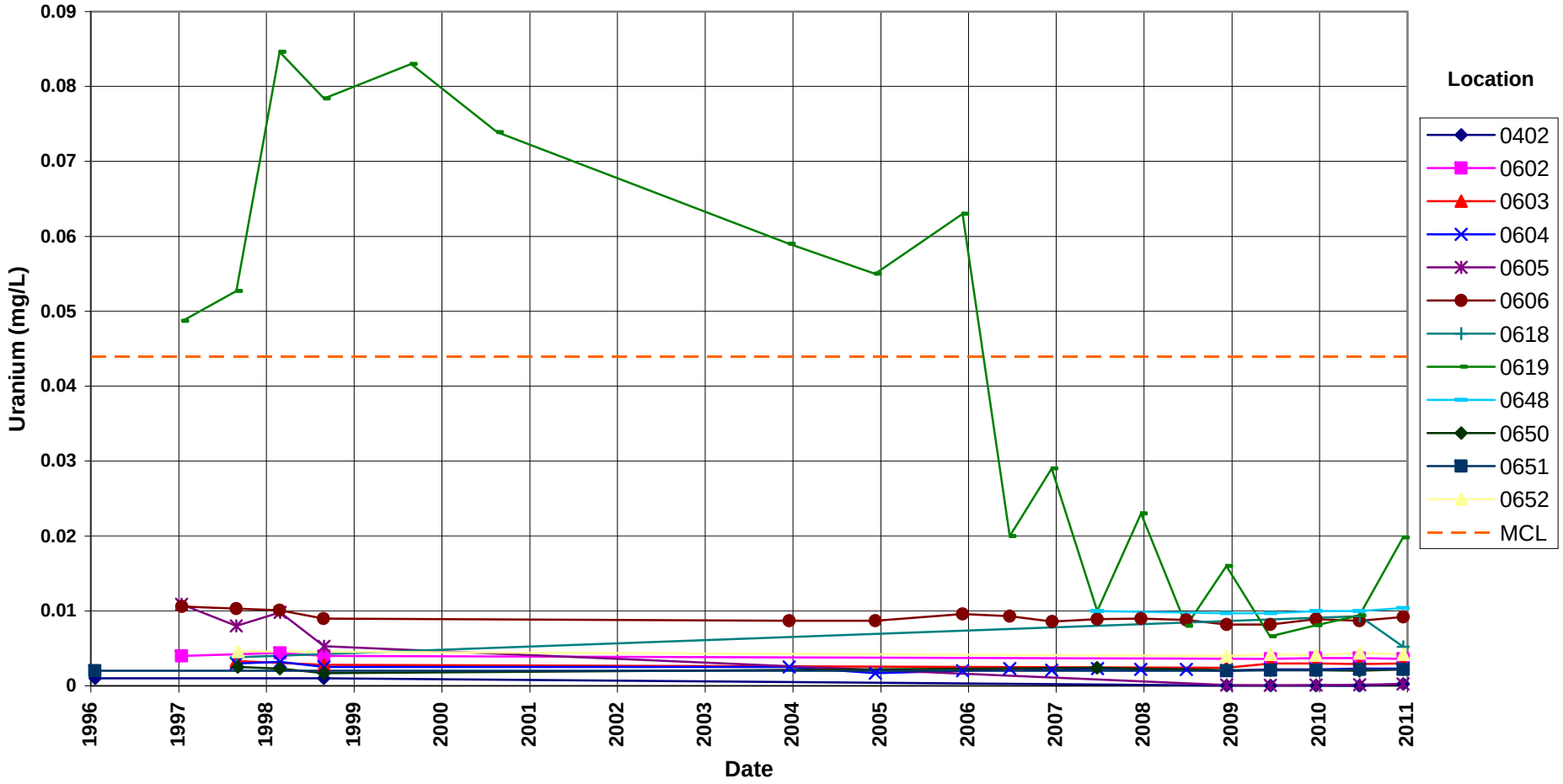
Monument Valley Processing Site
Sulfate Concentration
Proposed Cleanup Standard (PCS) = 250 mg/L



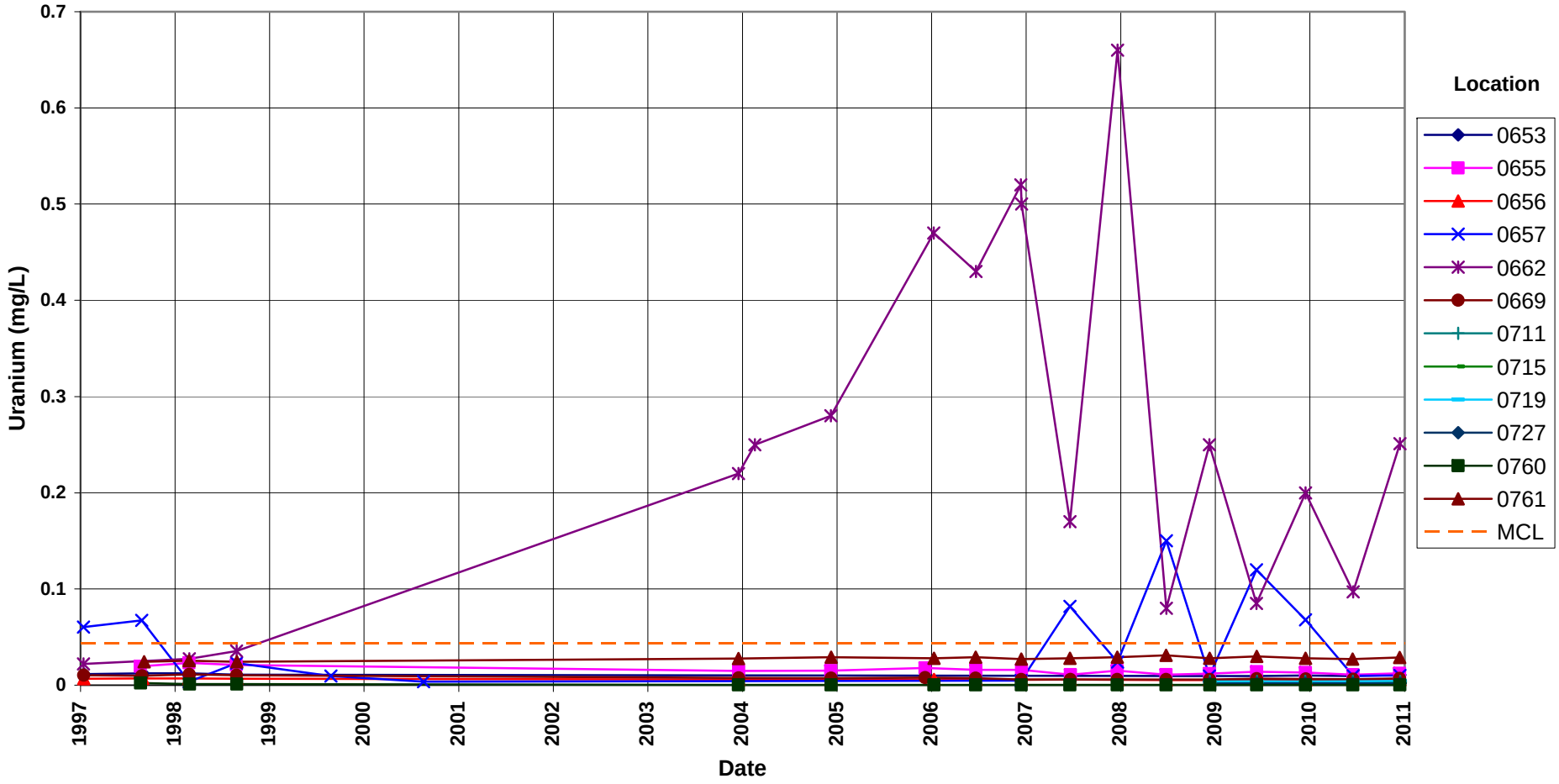
Monument Valley Processing Site
Sulfate Concentration
Proposed Cleanup Standard (PCS) = 250 mg/L



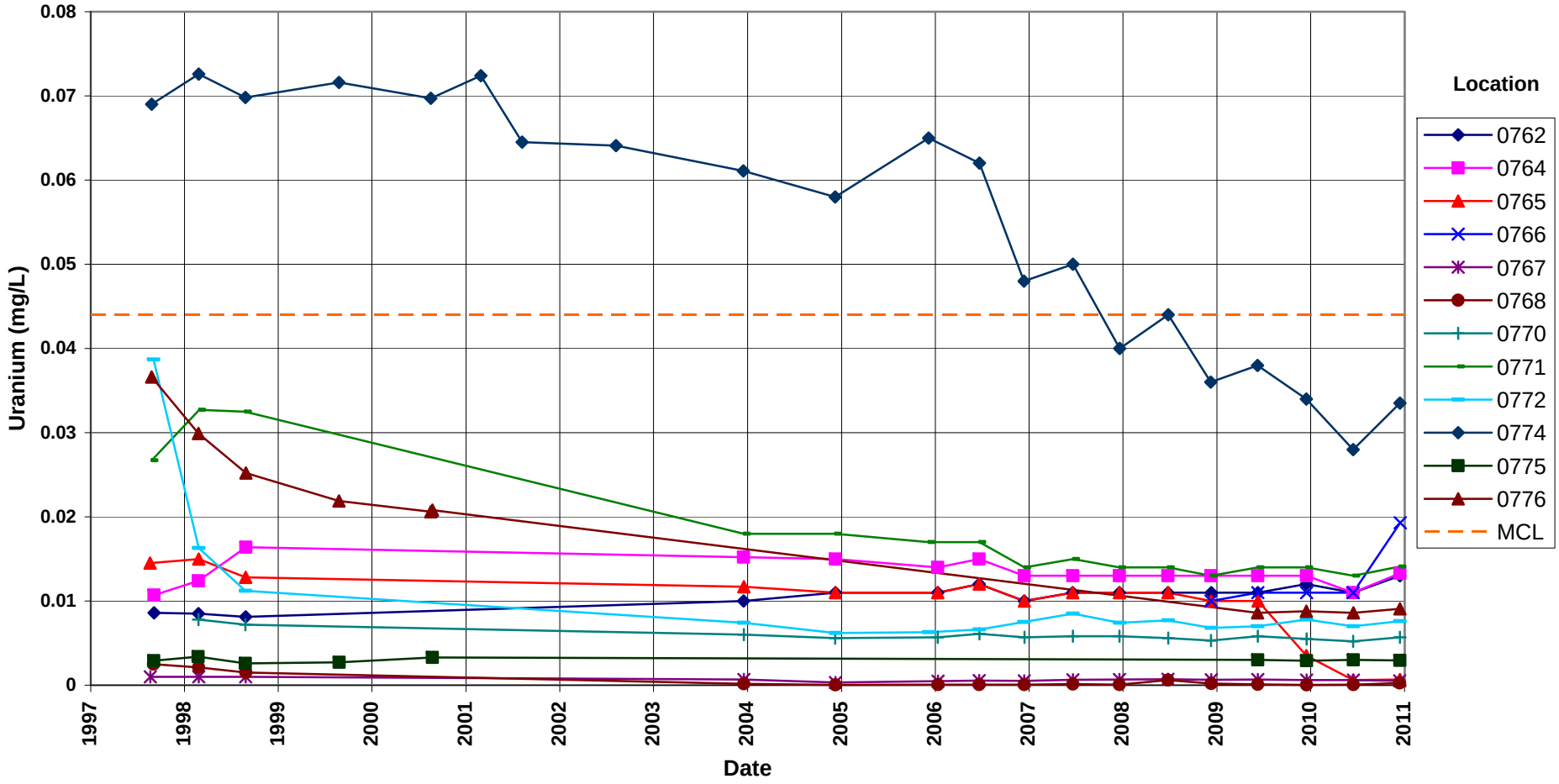
Monument Valley Processing Site
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



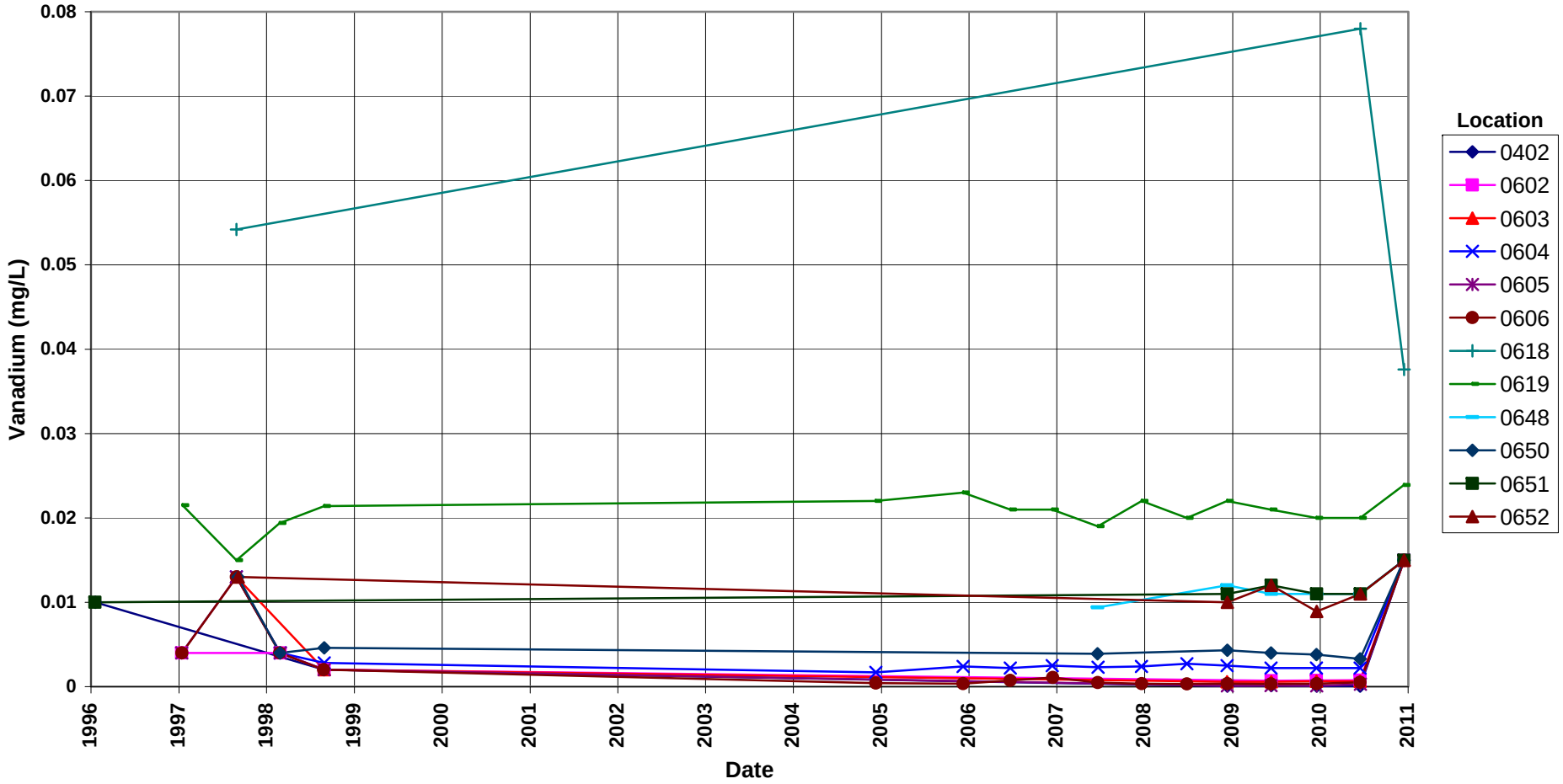
Monument Valley Processing Site
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



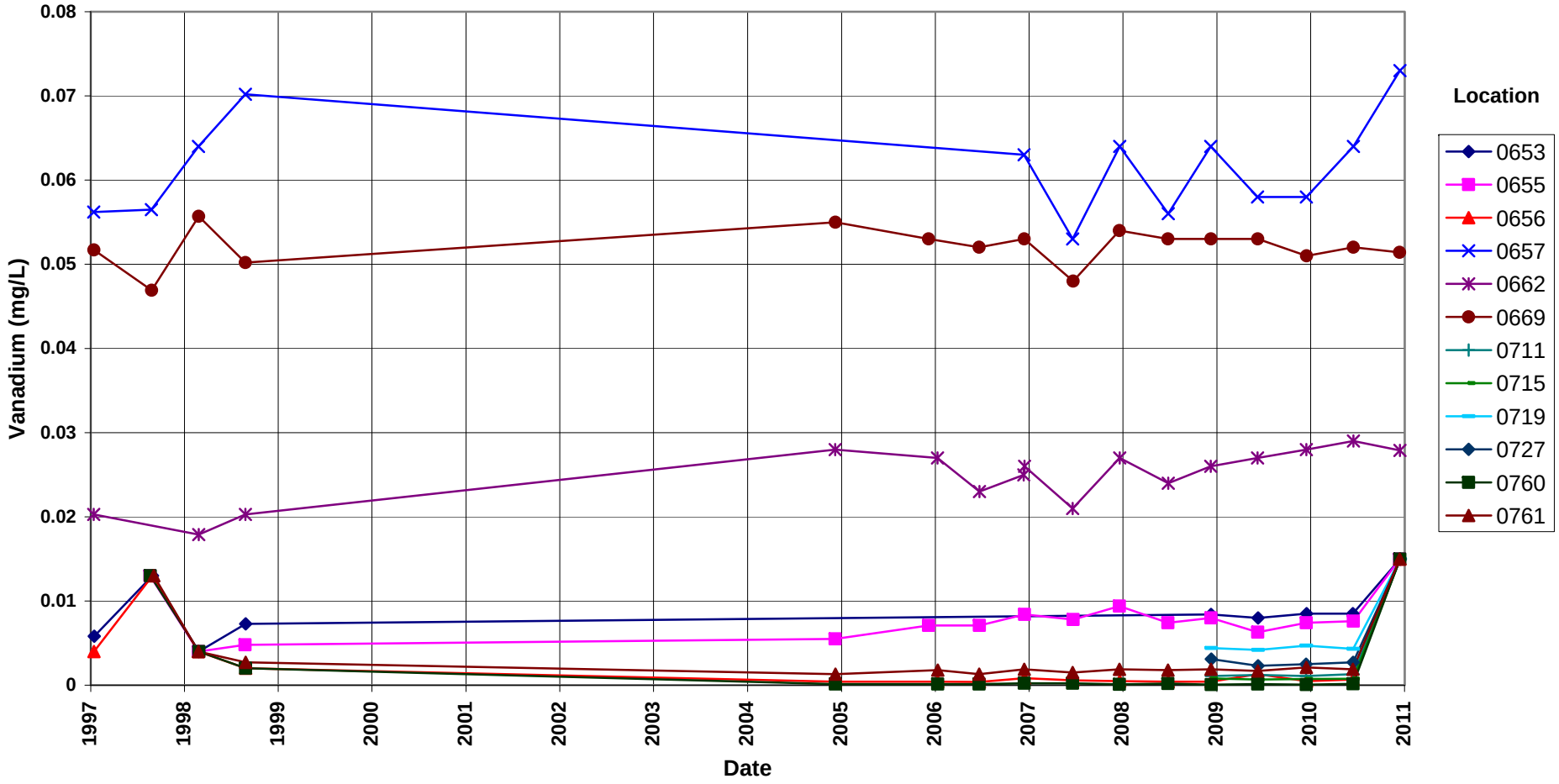
Monument Valley Processing Site
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



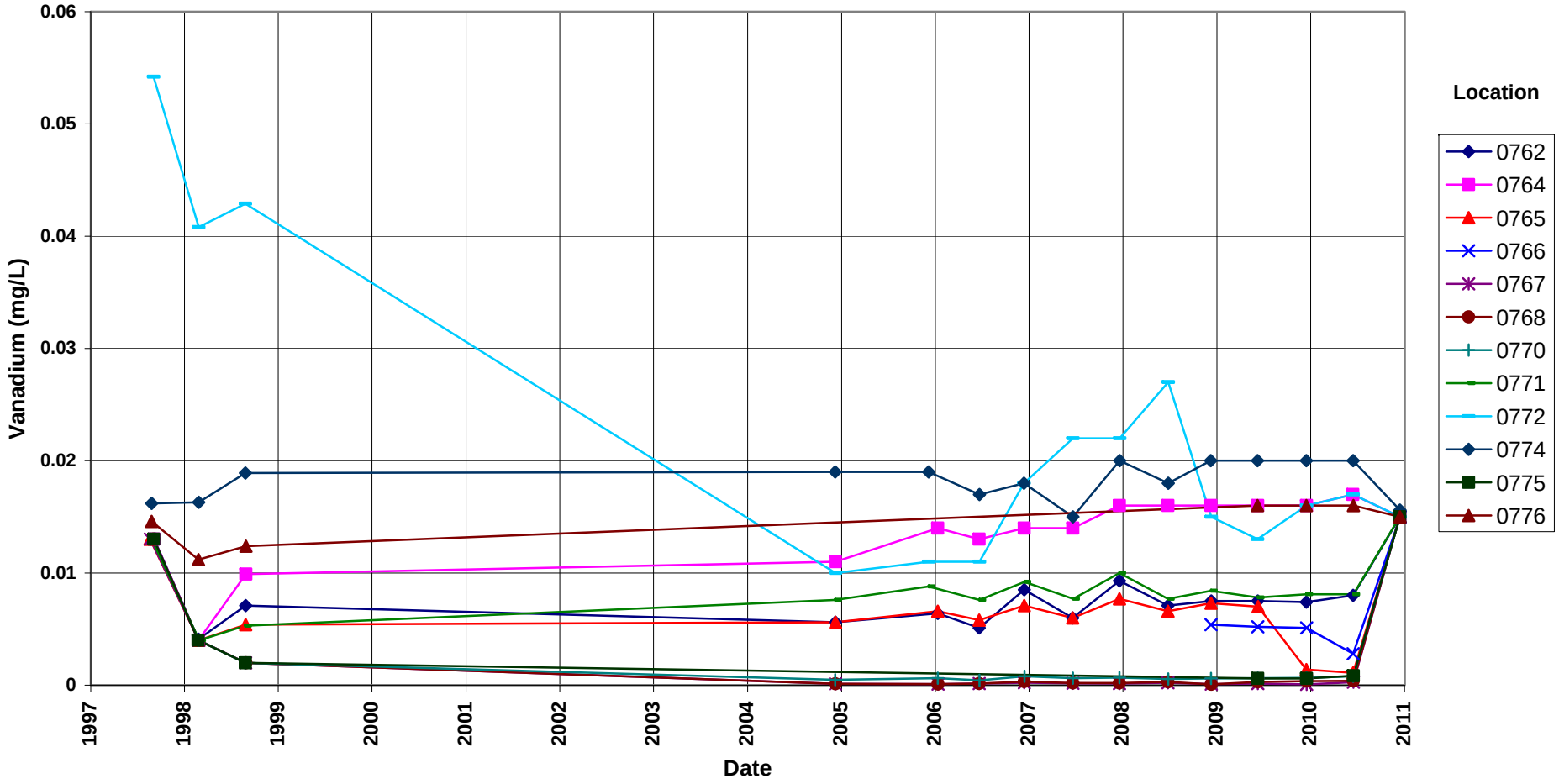
Monument Valley Processing Site
Vanadium Concentration



Monument Valley Processing Site
Vanadium Concentration



Monument Valley Processing Site
Vanadium Concentration



Attachment 3
Sampling and Analysis Work Order

This page intentionally left blank

Stoller established 1959

Task Order LM00-501
Control Number 11-0089

November 9, 2010

U.S. Department of Energy
Office of Legacy Management
ATTN: Richard Bush
Site Manager
2597 B ¾ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
December 2010 Environmental Sampling at Monument Valley, Arizona

REFERENCE: Task Order LM-501-02-114-402, Monument Valley, AZ, Processing Site

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Monument Valley, AZ. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Monument Valley processing site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of December 6, 2010.

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

Monitoring Wells*

402 Al	619 Dc	656 Al	727 Nr	741 Al	762 Al	770 Al
602 Al	648 Al	657 Dc	733 Al	742 Al	764 Al	771 Al
603 Al	650 Al	662 Al	734 Al	743 Al	765 Al	772 Al
604 Al	651 Al	669 Al	735 Al	744 Al	766 Al	774 Al
605 Al	652 Al	711 Nr	738 Al	760 Al	767 Al	775 Dc
606 Al	653 Al	715 Nr	739 Al	761 Al	768 Al	776 Dc
618 Al	655 Al	719 Nr	740 Al			

*NOTE: Al = Alluvium; Dc = Dechelley Member of the Cutler Formation; Nr = no recovery of data for classifying

Surface Location
623

The S.M. Stoller Corporation 2597 B ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are covered under the cooperative agreement.

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

Sincerely,

David Miller
Site Lead

DM/lcg/lb

Enclosures (3)

cc: (electronic)
Steve Donivan, Stoller
Lauren Goodknight, Stoller
Dave Miller, Stoller
EDD Delivery
rc-grand.junction

Sampling Frequencies for Locations at Monument Valley, Arizona

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
402		X				
602		X				
603		X				
604		X				
605		X				
606		X				
618		X				Added by C. Gauther 4/19/10
619		X				
648		X				
650		X				
651		X				
652		X				
653		X				
655		X				
656		X				
657		X				
662		X				
669		X				
711		X				
715		X				
719		X				
727		X				
733		X				
734		X				
735		X				
738		X				
739		X				
740		X				
741		X				
742		X				
743		X				
744		X				
760		X				
761		X				
762		X				
764		X				
765		X				
766		X				
767		X				
768		X				
770		X				
771		X				
772		X				
774		X				
775		X				
776		X				
Surface Locations						
623		X				

Sampling conducted in December and June

Constituent Sampling Breakdown

Site	Monument Valley				
Analyte	**Groundwater**	**Surface Water**	**Required Detection Limit (mg/L)**	**Analytical Method**	**Line Item Code**
Approx. No. Samples/yr	68	1			
Field Measurements					
Alkalinity	0603, 0611, 0615, 0618, and 0772 only				
Dissolved Oxygen					
Redox Potential	X				
pH	X				
Specific Conductance	X				
Turbidity	X				
Temperature	X				
Laboratory Measurements					
Ammonia as N (NH3-N)	X	X	0.1	EPA 350.1	WCH-A-005
Arsenic	0603, 0611, 0615, 0618, and 0772 only		0.0001	SW-846 6020	LMM-02
Calcium	0603, 0611, 0615, 0618, and 0772 only		5	SW-846 6010	LMM-01
Chloride	X	X	0.5	SW-846 9056	MIS-A_039
Iron	0603, 0611, 0615, 0618, and 0772 only		0.05	SW-846 6020	LMM-02
Magnesium	0603, 0611, 0615, 0618, and 0772 only		5	SW-846 6010	LMM-01
Manganese	0603, 0611, 0615, 0618, and 0772 only		0.005	SW-846 6010	LMM-01
Molybdenum	0603, 0611, 0615, 0618, and 0772 only		0.003	SW-846 6020	LMM-02
Nitrate + Nitrite as N (NO3+NO2)-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium	0603, 0611, 0615, 0618, and 0772 only		1	SW-846 6010	LMM-01
Sodium	0603, 0611, 0615, 0618, and 0772 only		1	SW-846 6010	LMM-01
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium	X	X	0.0003	SW-846 6020	IMM-02
Total No. of Analytes	14	6			

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

Attachment 4
Trip Report

This page intentionally left blank

Stoller established 1959
Grand Junction Office

Memorandum

DATE: December 28, 2010

TO: David Miller

FROM: Jeff Price

SUBJECT: Trip Report

Site: Monument Valley, Arizona, Processing Site.

Dates of Sampling Event: December 13-15, and 20-21, 2010

Team Members: Gretchen Baer, Joe Trevino, Dan Sellers, and Jeff Price.

Number of Locations Sampled: Water samples for metals, anions, nitrate + nitrite as N, and ammonia as N, were collected from 46 monitoring wells and one surface location for a total of 47 locations. Samples also were collected from 3 additional wells in support of the University of Arizona (U of A) project.

Locations Not Sampled/Reason: Because pumps had not been installed in wells 0733, 0734, 0735, 0738, 0739, and 0740, they were not sampled during the first week. Joe Trevino and Jeff Price returned the following week, installed dedicated bladder pumps, and sampled the six wells.

Location Specific Information: 10 one-inch Geoprobe wells were installed during the 2010 field season. Initial well development has been completed; however, further development is needed on nine of the 10 wells to get turbidity levels below 10 NTUs. The well set is 0733, 0734, 0735, 0738, 0739, 0740, 0742, 0743, and 0744.

Could not reach turbidity at well 0765; this well also smelled of sulfur. Wells 0605, 0767, and 0768 have a sulfur smell. Well 0774 has small brown particles in the water.

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

False ID	Ticket Number	True ID	Sample Type	Associated Matrix
2079	IMQ 972	0662	Duplicate	Groundwater
2711	IMQ 955	0619	Duplicate	Groundwater
2856	IMQ 960	0772	Duplicate	Groundwater

RIN Number Assigned: All samples were assigned to RIN 10113473.

Sample Shipment: Samples were shipped overnight via FedEx to GEL Laboratories,

Charleston, SC, from Grand Junction, CO, on December 16, 2010, and on December 27, 2010.

Water Level Measurements: Water levels were measured at all sampled wells.

Well Inspection Summary: A few issues were identified: well 0605–concrete pad is cracked; pump check ball leaking in well 0619; wind erosion beneath pads at wells 0651 and 0764.

Field Variance: None.

Equipment: Wells were sampled with a peristaltic pump/dedicated tubing, or a dedicated bladder pump. The surface water location was sampled by immersing containers. Because all equipment was dedicated, equipment blanks were not required.

Institutional Controls

Fences, Gates, Locks: All were in good condition.
Signs: Not applicable
Trespassing/Site Disturbances: None observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: Not applicable.
Vegetation/Noxious Weed Concerns: Brush is starting obscure several wells.
Maintenance Requirements: Well pads mentioned above. Routine well development should be completed at all well locations. Irrigation valve boxes were installed at locations DV-106 and DV-107.
Access Issues: None.
Safety Issues: None.

Corrective Action Taken: None.

JEP/lcg

cc: (electronic)
Rich Bush, DOE
Steve Donivan, Stoller
EDD Delivery