Data Validation Package

December 2011
Groundwater and Surface Water Sampling at the Monument Valley, Arizona, Processing Site

March 2012

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Monument Valley, Arizona, Processing Site

Sampling Period: December 13–15, 2011

Forty-six groundwater samples and one surface water sample were collected at the Monument Valley, Arizona, Processing Site to monitor groundwater contaminants to evaluate the effectiveness of the proposed compliance strategy 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).

Samples collected during this event were analyzed for ammonia as nitrogen, chloride, nitrate + nitrite as nitrogen, sulfate, uranium, and vanadium. Time-concentration plots for these constituents in selected wells are included with the results data.

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

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	229
			0648	77
			0653	50.8
			0655	169
			0656	15.4
			0662	15.8
			0669	17.1
			0740	12.6
			0741	89.3
			0742	116
			0744	142
			0761	31.7
			0762	102
			0764	38.8
			0766	112
			0770	16.1
			0771	184
Uranium	0.044	MON01	0657	0.35
			0662	0.394
			0734	0.161
			0735	0.19

[a] Standards are listed in 40 CFR 192.02 Table 1 to Subpart A.
mg/L = milligrams per liter.

The Navajo Nation's proposed cleanup standard for sulfate is 250 milligrams per liter. The ratios of sulfate-to-chloride concentrations vary depending on whether the source of the sulfate is related to past millsite activities or if it is from natural sources. Tailings fluids were enriched in nitrate and sulfate but had relatively low chloride concentrations. A sulfate-to-chloride ratio greater than 10 usually is an 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 milligrams per liter *or* the sulfate-to-chloride ratio is less than 10. Table 2 lists sulfate concentrations and sulfate-to-chloride ratios.

Table 2. Sulfate Results

Location	Sulfate Concentration (mg/L)	Sulfate/Chloride Ratio	Treatment Goal Achieved?
0402	14.7	1	Yes
0602	104	8	Yes
0603	103	9	Yes
0604	104	9	Yes
0605	590	9	Yes
0606	387	18	No
0618	123	21	Yes
0619	29.5	7	Yes
0623	39.7	3	Yes
0648	922	38	No
0650	292	19	No
0651	109	9	Yes
0652	63.4	5	Yes
0653	945	41	No
0655	949	57	No
0656	145	11	Yes
0657	472	49	No
0662	326	20	No
0669	109	12	Yes
0711	116	8	Yes
0715	64.3	7	Yes
0719	111	9	Yes
0727	79.0	9	Yes
0733	67.6	13	Yes
0734	94.7	19	Yes
0735	236	152	No
0738	174	13	Yes
0739	191	12	Yes
0740	1130	29	No
0741	430	29	No
0742	472	33	No
0743	569	39	No
0744	382	28	No
0760	78.8	9	Yes
0761	393	34	No
0762	1370	23	No
0765	35.4	3	Yes
0766	417	29	No
0767	32.4	7	Yes

Table 2 (continued). Sulfate Results

Location	Sulfate Concentration (mg/L)	Sulfate/Chloride Ratio	Treatment Goal Achieved?
0768	79.4	6	Yes
0770	182	13	Yes
0771	1290	78	No
0772	109	8	Yes
0774	39.9	10	Yes
0775	24.9	5	Yes
0776	31.7	7	Yes

mg/L = milligrams per liter.

The data from the sampling event are consistent with the data obtained during the June 2011 sampling event.

David Miller
Site Lead, S.M. Stoller Corporation

3/19/12
Date

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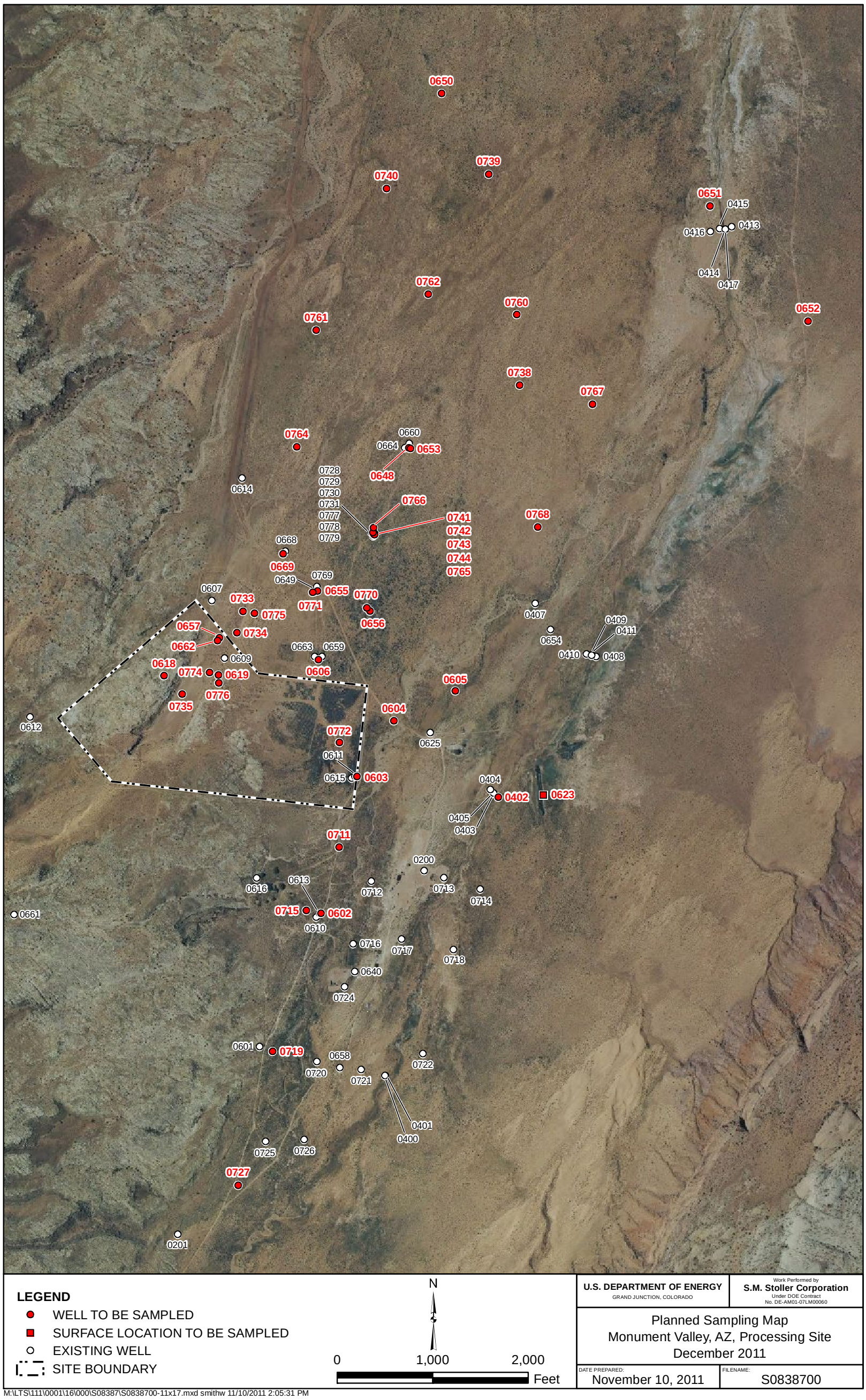

Monument Valley, Arizona, Processing Site Sample Locations

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Monument Valley, Arizona	**Date(s) of Water Sampling**	December 13–15, 2011
Date(s) of Verification	February 14, 2012	**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 16, 2011.
2. Were the sampling locations specified in the planning documents sampled?	Yes	Limited volume was produced at well 0764; only metals and nitrate + nitrite as N aliquots were collected.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on December 12, 2011.
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	Compliance with water level criteria was not achieved at well 0762. There is no evidence the data from this well were adversely affected.
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
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 at locations 0619, 0650, and 0740.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	Dedicated equipment was used for all samples collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location IDs 2079, 2251, and 2711 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?	No	Water levels were not measured at wells 0618 and 0744 because of difficulties encountered getting the probe in the well.

Laboratory Performance Assessment

General Information

Report Numbers (RINs):	11124247
Sample Event:	December 13–15, 2011
Site(s):	Monument Valley, Arizona
Laboratory:	GEL Laboratories, Charleston, South Carolina
Work Order Nos.:	292388, 292406, 292408
Analysis:	Metals, Radiochemistry, and Wet Chemistry
Validator:	Steve Donivan
Review Date:	February 13, 2012

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	EPA 350.1	EPA 350.1
Chloride	MIS-A-045	SW-856 9056	SW-856 9056
Nitrate + Nitrite as Nitrogen	WCH-A-022	EPA 353.2	EPA 353.2
Sulfate	MIS-A-045	SW-856 9056	SW-856 9056
Uranium Isotopes	LMR-02	U-02-RC, Modified	U-02-RC, Modified
Uranium	LMM-02	SW-846 3005A	SW-846 6020A
Vanadium	LMM-02	SW-846 3005A	SW-846 6010B

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
292388003	0603	Uranium-235	J	Less than the Determination Limit
292406007	0618	Uranium	R	Anomalous result
292406004	0733	Uranium-235	J	Less than the Determination Limit
292406014	0760	Uranium-235	U	Less than the Decision Level
292406014	0760	Uranium-238	J	Less than the Determination Limit
292408006	0775	Uranium-235	J	Less than the Determination Limit

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 50 water samples on December 20, 2011, accompanied by a Chain of Custody form. Copies of the air bills were included in the receiving documentation. The Chain of Custody form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The Chain of Custody form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipments were received intact with the temperatures inside the iced cooler 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.

Detection and Quantitation Limits

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

For radiochemical analytes (those measured by radiometric counting) the MDL and PQL are not applicable, and these results are evaluated using the minimum detectable concentration (MDC), Decision Level Concentration (DLC), and Determination Limit (DL). The MDC is a measure of radiochemical method performance and was calculated and reported as specified in *Quality Systems for Analytical Services*. The DLC is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, and is estimated as 3 times the one-sigma total propagated uncertainty. Results that are greater than the MDC, but less than the DLC are qualified with a “U” flag (not detected). The DL for radiochemical results is the lowest concentration that can be reliably measured, and is defined as 3 times the MDC. Results not previously “U” qualified that are less than the DL are qualified with a “J” flag as estimated values.

The reported MDLs for all metal, organic, and wet chemical analytes, and MDCs for radiochemical analytes demonstrate compliance with contractual requirements.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument

calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

Method EPA 350.1, Ammonia as Nitrogen
Calibrations were performed using five calibration standards on December 28, 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 15 verification checks. All calibration checks met the acceptance criteria.

Method EPA 353.2, Nitrate + Nitrite as Nitrogen
Calibrations were performed using five calibration standards on January 10, 2012. 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 17 verification checks. All calibration checks met the acceptance criteria.

Method SW-846 6010B, Vanadium
Calibrations were performed on January 6, 2012, using three standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency resulting in 16 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.

Method SW-846 6020A, Uranium
Calibrations were performed on January 10 and 11, 2012, using two standards. Initial and continuing calibration verification checks were made at the required frequency resulting in 10 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 29, 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 22 verification checks. All calibration checks met the acceptance criteria.

Radiochemical Analysis

Alpha Spectrometry
Alpha spectrometry calibrations and instrument backgrounds were performed within a month prior to sample analysis. Calibration standards were counted to obtain a minimum of 10,000 counts per peak. Daily instrument checks met the acceptance criteria. The tracer recoveries met the acceptance criteria of 30 to 110 percent for all samples with the exception of 0657. The high concentration of uranium in this sample resulted in low chemical recovery, which is acceptable. The full width at half maximum was reviewed to evaluate the spectral resolution. All internal standard full width at half maximum values were below 100 kiloelectron volts demonstrating acceptable resolution. All internal standard peaks were within 50 kiloelectron volts of the expected position. The regions of interest for analyte peaks were reviewed. All regions of interest were satisfactory and all integrations were performed correctly.

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 some metals, some blanks were negative and the absolute values were greater than the MDL but less than the PQL. The associated results less than 5 times the MDL are qualified with a "J" flag as estimated values.

Inductively Coupled Plasma Interference Check Sample Analysis

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes evaluated. At 81 percent, a MS recovery sulfate exceeded the laboratory's acceptance criteria, but was within the ±25 percent requirement.

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. Some serial dilution results for magnesium, molybdenum, and sodium did not meet the acceptance criteria. Associated results are qualified with a "J" flag as estimated values. All other evaluated serial dilution data were acceptable. The laboratory flagged a manganese and a vanadium result for serial dilution failure, but the sample concentration was less than 50 times the PQL, so no further qualification is necessary.

Detection Limits/Dilutions

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

Completeness

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

Chromatography Peak Integration

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

Electronic Data Deliverable (EDD) File

The EDD file arrived on January 19, 2012. 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: 11124247 **Lab Code:** GEN **Validator:** Steve Donivan **Validation Date:** 2/13/2012

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	All analyses were completed within the applicable holding times.
☑ Detection Limits	There are 0 detection limit failures.
☐ Field/Trip Blanks	
☑ Field Duplicates	There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 11124247 **Lab Code:** GEN **Date Due:** 1/17/2012

Matrix: Water **Site Code:** MON **Date Completed:** 1/20/2012

Analyte	Method Type	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	ICV	CCV	ICB	CCB								
Uranium	ICP/MS	01/10/2012			OK	OK	OK	OK	OK	106.0	106.0			105.0		118.0
Uranium	ICP/MS	01/11/2012							OK	97.3	107.0		3.0	107.0		124.0
Uranium	ICP/MS	01/11/2012							OK	108.0	98.2					
Vanadium	ICP/ES	01/06/2012	0.0000	0.9998	OK	OK	OK	OK	OK	99.9				105.0		92.0
Vanadium	ICP/ES	01/07/2012							OK	94.8	102.0					104.0
Vanadium	ICP/ES	01/07/2012							OK	99.0	97.6					109.0
Vanadium	ICP/ES	01/07/2012									100.0					107.0

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 11124247 **Lab Code:** GEN **Date Due:** 1/17/2012

Matrix: Water **Site Code:** MON **Date Completed:** 1/20/2012

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
0602	Uranium-233+234	01/07/2012			95.0			
0603	Uranium-233+234	01/07/2012			87.0			
0606	Uranium-233+234	01/07/2012			75.0			
0618	Uranium-233+234	01/07/2012			87.0			
0619	Uranium-233+234	01/07/2012			92.0			
0653	Uranium-233+234	01/07/2012			71.0			
0656	Uranium-233+234	01/07/2012			90.0			
0604	Uranium-233+234	01/09/2012			87.0			
0657	Uranium-233+234	01/09/2012			21.0			
0669	Uranium-233+234	01/09/2012			75.0			
0733	Uranium-233+234	01/09/2012			64.0			
0734	Uranium-233+234	01/14/2012			35.0			
0735	Uranium-233+234	01/14/2012			36.0			
0760	Uranium-233+234	01/14/2012			87.0			
0761	Uranium-233+234	01/14/2012			69.0			
0774	Uranium-233+234	01/14/2012			85.0			
0775	Uranium-233+234	01/14/2012			92.0			
0776	Uranium-233+234	01/14/2012			89.0			
2251	Uranium-233+234	01/14/2012			94.0			
0602	Uranium-233+234	01/14/2012			91.0			0.45
0602	Uranium-233+234	01/14/2012			87.0			
Blank	Uranium-233+234	01/14/2012	0.0134	U	73.0			
0662	Uranium-233+234	01/17/2012			86.0			
0662	Uranium-233+234	01/17/2012			81.0			0.39
Blank_Spike	Uranium-233+234	01/17/2012			98.0			
0662	Uranium-233+234	01/17/2012			80.0			
Blank	Uranium-233+234	01/17/2012	0.0427	U	97.0			
Blank	Uranium-235	01/14/2012	0	U				
Blank	Uranium-235	01/17/2012	0	U				
0602	Uranium-235/236	01/14/2012						0.94
0602	Uranium-235/236	01/14/2012						
0662	Uranium-235/236	01/17/2012						1.14

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 11124247 **Lab Code:** GEN **Date Due:** 1/17/2012

Matrix: Water **Site Code:** MON **Date Completed:** 1/20/2012

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
0662	Uranium-235/236	01/17/2012						
0602	Uranium-238	01/14/2012						0.29
Blank_Spike	Uranium-238	01/14/2012				93.30		
0602	Uranium-238	01/14/2012					97.5	
Blank	Uranium-238	01/14/2012	0.0375	U				
0662	Uranium-238	01/17/2012						0.24
Blank_Spike	Uranium-238	01/17/2012				101.00		
0662	Uranium-238	01/17/2012					120.0	
Blank	Uranium-238	01/17/2012	-0.0125	U				

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 11124247 **Lab Code:** GEN **Date Due:** 1/17/2012

Matrix: Water **Site Code:** MON **Date Completed:** 1/20/2012

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	12/27/2011	0.000	0.9981	OK	OK	OK	OK	OK	94.10	95.3		1.00	
Chloride	12/28/2011							OK	93.60			0	
Chloride	12/29/2011			OK	OK	OK	OK	OK	95.10	108.0		0	
Chloride	12/30/2011									108.0		0	
Chloride	12/30/2011									93.0		0	
NH3 as N	12/28/2011	0.000	0.9990	OK	OK	OK	OK	OK	103.00	105.0	95.9	9.00	
NH3 as N	12/28/2011									99.3	97.3	2.00	
NH3 as N	01/03/2012	0.000	1.0000	OK	OK	OK	OK	OK	99.20	99.7	99.7	0	
NH3 as N	01/03/2012								105.00	109.0	106.0	3.00	
NH3 as N	01/03/2012									104.0	106.0	1.00	
NO2+NO3 as N	01/10/2012	0.000	0.9998	OK	OK	OK	OK	OK	102.00	105.0		1.00	
NO2+NO3 as N	01/10/2012							OK	101.00	103.0		2.00	
NO2+NO3 as N	01/10/2012								100.00	97.2		1.00	
NO2+NO3 as N	01/10/2012									98.1		1.00	
NO2+NO3 as N	01/10/2012									97.9			
Sulfate	12/27/2011	0.000	0.9991	OK	OK	OK	OK	OK	97.90			1.00	

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 11124247 **Lab Code:** GEN **Date Due:** 1/17/2012

Matrix: Water **Site Code:** MON **Date Completed:** 1/20/2012

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
Sulfate	12/28/2011							OK	96.30	99.6		1.00	
Sulfate	12/29/2011			OK	OK	OK	OK	OK	99.70	104.0		0	
Sulfate	12/30/2011									102.0		1.00	
Sulfate	12/30/2011									102.0		0	

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 dedicated bladder pump, or a dedicated submersible pump. The surface water location was sampled by pumping directly from the pond with dedicated tubing. With the exception of well 0618, which was sample from the pump tap, 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, 0733, 0764, and 0771 were qualified with a "Q" flag, indicating the data are qualitative because these wells were classified as Category II.

Equipment Blank Assessment

No equipment blanks were taken 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 non-radiochemical 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. For radiochemical results, the relative error ratio should be less than 3. Duplicate samples were collected from locations 0619, 0650, and 0740. The duplicate results met these criteria, demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 11124247 **Lab Code:** GEN **Project:** Monument Valley **Validation Date:** 2/13/2012

Duplicate: 2079 **Sample:** 0740

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Chloride	38.4			10.00	39.9			10.00	3.83		mg/L
NH3 as N	0.016	U		1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	12.5			50.00	12.6			50.00	0.80		mg/L
Sulfate	1130			100.00	1170			50.00	3.48		mg/L
Uranium	19			1.00	20.7			1.00	8.56		ug/L
Vanadium	19.7			1.00	19.5			1.00	1.02		ug/L

Duplicate: 2251 **Sample:** 0619

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Chloride	4.38			1.00	4.38			1.00	0		mg/L
NH3 as N	0.016	U		1.00	0.016	U		1.00			mg/L
NO2+NO3 as N	0.840			1.00	0.782			1.00	7.15		mg/L
Sulfate	29.5			1.00	29.6			1.00	0.34		mg/L
Uranium	7.21			1.00	7.43			1.00	3.01		ug/L
Uranium-233+234	3.04		0.438	1.00	3.01		0.404	1.00	0.99	0.1	pCi/L
Uranium-235/236	0.182		0.0498	1.00	0.130		0.0433	1.00	33.33	1.5	pCi/L
Uranium-238	2.55		0.371	1.00	2.40		0.328	1.00	6.06	0.6	pCi/L
Vanadium	20.5			1.00	19.8			1.00	3.47		ug/L

Duplicate: 2711 **Sample:** 0650

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
Chloride	15.5			10.00	15.5			10.00	0		mg/L
NH3 as N	0.016	U		1.00	0.0161	J		1.00			mg/L
NO2+NO3 as N	3.41			5.00	3.41			5.00	0		mg/L
Sulfate	292			10.00	289			10.00	1.03		mg/L
Uranium	2.21			1.00	2.29			1.00	3.56		ug/L
Vanadium	3.36	B		1.00	2.64	B		1.00			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 — 3-8-2012 — Date

Data Validation Lead: Steve Donivan — Steve Donivan — 3-8-2012 — Date

Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

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

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

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

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

The sulfate and/or uranium results for wells 0618 and 0657 were identified as potentially anomalous. Additionally, the uranium isotopic data reported for well 0618 are not in agreement with the total uranium reported. The laboratory was requested to verify the uranium concentration in both the total uranium aliquot and the uranium isotopes aliquot collected from well 0618. The reanalysis confirmed the concentrations originally reported. The total uranium result reported for well 0618 is qualified with an “R” flag as rejected because it is not in agreement with the historical data nor with the isotopic data for this well. There were no errors identified with the sulfate data and the uranium result from well 0657.

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: GEL Laboratories
RIN: 11124247
Report Date: 2/10/2012

					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	0603	N001	12/13/2011	Ammonia Total as N	0.348			0.309		F	0.14		F	6	0	No
MON01	0604	N001	12/13/2011	Ammonia Total as N	0.0286	J		0.1	U	F	0.053	J	UF	13	13	No
MON01	0605	N001	12/14/2011	Ammonia Total as N	0.311			0.43		F	0.32		F	6	0	No
MON01	0606	N001	12/14/2011	Ammonia Total as N	99.8			140		F	110		F	13	0	No
MON01	0618	N001	12/15/2011	Chloride	5.73			5		F	2.87			8	0	No
MON01	0618	N001	12/15/2011	Nitrate + Nitrite as Nitrogen	0.81			1.7			0.944			5	0	No
MON01	0618	N001	12/15/2011	Sulfate	123			49			12			8	0	Yes
MON01	0618	N001	12/15/2011	Uranium	0.0682			0.013			0.0038			8	0	Yes
MON01	0619	N002	12/13/2011	Nitrate + Nitrite as Nitrogen	0.782			4.1			0.82		F	17	0	No
MON01	0623	N001	12/14/2011	Ammonia Total as N	0.343			0.1	U		0.032	J	U	6	6	No
MON01	0648	N001	12/15/2011	Uranium	0.0107			0.0104		F	0.0097		F	7	0	No
MON01	0650	N001	12/14/2011	Nitrate + Nitrite as Nitrogen	3.41			2.9		F	0.53		F	8	0	No
MON01	0650	N002	12/14/2011	Nitrate + Nitrite as Nitrogen	3.41			2.9		F	0.53		F	8	0	No
MON01	0650	N001	12/14/2011	Sulfate	292			250		F	25.5		F	23	0	No
MON01	0650	N002	12/14/2011	Sulfate	289			250		F	25.5		F	23	0	No
MON01	0650	N002	12/14/2011	Vanadium	0.00264	B		0.33		F	0.0033		F	18	8	No
MON01	0652	N001	12/14/2011	Vanadium	0.0083			0.51			0.0089		F	19	4	No
MON01	0655	N001	12/14/2011	Chloride	16.6			38		F	17		F	43	0	No
MON01	0655	N001	12/14/2011	Sulfate	949			3540			1000		F	50	0	No

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: GEL Laboratories
RIN: 11124247
Report Date: 2/10/2012

					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	0656	N001	12/14/2011	Ammonia Total as N	40.1			59		F	41.3		F	13	0	No
MON01	0656	N001	12/14/2011	Sulfate	145			845			150		F	29	0	No
MON01	0657	N001	12/13/2011	Ammonia Total as N	0.0233	J		0.308		F	0.1	U	F	12	11	No
MON01	0657	N001	12/13/2011	Sulfate	472			194		F	15		F	33	0	No
MON01	0657	N001	12/13/2011	Uranium	0.35			0.15		F	0.0036		F	35	0	Yes
MON01	0669	N001	12/14/2011	Ammonia Total as N	3.88			3.74		FQ	1.5		F	15	0	No
MON01	0711	N001	12/13/2011	Nitrate + Nitrite as Nitrogen	0.45			0.6		F	0.48		F	6	0	No
MON01	0711	N001	12/13/2011	Uranium	0.00378			0.0039		F	0.0038		F	6	0	No
MON01	0711	N001	12/13/2011	Vanadium	0.001	U		0.015	U	F	0.0011		F	6	1	No
MON01	0715	N001	12/13/2011	Ammonia Total as N	0.016	U		0.1	U	F	0.034	J	F	6	5	No
MON01	0715	N001	12/13/2011	Chloride	8.73			10		F	8.83		F	5	0	No
MON01	0715	N001	12/13/2011	Nitrate + Nitrite as Nitrogen	0.79			0.77		F	0.67		F	6	0	No
MON01	0715	N001	12/13/2011	Sulfate	64.3			74			64.5		F	6	0	No
MON01	0719	N001	12/13/2011	Ammonia Total as N	0.016	U		0.1	U	F	0.036	J	F	7	6	No
MON01	0719	N001	12/13/2011	Chloride	12.7			16		F	13.7		F	7	0	No
MON01	0727	N001	12/13/2011	Chloride	9.12			12		F	9.77		F	6	0	No
MON01	0727	N001	12/13/2011	Nitrate + Nitrite as Nitrogen	0.81			0.91		F	0.82		F	6	0	No
MON01	0727	N001	12/13/2011	Sulfate	79			108			82.9		F	7	0	No
MON01	0760	0001	12/13/2011	Ammonia Total as N	0.0913	J		0.24		F	0.1	U	F	13	11	No

Data Validation Outliers Report - No Field Parameters

Comparison: All Historical Data

Laboratory: GEL Laboratories

RIN: 11124247

Report Date: 2/10/2012

					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	0760	0001	12/13/2011	Sulfate	78.8			127			81.4		F	23	0	No
MON01	0761	0001	12/13/2011	Ammonia Total as N	0.016	U		0.1	U	F	0.086	J	F	15	14	No
MON01	0761	0001	12/13/2011	Chloride	11.6			19		F	11.9		F	17	0	No
MON01	0761	0001	12/13/2011	Sulfate	393			530		F	397		F	23	0	No
MON01	0761	0001	12/13/2011	Vanadium	0.00128	B		0.015	U	F	0.0013		FJ	18	3	No
MON01	0762	N001	12/13/2011	Ammonia Total as N	0.016	U		0.1	U	F	0.051	J	F	14	13	No
MON01	0765	0001	12/14/2011	Ammonia Total as N	100			150		F	102		F	13	0	No
MON01	0765	0001	12/14/2011	Nitrate + Nitrite as Nitrogen	0.01	U		150		F	0.011		F	13	1	No
MON01	0765	0001	12/14/2011	Uranium	0.000349			0.015			0.00061		FQ	17	0	No
MON01	0766	N001	12/14/2011	Chloride	14.2			35		F	15		FQ	6	0	No
MON01	0767	N001	12/14/2011	Chloride	4.52			6.2		F	4.6		F	19	0	No
MON01	0771	N001	12/14/2011	Chloride	16.6			33		L	17		F	18	0	No
MON01	0772	N001	12/13/2011	Ammonia Total as N	1.93			7.9		F	2		F	15	0	No
MON01	0772	N001	12/13/2011	Sulfate	109			186			110		F	25	0	No
MON01	0775	N001	12/13/2011	Nitrate + Nitrite as Nitrogen	0.605			0.59		F	0.56		F	5	0	No
MON01	0776	N001	12/13/2011	Chloride	4.8			6.51		F	4.84		F	14	0	No
MON01	0776	N001	12/13/2011	Uranium	0.00776			0.0366			0.0086		F	11	0	No
MON01	0776	N001	12/13/2011	Vanadium	0.0162			0.016		F	0.0112		F	8	1	No

Data Validation Outliers Report - Field Parameters Only
Comparison: All Historical Data
Laboratory: Field Measurements
RIN: 11124247
Report Date: 2/13/2012

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
MON01	0618	N001	12/15/2011	Specific Conductance	645			450			240			7	0	No
MON01	0651	N001	12/14/2011	Oxidation Reduction Potential	-10		F	413			-8.4		FQ	11	0	No
MON01	0652	N001	12/14/2011	Oxidation Reduction Potential	-10		F	469			25.1		F	12	0	No
MON01	0652	N001	12/14/2011	pH	8.27		F	8.12		F	7.76			18	0	No
MON01	0656	N001	12/14/2011	pH	8.24		F	7.97		F	6.85		F	29	0	No
MON01	0662	N001	12/13/2011	pH	7.62		F	7.47		F	6.35			33	0	No
MON01	0715	N001	12/13/2011	Oxidation Reduction Potential	172.6		F	122.5		F	29		F	7	0	No
MON01	0727	N001	12/13/2011	Specific Conductance	561		F	622		F	575		F	7	0	No
MON01	0760	N001	12/13/2011	pH	8.61		F	8.44			7.25		FQ	22	0	No
MON01	0761	N001	12/13/2011	pH	7.71		F	7.6		F	6.8		F	21	0	No
MON01	0761	N001	12/13/2011	Turbidity	48.2		F	11.9		FQ	1.93		F	21	0	No
MON01	0762	N001	12/13/2011	pH	7.86		F	7.85			6.65		F	22	0	No
MON01	0764	N001	12/14/2011	Oxidation Reduction Potential	-15		FQ	227		L	30.6		FQ	22	0	No
MON01	0766	N001	12/14/2011	Oxidation Reduction Potential	-219.5		F	194		F	-97.3		F	6	0	No
MON01	0766	N001	12/14/2011	pH	7.76		F	7.57		F	6.72		FQ	6	0	No
MON01	0766	N001	12/14/2011	Turbidity	5.27		F	26.3		FQ	6.22		F	6	0	No
MON01	0768	N001	12/14/2011	pH	8.6		F	8.5		F	7.01			22	0	No
MON01	0770	N001	12/14/2011	pH	8		F	7.75		F	6.69		F	21	0	No

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

Attachment 2
Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	0001	5.17	-	9.63	0.016	U	FQ	#	0.016	
Chloride	mg/L	12/14/2011	0001	5.17	-	9.63	12.9		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	0001	5.17	-	9.63	0.217	J	FQ	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	5.17	-	9.63	32		FQ	#		
pH	s.u.	12/14/2011	N001	5.17	-	9.63	8.6		FQ	#		
Specific Conductance	umhos /cm	12/14/2011	N001	5.17	-	9.63	550		FQ	#		
Sulfate	mg/L	12/14/2011	0001	5.17	-	9.63	14.7		FQ	#	0.1	
Temperature	C	12/14/2011	N001	5.17	-	9.63	12.4		FQ	#		
Turbidity	NTU	12/14/2011	N001	5.17	-	9.63	37.8		FQ	#		
Uranium	mg/L	12/14/2011	0001	5.17	-	9.63	0.000067	U	FQ	#	0.000067	
Vanadium	mg/L	12/14/2011	0001	5.17	-	9.63	0.001	U	FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	19.5 - 29.5	0.016	U	FQ	#	0.016	
Chloride	mg/L	12/13/2011	N001	19.5 - 29.5	12.6		FQ	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	19.5 - 29.5	3.81		FQ	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	19.5 - 29.5	0.8		FQ	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	19.5 - 29.5	166.1		FQ	#		
pH	s.u.	12/13/2011	N001	19.5 - 29.5	7.85		FQ	#		
Specific Conductance	umhos /cm	12/13/2011	N001	19.5 - 29.5	652		FQ	#		
Sulfate	mg/L	12/13/2011	N001	19.5 - 29.5	104		FQ	#	1	
Temperature	C	12/13/2011	N001	19.5 - 29.5	14.04		FQ	#		
Turbidity	NTU	12/13/2011	N001	19.5 - 29.5	4.04		FQ	#		
Uranium	mg/L	12/13/2011	N001	19.5 - 29.5	0.00393		FQ	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	19.5 - 29.5	1.83		FQ	#	0.0157	0.273
Uranium-235/236	pCi/L	12/13/2011	N001	19.5 - 29.5	0.0709		FQ	#	0.00759	0.0279
Uranium-238	pCi/L	12/13/2011	N001	19.5 - 29.5	1.13		FQ	#	0.0196	0.178
Vanadium	mg/L	12/13/2011	N001	19.5 - 29.5	0.001	U	FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
Location: 0603 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	12/13/2011	N001	43	-	53	0.348		F	#	0.016	
Chloride	mg/L	12/13/2011	N001	43	-	53	12		F	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	43	-	53	0.61		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	43	-	53	0.393		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	43	-	53	98.6		F	#		
pH	s.u.	12/13/2011	N001	43	-	53	7.9		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	43	-	53	625		F	#		
Sulfate	mg/L	12/13/2011	N001	43	-	53	103		F	#	1	
Temperature	C	12/13/2011	N001	43	-	53	14.31		F	#		
Turbidity	NTU	12/13/2011	N001	43	-	53	5.56		F	#		
Uranium	mg/L	12/13/2011	N001	43	-	53	0.00328		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	43	-	53	1.55		F	#	0.0282	0.24
Uranium-235/236	pCi/L	12/13/2011	N001	43	-	53	0.0821		FJ	#	0.0348	0.0355
Uranium-238	pCi/L	12/13/2011	N001	43	-	53	1.09		F	#	0.0175	0.177
Vanadium	mg/L	12/13/2011	N001	43	-	53	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	13	-	28	0.0286	J	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	13	-	28	11.1		F	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	13	-	28	1.61		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	13	-	28	0.077	J	F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	13	-	28	112.6		F	#		
pH	s.u.	12/13/2011	N001	13	-	28	8.22		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	13	-	28	604		F	#		
Sulfate	mg/L	12/13/2011	N001	13	-	28	104		F	#	1	
Temperature	C	12/13/2011	N001	13	-	28	14.75		F	#		
Turbidity	NTU	12/13/2011	N001	13	-	28	5.78		F	#		
Uranium	mg/L	12/13/2011	N001	13	-	28	0.00261		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	13	-	28	1.09		F	#	0.0353	0.169
Uranium-235/236	pCi/L	12/13/2011	N001	13	-	28	0.0326		F	#	0.00978	0.0206
Uranium-238	pCi/L	12/13/2011	N001	13	-	28	0.807		F	#	0.0324	0.134
Vanadium	mg/L	12/13/2011	N001	13	-	28	0.00257	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	14	-	29	0.311		F	#	0.016	
Chloride	mg/L	12/14/2011	N001	14	-	29	65.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	14	-	29	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	14	-	29	-70		F	#		
pH	s.u.	12/14/2011	N001	14	-	29	8.33		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	14	-	29	1635		F	#		
Sulfate	mg/L	12/14/2011	N001	14	-	29	590		F	#	5	
Temperature	C	12/14/2011	N001	14	-	29	15.7		F	#		
Turbidity	NTU	12/14/2011	N001	14	-	29	1.15		F	#		
Uranium	mg/L	12/14/2011	N001	14	-	29	0.00236		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	14	-	29	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	32	-	42	99.8		FQ	#	4	
Chloride	mg/L	12/14/2011	N001	32	-	42	22.1		FQ	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	32	-	42	229		FQ	#	5	
Oxidation Reduction Potential	mV	12/14/2011	N001	32	-	42	219.2		FQ	#		
pH	s.u.	12/14/2011	N001	32	-	42	7.17		FQ	#		
Specific Conductance	umhos /cm	12/14/2011	N001	32	-	42	2899		FQ	#		
Sulfate	mg/L	12/14/2011	N001	32	-	42	387		FQ	#	1	
Temperature	C	12/14/2011	N001	32	-	42	15.02		FQ	#		
Turbidity	NTU	12/14/2011	N001	32	-	42	1.47		FQ	#		
Uranium	mg/L	12/14/2011	N001	32	-	42	0.0103		FQ	#	0.000067	
Uranium-234	pCi/L	12/14/2011	N001	32	-	42	4.1		FQ	#	0.0255	0.595
Uranium-235/236	pCi/L	12/14/2011	N001	32	-	42	0.214		FQ	#	0.00986	0.0595
Uranium-238	pCi/L	12/14/2011	N001	32	-	42	3.02		FQ	#	0.00798	0.447
Vanadium	mg/L	12/14/2011	N001	32	-	42	0.001	U	FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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
Ammonia Total as N	mg/L	12/15/2011	N001	-	0.016	U		#	0.016	
Chloride	mg/L	12/15/2011	N001	-	5.73			#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2011	N001	-	0.81			#	0.01	
Oxidation Reduction Potential	mV	12/15/2011	N001	-	86.1			#		
pH	s.u.	12/15/2011	N001	-	7.57			#		
Specific Conductance	umhos /cm	12/15/2011	N001	-	645			#		
Sulfate	mg/L	12/15/2011	N001	-	123			#	1	
Temperature	C	12/15/2011	N001	-	13.2			#		
Turbidity	NTU	12/15/2011	N001	-	8.1			#		
Uranium	mg/L	12/15/2011	N001	-	0.0682			#	0.000067	
Uranium-234	pCi/L	12/15/2011	N001	-	2.03			#	0.0223	0.305
Uranium-235/236	pCi/L	12/15/2011	N001	-	0.112			#	0.00864	0.0383
Uranium-238	pCi/L	12/15/2011	N001	-	1.44			#	0.0312	0.226
Vanadium	mg/L	12/15/2011	N001	-	0.0316			#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	103.9 - 153.9	0.016	U	F	#	0.016	
Ammonia Total as N	mg/L	12/13/2011	N002	103.9 - 153.9	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	103.9 - 153.9	4.38		F	#	0.066	
Chloride	mg/L	12/13/2011	N002	103.9 - 153.9	4.38		F	#	0.066	
Dissolved Oxygen	mg/L	12/13/2011	N001	103.9 - 153.9	7.08		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	103.9 - 153.9	0.84		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N002	103.9 - 153.9	0.782		F	#	0.01	
Oxidation Reduction Potential	mV	12/13/2011	N001	103.9 - 153.9	173.6		F	#		
pH	s.u.	12/13/2011	N001	103.9 - 153.9	7.88		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	103.9 - 153.9	381		F	#		
Sulfate	mg/L	12/13/2011	N001	103.9 - 153.9	29.5		F	#	0.1	
Sulfate	mg/L	12/13/2011	N002	103.9 - 153.9	29.6		F	#	0.1	
Temperature	C	12/13/2011	N001	103.9 - 153.9	14.39		F	#		
Turbidity	NTU	12/13/2011	N001	103.9 - 153.9	1.38		F	#		
Uranium	mg/L	12/13/2011	N001	103.9 - 153.9	0.00721		F	#	0.000067	
Uranium	mg/L	12/13/2011	N002	103.9 - 153.9	0.00743		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	103.9 - 153.9	3.04		F	#	0.0307	0.438

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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
Uranium-234	pCi/L	12/13/2011	N002	103.9	-	153.9	3.01		F	#	0.0479	0.404
Uranium-235/236	pCi/L	12/13/2011	N001	103.9	-	153.9	0.182		F	#	0.0201	0.0498
Uranium-235/236	pCi/L	12/13/2011	N002	103.9	-	153.9	0.13		F	#	0.0237	0.0433
Uranium-238	pCi/L	12/13/2011	N001	103.9	-	153.9	2.55		F	#	0.0204	0.371
Uranium-238	pCi/L	12/13/2011	N002	103.9	-	153.9	2.4		F	#	0.0277	0.328
Vanadium	mg/L	12/13/2011	N001	103.9	-	153.9	0.0205		F	#	0.001	
Vanadium	mg/L	12/13/2011	N002	103.9	-	153.9	0.0198		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/15/2011	N001	38.5	-	88.5	2.69		F	#	0.16	
Chloride	mg/L	12/15/2011	N001	38.5	-	88.5	24.2		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2011	N001	38.5	-	88.5	77		F	#	1	
Oxidation Reduction Potential	mV	12/15/2011	N001	38.5	-	88.5	90		F	#		
pH	s.u.	12/15/2011	N001	38.5	-	88.5	7.48		F	#		
Specific Conductance	umhos /cm	12/15/2011	N001	38.5	-	88.5	2490		F	#		
Sulfate	mg/L	12/15/2011	N001	38.5	-	88.5	922		F	#	5	
Temperature	C	12/15/2011	N001	38.5	-	88.5	14.7		F	#		
Turbidity	NTU	12/15/2011	N001	38.5	-	88.5	0.95		F	#		
Uranium	mg/L	12/15/2011	N001	38.5	-	88.5	0.0107		F	#	0.000067	
Vanadium	mg/L	12/15/2011	N001	38.5	-	88.5	0.0111		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	77.5	-	97.5	0.016	U	F	#	0.016	
Ammonia Total as N	mg/L	12/14/2011	N002	77.5	-	97.5	0.0161	J	F	#	0.016	
Chloride	mg/L	12/14/2011	N001	77.5	-	97.5	15.5		F	#	0.66	
Chloride	mg/L	12/14/2011	N002	77.5	-	97.5	15.5		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	77.5	-	97.5	3.41		F	#	0.05	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N002	77.5	-	97.5	3.41		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	77.5	-	97.5	7		F	#		
pH	s.u.	12/14/2011	N001	77.5	-	97.5	8.39		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	77.5	-	97.5	990		F	#		
Sulfate	mg/L	12/14/2011	N001	77.5	-	97.5	292		F	#	1	
Sulfate	mg/L	12/14/2011	N002	77.5	-	97.5	289		F	#	1	
Temperature	C	12/14/2011	N001	77.5	-	97.5	14.9		F	#		
Turbidity	NTU	12/14/2011	N001	77.5	-	97.5	1.65		F	#		
Uranium	mg/L	12/14/2011	N001	77.5	-	97.5	0.00221		F	#	0.000067	
Uranium	mg/L	12/14/2011	N002	77.5	-	97.5	0.00229		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	77.5	-	97.5	0.00336	B	F	#	0.001	
Vanadium	mg/L	12/14/2011	N002	77.5	-	97.5	0.00264	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	20	-	80	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2011	N001	20	-	80	11.8		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	20	-	80	0.157	J	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	20	-	80	-10		F	#		
pH	s.u.	12/14/2011	N001	20	-	80	8.56		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	20	-	80	635		F	#		
Sulfate	mg/L	12/14/2011	N001	20	-	80	109		F	#	1	
Temperature	C	12/14/2011	N001	20	-	80	14.8		F	#		
Turbidity	NTU	12/14/2011	N001	20	-	80	3.22		F	#		
Uranium	mg/L	12/14/2011	N001	20	-	80	0.00223		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	20	-	80	0.0116		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	34	-	54	0.025	J	F	#	0.016	
Chloride	mg/L	12/14/2011	N001	34	-	54	13.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	34	-	54	4.82		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	34	-	54	-10		F	#		
pH	s.u.	12/14/2011	N001	34	-	54	8.27		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	34	-	54	565		F	#		
Sulfate	mg/L	12/14/2011	N001	34	-	54	63.4		F	#	1	
Temperature	C	12/14/2011	N001	34	-	54	14.3		F	#		
Turbidity	NTU	12/14/2011	N001	34	-	54	1.89		F	#		
Uranium	mg/L	12/14/2011	N001	34	-	54	0.00408		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	34	-	54	0.0083		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/15/2011	N001	56	-	76	0.016	U	F	#	0.016	
Chloride	mg/L	12/15/2011	N001	56	-	76	22.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/15/2011	N001	56	-	76	50.8		F	#	1	
Oxidation Reduction Potential	mV	12/15/2011	N001	56	-	76	65		F	#		
pH	s.u.	12/15/2011	N001	56	-	76	7.59		F	#		
Specific Conductance	umhos /cm	12/15/2011	N001	56	-	76	2360		F	#		
Sulfate	mg/L	12/15/2011	N001	56	-	76	945		F	#	5	
Temperature	C	12/15/2011	N001	56	-	76	14.8		F	#		
Turbidity	NTU	12/15/2011	N001	56	-	76	0.9		F	#		
Uranium	mg/L	12/15/2011	N001	56	-	76	0.01		F	#	0.000067	
Uranium-234	pCi/L	12/15/2011	N001	56	-	76	4.84		F	#	0.055	0.694
Uranium-235/236	pCi/L	12/15/2011	N001	56	-	76	0.197		F	#	0.031	0.0577
Uranium-238	pCi/L	12/15/2011	N001	56	-	76	3.59		F	#	0.0351	0.523
Vanadium	mg/L	12/15/2011	N001	56	-	76	0.00707		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	38	-	58	121		F	#	4	
Chloride	mg/L	12/14/2011	N001	38	-	58	16.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	38	-	58	169		F	#	5	
Oxidation Reduction Potential	mV	12/14/2011	N001	38	-	58	197.4		F	#		
pH	s.u.	12/14/2011	N001	38	-	58	7.35		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	38	-	58	3395		F	#		
Sulfate	mg/L	12/14/2011	N001	38	-	58	949		F	#	5	
Temperature	C	12/14/2011	N001	38	-	58	13.7		F	#		
Turbidity	NTU	12/14/2011	N001	38	-	58	3.05		F	#		
Uranium	mg/L	12/14/2011	N001	38	-	58	0.0118		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	38	-	58	0.00742		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	38	-	58	40.1		F	#	0.8	
Chloride	mg/L	12/14/2011	N001	38	-	58	13		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	38	-	58	15.4		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2011	N001	38	-	58	75		F	#		
pH	s.u.	12/14/2011	N001	38	-	58	8.24		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	38	-	58	960		F	#		
Sulfate	mg/L	12/14/2011	N001	38	-	58	145		F	#	1	
Temperature	C	12/14/2011	N001	38	-	58	14.6		F	#		
Turbidity	NTU	12/14/2011	N001	38	-	58	1.05		F	#		
Uranium	mg/L	12/14/2011	N001	38	-	58	0.00526		F	#	0.000067	
Uranium-234	pCi/L	12/14/2011	N001	38	-	58	2.56		F	#	0.0417	0.374
Uranium-235/236	pCi/L	12/14/2011	N001	38	-	58	0.097		F	#	0.0206	0.0351
Uranium-238	pCi/L	12/14/2011	N001	38	-	58	1.87		F	#	0.0241	0.281
Vanadium	mg/L	12/14/2011	N001	38	-	58	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	121	-	136	0.0233	J	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	121	-	136	9.69		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	121	-	136	8.76		F	#	0.1	
Oxidation Reduction Potential	mV	12/13/2011	N001	121	-	136	40		F	#		
pH	s.u.	12/13/2011	N001	121	-	136	7.61		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	121	-	136	1255		F	#		
Sulfate	mg/L	12/13/2011	N001	121	-	136	472		F	#	2	
Temperature	C	12/13/2011	N001	121	-	136	15.1		F	#		
Turbidity	NTU	12/13/2011	N001	121	-	136	2.34		F	#		
Uranium	mg/L	12/13/2011	N001	121	-	136	0.35		F	#	0.000335	
Uranium-234	pCi/L	12/13/2011	N001	121	-	136	116		F	#	0.138	17.8
Uranium-235/236	pCi/L	12/13/2011	N001	121	-	136	5.89		F	#	0.0383	1.05
Uranium-238	pCi/L	12/13/2011	N001	121	-	136	110		F	#	0.138	17
Vanadium	mg/L	12/13/2011	N001	121	-	136	0.0515		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	37.5 - 67.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	37.5 - 67.5	16.1		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	37.5 - 67.5	15.8		F	#	0.5	
Oxidation Reduction Potential	mV	12/13/2011	N001	37.5 - 67.5	45		F	#		
pH	s.u.	12/13/2011	N001	37.5 - 67.5	7.62		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	37.5 - 67.5	1060		F	#		
Sulfate	mg/L	12/13/2011	N001	37.5 - 67.5	326		F	#	1	
Temperature	C	12/13/2011	N001	37.5 - 67.5	14.7		F	#		
Turbidity	NTU	12/13/2011	N001	37.5 - 67.5	1.01		F	#		
Uranium	mg/L	12/13/2011	N001	37.5 - 67.5	0.394		F	#	0.000335	
Uranium-234	pCi/L	12/13/2011	N001	37.5 - 67.5	127		F	#	0.153	17.3
Uranium-235/236	pCi/L	12/13/2011	N001	37.5 - 67.5	8.5		F	#	0.246	1.37
Uranium-238	pCi/L	12/13/2011	N001	37.5 - 67.5	124		F	#	0.132	16.9
Vanadium	mg/L	12/13/2011	N001	37.5 - 67.5	0.0284		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	34	-	54	3.88		F	#	0.16	
Chloride	mg/L	12/14/2011	N001	34	-	54	8.89		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	34	-	54	17.1		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2011	N001	34	-	54	146.6		F	#		
pH	s.u.	12/14/2011	N001	34	-	54	7.7		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	34	-	54	758		F	#		
Sulfate	mg/L	12/14/2011	N001	34	-	54	109		F	#	1	
Temperature	C	12/14/2011	N001	34	-	54	14.72		F	#		
Turbidity	NTU	12/14/2011	N001	34	-	54	1.87		F	#		
Uranium	mg/L	12/14/2011	N001	34	-	54	0.00648		F	#	0.000067	
Uranium-234	pCi/L	12/14/2011	N001	34	-	54	3		F	#	0.0604	0.42
Uranium-235/236	pCi/L	12/14/2011	N001	34	-	54	0.0977		F	#	0.0299	0.0416
Uranium-238	pCi/L	12/14/2011	N001	34	-	54	2.24		F	#	0.035	0.323
Vanadium	mg/L	12/14/2011	N001	34	-	54	0.0523		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	25.5	-	30.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	25.5	-	30.5	14.5		F	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	25.5	-	30.5	2.95		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	25.5	-	30.5	0.45		F	#	0.01	
Oxidation Reduction Potential	mV	12/13/2011	N001	25.5	-	30.5	146.1		F	#		
pH	s.u.	12/13/2011	N001	25.5	-	30.5	7.86		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	25.5	-	30.5	672		F	#		
Sulfate	mg/L	12/13/2011	N001	25.5	-	30.5	116		F	#	1	
Temperature	C	12/13/2011	N001	25.5	-	30.5	13.94		F	#		
Turbidity	NTU	12/13/2011	N001	25.5	-	30.5	3.75		F	#		
Uranium	mg/L	12/13/2011	N001	25.5	-	30.5	0.00378		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	25.5	-	30.5	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	16	-	21	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	16	-	21	8.73		F	#	0.066	
Dissolved Oxygen	mg/L	12/13/2011	N001	16	-	21	5.54		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	16	-	21	0.79		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	16	-	21	172.6		F	#		
pH	s.u.	12/13/2011	N001	16	-	21	7.91		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	16	-	21	530		F	#		
Sulfate	mg/L	12/13/2011	N001	16	-	21	64.3		F	#	1	
Temperature	C	12/13/2011	N001	16	-	21	14.96		F	#		
Turbidity	NTU	12/13/2011	N001	16	-	21	3.15		F	#		
Uranium	mg/L	12/13/2011	N001	16	-	21	0.00288		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	16	-	21	0.00257	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	19.35	-	24.35	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	19.35	-	24.35	12.7		F	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	19.35	-	24.35	2.66		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	19.35	-	24.35	0.795		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	19.35	-	24.35	148.4		F	#		
pH	s.u.	12/13/2011	N001	19.35	-	24.35	7.81		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	19.35	-	24.35	713		F	#		
Sulfate	mg/L	12/13/2011	N001	19.35	-	24.35	111		F	#	1	
Temperature	C	12/13/2011	N001	19.35	-	24.35	15.25		F	#		
Turbidity	NTU	12/13/2011	N001	19.35	-	24.35	2.77		F	#		
Uranium	mg/L	12/13/2011	N001	19.35	-	24.35	0.0037		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	19.35	-	24.35	0.00448	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	23.73	-	28.78	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	23.73	-	28.78	9.12		F	#	0.066	
Dissolved Oxygen	mg/L	12/13/2011	N001	23.73	-	28.78	3.62		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	23.73	-	28.78	0.81		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	23.73	-	28.78	130.3		F	#		
pH	s.u.	12/13/2011	N001	23.73	-	28.78	7.9		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	23.73	-	28.78	561		F	#		
Sulfate	mg/L	12/13/2011	N001	23.73	-	28.78	79		F	#	1	
Temperature	C	12/13/2011	N001	23.73	-	28.78	15.09		F	#		
Turbidity	NTU	12/13/2011	N001	23.73	-	28.78	9.02		F	#		
Uranium	mg/L	12/13/2011	N001	23.73	-	28.78	0.00181		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	23.73	-	28.78	0.00247	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	0001	49	-	54	0.016	U	FQ	#	0.016	
Chloride	mg/L	12/13/2011	0001	49	-	54	5.09		FQ	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	0001	49	-	54	4.81		FQ	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	49	-	54	50		FQ	#		
pH	s.u.	12/13/2011	N001	49	-	54	7.98		FQ	#		
Specific Conductance	umhos /cm	12/13/2011	N001	49	-	54	540		FQ	#		
Sulfate	mg/L	12/13/2011	0001	49	-	54	67.6		FQ	#	1	
Temperature	C	12/13/2011	N001	49	-	54	13.3		FQ	#		
Turbidity	NTU	12/13/2011	N001	49	-	54	59.6		FQ	#		
Uranium	mg/L	12/13/2011	0001	49	-	54	0.00536		FQ	#	0.000067	
Uranium-234	pCi/L	12/13/2011	0001	49	-	54	2.86		FQ	#	0.0607	0.412
Uranium-235/236	pCi/L	12/13/2011	0001	49	-	54	0.115		FQJ	#	0.0593	0.054
Uranium-238	pCi/L	12/13/2011	0001	49	-	54	1.95		FQ	#	0.0396	0.295
Vanadium	mg/L	12/13/2011	0001	49	-	54	0.041		FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	0001	50	-	80	0.0336	J	F	#	0.016	
Chloride	mg/L	12/13/2011	0001	50	-	80	5.05		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	0001	50	-	80	4.09		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	50	-	80	40		F	#		
pH	s.u.	12/13/2011	N001	50	-	80	7.96		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	50	-	80	570		F	#		
Sulfate	mg/L	12/13/2011	0001	50	-	80	94.7		F	#	1	
Temperature	C	12/13/2011	N001	50	-	80	14.5		F	#		
Turbidity	NTU	12/13/2011	N001	50	-	80	28.5		F	#		
Uranium	mg/L	12/13/2011	0001	50	-	80	0.161		F	#	0.000134	
Uranium-234	pCi/L	12/13/2011	0001	50	-	80	51.3		F	#	0.124	7.18
Uranium-235/236	pCi/L	12/13/2011	0001	50	-	80	2.36		F	#	0.0615	0.424
Uranium-238	pCi/L	12/13/2011	0001	50	-	80	48.7		F	#	0.0719	6.81
Vanadium	mg/L	12/13/2011	0001	50	-	80	0.0198		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	0001	53.5 - 58.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	0001	53.5 - 58.5	1.55		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	0001	53.5 - 58.5	5.1		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	53.5 - 58.5	50		F	#		
pH	s.u.	12/13/2011	N001	53.5 - 58.5	7.69		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	53.5 - 58.5	755		F	#		
Sulfate	mg/L	12/13/2011	0001	53.5 - 58.5	236		F	#	1	
Temperature	C	12/13/2011	N001	53.5 - 58.5	13.8		F	#		
Turbidity	NTU	12/13/2011	N001	53.5 - 58.5	12.5		F	#		
Uranium	mg/L	12/13/2011	0001	53.5 - 58.5	0.19		F	#	0.000134	
Uranium-234	pCi/L	12/13/2011	0001	53.5 - 58.5	61.4		F	#	0.0825	8.76
Uranium-235/236	pCi/L	12/13/2011	0001	53.5 - 58.5	3.21		F	#	0.0277	0.565
Uranium-238	pCi/L	12/13/2011	0001	53.5 - 58.5	59.7		F	#	0.0918	8.53
Vanadium	mg/L	12/13/2011	0001	53.5 - 58.5	0.0289		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	0001	26	-	31	0.0592	J	F	#	0.016	
Chloride	mg/L	12/14/2011	0001	26	-	31	13.3		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	0001	26	-	31	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	26	-	31	-25		F	#		
pH	s.u.	12/14/2011	N001	26	-	31	8.5		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	26	-	31	790		F	#		
Sulfate	mg/L	12/14/2011	0001	26	-	31	174		F	#	1	
Temperature	C	12/14/2011	N001	26	-	31	15.3		F	#		
Turbidity	NTU	12/14/2011	N001	26	-	31	20.2		F	#		
Uranium	mg/L	12/14/2011	0001	26	-	31	0.000286		F	#	0.000067	
Vanadium	mg/L	12/14/2011	0001	26	-	31	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	0001	33	-	38	0.358		F	#	0.016	
Chloride	mg/L	12/14/2011	0001	33	-	38	15.4		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	0001	33	-	38	1.36		F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	33	-	38	20		F	#		
pH	s.u.	12/14/2011	N001	33	-	38	8.17		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	33	-	38	855		F	#		
Sulfate	mg/L	12/14/2011	0001	33	-	38	191		F	#	1	
Temperature	C	12/14/2011	N001	33	-	38	15.2		F	#		
Turbidity	NTU	12/14/2011	N001	33	-	38	53.1		F	#		
Uranium	mg/L	12/14/2011	0001	33	-	38	0.00391		F	#	0.000067	
Vanadium	mg/L	12/14/2011	0001	33	-	38	0.00868		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	30	-	35	0.016	U	F	#	0.016	
Ammonia Total as N	mg/L	12/14/2011	N002	30	-	35	0.016	U	F	#	0.016	
Chloride	mg/L	12/14/2011	N001	30	-	35	38.4		F	#	0.66	
Chloride	mg/L	12/14/2011	N002	30	-	35	39.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	30	-	35	12.5		F	#	0.5	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N002	30	-	35	12.6		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2011	N001	30	-	35	130		F	#		
pH	s.u.	12/14/2011	N001	30	-	35	7.52		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	30	-	35	2430		F	#		
Sulfate	mg/L	12/14/2011	N001	30	-	35	1130		F	#	10	
Sulfate	mg/L	12/14/2011	N002	30	-	35	1170		F	#	5	
Temperature	C	12/14/2011	N001	30	-	35	14		F	#		
Turbidity	NTU	12/14/2011	N001	30	-	35	6.18		F	#		
Uranium	mg/L	12/14/2011	N001	30	-	35	0.019		F	#	0.000067	
Uranium	mg/L	12/14/2011	N002	30	-	35	0.0207		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	30	-	35	0.0197		F	#	0.001	
Vanadium	mg/L	12/14/2011	N002	30	-	35	0.0195		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	50	-	80	105		F	#	4	
Chloride	mg/L	12/14/2011	N001	50	-	80	15		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	50	-	80	89.3		F	#	1	
Oxidation Reduction Potential	mV	12/14/2011	N001	50	-	80	-180.1		F	#		
pH	s.u.	12/14/2011	N001	50	-	80	7.57		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	50	-	80	2353		F	#		
Sulfate	mg/L	12/14/2011	N001	50	-	80	430		F	#	10	
Temperature	C	12/14/2011	N001	50	-	80	13.46		F	#		
Turbidity	NTU	12/14/2011	N001	50	-	80	7.12		F	#		
Uranium	mg/L	12/14/2011	N001	50	-	80	0.0105		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	50	-	80	0.00602		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	50	-	80	121		F	#	4	
Chloride	mg/L	12/14/2011	N001	50	-	80	14.5		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	50	-	80	116		F	#	1	
Oxidation Reduction Potential	mV	12/14/2011	N001	50	-	80	-222.5		F	#		
pH	s.u.	12/14/2011	N001	50	-	80	7.54		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	50	-	80	2533		F	#		
Sulfate	mg/L	12/14/2011	N001	50	-	80	472		F	#	10	
Temperature	C	12/14/2011	N001	50	-	80	14.68		F	#		
Turbidity	NTU	12/14/2011	N001	50	-	80	1.76		F	#		
Uranium	mg/L	12/14/2011	N001	50	-	80	0.00915		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	50	-	80	0.00612		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	0001	45	-	75	68		F	#	0.8	
Chloride	mg/L	12/14/2011	0001	45	-	75	14.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	0001	45	-	75	0.186		F	#	0.01	
Oxidation Reduction Potential	mV	12/14/2011	N001	45	-	75	-297.1		F	#		
pH	s.u.	12/14/2011	N001	45	-	75	7.78		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	45	-	75	1961		F	#		
Sulfate	mg/L	12/14/2011	0001	45	-	75	569		F	#	10	
Temperature	C	12/14/2011	N001	45	-	75	13.57		F	#		
Turbidity	NTU	12/14/2011	N001	45	-	75	39.6		F	#		
Uranium	mg/L	12/14/2011	0001	45	-	75	0.00428		F	#	0.000067	
Vanadium	mg/L	12/14/2011	0001	45	-	75	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	31	-	61	134		F	#	4	
Chloride	mg/L	12/14/2011	N001	31	-	61	13.8		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	31	-	61	142		F	#	1	
Oxidation Reduction Potential	mV	12/14/2011	N001	31	-	61	-205.2		F	#		
pH	s.u.	12/14/2011	N001	31	-	61	7.5		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	31	-	61	2512		F	#		
Sulfate	mg/L	12/14/2011	N001	31	-	61	382		F	#	10	
Temperature	C	12/14/2011	N001	31	-	61	14.25		F	#		
Turbidity	NTU	12/14/2011	N001	31	-	61	0.76		F	#		
Uranium	mg/L	12/14/2011	N001	31	-	61	0.00905		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	31	-	61	0.00582		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	0001	55	-	75	0.0913	J	F	#	0.016	
Chloride	mg/L	12/13/2011	0001	55	-	75	8.65		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	0001	55	-	75	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	55	-	75	-15		F	#		
pH	s.u.	12/13/2011	N001	55	-	75	8.61		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	55	-	75	520		F	#		
Sulfate	mg/L	12/13/2011	0001	55	-	75	78.8		F	#	1	
Temperature	C	12/13/2011	N001	55	-	75	13.9		F	#		
Turbidity	NTU	12/13/2011	N001	55	-	75	17.1		F	#		
Uranium	mg/L	12/13/2011	0001	55	-	75	0.000229		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	0001	55	-	75	0.108		F	#	0.0307	0.0374
Uranium-235/236	pCi/L	12/13/2011	0001	55	-	75	0.0216		UF	#	0.00926	0.0162
Uranium-238	pCi/L	12/13/2011	0001	55	-	75	0.0724		FJ	#	0.0276	0.0303
Vanadium	mg/L	12/13/2011	0001	55	-	75	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	0001	39	-	49	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	0001	39	-	49	11.6		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	0001	39	-	49	31.7		F	#	0.5	
Oxidation Reduction Potential	mV	12/13/2011	N001	39	-	49	30		F	#		
pH	s.u.	12/13/2011	N001	39	-	49	7.71		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	39	-	49	1340		F	#		
Sulfate	mg/L	12/13/2011	0001	39	-	49	393		F	#	10	
Temperature	C	12/13/2011	N001	39	-	49	13.9		F	#		
Turbidity	NTU	12/13/2011	N001	39	-	49	48.2		F	#		
Uranium	mg/L	12/13/2011	0001	39	-	49	0.0291		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	0001	39	-	49	11.6		F	#	0.0407	1.49
Uranium-235/236	pCi/L	12/13/2011	0001	39	-	49	0.434		F	#	0.0392	0.0999
Uranium-238	pCi/L	12/13/2011	0001	39	-	49	10.3		F	#	0.0253	1.33
Vanadium	mg/L	12/13/2011	0001	39	-	49	0.00128	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	29	-	49	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	29	-	49	58.9		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	29	-	49	102		F	#	5	
Oxidation Reduction Potential	mV	12/13/2011	N001	29	-	49	55		F	#		
pH	s.u.	12/13/2011	N001	29	-	49	7.86		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	29	-	49	3790		F	#		
Sulfate	mg/L	12/13/2011	N001	29	-	49	1370		F	#	10	
Temperature	C	12/13/2011	N001	29	-	49	14.6		F	#		
Turbidity	NTU	12/13/2011	N001	29	-	49	8.3		F	#		
Uranium	mg/L	12/13/2011	N001	29	-	49	0.0115		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	29	-	49	0.00606		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	47	-	52	0.016	U	FQ	#	0.016	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	47	-	52	38.8		FQ	#	0.5	
Oxidation Reduction Potential	mV	12/14/2011	N001	47	-	52	-15		FQ	#		
pH	s.u.	12/14/2011	N001	47	-	52	8.13		FQ	#		
Specific Conductance	umhos /cm	12/14/2011	N001	47	-	52	1130		FQ	#		
Temperature	C	12/14/2011	N001	47	-	52	14.7		FQ	#		
Turbidity	NTU	12/14/2011	N001	47	-	52	3.83		FQ	#		
Uranium	mg/L	12/14/2011	N001	47	-	52	0.0109		FQ	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	47	-	52	0.0167		FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	0001	58.6	-	88.7	100		F	#	4	
Chloride	mg/L	12/14/2011	0001	58.6	-	88.7	14		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	0001	58.6	-	88.7	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	12/14/2011	N001	58.6	-	88.7	-200.1		F	#		
pH	s.u.	12/14/2011	N001	58.6	-	88.7	6.24		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	58.6	-	88.7	1976		F	#		
Sulfate	mg/L	12/14/2011	0001	58.6	-	88.7	35.4		F	#	1	
Temperature	C	12/14/2011	N001	58.6	-	88.7	13.38		F	#		
Turbidity	NTU	12/14/2011	N001	58.6	-	88.7	20.4		F	#		
Uranium	mg/L	12/14/2011	0001	58.6	-	88.7	0.000349		F	#	0.000067	
Vanadium	mg/L	12/14/2011	0001	58.6	-	88.7	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	47.2	-	57.2	122		F	#	4	
Chloride	mg/L	12/14/2011	N001	47.2	-	57.2	14.2		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	47.2	-	57.2	112		F	#	1	
Oxidation Reduction Potential	mV	12/14/2011	N001	47.2	-	57.2	-219.5		F	#		
pH	s.u.	12/14/2011	N001	47.2	-	57.2	7.76		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	47.2	-	57.2	2448		F	#		
Sulfate	mg/L	12/14/2011	N001	47.2	-	57.2	417		F	#	10	
Temperature	C	12/14/2011	N001	47.2	-	57.2	15.26		F	#		
Turbidity	NTU	12/14/2011	N001	47.2	-	57.2	5.27		F	#		
Uranium	mg/L	12/14/2011	N001	47.2	-	57.2	0.012		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	47.2	-	57.2	0.00365	B	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	43.5	-	63.5	0.136		F	#	0.016	
Chloride	mg/L	12/14/2011	N001	43.5	-	63.5	4.52		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	43.5	-	63.5	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	43.5	-	63.5	-30		F	#		
pH	s.u.	12/14/2011	N001	43.5	-	63.5	8.32		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	43.5	-	63.5	400		F	#		
Sulfate	mg/L	12/14/2011	N001	43.5	-	63.5	32.4		F	#	0.1	
Temperature	C	12/14/2011	N001	43.5	-	63.5	15		F	#		
Turbidity	NTU	12/14/2011	N001	43.5	-	63.5	3.21		F	#		
Uranium	mg/L	12/14/2011	N001	43.5	-	63.5	0.000542		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	43.5	-	63.5	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	24.4	-	44.4	0.595		F	#	0.016	
Chloride	mg/L	12/14/2011	N001	24.4	-	44.4	14		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	24.4	-	44.4	0.05	U	F	#	0.05	
Oxidation Reduction Potential	mV	12/14/2011	N001	24.4	-	44.4	-80		F	#		
pH	s.u.	12/14/2011	N001	24.4	-	44.4	8.6		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	24.4	-	44.4	485		F	#		
Sulfate	mg/L	12/14/2011	N001	24.4	-	44.4	79.4		F	#	1	
Temperature	C	12/14/2011	N001	24.4	-	44.4	15.2		F	#		
Turbidity	NTU	12/14/2011	N001	24.4	-	44.4	9.63		F	#		
Uranium	mg/L	12/14/2011	N001	24.4	-	44.4	0.000097	B	F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	24.4	-	44.4	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	54.9	-	64.9	31		F	#	0.4	
Chloride	mg/L	12/14/2011	N001	54.9	-	64.9	13.5		F	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	54.9	-	64.9	16.1		F	#	0.5	
Oxidation Reduction Potential	mV	12/14/2011	N001	54.9	-	64.9	75		F	#		
pH	s.u.	12/14/2011	N001	54.9	-	64.9	8		F	#		
Specific Conductance	umhos /cm	12/14/2011	N001	54.9	-	64.9	990		F	#		
Sulfate	mg/L	12/14/2011	N001	54.9	-	64.9	182		F	#	1	
Temperature	C	12/14/2011	N001	54.9	-	64.9	14.5		F	#		
Turbidity	NTU	12/14/2011	N001	54.9	-	64.9	1.65		F	#		
Uranium	mg/L	12/14/2011	N001	54.9	-	64.9	0.00565		F	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	54.9	-	64.9	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	57.4	-	77.4	255		FQ	#	4	
Chloride	mg/L	12/14/2011	N001	57.4	-	77.4	16.6		FQ	#	0.66	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	57.4	-	77.4	184		FQ	#	5	
Oxidation Reduction Potential	mV	12/14/2011	N001	57.4	-	77.4	172.2		FQ	#		
pH	s.u.	12/14/2011	N001	57.4	-	77.4	7.39		FQ	#		
Specific Conductance	umhos /cm	12/14/2011	N001	57.4	-	77.4	4344		FQ	#		
Sulfate	mg/L	12/14/2011	N001	57.4	-	77.4	1290		FQ	#	10	
Temperature	C	12/14/2011	N001	57.4	-	77.4	15.24		FQ	#		
Turbidity	NTU	12/14/2011	N001	57.4	-	77.4	1.81		FQ	#		
Uranium	mg/L	12/14/2011	N001	57.4	-	77.4	0.0143		FQ	#	0.000067	
Vanadium	mg/L	12/14/2011	N001	57.4	-	77.4	0.00745		FQ	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
Location: 0772 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	12/13/2011	N001	7.4	-	27.4	1.93		F	#	0.016	
Chloride	mg/L	12/13/2011	N001	7.4	-	27.4	13.6		F	#	0.66	
Dissolved Oxygen	mg/L	12/13/2011	N001	7.4	-	27.4	0.67		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	7.4	-	27.4	1.15		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	7.4	-	27.4	132.4		F	#		
pH	s.u.	12/13/2011	N001	7.4	-	27.4	7.75		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	7.4	-	27.4	700		F	#		
Sulfate	mg/L	12/13/2011	N001	7.4	-	27.4	109		F	#	1	
Temperature	C	12/13/2011	N001	7.4	-	27.4	14.33		F	#		
Turbidity	NTU	12/13/2011	N001	7.4	-	27.4	3.13		F	#		
Uranium	mg/L	12/13/2011	N001	7.4	-	27.4	0.00615		F	#	0.000067	
Vanadium	mg/L	12/13/2011	N001	7.4	-	27.4	0.0139		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	45	-	55	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	45	-	55	4.2		F	#	0.066	
Dissolved Oxygen	mg/L	12/13/2011	N001	45	-	55	7.94		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	45	-	55	1.72		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	45	-	55	173.8		F	#		
pH	s.u.	12/13/2011	N001	45	-	55	7.81		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	45	-	55	396		F	#		
Sulfate	mg/L	12/13/2011	N001	45	-	55	39.9		F	#	0.1	
Temperature	C	12/13/2011	N001	45	-	55	14.45		F	#		
Turbidity	NTU	12/13/2011	N001	45	-	55	4.03		F	#		
Uranium	mg/L	12/13/2011	N001	45	-	55	0.033		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	45	-	55	12.1		F	#	0.0391	1.52
Uranium-235/236	pCi/L	12/13/2011	N001	45	-	55	0.61		F	#	0.0101	0.116
Uranium-238	pCi/L	12/13/2011	N001	45	-	55	11.4		F	#	0.0334	1.44
Vanadium	mg/L	12/13/2011	N001	45	-	55	0.0197		F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	142	-	167	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	142	-	167	4.64		F	#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	142	-	167	0.605		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	142	-	167	25		F	#		
pH	s.u.	12/13/2011	N001	142	-	167	8.23		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	142	-	167	385		F	#		
Sulfate	mg/L	12/13/2011	N001	142	-	167	24.9		F	#	0.1	
Temperature	C	12/13/2011	N001	142	-	167	14.4		F	#		
Turbidity	NTU	12/13/2011	N001	142	-	167	1.23		F	#		
Uranium	mg/L	12/13/2011	N001	142	-	167	0.00291		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	142	-	167	1.71		F	#	0.0295	0.242
Uranium-235/236	pCi/L	12/13/2011	N001	142	-	167	0.0534		FJ	#	0.0227	0.0268
Uranium-238	pCi/L	12/13/2011	N001	142	-	167	0.979		F	#	0.0265	0.152
Vanadium	mg/L	12/13/2011	N001	142	-	167	0.001	U	F	#	0.001	

Groundwater Quality Data by Location (USEE100) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/13/2011	N001	99.5 - 149.5	0.016	U	F	#	0.016	
Chloride	mg/L	12/13/2011	N001	99.5 - 149.5	4.8		F	#	0.066	
Dissolved Oxygen	mg/L	12/13/2011	N001	99.5 - 149.5	6.14		F	#		
Nitrate + Nitrite as Nitrogen	mg/L	12/13/2011	N001	99.5 - 149.5	0.775		F	#	0.05	
Oxidation Reduction Potential	mV	12/13/2011	N001	99.5 - 149.5	159.4		F	#		
pH	s.u.	12/13/2011	N001	99.5 - 149.5	7.86		F	#		
Specific Conductance	umhos /cm	12/13/2011	N001	99.5 - 149.5	391		F	#		
Sulfate	mg/L	12/13/2011	N001	99.5 - 149.5	31.7		F	#	0.1	
Temperature	C	12/13/2011	N001	99.5 - 149.5	13.64		F	#		
Turbidity	NTU	12/13/2011	N001	99.5 - 149.5	0.9		F	#		
Uranium	mg/L	12/13/2011	N001	99.5 - 149.5	0.00776		F	#	0.000067	
Uranium-234	pCi/L	12/13/2011	N001	99.5 - 149.5	3.33		F	#	0.0545	0.445
Uranium-235/236	pCi/L	12/13/2011	N001	99.5 - 149.5	0.141		F	#	0.0307	0.0467
Uranium-238	pCi/L	12/13/2011	N001	99.5 - 149.5	2.72		F	#	0.0248	0.37
Vanadium	mg/L	12/13/2011	N001	99.5 - 149.5	0.0162		F	#	0.001	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012
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	12/14/2011	N001	0.343			#	0.016	
Chloride	mg/L	12/14/2011	N001	14.1			#	0.066	
Nitrate + Nitrite as Nitrogen	mg/L	12/14/2011	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	12/14/2011	N001	52			#		
pH	s.u.	12/14/2011	N001	7.91			#		
Specific Conductance	umhos/cm	12/14/2011	N001	660			#		
Sulfate	mg/L	12/14/2011	N001	39.7			#	0.1	
Temperature	C	12/14/2011	N001	5.6			#		
Turbidity	NTU	12/14/2011	N001	4.56			#		
Uranium	mg/L	12/14/2011	N001	0.00187			#	0.000067	
Vanadium	mg/L	12/14/2011	N001	0.001	U		#	0.001	

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.

Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0402	U	4840.3	12/14/2011	16:15:18	4.59	4835.71	
0602	U	4864.43	12/13/2011	14:06:43	9.78	4854.65	
0603	U	4849.41	12/13/2011	15:54:03	11.72	4837.69	
0604	C	4840.42	12/13/2011	16:33:11	9.87	4830.55	
0605	C	4835.07	12/14/2011	14:00:07	11.53	4823.54	
0606	D	4864.73	12/14/2011	09:54:22	37.25	4827.48	
0619	O	4888.63	12/13/2011	10:48:08	60.49	4828.14	
0648	N	4835.14	12/15/2011	09:25:07	35.29	4799.85	
0650	D	4794.28	12/14/2011	10:35:16	20.52	4773.76	
0651	C	4787.88	12/14/2011	11:15:08	8.18	4779.7	
0652	C	4808.93	12/14/2011	11:40:40	19.14	4789.79	
0653	D	4837.08	12/15/2011	09:40:17	37.09	4799.99	
0655	D	4862.06	12/14/2011	10:36:15	41.69	4820.37	
0656	D	4856.33	12/14/2011	15:20:54	38.08	4818.25	
0657	O	4878.99	12/13/2011	12:00:34	53.45	4825.54	
0662	D	4878.56	12/13/2011	11:10:02	52.88	4825.68	
0669	D	4867.19	12/14/2011	11:31:42	51.83	4815.36	
0711			12/13/2011	15:13:03	11.8		E
0715			12/13/2011	14:37:36	11.18		E
0719			12/13/2011	13:41:10	12.56		E
0727			12/13/2011	13:10:37	14.55		E
0733			12/13/2011	13:25:07	51.85		E
0734			12/13/2011	12:30:22	53.35		E
0735			12/13/2011	10:30:11	54.19		E
0738			12/14/2011	12:30:42	16.91		E
0739			12/14/2011	10:05:09	23.12		E
0740			12/14/2011	09:40:48	27.72		E
0741			12/14/2011	14:31:54	37.34		E

STATIC WATER LEVELS (USEE700) FOR SITE MON01, Monument Valley Processing Site
REPORT DATE: 2/14/2012

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0742			12/14/2011	13:27:52	37.39		E
0743			12/14/2011	15:41:56	36.87		E
0760	D	4814.8	12/13/2011	16:45:06	25.35	4789.45	
0761	D	4835.02	12/13/2011	15:40:35	44.4	4790.62	
0762	D	4820.74	12/13/2011	16:10:56	33.26	4787.48	
0764	D	4851.53	12/14/2011	14:45:18	51.19	4800.34	
0765	D	4848.45	12/14/2011	12:31:57	37.06	4811.39	
0766	D	4847.97	12/14/2011	13:51:51	37.58	4810.39	
0767	D	4808.25	12/14/2011	12:10:47	7.35	4800.9	
0768	D	4820.73	12/14/2011	13:00:28	15.14	4805.59	
0770	D	4857.26	12/14/2011	15:45:07	34.55	4822.71	
0771	D	4863.26	12/14/2011	10:59:52	43.69	4819.57	
0772	O	4847.6	12/13/2011	12:29:29	12.59	4835.01	
0774	O	4880.14	12/13/2011	11:45:18	52.32	4827.82	
0775	D	4879.68	12/13/2011	14:15:57	53	4826.68	
0776	O	4883.33	12/13/2011	09:49:03	56.2	4827.13	

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

WATER LEVEL FLAGS: D Dry F FLOWING E TOP OF CASING ELEVATION DATA NOT AVAILABLE

Time-Concentration Graphs

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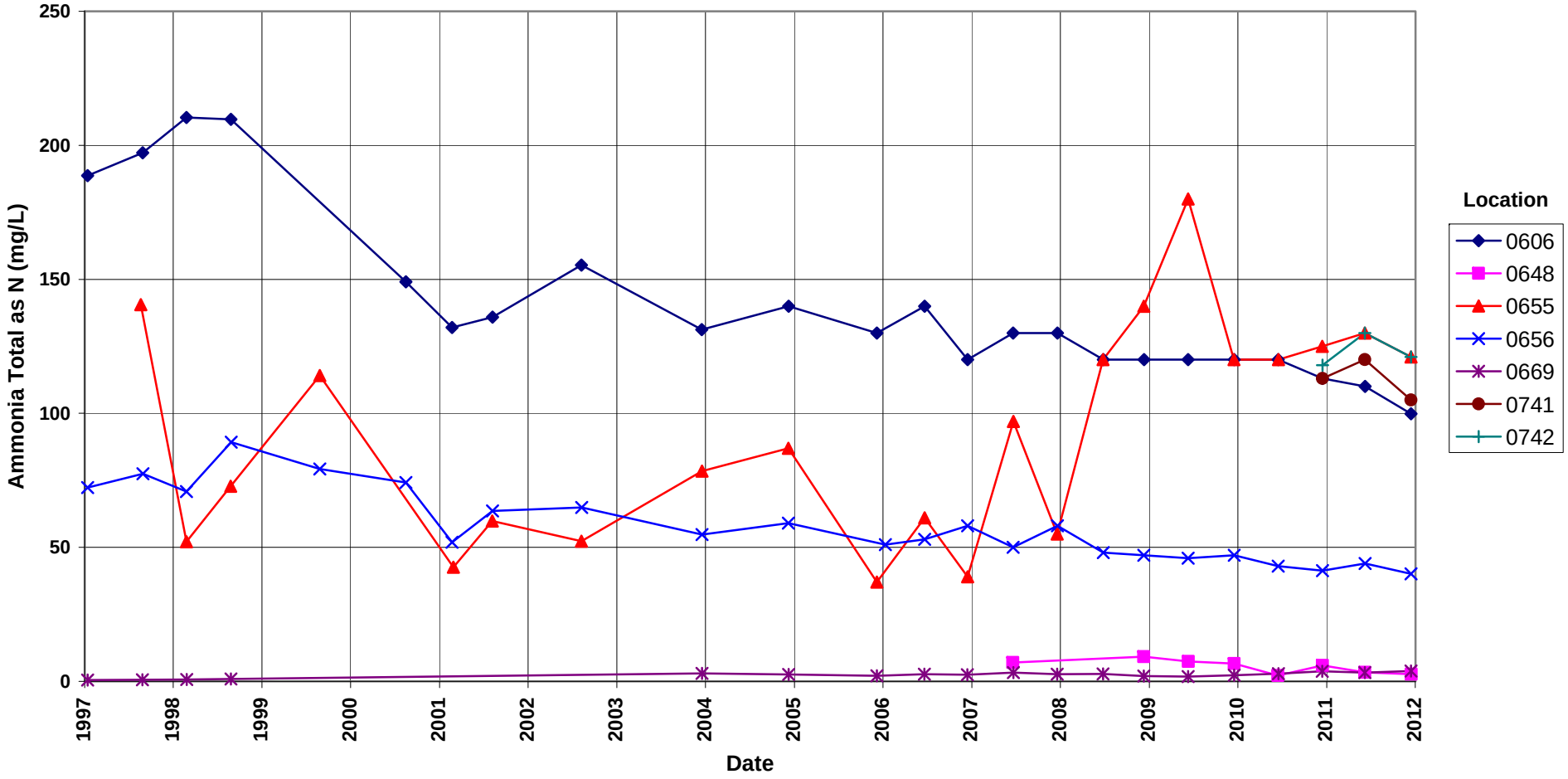
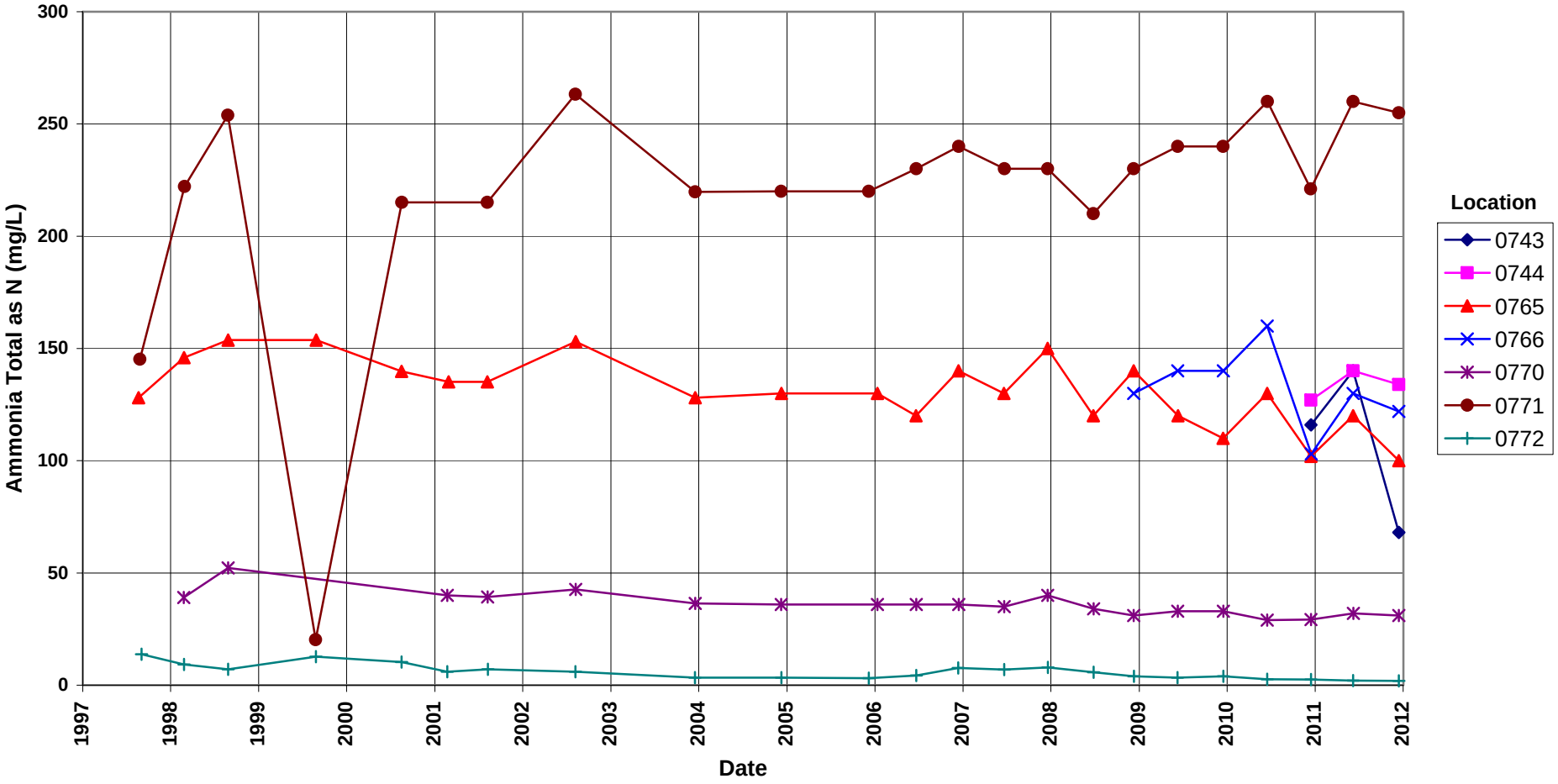
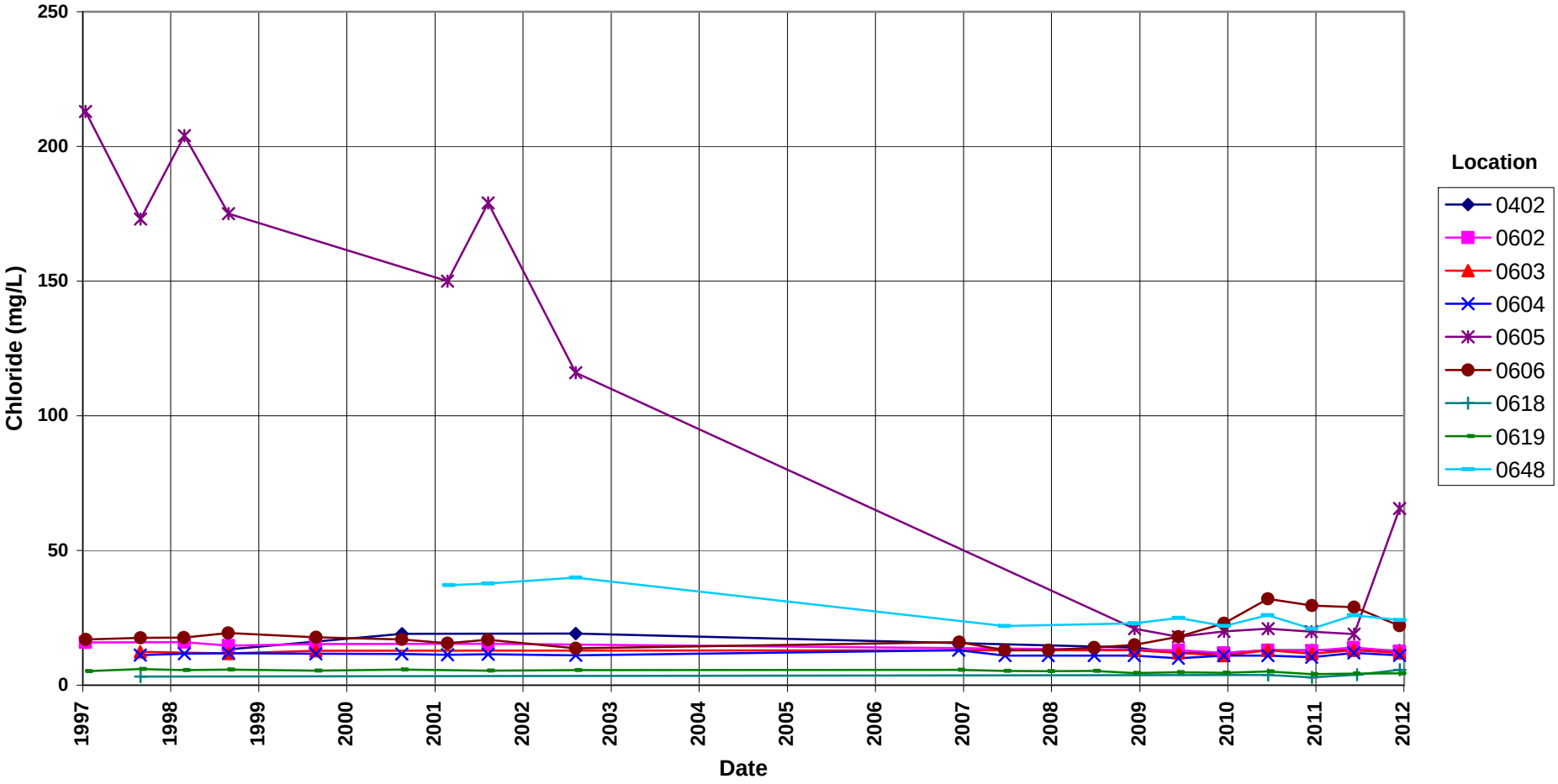
Monument Valley Processing Site
Ammonia Total as N Concentration



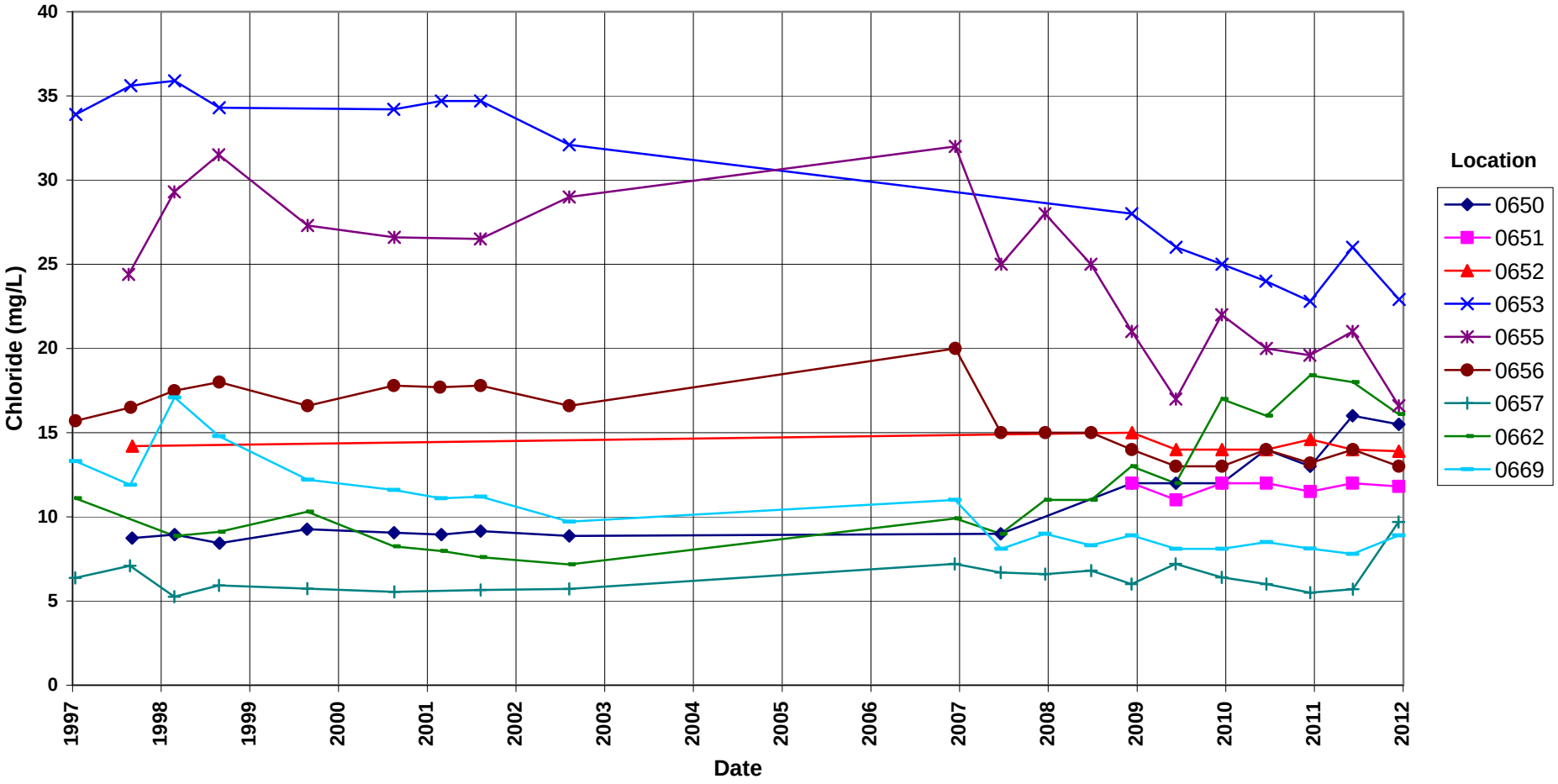
Monument Valley Processing Site
Ammonia Total as N Concentration



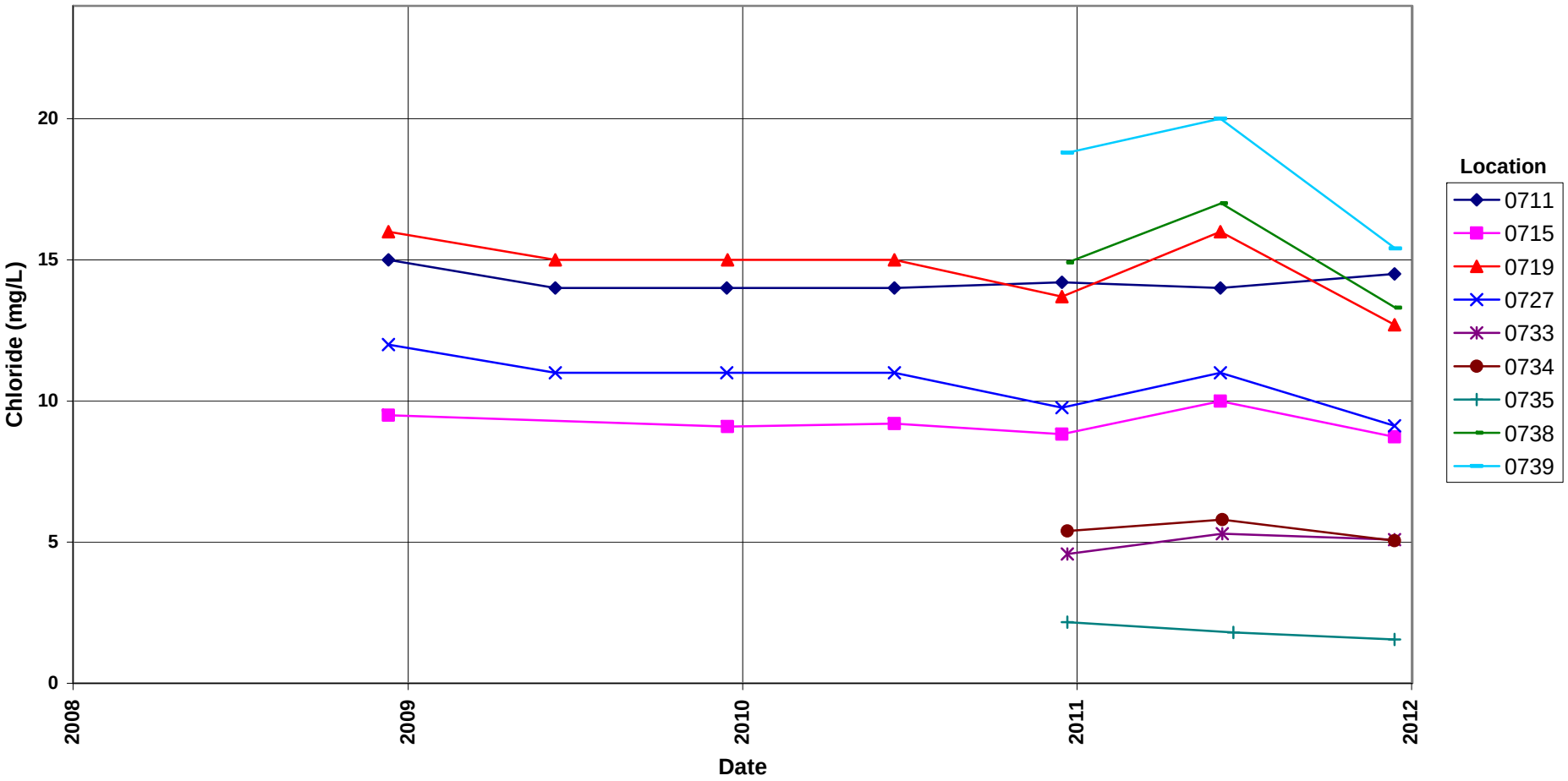
Monument Valley Processing Site
Chloride Concentration



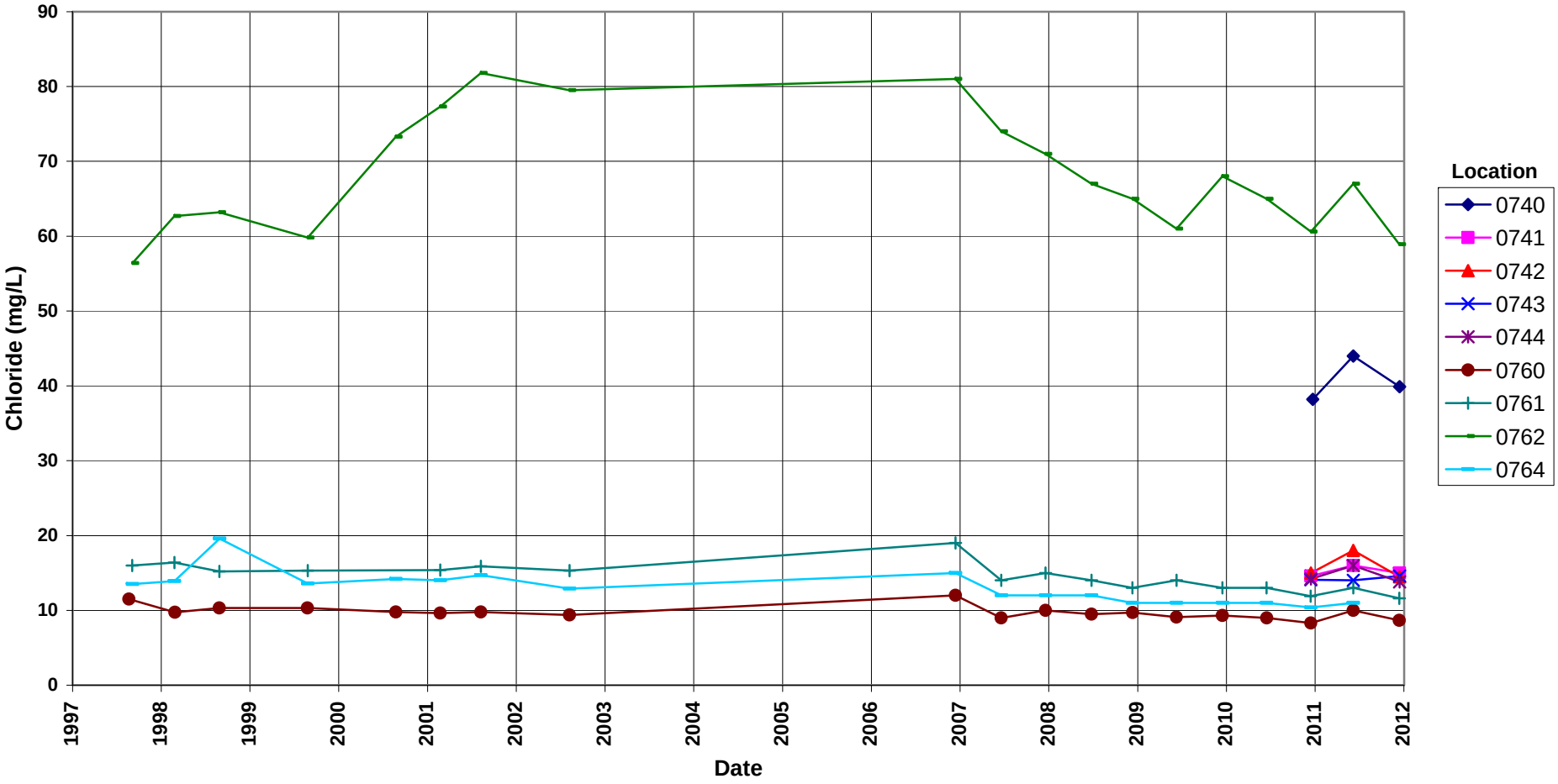
Monument Valley Processing Site
Chloride Concentration



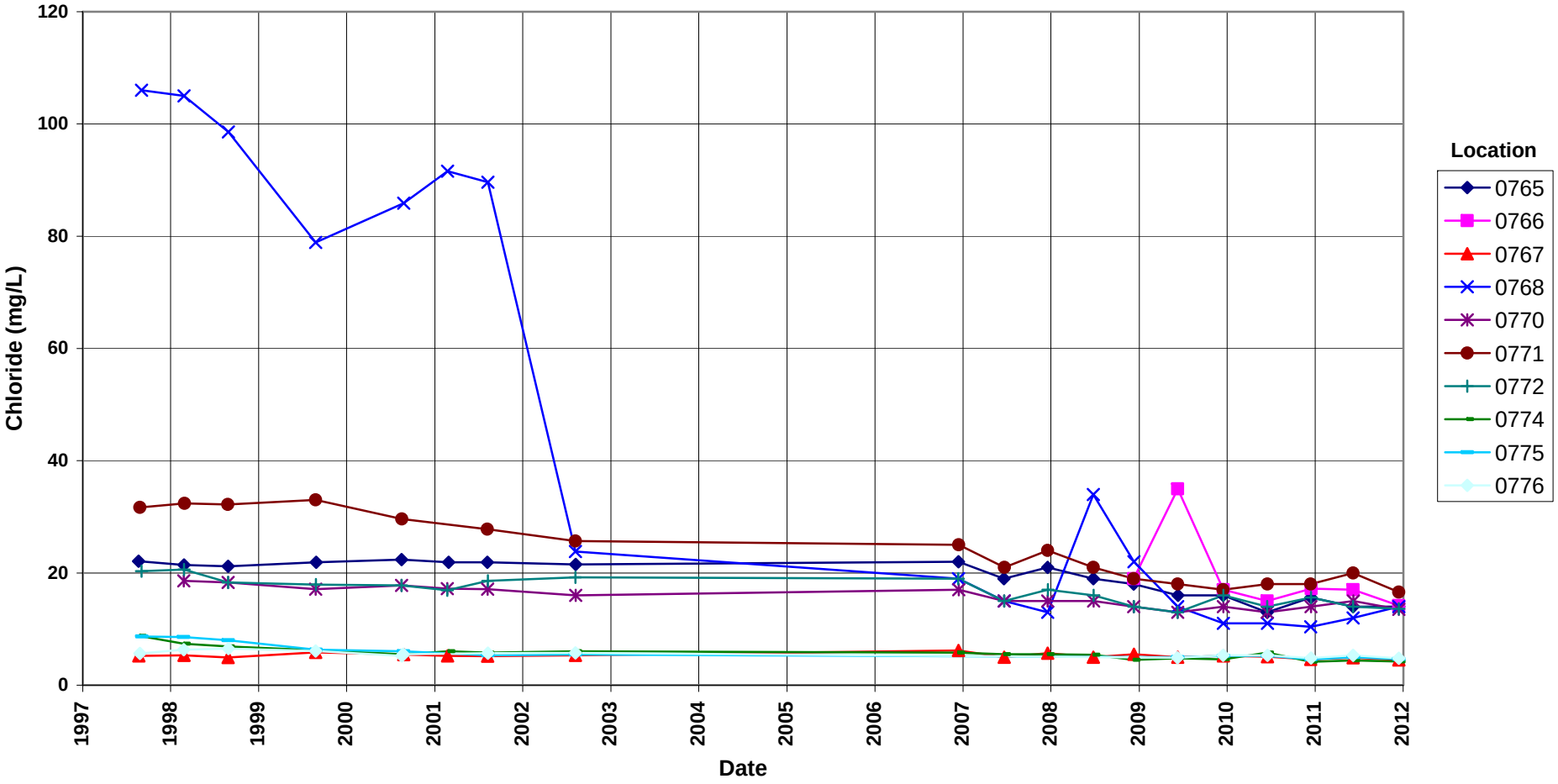
Monument Valley Processing Site
Chloride Concentration



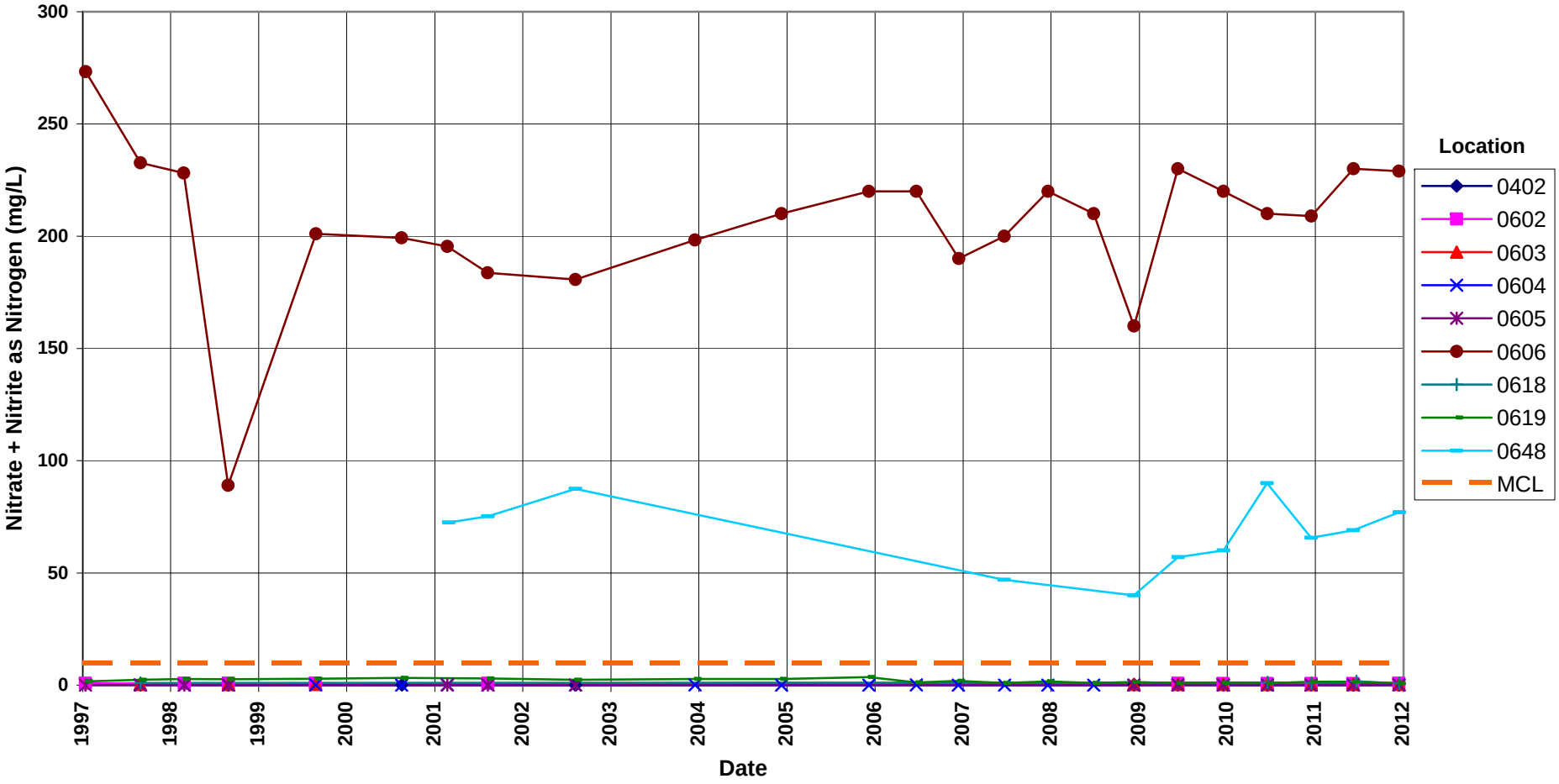
Monument Valley Processing Site
Chloride Concentration



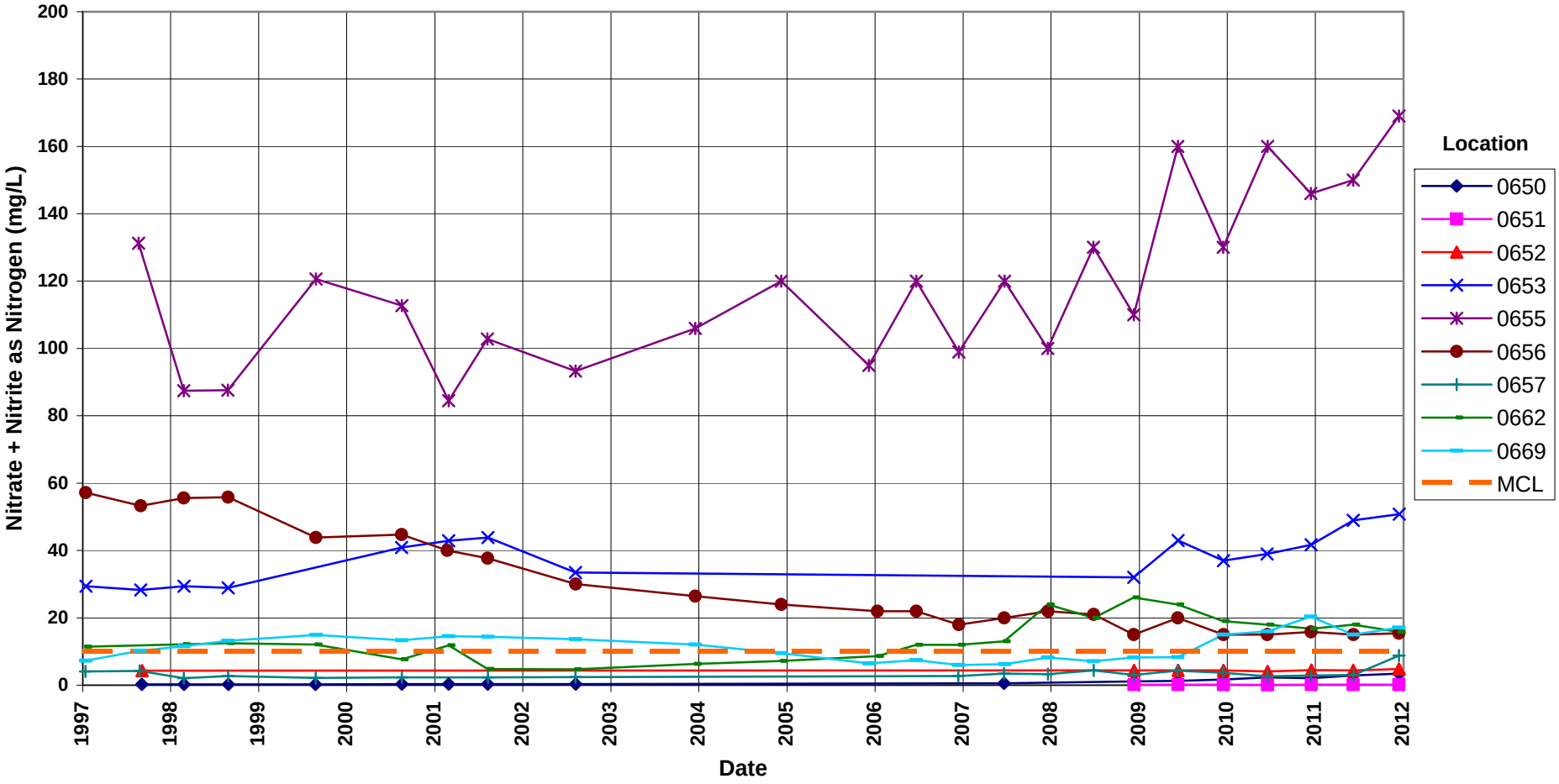
Monument Valley Processing Site
Chloride Concentration



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
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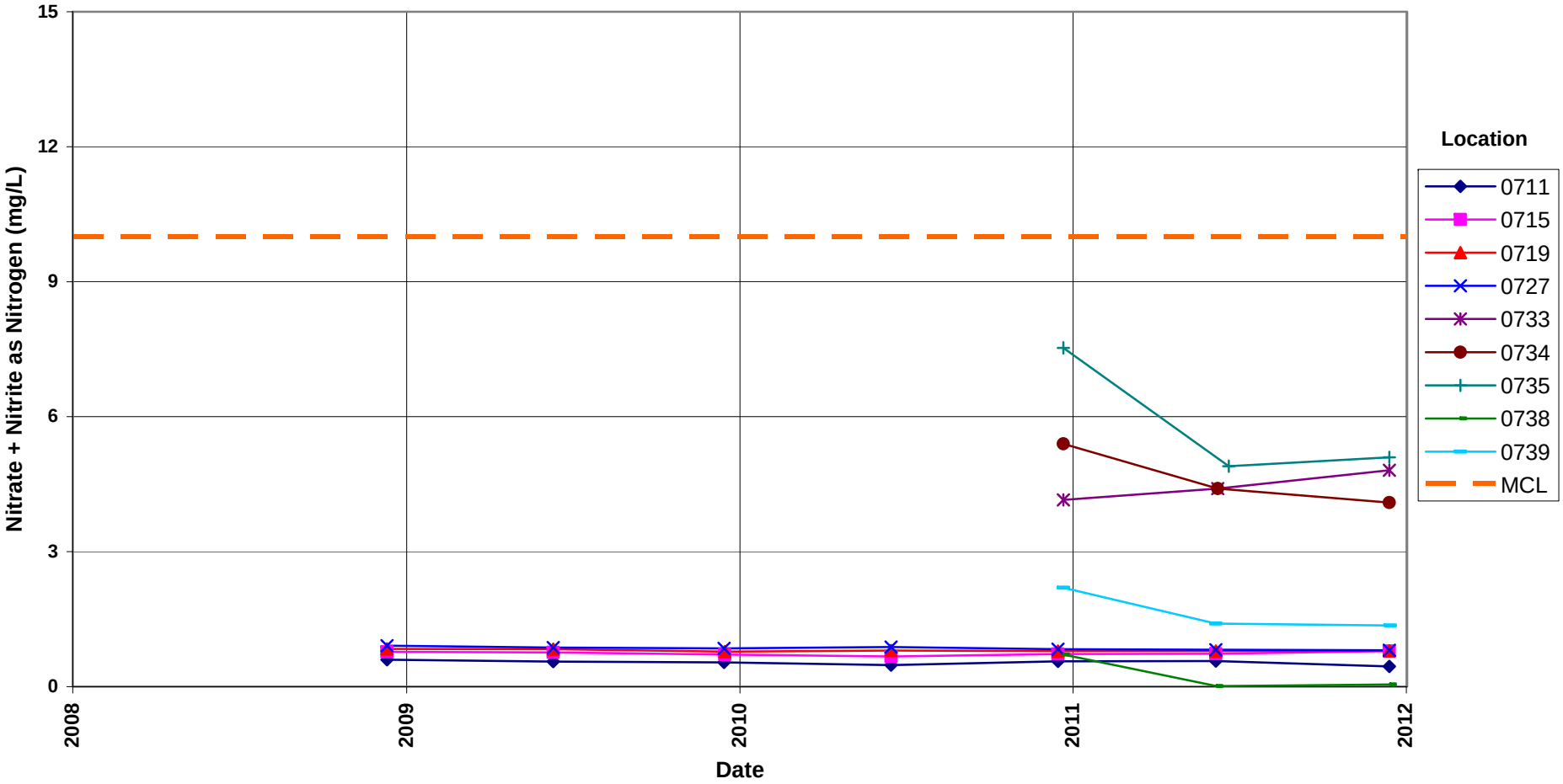

Monument Valley Processing Site
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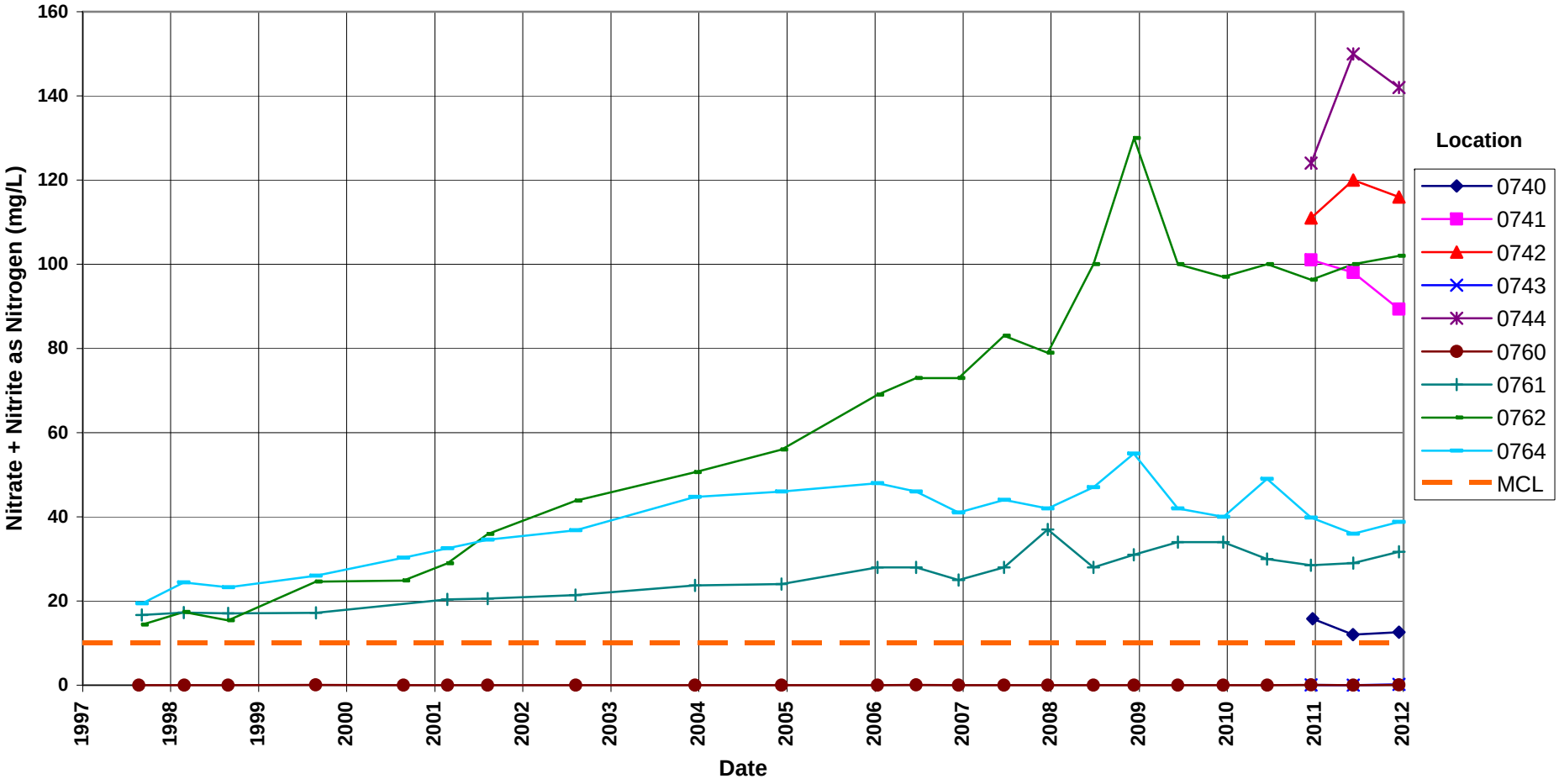

Monument Valley Processing Site
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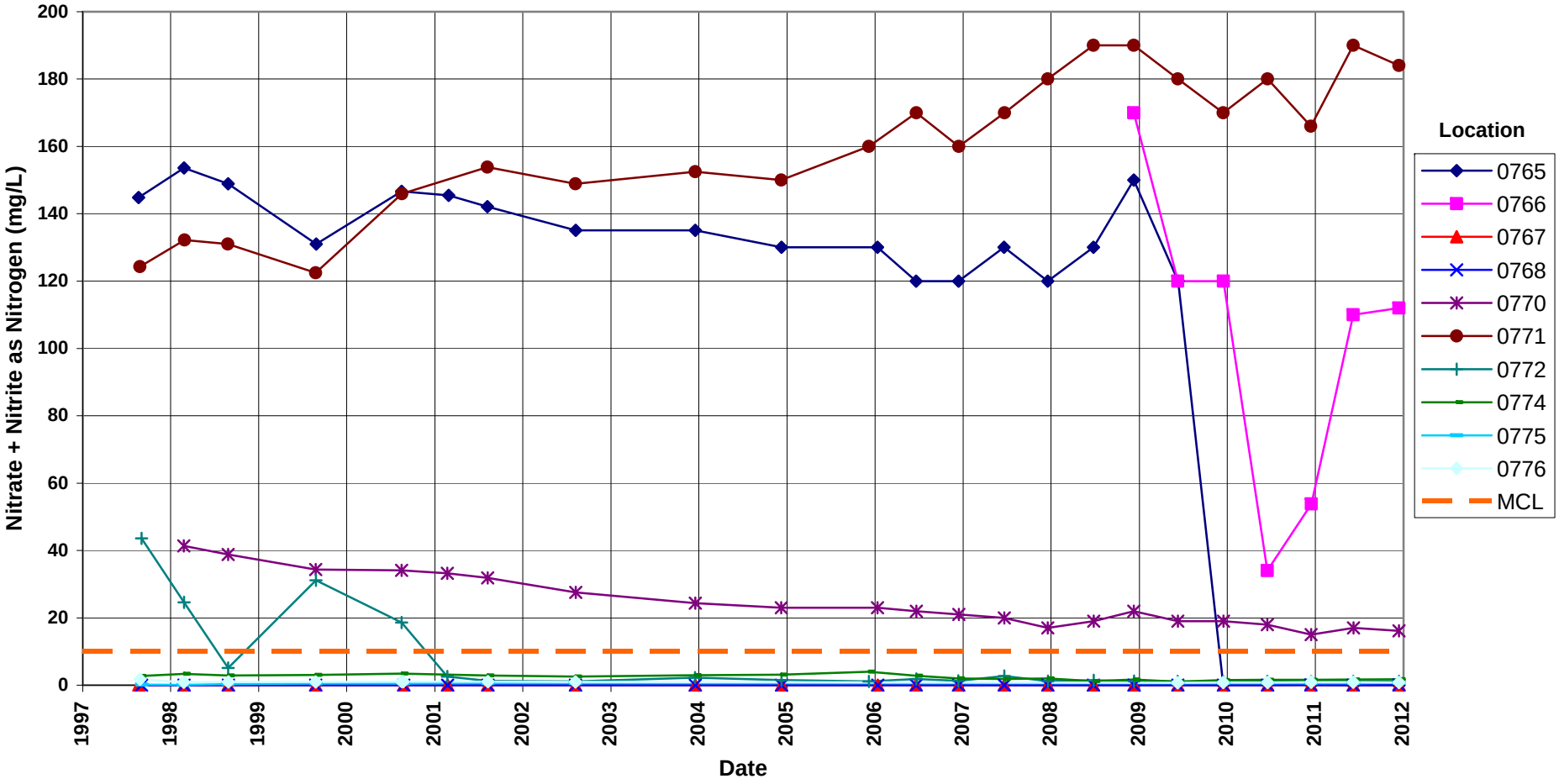
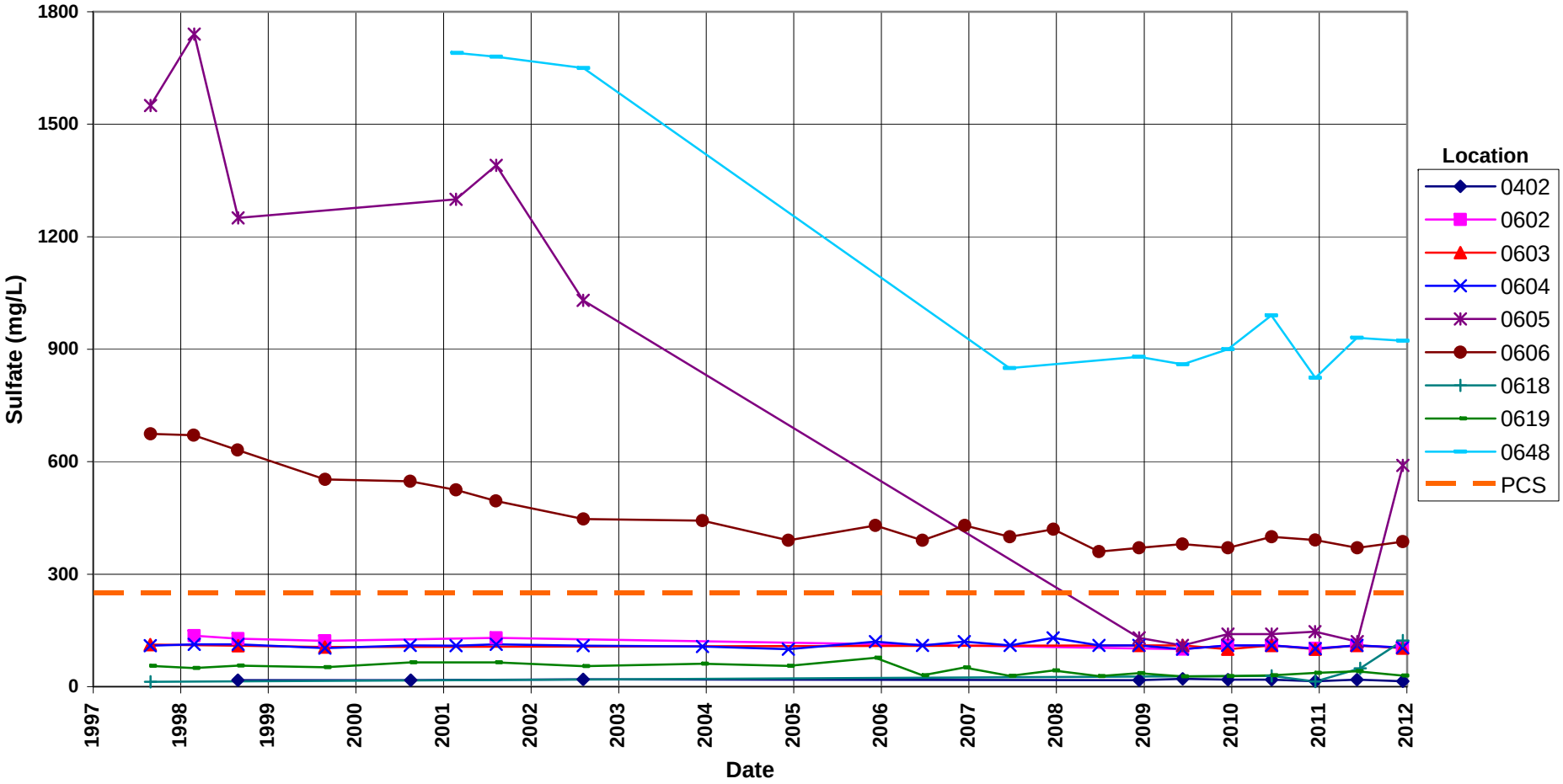
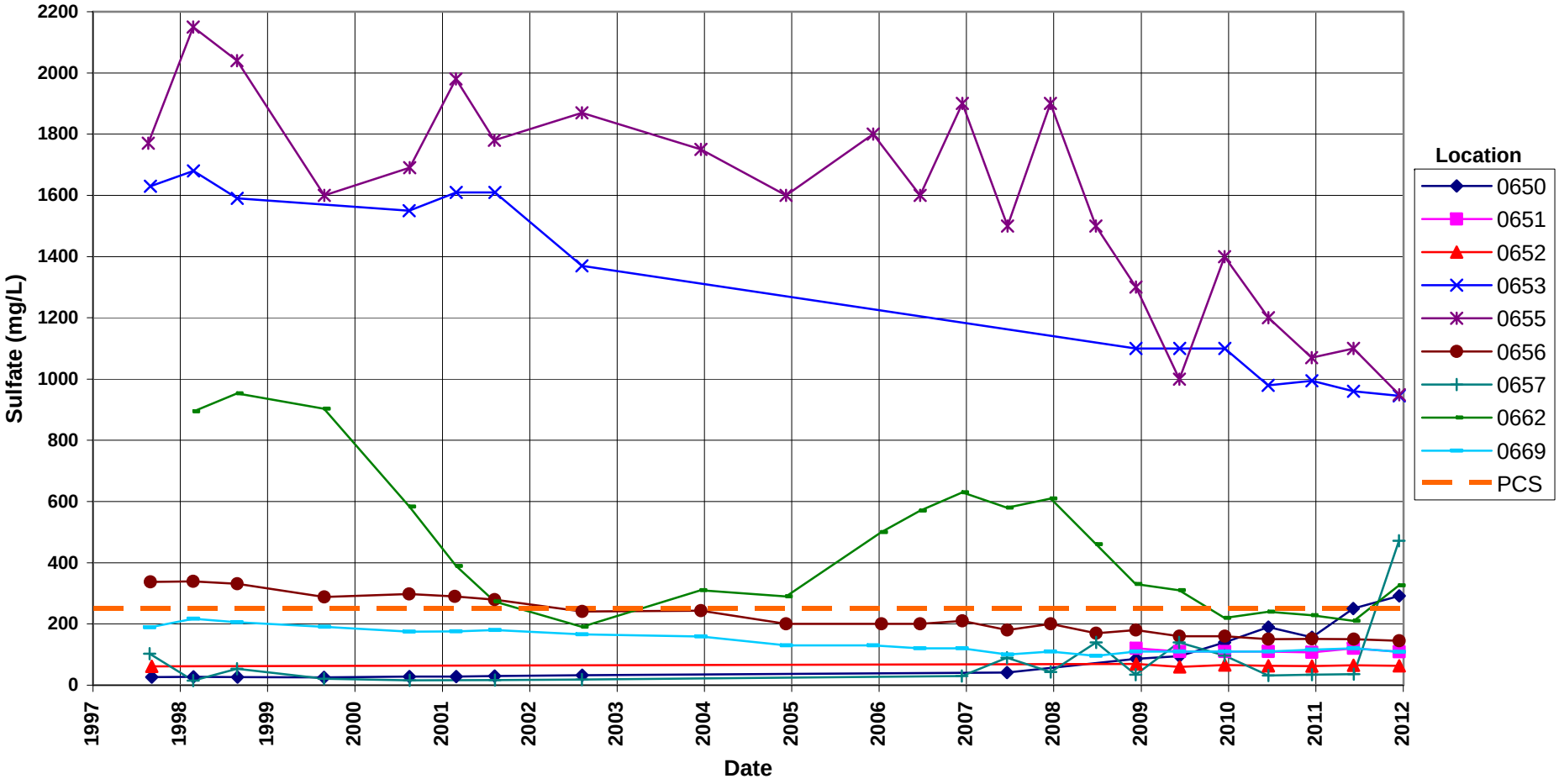


Monument Valley Processing Site
Sulfate Concentration
Proposed Cleanup Standard (PCS) = 250 mg/L



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



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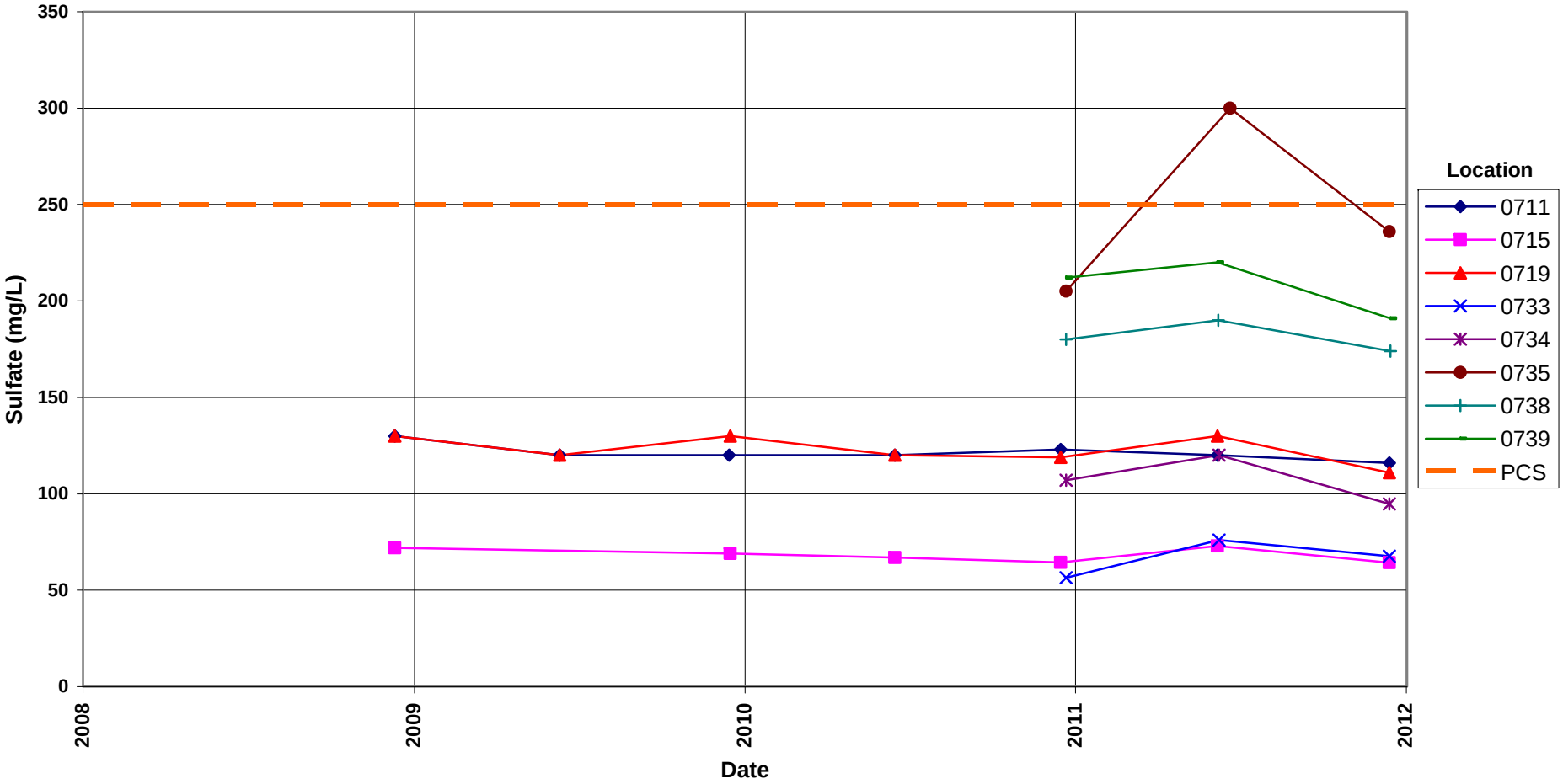

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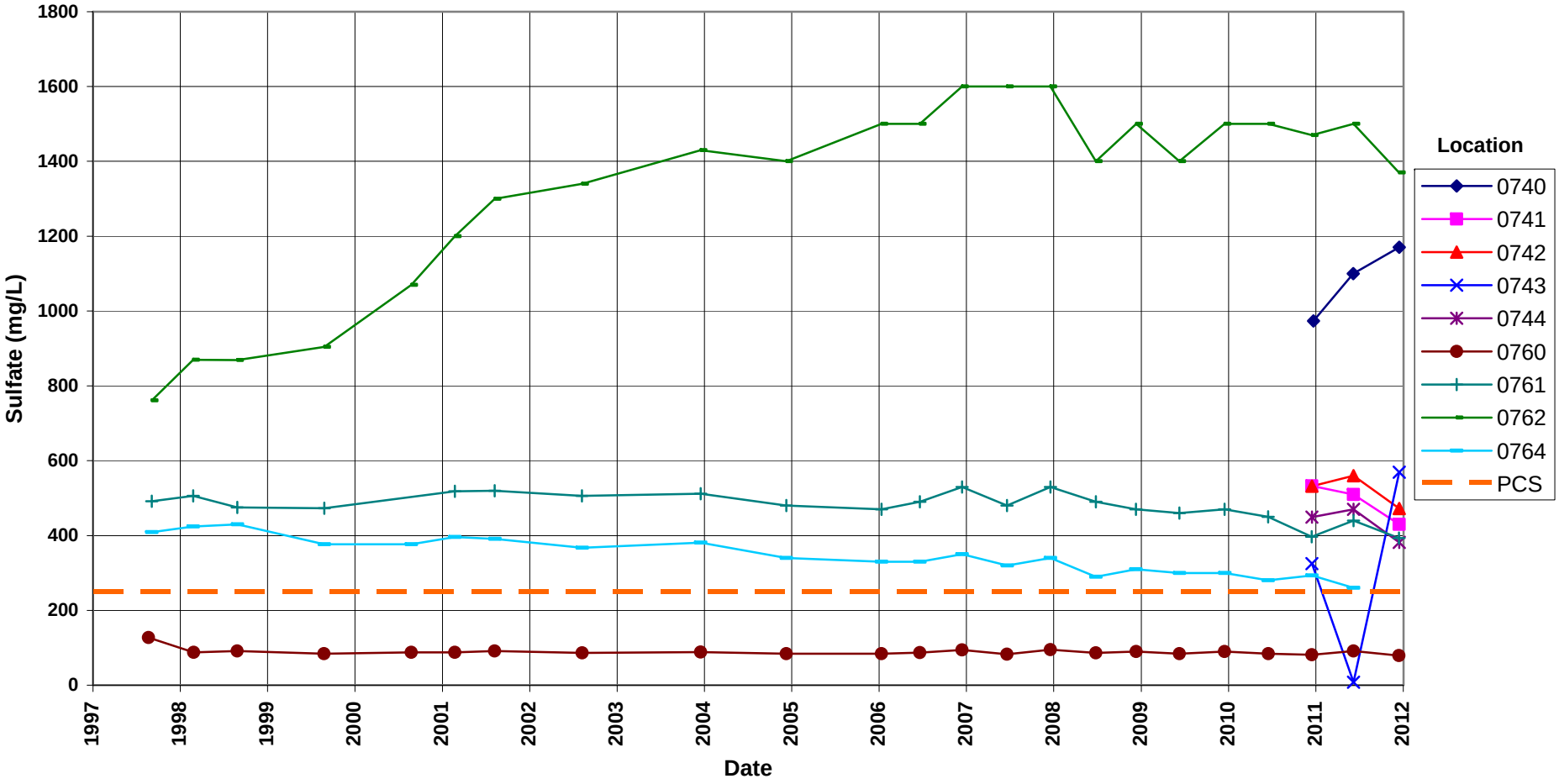

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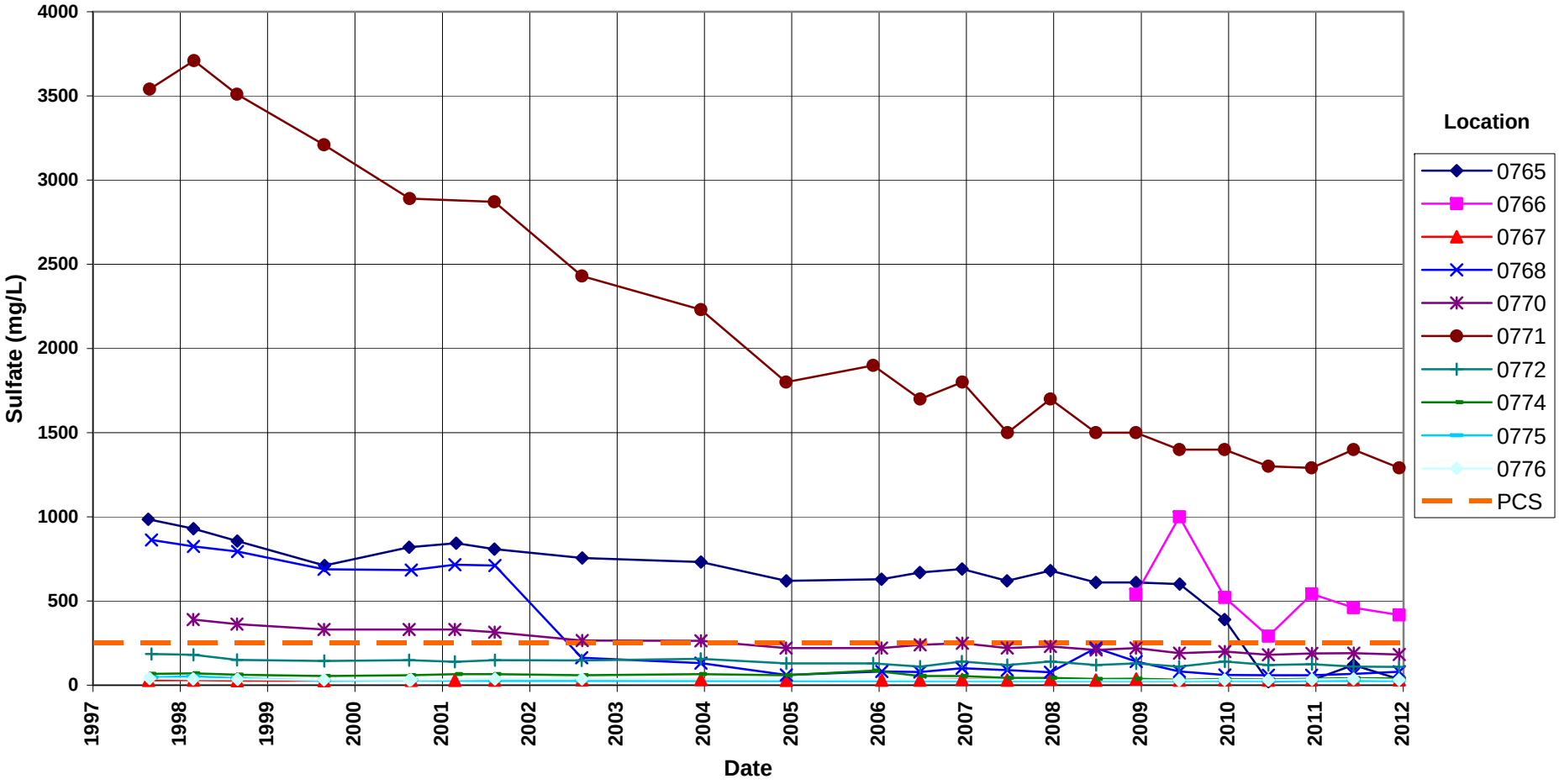
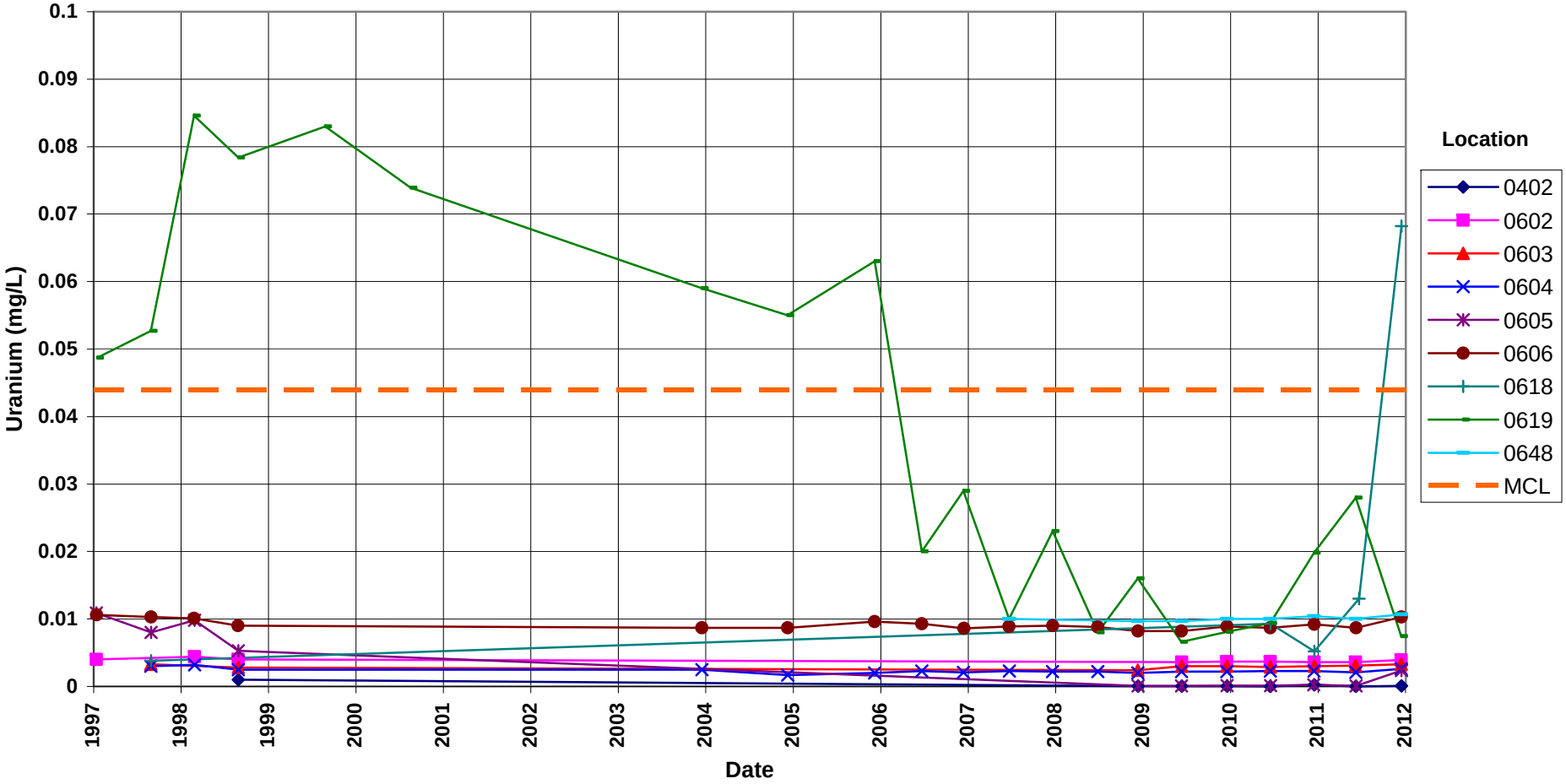


Monument Valley Processing Site
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



Monument Valley Processing Site
Uranium Concentration
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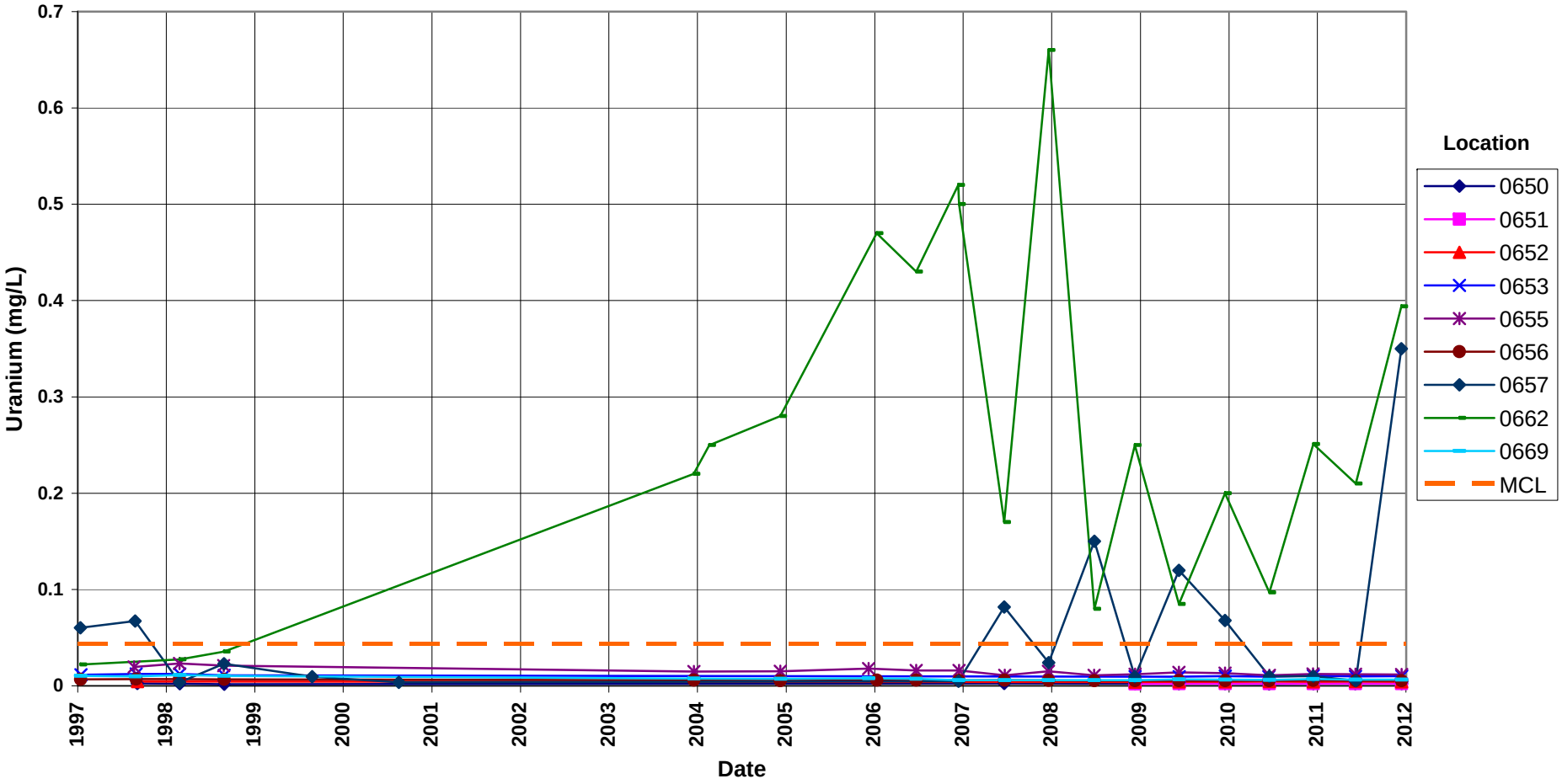

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Uranium Concentration
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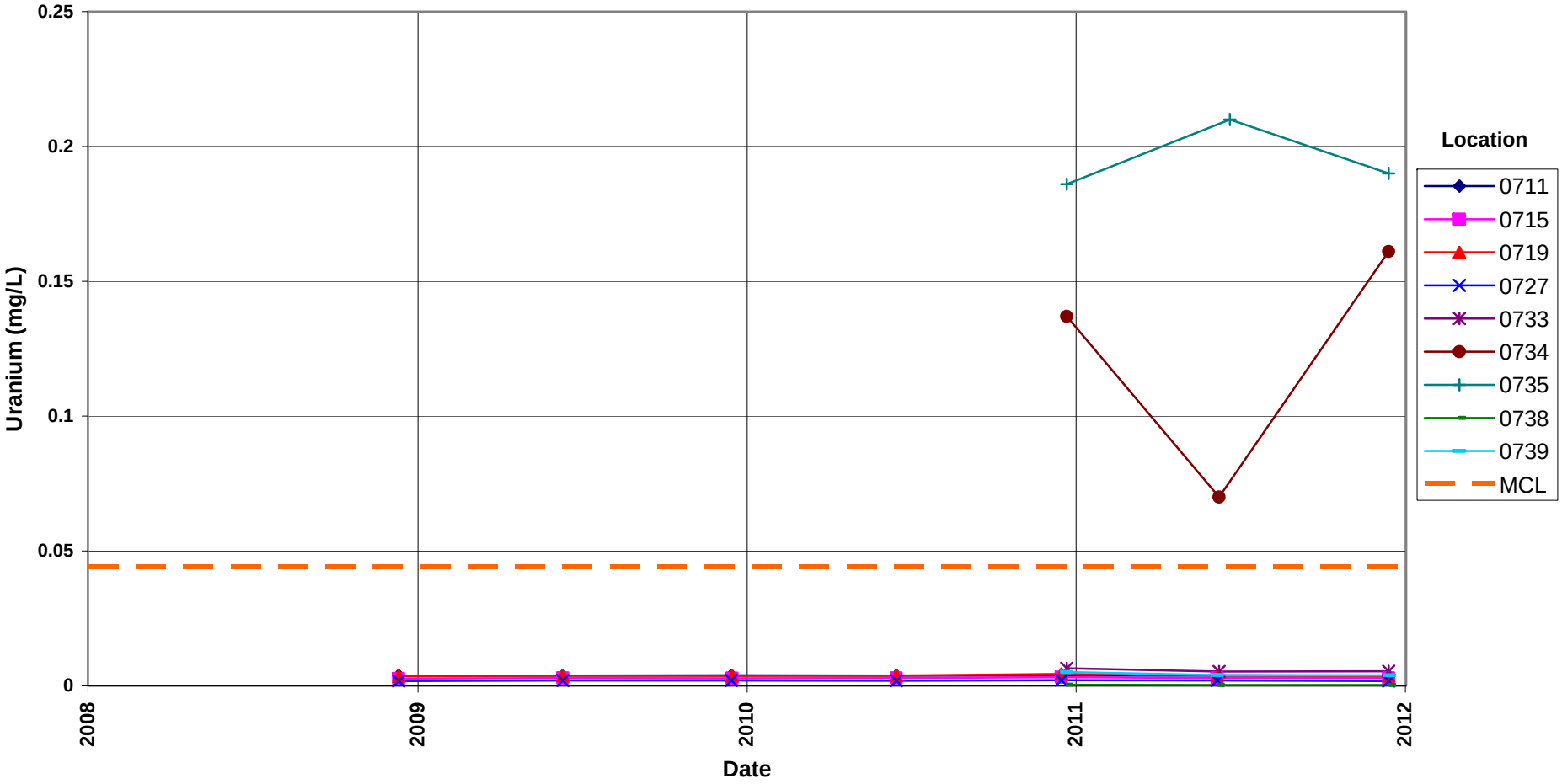

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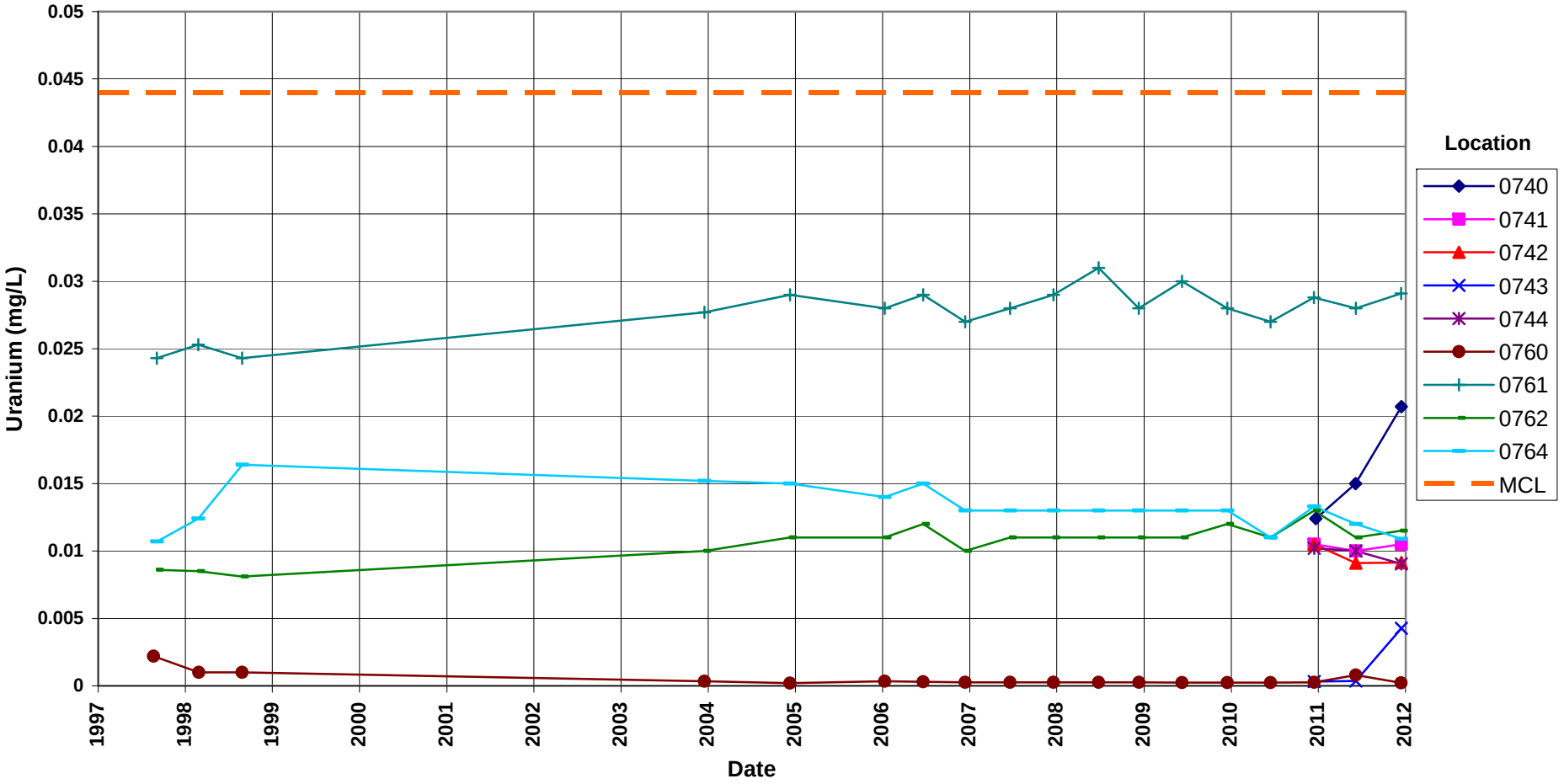

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Uranium Concentration
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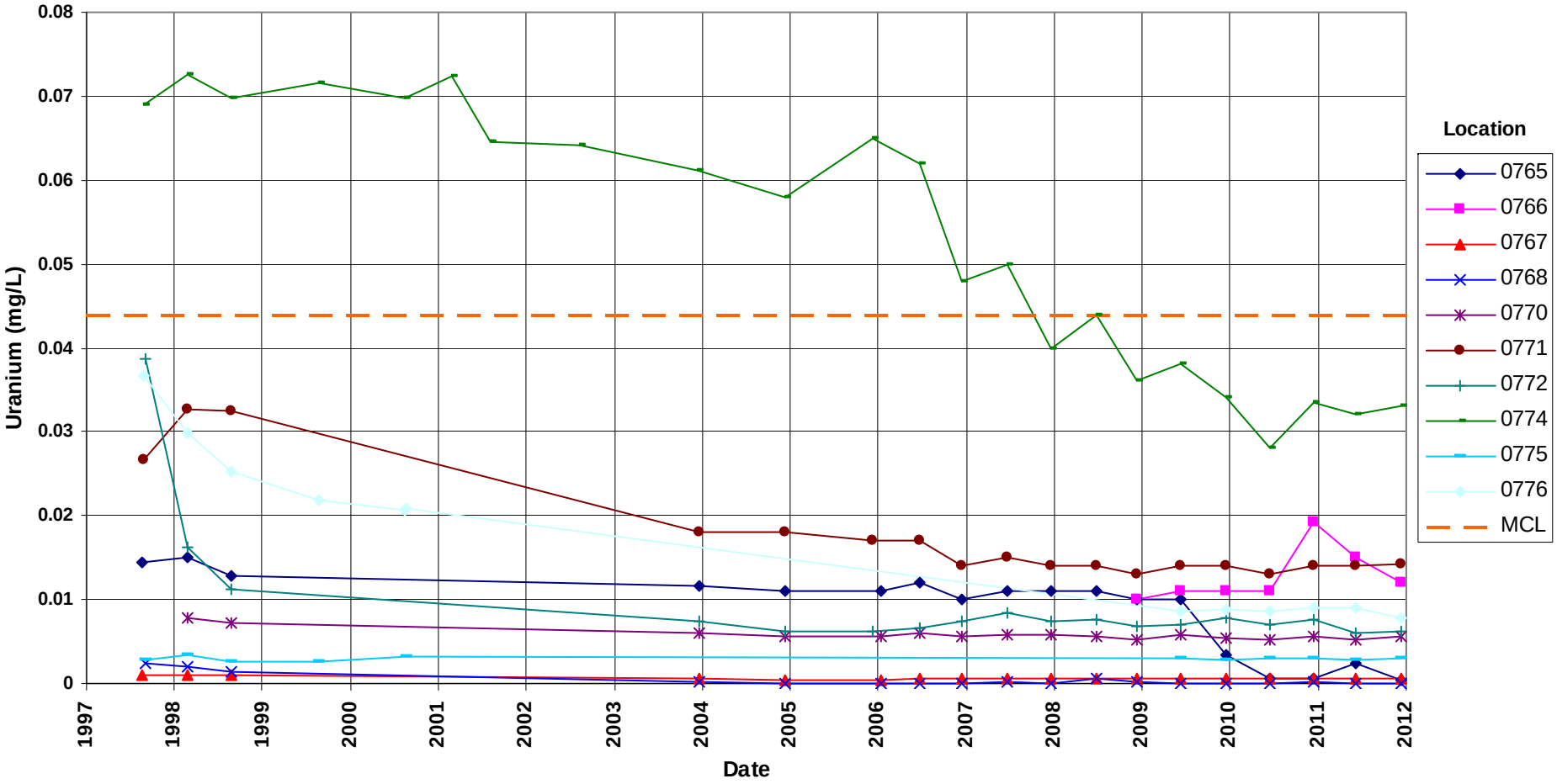
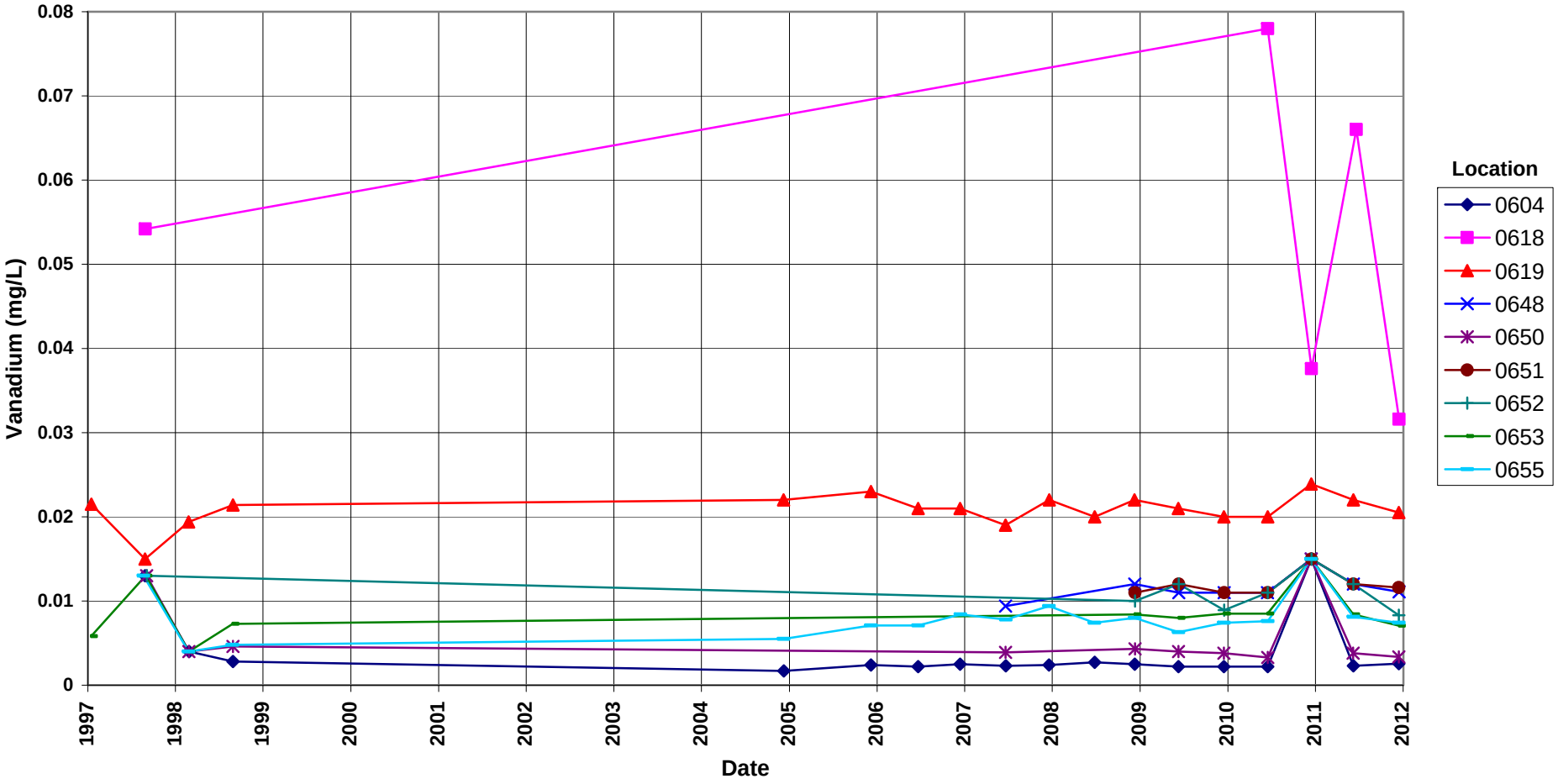
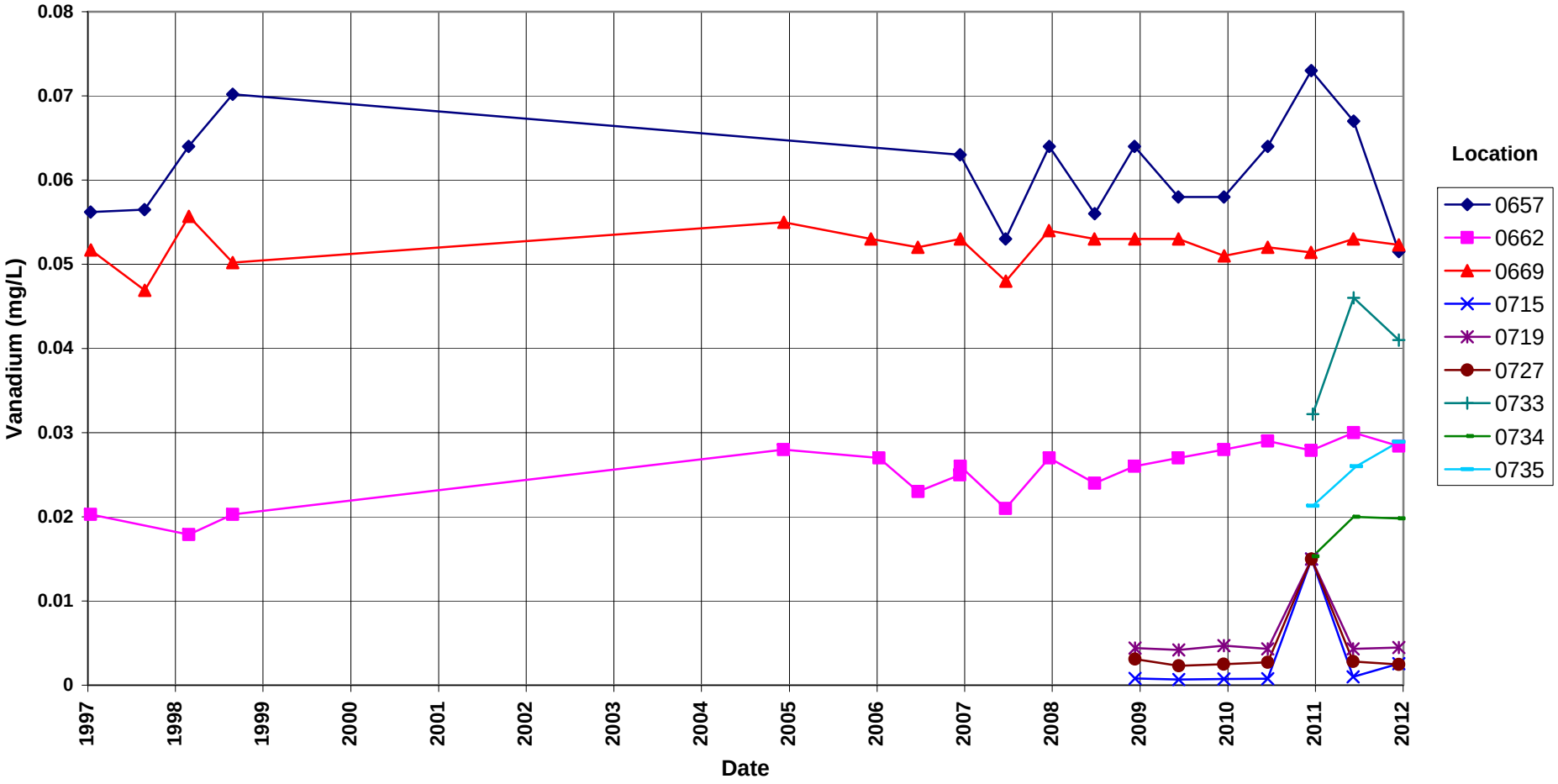


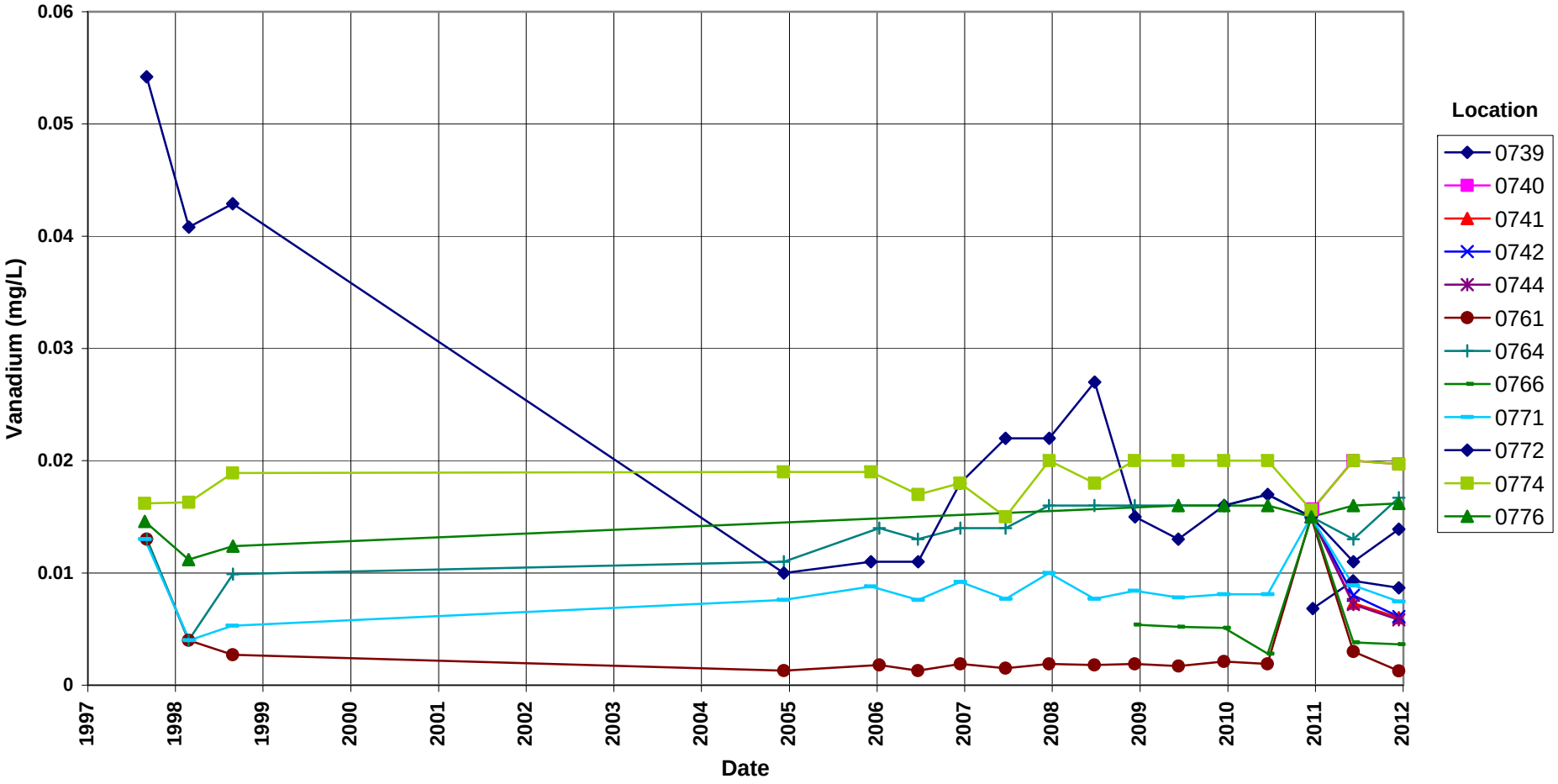
Monument Valley Processing Site
Vanadium Concentration



Monument Valley Processing Site
Vanadium Concentration



Monument Valley Processing Site
Vanadium Concentration



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Attachment 3
Sampling and Analysis Work Order

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Stoller

established 1959

Task Order LM00-501
Control Number 12-0134

November 16, 2011

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

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller) December 2011 Environmental Sampling at the Monument Valley, Arizona Processing Site

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 from monitoring wells and surface locations at this site as part of the routine environmental sampling currently scheduled to begin the week of December 12, 2011.

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 Legacy Way 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,

Dave Miller
Site Lead

DM/lcg/lb

Enclosures (3)

cc: (electronic)
Karl Stoeckle, DOE
Steve Donivan, Stoller
Lauren Goodknight, Stoller
Dave Miller, Stoller
EDD Delivery
rc-grand.junction
File: MON 410.02 (A)

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

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				
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					
Aluminum					
Ammonia as N (NH_3-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
Chromium					
Gross Beta					
Iron	0603, 0611, 0615, 0618, and 0772 only		0.05	SW-846 6020	LMM-02
Lead					
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
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO_3+NO_2)-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
Selenium					
Silica					
Sodium	0603, 0611, 0615, 0618, and 0772 only		1	SW-846 6010	LMM-01
Strontium					
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium	X	X	0.0003	SW-846 6020	IMM-02
Zinc					
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

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Stoller established 1959
Grand Junction Office

Memorandum

DATE: December 28, 2011

TO: David Miller

FROM: Jeff Price

SUBJECT: Sampling Trip Report

Site: Monument Valley, Arizona, Processing Site.

Dates of Sampling Event: December 12 - 15, 2011

Team Members: Kent Moe, Joe Trevino, Jeff Walters, and Jeff Price.

Number of Locations Sampled: Water samples for metals, anions, nitrate + nitrite as N, and ammonia as N (normal analyte set), were collected from 46 monitoring wells and one surface location; samples were also collected for isotopic uranium, H-2, O-18, and enriched H-3 (in addition to the normal analyte set) from a select set of wells.

Locations Not Sampled/Reason: None**.** Limited water volume at well 0764; only metals and nitrate + nitrite as N samples were collected.

Location Specific Information:

Location IDs	Comments
0619, 0776	Leaky check valves.
0648	The elevation was erroneously provided in FDCS as the 'Total Depth.'
0651, 0734, 0767	Significant erosion under well pads. Wells are solid.
0402, 0733, 0734, 0735, 0738, 0739, 0743, 0760, 0761, 0765	Turbidity criteria could not be met at these wells; samples were filtered. There was a black sheen on the water at 0765.

Field Variance: None. Samples were collected according to the *Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites*.

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

RIN	False ID	True ID	Ticket Number	Sample Type	Associated Matrix
11124247	2079	0740	JNX 384	Duplicate	Groundwater
	2251	0619	JNX 493	Duplicate	Groundwater
	2711	0650	JNX 369	Duplicate	Groundwater
11124261	2252	0619	JNX 553	Duplicate	Groundwater
11124262	2253	0619	JNX 593	Duplicate	Groundwater

Requisition Identification Number (RIN) Assigned: 11124247 for normal analyte set and isotopic uranium, 11124261 for enriched tritium (GEL Laboratories), and 11124262 for O-18 and H-2 (Reston Stable Isotope Laboratories). Field data sheets can be found in the sample management system on Crow under requisition number 11124247 in the FieldData folder.

Sample Shipment: Samples were shipped from Grand Junction to their respective laboratories on December 19, 2011.

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

Well Inspection Summary: Pump check valves are leaking in wells 0619 and 0776; however, not so severely that the wells could not be purged and sampled. Wind has undermined the pads at wells 0651, 0734, and 0767.

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

Institutional Controls:

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

Site Issues: Cell phone service (Verizon) was weak but available at the site.

Disposal Cell/Drainage Structure Integrity: Not applicable.
Vegetation/Noxious Weed Concerns: None observed.
Maintenance Requirements:

- Well pads and check valves mentioned above. The pumps with leaky valves should be pulled and examined so that they can be cleaned or replaced.
- Routine well development should be completed, particularly at wells where turbidity requirements could not be met (listed in table above).

Access Issues: None.
Safety Issues: None.

Corrective Action Taken: None.

JP/lcg

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