UMTRA
Ground Water Project

DATA VALIDATION FOR THE MONUMENT VALLEY, ARIZONA UMTRA SITE

August 2002
Water Sampling

Prepared by the
U.S. Department of Energy
Grand Junction Office

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MONUMENT VALLEY
Sampled August 2002
DATA PACKAGE CONTENTS

This data package includes the following information:

Item No.	Description of Contents
1.	**Site Lead Summary.**
2.	**Data Package Assessment,** which includes the following: a. Field activities verification checklist. b. Confirmation that chain-of-custody was maintained. c. Confirmation that holding time requirements were met. d. Evaluation of adequacy of the QC sample results.
3.	**Data Assessment Summary,** which describes problems identified in the data validation process and summarizes the validators findings.
4.	**Suspected Anomalies Reports,** generated by the UMTRA database system. This report compares the new data set with historical data and designates "suspected anomalies" based on the many criteria listed as footnotes on each page. In aggregate, these criteria cause the suspected anomaly program to be very conservative; many of the data shown in the tables are not, in the evaluator's judgment, truly anomalies, but merely natural variations in data or routine changes in laboratory detection limits. The designation "OK" affirms the judgment that the particular entry is not an anomaly and, therefore, requires no further inquiry.
5.	**Anomalous Data Review Checksheets** list the subset of data from sampling event that merits explanation or follow-up action. The "disposition" column of this report describes the evaluator's judgments on the listed anomalies.
6.	**UMTRA Database Printouts** a. Ground Water Quality Data (included on disk). b. Equipment Blank Data (included on disk). c. Time Versus Concentration Graphs. d. Water Level Data.
7.	**Sampling and Analysis Work Order and Trip Report.**
8.	**Site Map.**

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Site Lead Summary

Site: Monument Valley

Sampling Period: August 6 to August 8, 2002

SUMMARY CRITERIA

1. **Did concentrations in water from any domestic well sampled exceed a ground water standard, primary drinking water standard, or health advisory?**

   Domestic locations 0200 (Ben Stanley private well), 0625 (tribal well), and 0640 (hand pump well) were sampled during this event. Concentrations did not exceed any standards at these locations.

2. **Were standards exceeded at any point-of-compliance wells?**

   There are no point-of-compliance wells established at the Monument Valley Site.

3. **As a result of this sampling round, is there any indication of unexpected contaminated ground water movement?**

   There is no indication of unexpected contaminated ground water movement. Time versus concentration graphs for nitrate and uranium from selected wells are provided with the analytical data. Wells with sample concentrations that exceeded UMTRA Ground Water standards are listed in Table 1.

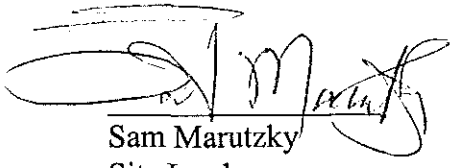
4. ***Is there statistical evidence that UMTRA Project related contaminants were detected in a surface water body in greater concentrations than upstream ambient water quality?***

   There were no surface water locations sampled during this event.

Table 1. Monument Valley Wells with Samples that Exceeded UMTRA Standards in August 2002.

Analyte	Standard[1]	Wells Exceeding Standards (Concentration[1])
Nitrate	44.27	0606 (800), 0648 (387), 0649 (589), 0653 (148), 0655 (413), 0656 (133), 0669 (60.3), 0761 (94.9), 0762 (194), 0764 (163), 0765 (598), 0770 (122), 0771 (659), 0777 (818), 0778 (593)
Uranium	0.044	0774 (0.0641)

[1]Units are in mg/L



Sam Marutzky
Site Lead

10-3-02
Date

DATA ASSESSMENT

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DATA PACKAGE ASSESSMENT

REQUISITION NUMBERS: 18097 SITE: Monument Valley LABORATORY: GJO ANALYSIS DATES: 8-19 to 8-22-02

REVIEWER: Sam Campbell (NAME (print)) Sam Campbell (SIGNATURE) 9-9-02 (DATE)

	ICP-MS	ICP-AES	GFAA	FAA	$NaBH_4$	AS	LSc	PC	IC	Gravimetric	Colorimetric	Other
CHAIN 0F CUSTODY	OK	NA	NA	NA	NA	NA	NA	NA	OK	NA	OK	NA
HOLDING TIME	OK								OK	↓	OK	
CALIB. VERIFICATION (For AS, internal tracer)	OK								OK	NA	OK	
PREP. BLANKS (Only if digestion)	NA					↓	↓	↓	NA	↓	NA	
INT/CONT CAL. BLANKS	OK		↓	↓	↓	NA	NA	NA	①	NA	OK	
ICP SERIAL DILUTION	OK		NA	NA	NA	NA	NA	NA	NA	NA	NA	
ICS (ICP only)	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	
LAB. CONTROL SAMPLE	NA					↓	↓	↓	OK	↓	NA	
DUPLICATES	OK					↓	↓	↓	OK	↓	OK	
POSTDIGEST. SPKS. (Only if MS fails)	NA					NA	NA	NA	NA	NA	NA	
MATRIX SPKS.	OK					↓	↓	↓	OK	NA	OK	
OVERALL ASSESS.	OK	↓	↓	↓	↓	↓	↓	↓	OK	↓	OK	↓

DATA REQUIRING FLAGS ① U flag c/ result from sample 289935 because of CCB contamination

UGW Water Sampling Field Activities Verification Checklist

Project UGW - Monument Valley
Date(s) of Verification 9/26/02

Date(s) of Water Sampling 8/6/02 to 8/8/02
Name of Verifier _____

	Response (Yes, No, N/A)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.		Work Order letter dated July 3, 02
2. Were the sampling locations specified in the planning documents sampled?	Yes	Except: Well 201 where the pump was not working
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	Yes Campbell team, No Travis team
4. Was an operational check of the field equipment conducted twice daily?	Yes	
Did the operational checks meet criteria?	Yes	Except: YSI "E" ORP was out and Turbidity was out of criteria
5. Were the number and types (alkalinity, temperature, Ec, 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?	Yes	
Were two pump/tubing volumes purged prior to sampling?	Yes	although, NOT VERIFIABLE because not all info. recorded
Did the water level stabilize prior to sampling?	Yes	
Was a turbidity of less than 10 NTUs obtained prior to sampling?	Yes	Except: well needing development (760, 768, 771)
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	
8. Were the following conditions met when purging a Category II well?	Yes	
Was the flow rate less than 100 mL/min?	Yes	

UGW Water Sampling Field Activities Verification Checklist (continued)

Were two pump/tubing volumes removed prior to sampling?	Yes	
Were water levels documented during the purge?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples for ground water and surface water?	Yes	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	
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	
Was the true identity of the samples recorded on the Quality Assurance Sample Log?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	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?	Yes	
18. Was all other pertinent information documented on the field data sheets?	NO	Missing time info
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

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MONUMENT VALLEY, AZ
AUGUST 2002 SAMPLING EVENT
DATA ASSESSMENT SUMMARY

The DOE-GJO Analytical Laboratory analyzed samples and reported results for this sampling event under requisition number 18097 for the UMTRA Ground Water Project.

METALS/MAJOR CATIONS ANALYSES

The determination of uranium was done using inductively coupled plasma-mass spectrometry (ICP-MS). All quality control requirements were met during the course of these analyses.

INORGANIC ANALYSES

Chloride, nitrate, and sulfate were determined by ion chromatography (IC), and ammonium was determined by spectrophotometry (Colorimetry). All quality control requirements were met during the course of these analyses. The chloride result for 0607 (equipment blank) was qualified with a "U" flag (nondetect) in the database due to continuing calibration blank (CCB) contamination.

FIELD ANALYSES/ACTIVITIES

With the exception of domestic wells, all results were qualified with an "F" flag in the database, indicating the samples were collected according to low-flow sampling procedures. There were no wells with a measured pH greater than 9; therefore G flags indicating potential grout contamination were not required. The results for well 0402 were qualified with a "Q" flag in the database, indicating the results are qualitative due to the sampling technique.

One equipment blank was collected for the 7 locations where samples were collected using non-dedicated equipment. The equipment blank was analyzed for the same constituents as the Monument Valley environmental samples. There were no UMTRA related contaminants detected in the equipment blank in concentrations above the contract required detection limit (CRDL); therefore, equipment blank results are considered acceptable.

Two field duplicates were collected for the 33 sampled locations. Duplicate samples were collected from wells 0648 and 0771. There is no established regulatory criteria for the evaluation of field duplicate samples; therefore, EPA guidance for *laboratory* duplicates (which is conservative for field duplicates) was used to assess the precision of the field duplicates. All duplicate sample results met the laboratory duplicate criteria (20 relative percent difference); and therefore, duplicate results are considered acceptable.

SAR

The SAR evaluates samples collected in August 2002. Values listed in the SAR were considered valid if: (1) identified low concentrations were the results of low detection limits; or (2) the concentrations detected were within 50 percent of the historical minimum or maximum observed values. Results that did not meet this criteria are listed on the Anomalous Data Review Checksheet.

SUMMARY

All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, or Equipment Blank database printouts. The meaning of data qualifiers is defined on the UMTRA data base printouts or defined in the USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package meet the validation criteria and may be treated as final results.

An electronic copy of the analytical data on a disk is included with this data validation package.

David Miller
Data Validation Lead

10/14/02
Date

SAR

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SUSPECTED ANOMALIES REPORT

REPORT DATE: 10/4/2002 TIME: 3:59:46 PM

Site : MON01 MONUMENT VALLE Test Data Date Range : 8/1/2002 to 8/30/2002 Older Data Only Used for Baseline Data 142 Chemical Records 1282 History Records

LOC. ID.	ERR. TYPE FLAG	PARAM CODE / UNITS	ANOMALOUS TEST DATA POINT: LOG DATE / FLAGS	SAMPLE / UNCERTAINTY	VALUE / DETLIM	# OF SAMP. / %NON DETEC	ALL TIME MINIMUMS / ALL TIME MAXIMUMS		LOWER BOUND / UPPER BOUND	3 MOST RECENT SAMPLING EVENTS: LOG DATE / FLAGS	SAMPLE / UNCERTAINTY	VALUE / DETLIM	LOG DATE / FLAGS	SAMPLE / UNCERTAINTY	VALUE / DETLIM	LOG DATE / FLAGS	SAMPLE / UNCERTAINTY	VALUE / DET LIM
0200	6	Chloride	8/7/2002	N001	117.0000	6	93.100	98.800	62.3823	8/8/2001	N001	98.8000	8/15/2000	N001	93.1000	8/28/1998	0001	133.0000
	OK	mg/L			0.401	0	133.000	153.000	105.2548			0.0149						
	6	ORP	8/7/2002	N001	210.0000	5	-76.000	-38.000	0.0000	8/8/2001	N001	-76.0000	8/15/2000	N001	57.0000	8/28/1998	N001	-38.0000
	OK	mV				0	130.000	130.000	30.9661									
	6	SO4	8/7/2002	N001	494.0000	6	407.000	446.000	289.1682	8/8/2001	N001	446.0000	8/15/2000	N001	407.0000	8/28/1998	0001	580.0000
	OK	mg/L			0.394	0	580.000	657.000	469.5349			0.0253						
0400	3	ORP	8/6/2002	N001	-186.0000	3	-216.000	34.000	-108.0000	8/17/2000	N001	34.0000	8/27/1998	N001	-216.0000	2/26/1998	N001	60.0000
	OK	mV				0	60.000	60.000	120.0000									
0402	3	NO3	8/6/2002	0001	0.0200	3	0.047	0.267	0.0233	8/17/2000	0001	0.2670	8/27/1998	0001	0.0465	1/18/1996	N001	1.0000
	OK	mg/L	U		0.02	33.333	1.000	1.000	2.0000	B			B			U	0	1
0604	6	ORP	8/6/2002	N001	192.0000	9	-153.000	-99.000	0.0000	8/8/2001	N001	16.0000	2/21/2001	N001	-99.0000	8/15/2000	N001	110.0000
	OK	mV				0	453.100	453.100	100.9067									
0605	5	Chloride	8/6/2002	0001	116.0000	17	83.000	110.000	133.4600	8/8/2001	0001	179.0000	2/21/2001	0001	150.0000	8/28/1998	0001	175.0000
	OK	mg/L			0.802	0	248.000	259.000	216.4415			0.0149			0.096			
	5	ORP	8/6/2002	N001	-42.0000	8	-166.000	-129.000	0.0000	8/8/2001	N001	-69.0000	2/21/2001	N001	-71.0000	8/28/1998	N001	-166.0000
	OK	mV				0	441.500	441.500	-19.5234									
	5	SO4	8/6/2002	0001	1030.0000	18	800.000	906.000	1051.6771	8/8/2001	0001	1390.0000	2/21/2001	0001	1300.0000	8/28/1998	0001	1250.0000
	OK	mg/L			0.788	0	1950.000	2130.000	1730.8210			0.0506			0.2356			
0606	5	Chloride	8/7/2002	0001	13.7000	26	14.000	14.200	14.8588	8/7/2001	0001	16.9000	2/21/2001	0001	15.6000	8/15/2000	0001	17.0000
	OK	mg/L			0.401	0	21.000	25.000	18.6697			0.0298			0.096			
0619	6	ORP	8/7/2002	N001	144.0000	10	36.000	38.000	0.0000	8/8/2001	N001	36.0000	8/17/2000	N001	38.0000	8/25/1999	N001	170.0000
	OK	mV				0	447.000	447.000	89.9548									
0625	3	NO3	8/7/2002	N001	0.0200	12	0.031	0.930	0.0204	8/8/2001	N001	0.0305	11/19/1995	N001	1.0000	4/23/1995	N001	1.0000
	OK	mg/L	U		0.02	94.667	1.000	1.000	1.5000	U		0.0305	U	0	1	U	0	1
	6	ORP	8/7/2002	N001	154.0000	4	60.000	167.000	0.0000	8/8/2001	N001	60.0000	11/19/1995	N001	306.0000	4/23/1995	N001	342.0000
	OK	mV				0	306.000	342.000	88.9793					0	0		0	0

Error Type Flags : 2 - All time high detection limit
3 - Too low (non-trend approach)
4 - Too high (non-trend approach)
5 - Too low (trend approach)
6 - Too high (trend approach)

Flags : I - Increased detection limit due to required dilution.
L - Less than three bore volumes removed before sampling.
J - Estimated value.
H - Hold time expired, value suspect.

Approved by _____ Date 10/4/02

Hydrologist "Ok" indicates insignificant variation

Site : MON01 MONUMENT VALLE Test Data Date Range : 8/1/2002 to 8/30/2002 Older Data Only Used for Baseline Data 142 Chemical Records 1282 History Records

LOC. ID.	ERR. TYPE FLAG	PARAM CODE / UNITS	ANOMALOUS TEST DATA POINT: LOG DATE	SAMPLE	VALUE	# OF SAMP. / %NON DETEC	ALL TIME MINIMUMS / ALL TIME MAXIMUMS		LOWER BOUND / UPPER BOUND	3 MOST RECENT SAMPLING EVENTS: LOG DATE	SAMPLE	VALUE	LOG DATE	SAMPLE	VALUE	LOG DATE	SAMPLE	VALUE
			FLAGS	UNCERTAINTY	DETLIM					FLAGS	UNCERTAINTY	DETLIM	FLAGS	UNCERTAINTY	DETLIM	FLAGS	UNCERTAINTY	DET LIM
0650	6	ORP	8/8/2002	N001	136.6000	10	-135.000	-25.000	0.0000	8/7/2001	N001	-135.0000	2/27/2001	N001	151.0000	8/16/2000	N001	74.0000
	OK	mV				0	304.000	376.000	114.5733									
	6	SO4	8/8/2002	0001	32.7000	14	25.500	25.900	24.7088	8/7/2001	0001	30.2000	2/27/2001	0001	28.4000	8/16/2000	0001	27.9000
	OK	mg/L			0.0394	0	31.000	47.700	30.7797			0.0253			0.0589			
0653	5	NO3	8/7/2002	0001	148.0000	23	5.000	12.000	190.4972	8/8/2001	0001	194.0000	2/27/2001	0001	190.0000	8/15/2000	0001	181.0000
	OK	mg/L			0.04	0	190.000	194.000	215.4483			0.1525			0.1256			
	5	SO4	8/7/2002	0001	1370.0000	23	744.000	911.000	1468.2084	8/8/2001	0001	1610.0000	2/27/2001	0001	1610.0000	8/15/2000	0001	1550.0000
	OK	mg/L			0.788	0	1800.000	1820.000	1839.8490			0.0506			0.2356			
0655	6	ORP	8/7/2002	N001	177.0000	10	-20.000	69.000	0.0000	8/6/2001	N001	-20.0000	2/26/2001	N001	151.0000	8/17/2000	N001	179.0000
	OK	mV				0	457.900	460.000	154.3360									
0657	6	ORP	8/7/2002	N001	101.0000	11	36.000	54.000	0.0000	8/8/2001	N001	54.0000	8/17/2000	N001	36.0000	8/25/1999	N001	164.0000
	OK	mV				0	431.000	447.000	89.7133									
0760	6	ORP	8/8/2002	N001	-93.0000	7	-279.000	-231.000	0.0000	8/7/2001	N001	-224.0000	2/22/2001	N001	-231.0000	8/23/2000	N001	-104.0000
	OK	mV				0	3.000	3.000	-122.7828									
0762	6	NO3	8/8/2002	0001	194.0000	7	63.700	68.300	148.4639	8/7/2001	0001	159.0000	2/21/2001	0001	128.0000	8/23/2000	0001	110.0000
	OK	mg/L			0.1	0	128.000	159.000	185.1423			0.061			0.1256			
0765	5	Chloride	8/8/2002	0001	21.5000	7	21.200	21.400	21.6149	8/6/2001	0001	21.9000	2/27/2001	0001	21.9000	8/15/2000	0001	22.4000
	OK	mg/L			0.401	0	22.100	22.400	22.7441			0.0298			0.096			
	6	NH4	8/8/2002	0001	197.0000	7	165.000	171.000	154.8806	8/6/2001	0001	174.0000	2/27/2001	0001	171.0000	8/15/2000	0001	180.0000
	OK	mg/L			0.004	0	188.000	198.000	192.3420			0.0062			0.0047			
0767	6	SO4	8/7/2002	0001	31.4000	7	26.900	27.900	27.6448	8/7/2001	0001	30.3000	2/22/2001	0001	28.9000	8/24/2000	0001	28.2000
	OK	mg/L			0.0394	0	29.600	30.300	31.1440			0.0253			0.0589			
0768	5	Chloride	8/6/2002	0001	23.8000	7	78.900	85.200	69.3814	8/8/2001	0001	89.6000	2/22/2001	0001	91.6000	8/24/2000	0001	85.2000
	*	mg/L			0.0802	0	106.000	106.000	93.8154			0.0149			0.024			
	5	ORP	8/6/2002	N001	-190.0000	7	-230.000	-222.000	0.0000	8/8/2001	N001	-198.0000	2/22/2001	N001	-222.0000	8/24/2000	N001	-183.0000
	OK	mV				0	-86.000	-86.000	-158.4039									

Error Type Flags :
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5 - Too low (trend approach)
6 - Too high (trend approach)

Flags :
I - Increased detection limit due to required dilution.
L - Less than three bore volumes removed before sampling.
J - Estimated value.
H - Hold time expired, value suspect.

Approved by _____ Date 10/4/02

Hydrologist "Ok" indicates insignificant variation

SUSPECTED ANOMALIES REPORT

REPORT DATE: 10/4/2002 TIME: 3:59:49 PM

Site : MON01 MONUMENT VALLE Test Data Date Range : 8/1/2002 to 8/30/2002 Older Data Only Used for Baseline Data 142 Chemical Records 1282 History Records

LOC. ID.	ERR. TYPE FLAG	PARAM CODE / UNITS	ANOMALOUS TEST DATA POINT: LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DETLIM	# OF SAMP. / %NON DETEC	ALL TIME MINIMUMS / ALL TIME MAXIMUMS		LOWER BOUND / UPPER BOUND	3 MOST RECENT SAMPLING EVENTS: LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DETLIM	LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DET LIM
0768	5	SO4	8/6/2002	0001	163.0000				7	680.000	688.000	581.2032	8/8/2001	0001	711.0000				2/22/2001	0001	716.0000				8/24/2000	0001	680.0000
	*	mg/L			0.0788				0	862.000	862.000	703.6061			0.0253						0.0589						
0770	5	Chloride	8/8/2002	0001	16.0000				6	17.100	17.200	16.1257	8/7/2001	0001	17.1000				2/21/2001	0001	17.2000				8/15/2000	0001	17.8000
	OK	mg/L			0.2005				0	18.600	18.600	17.2929			0.0149						0.024						
	5	NO3	8/8/2002	0001	122.0000				6	141.000	147.000	122.0898	8/7/2001	0001	141.0000				2/21/2001	0001	147.0000				8/15/2000	0001	151.0000
	OK	mg/L			0.04				0	183.000	183.000	136.8311			0.061						0.1256						
	5	SO4	8/8/2002	0001	265.0000				6	315.000	330.000	281.4850	8/7/2001	0001	315.0000				2/21/2001	0001	330.0000				8/15/2000	0001	331.0000
	OK	mg/L			0.197				0	389.000	389.000	313.5832			0.0253						0.0589						
0771	5	Chloride	8/7/2002	0001	25.4000				6	27.800	29.600	25.5274	8/6/2001	0001	27.8000				8/17/2000	0001	29.6000				8/25/1999	0001	33.0000
	OK	mg/L			0.2005				0	32.400	33.000	29.3180			0.0745												
0772	6	Chloride	8/6/2002	0001	19.2000				7	16.900	17.800	15.3713	8/8/2001	0001	18.6000				2/21/2001	0001	16.9000				8/15/2000	0001	17.8000
	OK	mg/L			0.0802				0	20.300	20.600	18.2721			0.0149						0.024						
0774	6	Chloride	8/7/2002	0001	6.0500				7	5.530	5.790	4.0728	8/7/2001	0001	5.7900				2/27/2001	0001	6.0200				8/16/2000	0001	5.5300
	OK	mg/L			0.0401				0	8.770	8.770	5.6424			0.0149						0.024						
0775	6	Chloride	8/7/2002	0001	5.4600				6	5.320	6.040	3.5891	8/8/2001	0001	5.3200				8/23/2000	0001	6.0400				8/26/1999	0001	6.2500
	OK	mg/L			0.0401				0	8.680	8.680	4.8874			0.0149												
	5	NO3	8/7/2002	0001	2.4800				6	0.230	0.656	2.5632	8/8/2001	0001	2.4100				8/23/2000	0001	2.2200				8/26/1999	0001	2.2100
	OK	mg/L			0.02				0	2.220	2.410	3.7894			0.0305												
	6	SO4	8/7/2002	0001	25.8000				6	25.400	26.600	8.2404	8/8/2001	0001	25.4000				8/23/2000	0001	29.2000				8/26/1999	0001	26.6000
	OK	mg/L			0.0394				0	45.800	52.700	24.7810			0.0253												
0776	6	SO4	8/7/2002	0001	36.6000				6	30.500	32.200	26.9711	8/8/2001	0001	36.4000				8/16/2000	0001	30.5000				8/25/1999	0001	32.2000
	OK	mg/L			0.0394				0	40.400	40.400	36.5119			0.0253												

Error Type Flags :
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5 - Too low (trend approach)
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Flags :
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Approved by _____ Date 10/4/02

Hydrologist "Ok" indicates insignificant variation

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DATA REVIEW CHECKSHEET

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ANOMALOUS DATA REVIEW CHECKSHEET

SITE: Monument Valley SAMPLING DATA: Groundwater

REVIEWER(s): DAVID MILLER (NAME (print)) [signature] (SIGNATURE) 10/4/02 (DATE)

Lead SITE ~~HYDROLOGIST~~: Sam Marutsky (NAME (print)) [signature] (SIGNATURE) 10/14/02 (DATE)

DATE OF REVIEW: 10/4/02

LOC. NO.	ANALYTE	TYPE OF ANOMALY	DISPOSITION
768	Chloride	low	Compare to next round
768	Sulfate	low	↓

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ANALYTICAL LABORATORY RESULTS

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GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0200	WL	08/07/2002	N001	AL	U	258			#	-	-
	mg/L	0400	WL	08/06/2002	0001	AL	U	355		F	#	-	-
	mg/L	0402	WL	08/06/2002	0001	AL	U	248		FQ	#	-	-
	mg/L	0604	WL	08/06/2002	0001	AL	C	190		F	#	-	-
	mg/L	0605	WL	08/06/2002	0001	AL	C	218		F	#	-	-
	mg/L	0606	WL	08/07/2002	0001	AL	D	240		F	#	-	-
	mg/L	0619	WL	08/07/2002	0001	DC	O	137		F	#	-	-
	mg/L	0625	WL	08/07/2002	N001	DC	C	213			#	-	-
	mg/L	0640	WL	08/06/2002	N001	AL	U	392			#	-	-
	mg/L	0648	WL	08/07/2002	0001	AL	N	188		F	#	-	-
	mg/L	0649	WL	08/07/2002	0001	AL	N	344		F	#	-	-
	mg/L	0650	WL	08/08/2002	0001	AL	D	232		F	#	-	-
	mg/L	0653	WL	08/07/2002	0001	AL	D	197		F	#	-	-
	mg/L	0655	WL	08/07/2002	0001	AL	D	260		F	#	-	-
	mg/L	0656	WL	08/08/2002	0001	AL	D	236		F	#	-	-
	mg/L	0657	WL	08/07/2002	0001	DC	O	130		F	#	-	-
	mg/L	0662	WL	08/07/2002	0001	AL	D	194		F	#	-	-
	mg/L	0669	WL	08/07/2002	0001	AL	D	197		F	#	-	-
	mg/L	0760	WL	08/08/2002	0001	AL	D	156		F	#	-	-
	mg/L	0761	WL	08/07/2002	0001	AL	D	185		F	#	-	-
	mg/L	0762	WL	08/08/2002	0001	AL	D	224		F	#	-	-
	mg/L	0764	WL	08/08/2002	0001	AL	D	201		F	#	-	-
	mg/L	0765	WL	08/08/2002	0001	AL	D	267		F	#	-	-
	mg/L	0767	WL	08/07/2002	0001	AL	D	160		F	#	-	-
	mg/L	0768	WL	08/06/2002	0001	AL	D	166		F	#	-	-
	mg/L	0770	WL	08/08/2002	0001	AL	D	225		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0771	WL	08/07/2002	0001	AL	D	327		F	#	-	-
	mg/L	0772	WL	08/06/2002	0001	AL	O	250		F	#	-	-
	mg/L	0775	WL	08/07/2002	0001	DC	D	154		F	#	-	-
	mg/L	0776	WL	08/07/2002	0001	DC	O	180		F	#	-	-
	mg/L	0777	WL	08/08/2002	0001	AL	D	299		F	#	-	-
	mg/L	0778	WL	08/08/2002	0001	AL	N	275		F	#	-	-
Ammonium	mg/L	0606	WL	08/07/2002	0001	AL	D	200.000		F	#	0.004	-
	mg/L	0655	WL	08/07/2002	0001	AL	D	67.400		F	#	0.004	-
	mg/L	0656	WL	08/08/2002	0001	AL	D	83.600		F	#	0.004	-
	mg/L	0765	WL	08/08/2002	0001	AL	D	197.000		F	#	0.004	-
	mg/L	0770	WL	08/08/2002	0001	AL	D	55.000		F	#	0.004	-
	mg/L	0771	WL	08/07/2002	0001	AL	D	339.000		F	#	0.004	-
	mg/L	0772	WL	08/06/2002	0001	AL	O	7.750		F	#	0.004	-
	mg/L	0774	WL	08/07/2002	0001	AL	O	0.0151	B	F	#	0.004	-
	mg/L	0777	WL	08/08/2002	0001	AL	D	218.000		F	#	0.004	-
Chloride	mg/L	0200	WL	08/07/2002	N001	AL	U	117.000			#	0.401	-
	mg/L	0400	WL	08/06/2002	0001	AL	U	36.400		F	#	0.0401	-
	mg/L	0402	WL	08/06/2002	0001	AL	U	19.200		FQ	#	0.0401	-
	mg/L	0604	WL	08/06/2002	0001	AL	C	11.100		F	#	0.0802	-
	mg/L	0605	WL	08/06/2002	0001	AL	C	116.000		F	#	0.802	-
	mg/L	0606	WL	08/07/2002	0001	AL	D	13.700		F	#	0.401	-
	mg/L	0619	WL	08/07/2002	0001	DC	O	5.610		F	#	0.0401	-
	mg/L	0625	WL	08/07/2002	N001	DC	C	9.510			#	0.0401	-
	mg/L	0640	WL	08/06/2002	N001	AL	U	74.300			#	0.401	-
	mg/L	0648	WL	08/07/2002	0001	AL	N	39.800		F	#	0.0802	-
	mg/L	0648	WL	08/07/2002	0002	AL	N	39.900		F	#	0.0802	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0649	WL	08/07/2002	0001	AL	N	32.100		F	#	0.0802	-
	mg/L	0650	WL	08/08/2002	0001	AL	D	8.860		F	#	0.0401	-
	mg/L	0653	WL	08/07/2002	0001	AL	D	32.100		F	#	0.0802	-
	mg/L	0655	WL	08/07/2002	0001	AL	D	29.000		F	#	0.0802	-
	mg/L	0656	WL	08/08/2002	0001	AL	D	16.600		F	#	0.2005	-
	mg/L	0657	WL	08/07/2002	0001	DC	O	5.720		F	#	0.0401	-
	mg/L	0662	WL	08/07/2002	0001	AL	D	7.170		F	#	0.0401	-
	mg/L	0669	WL	08/07/2002	0001	AL	D	9.720		F	#	0.2005	-
	mg/L	0760	WL	08/08/2002	0001	AL	D	9.380		F	#	0.0401	-
	mg/L	0761	WL	08/07/2002	0001	AL	D	15.300		F	#	0.401	-
	mg/L	0762	WL	08/08/2002	0001	AL	D	79.500		F	#	0.0802	-
	mg/L	0764	WL	08/08/2002	0001	AL	D	12.900		F	#	0.2005	-
	mg/L	0765	WL	08/08/2002	0001	AL	D	21.500		F	#	0.401	-
	mg/L	0767	WL	08/07/2002	0001	AL	D	5.310		F	#	0.0401	-
	mg/L	0768	WL	08/06/2002	0001	AL	D	23.800		F	#	0.0802	-
	mg/L	0770	WL	08/08/2002	0001	AL	D	16.000		F	#	0.2005	-
	mg/L	0771	WL	08/07/2002	0001	AL	D	25.400		F	#	0.2005	-
	mg/L	0771	WL	08/07/2002	0002	AL	D	25.700		F	#	0.2005	-
	mg/L	0772	WL	08/06/2002	0001	AL	O	19.200		F	#	0.0802	-
	mg/L	0774	WL	08/07/2002	0001	AL	O	6.050		F	#	0.0401	-
	mg/L	0775	WL	08/07/2002	0001	DC	D	5.460		F	#	0.0401	-
	mg/L	0776	WL	08/07/2002	0001	DC	O	5.750		F	#	0.0401	-
	mg/L	0777	WL	08/08/2002	0001	AL	D	22.200		F	#	0.401	-
	mg/L	0778	WL	08/08/2002	0001	AL	N	20.600		F	#	0.401	-
Nitrate as NO3	mg/L	0200	WL	08/07/2002	N001	AL	U	14.700			#	0.02	-
	mg/L	0400	WL	08/06/2002	0001	AL	U	0.020	U	F	#	0.02	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	0402	WL	08/06/2002	0001	AL	U	0.020	U	FQ	#	0.02	-
	mg/L	0604	WL	08/06/2002	0001	AL	C	0.0426	B	F	#	0.02	-
	mg/L	0605	WL	08/06/2002	0001	AL	C	0.020	U	F	#	0.02	-
	mg/L	0606	WL	08/07/2002	0001	AL	D	800.000		F	#	0.2	-
	mg/L	0619	WL	08/07/2002	0001	DC	O	10.600		F	#	0.02	-
	mg/L	0625	WL	08/07/2002	N001	DC	C	0.020	U		#	0.02	-
	mg/L	0640	WL	08/06/2002	N001	AL	U	0.756	B		#	0.02	-
	mg/L	0648	WL	08/07/2002	0001	AL	N	387.000		F	#	0.1	-
	mg/L	0648	WL	08/07/2002	0002	AL	N	386.000		F	#	0.1	-
	mg/L	0649	WL	08/07/2002	0001	AL	N	589.000		F	#	0.2	-
	mg/L	0650	WL	08/08/2002	0001	AL	D	1.430		F	#	0.02	-
	mg/L	0653	WL	08/07/2002	0001	AL	D	148.000		F	#	0.04	-
	mg/L	0655	WL	08/07/2002	0001	AL	D	413.000		F	#	0.1	-
	mg/L	0656	WL	08/08/2002	0001	AL	D	133.000		F	#	0.04	-
	mg/L	0657	WL	08/07/2002	0001	DC	O	10.700		F	#	0.02	-
	mg/L	0662	WL	08/07/2002	0001	AL	D	20.800		F	#	0.02	-
	mg/L	0669	WL	08/07/2002	0001	AL	D	60.300		F	#	0.02	-
	mg/L	0760	WL	08/08/2002	0001	AL	D	0.0215	B	F	#	0.02	-
	mg/L	0761	WL	08/07/2002	0001	AL	D	94.900		F	#	0.02	-
	mg/L	0762	WL	08/08/2002	0001	AL	D	194.000		F	#	0.1	-
	mg/L	0764	WL	08/08/2002	0001	AL	D	163.000		F	#	0.04	-
	mg/L	0765	WL	08/08/2002	0001	AL	D	598.000		F	#	0.2	-
	mg/L	0767	WL	08/07/2002	0001	AL	D	0.020	U	F	#	0.02	-
	mg/L	0768	WL	08/06/2002	0001	AL	D	0.0426	B	F	#	0.02	-
	mg/L	0770	WL	08/08/2002	0001	AL	D	122.000		F	#	0.04	-
	mg/L	0771	WL	08/07/2002	0001	AL	D	659.000		F	#	0.2	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	0771	WL	08/07/2002	0002	AL	D	647.000		F	#	0.2	-
	mg/L	0772	WL	08/06/2002	0001	AL	O	4.970		F	#	0.02	-
	mg/L	0774	WL	08/07/2002	0001	AL	O	11.300		F	#	0.02	-
	mg/L	0775	WL	08/07/2002	0001	DC	D	2.480		F	#	0.02	-
	mg/L	0776	WL	08/07/2002	0001	DC	O	4.140		F	#	0.02	-
	mg/L	0777	WL	08/08/2002	0001	AL	D	818.000		F	#	0.2	-
	mg/L	0778	WL	08/08/2002	0001	AL	N	593.000		F	#	0.2	-
Oxidation Reduction Potent	mV	0200	WL	08/07/2002	N001	AL	U	210			#	-	-
	mV	0400	WL	08/06/2002	N001	AL	U	-186		F	#	-	-
	mV	0402	WL	08/06/2002	N001	AL	U	-84		FQ	#	-	-
	mV	0604	WL	08/06/2002	N001	AL	C	192		F	#	-	-
	mV	0605	WL	08/06/2002	N001	AL	C	-42		F	#	-	-
	mV	0606	WL	08/07/2002	N001	AL	D	167		F	#	-	-
	mV	0619	WL	08/07/2002	N001	DC	O	144		F	#	-	-
	mV	0625	WL	08/07/2002	N001	DC	C	154			#	-	-
	mV	0640	WL	08/06/2002	N001	AL	U	17			#	-	-
	mV	0648	WL	08/07/2002	N001	AL	N	84		F	#	-	-
	mV	0649	WL	08/07/2002	N001	AL	N	170		F	#	-	-
	mV	0650	WL	08/08/2002	N001	AL	D	136.6		F	#	-	-
	mV	0653	WL	08/07/2002	N001	AL	D	83		F	#	-	-
	mV	0655	WL	08/07/2002	N001	AL	D	177		F	#	-	-
	mV	0656	WL	08/08/2002	N001	AL	D	144		F	#	-	-
	mV	0657	WL	08/07/2002	N001	DC	O	101		F	#	-	-
	mV	0662	WL	08/07/2002	N001	AL	D	99.2		F	#	-	-
	mV	0669	WL	08/07/2002	N001	AL	D	139		F	#	-	-
	mV	0760	WL	08/08/2002	N001	AL	D	-93		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0761	WL	08/07/2002	N001	AL	D	152		F	#	-	-
	mV	0762	WL	08/08/2002	N001	AL	D	116		F	#	-	-
	mV	0764	WL	08/08/2002	N001	AL	D	172		F	#	-	-
	mV	0765	WL	08/08/2002	N001	AL	D	189		F	#	-	-
	mV	0767	WL	08/07/2002	N001	AL	D	-71		F	#	-	-
	mV	0768	WL	08/06/2002	N001	AL	D	-190		F	#	-	-
	mV	0770	WL	08/08/2002	N001	AL	D	142		F	#	-	-
	mV	0771	WL	08/07/2002	N001	AL	D	159		F	#	-	-
	mV	0772	WL	08/06/2002	N001	AL	O	158		F	#	-	-
	mV	0774	WL	08/07/2002	N001	AL	O	147		F	#	-	-
	mV	0775	WL	08/07/2002	N001	DC	D	66		F	#	-	-
	mV	0776	WL	08/07/2002	N001	DC	O	173		F	#	-	-
	mV	0777	WL	08/08/2002	N001	AL	D	185		F	#	-	-
	mV	0778	WL	08/08/2002	N001	AL	N	175		F	#	-	-
pH	s.u.	0200	WL	08/07/2002	N001	AL	U	7.25			#	-	-
	s.u.	0400	WL	08/06/2002	N001	AL	U	7.84		F	#	-	-
	s.u.	0402	WL	08/06/2002	N001	AL	U	7.36		FQ	#	-	-
	s.u.	0604	WL	08/06/2002	N001	AL	C	8.12		F	#	-	-
	s.u.	0605	WL	08/06/2002	N001	AL	C	7.75		F	#	-	-
	s.u.	0606	WL	08/07/2002	N001	AL	D	7.13		F	#	-	-
	s.u.	0619	WL	08/07/2002	N001	DC	O	7.71		F	#	-	-
	s.u.	0625	WL	08/07/2002	N001	DC	C	8.66			#	-	-
	s.u.	0640	WL	08/06/2002	N001	AL	U	7.66			#	-	-
	s.u.	0648	WL	08/07/2002	N001	AL	N	7.47		F	#	-	-
	s.u.	0649	WL	08/07/2002	N001	AL	N	7.09		F	#	-	-
	s.u.	0650	WL	08/08/2002	N001	AL	D	8.07		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0653	WL	08/07/2002	N001	AL	D	7.4		F	#	-	-
	s.u.	0655	WL	08/07/2002	N001	AL	D	7.21		F	#	-	-
	s.u.	0656	WL	08/08/2002	N001	AL	D	7.68		F	#	-	-
	s.u.	0657	WL	08/07/2002	N001	DC	O	7.54		F	#	-	-
	s.u.	0662	WL	08/07/2002	N001	AL	D	7.24		F	#	-	-
	s.u.	0669	WL	08/07/2002	N001	AL	D	7.53		F	#	-	-
	s.u.	0760	WL	08/08/2002	N001	AL	D	8.04		F	#	-	-
	s.u.	0761	WL	08/07/2002	N001	AL	D	7.43		F	#	-	-
	s.u.	0762	WL	08/08/2002	N001	AL	D	7.47		F	#	-	-
	s.u.	0764	WL	08/08/2002	N001	AL	D	7.69		F	#	-	-
	s.u.	0765	WL	08/08/2002	N001	AL	D	7.36		F	#	-	-
	s.u.	0767	WL	08/07/2002	N001	AL	D	7.81		F	#	-	-
	s.u.	0768	WL	08/06/2002	N001	AL	D	8.27		F	#	-	-
	s.u.	0770	WL	08/08/2002	N001	AL	D	7.56		F	#	-	-
	s.u.	0771	WL	08/07/2002	N001	AL	D	7.23		F	#	-	-
	s.u.	0772	WL	08/06/2002	N001	AL	O	7.92		F	#	-	-
	s.u.	0774	WL	08/07/2002	N001	AL	O	7.52		F	#	-	-
	s.u.	0775	WL	08/07/2002	N001	DC	D	7.65		F	#	-	-
	s.u.	0776	WL	08/07/2002	N001	DC	O	7.81		F	#	-	-
	s.u.	0777	WL	08/08/2002	N001	AL	D	7.3		F	#	-	-
	s.u.	0778	WL	08/08/2002	N001	AL	N	7.36		F	#	-	-
Specific Conductance	umhos/cm	0200	WL	08/07/2002	N001	AL	U	1760			#	-	-
	umhos/cm	0400	WL	08/06/2002	N001	AL	U	879		F	#	-	-
	umhos/cm	0402	WL	08/06/2002	N001	AL	U	576		FQ	#	-	-
	umhos/cm	0604	WL	08/06/2002	N001	AL	C	619		F	#	-	-
	umhos/cm	0605	WL	08/06/2002	N001	AL	C	2344		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0606	WL	08/07/2002	N001	AL	D	2634		F	#	-	-
	umhos/cm	0619	WL	08/07/2002	N001	DC	O	466		F	#	-	-
	umhos/cm	0625	WL	08/07/2002	N001	DC	C	573			#	-	-
	umhos/cm	0640	WL	08/06/2002	N001	AL	U	1789			#	-	-
	umhos/cm	0648	WL	08/07/2002	N001	AL	N	3227		F	#	-	-
	umhos/cm	0649	WL	08/07/2002	N001	AL	N	5067		F	#	-	-
	umhos/cm	0650	WL	08/08/2002	N001	AL	D	437		F	#	-	-
	umhos/cm	0653	WL	08/07/2002	N001	AL	D	2587		F	#	-	-
	umhos/cm	0655	WL	08/07/2002	N001	AL	D	3645		F	#	-	-
	umhos/cm	0656	WL	08/08/2002	N001	AL	D	1270		F	#	-	-
	umhos/cm	0657	WL	08/07/2002	N001	DC	O	327		F	#	-	-
	umhos/cm	0662	WL	08/07/2002	N001	AL	D	713		F	#	-	-
	umhos/cm	0669	WL	08/07/2002	N001	AL	D	805		F	#	-	-
	umhos/cm	0760	WL	08/08/2002	N001	AL	D	474		F	#	-	-
	umhos/cm	0761	WL	08/07/2002	N001	AL	D	1340		F	#	-	-
	umhos/cm	0762	WL	08/08/2002	N001	AL	D	2807		F	#	-	-
	umhos/cm	0764	WL	08/08/2002	N001	AL	D	1306		F	#	-	-
	umhos/cm	0765	WL	08/08/2002	N001	AL	D	2823		F	#	-	-
	umhos/cm	0767	WL	08/07/2002	N001	AL	D	370		F	#	-	-
	umhos/cm	0768	WL	08/06/2002	N001	AL	D	658		F	#	-	-
	umhos/cm	0770	WL	08/08/2002	N001	AL	D	1226		F	#	-	-
	umhos/cm	0771	WL	08/07/2002	N001	AL	D	4935		F	#	-	-
	umhos/cm	0772	WL	08/06/2002	N001	AL	O	826		F	#	-	-
	umhos/cm	0774	WL	08/07/2002	N001	AL	O	487		F	#	-	-
	umhos/cm	0775	WL	08/07/2002	N001	DC	D	367		F	#	-	-
	umhos/cm	0776	WL	08/07/2002	N001	DC	O	439		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0777	WL	08/08/2002	N001	AL	D	3352		F	#	-	-
	umhos/cm	0778	WL	08/08/2002	N001	AL	N	2792		F	#	-	-
Sulfate	mg/L	0200	WL	08/07/2002	N001	AL	U	494.000			#	0.394	-
	mg/L	0400	WL	08/06/2002	0001	AL	U	90.200		F	#	0.0394	-
	mg/L	0402	WL	08/06/2002	0001	AL	U	19.400		FQ	#	0.0394	-
	mg/L	0604	WL	08/06/2002	0001	AL	C	109.000		F	#	0.0788	-
	mg/L	0605	WL	08/06/2002	0001	AL	C	1030.000		F	#	0.788	-
	mg/L	0606	WL	08/07/2002	0001	AL	D	447.000		F	#	0.394	-
	mg/L	0619	WL	08/07/2002	0001	DC	O	54.600		F	#	0.0394	-
	mg/L	0625	WL	08/07/2002	N001	DC	C	54.400			#	0.0394	-
	mg/L	0640	WL	08/06/2002	N001	AL	U	533.000			#	0.394	-
	mg/L	0648	WL	08/07/2002	0001	AL	N	1650.000		F	#	0.788	-
	mg/L	0648	WL	08/07/2002	0002	AL	N	1640.000		F	#	0.788	-
	mg/L	0649	WL	08/07/2002	0001	AL	N	3100.000		F	#	1.97	-
	mg/L	0650	WL	08/08/2002	0001	AL	D	32.700		F	#	0.0394	-
	mg/L	0653	WL	08/07/2002	0001	AL	D	1370.000		F	#	0.788	-
	mg/L	0655	WL	08/07/2002	0001	AL	D	1870.000		F	#	0.788	-
	mg/L	0656	WL	08/08/2002	0001	AL	D	241.000		F	#	0.197	-
	mg/L	0657	WL	08/07/2002	0001	DC	O	18.300		F	#	0.0394	-
	mg/L	0662	WL	08/07/2002	0001	AL	D	191.000		F	#	0.197	-
	mg/L	0669	WL	08/07/2002	0001	AL	D	166.000		F	#	0.197	-
	mg/L	0760	WL	08/08/2002	0001	AL	D	86.500		F	#	0.0394	-
	mg/L	0761	WL	08/07/2002	0001	AL	D	506.000		F	#	0.394	-
	mg/L	0762	WL	08/08/2002	0001	AL	D	1340.000		F	#	0.788	-
	mg/L	0764	WL	08/08/2002	0001	AL	D	367.000		F	#	0.197	-
	mg/L	0765	WL	08/08/2002	0001	AL	D	755.000		F	#	0.394	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0767	WL	08/07/2002	0001	AL	D	31.400		F	#	0.0394	-
	mg/L	0768	WL	08/06/2002	0001	AL	D	163.000		F	#	0.0788	-
	mg/L	0770	WL	08/08/2002	0001	AL	D	265.000		F	#	0.197	-
	mg/L	0771	WL	08/07/2002	0001	AL	D	2430.000		F	#	1.97	-
	mg/L	0771	WL	08/07/2002	0002	AL	D	2360.000		F	#	1.97	-
	mg/L	0772	WL	08/06/2002	0001	AL	O	147.000		F	#	0.0788	-
	mg/L	0774	WL	08/07/2002	0001	AL	O	59.900		F	#	0.0394	-
	mg/L	0775	WL	08/07/2002	0001	DC	D	25.800		F	#	0.0394	-
	mg/L	0776	WL	08/07/2002	0001	DC	O	36.600		F	#	0.0394	-
	mg/L	0777	WL	08/08/2002	0001	AL	D	892.000		F	#	0.394	-
	mg/L	0778	WL	08/08/2002	0001	AL	N	762.000		F	#	0.394	-
Temperature	C	0200	WL	08/07/2002	N001	AL	U	18.95			#	-	-
	C	0400	WL	08/06/2002	N001	AL	U	23.78		F	#	-	-
	C	0402	WL	08/06/2002	N001	AL	U	27.36		FQ	#	-	-
	C	0604	WL	08/06/2002	N001	AL	C	16.55		F	#	-	-
	C	0605	WL	08/06/2002	N001	AL	C	19.32		F	#	-	-
	C	0606	WL	08/07/2002	N001	AL	D	19.81		F	#	-	-
	C	0619	WL	08/07/2002	N001	DC	O	18.76		F	#	-	-
	C	0625	WL	08/07/2002	N001	DC	C	17.73			#	-	-
	C	0640	WL	08/06/2002	N001	AL	U	22.12			#	-	-
	C	0648	WL	08/07/2002	N001	AL	N	18.18		F	#	-	-
	C	0649	WL	08/07/2002	N001	AL	N	18.79		F	#	-	-
	C	0650	WL	08/08/2002	N001	AL	D	19.36		F	#	-	-
	C	0653	WL	08/07/2002	N001	AL	D	18.5		F	#	-	-
	C	0655	WL	08/07/2002	N001	AL	D	18.24		F	#	-	-
	C	0656	WL	08/08/2002	N001	AL	D	18.7		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0657	WL	08/07/2002	N001	DC	O	19.15		F	#	-	-
	C	0662	WL	08/07/2002	N001	AL	D	19.92		F	#	-	-
	C	0669	WL	08/07/2002	N001	AL	D	19.15		F	#	-	-
	C	0760	WL	08/08/2002	N001	AL	D	18.27		F	#	-	-
	C	0761	WL	08/07/2002	N001	AL	D	17.9		F	#	-	-
	C	0762	WL	08/08/2002	N001	AL	D	17.96		F	#	-	-
	C	0764	WL	08/08/2002	N001	AL	D	27.22		F	#	-	-
	C	0765	WL	08/08/2002	N001	AL	D	19.88		F	#	-	-
	C	0767	WL	08/07/2002	N001	AL	D	18.73		F	#	-	-
	C	0768	WL	08/06/2002	N001	AL	D	21.68		F	#	-	-
	C	0770	WL	08/08/2002	N001	AL	D	20.76		F	#	-	-
	C	0771	WL	08/07/2002	N001	AL	D	20.09		F	#	-	-
	C	0772	WL	08/06/2002	N001	AL	O	19.16		F	#	-	-
	C	0774	WL	08/07/2002	N001	AL	O	19.9		F	#	-	-
	C	0775	WL	08/07/2002	N001	DC	D	20.17		F	#	-	-
	C	0776	WL	08/07/2002	N001	DC	O	18.16		F	#	-	-
	C	0777	WL	08/08/2002	N001	AL	D	17.59		F	#	-	-
	C	0778	WL	08/08/2002	N001	AL	N	18.88		F	#	-	-
Turbidity	NTU	0200	WL	08/07/2002	N001	AL	U	5.92			#	-	-
	NTU	0400	WL	08/06/2002	N001	AL	U	7.46		F	#	-	-
	NTU	0402	WL	08/06/2002	N001	AL	U	32.6		FQ	#	-	-
	NTU	0604	WL	08/06/2002	N001	AL	C	3.12		F	#	-	-
	NTU	0605	WL	08/06/2002	N001	AL	C	5.41		F	#	-	-
	NTU	0606	WL	08/07/2002	N001	AL	D	2.62		F	#	-	-
	NTU	0619	WL	08/07/2002	N001	DC	O	1.1		F	#	-	-
	NTU	0625	WL	08/07/2002	N001	DC	C	0.73			#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0640	WL	08/06/2002	N001	AL	U	1.98			#	-	-
	NTU	0648	WL	08/07/2002	N001	AL	N	0		F	#	-	-
	NTU	0649	WL	08/07/2002	N001	AL	N	1.13		F	#	-	-
	NTU	0650	WL	08/08/2002	N001	AL	D	1.47		F	#	-	-
	NTU	0653	WL	08/07/2002	N001	AL	D	0		F	#	-	-
	NTU	0655	WL	08/07/2002	N001	AL	D	2.08		F	#	-	-
	NTU	0656	WL	08/08/2002	N001	AL	D	0.82		F	#	-	-
	NTU	0657	WL	08/07/2002	N001	DC	O	0.3		F	#	-	-
	NTU	0662	WL	08/07/2002	N001	AL	D	0		F	#	-	-
	NTU	0669	WL	08/07/2002	N001	AL	D	0.91		F	#	-	-
	NTU	0760	WL	08/08/2002	N001	AL	D	253		F	#	-	-
	NTU	0761	WL	08/07/2002	N001	AL	D	8.54		F	#	-	-
	NTU	0762	WL	08/08/2002	N001	AL	D	7.81		F	#	-	-
	NTU	0764	WL	08/08/2002	N001	AL	D	8.14		F	#	-	-
	NTU	0765	WL	08/08/2002	N001	AL	D	2.98		F	#	-	-
	NTU	0767	WL	08/07/2002	N001	AL	D	0.7		F	#	-	-
	NTU	0768	WL	08/06/2002	N001	AL	D	51.8		F	#	-	-
	NTU	0770	WL	08/08/2002	N001	AL	D	9.07		F	#	-	-
	NTU	0771	WL	08/07/2002	N001	AL	D	32.9		F	#	-	-
	NTU	0772	WL	08/06/2002	N001	AL	O	9.32		F	#	-	-
	NTU	0774	WL	08/07/2002	N001	AL	O	9.53		F	#	-	-
	NTU	0775	WL	08/07/2002	N001	DC	D	0		F	#	-	-
	NTU	0776	WL	08/07/2002	N001	DC	O	0.82		F	#	-	-
	NTU	0777	WL	08/08/2002	N001	AL	D	8.72		F	#	-	-
	NTU	0778	WL	08/08/2002	N001	AL	N	0.76		F	#	-	-
Uranium	mg/L	0774	WL	08/07/2002	0001	AL	O	0.0641		F	#	0.0001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='MON01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #8/1/2002# and #8/20/2002#

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

LOCATION TYPES: WL WELL

ZONES OF COMPLETION:

AL ALLUVIUM
DC DECHELLEY MEMBER OF THE CUTLER FORMATION

FLOW CODES: C CROSS GRADIENT D DOWN GRADIENT N UNKNOWN O ON-SITE U UPGRADIENT

LAB QUALIFIERS:

* Replicate analysis not within control limits.
\+ Correlation coefficient for MSA < 0.995.
\> 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
M GFAA duplicate injection precision not met.
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S Result determined by method of standard addition (MSA).
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

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BLANKS REPORT (USEE810) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

PARAMETER	UNITS	LOCATION ID	SAMPLE DATE	SAMPLE ID	SAMPLE TYPE	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION	UN-CERTAINTY
Chloride	mg/L	0999	08/06/2002	0001	E	0.137	B	UF	#	0.0401	-
Nitrate as NO3	mg/L	0999	08/06/2002	0001	E	0.020	U	F	#	0.02	-
Sulfate	mg/L	0999	08/06/2002	0001	E	0.0394	U	F	#	0.0394	-

RECORDS: SELECTED FROM USEE810 WHERE site_code='MON01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #8/1/2002# and #8/20/2002#

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

SAMPLE TYPES: E EQUIPMENT BLANK

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- > 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
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

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WATER LEVELS

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STATIC GROUND WATER LEVELS (USEE700) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0400	U	4870.41	08/06/2002	14:26	2.70	4867.71	
0402	U	4840.30	08/06/2002	11:48	5.00	4835.30	
0604	C	4840.42	08/06/2002	09:26	9.21	4831.21	
0605	C	4835.07	08/06/2002	10:30	10.83	4824.24	
0606	D	4864.73	08/07/2002	15:42	35.96	4828.77	
0619	O	4888.63	08/07/2002	14:33	57.00	4831.63	
0648	N	4835.14	08/07/2002	15:12	33.82	4801.32	
0649	N	4861.64	08/07/2002	10:19	39.45	4822.19	
0653	D	4837.08	08/07/2002	16:00	35.60	4801.48	
0655	D	4862.06	08/07/2002	09:52	39.62	4822.44	
0656	D	4856.33	08/08/2002	11:12	36.54	4819.79	
0657	O	4878.99	08/07/2002	14:12	49.68	4829.31	
0662	D	4878.56	08/07/2002	13:30	49.00	4829.56	
0669	D	4867.19	08/07/2002	16:28	49.63	4817.56	
0760	D	4814.80	08/08/2002	12:25	25.43	4789.37	
0761	D	4835.02	08/07/2002	17:27	43.00	4792.02	
0762	D	4820.74	08/08/2002	10:12	32.20	4788.54	
0764	D	4851.53	08/08/2002	13:42	49.55	4801.98	
0765	D	4848.45	08/08/2002	09:12	35.29	4813.16	
0767	D	4808.25	08/07/2002	16:55	6.98	4801.27	
0768	D	4820.73	08/06/2002	17:02	14.10	4806.63	
0770	D	4857.26	08/08/2002	11:41	33.00	4824.26	
0771	D	4863.26	08/07/2002	10:43	41.78	4821.48	
0772	O	4847.60	08/06/2002	13:04	12.36	4835.24	
0774	O	4880.14	08/07/2002	13:34	48.78	4831.36	
0775	D	4879.68	08/07/2002	12:27	49.35	4830.33	
0776	O	4883.33	08/07/2002	12:35	52.75	4830.58	
0777	D	4848.24	08/08/2002	09:46	34.00	4814.24	

STATIC GROUND WATER LEVELS (USEE700) FOR SITE MON01, MONUMENT VALLEY
REPORT DATE: 10/14/2002 11:20 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0778	N	4846.07	08/08/2002	10:16	33.63	4812.44	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MON01' AND LOG_DATE between #8/1/2002# and #8/20/2002#

FLOW CODES: C CROSS GRADIENT D DOWN GRADIENT N UNKNOWN
O ON-SITE U UPGRADIENT

WATER LEVEL FLAGS:

TIME/CONCENTRATION PLOTS

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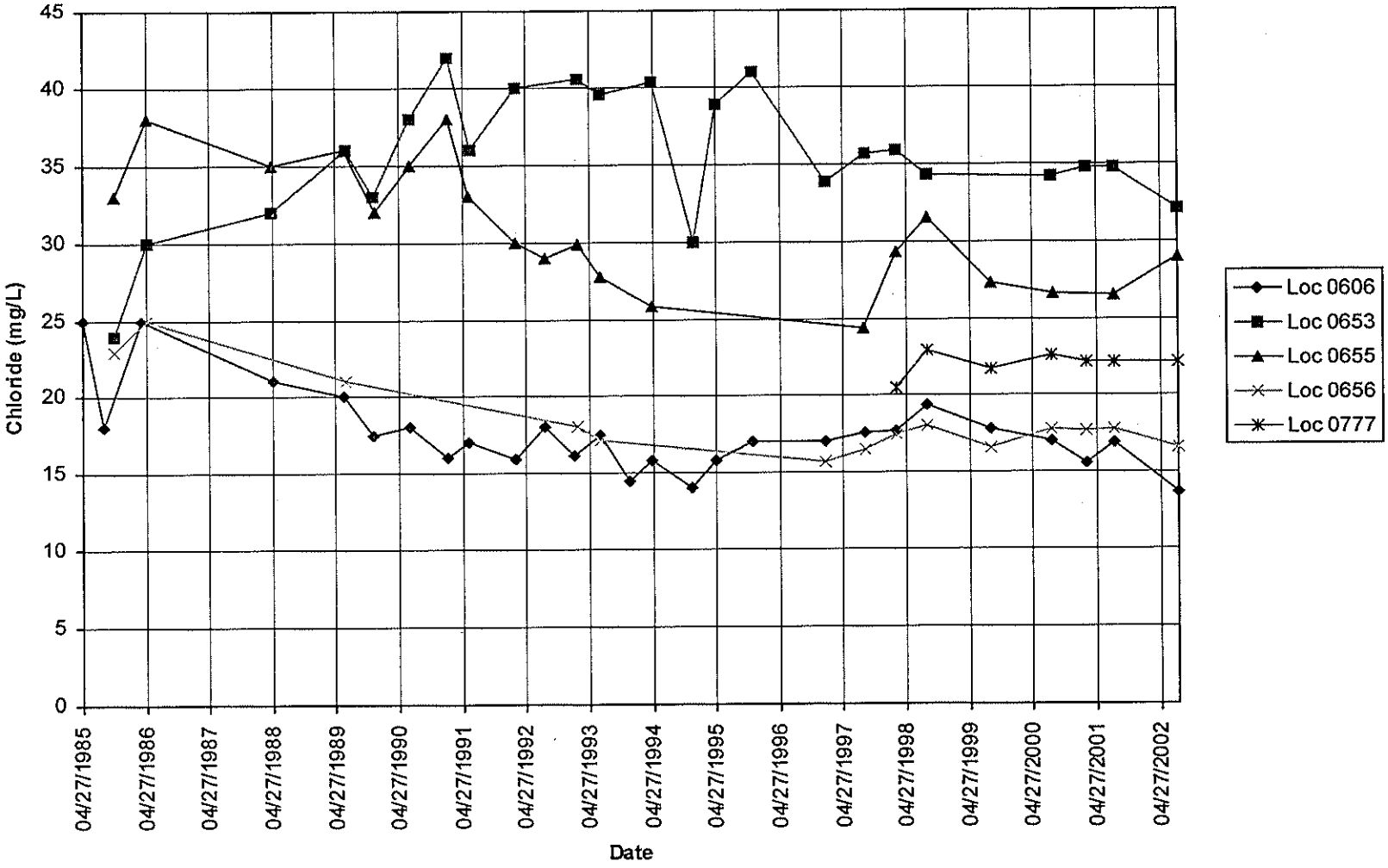
MONUMENT VALLEY (MON01)

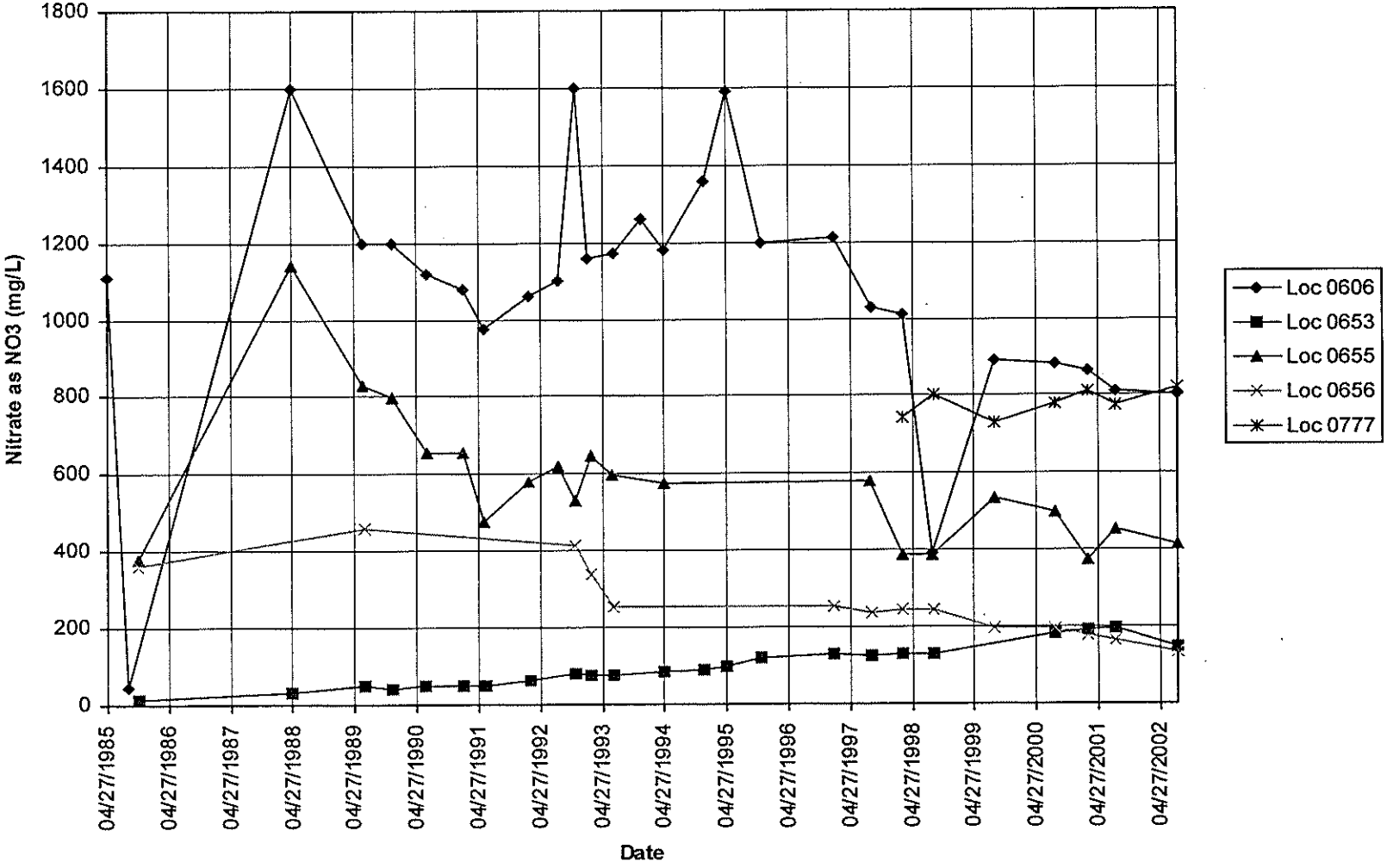
Chloride Concentration



10/14/2002 2:02 pm

MONUMENT VALLEY (MON01)

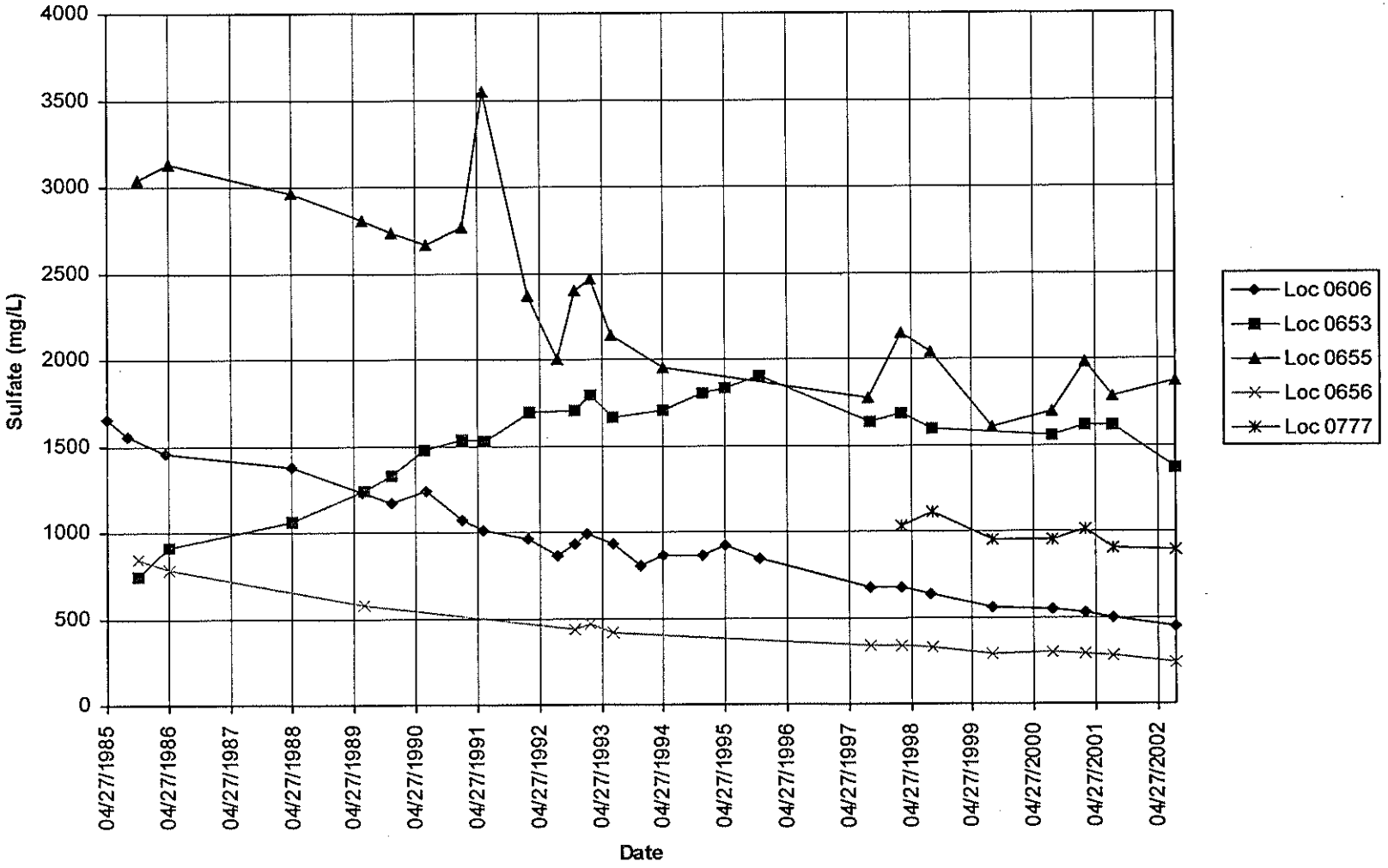
Nitrate as NO3 Concentration



10/14/2002 2:03 pm

MONUMENT VALLEY (MON01)

Sulfate Concentration



10/14/2002 2:04 pm

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TRIP REPORT/WORK ORDER

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CONTRACT NO.: DE-AC13-02GJ79491
TASK ORDER NO.: STO02-109
CONTROL NO.: N/A

To: Sam Marutzky

From: S. E. Campbell

Date: August 27, 2002

Subject: UGW Trip Report

Site: Monument Valley, Arizona

Dates of Sampling Event: August 6, to August 8, 2002

Team Members: Sam Campbell, Steve Back, Dave Traub, and Tom Maveal

Number of Locations Sampled: 30 monitor wells and 3 domestic wells.

Locations Not Sampled/Reason: Domestic well 201 (Indian Health Services water supply well) was not sampled because the dedicated pump was not in service.

Field Variance: Turbidity criteria was not met at wells 760, 768, and 771. Sampling was conducted at well 764 immediately after installing the dedicated bladder pump.

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

FALSE ID	TRUE ID	SAMPLE TYPE	ASSOCIATED MATRIX	TICKET NUMBER
1200	648	Duplicate	Ground water	NDT-605
607	Equipment Blank	Equipment Blank	Ground water	NDS-325
608	771	Duplicate	Ground water	NDP-188

Requisition Numbers Assigned: Samples were assigned to requisition 18097.

Location Specific Information: Well 402 was purged and sampled using Category III protocol because the well continued to drawdown at the minimum flow rate of 100 mL/min. Results from this well will be qualified with a "Q" flag in the database indicating the data is qualitative because of the sampling method.

Dedicated bladder pumps or dedicated tubing were installed in the following wells:

WELL ID	TYPE	DATE INSTALLED	DEPTH	COMMENTS
400	Poly tubing	8/6/02	12.4	-
402	Poly tubing	8/6/02	9.8	-
604	Poly tubing	8/6/02	31.7	-
605	Poly tubing	8/6/02	33.5	-
606	Dedicated bladder pump	8/6/02	42	-
648	Dedicated bladder pump	8/6/02	75	-
649	Dedicated bladder pump	8/6/02	52	Needs a 6" cap
653	Dedicated bladder pump	8/6/02	67	-
655	Dedicated bladder pump	8/6/02	52	Needs a 4" cap
656	Dedicated bladder pump	8/6/02	50	-
662	Dedicated bladder pump	8/6/02	60	-
669	Dedicated bladder pump	8/6/02	55	-
760	Dedicated bladder pump	8/7/02	54	Needs to be redeveloped
761	Dedicated bladder pump	8/7/02	53	-
762	Dedicated bladder pump	8/7/02	52	-
764	Dedicated bladder pump	8/8/02	55	-
765	Dedicated bladder pump	8/6/02	75	Needs a 4" cap
767	Poly tubing	8/7/02	66.8	-
768	Poly tubing	8/6/02	48.7	Needs to be redeveloped
770	Dedicated bladder pump	8/6/02	62	-
771	Dedicated bladder pump	8/6/02	72	Needs to be redeveloped
772	Poly tubing	8/6/02	30.9	-
774	Dedicated bladder pump	8/6/02	55	-
777	Dedicated bladder pump	8/6/02	40	-
778	Dedicated bladder pump	8/6/02	75	Needs a 6" cap

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

Well Inspection Summary: Well inspections were conducted at all sampled wells; all wells were in good condition. Several concrete pads were undermined because the sand has blown out from underneath the pad; however, the pads were still intact.

Equipment: All equipment functioned properly.

Regulatory: None.

Site Issues: None

Corrective Action Required/Taken: Wells 760, 768, and 771 require redevelopment prior to the next sampling event.

Distribution:
cc: D. Metzler
K. Miller
Project Record File GWMON 14.12 thru K. Sutton

CONTRACT NO.: DE-AC13-96GJ87335
TASK ORDER NO.: MAC02-05
CONTROL NO.: 3100-T02-0733

July 3, 2002

Program Manager
Department of Energy
Grand Junction Office
2597 B3/4 Road
Grand Junction, CO 81503
ATTN: Donald Metzler

SUBJECT: Contract No. DE-AC13-96GJ87335—August 2002 UMTRA Ground Water Sampling at Monument Valley, Arizona

Dear Mr. Metzler:

Attached are the map and tables specifying the sample locations and analytes for routine monitoring at the Monument Valley, Arizona, UMTRA site. Water quality data will be collected from monitor wells at this site as part of the routine UMTRA Ground Water sampling that is scheduled to begin the week of August 5, 2002.

The following lists show the monitor and domestic well locations (with the associated zone of completion) that will be sampled during this monitoring event.

Ground Water Project Monitor Well (filtered)*

400 Al	619 Dc	655 Al	669 Al	764 Al	770 Al	775 Dc
402 Al	648 Al	656 Al	760 Al	765 Al	771 Al	776 Dc
604 Al	649 Al	657 Dc	761 Al	767 Al	772 Al	777 Al
605 Al	650 Al	662 Al	762 Al	768 Al	774 Al	778 Al
606 Al	653 Al					

Ground Water Project Private Wells

200 Al	201 Nr	625 Dc	640 Al

*NOTE: Al = Alluvium; Dc = Dechelley Member Of The Cutler Formation; Nr = No Recovery Of Data For Classifying

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for the UMTRA Ground Water Project*. Samples collected for alkalinity will be filtered only. Access for the Monument Valley site is covered under the cooperative agreement. Water level information will be collected from sampled wells. Monitor well inspections will be conducted and documented to confirm the status of all sampled wells. Water elevations also will be collected from all sampled wells and frog ponds surface locations.

If you have any questions, please call me at extension 6059 or Dave Traub at extension 6557.

Sincerely,

Sam Marutzky
Project Manager

SM/lcg/ld
Attachments

cc w/att: R. Chessmore
K. Karp
K. Miller
D. Traub
Contract File (J. Dearborn)
Project Record File GWMON 14.06 thru K. Sutton

SAMPLING LOCATION MAP(S)

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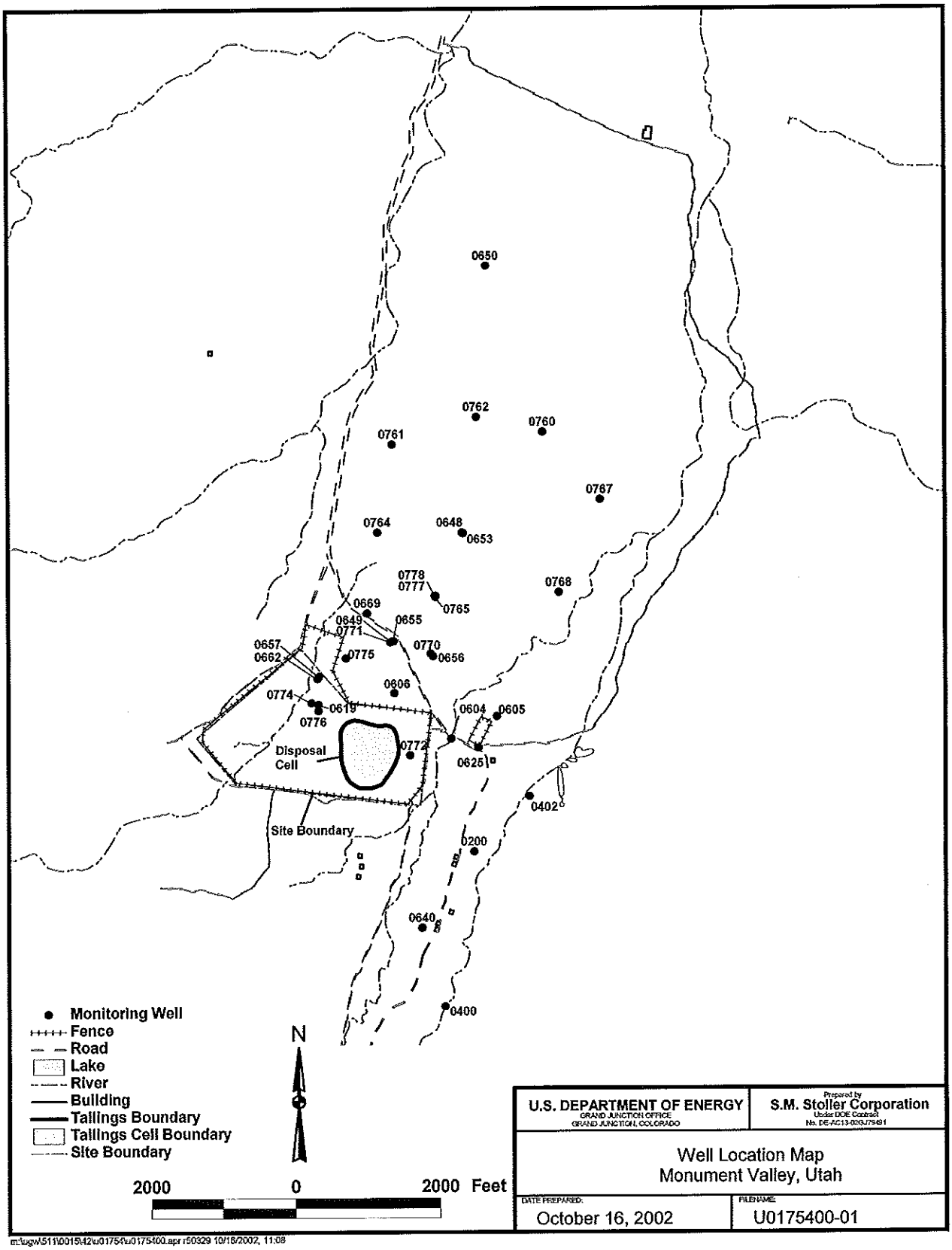

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION OFFICE GRAND JUNCTION, COLORADO	Prepared by S.M. Stoller Corporation Under DOE Contract No. DE-AC13-02GJ79491
Well Location Map Monument Valley, Utah	
DATE PREPARED: October 16, 2002	FILENAME: U0175400-01

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