



**July 2005 Water Sampling
Validation Data Package for
Configuration 1 Interim Action Well
Field Monthly Sampling
Moab, Utah**

October 2005



**U.S. Department
of Energy**

Office of Environmental Management

July 2005 Water Sampling

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for
Configuration 1 Interim Action
Well Field Monthly Sampling
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Data Package Contents

This data package includes the following information:

<u>Item No.</u>	<u>Description of Contents</u>
1.	Sampling Event Summary
2.	Sample Location Map
3.	Data Assessment Summary
	Water Sampling Field Activities Verification Checklist
	Laboratory Performance Assessment
	Field Analyses/Activities
	Certification

Attachment 1—Data Presentation

Minimums and Maximums Report
Anomalous Data Review Checksheet
Water Quality Data
Water Level Data
Blanks
Time Versus Concentration Graphs

Attachment 2—Trip Report

Sampling Event Summary

Site: Moab, Utah

Sampling Period: July 26-28, 2005

The purpose of this sampling was to collect data that can be used to evaluate the performance of Configuration 1 of the interim action well field. The extraction wells had been operating the 2005 pumping season since mid-February 2005. This is the sixth monthly performance sampling round conducted in 2005 for Configuration 1.

According to the USGS Cisco Gaging Station, the mean daily Colorado River flows during the time period of this sampling event were between 4,950 and 6,640 cubic feet per second. These values are approximately one-third the flow during the previous month's sampling event.

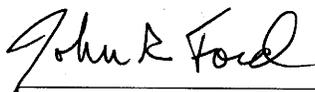
Sampling and analysis was conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, February 2004*. Ground water samples were collected from 11 extraction wells (0470-0479 and SMI-PW02), six observation wells (0403, 0407, 0483, 0557, 0559, and 0560), two piezometers (0562 and 0563), one surface water location (0216), and two treatment system locations (0547 and 0548). Including two duplicates and one equipment blank, a total of 25 samples were collected.

The one anomalous low concentration of ammonia detected in a sample collected from piezometer 0563 can be attributed to dilution from the previous high stages of the Colorado River.

Pumping rates for extraction wells 0470 through 0479 range from approximately 1 to 4 gallons per minute (gpm). Well No. SMI-PW02 has a pumping rate of nearly 19 gpm. These rates are in the average range for the Configuration 1 well field, but are slightly less than reported for the previous 2 months.

A detailed discussion of extraction well field performance is presented in the *Fall 2004 Performance Assessment of the Ground Water Interim Action Well Fields at the Moab, Utah, Project Site, January 2005*. However, time versus concentration graphs for selected key performance indicator wells and major contaminants of concern are included. Data presented in these graphs indicate that contaminant concentrations are at expected levels.

The data validation indicated the data meet the quality control criteria specified for this project. No significant discrepancies were noted regarding sample shipping/receiving, preservation and holding times, lab instrument calibration, method blanks, matrix spikes, etc., except as qualified.

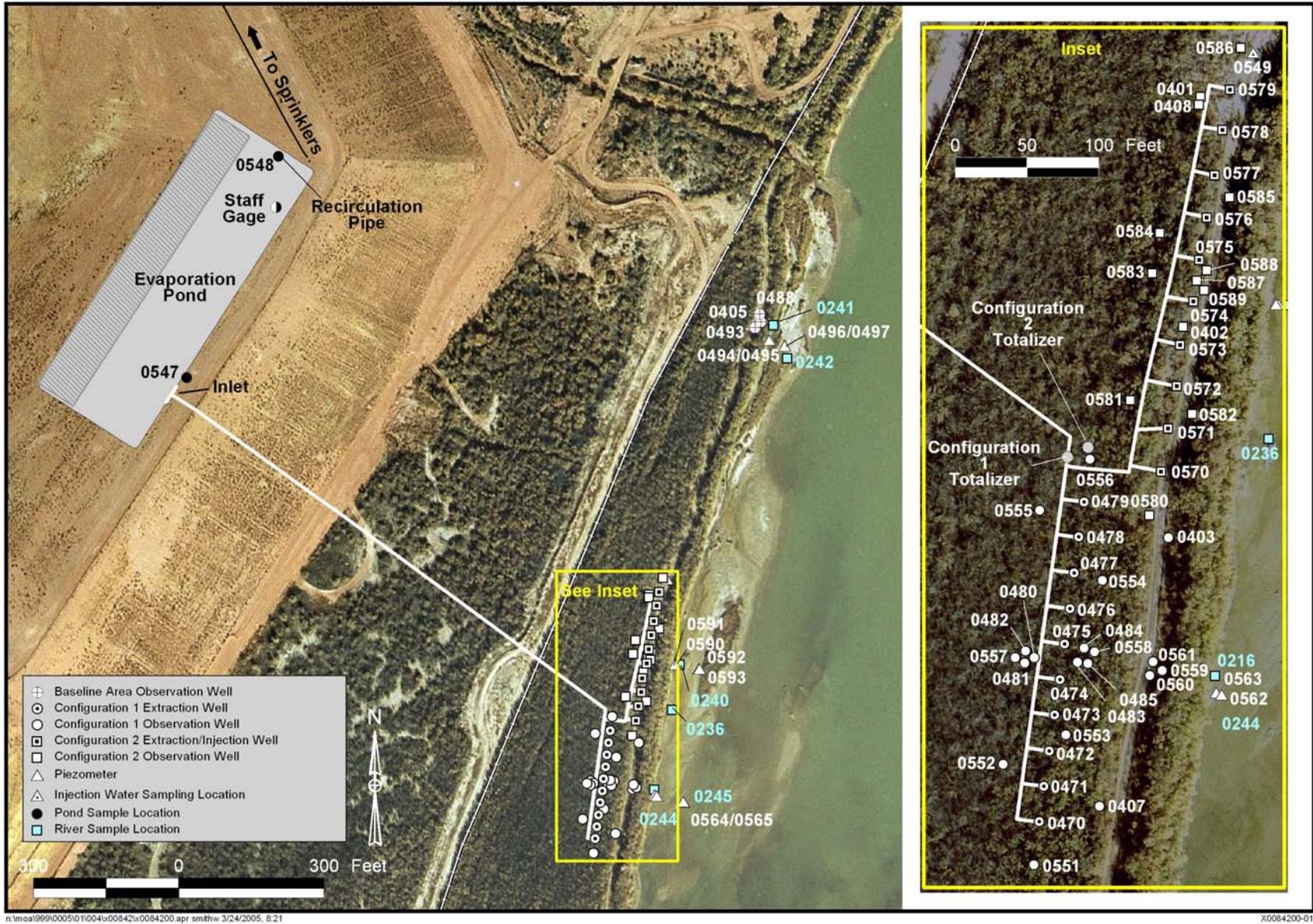


John R. Ford
Ground Water Lead

10-10-2005

Date

Sample Location Map



Sample Locations at the Interim Action Well Field and Baseline Area (may include locations not sampled)

Data Assessment Summary

Water Sampling Field Activities Verification Checklist

U.S. Department of Energy
October 2005

Project	<u>Moab, Utah</u>	Date(s) of Water Sampling	<u>July 26-28, 2005</u>
Date(s) of Verification	<u>September 16, 2005</u>	Name of Verifier	<u>Jeff Price</u>

	Response (Yes, No, NA)	Comments
--	-----------------------------------	-----------------

- | | | |
|--|------------|---|
| 1. Is the SAP the primary document directing field procedures? | <u>Yes</u> | |
| List other documents, SOP's, instructions. | <u>NA</u> | |
| 2. Were the sampling locations specified in the planning documents sampled? | <u>No</u> | <u>See trip report for explanation.</u> |
| 3. Was a pre-trip calibration conducted as specified in the above named documents? | <u>Yes</u> | |
| 4. Was an operational check of the field equipment conducted twice daily? | <u>Yes</u> | |
| Did the operational checks meet criteria? | <u>Yes</u> | |
| 5. Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified? | <u>Yes</u> | |
| 6. Was the Category of the well documented? | <u>Yes</u> | |
| 7. Were the following conditions met when purging a Category I well: | | |
| Was one pump/tubing volume purged prior to sampling? | <u>Yes</u> | |
| Did the water level stabilize prior to sampling? | <u>Yes</u> | |
| Did pH, specific conductance, and turbidity measurements stabilize prior to sampling? | <u>Yes</u> | |
| Was the flow rate less than 500 mL/min? | <u>Yes</u> | |
| If a portable pump was used, was there a 4 hour delay between pump installation and sampling? | <u>NA</u> | |

Configuration I Interim Action Well Field Monthly Sampling—July 2005
RIN: 05070214
Page 5

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	
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?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Requisition No.: 05070214
 Sample Event: July 26-28, 2005
 Site(s): Moab, Utah
 Laboratory: Paragon Analytics
 Work Order No.: 0507289
 Analysis: Metals and Inorganics
 Validator: Steve Donovan
 Review Date: September 8, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data”, GT-9(P) (2004). 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 1. The samples were analyzed concurrently with those from requisition identification number (RIN) 05070215. The sample matrix for all samples is equivalent allowing the use of common quality assurance samples.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO ₄	MIS-A-044	SW-846 9056	SW-846 9056
Ammonia as N, NH ₃ -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1

Data Qualifier Summary

The uranium result for sample 0507289-24 is qualified as “U” because the associated calibration blank result is greater than the method detection limit (MDL) and the sample result is less than 5 times the blank result. The ammonia as N results for sample 0507289-3 is qualified as “J” because the holding time was missed.

Table 2. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0507289-24	2980(Equip. Blank)	U	U	Less than 5 times the calibration blank
0507289-3	SMI-PW02	NH ₃ -N	J	Missed holding time

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 25 samples on July 29, 2005, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, the sample submittal form, and the sample tickets had no errors or omissions.

Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 1.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times with the following exception. Sample SMI-PW02 was reanalyzed for ammonia as N after the holding time had expired. The ammonia as N result for this sample is qualified as “J” (estimated).

Laboratory Instrument Calibration

All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Method SW-846 6020

Calibrations for uranium were performed on August 4, 2005 and August 8, 2005. The initial calibrations were performed using six calibration standards resulting in a calibration curve with a correlation coefficient (r^2) value greater than 0.995. The absolute value of the curve intercept was less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in eleven CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check was within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

Method SW-846 9056

The initial calibrations for chloride and sulfate were performed using five calibration standards each on August 1, 2005. The calibration curve r^2 values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in seven CCVs. The calibration checks met the acceptance criteria.

Method MCAWW 350.1

The initial calibrations for ammonia as N were performed using six calibration standards on August 5, 2005 and August 25, 2005, resulting in a calibration curves with a r^2 values greater than 0.995 and an intercepts less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency resulting in nine CCVs. All calibration check results were within the acceptance criteria.

Method MCAWW 160.1

There is no initial or continuing calibration requirement associated with the determination of total dissolved solids (TDS).

Method and Calibration Blanks

The uranium initial and continuing calibration blanks (CCB) were below the practical quantitation limits but greater than the MDL with the exception of CCB6 and CCB10. The samples associated with these blanks were re-analyzed with acceptable blanks. The uranium result for sample 0507289-24 was less than 5 times the concentration of the associated continuing calibration blank and is qualified as "U". The chloride, sulfate, ammonia as N, and TDS method blanks, and initial and continuing calibration blanks were below the MDLs.

Inductively Coupled Plasma Interference Check Sample Analysis

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate pairs were analyzed for uranium, chloride, sulfate, and ammonia as N as a measure of method performance in the sample matrix. The spike recoveries met the recovery and precision criteria for all analytes.

Laboratory Replicate Analysis

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

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were performed during the uranium analysis to monitor physical or chemical interferences that may exist in the sample matrix. The results met the acceptance criteria.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

Completeness

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

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on August 29, 2005. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

Field Analyses/Activities

The following information summarizes the field analyses and activities for this sampling event period.

Field Activities

All monitor well results were qualified with an “F” flag in the database indicating the wells were purged and sampled using the low-flow sampling method. Extraction wells are not sampled using the low-flow sampling method.

An equipment blank was collected and analyzed for the same constituents as the Moab environmental samples. Analyte concentrations measured in the equipment blank were below their respective contract required detection limits, therefore all equipment blank results are considered acceptable. Duplicate samples were collected from locations 0560 and 0563. There are no established regulatory criteria for the evaluation of field duplicate samples; therefore, U.S. Environmental Protection Agency (EPA) guidance for laboratory duplicates (which is conservative for field duplicates) was used to assess the precision of the field duplicates. With the exception of the ammonium and uranium results from location 0563, duplicate results met the laboratory duplicate criteria of +/- 20 RPD and are considered acceptable. The variable results from location 0563 are probably the result of that location being a category two well (i.e., a well yielding a low volume of water over time).

Certification

Results were reported in correct units for all analytes requested. Appropriate contract-required laboratory qualifiers and target analyte lists were used. The required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative. All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality by Parameter, or equipment/trip blank database printouts. The meaning of data qualifiers is defined on the database printouts or defined in the EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package are considered validated and may be treated as final results.

Laboratory Validation Lead:

Steve Donovan

Steve Donovan

10-10-05

Date

Field Activities Validation Lead:

Jeff Price

Jeff Price

10/10/05

Date

Attachment 1

Data Presentation

Minimums and Maximums Report

Minimums and Maximums Report

The Minimums and Maximums Report is generated by a data validation application (DataVal) used to query the SEEPro database. The DataVal compares the new data set with historical data and lists all new data that fall outside the historical data range. Values listed in the report are further screened using the following criteria. Results are not considered anomalous if (1) identified low concentrations are the result of low detection limits; (2) the concentration detected is within 50 percent of historical minimum or maximum values; (3) there were fewer than five historical samples for comparison.

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05070214

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 09/26/05 09:19:43: AM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	CURRENT		HISTORICAL MAXIMUM		HISTORICAL MINIMUM		COUNT	
				RESULT	QUALIFIERS LAB DATA	RESULT	QUALIFIERS LAB DATA	RESULT	QUALIFIERS LAB DATA	N	N BELOW DETECT
MOA01	0474	07/27/2005	Uranium	3.7		3.5		0.52		23	0
MOA01	0475	07/27/2005	Uranium	3.9		3.2	F	0.73		21	0
MOA01	0476	07/27/2005	Uranium	3.7		3.3	F	0.68		21	0
MOA01	0547	07/27/2005	Total Dissolved Solids	30000		28000		15000		12	0
MOA01	0548	07/27/2005	Chloride	19000		17000		1800		11	0
MOA01	0563	07/28/2005	Ammonia Total as N	36	QF	110	F	56	FQ	6	0
MOA01	0563	07/28/2005	Ammonia Total as N	9.2	QF	110	F	56	FQ	6	0
MOA01	0563	07/28/2005	Chloride	130	QF	2000	QF	230	FQ	5	0
MOA01	0563	07/28/2005	Chloride	120	QF	2000	QF	230	FQ	5	0
MOA01	0563	07/28/2005	Sulfate	370	QF	4700	QF	450	FQ	5	0
MOA01	0563	07/28/2005	Sulfate	360	QF	4700	QF	450	FQ	5	0
MOA01	0563	07/28/2005	Total Dissolved Solids	960	QF	5500	FQ	1100	FQ	5	0
MOA01	0563	07/28/2005	Total Dissolved Solids	950	QF	5500	FQ	1100	FQ	5	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05070214

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 09/26/05 09:19:43: AM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	CURRENT		HISTORICAL MAXIMUM		HISTORICAL MINIMUM		COUNT	
				RESULT	QUALIFIERS LAB DATA	RESULT	QUALIFIERS LAB DATA	RESULT	QUALIFIERS LAB DATA	N	N BELOW DETECT

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- 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.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

Anomalous Data Review Checksheet

Water Quality Data

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY	
				DATE	ID			LAB	DATA	QA			
Alkalinity, Total (As CaCO3	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	120				#	-	-
	mg/L	0403	WL	07/26/2005	0001	18.00 - 18.00	210	F			#	-	-
	mg/L	0407	WL	07/26/2005	0001	17.00 - 17.00	290	F			#	-	-
	mg/L	0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	618				#	-	-
	mg/L	0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	690				#	-	-
	mg/L	0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	688				#	-	-
	mg/L	0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	756				#	-	-
	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	762				#	-	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	684				#	-	-
	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	608				#	-	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	580				#	-	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	596				#	-	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	476				#	-	-
	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	464	F			#	-	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	584				#	-	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	260				#	-	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	698	F			#	-	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	290	F			#	-	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	508	F			#	-	-
	Ammonia Total as N	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	0.1	U			#	0.1
mg/L		0403	WL	07/26/2005	0001	18.00 - 18.00	39	F			#	1	-
mg/L		0407	WL	07/26/2005	0001	17.00 - 17.00	12	F			#	0.5	-
mg/L		0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	340				#	50	-
mg/L		0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	660				#	50	-
mg/L		0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	680				#	50	-
mg/L		0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	510				#	50	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Ammonia Total as N	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	470	#	50	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	360	#	50	-
	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	240	#	50	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	260	#	50	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	470	#	50	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	330	#	50	-
	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	560	F #	50	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	710	#	50	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	890	#	50	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	1700	F #	50	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	48	F #	1	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	1700	F #	50	-
	mg/L	0560	WL	07/26/2005	0002	30.00 - 40.00	1700	F #	50	-
	mg/L	0562	WL, PZ	07/28/2005	0001	1.53 - 1.53	9.1	QF #	0.5	-
	mg/L	0563	WL, PZ	07/28/2005	0001	3.95 - 3.95	9.2	QF #	0.5	-
	mg/L	0563	WL, PZ	07/28/2005	0002	3.95 - 3.95	36	QF #	1	-
	mg/L		SMI-PW02	WL	07/27/2005	0001	20.04 - 60.04	960	J #	50
Chloride	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	80	N #	2	-
	mg/L	0403	WL	07/26/2005	0001	18.00 - 18.00	390	F #	10	-
	mg/L	0407	WL	07/26/2005	0001	17.00 - 17.00	24	F #	4	-
	mg/L	0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	3000	#	40	-
	mg/L	0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	6100	#	200	-
	mg/L	0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	5500	#	200	-
	mg/L	0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	3400	#	40	-
	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	3500	#	40	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	3500	#	40	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY	
				DATE	ID			LAB	DATA	QA			
Chloride	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	2700				#	40	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	2700				#	40	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	3800				#	40	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	2300				#	40	-
	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	5000		F		#	100	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	13000				#	200	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	19000				#	400	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	20000		F		#	400	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	160		F		#	4	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	35000		F		#	1000	-
	mg/L	0560	WL	07/26/2005	0002	30.00 - 40.00	35000		F		#	1000	-
	mg/L	0562	WL, PZ	07/28/2005	0001	1.53 - 1.53	93		QF		#	2	-
	mg/L	0563	WL, PZ	07/28/2005	0001	3.95 - 3.95	120		QF		#	4	-
	mg/L	0563	WL, PZ	07/28/2005	0002	3.95 - 3.95	130		QF		#	4	-
	mg/L		SMI-PW02	WL	07/27/2005	0001	20.04 - 60.04	25000				#	400
Dissolved Oxygen	mg/L	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	6.03				#	-	-
	mg/L	0403	WL	07/26/2005	N001	18.00 - 18.00	2.44		F		#	-	-
	mg/L	0407	WL	07/26/2005	N001	17.00 - 17.00	2.74		F		#	-	-
	mg/L	0470	WL, EXT	07/27/2005	N001	10.30 - 19.70	0.90				#	-	-
	mg/L	0471	WL, EXT	07/27/2005	N001	10.30 - 19.70	1.01				#	-	-
	mg/L	0472	WL, EXT	07/27/2005	N001	10.30 - 19.70	2.98				#	-	-
	mg/L	0473	WL, EXT	07/27/2005	N001	10.30 - 19.70	5.62				#	-	-
	mg/L	0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	6.94				#	-	-
	mg/L	0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	12.93				#	-	-
	mg/L	0483	WL	07/26/2005	N001	18.00 - 18.00	2.45		F		#	-	-
	mg/L	0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	4.37				#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	SAMPLE: ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:		DETECTION LIMIT	UN-CERTAINTY	
								LAB	DATA QA			
Dissolved Oxygen	mg/L	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	4.22		#	-	-	
	mg/L	0557	WL	07/26/2005	N001	40.00 - 40.00	2.12	F	#	-	-	
	mg/L	0559	WL	07/26/2005	N001	19.00 - 19.00	2.86	F	#	-	-	
	mg/L	0560	WL	07/26/2005	N001	31.00 - 31.00	0.90	F	#	-	-	
	mg/L	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	2.31	QF	#	-	-	
	mg/L	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	2.27	QF	#	-	-	
	mg/L	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	2.58		#	-	-	
Oxidation Reduction Potent	mV	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	178		#	-	-	
	mV	0403	WL	07/26/2005	N001	18.00 - 18.00	7.9	F	#	-	-	
	mV	0407	WL	07/26/2005	N001	17.00 - 17.00	5.9	F	#	-	-	
	mV	0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	210		#	-	-	
	mV	0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	230		#	-	-	
	mV	0476	WL, EXT	07/27/2005	N001	10.30 - 19.70	207		#	-	-	
	mV	0477	WL, EXT	07/27/2005	N001	10.30 - 19.70	211		#	-	-	
	mV	0478	WL, EXT	07/27/2005	N001	9.60 - 23.90	221		#	-	-	
	mV	0479	WL, EXT	07/27/2005	N001	9.30 - 23.60	212		#	-	-	
	mV	0483	WL	07/26/2005	N001	18.00 - 18.00	7.4	F	#	-	-	
	mV	0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	56.0		#	-	-	
	mV	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	51.2		#	-	-	
	mV	0557	WL	07/26/2005	N001	40.00 - 40.00	6.7	F	#	-	-	
	mV	0559	WL	07/26/2005	N001	19.00 - 19.00	23	F	#	-	-	
	mV	0560	WL	07/26/2005	N001	31.00 - 31.00	7.1	F	#	-	-	
	mV	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	-374	QF	#	-	-	
	mV	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	-354	QF	#	-	-	
	mV	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	47.8		#	-	-	
	pH	s.u.	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	8.29		#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
pH	s.u.	0403	WL	07/26/2005	N001	18.00 - 18.00	8.50	F	#	-	-	
	s.u.	0407	WL	07/26/2005	N001	17.00 - 17.00	8.20	F	#	-	-	
	s.u.	0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	6.69		#	-	-	
	s.u.	0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	6.71		#	-	-	
	s.u.	0476	WL, EXT	07/27/2005	N001	10.30 - 19.70	6.71		#	-	-	
	s.u.	0477	WL, EXT	07/27/2005	N001	10.30 - 19.70	6.71		#	-	-	
	s.u.	0478	WL, EXT	07/27/2005	N001	9.60 - 23.90	6.73		#	-	-	
	s.u.	0479	WL, EXT	07/27/2005	N001	9.30 - 23.60	6.80		#	-	-	
	s.u.	0483	WL	07/26/2005	N001	18.00 - 18.00	8.40	F	#	-	-	
	s.u.	0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	7.38		#	-	-	
	s.u.	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	7.78		#	-	-	
	s.u.	0557	WL	07/26/2005	N001	40.00 - 40.00	7.70	F	#	-	-	
	s.u.	0559	WL	07/26/2005	N001	19.00 - 19.00	8.03	F	#	-	-	
	s.u.	0560	WL	07/26/2005	N001	31.00 - 31.00	7.69	F	#	-	-	
	s.u.	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	8.21	QF	#	-	-	
	s.u.	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	8.15	QF	#	-	-	
	s.u.	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	7.62		#	-	-	
	Specific Conductance	umhos/cm	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	1023		#	-	-
umhos/cm		0403	WL	07/26/2005	N001	18.00 - 18.00	5128	F	#	-	-	
umhos/cm		0407	WL	07/26/2005	N001	17.00 - 17.00	2354	F	#	-	-	
umhos/cm		0470	WL, EXT	07/27/2005	N001	10.30 - 19.70	16609		#	-	-	
umhos/cm		0471	WL, EXT	07/27/2005	N001	10.30 - 19.70	26180		#	-	-	
umhos/cm		0472	WL, EXT	07/27/2005	N001	10.30 - 19.70	23044		#	-	-	
umhos/cm		0473	WL, EXT	07/27/2005	N001	10.30 - 19.70	22318		#	-	-	
umhos/cm		0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	24631		#	-	-	
umhos/cm		0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	23162		#	-	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:		DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA QA		
Specific Conductance	umhos/cm	0476	WL, EXT	07/27/2005	N001	10.30 - 19.70	20353		#	-	-
	umhos/cm	0477	WL, EXT	07/27/2005	N001	10.30 - 19.70	20215		#	-	-
	umhos/cm	0478	WL, EXT	07/27/2005	N001	9.60 - 23.90	19473		#	-	-
	umhos/cm	0479	WL, EXT	07/27/2005	N001	9.30 - 23.60	16655		#	-	-
	umhos/cm	0483	WL	07/26/2005	N001	18.00 - 18.00	23085	F	#	-	-
	umhos/cm	0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	41442		#	-	-
	umhos/cm	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	56765		#	-	-
	umhos/cm	0557	WL	07/26/2005	N001	40.00 - 40.00	60250	F	#	-	-
	umhos/cm	0559	WL	07/26/2005	N001	19.00 - 19.00	2969	F	#	-	-
	umhos/cm	0560	WL	07/26/2005	N001	31.00 - 31.00	92837	F	#	-	-
	umhos/cm	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	1105	QF	#	-	-
	umhos/cm	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	4578	QF	#	-	-
	umhos/cm	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	67789		#	-	-
Sulfate	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	240		#	5	-
	mg/L	0403	WL	07/26/2005	0001	18.00 - 18.00	1400	F	#	25	-
	mg/L	0407	WL	07/26/2005	0001	17.00 - 17.00	960	F	#	10	-
	mg/L	0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	4900		#	100	-
	mg/L	0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	6900		#	100	-
	mg/L	0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	6900		#	100	-
	mg/L	0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	7500		#	100	-
	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	8700		#	100	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	8900		#	100	-
	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	8300		#	100	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	8400		#	100	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	7800		#	100	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	5800		#	100	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	4700	F #	100	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	7700	#	250	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	9000	#	250	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	10000	F #	250	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	750	F #	10	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	9500	F #	500	-
	mg/L	0560	WL	07/26/2005	0002	30.00 - 40.00	9400	F #	500	-
	mg/L	0562	WL, PZ	07/28/2005	0001	1.53 - 1.53	230	QF #	5	-
	mg/L	0563	WL, PZ	07/28/2005	0001	3.95 - 3.95	360	QF #	10	-
	mg/L	0563	WL, PZ	07/28/2005	0002	3.95 - 3.95	370	QF #	10	-
	mg/L	SMI-PW02	WL	07/27/2005	0001	20.04 - 60.04	8200	#	250	-
	Temperature	C	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	26.86	#	-
C		0403	WL	07/26/2005	N001	18.00 - 18.00	17.25	F #	-	-
C		0407	WL	07/26/2005	N001	17.00 - 17.00	17.35	F #	-	-
C		0470	WL, EXT	07/27/2005	N001	10.30 - 19.70	15.55	#	-	-
C		0471	WL, EXT	07/27/2005	N001	10.30 - 19.70	15.60	#	-	-
C		0472	WL, EXT	07/27/2005	N001	10.30 - 19.70	15.73	#	-	-
C		0473	WL, EXT	07/27/2005	N001	10.30 - 19.70	16.35	#	-	-
C		0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	16.66	#	-	-
C		0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	16.10	#	-	-
C		0476	WL, EXT	07/27/2005	N001	10.30 - 19.70	15.81	#	-	-
C		0477	WL, EXT	07/27/2005	N001	10.30 - 19.70	15.94	#	-	-
C		0478	WL, EXT	07/27/2005	N001	9.60 - 23.90	15.93	#	-	-
C		0479	WL, EXT	07/27/2005	N001	9.30 - 23.60	16.11	#	-	-
C		0483	WL	07/26/2005	N001	18.00 - 18.00	18.25	F #	-	-
C		0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	19.02	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Temperature	C	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	22.16			#	-	-
	C	0557	WL	07/26/2005	N001	40.00 - 40.00	19.75	F		#	-	-
	C	0559	WL	07/26/2005	N001	19.00 - 19.00	17.89	F		#	-	-
	C	0560	WL	07/26/2005	N001	31.00 - 31.00	20.31	F		#	-	-
	C	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	25.85	QF		#	-	-
	C	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	22.30	QF		#	-	-
	C	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	18.33			#	-	-
Total Dissolved Solids	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	600			#	20	-
	mg/L	0403	WL	07/26/2005	0001	18.00 - 18.00	3000	F		#	80	-
	mg/L	0407	WL	07/26/2005	0001	17.00 - 17.00	1800	F		#	40	-
	mg/L	0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	12000			#	400	-
	mg/L	0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	19000			#	400	-
	mg/L	0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	18000			#	400	-
	mg/L	0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	17000			#	400	-
	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	20000			#	400	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	19000			#	400	-
	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	18000			#	400	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	18000			#	400	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	18000			#	400	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	13000			#	400	-
	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	14000	F		#	400	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	30000			#	1000	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	42000			#	1000	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	37000	F		#	1000	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	1600	F		#	40	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	65000	F		#	2000	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Total Dissolved Solids	mg/L	0560	WL	07/26/2005	0002	30.00 - 40.00	65000	F	#	2000	-	
	mg/L	0562	WL, PZ	07/28/2005	0001	1.53 - 1.53	750	QF	#	40	-	
	mg/L	0563	WL, PZ	07/28/2005	0001	3.95 - 3.95	950	QF	#	40	-	
	mg/L	0563	WL, PZ	07/28/2005	0002	3.95 - 3.95	960	QF	#	80	-	
	mg/L	SMI-PW02	WL	07/27/2005	0001	20.04 - 60.04	50000		#	1000	-	
Turbidity	NTU	0216	SL, RIV	07/27/2005	N001	1.00 - 1.00	743		#	-	-	
	NTU	0403	WL	07/26/2005	N001	18.00 - 18.00	5.85	F	#	-	-	
	NTU	0407	WL	07/26/2005	N001	17.00 - 17.00	3.86	F	#	-	-	
	NTU	0470	WL, EXT	07/27/2005	N001	10.30 - 19.70	1.61		#	-	-	
	NTU	0471	WL, EXT	07/27/2005	N001	10.30 - 19.70	0.87		#	-	-	
	NTU	0472	WL, EXT	07/27/2005	N001	10.30 - 19.70	0.73		#	-	-	
	NTU	0473	WL, EXT	07/27/2005	N001	10.30 - 19.70	2.05		#	-	-	
	NTU	0474	WL, EXT	07/27/2005	N001	10.30 - 19.70	2.11		#	-	-	
	NTU	0475	WL, EXT	07/27/2005	N001	10.30 - 19.70	2.17		#	-	-	
	NTU	0476	WL, EXT	07/27/2005	N001	10.30 - 19.70	4.96		#	-	-	
	NTU	0477	WL, EXT	07/27/2005	N001	10.30 - 19.70	1.34		#	-	-	
	NTU	0478	WL, EXT	07/27/2005	N001	9.60 - 23.90	1.88		#	-	-	
	NTU	0479	WL, EXT	07/27/2005	N001	9.30 - 23.60	1.81		#	-	-	
	NTU	0483	WL	07/26/2005	N001	18.00 - 18.00	5.56	F	#	-	-	
	NTU	0547	TS, INFL	07/27/2005	N001	0.00 - 0.00	1.97		#	-	-	
	NTU	0548	TS, EPND	07/27/2005	N001	0.00 - 0.00	6.50		#	-	-	
	NTU	0557	WL	07/26/2005	N001	40.00 - 40.00	3.68	F	#	-	-	
	NTU	0559	WL	07/26/2005	N001	19.00 - 19.00	5.96	F	#	-	-	
	NTU	0560	WL	07/26/2005	N001	31.00 - 31.00	2.24	F	#	-	-	
	NTU	0562	WL, PZ	07/28/2005	N001	1.53 - 1.53	444	QF	#	-	-	
	NTU	0563	WL, PZ	07/28/2005	N001	3.95 - 3.95	1000	> QF	#	-	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY	
				DATE	ID			LAB	DATA	QA			
Turbidity	NTU	SMI-PW02	WL	07/27/2005	N001	20.04 - 60.04	2.63				#	-	-
Uranium	mg/L	0216	SL, RIV	07/27/2005	0001	1.00 - 1.00	0.0048				#	3.8E-06	-
	mg/L	0403	WL	07/26/2005	0001	18.00 - 18.00	0.360	F			#	0.00019	-
	mg/L	0407	WL	07/26/2005	0001	17.00 - 17.00	0.270	F			#	1.9E-05	-
	mg/L	0470	WL, EXT	07/27/2005	0001	10.30 - 19.70	1.600				#	0.00038	-
	mg/L	0471	WL, EXT	07/27/2005	0001	10.30 - 19.70	2.100				#	0.00038	-
	mg/L	0472	WL, EXT	07/27/2005	0001	10.30 - 19.70	2.100				#	0.00038	-
	mg/L	0473	WL, EXT	07/27/2005	0001	10.30 - 19.70	3.000				#	0.00075	-
	mg/L	0474	WL, EXT	07/27/2005	0001	10.30 - 19.70	3.700				#	0.00075	-
	mg/L	0475	WL, EXT	07/27/2005	0001	10.30 - 19.70	3.900				#	0.00075	-
	mg/L	0476	WL, EXT	07/27/2005	0001	10.30 - 19.70	3.700				#	0.00075	-
	mg/L	0477	WL, EXT	07/27/2005	0001	10.30 - 19.70	3.100				#	0.00075	-
	mg/L	0478	WL, EXT	07/27/2005	0001	9.60 - 23.90	2.700				#	0.00038	-
	mg/L	0479	WL, EXT	07/27/2005	0001	9.30 - 23.60	1.900				#	0.00038	-
	mg/L	0483	WL	07/26/2005	0001	18.00 - 18.00	1.200	F			#	0.00019	-
	mg/L	0547	TS, INFL	07/27/2005	0001	0.00 - 0.00	2.500				#	0.00038	-
	mg/L	0548	TS, EPND	07/27/2005	0001	0.00 - 0.00	2.800				#	0.00038	-
	mg/L	0557	WL	07/26/2005	0001	40.00 - 40.00	2.400	F			#	0.00038	-
	mg/L	0559	WL	07/26/2005	0001	19.00 - 19.00	0.250	F			#	0.00019	-
	mg/L	0560	WL	07/26/2005	0001	31.00 - 31.00	1.600	F			#	0.00019	-
	mg/L	0560	WL	07/26/2005	0002	30.00 - 40.00	1.600	F			#	0.00019	-
	mg/L	0562	WL, PZ	07/28/2005	0001	1.53 - 1.53	0.00049	QF			#	3.8E-06	-
	mg/L	0563	WL, PZ	07/28/2005	0001	3.95 - 3.95	0.043	QF			#	1.9E-05	-
	mg/L	0563	WL, PZ	07/28/2005	0002	3.95 - 3.95	0.024	QF			#	1.9E-05	-
	mg/L	SMI-PW02	WL	07/27/2005	0001	20.04 - 60.04	2.200				#	0.00038	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:25 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site_code='MOA01' AND location_code in('0470','0471','0472','0473','0474','0475','0476','0477','0478','0479','SMI-PW02','0403','0407','0483','0557','0559','0560','0562','0563','0216','0547','0548') 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 #7/26/2005# and #7/28/2005#

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

LOCATION TYPES: SL SURFACE LOCATION TS TREATMENT SYSTEM WL WELL

LOCATION SUBTYPES: EPND Evaporation Pond EXT Extraction Well INFL Treatment System Influent PZ Piezometer
 RIV River

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 compound (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.
- 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.

Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/26/2005 9:26 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0403	O	3968.95	07/26/2005	17:51	15.45	3953.50	
0407	O	3969.09	07/26/2005	18:19	15.96	3953.13	
0470		3968.49	07/27/2005	09:18	11.85	3956.64	
0471		3968.83	07/27/2005	09:31	12.37	3956.46	
0472		3968.81	07/27/2005	09:46	12.30	3956.51	
0473		3969.05	07/27/2005	09:56	13.07	3955.98	
0474		3969.22	07/27/2005	10:30	12.25	3956.97	
0475		3969.46	07/27/2005	10:40	13.15	3956.31	
0476		3969.48	07/27/2005	10:56	14.11	3955.37	
0477		3969.40	07/27/2005	11:10	12.77	3956.63	
0478		3969.49	07/27/2005	11:21	17.66	3951.83	
0479		3969.27	07/27/2005	11:30	11.92	3957.35	
0483		3968.90	07/26/2005	18:36	15.86	3953.04	
0557		3968.85	07/26/2005	18:55	14.97	3953.88	
0559		3969.92	07/26/2005	16:56	16.39	3953.53	
0560		3968.77	07/26/2005	17:19	15.12	3953.65	
0562		3956.29	07/27/2005	14:35	2.56	3953.73	
0563		3955.05	07/27/2005	14:40	1.35	3953.70	
SMI-PW02	O	3967.48	07/27/2005		14.19	3953.29	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MOA01' AND location_code in('0470','0471','0472','0473','0474','0475','0476','0477','0478','0479','SMI-PW02','0403','0407','0483','0557','0559','0560','0562','0563','0216','0547','0548') AND LOG_DATE between #7/26/2005# and #7/28/2005#

FLOW CODES: O ON-SITE

WATER LEVEL FLAGS:

Blanks

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05070214

REPORT DATE: 09/26/05 09:19:19: AM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	SAMPLE ID	UNITS	RESULT	QUALIFIERS LAB DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
Ammonia Total as N	MOA01	0999	07/27/2005	0002	mg/L	0.1	U	0.1		E
Chloride	MOA01	0999	07/27/2005	0002	mg/L	0.2	U	0.2		E
Sulfate	MOA01	0999	07/27/2005	0002	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	07/27/2005	0002	mg/L	20	U	20		E
Uranium	MOA01	0999	07/27/2005	0002	mg/L	0.000039	B U	0.000038		E

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05070214

REPORT DATE: 09/26/05 09:19:19: AM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	SAMPLE ID	UNITS	RESULT	QUALIFIERS LAB DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
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SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- 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.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

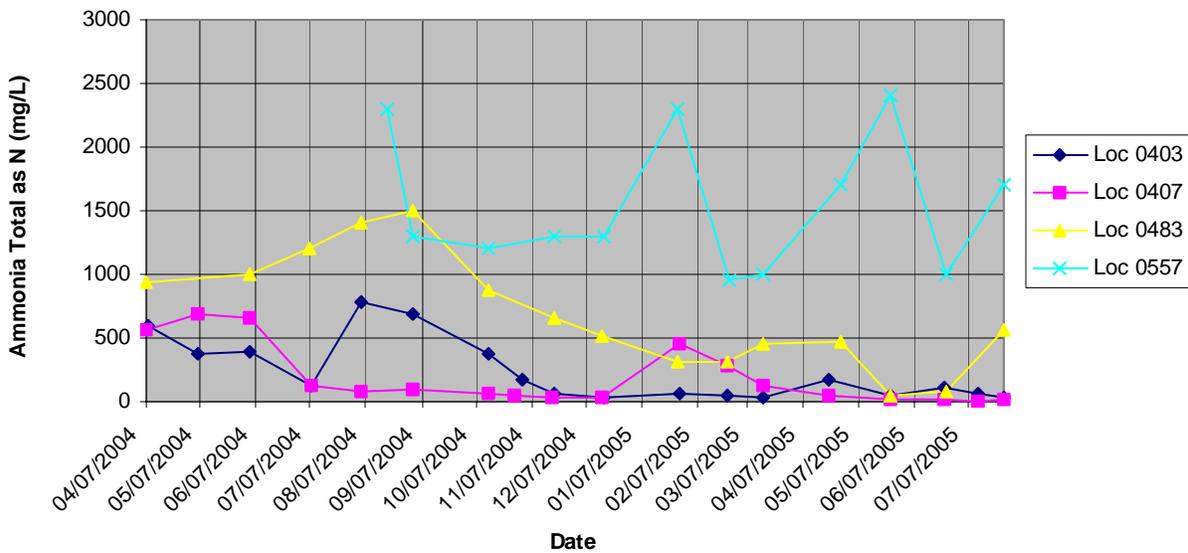
SAMPLE TYPES:

- E EQUIPMENT BLANK

Time Versus Concentration Graphs

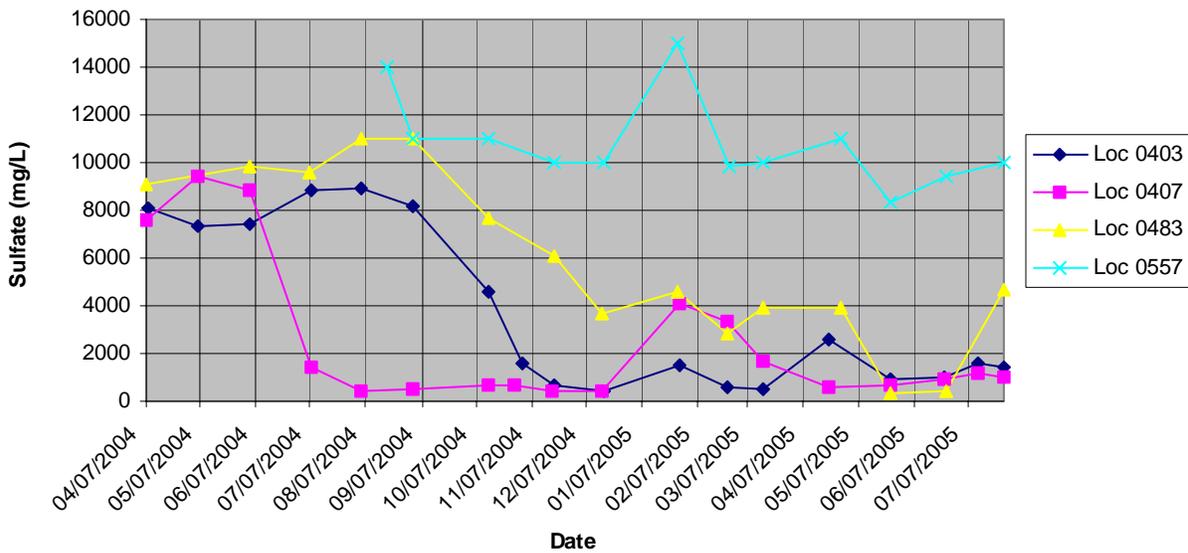
Moab Site (MOA01)

Ammonia Total as N Concentration



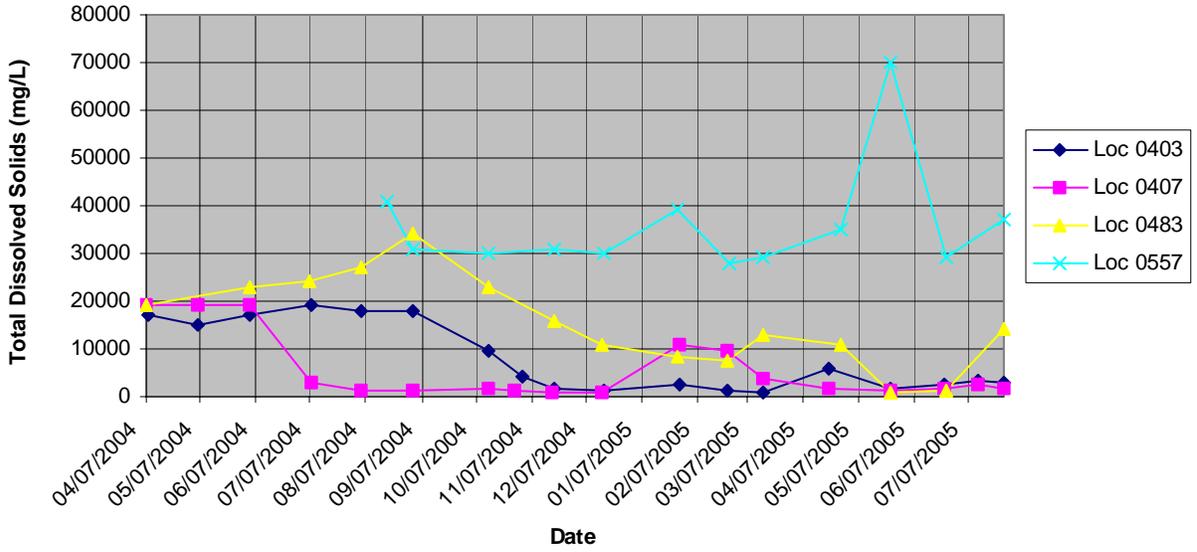
Moab Site (MOA01)

Sulfate Concentration



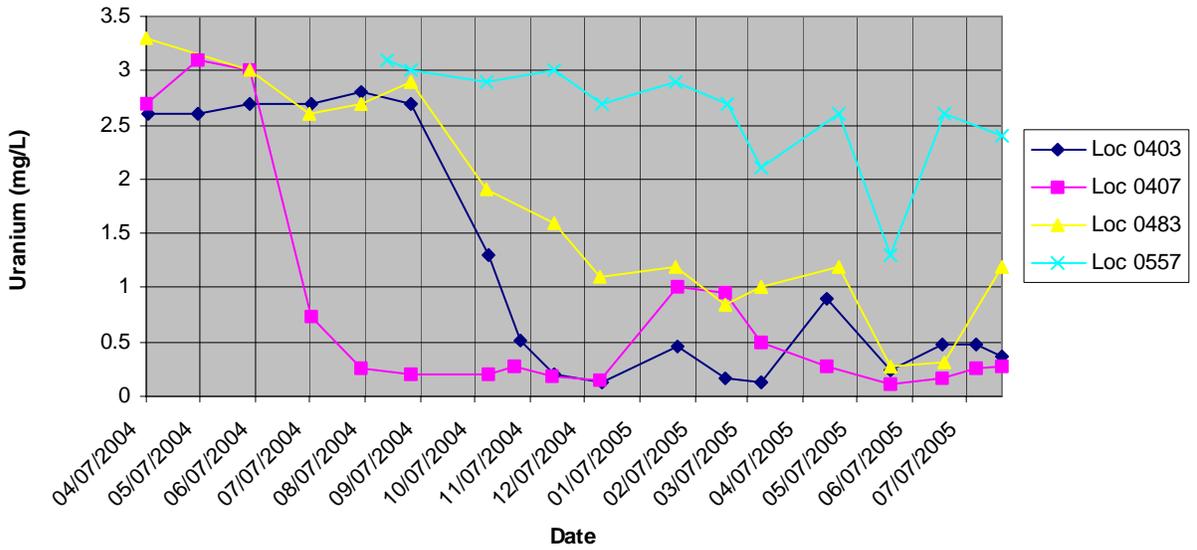
Moab Site (MOA01)

Total Dissolved Solids Concentration



Moab Site (MOA01)

Uranium Concentration



Attachment 2

Trip Report

DATE: August 23, 2005

TO: Ken Karp

FROM: K. G. Pill

SUBJECT: Trip Report

Site: Moab – Interim Action Configuration 1 Extraction Well Field Monthly Sampling – July 2005

Date of Sampling Event: July 26 through 28, 2005.

Team Members: Ken Pill and Steve Hall.

Number of Locations Sampled: 11 extraction wells (0470 through 0479 and SMI-PW02), 6 observation wells (0403, 0407, 0483, 0557, 0559, and 0560), 2 piezometers (0562 and 0563), 1 surface water location (0216), and 2 treatment system locations (0547 and 0548). Including two duplicates and one equipment blank, a total of **25** samples were collected.

Locations Not Sampled/Reason: With the high stage of the Colorado River, it was not possible to safely reach piezometers 0564 and 0565. In addition, location 0565 appeared to be underwater. As a result, they were not sampled.

Field Variance: Only a 125 ml sample was collected for uranium analysis as opposed to the standard 500 ml sample volume. Limited sample volume was available for analysis from locations 0562, 0563, and 2983. These samples were split and preserved as directed by the laboratory for proper analysis.

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
2979	0560	Duplicate	Ground Water	NDV-528
2980	NA	Equipment Blank – GW Equip	DI Water	NDV-536
2983	0563	Duplicate	Ground Water	NDV-510

RIN Number Assigned: All samples were assigned to RIN **05070214**.

Sample Shipment: All samples were shipped in 1 cooler overnight FEDEX to Paragon Analytics, Inc. from Moab, Utah, on July 28, 2005 (Airbill No. 8473 2967 6557).

Location Specific Information – Extraction Wells: Extraction wells were sampled using dedicated submersible pumps. Water levels and pumping rates (gpm) for each extraction well prior to sampling are provided in the table below. With the construction of the new vaults, the measuring point for wells has been changed. All water levels listed in the table were measured from the new top of case (toc) measuring points, which have not been surveyed in at this point.

Well No.	Date	Time	Water Level (ft btoc) ^a	Pumping Rate (gpm)
0470	7/27/05	9:18	11.85	3.69
0471	7/27/05	9:31	12.37	2.88
0472	7/27/05	9:46	12.30	2.36
0473	7/27/05	9:56	13.07	3.63
0474	7/27/05	10:30	12.25	1.09
0475	7/27/05	10:40	13.15	2.47
0476	7/27/05	10:56	14.11	2.39
0477	7/27/05	11:10	12.77	1.85
0478	7/27/05	11:21	17.66	4.08
0479	7/27/05	11:30	11.92	1.59
SMI-PW02	7/27/05	07:43	14.19	18.71

Notes: a = All water levels measured from new toc measuring point

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated downhole tubing. Sample depths and water levels for each observation well are listed below.

Well No.	Date	Time	Depth to Water (ft btoc)	Sample Depth (ft bgs)
0403	7/26/05	17:51	15.45	18
0407	7/26/05	18:19	15.96	17
0483	7/26/05	18:36	15.86	18
0557	7/26/05	18:55	14.97	40
0559	7/26/05	16:56	16.39	19
0560	7/26/05	17:19	15.12	31

Location Specific Information – Piezometer Sampling: This sampling event represents the first time the piezometers were sampled since March 2005, and the first time since the 2005 Colorado spring runoff peak flows. While it was possible to sample piezometers 0562 and 0563, the river flow was still too high to safely reach piezometers 0564 and 0565. Piezometer 0565 appeared to be under water. Prior to sampling 0562 and 0563, it was necessary to develop the piezometers, which contained a significant amount of sediment. The table below presents the water levels, new stick up height, and depth to the river surface 24 hrs after the development was completed.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0562	7/27/05	14:35	2.56	3.4	1.86
0563	7/27/05	14:40	1.35	0.3	Dry at base

Approximately 170 and 150 mls were submitted for analysis for locations 0562 and 0563, respectively.

Location Specific Information – Surface Water Sampling: The surface water sample for location 0216 was collected adjacent to piezometers 0562 and 0563 (photo attached). The sample was collected approximately 3 ft off the bank, from a depth of approximately 1 ft below the water surface.

Location Specific Information – Treatment System Sampling: Locations 0547 and 0548 were sampled when the evaporation pond level was ~7.3 ft. The sample for location 0548 was collected from the original sampling port (and not from the flowing discharge line originating from the blue pump house adjacent to the evaporation pond).

Well Inspection Summary: A well inspection was not conducted.

Equipment: The conductivity probe for the YSI failed a calibration check and was replaced during this event on July 27, 2005 at 09:00. The pH probe was replaced at 10:30 on July 27, 2005, just prior to sampling location 0474.

Site Issues: According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River Flows during the time period of this sampling event were:

Date	Daily Mean Flow (cfs)
07/25/2005	4,950
07/26/2005	5,960
07/27/2005	6,640
07/28/2005	6,250
07/29/2005	5,310

Corrective Action Required/Taken: None.

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)
D. R. Metzler, DOE-EM
C. I. Bahrke, Stoller (e)
L. E. Cummins, Stoller (e)
S. E. Donovan, Stoller (e)
L. M. Edwards, Stoller (e)
S. D. Lyon, Stoller (e)
K. E. Miller, Stoller
K. G. Pill, Stoller (e)
J. E. Price, Stoller (e)



Surface Location 0216, Piezometers 0562 and 0563



Piezometers 0564 and 0565 (under water)