

**Validation Data Package
For
Interim Action Configuration 1
Moab, Utah**

**August 2004
Water Sampling**

MOAB, UTAH

August 3-4, 2004

DATA PACKAGE CONTENTS

This data package includes the following information:

<u>Item No.</u>	<u>Description of Contents</u>
1.	Site Hydrologist Summary
2.	Data Assessment Summary , which describes problems identified in the data validation process and summarizes the validator's findings.
3.	Sampling Location Map
4.	Field Activities Verification Checklist , which verifies that field activities were done according to the work plan.
5.	Database Printouts a. Water Quality Data b. Water Level Data
6.	Sampling Trip Report

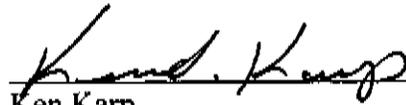
Site Hydrologist Summary

Site: Moab, Utah

Sampling Period: August 3-4, 2004

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. This is the fourth performance sampling round conducted in 2004 for Configuration 1. 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 all extraction wells, observation wells, and monitor wells in Configuration 1 as shown in the attached figure. Surface water samples were collected from the evaporation pond inlet and outlet. The river location (216) immediately down gradient of the well field was dry at the time of this event due to low river flow and therefore was not sampled.

Analysis and interpretation of the validated data presented in this package will be reported as part of a performance evaluation report scheduled in 2005.



Ken Karp
Site Lead

10-11-04
Date

DATA ASSESSMENT SUMMARY

**MOAB, UTAH
AUGUST 3-4, 2004 SAMPLING EVENT
DATA ASSESSMENT SUMMARY**

Paragon Analytics analyzed samples and reported results for this sampling event under requisition number 04070091 and work order number 0408068. Samples were analyzed for metals and inorganics (see Table 1).

Table 1. Analytes and Methods

ANALYTE	LINE ITEM CODE	PREP METHOD	ANALYTICAL METHOD
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020
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 sample results for chloride, sulfate, ammonia, and total dissolved solids were qualified as "J" for all samples because of sample preservation anomalies described in the discussion below.

Table 2. Data Qualifiers

SAMPLE NUMBER	LOCATION	ANALYTE	FLAG	REASON
ALL	ALL	Cl, SO ₄ , NH ₃ -N, TDS	J	Preservation
0408068-22	2384	U	U	Blank greater than the MDL

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 22 samples on August 6, 2004, accompanied by a chain of custody (COC) form. The COC form was checked to confirm that all of the samples are listed and that signatures and dates are present indicating sample relinquishment and receipt. The sample submittal documents including the COC, the sample submittal form, and the samples tickets had no errors or omissions.

Holding Times and Preservation

The sample shipment was received intact with a cooler temperature of 6.0° C; which is above the required preservation temperature of 4.0° C. Some of the bottles submitted for uranium analysis were received with a pH greater than 2, as shown in the table below.

Location	Uranium bottle pH
0470	3.0
0471	3.0
0472	3.0
0473	5.0
0474	3.0
0475	3.0
0476	7.0
0477	4.0
0478	6.0
0479	3.0
0480	6.0
0481	3.0
0483	3.0
0484	3.0
0485	2.2
0547	4.0
0548	2.2

The laboratory adjusted the pH of these aliquots to 1.9 with nitric acid on August 6, 2004. Sufficient time elapsed between the pH adjustment and the sample analysis to allow equilibration.

Some of the bottles submitted for ammonia analysis were received with a pH greater than 2 as shown in the table below. The laboratory adjusted the pH of these aliquots to less than 2 with sulfuric acid on August 9, 2004. Sufficient time elapsed between the pH adjustment and the sample analysis to allow equilibration. All samples were analyzed within the applicable holding times.

Location	Ammonia bottle pH
0403	7.0
0407	7.0
0470	2.2
0471	2.2
0472	2.2
0473	2.2
0474	2.2
0475	2.2
0476	2.2
0477	2.2
0478	2.2
0479	2.2
0480	2.2
0481	2.2
0483	2.2
0484	2.2
0547	2.2
2383	7.0

Laboratory Instrument Calibration

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

Initial calibrations for method SW-846 6020 were performed on August 17, 2004, using four calibration standards resulting in correlation coefficient (r^2) values greater than 0.995. The absolute value of the intercept was less than three times the method detection limit (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 nine CCVs. All calibration checks met the acceptance criteria.

A reporting limit verification check (CRI) was made at the required frequency to verify the linearity of the calibration curve near the practical quantization limit. The CRI result was within the acceptance criteria. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

Calibrations for method SW-845 9056 were performed for chloride and sulfate using five calibration standards on August 12, 2004. The r^2 values were greater than 0.995; intercept values were less than three 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 nine CCVs. All checks met the acceptance criteria.

The initial calibration for ammonia as N was performed using six calibration standards on August 17, 2004, resulting in an r^2 value greater than 0.995. Initial and continuing calibration checks were made at the required frequency resulting in five CCVs; all initial and continuing calibration verifications were within the acceptance criteria.

Method and Calibration Blanks

The method blanks and initial and continuing calibration blanks for method SW-846 6020 were below the practical quantization limits. Sample 2384 had a uranium result that is less than five times the concentration of the associated continuing calibration blank and is qualified as "U". The method blanks and initial and continuing calibration blanks for all inorganic analytes were below the MDL.

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

ICP interference check samples ICSA and ICSAB were analyzed at the required frequency and results met the acceptance criteria.

Matrix Spike Analysis

A matrix spike and matrix spike duplicate (MS/MSD) pair was analyzed for uranium with acceptable results. A MS/MSD pair was analyzed for sulfate and ammonia as N with acceptable results. The MS/MSD pair for sample 0403 chloride analysis could not be evaluated because the concentration of the unspiked sample was greater than four times the spike concentration.

Laboratory Replicate Analysis

The relative percent difference (RPD) value for the matrix spike duplicate sample for uranium was less than 20 percent. The RPD values for the matrix spike duplicate and laboratory duplicate sample for chloride, sulfate, ammonia as N, and TDS were less than 20 percent.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency with acceptable results for all analysis categories.

Metals Serial Dilution

Serial dilutions were performed during the uranium analysis with acceptable results.

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 whenever possible.

Completeness

Results were reported, in correct units, for all analytes requested. Appropriate contract-required laboratory qualifiers were used. Appropriate target analyte lists (TALs) were used, and the required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. The manual integrations that were performed were acceptable and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

An EDD file arrived on September 9, 2004; the EDD validation application identified no problems with the EDD file.

Field Activities

All monitoring 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 Project environmental samples. Concentrations measured in the equipment blank were below their respective contract required detection limit; therefore, equipment blank results are considered acceptable. One duplicate sample was collected from well 0403. There are 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. Duplicate results met the laboratory duplicate criteria of +/- 20 relative percent difference and are considered acceptable.

Summary

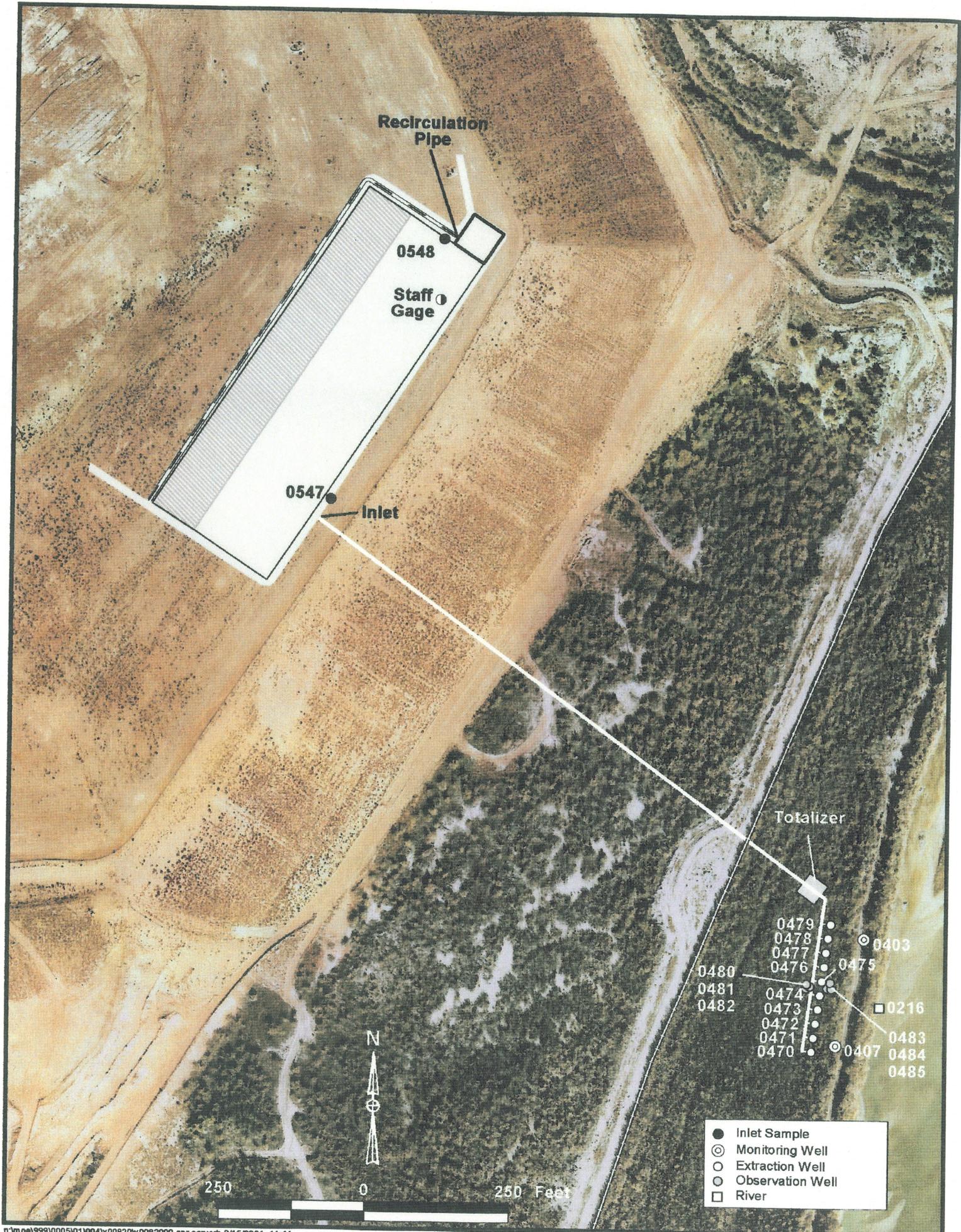
Results were reported in correct units for all analytes requested. Appropriate contract-required laboratory qualifiers and target analyte lists were used. The required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative. All analytical 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 USEPA 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 Donivan 10-5-04
Steve Donivan Date

Field Activities Validation Lead: Steve Donivan Per JP 10-5-04
Jeff Price Date

**SAMPLING LOCATION
MAP**



FIELD VERIFICATION CHECKLIST

Water Sampling Field Activities Verification Checklist

Project Moab, Utah Date(s) of Water Sampling August 3-4, 2004
 Date(s) of Verification 09/21/04 Name of Verifier Jeff Price

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, SOP's, instructions.	Yes	
	NA	
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	
4. Was an operational check of the field equipment conducted twice daily? Did the operational checks meet criteria?	Yes	
	Yes	
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: Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4 hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

8. Were the following conditions met when purging a Category II well:

Was the flow rate less than 500 mL/min?

NA

Was one pump/tubing volume removed prior to sampling?

NA

9. Were duplicates taken at a frequency of one per 20 samples?

Yes

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

WATER QUALITY DATA

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3)	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	905	F #	-	-
	mg/L	0407	WL	08/04/2004	0001	17.00 - 17.00	223	F #	-	-
	mg/L	0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	769	#	-	-
	mg/L	0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	760	#	-	-
	mg/L	0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	765	#	-	-
	mg/L	0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	801	#	-	-
	mg/L	0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	824	#	-	-
	mg/L	0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	888	#	-	-
	mg/L	0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	950	#	-	-
	mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	900	#	-	-
	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	910	#	-	-
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	871	#	-	-
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	786	F #	-	-
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	775	F #	-	-
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	260	F #	-	-
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	799	F #	-	-
	mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	794	F #	-	-
	mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	248	F #	-	-
	mg/L	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	790	#	-	-
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	330	#	-	-
Ammonia Total as N	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	780	JF #	50	-
	mg/L	0403	WL	08/04/2004	0002	17.00 - 17.00	740	JF #	50	-
	mg/L	0407	WL	08/04/2004	0001	17.00 - 17.00	81	JF #	2	-
	mg/L	0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	990	J #	50	-
	mg/L	0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	1100	J #	50	-
	mg/L	0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	990	J #	50	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 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	0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	920	J #	50	-	
	mg/L	0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	960	J #	50	-	
	mg/L	0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	890	J #	50	-	
	mg/L	0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	860	J #	50	-	
	mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	810	J #	50	-	
	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	920	J #	50	-	
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	840	J #	50	-	
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	1100	JF #	50	-	
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	1100	JF #	50	-	
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	570	JF #	50	-	
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	1400	JF #	50	-	
	mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	1300	JF #	50	-	
	mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	470	JF #	50	-	
	mg/L	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	950	J #	50	-	
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	1300	J #	50	-	
	Chloride	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	3900	JF #	40	-
		mg/L	0403	WL	08/04/2004	0002	17.00 - 17.00	3900	JF #	40	-
		mg/L	0407	WL	08/04/2004	0001	17.00 - 17.00	290	JF #	4	-
mg/L		0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	7300	J #	100	-	
mg/L		0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	8800	J #	100	-	
mg/L		0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	7400	J #	100	-	
mg/L		0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	5500	J #	100	-	
mg/L		0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	6000	J #	100	-	
mg/L		0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	4700	J #	100	-	
mg/L		0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	4500	J #	100	-	
mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	3800	J #	40	-		

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	5700	J #	100	-
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	4900	J #	100	-
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	8700	JF #	100	-
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	9100	JF #	100	-
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	48000	JF #	1000	-
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	11000	JF #	200	-
	mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	10000	JF #	200	-
	mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	50000	JF #	1000	-
	mg/L	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	6400	J #	100	-
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	11000	J #	200	-
Oxidation Reduction Potent	mV	0403	WL	08/04/2004	N001	17.00 - 17.00	115.5	F #	-	-
	mV	0407	WL	08/04/2004	N001	17.00 - 17.00	68.6	F #	-	-
	mV	0470	WL, EXT	08/03/2004	N001	10.30 - 19.70	-8.0	#	-	-
	mV	0471	WL, EXT	08/03/2004	N001	10.30 - 19.70	-15.1	#	-	-
	mV	0472	WL, EXT	08/03/2004	N001	10.30 - 19.70	-14.6	#	-	-
	mV	0473	WL, EXT	08/03/2004	N001	10.30 - 19.70	-15.1	#	-	-
	mV	0474	WL, EXT	08/03/2004	N001	10.30 - 19.70	-14.7	#	-	-
	mV	0475	WL, EXT	08/03/2004	N001	10.30 - 19.70	-12.5	#	-	-
	mV	0476	WL, EXT	08/03/2004	N001	10.30 - 19.70	-10.4	#	-	-
	mV	0477	WL, EXT	08/04/2004	N001	10.30 - 19.70	-15.0	#	-	-
	mV	0478	WL, EXT	08/03/2004	N001	9.60 - 23.90	-10.6	#	-	-
	mV	0479	WL, EXT	08/03/2004	N001	9.30 - 23.60	-10.8	#	-	-
	mV	0480	WL	08/04/2004	N001	18.00 - 18.00	-15.3	F #	-	-
	mV	0481	WL	08/04/2004	N001	28.00 - 28.00	161.6	F #	-	-
	mV	0482	WL	08/04/2004	N001	58.00 - 58.00	180.0	F #	-	-
	mV	0483	WL	08/04/2004	N001	18.00 - 18.00	132.8	F #	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	SAMPLE: ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0484	WL	08/04/2004	N001	28.00 - 28.00	155.3	F #	-	-
	mV	0485	WL	08/04/2004	N001	58.00 - 58.00	38.5	F #	-	-
	mV	0547	TS, INFL	08/04/2004	N001	0.00 - 0.00	-15.1	#	-	-
	mV	0548	TS, EPND	08/04/2004	N001	0.00 - 0.00	-53.3	#	-	-
pH	s.u.	0403	WL	08/04/2004	N001	17.00 - 17.00	7.00	F #	-	-
	s.u.	0407	WL	08/04/2004	N001	17.00 - 17.00	8.16	F #	-	-
	s.u.	0470	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.6	#	-	-
	s.u.	0471	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.73	#	-	-
	s.u.	0472	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.73	#	-	-
	s.u.	0473	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.74	#	-	-
	s.u.	0474	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.73	#	-	-
	s.u.	0475	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.69	#	-	-
	s.u.	0476	WL, EXT	08/03/2004	N001	10.30 - 19.70	6.65	#	-	-
	s.u.	0477	WL, EXT	08/04/2004	N001	10.30 - 19.70	6.74	#	-	-
	s.u.	0478	WL, EXT	08/03/2004	N001	9.60 - 23.90	6.66	#	-	-
	s.u.	0479	WL, EXT	08/03/2004	N001	9.30 - 23.60	6.66	#	-	-
	s.u.	0480	WL	08/04/2004	N001	18.00 - 18.00	6.74	F #	-	-
	s.u.	0481	WL	08/04/2004	N001	28.00 - 28.00	6.76	F #	-	-
	s.u.	0482	WL	08/04/2004	N001	58.00 - 58.00	6.73	F #	-	-
	s.u.	0483	WL	08/04/2004	N001	18.00 - 18.00	6.88	F #	-	-
	s.u.	0484	WL	08/04/2004	N001	28.00 - 28.00	6.95	F #	-	-
	s.u.	0485	WL	08/04/2004	N001	58.00 - 58.00	6.97	F #	-	-
	s.u.	0547	TS, INFL	08/04/2004	N001	0.00 - 0.00	6.73	#	-	-
	s.u.	0548	TS, EPND	08/04/2004	N001	0.00 - 0.00	7.40	#	-	-
Specific Conductance	umhos/cm	0403	WL	08/04/2004	N001	17.00 - 17.00	25921	F #	-	-
	umhos/cm	0407	WL	08/04/2004	N001	17.00 - 17.00	2528	F #	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY	
Specific Conductance	umhos/cm	0470	WL, EXT	08/03/2004	N001	10.30 - 19.70	29820		#	-	
	umhos/cm	0471	WL, EXT	08/03/2004	N001	10.30 - 19.70	39105		#	-	
	umhos/cm	0472	WL, EXT	08/03/2004	N001	10.30 - 19.70	34835		#	-	
	umhos/cm	0473	WL, EXT	08/03/2004	N001	10.30 - 19.70	29351		#	-	
	umhos/cm	0474	WL, EXT	08/03/2004	N001	10.30 - 19.70	32424		#	-	
	umhos/cm	0475	WL, EXT	08/03/2004	N001	10.30 - 19.70	25970		#	-	
	umhos/cm	0476	WL, EXT	08/03/2004	N001	10.30 - 19.70	25105		#	-	
	umhos/cm	0477	WL, EXT	08/04/2004	N001	10.30 - 19.70	27690		#	-	
	umhos/cm	0478	WL, EXT	08/03/2004	N001	9.60 - 23.90	30042		#	-	
	umhos/cm	0479	WL, EXT	08/03/2004	N001	9.30 - 23.60	24430		#	-	
	umhos/cm	0480	WL	08/04/2004	N001	18.00 - 18.00	38670	F	#	-	
	umhos/cm	0481	WL	08/04/2004	N001	28.00 - 28.00	39490	F	#	-	
	umhos/cm	0482	WL	08/04/2004	N001	58.00 - 58.00	115760	F	#	-	
	umhos/cm	0483	WL	08/04/2004	N001	18.00 - 18.00	44178	F	#	-	
	umhos/cm	0484	WL	08/04/2004	N001	28.00 - 28.00	44846	F	#	-	
	umhos/cm	0485	WL	08/04/2004	N001	58.00 - 58.00	116261	F	#	-	
	umhos/cm	0547	TS, INFL	08/04/2004	N001	0.00 - 0.00	31356		#	-	
	umhos/cm	0548	TS, EPND	08/04/2004	N001	0.00 - 0.00	49265		#	-	
	Sulfate	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	8900	JF	#	100
		mg/L	0403	WL	08/04/2004	0002	17.00 - 17.00	8800	JF	#	100
mg/L		0407	WL	08/04/2004	0001	17.00 - 17.00	440	JF	#	10	
mg/L		0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	8800	J	#	250	
mg/L		0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	9100	J	#	250	
mg/L		0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	8800	J	#	250	
mg/L		0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	8700	J	#	250	
mg/L		0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	9100	J	#	250	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	SAMPLE: ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	9300	J #	250	-
	mg/L	0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	9600	J #	250	-
	mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	9000	J #	100	-
	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	9000	J #	250	-
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	8400	J #	250	-
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	10000	JF #	250	-
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	10000	JF #	250	-
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	6200	JF #	500	-
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	11000	JF #	250	-
	mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	11000	JF #	250	-
	mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	6400	JF #	500	-
	mg/L	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	9100	J #	250	-
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	17000	J #	250	-
	Temperature	C	0403	WL	08/04/2004	N001	17.00 - 17.00	18.90	F #	-
C		0407	WL	08/04/2004	N001	17.00 - 17.00	18.20	F #	-	-
C		0470	WL, EXT	08/03/2004	N001	10.30 - 19.70	17.10	#	-	-
C		0471	WL, EXT	08/03/2004	N001	10.30 - 19.70	17.50	#	-	-
C		0472	WL, EXT	08/03/2004	N001	10.30 - 19.70	17.30	#	-	-
C		0473	WL, EXT	08/03/2004	N001	10.30 - 19.70	18.30	#	-	-
C		0474	WL, EXT	08/03/2004	N001	10.30 - 19.70	17.40	#	-	-
C		0475	WL, EXT	08/03/2004	N001	10.30 - 19.70	18.10	#	-	-
C		0476	WL, EXT	08/03/2004	N001	10.30 - 19.70	18.00	#	-	-
C		0477	WL, EXT	08/04/2004	N001	10.30 - 19.70	22.10	#	-	-
C		0478	WL, EXT	08/03/2004	N001	9.60 - 23.90	18.20	#	-	-
C		0479	WL, EXT	08/03/2004	N001	9.30 - 23.60	17.50	#	-	-
C		0480	WL	08/04/2004	N001	18.00 - 18.00	17.80	F #	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0481	WL	08/04/2004	N001	28.00 - 28.00	18.10	F #	-	-
	C	0482	WL	08/04/2004	N001	58.00 - 58.00	18.40	F #	-	-
	C	0483	WL	08/04/2004	N001	18.00 - 18.00	18.80	F #	-	-
	C	0484	WL	08/04/2004	N001	28.00 - 28.00	19.20	F #	-	-
	C	0485	WL	08/04/2004	N001	58.00 - 58.00	19.90	F #	-	-
	C	0547	TS, INFL	08/04/2004	N001	0.00 - 0.00	18.90	#	-	-
	C	0548	TS, EPND	08/04/2004	N001	0.00 - 0.00	23.40	#	-	-
Total Dissolved Solids	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	18000	JF #	400	-
	mg/L	0403	WL	08/04/2004	0002	17.00 - 17.00	18000	JF #	400	-
	mg/L	0407	WL	08/04/2004	0001	17.00 - 17.00	1100	JF #	40	-
	mg/L	0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	21000	J #	1000	-
	mg/L	0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	26000	J #	1000	-
	mg/L	0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	22000	J #	1000	-
	mg/L	0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	20000	J #	400	-
	mg/L	0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	21000	J #	400	-
	mg/L	0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	20000	J #	400	-
	mg/L	0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	20000	J #	400	-
	mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	18000	J #	400	-
	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	20000	J #	400	-
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	18000	J #	400	-
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	25000	JF #	1000	-
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	26000	JF #	1000	-
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	81000	JF #	2000	-
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	27000	JF #	1000	-
mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	28000	JF #	1000	-	
mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	81000	JF #	2000	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 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	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	20000	J	#	1000	-	
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	37000	J	#	1000	-	
Turbidity	NTU	0403	WL	08/04/2004	N001	17.00 - 17.00	8.15	F	#	-	-	
	NTU	0407	WL	08/04/2004	N001	17.00 - 17.00	5.30	F	#	-	-	
	NTU	0470	WL, EXT	08/03/2004	N001	10.30 - 19.70	1.48		#	-	-	
	NTU	0471	WL, EXT	08/03/2004	N001	10.30 - 19.70	5.95		#	-	-	
	NTU	0472	WL, EXT	08/03/2004	N001	10.30 - 19.70	2.92		#	-	-	
	NTU	0473	WL, EXT	08/03/2004	N001	10.30 - 19.70	2.55		#	-	-	
	NTU	0474	WL, EXT	08/03/2004	N001	10.30 - 19.70	0.85		#	-	-	
	NTU	0475	WL, EXT	08/03/2004	N001	10.30 - 19.70	2.01		#	-	-	
	NTU	0476	WL, EXT	08/03/2004	N001	10.30 - 19.70	1.12		#	-	-	
	NTU	0477	WL, EXT	08/04/2004	N001	10.30 - 19.70	1.16		#	-	-	
	NTU	0478	WL, EXT	08/03/2004	N001	9.60 - 23.90	1.78		#	-	-	
	NTU	0479	WL, EXT	08/03/2004	N001	9.30 - 23.60	5.16		#	-	-	
	NTU	0480	WL	08/04/2004	N001	18.00 - 18.00	1.79	F	#	-	-	
	NTU	0481	WL	08/04/2004	N001	28.00 - 28.00	2.80	F	#	-	-	
	NTU	0482	WL	08/04/2004	N001	58.00 - 58.00	5.27	F	#	-	-	
	NTU	0483	WL	08/04/2004	N001	18.00 - 18.00	2.22	F	#	-	-	
	NTU	0484	WL	08/04/2004	N001	28.00 - 28.00	7.15	F	#	-	-	
	NTU	0485	WL	08/04/2004	N001	58.00 - 58.00	3.55	F	#	-	-	
	NTU	0547	TS, INFL	08/04/2004	N001	0.00 - 0.00	0.97		#	-	-	
	NTU	0548	TS, EPND	08/04/2004	N001	0.00 - 0.00	8.64		#	-	-	
Uranium	mg/L	0403	WL	08/04/2004	0001	17.00 - 17.00	2.800	F	#	0.0012	-	
	mg/L	0403	WL	08/04/2004	0002	17.00 - 17.00	2.800	F	#	0.0012	-	
	mg/L	0407	WL	08/04/2004	0001	17.00 - 17.00	0.260	F	#	0.00012	-	
	mg/L	0470	WL, EXT	08/03/2004	0001	10.30 - 19.70	2.700		#	0.0012	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0471	WL, EXT	08/03/2004	0001	10.30 - 19.70	2.500	#	0.0012	-
	mg/L	0472	WL, EXT	08/03/2004	0001	10.30 - 19.70	2.800	#	0.0012	-
	mg/L	0473	WL, EXT	08/03/2004	0001	10.30 - 19.70	3.000	#	0.0012	-
	mg/L	0474	WL, EXT	08/03/2004	0001	10.30 - 19.70	3.100	#	0.0012	-
	mg/L	0475	WL, EXT	08/03/2004	0001	10.30 - 19.70	3.100	#	0.0012	-
	mg/L	0476	WL, EXT	08/03/2004	0001	10.30 - 19.70	3.200	#	0.0012	-
	mg/L	0477	WL, EXT	08/04/2004	0001	10.30 - 19.70	3.000	#	0.0012	-
	mg/L	0478	WL, EXT	08/03/2004	0001	9.60 - 23.90	2.800	#	0.0012	-
	mg/L	0479	WL, EXT	08/03/2004	0001	9.30 - 23.60	2.600	#	0.0012	-
	mg/L	0480	WL	08/04/2004	0001	18.00 - 18.00	3.000	F #	0.0012	-
	mg/L	0481	WL	08/04/2004	0001	28.00 - 28.00	3.000	F #	0.0012	-
	mg/L	0482	WL	08/04/2004	0001	58.00 - 58.00	0.700	F #	0.00012	-
	mg/L	0483	WL	08/04/2004	0001	18.00 - 18.00	2.700	F #	0.0012	-
	mg/L	0484	WL	08/04/2004	0001	28.00 - 28.00	3.000	F #	0.0012	-
	mg/L	0485	WL	08/04/2004	0001	58.00 - 58.00	0.630	F #	0.00012	-
	mg/L	0547	TS, INFL	08/04/2004	0001	0.00 - 0.00	2.700	#	0.0012	-
	mg/L	0548	TS, EPND	08/04/2004	0001	0.00 - 0.00	5.700	#	0.0012	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
-----------	-------	-------------	-------------------	--------------	----	----------------------	--------	-------------------------	-----------------	--------------

RECORDS: SELECTED FROM USEE200 WHERE site_code='MOA01' 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 #8/3/2004# and #8/4/2004#

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

LOCATION TYPES: TS TREATMENT SYSTEM WL WELL

LOCATION SUBTYPES: EPND Evaporation Pond EXT Extraction Well INFL Treatment System Influent

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.
- 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.

BLANKS REPORT (USEE810) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	SAMPLE DATE	SAMPLE ID	SAMPLE TYPE	RESULT	QUALIFIERS: LAB DATA QA			DETECTIO N	UN-CERTAINTY
Ammonia Total as N	mg/L	0999	08/04/2004	0001	E	0.1	U	J	#	0.1	-
Chloride	mg/L	0999	08/04/2004	0001	E	0.2	U	J	#	0.2	-
Sulfate	mg/L	0999	08/04/2004	0001	E	0.5	U	J	#	0.5	-
Total Dissolved Solids	mg/L	0999	08/04/2004	0001	E	20	U	J	#	20	-
Uranium	mg/L	0999	08/04/2004	0001	E	0.00004	B	U	#	1.2E-05	-

BLANKS REPORT (USEE810) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:53 am

PARAMETER	UNITS	LOCATION ID	SAMPLE DATE	SAMPLE ID	SAMPLE TYPE	RESULT	QUALIFIERS: LAB DATA QA	DETECTIO N	UN-CERTAINTY
-----------	-------	-------------	-------------	-----------	-------------	--------	-------------------------	------------	--------------

RECORDS: SELECTED FROM USEE810 WHERE site_code='MOA01' 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 #8/3/2004# and #8/4/2004#

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 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
- 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.

WATER LEVELS

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 9/29/2004 9:54 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	08/04/2004	15:27	16.91	3952.04	
0407	O	3969.09	08/04/2004	15:57	17.75	3951.34	
0470		3968.49	08/03/2004	15:45	19.32	3949.17	
0471		3968.83	08/03/2004	16:12	19.45	3949.38	
0472		3968.81	08/03/2004	16:27	20.88	3947.93	
0473		3969.05	08/03/2004	16:42	21.78	3947.27	
0474		3969.22	08/03/2004	16:58	19.41	3949.81	
0475		3969.46	08/03/2004	17:11	20.31	3949.15	
0476		3969.48	08/03/2004	17:25	20.70	3948.78	
0477		3969.40	08/04/2004	10:25	21.30	3948.10	
0478		3969.49	08/03/2004	17:41	20.65	3948.84	
0479		3969.27	08/03/2004	17:55	22.35	3946.92	
0480		3968.65	08/04/2004	10:56	17.70	3950.95	
0481		3968.83	08/04/2004	11:21	16.55	3952.28	
0482		3968.70	08/04/2004	11:40	17.12	3951.58	
0483		3968.90	08/04/2004	13:47	17.85	3951.05	
0484		3969.19	08/04/2004	14:11	17.29	3951.90	
0485		3968.81	08/04/2004	14:50	16.65	3952.16	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MOA01' AND LOG_DATE between #8/3/2004# and #8/4/2004#

FLOW CODES: O ON-SITE

WATER LEVEL FLAGS:

TRIP REPORT

Memorandum

DATE: August 30, 2004
TO: Kenneth E. Karp
FROM: Kenneth G. Pill
SUBJECT: Trip Report

Site: Moab – I.A. Extraction Well Field Monthly Sampling – August 2004

Date of Sampling Event: August 3 and 4, 2004

Team Members: Ken Pill and Craig Goodknight

Number of Locations Sampled: Ten extraction wells (0470 through 0479), eight observation wells (0480 through 0485, 0403, and 0407), and two surface water locations (0547 and 0548, which are the evaporation pond inlet and the evaporation pond recirculation pump discharge, respectively). Including one duplicate and one equipment blank, a total of 22 samples were collected.

Locations Not Sampled/Reason: A Colorado River surface water sample (location 0216) was not collected because the location where the sample was collected during the June and July 2004 events was dry.

Location Specific Information: Each extraction well was sampled using dedicated submersible pumps, each observation well is equipped with dedicated tubing. The pump in extraction well 0477 was not operating properly, and it was necessary to collect this sample one day after the other extraction wells were sampled.

Observation wells 0480 through 0485, 0403, and 0407 were sampled using micro-purge techniques. Samples were collected from wells 0480 and 0483 with the intake set 20 feet below top of casing (btoc), wells 0481 and 0484 with the intake set 30 feet btoc, and wells 0482 and 0485 with the intake set 60 feet btoc. Wells 0403 and 0407 were sampled with the intake set approximately 19 feet btoc.

Field Variance: Only a 125 ml sample was collected for uranium analysis as opposed to the standard 500 ml sample volume.

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
2383	0403	Duplicate	Ground water	NDX-341
2384	NA	Equipment Blank	Ground water	NDX-343

RIN Number Assigned: All samples were assigned to RIN 04070091.

Sample Shipment: All samples were shipped (in one cooler) overnight from Moab, Utah, via FEDEX to Paragon Analytics, Inc., on August 5, 2004 (Air bill No. 801914298449).

Water Level Measurements: Water level data are provided in the table below. These data represent depth to water (ft btoc) measurements.

Well No.	Well Type	Date	Depth to Water (ft btoc)
0470	Extraction	8/3/04	19.32
0471	Extraction	8/3/04	19.45
0472	Extraction	8/3/04	20.88
0473	Extraction	8/3/04	21.78
0474	Extraction	8/3/04	19.41
0475	Extraction	8/3/04	20.31
0476	Extraction	8/3/04	20.70
0477	Extraction	8/3/04	21.30
0478	Extraction	8/3/04	20.65
0479	Extraction	8/3/04	22.35
0480	Observation	8/4/04	17.70
0481	Observation	8/4/04	16.55
0482	Observation	8/4/04	17.12
0483	Observation	8/4/04	17.85
0484	Observation	8/4/04	17.29
0485	Observation	8/4/04	16.65
0403	Observation	8/4/04	16.91
0407	Observation	8/4/04	17.75
0547/0548	Evap Pond Level	8/4/04	4.0

Extraction Well Pumping Data: Extraction well pumping rates (gpm) and total volume removed (gal) for each extraction well when sampling occurred are provided in the table below.

Well No.	Date	Time	Pumping Rate (gpm)	Total Volume (gal)
0470	8/3/04	15:46	4.39	933,802
0471	8/3/04	16:13	3.07	627,729
0472	8/3/04	16:27	3.06	577,178
0473	8/3/04	16:44	1.72	488,544
0474	8/3/04	16:59	1.97	555,990
0475	8/3/04	17:11	2.28	566,056
0476	8/3/04	17:26	1.03	350,885
0477	8/4/04	10:29	0	546,141
0478	8/3/04	17:41	2.49	439,973
0479	8/3/04	17:57	1.91	558,380
Badger Meter	8/4/04	10:45	24.4	6,674,863
				4,794,890

Well Inspection Summary: Well inspections were conducted at all sampled wells; all wells were in good condition.

Equipment: All equipment functioned properly.

Regulatory: None.

Site Issues: The extraction wells had been running at a flow rates from 1 to 4 gpm since June 2004.

According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River Flow on August 3, 2004, was 2,890 cubic feet per second (cfs). The flow decreased to 2,500 cfs on August 4, 2004.

Corrective Action Required/Taken: None

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)
D. R. Metzler, DOE-EM
C. I. Bahrke, Stoller (e)
K. E. Miller, Stoller
L. M. Wright, Stoller (e)
Working File: MOA