

September 2004 Water Sampling

Validation Data Package

for

Interim Action Configuration 2

Well Field Startup

Moab, Utah

December 2004

MOAB, UTAH

September 3, 2004

DATA PACKAGE CONTENTS

This data package includes the following information:

Item No. Description of Contents

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 Verification Checklist**, which verifies that field activities were done according to the work plan.
5. **Database Printout**
 - a. Water Quality Data
 - b. Water Level Data
6. **Sampling Trip Report**

Site Hydrologist Summary

Site: Moab, Utah

Sampling Period: September 3, 2004

The purpose of this sampling was to collect data that can be used to evaluate startup conditions at Configuration 2 of the interim action well field. This is the second sampling round conducted in 2004 for Configuration 2. 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 extraction wells, observation wells, and monitor wells in Configuration 2. Sample locations are shown in the attached figure.

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



Ken Karp
Site Lead

12-9-04
Date

DATA ASSESSMENT SUMMARY

**MOAB, UTAH
SAMPLING EVENT—SEPTEMBER 3, 2004
DATA ASSESSMENT SUMMARY**

Paragon Analytics analyzed samples and reported results for this sampling event under requisition number 04080102 and work order number 0409047. 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

None of the sample results required qualification.

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 12 samples on September 4, 2004, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples are listed on the form and that signatures and dates are present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, the sample submittal form, and the samples tickets had no errors or omissions.

Holding Times and Preservation

The sample shipment was received cool and intact with temperature within the cooler of 0.2 °C, which is in compliance with requirements. All samples had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

Laboratory Instrument Calibration

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

Calibrations for method SW-846 6020 were performed on September 14, 2004. The initial calibration was performed 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 seven CCVs. All calibration checks 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 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 September 9, 2004. The r^2 values were greater than 0.995 and intercepts 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 six CCVs that met the acceptance criteria.

The initial calibration for ammonia as N was performed using six calibration standards on September 16, 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 quantitation limits. The method blanks for all inorganic analytes were below the method detection limits. All initial and continuing calibration blanks were below the method detection limits.

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

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

Matrix Spike Analysis

A matrix spike and matrix spike duplicate (MS/MSD) pair for this requisition was not analyzed. Instead, a MS/MSD for uranium from a previous requisition was used. MS/MSD pairs were analyzed for chloride and sulfate with acceptable results.

Laboratory Replicate Analysis

Laboratory replicate analysis was not run. Instead, data from a previous requisition was used. The relative percent difference values for the MSD and laboratory duplicate sample results 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.

Chromatography Peak Integration

The integration of analytes 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 27, 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.

One duplicate sample was collected from well 0570. 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.

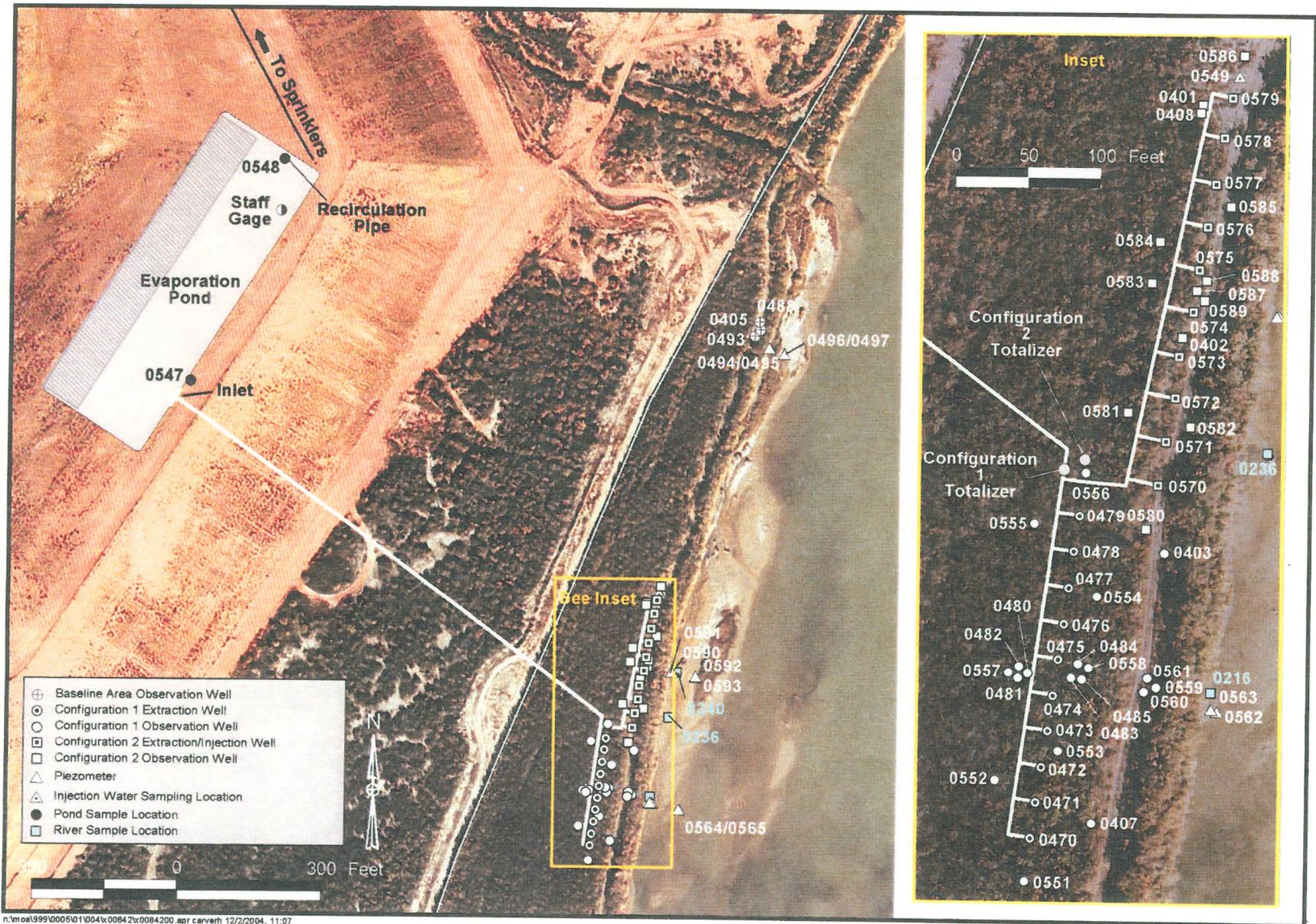
Summary

Results were reported in correct units for all analytes requested, appropriate contract-required laboratory qualifiers and target analyte lists were used, 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. 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 Donovan 12-9-04
Steve Donovan Date

Field Activities Validation Lead: Jeff Price 12/3/04
Jeff Price Date

**SAMPLING LOCATION
MAP**



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

FIELD VERIFICATION CHECKLIST

Water Sampling Field Activities Verification Checklist

Project	Moab, Utah	Date(s) of Water Sampling	September 3, 2004
Date(s) of Verification	10/13/04	Name of Verifier	Jeff Price

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.	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?	Yes	
Did the operational checks meet criteria?	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?

NA

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: 11/22/2004 4:03 pm

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	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	524		# -	-
	mg/L	0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	447		# -	-
	mg/L	0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	577		# -	-
	mg/L	0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	576		# -	-
	mg/L	0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	850		# -	-
	mg/L	0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	671		# -	-
	mg/L	0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	881		# -	-
	mg/L	0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	846		# -	-
	mg/L	0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	977		# -	-
	mg/L	0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	898		# -	-
	mg/L	0580	WL	09/03/2004	0001	10.23 - 20.16	675	F	# -	-
Ammonia Total as N	mg/L	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	1700		# 50	-
	mg/L	0570	WL, I&E	09/03/2004	0002	15.00 - 30.00	1600		# 50	-
	mg/L	0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	1600		# 50	-
	mg/L	0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	1100		# 50	-
	mg/L	0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	1200		# 50	-
	mg/L	0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	710		# 50	-
	mg/L	0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	1200		# 50	-
	mg/L	0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	1100		# 50	-
	mg/L	0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	990		# 50	-
	mg/L	0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	820		# 50	-
	mg/L	0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	760		# 50	-
mg/L	0580	WL	09/03/2004	0001	10.23 - 20.16	420	F	# 50	-	
Chloride	mg/L	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	24000		# 400	-
	mg/L	0570	WL, I&E	09/03/2004	0002	15.00 - 30.00	23000		# 400	-
	mg/L	0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	30000		# 400	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 11/22/2004 4:03 pm

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	0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	18000		# 200	-
	mg/L	0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	21000		# 400	-
	mg/L	0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	6900		# 100	-
	mg/L	0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	21000		# 400	-
	mg/L	0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	9600		# 100	-
	mg/L	0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	13000		# 200	-
	mg/L	0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	3600		# 100	-
	mg/L	0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	8600		# 100	-
	mg/L	0580	WL	09/03/2004	0001	10.23 - 20.16	2200	F	# 40	-
Oxidation Reduction Potent	mV	0570	WL, I&E	09/03/2004	N001	15.00 - 30.00	117.2		# -	-
	mV	0571	WL, I&E	09/03/2004	N001	25.00 - 40.00	147.0		# -	-
	mV	0572	WL, I&E	09/03/2004	N001	15.00 - 30.00	147.7		# -	-
	mV	0573	WL, I&E	09/03/2004	N001	25.00 - 40.00	160.6		# -	-
	mV	0574	WL, I&E	09/03/2004	N001	15.00 - 30.00	98		# -	-
	mV	0575	WL, I&E	09/03/2004	N001	25.00 - 40.00	135		# -	-
	mV	0576	WL, I&E	09/03/2004	N001	15.00 - 30.00	128		# -	-
	mV	0577	WL, I&E	09/03/2004	N001	25.00 - 40.00	128		# -	-
	mV	0578	WL, I&E	09/03/2004	N001	15.00 - 30.00	94		# -	-
	mV	0579	WL, I&E	09/03/2004	N001	25.00 - 40.00	119		# -	-
	mV	0580	WL	09/03/2004	N001	10.23 - 20.16	103.7	F	# -	-
pH	s.u.	0570	WL, I&E	09/03/2004	N001	15.00 - 30.00	6.65		# -	-
	s.u.	0571	WL, I&E	09/03/2004	N001	25.00 - 40.00	6.87		# -	-
	s.u.	0572	WL, I&E	09/03/2004	N001	15.00 - 30.00	6.74		# -	-
	s.u.	0573	WL, I&E	09/03/2004	N001	25.00 - 40.00	6.78		# -	-
	s.u.	0574	WL, I&E	09/03/2004	N001	15.00 - 30.00	6.86		# -	-
	s.u.	0575	WL, I&E	09/03/2004	N001	25.00 - 40.00	6.86		# -	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 11/22/2004 4:03 pm

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0576	WL, I&E	09/03/2004	N001	15.00 - 30.00	6.82		# -	-
	s.u.	0577	WL, I&E	09/03/2004	N001	25.00 - 40.00	6.82		# -	-
	s.u.	0578	WL, I&E	09/03/2004	N001	15.00 - 30.00	6.83		# -	-
	s.u.	0579	WL, I&E	09/03/2004	N001	25.00 - 40.00	6.83		# -	-
	s.u.	0580	WL	09/03/2004	N001	10.23 - 20.16	6.60	F	# -	-
Specific Conductance	umhos/cm	0570	WL, I&E	09/03/2004	N001	15.00 - 30.00	59259		# -	-
	umhos/cm	0571	WL, I&E	09/03/2004	N001	25.00 - 40.00	59621		# -	-
	umhos/cm	0572	WL, I&E	09/03/2004	N001	15.00 - 30.00	49523		# -	-
	umhos/cm	0573	WL, I&E	09/03/2004	N001	25.00 - 40.00	56109		# -	-
	umhos/cm	0574	WL, I&E	09/03/2004	N001	15.00 - 30.00	24800		# -	-
	umhos/cm	0575	WL, I&E	09/03/2004	N001	25.00 - 40.00	56100		# -	-
	umhos/cm	0576	WL, I&E	09/03/2004	N001	15.00 - 30.00	36650		# -	-
	umhos/cm	0577	WL, I&E	09/03/2004	N001	25.00 - 40.00	41330		# -	-
	umhos/cm	0578	WL, I&E	09/03/2004	N001	15.00 - 30.00	23400		# -	-
	umhos/cm	0579	WL, I&E	09/03/2004	N001	25.00 - 40.00	34530		# -	-
	umhos/cm	0580	WL	09/03/2004	N001	10.23 - 20.16	18440	F	# -	-
Sulfate	mg/L	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	8800		# 500	-
	mg/L	0570	WL, I&E	09/03/2004	0002	15.00 - 30.00	8900		# 500	-
	mg/L	0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	8500		# 500	-
	mg/L	0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	8500		# 500	-
	mg/L	0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	8900		# 500	-
	mg/L	0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	7900		# 250	-
	mg/L	0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	9100		# 500	-
	mg/L	0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	10000		# 250	-
	mg/L	0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	11000		# 250	-
	mg/L	0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	10000		# 250	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 11/22/2004 4:03 pm

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	0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	9600		#	250	-
	mg/L	0580	WL	09/03/2004	0001	10.23 - 20.16	7500	F	#	100	-
Temperature	C	0570	WL, I&E	09/03/2004	N001	15.00 - 30.00	17.63		#	-	-
	C	0571	WL, I&E	09/03/2004	N001	25.00 - 40.00	17.62		#	-	-
	C	0572	WL, I&E	09/03/2004	N001	15.00 - 30.00	16.90		#	-	-
	C	0573	WL, I&E	09/03/2004	N001	25.00 - 40.00	16.50		#	-	-
	C	0574	WL, I&E	09/03/2004	N001	15.00 - 30.00	16.6		#	-	-
	C	0575	WL, I&E	09/03/2004	N001	25.00 - 40.00	16.80		#	-	-
	C	0576	WL, I&E	09/03/2004	N001	15.00 - 30.00	18.4		#	-	-
	C	0577	WL, I&E	09/03/2004	N001	25.00 - 40.00	16.40		#	-	-
	C	0578	WL, I&E	09/03/2004	N001	15.00 - 30.00	17.7		#	-	-
	C	0579	WL, I&E	09/03/2004	N001	25.00 - 40.00	16.9		#	-	-
	C	0580	WL	09/03/2004	N001	10.23 - 20.16	19.60	F	#	-	-
	Total Dissolved Solids	mg/L	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	44000		#	2000
mg/L		0570	WL, I&E	09/03/2004	0002	15.00 - 30.00	45000		#	2000	-
mg/L		0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	55000		#	2000	-
mg/L		0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	40000		#	1000	-
mg/L		0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	48000		#	1000	-
mg/L		0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	21000		#	1000	-
mg/L		0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	46000		#	1000	-
mg/L		0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	29000		#	1000	-
mg/L		0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	35000		#	1000	-
mg/L		0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	20000		#	400	-
mg/L		0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	28000		#	1000	-
mg/L		0580	WL	09/03/2004	0001	10.23 - 20.16	16000	F	#	400	-
Turbidity	NTU	0570	WL, I&E	09/03/2004	N001	15.00 - 30.00	18.1		#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 11/22/2004 4:03 pm

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY	
Turbidity	NTU	0571	WL, I&E	09/03/2004	N001	25.00 - 40.00	33.8		# -	-	
	NTU	0572	WL, I&E	09/03/2004	N001	15.00 - 30.00	10.1		# -	-	
	NTU	0573	WL, I&E	09/03/2004	N001	25.00 - 40.00	29.2		# -	-	
	NTU	0574	WL, I&E	09/03/2004	N001	15.00 - 30.00	51.7		# -	-	
	NTU	0575	WL, I&E	09/03/2004	N001	25.00 - 40.00	8.77		# -	-	
	NTU	0576	WL, I&E	09/03/2004	N001	15.00 - 30.00	15.4		# -	-	
	NTU	0577	WL, I&E	09/03/2004	N001	25.00 - 40.00	16.3		# -	-	
	NTU	0578	WL, I&E	09/03/2004	N001	15.00 - 30.00	19.2		# -	-	
	NTU	0579	WL, I&E	09/03/2004	N001	25.00 - 40.00	17.8		# -	-	
	NTU	0580	WL		09/03/2004	N001	10.23 - 20.16	3.96	F	# -	-
Uranium	mg/L	0570	WL, I&E	09/03/2004	0001	15.00 - 30.00	2.100		# 0.0012	-	
	mg/L	0570	WL, I&E	09/03/2004	0002	15.00 - 30.00	2.100		# 0.0012	-	
	mg/L	0571	WL, I&E	09/03/2004	0001	25.00 - 40.00	1.900		# 0.0012	-	
	mg/L	0572	WL, I&E	09/03/2004	0001	15.00 - 30.00	2.300		# 0.0012	-	
	mg/L	0573	WL, I&E	09/03/2004	0001	25.00 - 40.00	2.400		# 0.0012	-	
	mg/L	0574	WL, I&E	09/03/2004	0001	15.00 - 30.00	2.400		# 0.0012	-	
	mg/L	0575	WL, I&E	09/03/2004	0001	25.00 - 40.00	2.500		# 0.0012	-	
	mg/L	0576	WL, I&E	09/03/2004	0001	15.00 - 30.00	2.900		# 0.0012	-	
	mg/L	0577	WL, I&E	09/03/2004	0001	25.00 - 40.00	2.700		# 0.0012	-	
	mg/L	0578	WL, I&E	09/03/2004	0001	15.00 - 30.00	2.700		# 0.0012	-	
	mg/L	0579	WL, I&E	09/03/2004	0001	25.00 - 40.00	2.500		# 0.0012	-	
	mg/L	0580	WL		09/03/2004	0001	10.23 - 20.16	2.200	F	# 0.0012	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
 REPORT DATE: 11/22/2004 4:03 pm

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 #9/3/2004# and #9/3/2004#

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

LOCATION TYPES: WL WELL

LOCATION SUBTYPES: I&E Dual Purpose Injection and Ex

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: 12/7/2004 9:43 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			
0570		3965.22	09/03/2004	10:05	25.63	3939.59	
0571		3964.89	09/03/2004	11:02	27.15	3937.74	
0572		3965.14	09/03/2004	11:47	26.77	3938.37	
0573		3965.15	09/03/2004	12:20	33.90	3931.25	
0574		3965.12	09/03/2004	12:39	26.90	3938.22	
0575		3965.01	09/03/2004	12:32	30.90	3934.11	
0576		3965.15	09/03/2004	12:48	22.31	3942.84	
0577		3965.10	09/03/2004	12:54	31.59	3933.51	
0578		3965.08	09/03/2004	13:00	25.10	3939.98	
0579		3965.11	09/03/2004	13:11	22.00	3943.11	
0580		3969.32	09/03/2004	09:38	17.88	3951.44	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MOA01' AND LOG_DATE between #9/3/2004# and #9/3/2004#

FLOW CODES:

WATER LEVEL FLAGS:

SAMPLING TRIP REPORT

Memorandum

DATE: October 5, 2004

TO: Ken Karp

FROM: Ken Pill

SUBJECT: Trip Report (revised)

Site: Moab – Interim Action Extraction Configuration 2 Well Field Startup Sampling

Date of Sampling Event: September 3, 2004.

Team Members: Ken Pill and Jeff Price

Number of Locations Sampled: 10 extraction wells (0570 through 0579), and 1 observation well (0580). Including one duplicate, a total of 12 samples were collected.

Locations Not Sampled/Reason: None.

RIN Number Assigned: All samples were assigned to RIN 04090102.

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 is the false identification assigned to the quality control sample:

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2371	0570	Duplicate	Ground water	NDX-940

Sample Shipment: All samples were shipped (in one cooler) overnight FedEx to Paragon Analytics, Inc. from Moab, Utah, on September 3, 2004 (Airbill No. 809324804105).

Location Specific Information— Extraction Wells: Each extraction well was sampled using dedicated submersible pumps. With the exception of wells 0573 (bad pump) and 0574 (leak in system), each of the extraction wells ran overnight prior to collecting a sample. The pump in well 0573 was replaced and a sample was collected after approximately 2 hours of operation. The pump in well 0574 ran for approximately 15 minutes prior to sampling.

Extraction well pumping rates (gpm) and water levels for each extraction well when sampling occurred are provided in the table below.

Well No.	Date	Time	Pumping Rate (gpm)	Depth to Water (ft BTOC)
0570	9/3/04	10:05	3.12	25.63
0571	9/3/04	11:02	10.10	27.15
0572	9/3/04	11:47	3.15	26.77
0573	9/3/04	12:20	7.90	33.90
0574	9/3/04	12:39	1.46	26.90
0575	9/3/04	12:32	7.70	30.90
0576	9/3/04	12:48	1.81	22.31
0577	9/3/04	12:54	9.62	31.59
0578	9/3/04	13:00	2.10	25.10
0579	9/3/04	13:11	9.60	22.00

Location Specific Information—Observation Wells: Observation well 0580 was sampled 18 feet below ground surface using micro-purge techniques with a peristaltic pump and dedicated tubing. This sampling event represents the first time this location (installed in July 2004) was sampled.

Well No.	Date	Time	Depth to Water (ft BTOC)
0580	9/3/04	09:38	17.88

Well Inspection Summary: Construction on all extraction wells was not complete as of this sampling event.

Site Issues: Pumps were installed in Configuration 2 extraction wells the previous week. This represents the first samples collected from these extraction wells using dedicated submersible pumps.

According to the USGS Cisco Gauging Station (Station No. 09180500), the mean daily Colorado River Flow on September 3, 2004, was 2,160 cfs.

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