DOE–EM/GJTAC1769

Office of Environmental Management – Grand Junction

UMTRA Project

Moab UMTRA Project May 2008 Validation Data Package for the Monthly Ground Water Interim Action Sampling

January 2009

U.S. Department of Energy

Office of Environmental Management

Prepared by the Technical Assistance Contractor under DOE contract number DE-AC30-07CC60012 for the U.S. Department of Energy Office of Environmental Management, Grand Junction, Colorado.

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Moab UMTRA Project
May 2008 Monthly Ground Water Sampling Interim Action

Revision 0

Review and Approval

11/26/09

Kenneth G. Pill
TAC Ground Water Manager

Date

for Thomas O. Bachtell

1/26/09

Joseph D. Ritchey
TAC Senior Program Manager

Date

REVISION HISTORY

Revision No.	Date	Reason/Basis for Revision
0	January 2009	Initial issue of Moab UMTRA Project May 2008 Monthly Ground Water Interim Action Validation Data Package.

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Acronyms

AWQC	ambient water quality criteria
bgs	below ground surface
btoc	below top of casing
cfs	cubic feet per second
CCV	continuing calibration verification
COC	chain of custody
CRI	reporting limit verification
DI	deionized
D.O.	dissolved oxygen
EDD	electronic data deliverable
EPA	Environment Protection Agency
ft	feet
ICS	interference check sample
ICP	inductively coupled plasma
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control samples
MDL	method detection limit
mg/L	milligrams per liter
mL/m	milliliter per minute
MS	matrix spike
MSD	matrix spike duplicate
µmhos/cm	micro mhos per centimeter
µS/cm	micro siemens per centimeter
mV	millivolt
NTU	nephelometric turbidity unit
ORP	oxidation reduction potential
PQL	practical quantitation limit
r^2	correlation coefficient
RDL	required detection limit
RIN	report identification number
RPD	relative percent difference
RS	replicate sample
SDG	sample data group
Spec Cond	special conditions
SU	standard unit
TDS	total dissolved solids
Turb.	turbidity
UMTRA	Uranium Mill Tailings Remedial Action
USGS	U.S. Geological Survey
VDP	validation data package

Introduction

This purpose of this document is to summarize the results of the data validation process associated with ground water and/or surface water samples collected from the Moab UMTRA site. This data validation follows the criteria according to the *Environmental Procedures Catalog*, "Standard Practice for Validation of Laboratory Data," GT-9(P) (2006).

As part of the scope of this document, the complete results of this data validation process are provided. Section 1 presents the Sampling Event Summary, which includes an Executive Summary. Section 2 provides the Data Assessment Summaries, including the Field Activity Verification, Laboratory Performance Assessment, and Field Analyses/Activities description. All flagged data, and the reasons for the applicable flags, are also presented in Section 2. The Data Presentation is contained in Section 3, which includes a summary of the anomalous data generated by the validation process. Various Appendices contain the Water Quality Data, Water Level Data, Minimums and Maximums Report tables, and the Trip Reports. All Colorado River flow discussed in this document are measured from the USGS Cisco Gaging Station No. 09180500.

1.0 Sampling Event Summary

This section contains the Summary Criteria with a sample location map (Section 1.1), an Executive Summary (Section 1.2), and the Sampling and Analyses (Section 1.3) for the May 2008 Interim Action Monthly Sampling event.

1.1 Summary Criteria

Site: Moab, Utah

Sampling Period: May 6 - 13, 2008

The purpose of this sampling was to collect data that can be used to evaluate the performance of all configurations of the ground water Interim Action well field. All sampling locations are shown on Figure 1.

1. **As a result of this sampling event, is there any indication of anomalous data that may be related to well field pump rate changes, river flow, or other known causes?**

   No.

2. **Were all Interim Action well field pumps operating within the planned parameters?**

   Yes. Configurations 1, 3, and 4 were operating the entire time during this sampling event.

3. **Was the evaporation pond functioning properly?**

   Yes. The pond level was 6.1 feet (ft) at the being of the sampling event and increased to 6.9 ft by the end of the event. During this time approximately 100 gallons per minute was being pumped to the evaporation pond in and attempt to add as much volume to the pond in anticipation of needing to shut down the well field due to the predicted increased river stage associated with the peak spring runoff.

4. Were all proposed well (ground water) and surface water locations sampled during this event?

Yes.

5. Were there any site activities that have impacted or may impact the Interim Action system?

Yes. Configuration 4 was restarted on May 6 after being shut down on May 1 due to electrical work on location PW02. Shortly after the end of this sampling event (on May 20), the well field was shut down due to the increasing Colorado River stage and flooding potential.

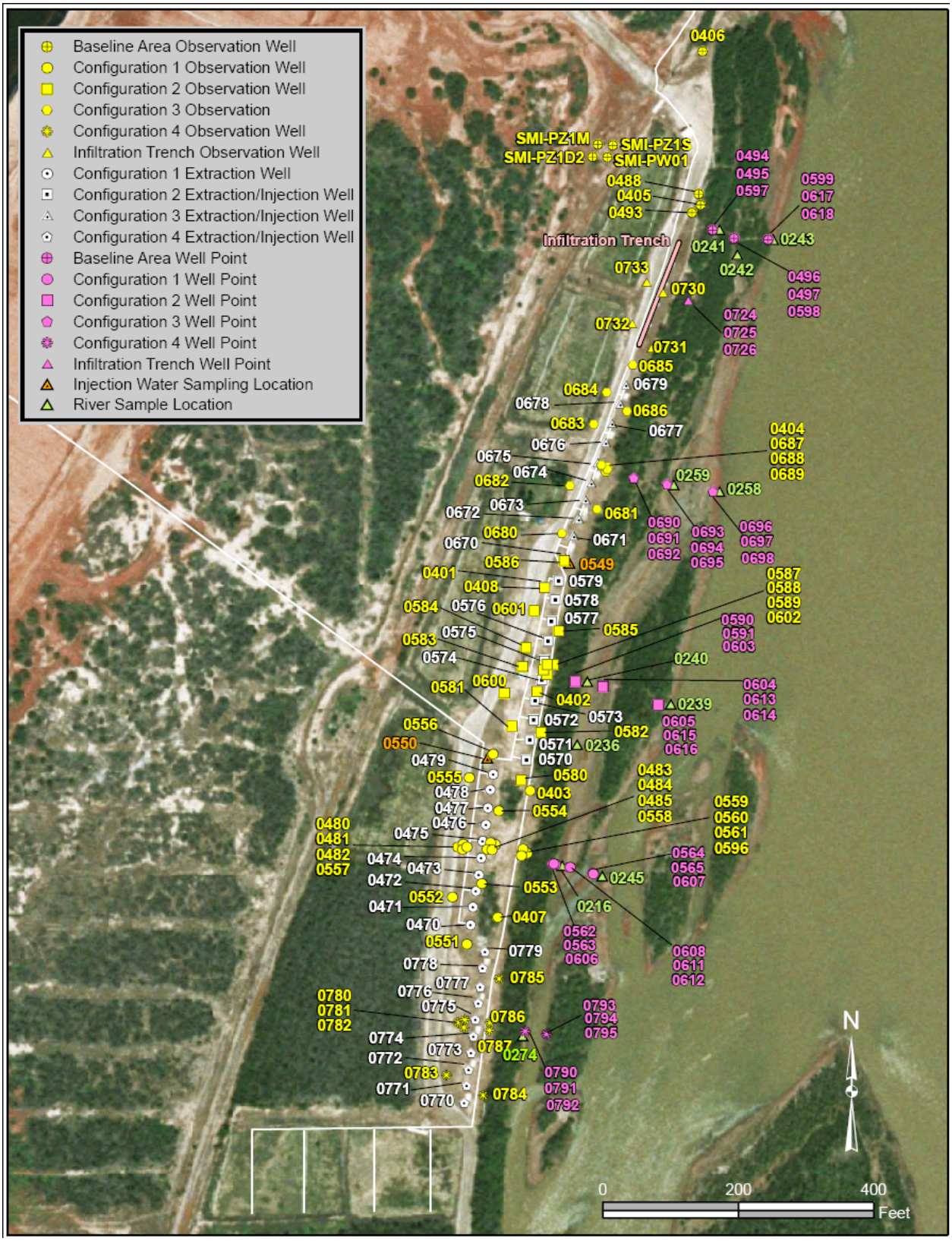


Figure 1. Sample Locations at the Interim Action Well Field and Baseline Area (may include locations not sampled)

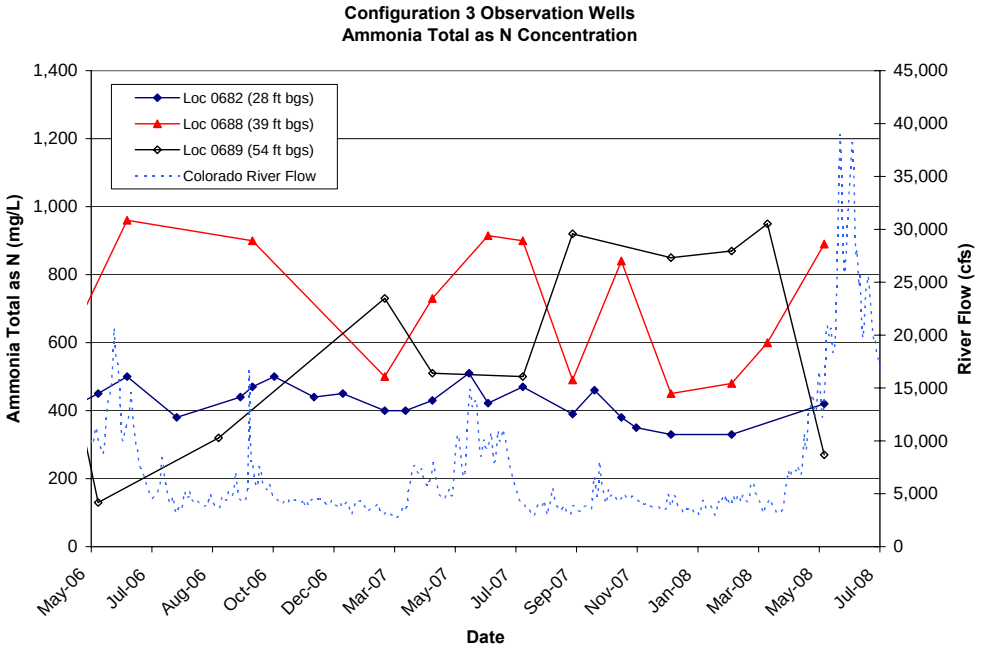
1.2 Executive Summary

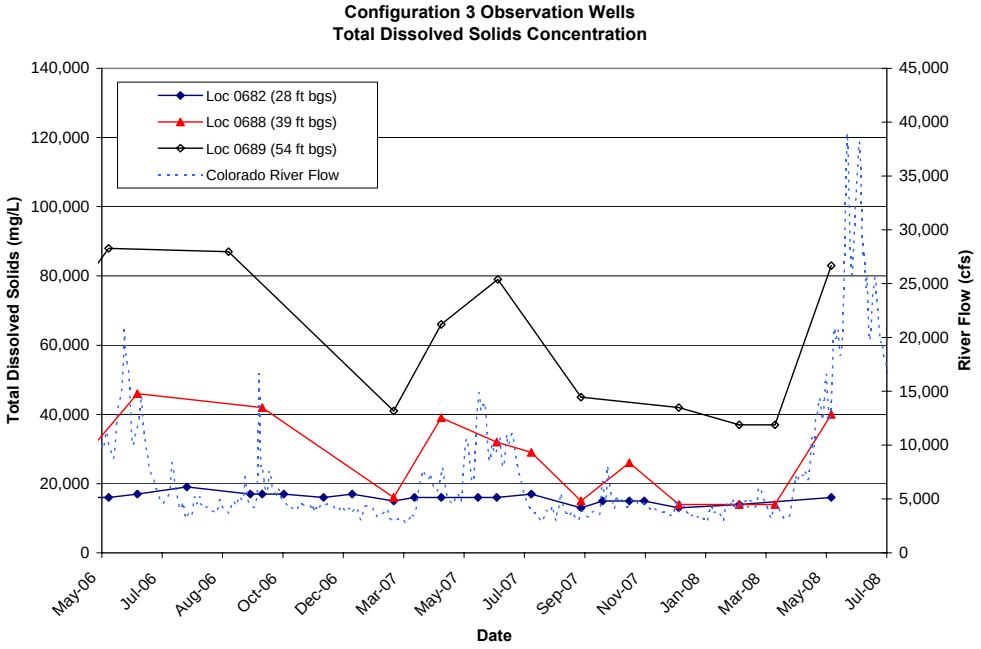
This validation data package (VDP) presents the validated data associated with the ground water and surface water samples collected during the May 2008 Interim Action monthly sampling event at the former uranium tailings processing site in Moab, Utah. This VDP includes a discussion of the data validation process in Section 2.0 with a description of how these data are qualified based on field and laboratory verification assessments (Sections 2.1 and 2.2). Attachment 1 contains the Trip Report detailing the field events associated with this sampling event.

A list of flagged data is presented in Table 2 in Section 2.2. No data were rejected (flagged as "R") as a result of this validation process. A Minimums and Maximums Report (presented in Section 3.1) was generated to determine if the data are within a normal statistical range. Any anomalous data, based on the results of the Minimums and Maximums Report, are presented in Section 3.2.

While independent of the data validation process, a brief summary of the most recent concentration trends based on the May 2008 data is provided for Configurations 3, 2, 1, and 4 (listed from north to south) within the well field. Time versus concentration (ammonia, total dissolved solids [TDS], and uranium) plots for selected performance indicator monitoring wells located upgradient or downgradient within the Interim Action well field are presented to display historical trends exhibited by the data. Colorado River flows over the same time frame are also plotted to determine whether the magnitude of river flows influences analyte concentrations.

Configuration 3
A review of the time versus concentration plots for Configuration 3 suggests ammonia, TDS, and uranium concentrations for samples collected from well 0682 (28 ft below ground surface [bgs]) were not impacted by the increased river stage. The sample collected from well 0688 (39 ft bgs) exhibited a significant increase in the ammonia and TDS concentrations, while the sample collected from well 0689 (54 ft bgs) showed a significant decrease in ammonia and uranium concentrations and an increase in the TDS concentration. A similar response has been previously detected during times of high river stage from samples collected at this depth.


Configuration 3 Observation Wells
Ammonia Total as N Concentration
Loc 0682 (28 ft bgs)
Loc 0688 (39 ft bgs)
Loc 0689 (54 ft bgs)
Colorado River Flow
Ammonia Total as N (mg/L)
River Flow (cfs)
1,400
1,200
1,000
800
600
400
200
0
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
May-06
Jul-06
Aug-06
Oct-06
Dec-06
Mar-07
May-07
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08
Date


Configuration 3 Observation Wells
Total Dissolved Solids Concentration
Loc 0682 (28 ft bgs)
Loc 0688 (39 ft bgs)
Loc 0689 (54 ft bgs)
Colorado River Flow
Total Dissolved Solids (mg/L)
River Flow (cfs)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
May-06
Jul-06
Aug-06
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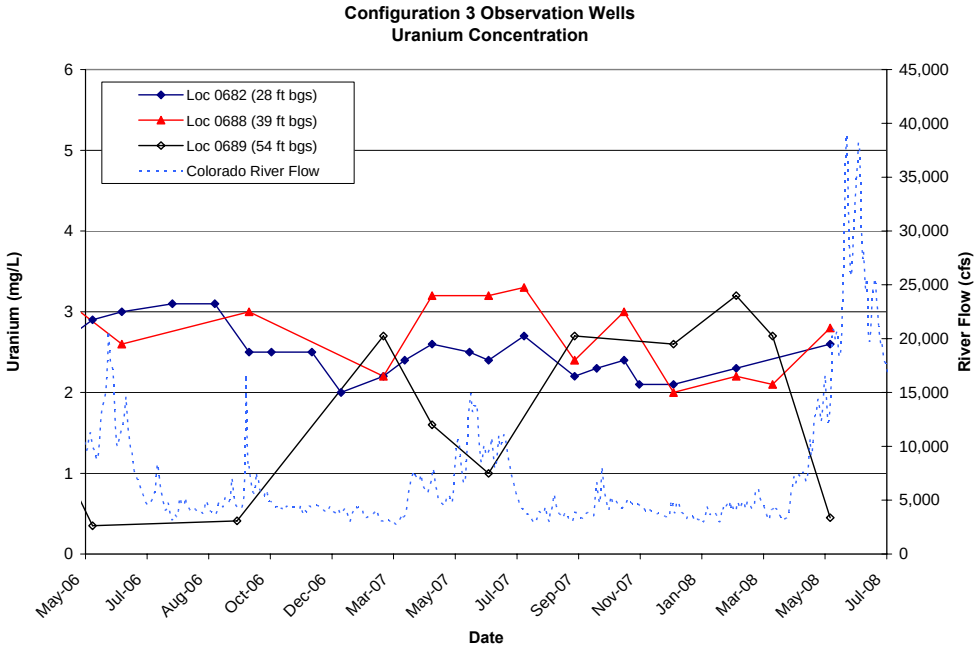
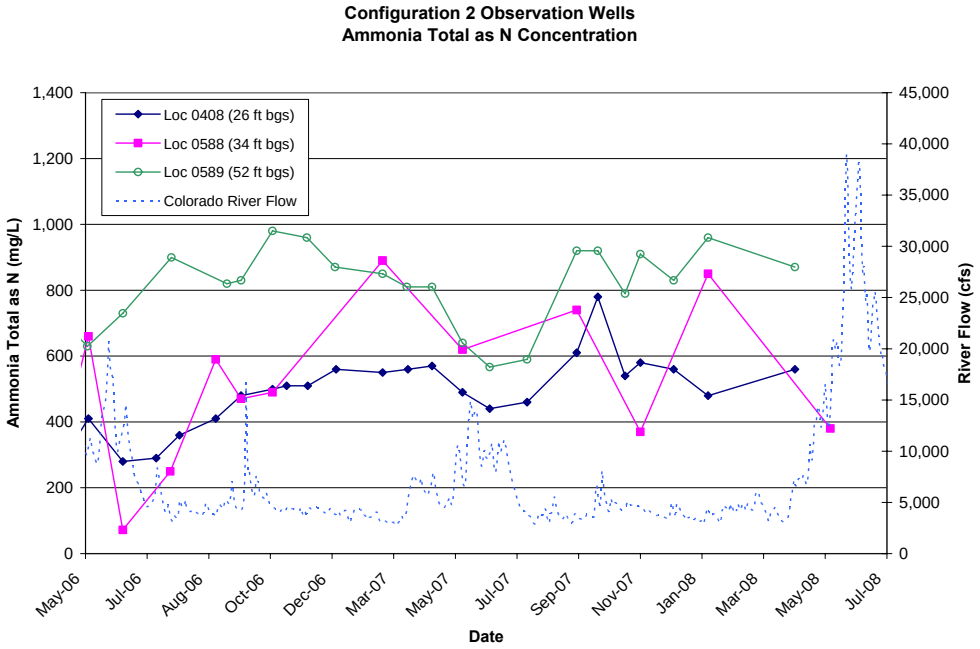
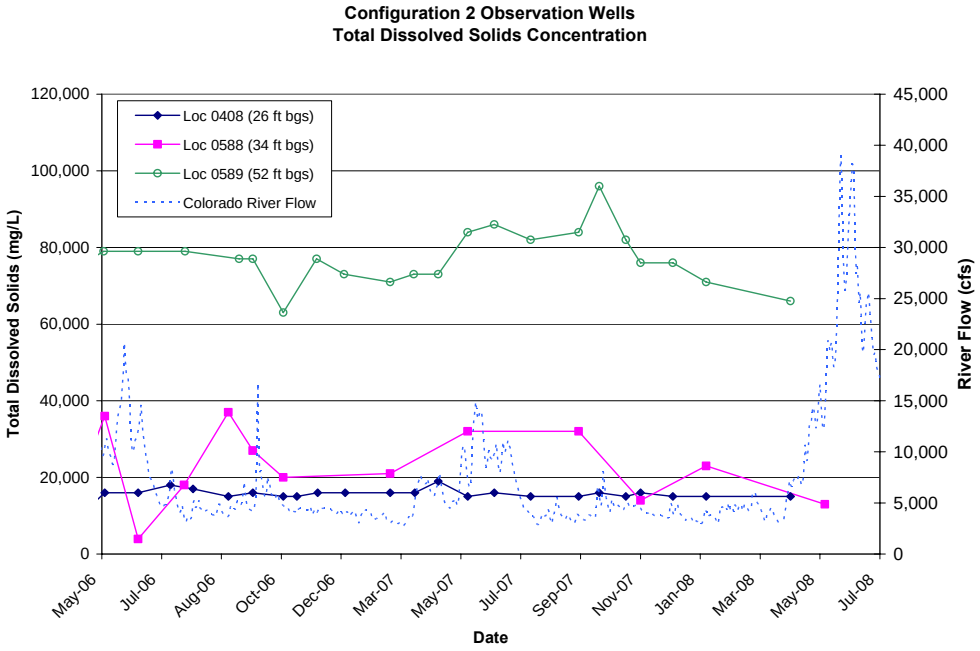
Mar-08
May-08
Jul-08
Date

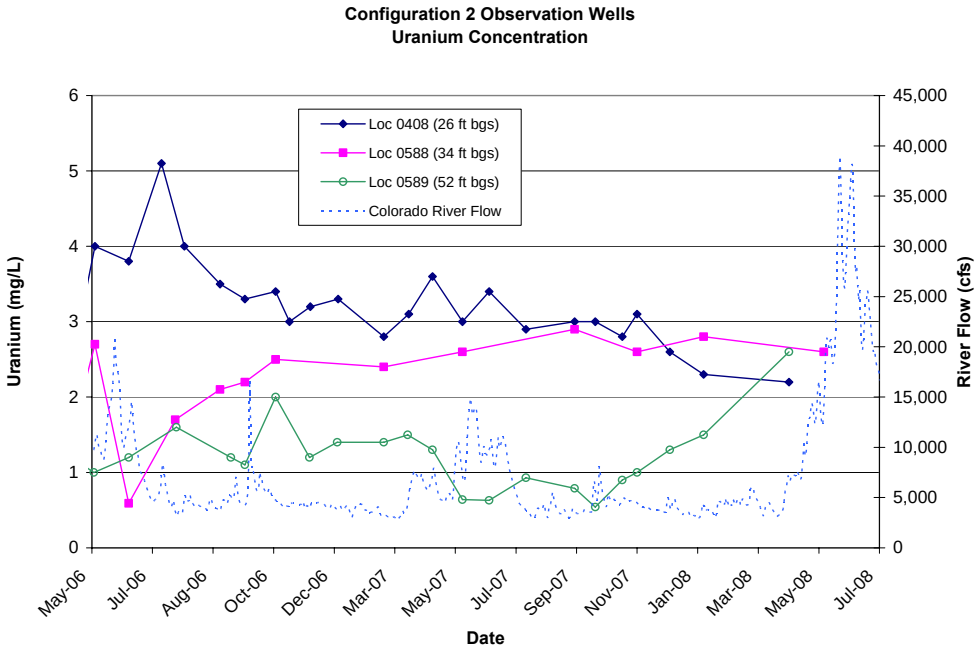


Configuration 2

The Configuration 2 time versus concentration graphs indicate no significant changes in contaminant concentrations compared to previous sampling events. Of note is the continued increase in the uranium concentration in the sample collected from well 0589 (52 ft bgs) which has been consistently increasing since September 2007. No other significant changes were apparent as the increasing river stage did not appear to impact the vicinity of Configuration 2 in the well field.

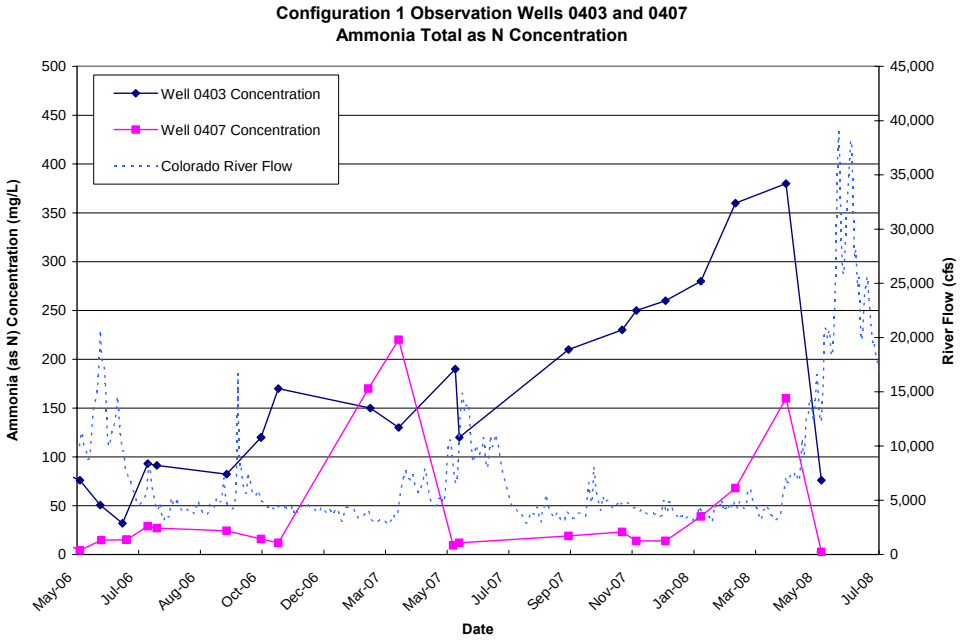






Configuration 1

Wells 0403 and 0407 are located along the river bank, between the well field and the Colorado River. Historically the ammonia, TDS, and uranium concentrations have been influenced by both the river stage and pumping from Configuration 1. As the plots below exhibit, the analyte concentrations have significantly decreased between April and May in response to the river stage.


Configuration 1 Observation Wells 0403 and 0407
Ammonia Total as N Concentration
Well 0403 Concentration
Well 0407 Concentration
Colorado River Flow
Ammonia (as N) Concentration (mg/L)
River Flow (cfs)
Date
0
50
100
150
200
250
300
350
400
450
500
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
May-06
Jul-06
Aug-06
Oct-06
Dec-06
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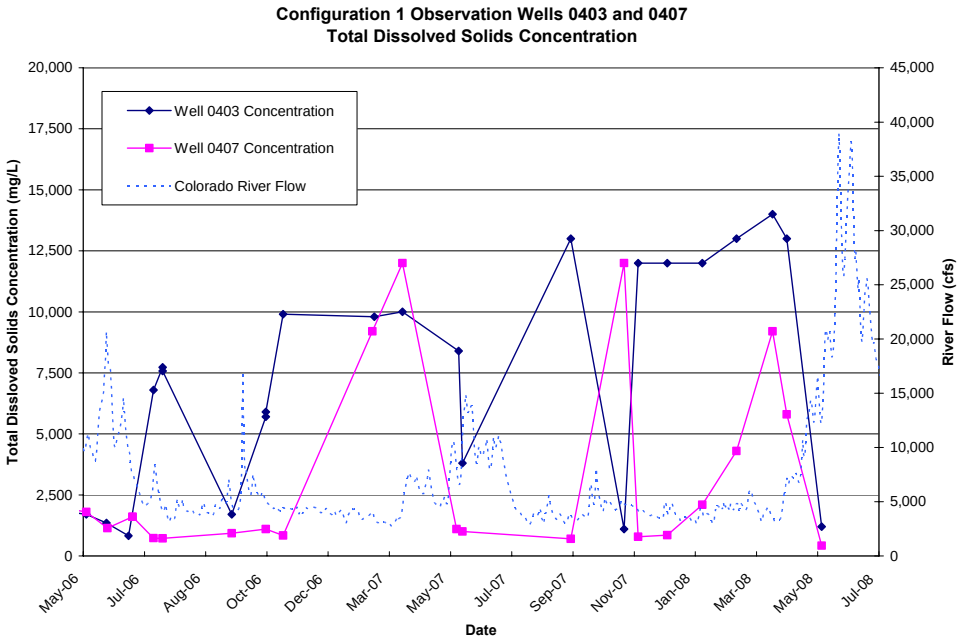
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08


Configuration 1 Observation Wells 0403 and 0407
Total Dissolved Solids Concentration
Well 0403 Concentration
Well 0407 Concentration
Colorado River Flow
Total Dissloved Solids Concentration (mg/L)
River Flow (cfs)
Date
0
2,500
5,000
7,500
10,000
12,500
15,000
17,500
20,000
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
May-06
Jul-06
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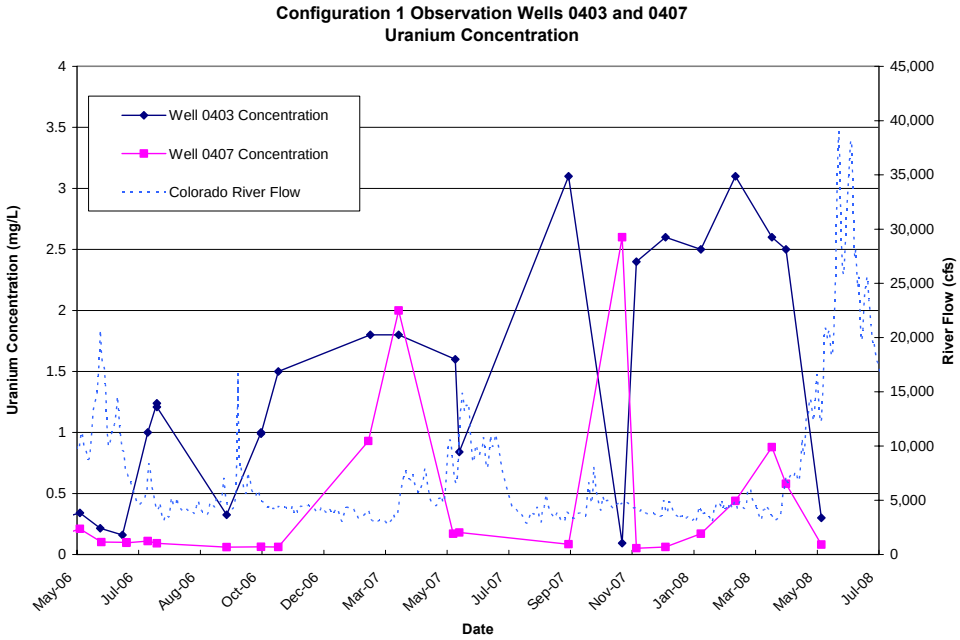
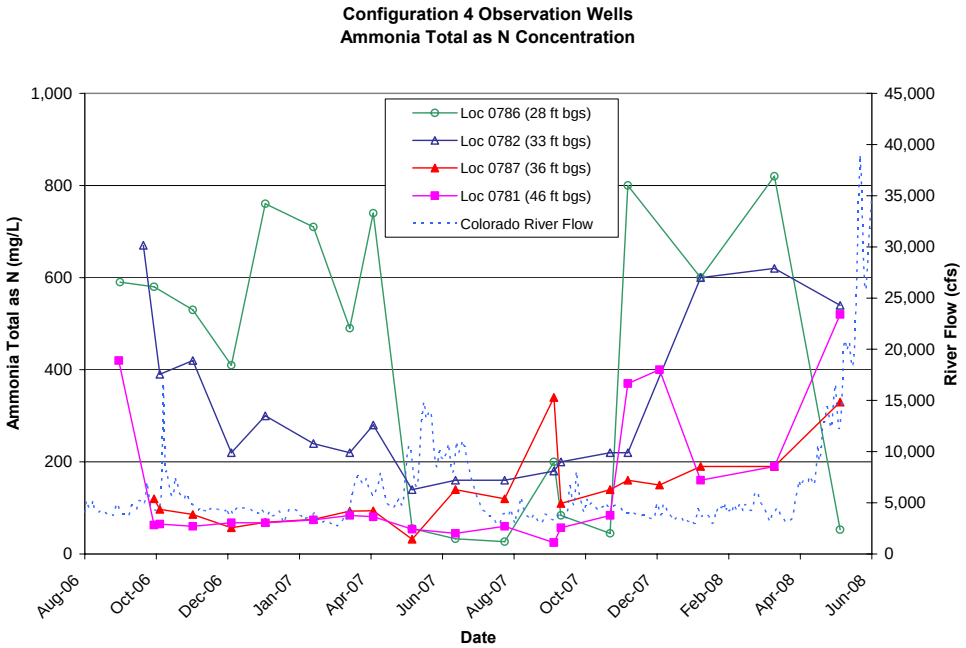
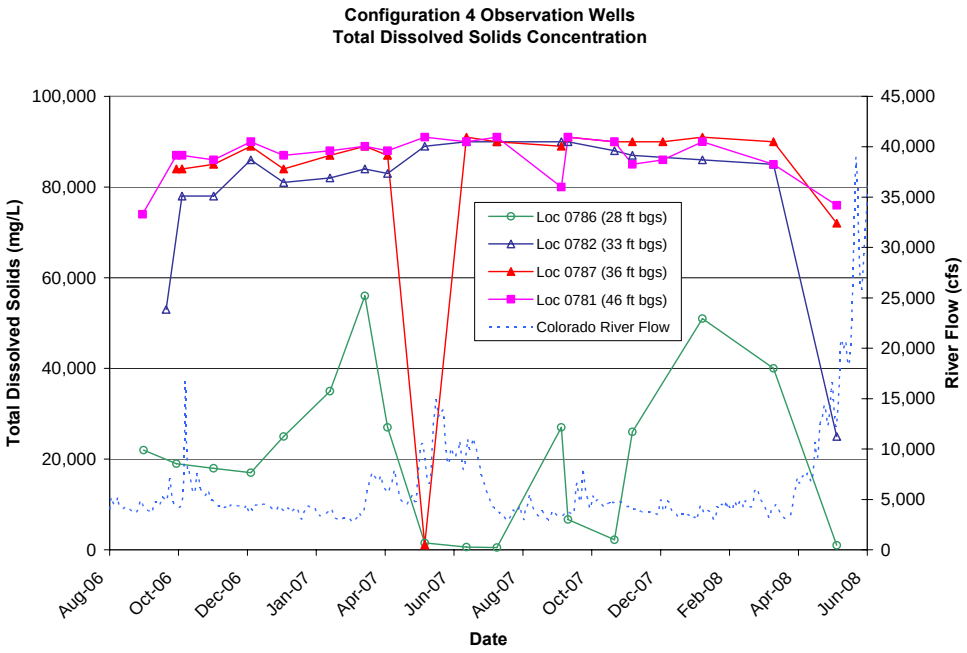
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08

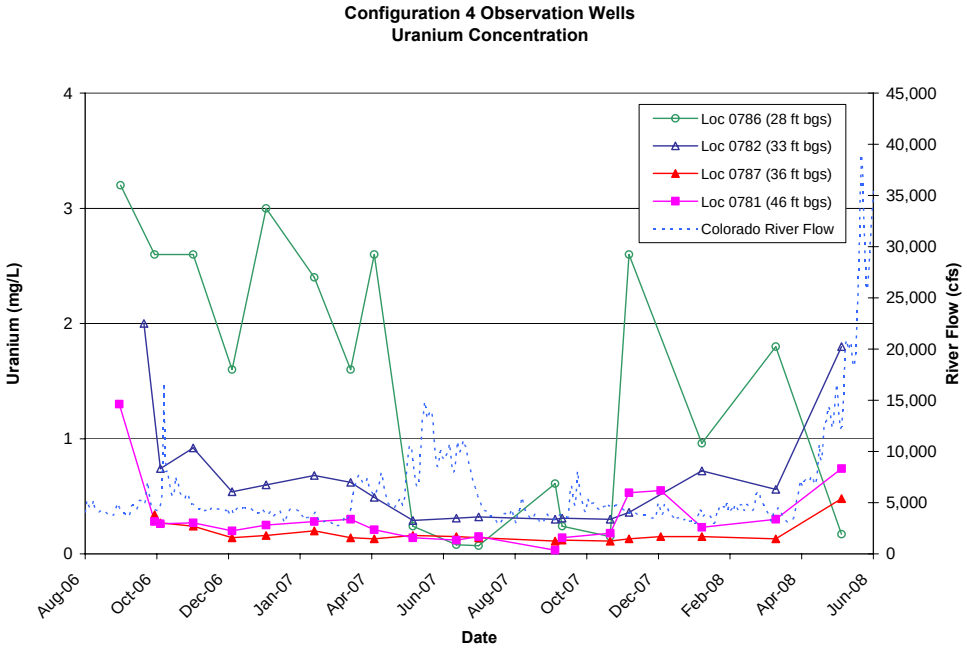


Configuration 4

During this sampling period the sample collected from well 0786 (28 ft bgs) had significantly lower ammonia, TDS, and uranium concentrations compared to the March 2008 sampling event, which was the most recent time this location was sampled before the May 2008 event. Over this same time period the sample collected from well 0782 (33 ft bgs) also had a significantly lower TDS concentration, while the uranium concentration increased. The samples collected from well 0787 (36 ft bgs) and well 0781 (46 ft bgs) did not exhibit significant concentration changes for TDS and uranium, but ammonia increased.







Surface Water Sampling

Surface water samples were not collected during this sampling event.

1.3 Sampling and Analyses

Sampling and analyses were conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, April 2007*. Although not listed here, the normal set of locations were sampled. Please refer to the attached trip report (Attachment 1) for specific sampled locations and an explanation of why some locations were not sampled, such as dry conditions at specific surface water locations.

The data validations indicate that the data meet the quality-control criteria specified for this project. An inadequate number of equipment blanks and duplicates were collected. All samples were analyzed within their prescribed holding times. No significant discrepancies were noted regarding sample shipping and receiving, preservation times, instrument calibration, method blanks, or matrix spikes, except as qualified or noted in the Laboratory Performance Assessment (Section 2.2).

There were five locations with 10 anomalous sample results, three in Configuration 1 (0471, 0473, and 0477), one in Configuration 2 (0582), and one in Configuration 4 (0774). Wells 0471, 0473, 0477, and 0582 had anomalously low concentrations for manganese. Less than 10 samples have been collected from these locations, and the analyte range is still being established. Well 0774 had anomalously low concentrations for ammonia, chloride, manganese, sulfate, TDS, and uranium, and may have been influenced by the high river stage.

According to the U.S. Geological Survey (USGS) Cisco Gaging Station, the mean daily Colorado River flow rates varied between 12,400 and 20,600 cfs during this sampling period.

2.0 Data Assessment Summary

This section contains the Water Sampling Field Activities Verification (Section 2.1), the Laboratory Performance Assessments (Section 2.2), the Field Analyses/Activities (Section 2.3), and Certification (Section 2.4).

2.1 Water Sampling Field Activities Verification

The field activities verification process for this sampling event was documented using the following checklist. As the checklist exhibits, all sampling was conducted following the applicable procedures. This verification is provided in Appendix A.

2.2 Laboratory Performance Assessment

General Information

Requisition No.:	0805012
Sample Event:	Interim Action Well Field Sampling – May 2008
Site(s):	Moab, Utah; Interim Action
Laboratory:	Paragon Analytics, Fort Collins, Colorado
Sample Data Group (SDG) No.:	0805095 and 0805124
Analysis:	Metals and Inorganics
Validator:	Rebecca Hollis
Review Date:	August 13, 2008

This validation was performed according to the *Environmental Procedures Catalog*, "Standard Practice for Validation of Laboratory Data," GT-9(P) (2006). The procedure was applied at Level 3 on 100 percent of the samples, Data Deliverables Verification. 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.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N	WCH-A-005	EPA 350.1	EPA 350.1
Bromide	MIS-A-038	SW-846 9056	SW-846 9056
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Copper	MET-A-020	SW-846 3005A	SW-846 6010B
Manganese	GJO-17	SW-846 3005A	SW-846 6010B
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium	GJO-01	SW-846 3005A	SW-846 6020A

Data Qualifier Summary
Analytical results were qualified as listed in Table 2. Refer to the sections below for an explanation of the data qualifiers applied.

Table 2. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
All in SDG 0805095	All in SDG 0805095	Bromide, Chloride, Sulfate, Ammonia, TDS	J	P1
All in SDG 0805124	All in SDG 0805124	Bromide	J	B3
All in SDG 0805095	All in SDG 0805095	Chloride, Sulfate	J	RS1
0805095-23	0787	Copper	J	B3
All in SDG 0805124	All in SDG 0805124	Manganese	J	MS1, LCS1, SD1

Note: Qualifier in flag column is for detects. See Table 3 for qualification applied to nondetects.

Table 3. Reason Codes for Data Flags

Reason Code	Qualifier (Detects)	Qualifier (Nondetects)	Explanation
B3	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because (a) the result for an associated blank is negative and has an absolute value between the method detection limit and the practical quantitation limit, and (b) the sample result is less than five times the method detection limit.
LCS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because the laboratory control sample was not analyzed at the proper frequency as stated in the appropriate analytical method.
MS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because the matrix spike sample was (a) from another client, (b) of dissimilar matrix, (c) a field blank or equipment blank, or (d) not analyzed at the proper frequency as stated in the appropriate analytical method.
P1	J	J	Results for the affected analyte(s) are regarded as estimated (J) because the samples were received outside the temperature criteria.
RS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because (a) the replicate sample, matrix spike duplicate, or laboratory control sample duplicate was not analyzed at the appropriate frequency for each matrix or for each data package, or (b) a field blank or equipment blank was used for the replicate analysis.

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 45 samples in RIN 0805012. Twenty-three samples arrived on May 9, 2008, under UPS shipping number 1Z5W1Y510194728732, accompanied by Chain of Custody (COC) forms and were analyzed in SDG 0805095. An additional 12 samples arrived on May 15, 2008, under UPS shipping number 1Z5W1Y510196912805, accompanied by COC forms and were analyzed in SDG 0805124. The COC forms were 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 and the sample tickets, had no errors or omissions with the following exceptions:

- TDS sample number 0805124-7 was labeled as ticket 655. The location, time, and date on the bottle matched the other bottles and the COC form. The sample collector was contacted and confirmed that the sample belonged with ticket 656.

- The COC form for sample 0805124-11 indicated no filtration. The sample ticket indicated that filtration had occurred. The sample collector was contacted and confirmed that the sample was filtered.

Preservation and Holding Times
The sample shipments were received intact with the temperature within the cooler for SDG 0805124 at 1.8 °C which complies with requirements. The temperature within the cooler for SDG 0805095 was 4.3 °C which exceeds the allowable temperature for ammonia, bromide, chloride, sulfate, and TDS analyses. Therefore, all ammonia, bromide, chloride, sulfate, and TDS results were flagged for SDG 0805095.

All samples were analyzed within the applicable holding times. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the following exception:

- Ammonia sample number 0805124-12 was received at pH 7. Sulfuric acid was added, to lower the pH to 1.6, by Paragon Analytics.

Laboratory Instrument Calibration
Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Method SW-846 6020A, Uranium
Calibrations for uranium analyses were performed on May 13, 2008, for SDG 0805095 and May 16, 2008, for SDG 0805124. The initial calibrations were performed using eight calibration standards and one blank, resulting in calibration curves with correlation coefficient (r^2) values greater than 0.995. The absolute values of the calibration curve intercepts were less than three times the Method Detection Limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (ICV and CCV) checks were made at the required frequency, resulting in five CCVs for uranium in SDG 0805095 and nine CCVs for uranium in SDG 0805124. All calibration checks met the acceptance criteria. A reporting limit verification (CRI) check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit (PQL). The CRI checks were 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 6010B, Manganese and Copper
Calibrations for manganese and copper were performed on May 15, 2008, for SDG 0805095 and on May 20, 2008, for SDG 0805124. No copper analysis was requested for SDG 0805124. All calibrations used three calibration standards and a blank. Calibration and laboratory spike standards were prepared from independent sources. ICV and CCV checks were made at the required frequency, resulting in 10 CCVs for the analysis on May 15 and 16 CCVs for the May 20 analysis. All calibration checks met the acceptance criteria. CRIs were made at the required frequency to verify the linearity of the calibration curve near the PQL. The CRI results were within the acceptance range.

Method EPA 350.1, Ammonia as N
Initial calibration for ammonia as N was performed using six calibration standards on May 12, 2008, for SDG 0805095 and May 19, 2008, for SDG 0805124. Both calibration curves had r^2 values greater than 0.995 and intercepts less than three times the MDL. ICV and CCV checks were made at the required frequency resulting in four CCVs for ammonia in SDG 0805095 and five CCVs for ammonia in SDG 0805124. All calibration check results were within the acceptance criteria.

Method SW-846 9056, Bromide, Chloride, and Sulfate
Initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards on April 14, 2008, for SDG 0805095 and on May 19and 20, 2008, for SDG 0805124. The calibration curve 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. ICV and CCV checks were made at the required frequency for SDG 0805095, resulting in seven CCVs on May12, 2008, and two CCVs on May13, 2008. For SDG 0805124, all ICV and CCV checks were made at the required frequency resulting in nine CCVs on May 19, 2008, and one CCV on May 20, 2008. All calibration checks met the acceptance criteria.

Method MCAWW 160.1, TDS
There is no initial or continuing calibration requirement associated with the determination of TDS.

Method and Calibration Blanks
Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. Detected sample results associated with blank results greater than the method detection limit or instrument detection limit (depending on method requirements) were J-qualified when the detections were less than five times the blank concentration. Nondetects were not qualified.

Occasionally blanks results were negative and had absolute values greater than the MDL or Instrument Detection Limit (IDL). Samples (including nondetects) associated with these blank results were J-qualified when the results were less than five times the MDL/IDL concentration.

Analysis of the blanks as described above resulted in qualification of the following samples:

- The copper sample 0805095-23 was J-qualified because (a) its associated continuing calibration blanks were negative, with the absolute value of the concentrations exceeding the IDL, and (b) its concentration was less than five times the IDL.
- All bromide samples in sample data group 0805124 were J-qualified because although bromide was nondetected in the samples, the associated method blank was negative, with an absolute value of its concentrations exceeding the IDL possibly leading to a negative bias.

Equipment Blanks
No equipment blank was provided for analysis for these samples.

Inductively Coupled Plasma Interference Check Sample Analysis
Inductively Coupled Plasma (ICP) interference check samples ICSA and ICSAB are analyzed to verify the instrument interelement and background correction factors. For the uranium analyses in both SDGs, the ICSA values for calcium, magnesium, aluminum, and iron were not provided for verification of the instrument's interelement and background correction factors. The percent recoveries of the ICSAB samples were provided and were acceptable for all uranium analyses. All other check sample results met the acceptance criteria so no qualification of the sample results was deemed necessary.

Matrix Spike Analysis
For SDG 0805095, a matrix spike (MS) was analyzed for ammonia as N, bromide, copper, manganese, and uranium as a measure of method performance in the sample matrix. The spike recoveries met the recovery criteria for these analytes. MS recoveries could not be evaluated for the chloride or sulfate samples because the analyte concentrations in the native sample were above the analytical range. Based on validation protocol, qualification requirements are not applicable when the native sample concentration exceeds four times the spike concentration. Therefore, no qualifiers were applied.

For SDG 0805124, an MS was analyzed for ammonia as N, bromide, and uranium as a measure of method performance in the sample matrix. The spike recoveries met the recovery criteria for these analytes. The manganese MS sample was not the selected quality-control sample for its analytical run. Consequently, all manganese detects were qualified as J, and all nondetects as UJ. MS recoveries could not be evaluated for the chloride or sulfate samples because the analyte concentrations in the native sample were above the analytical range. Based on validation protocol, qualification requirements are not applicable when the native sample concentration exceeds four times the spike concentration. Therefore, no qualifiers were applied for chloride or sulfate.

Laboratory Replicate Analysis
The laboratory replicate results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the reported laboratory replicate sample and the MS duplicate sample results for all analytes were less than 20 percent for results greater than five times the PQL with the following exceptions:

- For SDG 0805095, the RPD could not be determined for the chloride or sulfate duplicates because the analyte concentrations in the native sample were above the

analytical range. In addition, no field duplicate was analyzed in this SDG. Therefore, all detects for chloride and sulfate were qualified as J and all nondetects as UJ.

- For SDG 0805124, the manganese matrix spike duplicate (MSD) sample was not the selected quality-control sample for the analytical run, hence no RPDs could be determined. The RPD could not be determined for the chloride or sulfate duplicates because the analyte concentrations in the native sample were above the analytical range. However, two field duplicates were analyzed (sample 0805124-8/field 0685 and false sample ID 0805124-11/field ID 2001 and sample 0805124-3/field 0671 and false sample ID 0805124-12/field ID 2002), and each met the precision requirements. Therefore, no qualification was required for manganese, chloride, or sulfate results based on the replicate results.

Field Duplicate Analysis

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from locations 0685 (original sample ID 0805124-8) and 0671 (original sample ID 0805124-3) on May 13, 2008. The duplicate samples were assigned the false locations 2001 and 2002 and were identified by the sample IDs 0805124-11 and 0805124-12, respectively. The duplicate results met the U.S. Environmental Protection Agency (EPA) recommended laboratory duplicate criteria of less than 20 RPD for results that are greater than five times the PQL. No qualification was required based on field duplicate results.

Laboratory Control Sample

Laboratory control samples (LCSs) provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. LCS results were acceptable for all analyses with the following exceptions:

- LCSs were not reported for copper, manganese, or uranium in SDG 0805095 or 0805124. As a standard practice, Paragon Analytics does not prepare LCSs for samples that were field filtered and acidified, and run directly on the instrument without any additional sample preparation. Per national environmental laboratory accreditation requirements provided by the National Environmental Laboratory Accreditation Conference, an MS may be used in place of an LCS provided the acceptance criteria are as stringent. Therefore, no qualification was required because of lack of LCS results. See Matrix Spike Analysis section for required qualification.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. ICP-MS serial dilution data are evaluated when the concentration of the undiluted sample is greater than 100 times the PQL. ICP-Atomic Emission Spectrometry serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the PQL. All evaluated serial dilution data were acceptable with the following exception:

- No serial dilutions were analyzed for manganese samples in SDG 0805124. All

sample results greater than 100 times the PQL were qualified "J," resulting in 12 results requiring qualification.

Detection Limits/Dilutions
Dilutions were prepared in a consistent and acceptable manner when dilutions were required. Numerous samples were diluted prior to analysis of ammonia, bromide, chloride, sulfate, copper, manganese, uranium, and selenium to reduce interferences. The required detection limits (RDLs) were achieved for all analytes.

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

Electronic Data Deliverable File
The Electronic Data Deliverable (EDD) files arrived on June 2, 2008, for both SDGs. The contents of the EDD were manually examined to ensure all and only the requested data are delivered in compliance with requirements and that the sample results accurately reflect the data contained in the sample data package. One discrepancy was noted: copper results for sample 0805095-13 were reported in the EDD. This analysis was not requested in the COC forms or sample tickets.

2.3 Field Analyses/Activities

The following information summarizes the field analyses and activities for the May 2008 monthly sampling event.

Field Activities
All monitor wells were purged and sampled using the low-flow sampling method; this method was not used at extraction wells. One equipment blank was collected for the nondedicated surface water collection equipment. Five duplicate samples were collected. 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. All results met the criteria of ±20 RPD and are considered acceptable, except for the manganese (67 RPD) duplicate result from well 0671.

2.4 Certification

Results were reported in correct units for all analytes requested. Appropriate contract required laboratory qualifiers and target analyte lists were used. The RDLs 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.

3.0 Data Presentation

This section contains the Minimums and Maximums Report (Section 3.1), the Anomalous Data Review Check Sheet (Section 3.2), a table containing the Water Quality and Water Level Data (Sections 3.3 and 3.4, respectively), and the Blanks Report (Section 3.5).

3.1 Minimums and Maximums Report

The Minimums and Maximums Report (see Appendix B) is generated by the Sample Management System used to query the SEEPro database. The DataVal program 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, and the 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; or (3) there were fewer than five historical samples for comparison.

3.2 Anomalous Data Review

Any results that are considered anomalous based on the minimums and maximums report are listed below.

Site: Moab Processing Site **Sampling Date:** May 6 - 13, 2008

Loc. No.	Analyte	Type of Anomaly	Disposition
0471	Manganese	Low	Fewer than 10 samples collected from location, still establishing analyte range.
0473	Manganese	Low	Fewer than 10 samples collected from location, still establishing analyte range.
0477	Manganese	Low	Fewer than 10 samples collected from location, still establishing analyte range.
0582	Manganese	Low	Fewer than 10 samples collected from location, still establishing analyte range.
0774	Ammonia	Low	Concentration impacted by high river stage.
0774	Chloride	Low	Concentration impacted by high river stage.
0774	Manganese	Low	Fewer than 10 samples collected from location, still establishing analyte range.
0774	Sulfate	Low	Concentration impacted by high river stage.
0774	TDS	Low	Concentration impacted by high river stage.
0774	Uranium	Low	Concentration impacted by high river stage.

3.3 Water Quality Data

All water quality data are presented in Appendix C.

3.4 Water Level Data

All water level data are presented in Appendix D.

3.5 Blanks Report

No samples were collected using nondedicated equipment, and as a result an equipment blank was not collected during this sampling event.

Appendix A. Water Sampling Field Activities Verification

Sampling Event / RIN	May 2008 / 0805012	**Date(s) of Water Sampling**	May 6 to 13, 2008
Date(s) of Verification	July 28, 2008	**Name of Verifier**	Rachel Cowan

		Response (Yes, No, NA)	Comments
1.	Is the SAP the primary document directing field procedures?	Yes	
	List other documents, standard operating procedures, 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 aforementioned 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, electrical conductivity, pH, turbidity, dissolved oxygen, oxidation reduction potential) 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 milliliters per minute (mL/min)?	Yes	
	If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Appendix A. Water Sampling Field Activities Verification

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?	NA	Ground water samples are collected on dedicated equipment, and no surface water samples were collected.
11.	Were trip blanks prepared and included with each shipment of volatile organic compound samples?	NA	
12.	Were Quality Control 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 (COC) 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?	No	The presence or absence of ice was not documented for the well 0787 sample; however, the samples taken before and after this sample were documented with ice in the cooler.
20.	Were water levels measured at the locations specified in the planning documents?	Yes	

Appendix B. Minimums and Maximums Report

Data Validation Minimums and Maximums Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 0805012
Comparison: All Historical Data
Report Date: 7/29/2008

				Current			Historical Maximum			Historical Minimum			Count	
					Qualifiers			Qualifiers			Qualifiers			
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
MOA01	0404	05/07/2008	Ammonia Total as N	150			490			190	N	FJ	25	0
MOA01	0407	05/06/2008	Ammonia Total as N	2.6			1360			4.3		F	51	0
MOA01	0407	05/06/2008	Manganese	0.064			6.1		F	0.101		F	20	0
MOA01	0407	05/06/2008	Sulfate	120			12601.1			231		F	51	0
MOA01	0407	05/06/2008	Total Dissolved Solids	420			19000		F	700			50	0
MOA01	0471	05/06/2008	Chloride	630			11000		F	800			42	0
MOA01	0471	05/06/2008	Manganese	0.29			4.5		F	2.1			8	0
MOA01	0471	05/06/2008	Sulfate	930			11500			1100			42	0
MOA01	0471	05/06/2008	Total Dissolved Solids	2500			28000		F	3100			42	0
MOA01	0471	05/06/2008	Uranium	0.47			4		F	0.51		F	42	0
MOA01	0473	05/06/2008	Manganese	0.69			3.8		F	1.4			8	0
MOA01	0475	05/06/2008	Manganese	1.3			4.1		F	2.6		J	7	0
MOA01	0477	05/06/2008	Manganese	1.4			4.3		F	3.4			8	0
MOA01	0479	05/06/2008	Manganese	2.3			4.5		F	2.9			12	0
MOA01	0547	05/12/2008	Manganese	2.5			4.7			3.1			13	0
MOA01	0552	05/07/2008	Manganese	4.5			5.3		J	4.6		F	7	0
MOA01	0552	05/07/2008	Uranium	2.6			3.8		F	2.7			8	0

Appendix B. Minimums and Maximums Report

Data Validation Minimums and Maximums Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 0805012
Comparison: All Historical Data
Report Date: 7/29/2008

				Current			Historical Maximum			Historical Minimum			Count	
					Qualifiers			Qualifiers			Qualifiers			
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
MOA01	0582	05/07/2008	Chloride	49			3300		F	59		F	29	0
MOA01	0582	05/07/2008	Manganese	0.75			5.5		J	3.8			6	0
MOA01	0583	05/07/2008	Manganese	2.8			5.3		J	3.6		J	14	0
MOA01	0586	05/07/2008	Manganese	3.1			5.9		F	5.4		F	6	0
MOA01	0772	05/06/2008	Manganese	1.2			8		F	1.4		J	7	0
MOA01	0772	05/06/2008	Sulfate	1100			9700		F	2000			14	0
MOA01	0772	05/06/2008	Uranium	0.39			3.1		F	0.76		F	14	0
MOA01	0774	05/06/2008	Ammonia Total as N	96			800			240			12	0
MOA01	0774	05/06/2008	Chloride	2000			40000		F	4100		F	11	0
MOA01	0774	05/06/2008	Manganese	0.6			11		F	2.7			6	0
MOA01	0774	05/06/2008	Sulfate	990			10000		F	3900			12	0
MOA01	0774	05/06/2008	Total Dissolved Solids	4600			80000		F	13000			12	0
MOA01	0774	05/06/2008	Uranium	0.41			3		F	0.87		F	12	0
MOA01	0776	05/06/2008	Ammonia Total as N	190			1900		F	290			12	0
MOA01	0776	05/06/2008	Manganese	1.7			13		F	2.7		J	6	0
MOA01	0776	05/06/2008	Sulfate	2000			10000		F	3300		J	12	0
MOA01	0776	05/06/2008	Total Dissolved Solids	15000			73000		F	16000		J	12	0
MOA01	0776	05/06/2008	Uranium	0.44			2.7		F	0.74		J	12	0

Appendix B. Minimums and Maximums Report

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Count N	Count N Below Detect
MOA01	0781	05/06/2008	Ammonia Total as N	520			420		F	25			21	0
MOA01	0782	05/06/2008	Manganese	4.5			9.9		J	6.4		F	12	0
MOA01	0782	05/06/2008	Total Dissolved Solids	25000			90000			26000		F	20	0

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	0403	WL	05/06/2008	0001	18	-	18	300			0		
Alkalinity, Total (As CaCO3)	mg/L	0404	WL	05/07/2008	0001	18	-	18	530			0		
Alkalinity, Total (As CaCO3)	mg/L	0407	WL	05/06/2008	0001	17	-	17	210			0		
Alkalinity, Total (As CaCO3)	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	330			0		
Alkalinity, Total (As CaCO3)	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	396			0		
Alkalinity, Total (As CaCO3)	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	540			0		
Alkalinity, Total (As CaCO3)	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	720			0		
Alkalinity, Total (As CaCO3)	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	840			0		
Alkalinity, Total (As CaCO3)	mg/L	0547	TS	05/12/2008	0001	0	-	0	556			0		
Alkalinity, Total (As CaCO3)	mg/L	0548	TS	05/12/2008	0001	0	-	0	510			0		
Alkalinity, Total (As CaCO3)	mg/L	0552	WL	05/07/2008	0001	18	-	18	860			0		
Alkalinity, Total (As CaCO3)	mg/L	0582	WL	05/07/2008	0001	18	-	18	230			0		
Alkalinity, Total (As CaCO3)	mg/L	0583	WL	05/07/2008	0001	18	-	18	528			0		
Alkalinity, Total (As CaCO3)	mg/L	0586	WL	05/07/2008	0001	18	-	18	712			0		
Alkalinity, Total (As CaCO3)	mg/L	0588	WL	05/07/2008	0001	34	-	34	782			0		
Alkalinity, Total (As CaCO3)	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	942			0		
Alkalinity, Total (As CaCO3)	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	702			0		
Alkalinity, Total (As CaCO3)	mg/L	0675	WL	05/13/2008	0001	16	-	46	650			0		
Alkalinity, Total (As CaCO3)	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	768			0		
Alkalinity, Total (As CaCO3)	mg/L	0679	WL	05/13/2008	0001	15	-	45	510			0		
Alkalinity, Total (As CaCO3)	mg/L	0682	WL	05/07/2008	0001	18	-	18	832			0		
Alkalinity, Total (As CaCO3)	mg/L	0685	WL	05/13/2008	0001	18	-	18	356			0		
Alkalinity, Total (As CaCO3)	mg/L	0688	WL	05/07/2008	0001	39	-	39	948			0		
Alkalinity, Total (As CaCO3)	mg/L	0689	WL	05/07/2008	0001	54	-	54	274			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	0730	WL	05/13/2008	0001	18	-	18	368			0		
Alkalinity, Total (As CaCO3)	mg/L	0732	WL	05/13/2008	0001	18	-	18	586			0		
Alkalinity, Total (As CaCO3)	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	314			0		
Alkalinity, Total (As CaCO3)	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	412			0		
Alkalinity, Total (As CaCO3)	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	322			0		
Alkalinity, Total (As CaCO3)	mg/L	0781	WL	05/06/2008	0001	48	-	48	396			0		
Alkalinity, Total (As CaCO3)	mg/L	0782	WL	05/06/2008	0001	36	-	36	732			0		
Alkalinity, Total (As CaCO3)	mg/L	0786	WL	05/06/2008	0001	28	-	28	270			0		
Alkalinity, Total (As CaCO3)	mg/L	0787	WL	05/06/2008	0001	36	-	36	276			0		
Ammonia Total as N	mg/L	0403	WL	05/06/2008	0001	18	-	18	76			0	10	
Ammonia Total as N	mg/L	0404	WL	05/07/2008	0001	18	-	18	150			0	20	
Ammonia Total as N	mg/L	0407	WL	05/06/2008	0001	17	-	17	2.6			0	0.1	
Ammonia Total as N	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	89			0	20	
Ammonia Total as N	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	140			0	20	
Ammonia Total as N	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	220			0	20	
Ammonia Total as N	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	220			0	20	
Ammonia Total as N	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	230			0	20	
Ammonia Total as N	mg/L	0547	TS	05/12/2008	0001	0	-	0	360			0	20	
Ammonia Total as N	mg/L	0548	TS	05/12/2008	0001	0	-	0	450			0	20	
Ammonia Total as N	mg/L	0552	WL	05/07/2008	0001	18	-	18	690			0	20	
Ammonia Total as N	mg/L	0582	WL	05/07/2008	0001	18	-	18	78			0	20	
Ammonia Total as N	mg/L	0583	WL	05/07/2008	0001	18	-	18	210			0	20	
Ammonia Total as N	mg/L	0586	WL	05/07/2008	0001	18	-	18	210			0	20	
Ammonia Total as N	mg/L	0588	WL	05/07/2008	0001	34	-	34	380			0	20	
Ammonia Total as N	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	470			0	20	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Ammonia Total as N	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	410			0	20	
Ammonia Total as N	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	590			0	20	
Ammonia Total as N	mg/L	0675	WL	05/13/2008	0001	16	-	46	530			0	20	
Ammonia Total as N	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	590			0	20	
Ammonia Total as N	mg/L	0679	WL	05/13/2008	0001	15	-	45	360			0	20	
Ammonia Total as N	mg/L	0682	WL	05/07/2008	0001	18	-	18	420			0	20	
Ammonia Total as N	mg/L	0685	WL	05/13/2008	0001	18	-	18	180			0	20	
Ammonia Total as N	mg/L	0685	WL	05/13/2008	0002	18	-	18	170			0	20	
Ammonia Total as N	mg/L	0688	WL	05/07/2008	0001	39	-	39	890			0	20	
Ammonia Total as N	mg/L	0689	WL	05/07/2008	0001	54	-	54	270			0	20	
Ammonia Total as N	mg/L	0730	WL	05/13/2008	0001	18	-	18	52			0	10	
Ammonia Total as N	mg/L	0732	WL	05/13/2008	0001	18	-	18	0.92			0	0.1	
Ammonia Total as N	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	100			0	20	
Ammonia Total as N	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	96			0	20	
Ammonia Total as N	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	190			0	20	
Ammonia Total as N	mg/L	0781	WL	05/06/2008	0001	48	-	48	520			0	20	
Ammonia Total as N	mg/L	0782	WL	05/06/2008	0001	36	-	36	540	N		0	20	
Ammonia Total as N	mg/L	0786	WL	05/06/2008	0001	28	-	28	53			0	5	
Ammonia Total as N	mg/L	0787	WL	05/06/2008	0001	36	-	36	330			0	20	
Bromide	mg/L	0403	WL	05/06/2008	0001	18	-	18	0.4	U		0	0.4	
Bromide	mg/L	0404	WL	05/07/2008	0001	18	-	18	2	U		0	2	
Bromide	mg/L	0407	WL	05/06/2008	0001	17	-	17	0.2	U		0	0.2	
Bromide	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	1	U		0	1	
Bromide	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	1	U		0	1	
Bromide	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	2	U		0	2	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Bromide	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	2	U		0	2	
Bromide	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	4	U		0	4	
Bromide	mg/L	0547	TS	05/12/2008	0001	0	-	0	4	U		0	4	
Bromide	mg/L	0548	TS	05/12/2008	0001	0	-	0	4	U		0	4	
Bromide	mg/L	0552	WL	05/07/2008	0001	18	-	18	4	U		0	4	
Bromide	mg/L	0582	WL	05/07/2008	0001	18	-	18	0.4	U		0	0.4	
Bromide	mg/L	0583	WL	05/07/2008	0001	18	-	18	2	U		0	2	
Bromide	mg/L	0586	WL	05/07/2008	0001	18	-	18	4	U		0	4	
Bromide	mg/L	0588	WL	05/07/2008	0001	34	-	34	4	U		0	4	
Bromide	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	4	U		0	4	
Bromide	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	4	U		0	4	
Bromide	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	10	U		0	10	
Bromide	mg/L	0675	WL	05/13/2008	0001	16	-	46	10	U		0	10	
Bromide	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	10	U		0	10	
Bromide	mg/L	0679	WL	05/13/2008	0001	15	-	45	4	U		0	4	
Bromide	mg/L	0682	WL	05/07/2008	0001	18	-	18	4	U		0	4	
Bromide	mg/L	0685	WL	05/13/2008	0001	18	-	18	2	U		0	2	
Bromide	mg/L	0685	WL	05/13/2008	0002	18	-	18	2	U		0	2	
Bromide	mg/L	0688	WL	05/07/2008	0001	39	-	39	10	U		0	10	
Bromide	mg/L	0689	WL	05/07/2008	0001	54	-	54	20	U		0	20	
Bromide	mg/L	0730	WL	05/13/2008	0001	18	-	18	1	U		0	1	
Bromide	mg/L	0732	WL	05/13/2008	0001	18	-	18	1	U		0	1	
Bromide	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	4	U		0	4	
Bromide	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	2	U		0	2	
Bromide	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	4	U		0	4	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Bromide	mg/L	0781	WL	05/06/2008	0001	48	-	48	20	U		0	20	
Bromide	mg/L	0782	WL	05/06/2008	0001	36	-	36	20	U		0	20	
Bromide	mg/L	0786	WL	05/06/2008	0001	28	-	28	0.4	U		0	0.4	
Bromide	mg/L	0787	WL	05/06/2008	0001	36	-	36	10	U		0	10	
Chloride	mg/L	0403	WL	05/06/2008	0001	18	-	18	110			0	4	
Chloride	mg/L	0404	WL	05/07/2008	0001	18	-	18	1000			0	20	
Chloride	mg/L	0407	WL	05/06/2008	0001	17	-	17	37			0	1	
Chloride	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	630			0	10	
Chloride	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	800			0	10	
Chloride	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	1500			0	20	
Chloride	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	1300			0	20	
Chloride	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	2600			0	40	
Chloride	mg/L	0547	TS	05/12/2008	0001	0	-	0	3500			0	40	
Chloride	mg/L	0548	TS	05/12/2008	0001	0	-	0	5400			0	100	
Chloride	mg/L	0552	WL	05/07/2008	0001	18	-	18	3600			0	40	
Chloride	mg/L	0582	WL	05/07/2008	0001	18	-	18	49			0	10	
Chloride	mg/L	0583	WL	05/07/2008	0001	18	-	18	1100			0	20	
Chloride	mg/L	0586	WL	05/07/2008	0001	18	-	18	2100			0	40	
Chloride	mg/L	0588	WL	05/07/2008	0001	34	-	34	1700			0	40	
Chloride	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	2300			0	40	
Chloride	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	2300			0	40	
Chloride	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	7200			0	100	
Chloride	mg/L	0675	WL	05/13/2008	0001	16	-	46	5900			0	100	
Chloride	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	3200			0	100	
Chloride	mg/L	0679	WL	05/13/2008	0001	15	-	45	1700			0	40	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Chloride	mg/L	0682	WL	05/07/2008	0001	18	-	18	2000			0	40	
Chloride	mg/L	0685	WL	05/13/2008	0001	18	-	18	610			0	20	
Chloride	mg/L	0685	WL	05/13/2008	0002	18	-	18	650			0	20	
Chloride	mg/L	0688	WL	05/07/2008	0001	39	-	39	14000			0	400	
Chloride	mg/L	0689	WL	05/07/2008	0001	54	-	54	46000			0	1000	
Chloride	mg/L	0730	WL	05/13/2008	0001	18	-	18	430			0	20	
Chloride	mg/L	0732	WL	05/13/2008	0001	18	-	18	490			0	20	
Chloride	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	6100			0	100	
Chloride	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	2000			0	20	
Chloride	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	7400			0	100	
Chloride	mg/L	0781	WL	05/06/2008	0001	48	-	48	36000			0	2000	
Chloride	mg/L	0782	WL	05/06/2008	0001	36	-	36	8700			0	1000	
Chloride	mg/L	0786	WL	05/06/2008	0001	28	-	28	270			0	10	
Chloride	mg/L	0787	WL	05/06/2008	0001	36	-	36	34000			0	400	
Copper	mg/L	0787	WL	05/06/2008	0001	36	-	36	0.03	U		0	0.03	
Dissolved Oxygen	mg/L	0403	WL	05/06/2008	0001	18	-	18	0.79			0		
Dissolved Oxygen	mg/L	0404	WL	05/07/2008	0001	18	-	18	0.85			0		
Dissolved Oxygen	mg/L	0407	WL	05/06/2008	0001	17	-	17	0.86			0		
Dissolved Oxygen	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	1.82			0		
Dissolved Oxygen	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	3.29			0		
Dissolved Oxygen	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	3.52			0		
Dissolved Oxygen	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	2.91			0		
Dissolved Oxygen	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	2.94			0		
Dissolved Oxygen	mg/L	0547	TS	05/12/2008	0001	0	-	0	8.3			0		
Dissolved Oxygen	mg/L	0548	TS	05/12/2008	0001	0	-	0	8.88			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	0552	WL	05/07/2008	0001	18	-	18	0.51			0		
Dissolved Oxygen	mg/L	0582	WL	05/07/2008	0001	18	-	18	1.61			0		
Dissolved Oxygen	mg/L	0583	WL	05/07/2008	0001	18	-	18	1.93			0		
Dissolved Oxygen	mg/L	0586	WL	05/07/2008	0001	18	-	18	2.96			0		
Dissolved Oxygen	mg/L	0588	WL	05/07/2008	0001	34	-	34	3.09			0		
Dissolved Oxygen	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	4.52			0		
Dissolved Oxygen	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	6.35			0		
Dissolved Oxygen	mg/L	0675	WL	05/13/2008	0001	16	-	46	5.75			0		
Dissolved Oxygen	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	3.78			0		
Dissolved Oxygen	mg/L	0679	WL	05/13/2008	0001	15	-	45	9.86			0		
Dissolved Oxygen	mg/L	0682	WL	05/07/2008	0001	18	-	18	1.77			0		
Dissolved Oxygen	mg/L	0685	WL	05/13/2008	0001	18	-	18	3.19			0		
Dissolved Oxygen	mg/L	0688	WL	05/07/2008	0001	39	-	39	2.21			0		
Dissolved Oxygen	mg/L	0688	WL	05/07/2008	0001	31	-	31	8.61			0		
Dissolved Oxygen	mg/L	0689	WL	05/07/2008	0001	54	-	54	0.21			0		
Dissolved Oxygen	mg/L	0689	WL	05/07/2008	0001	46	-	46	0.74			0		
Dissolved Oxygen	mg/L	0730	WL	05/13/2008	0001	18	-	18	5.31			0		
Dissolved Oxygen	mg/L	0732	WL	05/13/2008	0001	18	-	18	3.41			0		
Dissolved Oxygen	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	1.2			0		
Dissolved Oxygen	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	3.49			0		
Dissolved Oxygen	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	2.96			0		
Dissolved Oxygen	mg/L	0781	WL	05/06/2008	0001	48	-	48	1.37			0		
Dissolved Oxygen	mg/L	0782	WL	05/06/2008	0001	36	-	36	1.3			0		
Dissolved Oxygen	mg/L	0786	WL	05/06/2008	0001	28	-	28	0.89			0		
Dissolved Oxygen	mg/L	0787	WL	05/06/2008	0001	36	-	36	1.29			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	0403	WL	05/06/2008	0001	18	-	18	0.57			0	0.00013	
Manganese	mg/L	0404	WL	05/07/2008	0001	18	-	18	3.3			0	0.00064	
Manganese	mg/L	0407	WL	05/06/2008	0001	17	-	17	0.064			0	0.00013	
Manganese	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	0.29			0	0.00026	
Manganese	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	0.69			0	0.00064	
Manganese	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	1.3			0	0.00064	
Manganese	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	1.4			0	0.00064	
Manganese	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	2.3			0	0.0013	
Manganese	mg/L	0547	TS	05/12/2008	0001	0	-	0	2.5			0	0.0013	
Manganese	mg/L	0548	TS	05/12/2008	0001	0	-	0	2.4			0	0.0013	
Manganese	mg/L	0552	WL	05/07/2008	0001	18	-	18	4.5			0	0.0013	
Manganese	mg/L	0582	WL	05/07/2008	0001	18	-	18	0.75			0	0.00013	
Manganese	mg/L	0583	WL	05/07/2008	0001	18	-	18	2.8			0	0.00064	
Manganese	mg/L	0586	WL	05/07/2008	0001	18	-	18	3.1			0	0.0013	
Manganese	mg/L	0588	WL	05/07/2008	0001	34	-	34	4			0	0.0013	
Manganese	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	4			0	0.0013	
Manganese	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	2			0	0.00064	
Manganese	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	4.5			0	0.0032	
Manganese	mg/L	0675	WL	05/13/2008	0001	16	-	46	4.3			0	0.0032	
Manganese	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	4.7			0	0.0032	
Manganese	mg/L	0679	WL	05/13/2008	0001	15	-	45	3.3			0	0.0013	
Manganese	mg/L	0682	WL	05/07/2008	0001	18	-	18	5.7			0	0.0013	
Manganese	mg/L	0685	WL	05/13/2008	0001	18	-	18	2.5			0	0.00064	
Manganese	mg/L	0685	WL	05/13/2008	0002	18	-	18	2.5			0	0.00064	
Manganese	mg/L	0688	WL	05/07/2008	0001	39	-	39	5.9			0	0.0064	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	0689	WL	05/07/2008	0001	54	-	54	6.4			0	0.013	
Manganese	mg/L	0730	WL	05/13/2008	0001	18	-	18	1.6			0	0.00064	
Manganese	mg/L	0732	WL	05/13/2008	0001	18	-	18	1.3			0	0.00064	
Manganese	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	1.2			0	0.0013	
Manganese	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	0.6			0	0.00064	
Manganese	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	1.7			0	0.0013	
Manganese	mg/L	0781	WL	05/06/2008	0001	48	-	48	7.4			0	0.013	
Manganese	mg/L	0782	WL	05/06/2008	0001	36	-	36	4.5			0	0.0064	
Manganese	mg/L	0786	WL	05/06/2008	0001	28	-	28	0.15			0	0.00013	
Manganese	mg/L	0787	WL	05/06/2008	0001	36	-	36	6.6			0	0.0064	
Oxidation Reduction Potential	mV	0403	WL	05/06/2008	0001	18	-	18	-141			0		
Oxidation Reduction Potential	mV	0404	WL	05/07/2008	0001	18	-	18	-29			0		
Oxidation Reduction Potential	mV	0407	WL	05/06/2008	0001	17	-	17	-160			0		
Oxidation Reduction Potential	mV	0471	WL	05/06/2008	0001	10.3	-	19.7	-33			0		
Oxidation Reduction Potential	mV	0473	WL	05/06/2008	0001	10.3	-	19.7	-77			0		
Oxidation Reduction Potential	mV	0475	WL	05/06/2008	0001	10.3	-	19.7	-60			0		
Oxidation Reduction Potential	mV	0477	WL	05/06/2008	0001	10.3	-	19.7	-62			0		
Oxidation Reduction Potential	mV	0479	WL	05/06/2008	0001	9.3	-	23.6	-58			0		
Oxidation Reduction Potential	mV	0547	TS	05/12/2008	0001	0	-	0	178.8			0		
Oxidation Reduction Potential	mV	0548	TS	05/12/2008	0001	0	-	0	175.9			0		
Oxidation Reduction Potential	mV	0552	WL	05/07/2008	0001	18	-	18	90			0		
Oxidation Reduction Potential	mV	0582	WL	05/07/2008	0001	18	-	18	-3.1			0		
Oxidation Reduction Potential	mV	0583	WL	05/07/2008	0001	18	-	18	6.6			0		

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General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Oxidation Reduction Potential	mV	0586	WL	05/07/2008	0001	18	-	18	-9.8			0		
Oxidation Reduction Potential	mV	0588	WL	05/07/2008	0001	34	-	34	1			0		
Oxidation Reduction Potential	mV	0671	WL	05/13/2008	0001	14.4	-	44.4	26			0		
Oxidation Reduction Potential	mV	0673	WL	05/13/2008	0001	16.3	-	46.3	46			0		
Oxidation Reduction Potential	mV	0675	WL	05/13/2008	0001	16	-	46	44			0		
Oxidation Reduction Potential	mV	0677	WL	05/13/2008	0001	15.2	-	45.2	54			0		
Oxidation Reduction Potential	mV	0679	WL	05/13/2008	0001	15	-	45	22			0		
Oxidation Reduction Potential	mV	0682	WL	05/07/2008	0001	18	-	18	-22.8			0		
Oxidation Reduction Potential	mV	0685	WL	05/13/2008	0001	18	-	18	71			0		
Oxidation Reduction Potential	mV	0688	WL	05/07/2008	0001	31	-	31	-36			0		
Oxidation Reduction Potential	mV	0688	WL	05/07/2008	0001	39	-	39	-28.5			0		
Oxidation Reduction Potential	mV	0689	WL	05/07/2008	0001	46	-	46	-33.6			0		
Oxidation Reduction Potential	mV	0689	WL	05/07/2008	0001	54	-	54	36.7			0		
Oxidation Reduction Potential	mV	0730	WL	05/13/2008	0001	18	-	18	-54			0		
Oxidation Reduction Potential	mV	0732	WL	05/13/2008	0001	18	-	18	-18			0		
Oxidation Reduction Potential	mV	0772	WL	05/06/2008	0001	15.15	-	35.05	-92			0		
Oxidation Reduction Potential	mV	0774	WL	05/06/2008	0001	15.5	-	35.4	-74			0		
Oxidation Reduction Potential	mV	0776	WL	05/06/2008	0001	15.15	-	35.05	-6			0		
Oxidation Reduction Potential	mV	0781	WL	05/06/2008	0001	48	-	48	170			0		
Oxidation Reduction Potential	mV	0782	WL	05/06/2008	0001	36	-	36	124			0		
Oxidation Reduction Potential	mV	0786	WL	05/06/2008	0001	28	-	28	-113			0		

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General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Oxidation Reduction Potential	mV	0787	WL	05/06/2008	0001	36	-	36	-36			0		
pH	s.u.	0403	WL	05/06/2008	0001	18	-	18	7.7			0		
pH	s.u.	0404	WL	05/07/2008	0001	18	-	18	7.3			0		
pH	s.u.	0407	WL	05/06/2008	0001	17	-	17	7.91			0		
pH	s.u.	0471	WL	05/06/2008	0001	10.3	-	19.7	7.7			0		
pH	s.u.	0473	WL	05/06/2008	0001	10.3	-	19.7	7.64			0		
pH	s.u.	0475	WL	05/06/2008	0001	10.3	-	19.7	7.47			0		
pH	s.u.	0477	WL	05/06/2008	0001	10.3	-	19.7	7.31			0		
pH	s.u.	0479	WL	05/06/2008	0001	9.3	-	23.6	7.09			0		
pH	s.u.	0547	TS	05/12/2008	0001	0	-	0	7.03			0		
pH	s.u.	0548	TS	05/12/2008	0001	0	-	0	7.92			0		
pH	s.u.	0552	WL	05/07/2008	0001	18	-	18	6.85			0		
pH	s.u.	0582	WL	05/07/2008	0001	18	-	18	7.39			0		
pH	s.u.	0583	WL	05/07/2008	0001	18	-	18	7.03			0		
pH	s.u.	0586	WL	05/07/2008	0001	18	-	18	6.68			0		
pH	s.u.	0588	WL	05/07/2008	0001	34	-	34	6.92			0		
pH	s.u.	0671	WL	05/13/2008	0001	14.4	-	44.4	7.03			0		
pH	s.u.	0673	WL	05/13/2008	0001	16.3	-	46.3	7.14			0		
pH	s.u.	0675	WL	05/13/2008	0001	16	-	46	7.02			0		
pH	s.u.	0677	WL	05/13/2008	0001	15.2	-	45.2	7.13			0		
pH	s.u.	0679	WL	05/13/2008	0001	15	-	45	7.21			0		
pH	s.u.	0682	WL	05/07/2008	0001	18	-	18	6.82			0		
pH	s.u.	0685	WL	05/13/2008	0001	18	-	18	7.16			0		
pH	s.u.	0688	WL	05/07/2008	0001	39	-	39	6.82			0		
pH	s.u.	0688	WL	05/07/2008	0001	31	-	31	6.91			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
pH	s.u.	0689	WL	05/07/2008	0001	46	-	46	6.81			0		
pH	s.u.	0689	WL	05/07/2008	0001	54	-	54	6.81			0		
pH	s.u.	0730	WL	05/13/2008	0001	18	-	18	7.18			0		
pH	s.u.	0732	WL	05/13/2008	0001	18	-	18	6.88			0		
pH	s.u.	0772	WL	05/06/2008	0001	15.15	-	35.05	8.46			0		
pH	s.u.	0774	WL	05/06/2008	0001	15.5	-	35.4	8.39			0		
pH	s.u.	0776	WL	05/06/2008	0001	15.15	-	35.05	7.86			0		
pH	s.u.	0781	WL	05/06/2008	0001	48	-	48	6.97			0		
pH	s.u.	0782	WL	05/06/2008	0001	36	-	36	7.12			0		
pH	s.u.	0786	WL	05/06/2008	0001	28	-	28	8.63			0		
pH	s.u.	0787	WL	05/06/2008	0001	36	-	36	7.06			0		
Specific Conductance	umhos /cm	0403	WL	05/06/2008	0001	18	-	18	2083			0		
Specific Conductance	umhos /cm	0404	WL	05/07/2008	0001	18	-	18	9745			0		
Specific Conductance	umhos /cm	0407	WL	05/06/2008	0001	17	-	17	696			0		
Specific Conductance	umhos /cm	0471	WL	05/06/2008	0001	10.3	-	19.7	3833			0		
Specific Conductance	umhos /cm	0473	WL	05/06/2008	0001	10.3	-	19.7	5380			0		
Specific Conductance	umhos /cm	0475	WL	05/06/2008	0001	10.3	-	19.7	9260			0		
Specific Conductance	umhos /cm	0477	WL	05/06/2008	0001	10.3	-	19.7	11091			0		
Specific Conductance	umhos /cm	0479	WL	05/06/2008	0001	9.3	-	23.6	17359			0		
Specific Conductance	umhos /cm	0547	TS	05/12/2008	0001	0	-	0	16514			0		
Specific Conductance	umhos /cm	0548	TS	05/12/2008	0001	0	-	0	23074			0		
Specific Conductance	umhos /cm	0552	WL	05/07/2008	0001	18	-	18	19659			0		
Specific Conductance	umhos /cm	0582	WL	05/07/2008	0001	18	-	18	2600			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Specific Conductance	umhos /cm	0583	WL	05/07/2008	0001	18	-	18	9739			0		
Specific Conductance	umhos /cm	0586	WL	05/07/2008	0001	18	-	18	15173			0		
Specific Conductance	umhos /cm	0588	WL	05/07/2008	0001	34	-	34	14705			0		
Specific Conductance	umhos /cm	0671	WL	05/13/2008	0001	14.4	-	44.4	17880			0		
Specific Conductance	umhos /cm	0673	WL	05/13/2008	0001	16.3	-	46.3	28813			0		
Specific Conductance	umhos /cm	0675	WL	05/13/2008	0001	16	-	46	25280			0		
Specific Conductance	umhos /cm	0677	WL	05/13/2008	0001	15.2	-	45.2	18034			0		
Specific Conductance	umhos /cm	0679	WL	05/13/2008	0001	15	-	45	12692			0		
Specific Conductance	umhos /cm	0682	WL	05/07/2008	0001	18	-	18	17008			0		
Specific Conductance	umhos /cm	0685	WL	05/13/2008	0001	18	-	18	8552			0		
Specific Conductance	umhos /cm	0688	WL	05/07/2008	0001	31	-	31	21808			0		
Specific Conductance	umhos /cm	0688	WL	05/07/2008	0001	39	-	39	46699			0		
Specific Conductance	umhos /cm	0689	WL	05/07/2008	0001	46	-	46	98563			0		
Specific Conductance	umhos /cm	0689	WL	05/07/2008	0001	54	-	54	99039			0		
Specific Conductance	umhos /cm	0730	WL	05/13/2008	0001	18	-	18	5870			0		
Specific Conductance	umhos /cm	0732	WL	05/13/2008	0001	18	-	18	5577			0		
Specific Conductance	umhos /cm	0772	WL	05/06/2008	0001	15.15	-	35.05	17146			0		
Specific Conductance	umhos /cm	0774	WL	05/06/2008	0001	15.5	-	35.4	8387			0		
Specific Conductance	umhos /cm	0776	WL	05/06/2008	0001	15.15	-	35.05	22169			0		
Specific Conductance	umhos /cm	0781	WL	05/06/2008	0001	48	-	48	91686			0		
Specific Conductance	umhos /cm	0782	WL	05/06/2008	0001	36	-	36	32117			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Specific Conductance	umhos /cm	0786	WL	05/06/2008	0001	28	-	28	1979			0		
Specific Conductance	umhos /cm	0787	WL	05/06/2008	0001	36	-	36	72572			0		
Sulfate	mg/L	0403	WL	05/06/2008	0001	18	-	18	620			0	10	
Sulfate	mg/L	0404	WL	05/07/2008	0001	18	-	18	4400			0	50	
Sulfate	mg/L	0407	WL	05/06/2008	0001	17	-	17	120			0	2.5	
Sulfate	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	930			0	25	
Sulfate	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	1500			0	25	
Sulfate	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	3000			0	50	
Sulfate	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	4400			0	50	
Sulfate	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	7800			0	100	
Sulfate	mg/L	0547	TS	05/12/2008	0001	0	-	0	4800			0	100	
Sulfate	mg/L	0548	TS	05/12/2008	0001	0	-	0	7500			0	100	
Sulfate	mg/L	0552	WL	05/07/2008	0001	18	-	18	8000			0	100	
Sulfate	mg/L	0582	WL	05/07/2008	0001	18	-	18	1200			0	25	
Sulfate	mg/L	0583	WL	05/07/2008	0001	18	-	18	4300			0	50	
Sulfate	mg/L	0586	WL	05/07/2008	0001	18	-	18	6600			0	100	
Sulfate	mg/L	0588	WL	05/07/2008	0001	34	-	34	7100			0	100	
Sulfate	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	7400			0	100	
Sulfate	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	7700			0	100	
Sulfate	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	7900			0	250	
Sulfate	mg/L	0675	WL	05/13/2008	0001	16	-	46	7400			0	250	
Sulfate	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	8100			0	250	
Sulfate	mg/L	0679	WL	05/13/2008	0001	15	-	45	5000			0	100	
Sulfate	mg/L	0682	WL	05/07/2008	0001	18	-	18	8400			0	100	
Sulfate	mg/L	0685	WL	05/13/2008	0001	18	-	18	4200			0	50	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sulfate	mg/L	0685	WL	05/13/2008	0002	18	-	18	4300			0	50	
Sulfate	mg/L	0688	WL	05/07/2008	0001	39	-	39	12000			0	250	
Sulfate	mg/L	0689	WL	05/07/2008	0001	54	-	54	5300			0	50	
Sulfate	mg/L	0730	WL	05/13/2008	0001	18	-	18	2500			0	50	
Sulfate	mg/L	0732	WL	05/13/2008	0001	18	-	18	2200			0	50	
Sulfate	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	1100			0	10	
Sulfate	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	990			0	5	
Sulfate	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	2000			0	100	
Sulfate	mg/L	0781	WL	05/06/2008	0001	48	-	48	6800			0	50	
Sulfate	mg/L	0782	WL	05/06/2008	0001	36	-	36	6800			0	50	
Sulfate	mg/L	0786	WL	05/06/2008	0001	28	-	28	370			0	25	
Sulfate	mg/L	0787	WL	05/06/2008	0001	36	-	36	5800			0	250	
Temperature	C	0403	WL	05/06/2008	0001	18	-	18	12.66			0		
Temperature	C	0404	WL	05/07/2008	0001	18	-	18	15.88			0		
Temperature	C	0407	WL	05/06/2008	0001	17	-	17	13.08			0		
Temperature	C	0471	WL	05/06/2008	0001	10.3	-	19.7	16.63			0		
Temperature	C	0473	WL	05/06/2008	0001	10.3	-	19.7	15.21			0		
Temperature	C	0475	WL	05/06/2008	0001	10.3	-	19.7	16			0		
Temperature	C	0477	WL	05/06/2008	0001	10.3	-	19.7	16.3			0		
Temperature	C	0479	WL	05/06/2008	0001	9.3	-	23.6	15.54			0		
Temperature	C	0547	TS	05/12/2008	0001	0	-	0	17.46			0		
Temperature	C	0548	TS	05/12/2008	0001	0	-	0	17.97			0		
Temperature	C	0552	WL	05/07/2008	0001	18	-	18	16.13			0		
Temperature	C	0582	WL	05/07/2008	0001	18	-	18	14.13			0		
Temperature	C	0583	WL	05/07/2008	0001	18	-	18	15.15			0		

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Temperature	C	0586	WL	05/07/2008	0001	18	-	18	15.92			0		
Temperature	C	0588	WL	05/07/2008	0001	34	-	34	15.84			0		
Temperature	C	0671	WL	05/13/2008	0001	14.4	-	44.4	15.05			0		
Temperature	C	0673	WL	05/13/2008	0001	16.3	-	46.3	15.06			0		
Temperature	C	0675	WL	05/13/2008	0001	16	-	46	15.04			0		
Temperature	C	0677	WL	05/13/2008	0001	15.2	-	45.2	15.09			0		
Temperature	C	0679	WL	05/13/2008	0001	15	-	45	16.03			0		
Temperature	C	0682	WL	05/07/2008	0001	18	-	18	17.03			0		
Temperature	C	0685	WL	05/13/2008	0001	18	-	18	16.52			0		
Temperature	C	0688	WL	05/07/2008	0001	39	-	39	16.54			0		
Temperature	C	0688	WL	05/07/2008	0001	31	-	31	17.13			0		
Temperature	C	0689	WL	05/07/2008	0001	54	-	54	16.4			0		
Temperature	C	0689	WL	05/07/2008	0001	46	-	46	17.35			0		
Temperature	C	0730	WL	05/13/2008	0001	18	-	18	15.55			0		
Temperature	C	0732	WL	05/13/2008	0001	18	-	18	15.58			0		
Temperature	C	0772	WL	05/06/2008	0001	15.15	-	35.05	14.97			0		
Temperature	C	0774	WL	05/06/2008	0001	15.5	-	35.4	16.1			0		
Temperature	C	0776	WL	05/06/2008	0001	15.15	-	35.05	14.3			0		
Temperature	C	0781	WL	05/06/2008	0001	48	-	48	16.67			0		
Temperature	C	0782	WL	05/06/2008	0001	36	-	36	15.76			0		
Temperature	C	0786	WL	05/06/2008	0001	28	-	28	12.61			0		
Temperature	C	0787	WL	05/06/2008	0001	36	-	36	14.67			0		
Total Dissolved Solids	mg/L	0403	WL	05/06/2008	0001	18	-	18	1200			0	40	
Total Dissolved Solids	mg/L	0404	WL	05/07/2008	0001	18	-	18	8600			0	200	
Total Dissolved Solids	mg/L	0407	WL	05/06/2008	0001	17	-	17	420			0	20	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Dissolved Solids	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	2500			0	80	
Total Dissolved Solids	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	3500			0	80	
Total Dissolved Solids	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	6800			0	200	
Total Dissolved Solids	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	9000			0	200	
Total Dissolved Solids	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	17000			0	400	
Total Dissolved Solids	mg/L	0547	TS	05/12/2008	0001	0	-	0	12000			0	400	
Total Dissolved Solids	mg/L	0548	TS	05/12/2008	0001	0	-	0	18000			0	400	
Total Dissolved Solids	mg/L	0552	WL	05/07/2008	0001	18	-	18	17000			0	400	
Total Dissolved Solids	mg/L	0582	WL	05/07/2008	0001	18	-	18	1900			0	40	
Total Dissolved Solids	mg/L	0583	WL	05/07/2008	0001	18	-	18	8600			0	200	
Total Dissolved Solids	mg/L	0586	WL	05/07/2008	0001	18	-	18	15000			0	400	
Total Dissolved Solids	mg/L	0588	WL	05/07/2008	0001	34	-	34	13000			0	400	
Total Dissolved Solids	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	14000			0	400	
Total Dissolved Solids	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	14000			0	400	
Total Dissolved Solids	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	22000			0	1000	
Total Dissolved Solids	mg/L	0675	WL	05/13/2008	0001	16	-	46	19000			0	1000	
Total Dissolved Solids	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	16000			0	400	
Total Dissolved Solids	mg/L	0679	WL	05/13/2008	0001	15	-	45	9900			0	400	
Total Dissolved Solids	mg/L	0682	WL	05/07/2008	0001	18	-	18	16000			0	400	
Total Dissolved Solids	mg/L	0685	WL	05/13/2008	0001	18	-	18	7300			0	200	
Total Dissolved Solids	mg/L	0685	WL	05/13/2008	0002	18	-	18	7200			0	200	
Total Dissolved Solids	mg/L	0688	WL	05/07/2008	0001	39	-	39	40000			0	2000	
Total Dissolved Solids	mg/L	0689	WL	05/07/2008	0001	54	-	54	83000			0	2000	
Total Dissolved Solids	mg/L	0730	WL	05/13/2008	0001	18	-	18	4900			0	200	
Total Dissolved Solids	mg/L	0732	WL	05/13/2008	0001	18	-	18	4800			0	200	

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General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Dissolved Solids	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	11000			0	400	
Total Dissolved Solids	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	4600			0	200	
Total Dissolved Solids	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	15000			0	400	
Total Dissolved Solids	mg/L	0781	WL	05/06/2008	0001	48	-	48	76000			0	2000	
Total Dissolved Solids	mg/L	0782	WL	05/06/2008	0001	36	-	36	25000			0	2000	
Total Dissolved Solids	mg/L	0786	WL	05/06/2008	0001	28	-	28	1000			0	40	
Total Dissolved Solids	mg/L	0787	WL	05/06/2008	0001	36	-	36	62000			0	2000	
Turbidity	NTU	0403	WL	05/06/2008	0001	18	-	18	2.17			0		
Turbidity	NTU	0404	WL	05/07/2008	0001	18	-	18	5.21			0		
Turbidity	NTU	0407	WL	05/06/2008	0001	17	-	17	2.69			0		
Turbidity	NTU	0471	WL	05/06/2008	0001	10.3	-	19.7	5.57			0		
Turbidity	NTU	0473	WL	05/06/2008	0001	10.3	-	19.7	5.74			0		
Turbidity	NTU	0475	WL	05/06/2008	0001	10.3	-	19.7	5.81			0		
Turbidity	NTU	0477	WL	05/06/2008	0001	10.3	-	19.7	7.08			0		
Turbidity	NTU	0479	WL	05/06/2008	0001	9.3	-	23.6	4.94			0		
Turbidity	NTU	0547	TS	05/12/2008	0001	0	-	0	30.2			0		
Turbidity	NTU	0548	TS	05/12/2008	0001	0	-	0	15.1			0		
Turbidity	NTU	0552	WL	05/07/2008	0001	18	-	18	6.08			0		
Turbidity	NTU	0582	WL	05/07/2008	0001	18	-	18	6.9			0		
Turbidity	NTU	0583	WL	05/07/2008	0001	18	-	18	7.24			0		
Turbidity	NTU	0586	WL	05/07/2008	0001	18	-	18	3.04			0		
Turbidity	NTU	0588	WL	05/07/2008	0001	34	-	34	4.55			0		
Turbidity	NTU	0671	WL	05/13/2008	0001	14.4	-	44.4	3.78			0		
Turbidity	NTU	0673	WL	05/13/2008	0001	16.3	-	46.3	6.04			0		
Turbidity	NTU	0675	WL	05/13/2008	0001	16	-	46	3.19			0		

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General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Turbidity	NTU	0677	WL	05/13/2008	0001	15.2	-	45.2	1.81			0		
Turbidity	NTU	0679	WL	05/13/2008	0001	15	-	45	1.81			0		
Turbidity	NTU	0682	WL	05/07/2008	0001	18	-	18	2.78			0		
Turbidity	NTU	0685	WL	05/13/2008	0001	18	-	18	3.6			0		
Turbidity	NTU	0688	WL	05/07/2008	0001	39	-	39	3.15			0		
Turbidity	NTU	0688	WL	05/07/2008	0001	31	-	31	3.2			0		
Turbidity	NTU	0689	WL	05/07/2008	0001	54	-	54	5.44			0		
Turbidity	NTU	0689	WL	05/07/2008	0001	46	-	46	5.68			0		
Turbidity	NTU	0730	WL	05/13/2008	0001	18	-	18	1.83			0		
Turbidity	NTU	0732	WL	05/13/2008	0001	18	-	18	1.74			0		
Turbidity	NTU	0772	WL	05/06/2008	0001	15.15	-	35.05	4.59			0		
Turbidity	NTU	0774	WL	05/06/2008	0001	15.5	-	35.4	3.42			0		
Turbidity	NTU	0776	WL	05/06/2008	0001	15.15	-	35.05	3.28			0		
Turbidity	NTU	0781	WL	05/06/2008	0001	48	-	48	3.67			0		
Turbidity	NTU	0782	WL	05/06/2008	0001	36	-	36	5.69			0		
Turbidity	NTU	0786	WL	05/06/2008	0001	28	-	28	1.72			0		
Turbidity	NTU	0787	WL	05/06/2008	0001	36	-	36	2.65			0		
Uranium	mg/L	0403	WL	05/06/2008	0001	18	-	18	0.3			0	7.E-005	
Uranium	mg/L	0404	WL	05/07/2008	0001	18	-	18	1.6			0	0.00018	
Uranium	mg/L	0407	WL	05/06/2008	0001	17	-	17	0.081			0	3.5E-006	
Uranium	mg/L	0471	WL	05/06/2008	0001	10.3	-	19.7	0.47			0	7.E-005	
Uranium	mg/L	0473	WL	05/06/2008	0001	10.3	-	19.7	0.51			0	0.00018	
Uranium	mg/L	0475	WL	05/06/2008	0001	10.3	-	19.7	1			0	0.00018	
Uranium	mg/L	0477	WL	05/06/2008	0001	10.3	-	19.7	1.7			0	0.00018	
Uranium	mg/L	0479	WL	05/06/2008	0001	9.3	-	23.6	3.5			0	0.00018	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Uranium	mg/L	0547	TS	05/12/2008	0001	0	-	0	1.4			0	0.00018	
Uranium	mg/L	0548	TS	05/12/2008	0001	0	-	0	2.1			0	0.00018	
Uranium	mg/L	0552	WL	05/07/2008	0001	18	-	18	2.6			0	0.00018	
Uranium	mg/L	0582	WL	05/07/2008	0001	18	-	18	0.33			0	3.5E-005	
Uranium	mg/L	0583	WL	05/07/2008	0001	18	-	18	1.6			0	0.00018	
Uranium	mg/L	0586	WL	05/07/2008	0001	18	-	18	2.6			0	0.00018	
Uranium	mg/L	0588	WL	05/07/2008	0001	34	-	34	2.6			0	0.00018	
Uranium	mg/L	0671	WL	05/13/2008	0001	14.4	-	44.4	2.3			0	0.00018	
Uranium	mg/L	0671	WL	05/13/2008	0002	14.4	-	44.4	2.3			0	0.00018	
Uranium	mg/L	0673	WL	05/13/2008	0001	16.3	-	46.3	2.3			0	0.00018	
Uranium	mg/L	0675	WL	05/13/2008	0001	16	-	46	2.2			0	0.00018	
Uranium	mg/L	0677	WL	05/13/2008	0001	15.2	-	45.2	2.4			0	0.00018	
Uranium	mg/L	0679	WL	05/13/2008	0001	15	-	45	1.6			0	0.00018	
Uranium	mg/L	0682	WL	05/07/2008	0001	18	-	18	2.6			0	0.00018	
Uranium	mg/L	0685	WL	05/13/2008	0001	18	-	18	1.6			0	0.00018	
Uranium	mg/L	0685	WL	05/13/2008	0002	18	-	18	1.6			0	0.00018	
Uranium	mg/L	0688	WL	05/07/2008	0001	39	-	39	2.8			0	0.00018	
Uranium	mg/L	0689	WL	05/07/2008	0001	54	-	54	0.45			0	0.00018	
Uranium	mg/L	0730	WL	05/13/2008	0001	18	-	18	1.2			0	0.00018	
Uranium	mg/L	0732	WL	05/13/2008	0001	18	-	18	1.1			0	0.00018	
Uranium	mg/L	0772	WL	05/06/2008	0001	15.15	-	35.05	0.39			0	3.5E-005	
Uranium	mg/L	0774	WL	05/06/2008	0001	15.5	-	35.4	0.41			0	7.E-005	
Uranium	mg/L	0776	WL	05/06/2008	0001	15.15	-	35.05	0.44			0	3.5E-005	
Uranium	mg/L	0781	WL	05/06/2008	0001	48	-	48	0.74			0	3.5E-005	
Uranium	mg/L	0782	WL	05/06/2008	0001	36	-	36	1.8			0	0.00018	

Appendix C. Water Quality Data

General Water Quality Data by Parameter (USEE205) for site MOA01, Moab Site
REPORT DATE: 7/29/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BGS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Uranium	mg/L	0786	WL	05/06/2008	0001	28	-	28	0.17			0	1.8E-005	
Uranium	mg/L	0787	WL	05/06/2008	0001	36	-	36	0.48			0	0.00018	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Appendix D. Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 7/30/2008

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0403	O	3968.95	05/06/2008		13.09	3955.86	
0404	O	3968.3	05/07/2008		13.34	3954.96	
0407	O	3969.09	05/06/2008		13.2	3955.89	
0471		3964.37	05/06/2008		9.55	3954.82	
0473		3964.66	05/06/2008		9.74	3954.92	
0475		3964.97	05/06/2008		10.12	3954.85	
0477		3965.08	05/06/2008		10.32	3954.76	
0479		3964.67	05/06/2008		9.68	3954.99	
0552		3968.4	05/07/2008		12.87	3955.53	
0582		3969.65	05/07/2008		13.39	3956.26	
0583		3969.64	05/07/2008		13.53	3956.11	
0586		3969.2	05/07/2008		13.12	3956.08	
0588		3968.82	05/07/2008		12.65	3956.17	
0671		3969.5	05/13/2008		13.51	3955.99	
0673		3969.44	05/13/2008		14.42	3955.02	
0675		3969.64	05/13/2008		13.23	3956.41	
0677		3969.61	05/13/2008		13.3	3956.31	
0679		3969.59	05/13/2008		12.95	3956.64	
0682		3970.18	05/07/2008		15.12	3955.06	
0685		3968.76	05/13/2008		11.43	3957.33	
0688		3968.66	05/07/2008		13.54	3955.12	
0689		3968.66	05/07/2008		13.32	3955.34	
0730		3967.6	05/13/2008		9.6	3958	
0732		3968.99	05/13/2008		11.1	3957.89	
0772		3969.21	05/06/2008		13.78	3955.43	
0774		3968.77	05/06/2008		13.25	3955.52	

Appendix D. Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 7/30/2008

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0776		3968.97	05/06/2008		13.57	3955.4	
0781		3968.56	05/06/2008		13.58	3954.98	
0782		3968.46	05/06/2008		12.8	3955.66	
0786		3968.14	05/06/2008		12.2	3955.94	
0787		3968.43	05/06/2008		13.37	3955.06	

FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT O ON SITE
U UPGRADIENT

WATER LEVEL FLAGS: D Dry

Attachment 1
Interim Action Well Field Monthly Sampling Event Trip Report

S&K Moab TAC Team

DATE: May 27, 2008

TO: K. Pill, M. Mullis

FROM: E. Glowiak

SUBJECT: Trip Report

Site: Moab – Interim Action Well Field Sampling – May 2008

Date of Sampling Event: May 6 - May 13, 2008

Team Members: Steve Back, Elizabeth Glowiak, Ken Pill, James Ritchey

RIN Number Assigned: All samples were assigned to RIN 0805012
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Sample Shipment: All samples were shipped in a cooler overnight UPS to Paragon Analytics, Inc. from Moab, Utah, on May 9 and 15 (Tracking No.194728732, 196912805)

May 2008 Configuration 1 Sampling

Number of Locations Sampled: Five extraction wells (0471, 0473, 0475, 0477, and 0479), three observation wells (0403, 0407, and 0552), and two evaporation pond locations (0547 and 0548) were sampled during the May 2008 sampling event. A total of 10 samples were collected.

Locations Not Sampled: Many of the observation wells were sampled in May during the Surface Water/Ground Water Investigation Sampling Event and were not sampled during this event.

Field Variance: None.

Location Specific Information – Configuration 1 Extraction Wells: Extraction wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc*)	Pump Intake (ft bgs)
0471	05/06/2008	13:50	9.55	18
0473	05/06/2008	13:57	9.74	18
0475	05/06/2008	14:07	10.12	18
0477	05/06/2008	14:18	10.32	18
0479	05/06/2008	14:28	9.68	23

*Below top of casing.

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated downhole and pump-head 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	05/06/2008	16:00	13.09	18
0407	05/06/2008	15:30	13.20	17
0552	05/07/2008	10:45	12.87	18

May 2008 Configuration 2 Sampling

Number of Locations Sampled: Four Configuration 2 observation wells (0582, 0583, 0586, and 0588) were sampled during the May 2008 sampling event. A total of four locations were sampled.

Locations Not Sampled: None.

Field Variance: None.

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated pump-head and 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)
0582	05/07/2008	11:08	13.39	18
0583	05/07/2008	11:35	13.53	18
0586	05/07/2008	14:02	13.12	18
0588	05/07/2008	13:42	12.65	34

May 2008 Configuration 3 Sampling

Number of Locations Sampled: Five remediation wells (0671, 0673, 0675, 0677, and 0679), five observation wells (0682, 0688-39, 0689-54, 0404, and 0685), and two duplicates were sampled during the May 2008 sampling event. A total of 12 samples were collected.

Locations Not Sampled: None

Field Variance: None

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
2001	0685	Duplicate from 18 ft bgs	Ground Water	NFC 653
2002	0671	Duplicate from 18 ft bgs	Ground Water	NFC 661

Locations in Which Field Parameters Were Measured Only: Parameters were measured at locations 0688 at 31 ft and 0689 at 46 ft.

Well No.	Date	Time	Depth (ft bgs)	Depth To Water (ft btoc)	Field Parameters					
					Temp (^{o}C)	Spec Cond (µS/cm)	D.O. (mg/L)	pH	ORP	Turb. (NTUs)
0688	05/07/2008	15:05	31	13.55	17.13	21,808	8.61	6.91	-36	3.20
0689	05/07/2008	15:38	46	13.35	17.35	98,563	0.74	6.81	-33	5.68

Location Specific Information – CF 3 Remediation Wells: Remediation wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0671	05/06/2008	13:50	9.55	18
0673	05/06/2008	13:57	9.74	18
0675	05/06/2008	14:07	10.12	18
0677	05/06/2008	14:18	10.32	18

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated pump-head and 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)
0404	05/07/2008	15:58	13.34	18
0682	05/07/2008	14:23	15.12	18
0685	05/13/2008	09:43	11.43	18
0688-39	05/07/2008	14:48	13.54	39
0689-54	05/07/2008	15:19	13.32	54

May 2008 Configuration 4 Sampling

Number of Locations Sampled: Three extraction wells (0772, 0774, and 0776) and four observation wells (0781, 0782, 0786, and 0787) were sampled during the May 2008 sampling event. A total of seven locations were sampled.

Field Variance: None.

Locations Not Sampled: None.

Location Specific Information – CF 4 Remediation Wells: Remediation wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0772	05/06/2008	14:51	13.78	30
0774	05/06/2008	15:00	13.25	30
0776	05/06/2008	15:11	13.57	30

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated pump-head and 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)
0781	05/06/2008	08:59	13.58	48
0782	05/06/2008	08:38	12.80	36
0786	05/06/2008	11:19	12.20	28
0787	05/06/2008	10:55	13.37	36

May 2008 Infiltration Trench Sampling

Number of Locations Sampled: Two observation wells (0730 and 0732) were sampled during the May 2008 sampling event. A total of two locations were sampled.

Field Variance: None.

Locations Not Sampled: None.

Location Specific Information – Observation Wells: All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated pump-head and 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)
0730	05/13/2008	10:11	9.60	18
0732	05/13/2008	10:40	11.10	18

Well Inspection Summary: A well inspection was not conducted.

Site Issues: According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River flows during this sampling event are provided below:

Date	Daily Mean Flow (cfs)
05/06/2008	12,400
05/07/2008	14,000
05/08/2008	16,000
05/12/2008	19,900
05/13/2008	20,600

Equipment Issues: None.

Corrective Action Required/Taken: None.