

Office of Environmental Management – Grand Junction



Moab UMTRA Project
July 2008 Validation Data Package for
Performance Assessment of the
Monthly Sampling for the Ground Water
Interim Action and for the Ground Water
and Surface Water Interaction
Investigation Sampling

March 2009



U.S. Department
of Energy

Office of Environmental Management

**Moab UMTRA Project
July 2008 Validation Data Package for the
Ground Water Sampling Events**

March 2009

**Moab UMTRA Project
July 2008 Ground Water Sampling Events**

Revision 0

Review and Approval

K. G. Pill

3/24/09

Kenneth G. Pill
TAC Ground Water Manager

Date

J. D. Ritchey

3/24/09

Joseph D. Ritchey
TAC Senior Program Manager

Date

Revision History

Revision No.	Date	Reason/Basis for Revision
0	March 2009	Initial issue.

Table of Contents

Section	Page
Acronyms and Abbreviations	v
1.0 Introduction.....	1
1.1 Summary Criteria.....	1
1.1.1 Monthly Sampling Event.....	1
1.1.2 Ground Water/Surface Water Interaction Investigation Sampling Event	2
1.2 Sampling Event Summaries.....	3
1.2.1 Monthly Sampling Event.....	3
1.2.2 Ground Water/Surface Water Interaction Investigation Sampling Event	12
1.3 Sampling and Analyses.....	17
1.3.1 Monthly Sampling Event.....	17
1.3.2 Ground Water/Surface Water Interaction Investigation Sampling Event	17
2.0 Data Assessment Summaries	18
2.1 Water Sampling Field Activities Verification	18
2.2 Laboratory Performance Assessments.....	18
2.2.1 Monthly Sampling Event.....	18
2.2.2 Ground Water/Surface Water Interaction Investigation Sampling Event	23
2.3 Field Analyses/Activities.....	29
2.3.1 Monthly Sampling Event.....	29
2.3.2 Ground Water/Surface Water Interaction Investigation Sampling Event	29
2.4 Certification	30
3.0 Data Presentation.....	30
3.1 Minimums and Maximums Reports	30
3.2 Anomalous Data Review	31
3.3 Water Quality Data.....	31
3.4 Water Level Data.....	31
3.5 Blanks Report	32

Tables

Table 1. Monthly Sampling Event Surface Water Ammonia Concentrations and Comparisons to State of Utah and Federal Criteria.....	10
Table 2. Ground Water/Surface Water Interaction Investigation Sampling Event Surface Water Ammonia Concentrations and Comparisons to State of Utah and Federal Criteria.....	17
Table 3. Interim Action Analytes and Methods.....	19
Table 4. Interim Action Data Qualifiers	19
Table 5. Interim Action Reason Codes for Data Flags	20
Table 6. Ground Water/Surface Water Interaction Investigation Sampling Event Analytes and Methods.....	24
Table 7. Ground Water/Surface Water Interaction Investigation Sampling Event Data Qualifiers	24
Table 8. Ground Water/Surface Water Interaction Investigation Sampling Event Reason Codes for Data Flags.....	25

Figures

Figure 1.	Map of Sample Locations at the Interim Action Well Field and Baseline Area.....	4
Figure 2.	Configuration 3 Observation Wells Time versus Ammonia Concentration Plot.....	5
Figure 3.	Configuration 3 Observation Wells Time versus TDS Concentration Plot	5
Figure 4.	Configuration 3 Observation Wells Time versus Uranium Concentration Plot.....	6
Figure 5.	Configuration 1 Observation Wells Time versus Ammonia Concentration Plot.....	6
Figure 6.	Configuration 1 Observation Wells Time versus TDS Concentration Plot	7
Figure 7.	Configuration 1 Observation Wells Time versus Uranium Concentration Plot.....	7
Figure 8.	Configuration 1 Observation Wells 0403 and 0407 Time versus Ammonia Concentration Plot	8
Figure 9.	Configuration 1 Observation Wells 0403 and 0407 Time versus TDS Concentration Plot	8
Figure 10.	Configuration 1 Observation Wells 0403 and 0407 Time versus Uranium Concentration Plot	9
Figure 11.	Configuration 4 Observation Wells Time versus Ammonia Concentration Plot.....	10
Figure 12.	Configuration 4 Observation Wells Time versus TDS Concentration Plot	11
Figure 13.	Configuration 4 Observation Wells Time versus Uranium Concentration Plot.....	11
Figure 14.	March 2008 Baseline Area Trilinear Diagram	13
Figure 15.	June 2008 Baseline Area Trilinear Diagram	14
Figure 16.	March 2008 Configuration 1 Trilinear Diagram	15
Figure 17.	June 2008 Configuration 1 Trilinear Diagram	16

Appendices

Appendix A.	Water Sampling Field Activities Verification.....	A-1
Appendix B.	Minimums and Maximums Reports	B-1
Appendix C.	Water Quality Data.....	C-1
Appendix D.	Water Level Data	D-1

Attachments

Attachment 1.	Interim Action Well Field Monthly Sampling Trip Report
Attachment 2.	Ground Water/Surface Water Interaction Investigation Sampling Trip Report

Acronyms and Abbreviations

AWQC	ambient water quality criteria
bgs	below ground surface
btoc	below top of casing
CCV	continuing calibration verification
cfs	cubic feet per second
COC	chain of custody
CRI	reporting limit verification
DI	deionized
EB	equipment blank
EDD	electronic data deliverable
EPA	Environment Protection Agency
ft	feet
ICP	inductively coupled plasma
ICS	interference check sample
ICV	initial calibration verification
ID	identification
IDL	instrument detection limit
LCS	laboratory control sample
MDL	method detection limit
mg/L	milligram per liter
mL/m	milliliter per minute
MS	matrix spike
MSD	matrix spike duplicate
mV	millivolt
NTU	nephelometric turbidity unit
PQL	practical quantitation limit
r ²	correlation coefficient
RDL	required detection limit
RIN	report identification number
RPD	relative percent difference
SDG	sample data group
SL	surface location
S.U.	standard unit
TDS	total dissolved solids
TS	treatment system
UMTRA	Uranium Mill Tailings Remedial Action
USGS	U.S. Geological Survey
VDP	validation data package
WL	well

1.0 Introduction

The 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 Uranium Mill Tailings Remedial Action (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 U.S. Geological Survey (USGS) Cisco gaging station no. 09180500.

This validation data package (VDP) presents the results of two July 2008 sampling events. A monthly sampling event was completed from July 14 through 24, 2008, in which ground water and surface water samples were collected from a variety of locations across the well field. From July 8 through 10, 2008, ground water and surface water locations were sampled as part of the fourth event associated with the ground water/surface water interaction investigation.

Section 1.0 contains the Summary Criteria with a sample location map (Section 1.1), Sampling Event Summaries (Section 1.2), and the Sampling and Analyses (Section 1.3) for both July 2008 sampling events.

1.1 Summary Criteria

1.1.1 Monthly Sampling Event

Sampling Period: July 14 through 24, 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?

Yes. All anomalous data associated with this event were historic lows and can be attributed to the prolonged increased river flow during the 2008 spring runoff.

2. Were all interim action well field pumps operating within the planned parameters?

Configurations 1 and 3 were pumping approximately 28 and 45 gallons per minute (gpm), respectively, during this sampling event. Configuration 4 was not operating continuously as

described in Item 5. Configuration 2 was not operating because there was no adjacent riparian habitat channel, and well-specific capacities were low.

3. Was the evaporation pond functioning properly?

Yes. The pond level increased from 6.5 to 7.0 feet (ft) during this sampling event. The increase in the level can be attributed to the restarting of the well field after it was shut down the previous month due to potential flooding.

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

No. A large number of well point and surface water locations were not accessible due to the high river stage. Please refer to the Interim Action Trip Report (Attachment 1) for a detailed list of locations that were not sampled during this event.

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

Yes. Configuration 4 was not operating this entire time period due to electrical pole stabilization work in the southern end of the well field. Configuration 4 was brought back online July 22 after being shut down July 8. Configuration 2 was not operating because there was no adjacent riparian habitat channel, and well-specific capacities were low.

1.1.2 Ground Water/Surface Water Interaction Investigation Sampling Event

Sampling Period: July 8 through 10, 2008

The purpose of this sampling was to collect a fourth round of data for the ground water/surface water investigation, which was designed to determine the vertical and lateral migration of freshwater from the river into the well field aquifer during the 2008 spring runoff. The first sampling event occurred when the Colorado River flows were approximately 3,500 cubic feet per second (cfs), which represents river base-flow conditions. The second and third sampling events occurred during the early stages of the spring runoff (flows were approximately 13,000 cfs) and near the peak (flows ranged between 35,000 and 40,000 cfs), respectively. This fourth event represents the postpeak time frame, when flows were approximately 12,000 cfs. A series of surface water locations, well points, observation wells, and one extraction well from the Configuration 1 and the Baseline Areas were sampled at varying depths and distances from the river channel. 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. This sampling event produced no anomalous data.

2. Were all interim action well field pumps operating within the planned parameters?

Configuration 1 was extracting ground water at an extraction rate of approximately 25 gpm, and Configurations 3 and 4 had extraction rates of approximately 40 and 35 gpm during this sampling event. However, Configuration 4 was not operating continuously as described in Item 5. Configuration 2 was not operating because there was no adjacent riparian habitat channel, and well-specific capacities were low.

3. Was the evaporation pond functioning properly?

Yes. The pond level was between 6.5 and 6.6 ft during this sampling event.

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

No. All well points were inaccessible due to the high river stage.

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

Yes. Configuration 4 was not operating this entire time period due to electrical pole stabilization work in the southern end of the well field. Configuration 4 was brought back online July 22 after being shut down July 8. Configuration 2 was not operating because there was no adjacent riparian habitat channel, and well-specific capacities were low.

1.2 Sampling Event Summaries

1.2.1 Monthly Sampling Event

This VDP presents the validated data associated with the ground water collected during the July 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 2.2 and 2.2.1). Attachment 1 contains the trip report detailing the field events associated with this sampling event.

A list of flagged data is presented in Table 4 in Section 2.2.1. No data were rejected (flagged as “R”) as a result of this validation process. The Minimums and Maximums Reports (presented in Section 3.1.) were generated to determine if the data are within a normal statistical range. Any anomalous data, based on the results of the Minimums and Maximums Reports, 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 July 2008 data is provided for Configurations 3, 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 over the past 2 years. Colorado River flows over the same time frame are also plotted to determine whether the magnitude of river flows influences analyte concentrations.

Configuration 3

In July 2008, samples were collected only from the wells 0688 (from 39 ft below ground surface [bgs]) and 0689 (from 54 ft bgs). A review of the time versus ammonia, TDS, and uranium concentration plots (Figures 2, 3, and 4, respectively) for these Configuration 3 locations suggests ammonia, TDS, and uranium concentrations started to rebound to prespring runoff conditions in the sample collected from 54 ft bgs. There were not significant changes apparent based on the results from the sample collected from 39 ft bgs.

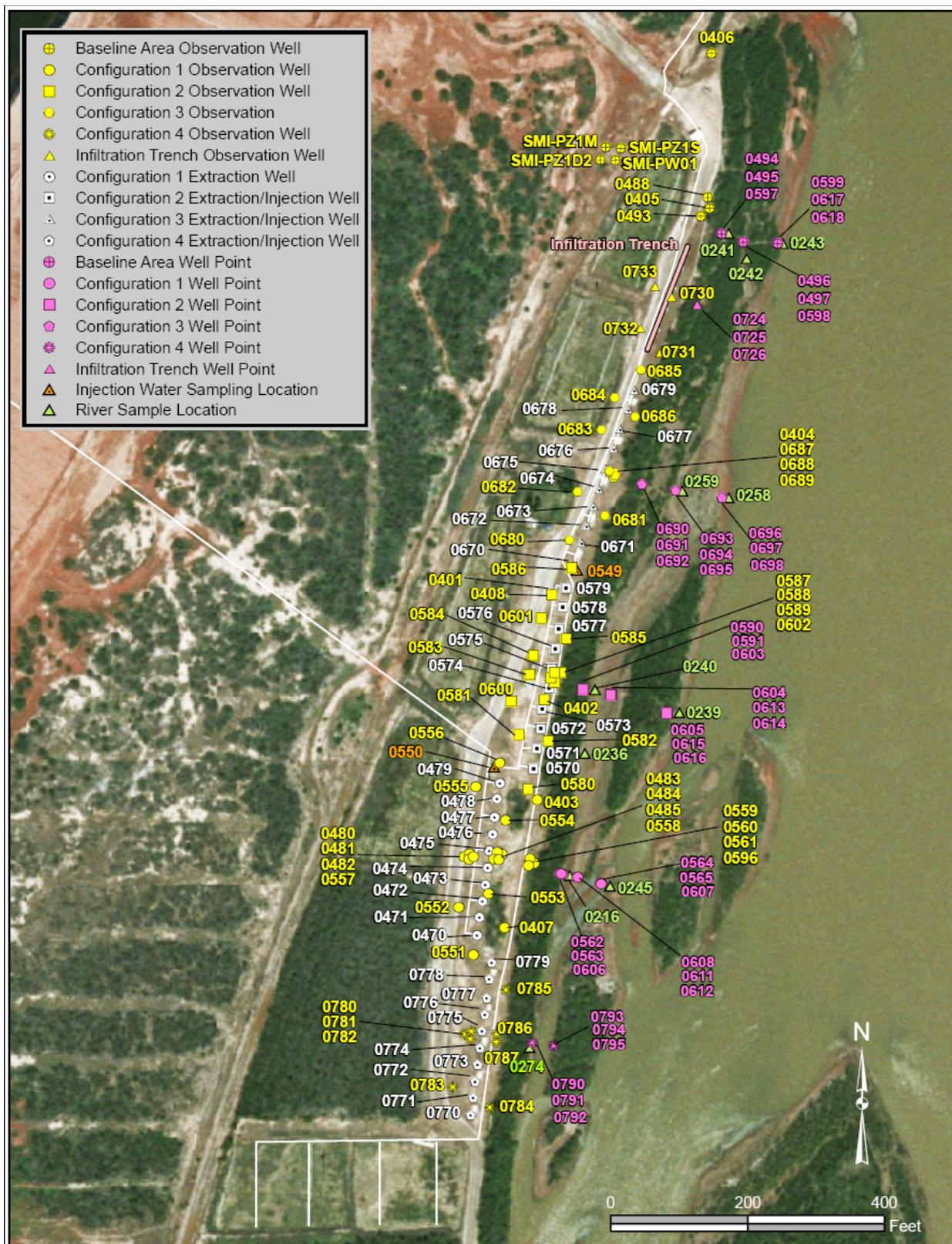


Figure 1. Sample Locations at the Interim Action Well Field and Baseline Area (may include locations not sampled)

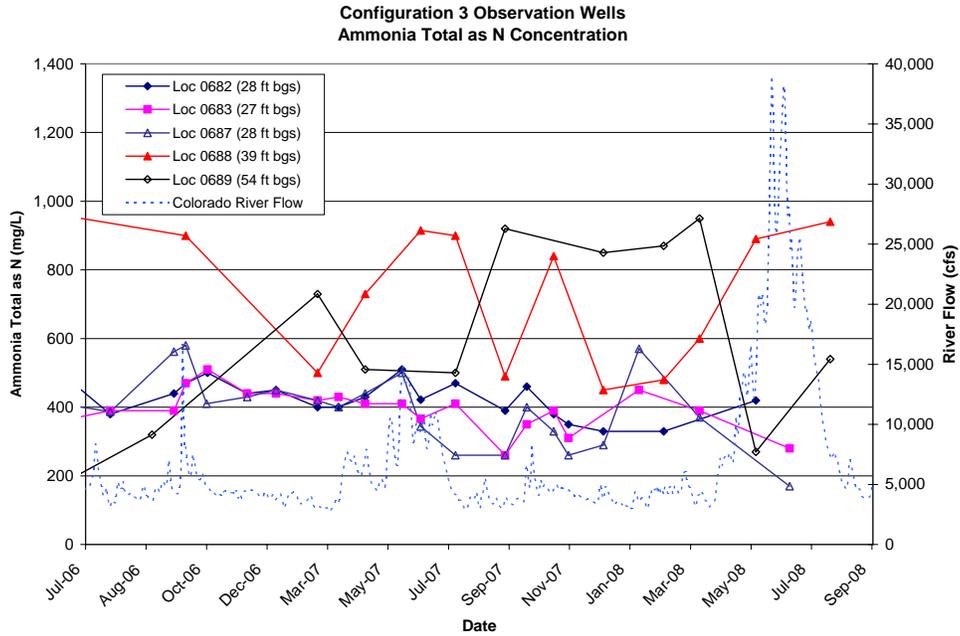


Figure 2. Configuration 3 Observation Wells Time Versus Ammonia Total (as N) Concentration Plot

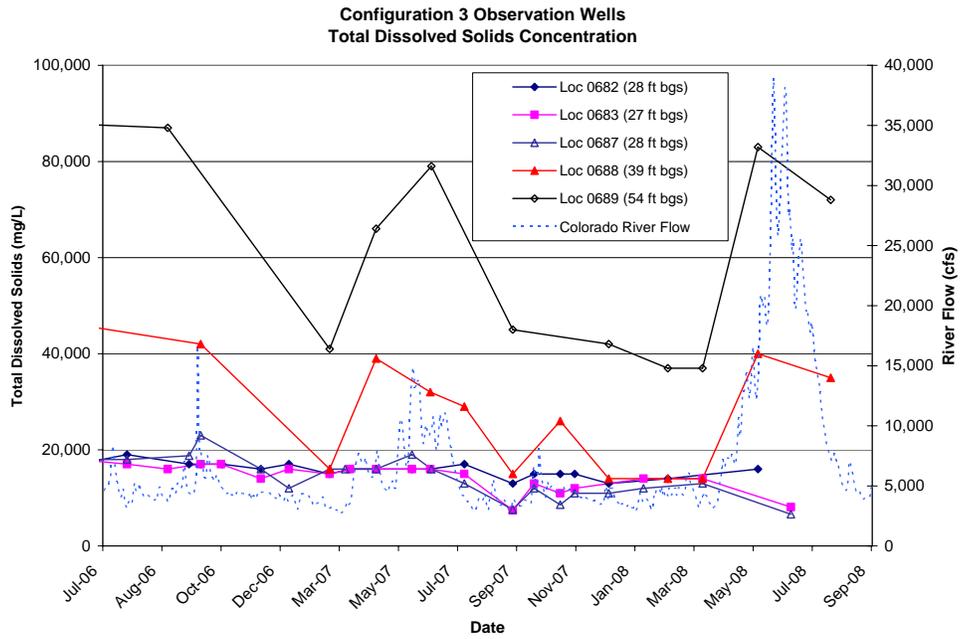


Figure 3. Configuration 3 Observation Wells Time Versus TDS Concentration Plot

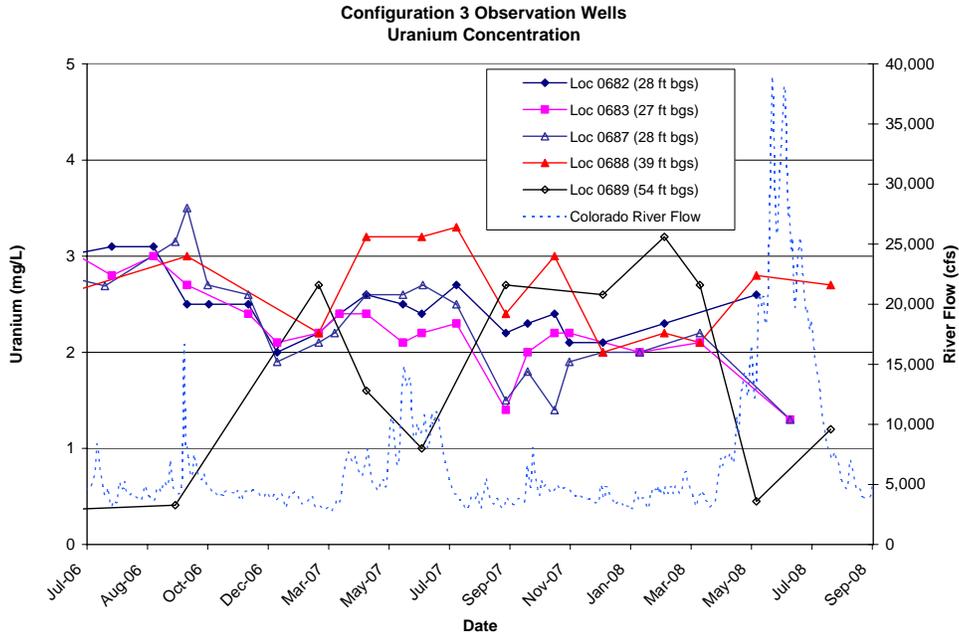


Figure 4. Configuration 3 Observation Wells Time Versus Uranium Concentration Plot

Configuration 1

Samples were collected from 0483 (18 ft bgs) and 0558 (36 ft bgs) during July 2008. The time versus analyte concentration plots for these locations shows that ammonia and TDS concentrations (Figures 5 and 6, respectively) remained below prerunoff levels. The uranium concentrations (Figure 7) in the sample collected from 18 ft bgs was still below average (still impacted by the spring runoff), and the sample from 36 ft bgs remained unchanged.

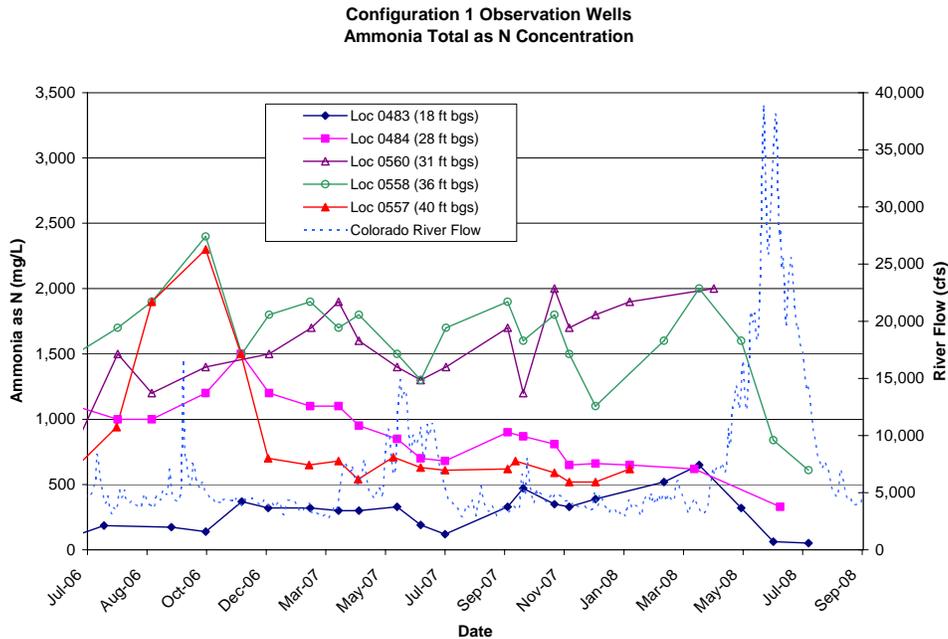


Figure 5. Configuration 1 Observation Wells Time Versus Ammonia Total (as N) Concentration Plot

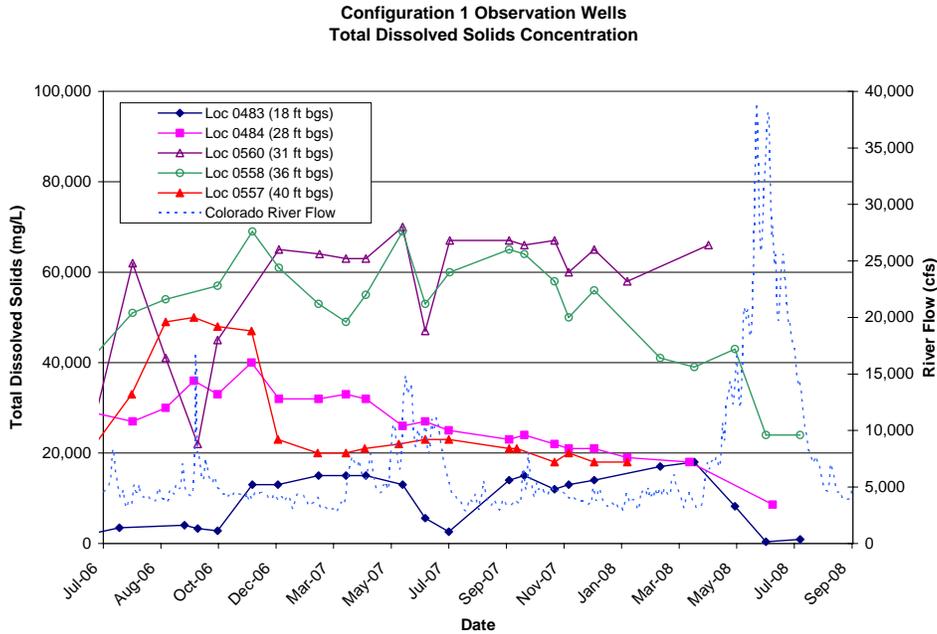


Figure 6. Configuration 1 Observation Wells Time Versus TDS Concentration Plot

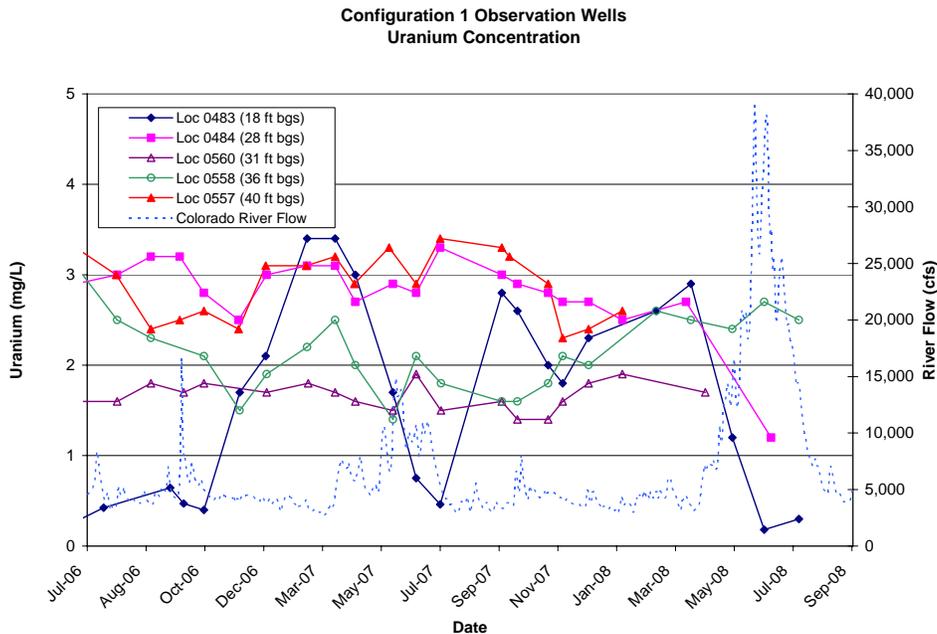


Figure 7. Configuration 1 Observation Wells Time Versus Uranium Concentration Plot

Observation Wells 0403 and 0407

Samples were also collected from these locations, which are located on the river bank within Configuration 1, during the July 2008 sampling event. As shown in the time versus analyte concentration plots below (Figures 8, 9, and 10), analyte concentrations in samples collected from well 0403 (located off the northern edge of Configuration 1) started to slightly rebound,

while the sample collected from location 0407 (located off the southern edge) indicated the analyte concentrations remained essentially unchanged since May 2008.

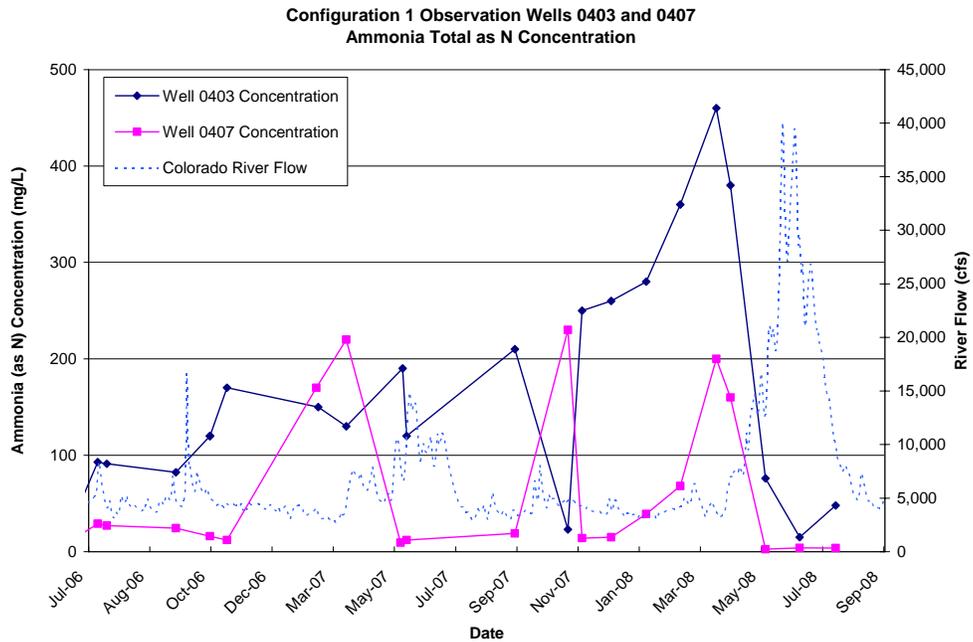


Figure 8. Configuration 1 Observation Wells 0403 and 0407 Time Versus Ammonia Total (as N) Concentration Plot

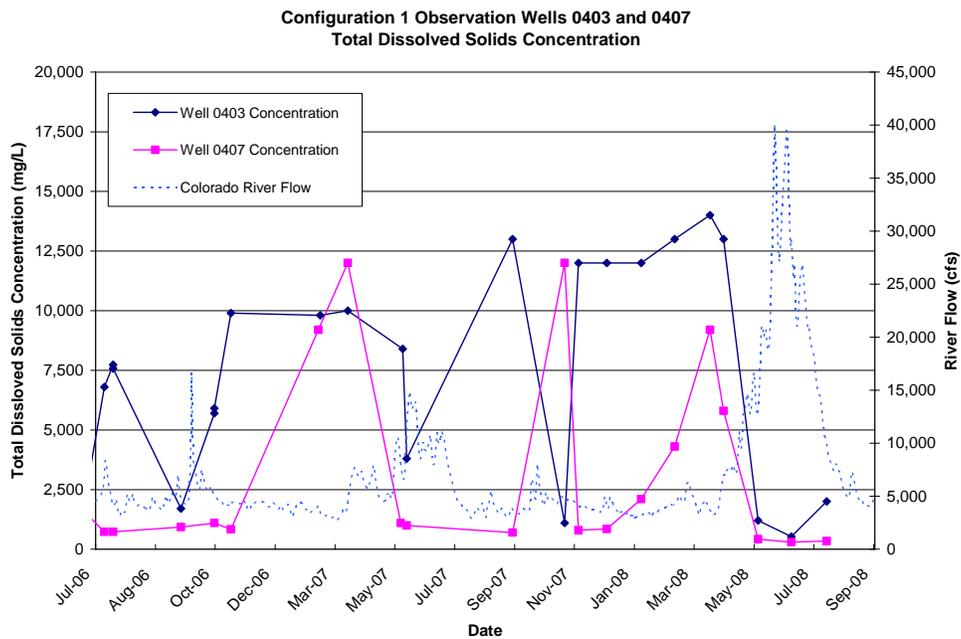


Figure 9. Configuration 1 Observation Wells 0403 and 0407 Time Versus TDS Concentration Plot

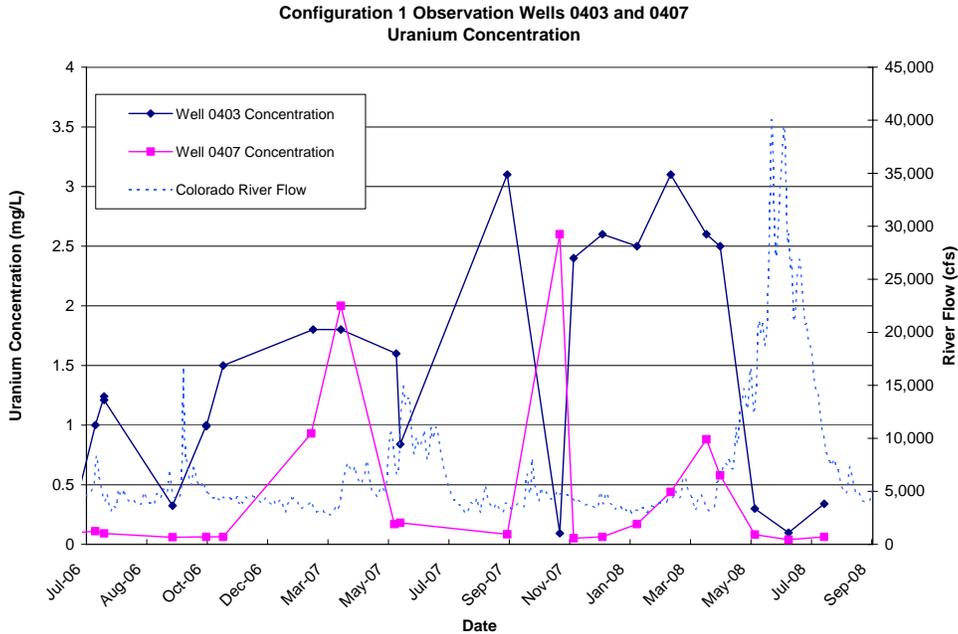


Figure 10. Configuration 1 Observation Wells 0403 and 0407 Time Versus Uranium Concentration Plot

Configuration 4

Of the locations typically included in these time versus concentration plots, during the July 2008 sampling event samples were collected from 0786 (28 ft bgs), 0782 (33 ft bgs), 0787 (36 ft bgs), and 0781 (46 ft bgs). As exhibited by the plots, there is a general trend regarding the changes in the analyte concentrations and the depth and location (upgradient or downgradient of the line of extraction wells) of the wells. Ammonia concentrations (Figure 11) decreased in the samples collected from 0782 and 0787 and increased in the samples collected from 0781 and 0786. TDS concentrations (Figure 12) decreased significantly in three of the four locations sampled since May 2008 (only the sample collected from 0786 increased), and uranium concentrations (Figure 13) since May 2008 decreased significantly in the sample collected from 0782, increased significantly in 0786, and remained constant in the samples collected from 0787 and 0781.

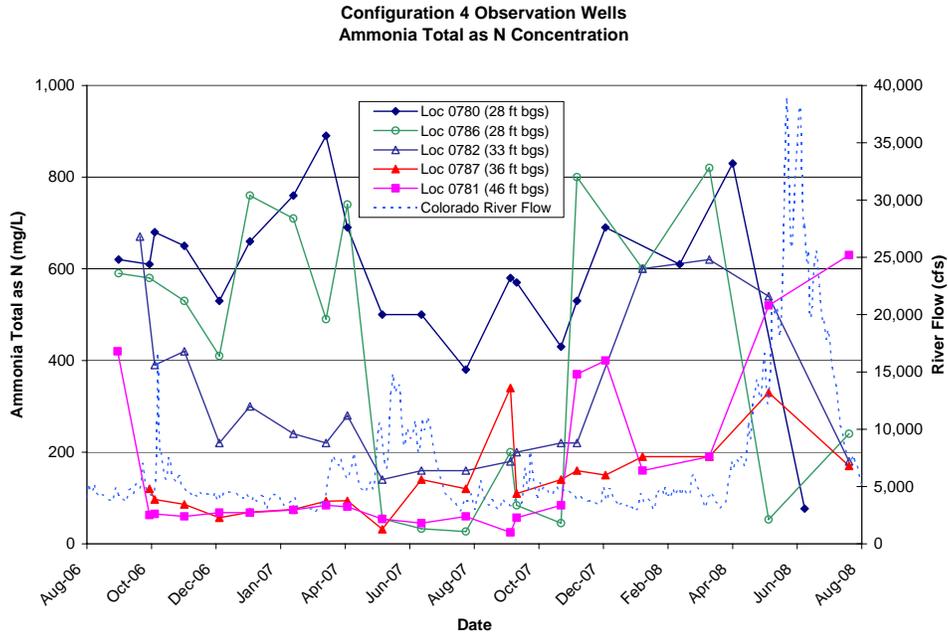


Figure 11. Configuration 4 Observation Wells Time Versus Ammonia Total (as N) Concentration Plot

Surface Water Sampling Results

Table 1 presents a summary of the ammonia concentrations associated with the surface water samples collected during this sampling event. For comparison purposes, the applicable State of Utah and federal criteria for both acute and chronic concentrations (along with the temperature and pH data used to calculate these concentrations) are provided.

Table 1. Monthly Sampling Event Surface Water Ammonia Concentrations and Comparisons to State of Utah and Federal Criteria

Loc	Date	Temp (°C)	pH	Ammonia Total as N (mg/L)	State/Federal AWQC-Acute Total as N (mg/L) ¹	State/Federal AWQC-Chronic Total as N (mg/L) ²
0240	7/21/08	28.3	8.57	0.1	1.77	0.386
0242	7/21/08	32.3	8.11	0.1	4.64	0.773
0259	7/21/08	26.6	8.57	0.1	1.77	0.439

Notes: Loc = Location, Temp = Temperature, AWQC = Ambient Water Quality Criteria; mg/L = milligrams per liter
 (1) State of Utah, Standards of Quality for Waters of the State (Effective May 1, 2008), Rule R317-2, Table 2.14.2, 1-Hour Average (Acute) Concentration of Total Ammonia as N (mg/L)
 (2) State of Utah, Standards of Quality for Waters of the State (Effective May 1, 2008), Rule R317-2, Table 2.14.2, 30-Day Average (Chronic) Concentration of Total Ammonia as N (mg/L), Fish Early Life Stages Present

As shown in Table 1, none of the surface water samples collected during the July 2008 monthly sampling event exceeded the state or federal acute or chronic criteria.

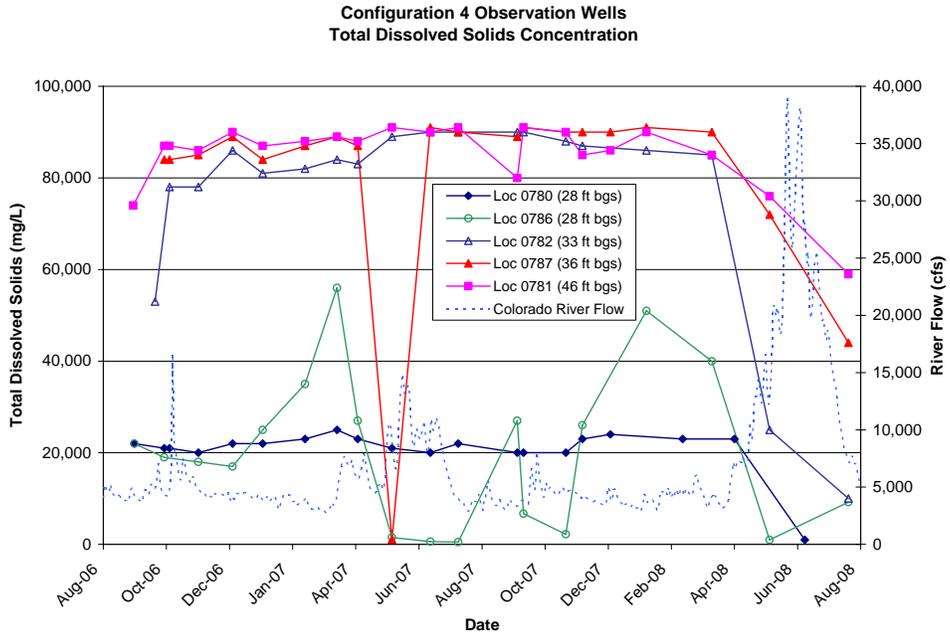


Figure 12. Configuration 4 Observations Well Time Versus TDS Concentration Plot

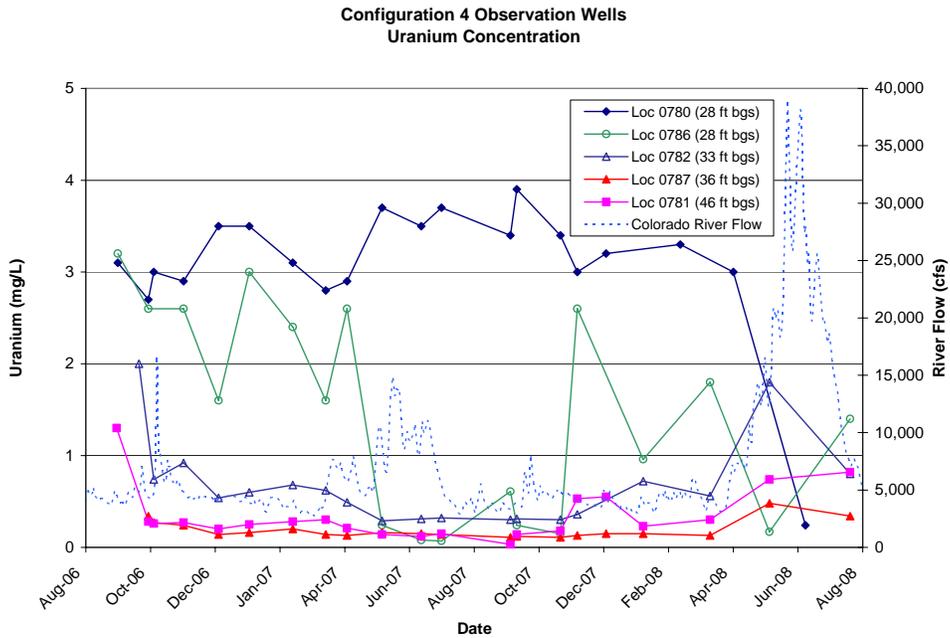


Figure 13. Configuration 4 Observation Wells Time Versus Uranium Concentration Plot

1.2.2 Ground Water/Surface Water Interaction Investigation Sampling Event

This VDP presents the July 2008 validated data associated with the fourth round of ground water and surface water samples collected during the Ground Water/Surface Water Interaction Investigation 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 2.2 and 2.2.2). Attachment 2 contains the Ground Water/Surface Water Interaction Investigation Trip Report detailing the field events associated with this sampling event.

A list of flagged data is presented in Table 7 in Section 2.2.2. No data were rejected (flagged as “R”) as a result of this validation process. The Minimums and Maximums Reports (presented in Section 3.1) were generated to determine if the data are within a normal statistical range. Any anomalous data, based on the results of the Minimums and Maximums Reports, are presented in Section 3.2.

Trilinear diagrams are provided based on the water chemistry data collected in July 2008 from the Baseline Area and Configuration 1 location samples as part of this sampling event and are discussed below. For comparison purposes the diagrams generated using the investigation baseline data (collected in March 2008) are also provided.

Baseline Area

Figure 14 presents the March 2008 river base-flow conditions for the Baseline Area for the ground water/surface water interaction investigation. Based on the water chemistry results, all ground water samples were classified as sodium-sulfate-type water, with no clear distinction between the samples collected from the various depths. The surface water sample was classified as a mixed type of water on the trilinear diagram.

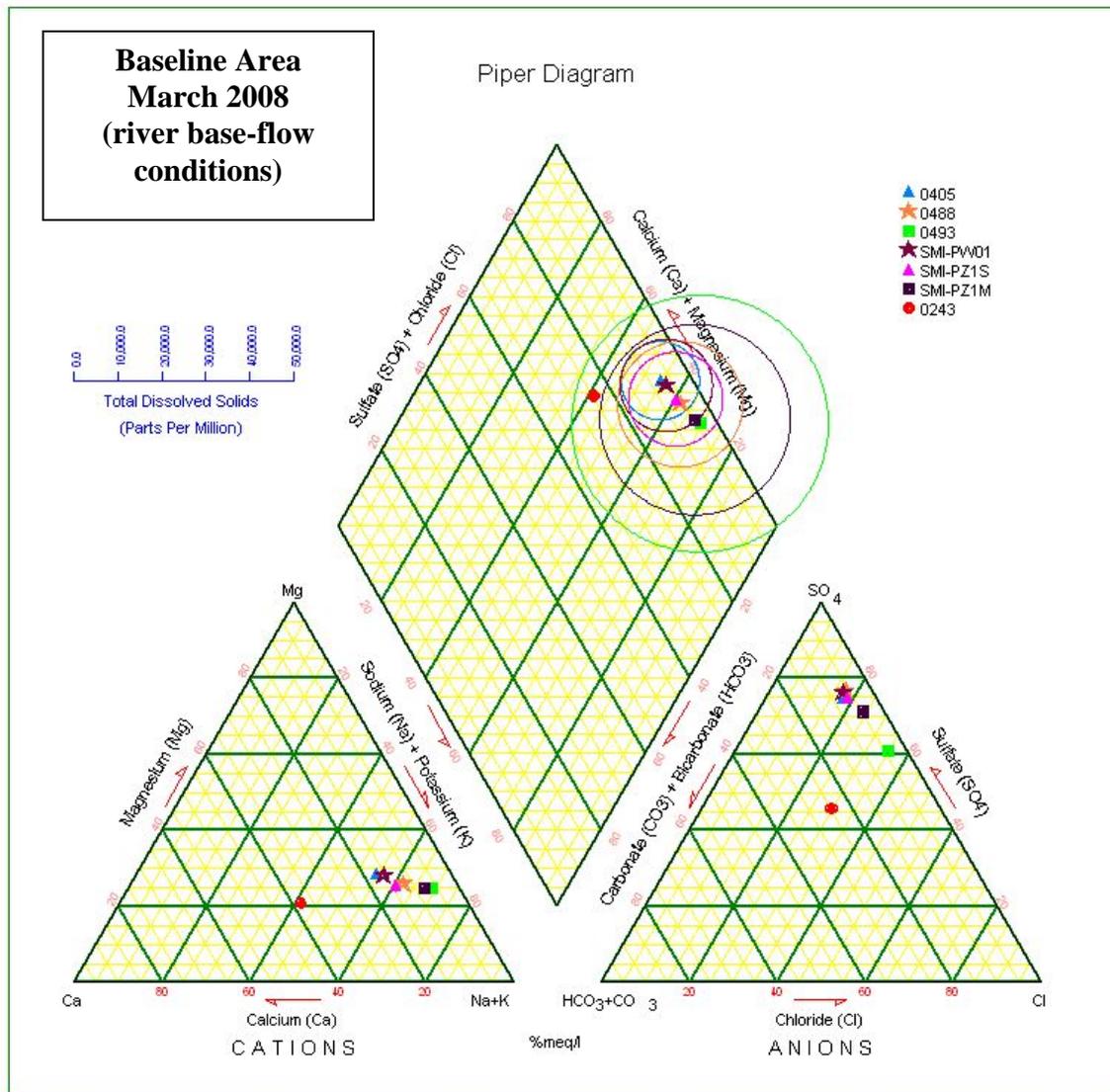


Figure 14. Trilinear Diagram for the Baseline Area Generated Using March 2008 Water Chemistry Data

Figure 15 is the trilinear diagram generated for the Baseline Area using the July 2008 water chemistry data. As shown, this plot is similar to the low-flow winter conditions of the March 2008 data. All ground water samples, regardless of the depth from which they were collected, can still be classified as sodium-sulfate-type water.

The main difference between the March and July 2008 plots is the chemistry of the surface water. Due to the high river stage (the flow was approximately 12,000 cfs during the time when the surface water sample was collected), it was not possible to collect a sample from location 0243 because this area remained flooded. The only option in the vicinity of the Baseline Area was to collect a sample off the river bank, in the vicinity of location 0241, which was representative of the river water chemistry. As shown in the trilinear diagram below, the surface water in July 2008 was classified as calcium-bicarbonate-type water.

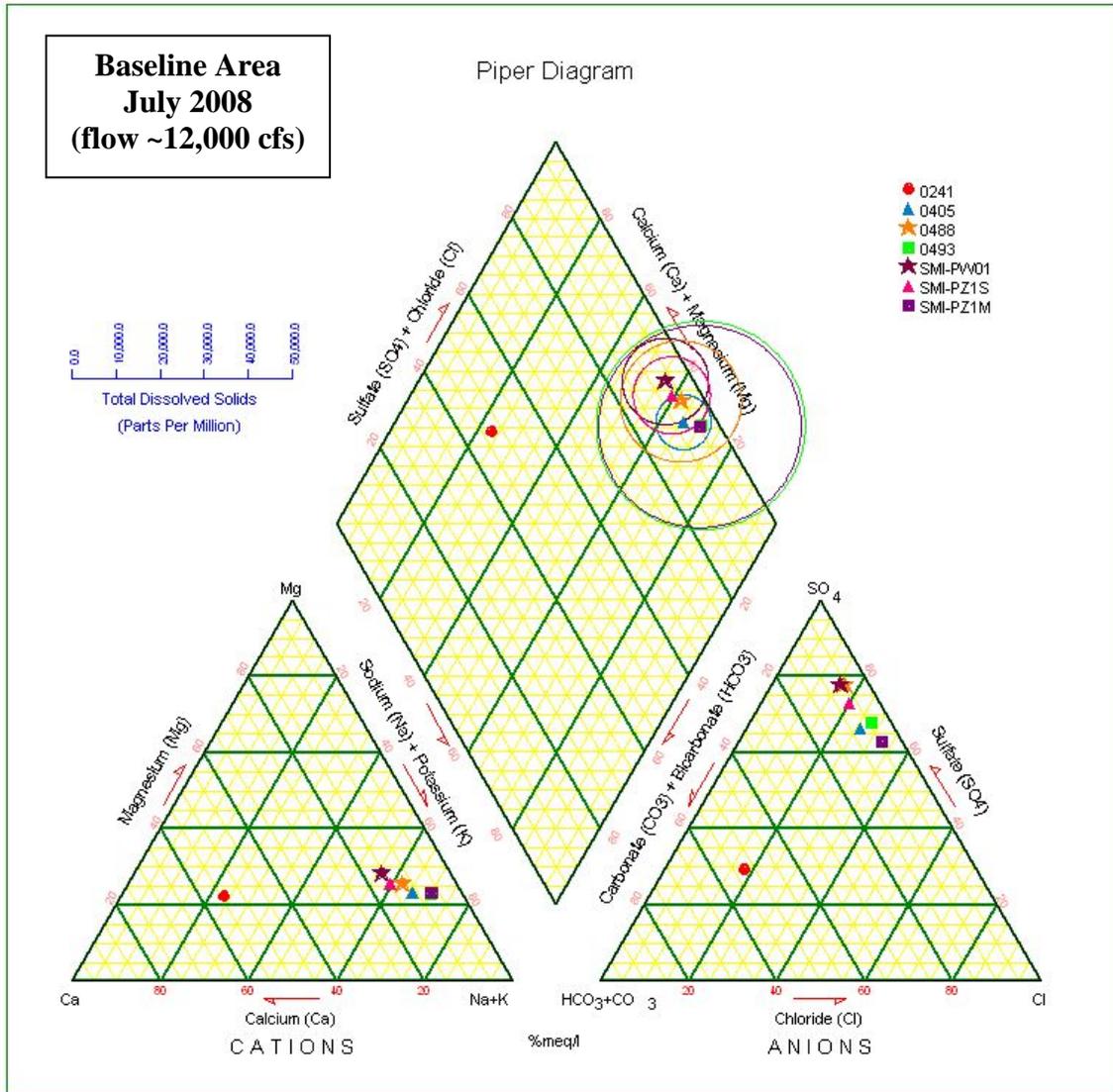


Figure 15. Trilinear Diagram for the Baseline Area Generated Using July 2008 Water Chemistry Data

Configuration 1

The river base-flow condition from the Configuration 1 area March 2008 sampling is presented as a trilinear diagram (Figure 16). Similar to the Baseline Area sampling, the surface water sample (0216) was a mixed ionic composition water. The surface water sample has a different ionic composition from the ground water samples. All ground water samples had the same dominant cation, sodium, but different proportions of the anion sulfate and chloride. Samples collected from the shallow depth (locations 0474, 0480, 0483, and 0559 were sampled from 18 ft bgs) and the upgradient intermediate depth (location 0557 sampled from 36 ft bgs) are classified as sodium-sulfate-type water. The remaining intermediate zone samples (locations 0558 and 0560 were sampled from 36 ft bgs) and those collected from the deep zone (locations 0482, 0485, and 0561 sampled from 55 ft bgs) are classified as sodium-chloride-type water, which is indicative of brine.

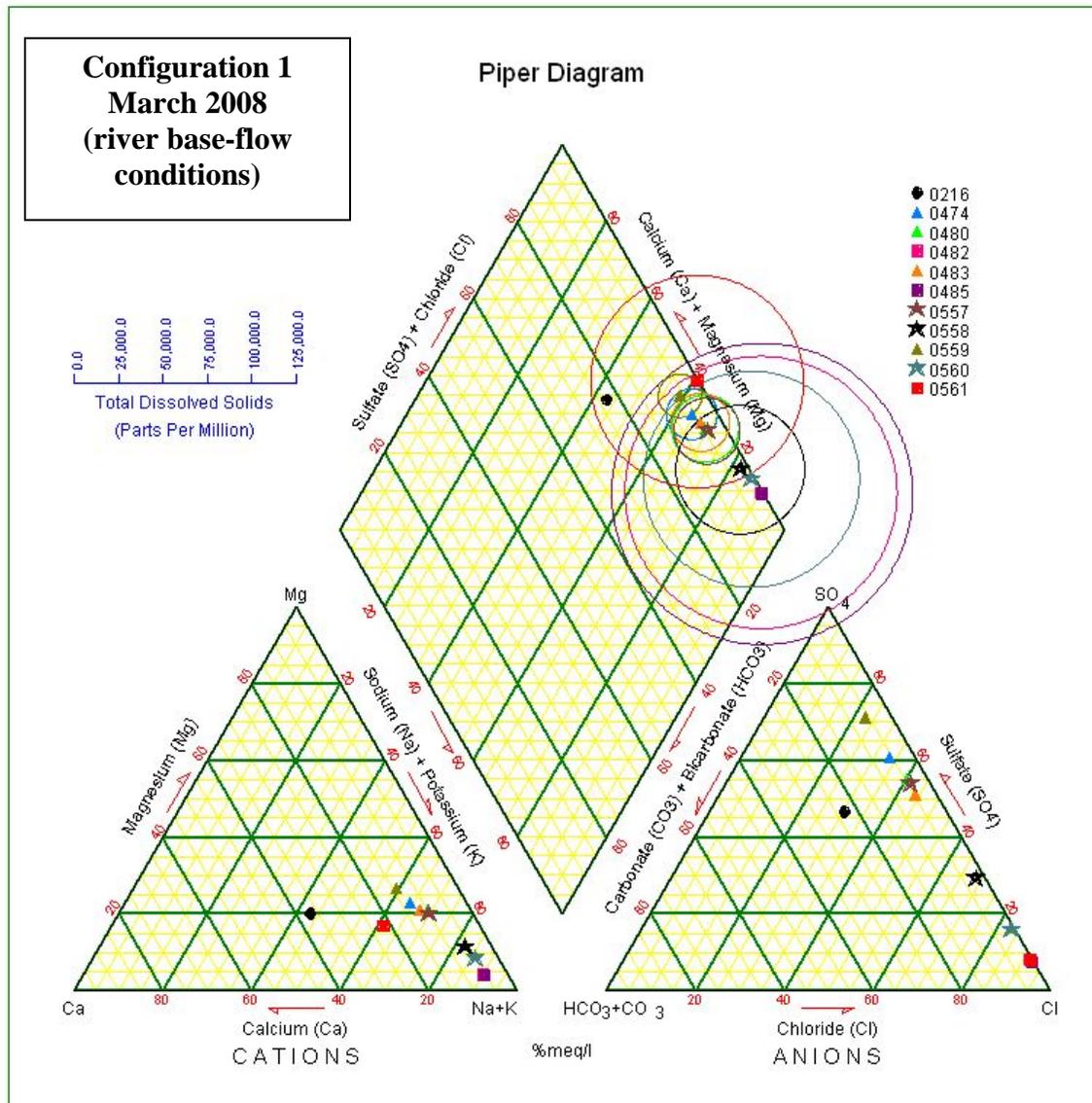


Figure 16. Trilinear Diagram for Configuration 1 Generated Using March 2008 Water Chemistry Data

Figure 17 presents the trilinear diagram for the Configuration 1 area generated using the July 2008 data, which exhibits incipient changes in ground water samples compared to the March 2008 data. These changes are most likely related to increasing river stage, but may be the result of infiltration of irrigation water. Most notably, the relative proportions of carbonate and bicarbonate in the shallow ground water zone have increased.

In both the March and July 2008 cation plots, sodium is the dominant cation in the majority of the ground water samples. The surface water sample can be classified as a calcium-type water, and the sample collected from location 0559 is a mixed cation type. Regarding the anions, this same sample is the only one that can be classified as bicarbonate-type water, with the samples from the surface water and well 0483 classified as a mixed anion type. The remainder of the wells contained water that was split between dominant sulfate- and chloride-type waters.

Table 2. Ground Water/Surface Water Interaction Investigation Sampling Event Surface Water Ammonia Concentrations and Comparisons to State of Utah and Federal Criteria

Loc	Date	Temp (°C)	pH	Ammonia Total as N (mg/L)	State/Federal AWQC-Acute Total as N (mg/L) ¹	State/Federal AWQC-Chronic Total as N (mg/L) ²
0216	7/8/08	27.5	8.17	0.1	3.83	0.752
0241	7/10/08	22.3	7.66	0.24	9.65	2.21
0276	7/10/08	22.0	7.47	0.1	13.3	2.69

Notes: Loc = Location, Temp = Temperature, AWQC = Ambient Water Quality Criteria; mg/L = milligrams per liter
 (1) State of Utah, Standards of Quality for Waters of the State (Effective May 1, 2008), Rule R317-2, Table 2.14.2, 1-Hour Average (Acute) Concentration of Total Ammonia as N (mg/L)
 (2) State of Utah, Standards of Quality for Waters of the State (Effective May 1, 2008), Rule R317-2, Table 2.14.2, 30-Day Average (Chronic) Concentration of Total Ammonia as N (mg/L), Fish Early Life Stages Present

As shown in Table 2, neither of the two surface water samples collected during this sampling event exceeded the state or federal acute or chronic criteria.

1.3 Sampling and Analyses

1.3.1 Monthly Sampling Event

Sampling and analyses were conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, February 2007*. Although not listed here, the normal set of locations were sampled. Please refer to the attached Monthly Sampling 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 (EBs) and duplicates were collected. All samples were analyzed within their prescribed holding times. No significant discrepancies were noted regarding sample shipping and receiving, preservation, holding times, instrument calibration, method blanks, or matrix spikes (MSs), except as qualified or noted in the Laboratory Performance Assessments (Section 2.2.).

There were seven locations with nine anomalous data points, one in Configuration 1 (0471), three in Configuration 2 (0408, 0581, and 0585), two in Configuration 3 (0680, 0681) and one in Configuration 4 (0782), all of which were historically lows. See the Anomalous Data Review (Section 3.2) for details.

According to the USGS Cisco gaging station, the mean daily Colorado River flow rates varied between 7,090 and 9,990 cfs during this sampling period.

1.3.2 Ground Water/Surface Water Interaction Investigation Sampling Event

Sampling and analyses were conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, February 2007*. Although not listed here, the normal set of locations were sampled. Please refer to the attached Ground Water/Surface Water Interaction Investigation Sampling Trip Report (Attachment 2) for specific sampled locations and an explanation of why some locations were not sampled.

The data validations indicate that the data meet the quality-control criteria specified for this project. An adequate number of EBs and duplicates were collected; see the Water Sampling Field Activities Verification (Section 2.1) for details. No significant discrepancies were noted regarding sample shipping and receiving, preservation times, holding times, instrument calibration, method blanks, or MSs, except as qualified or noted in the Laboratory Performance Assessments (Section 2.2.).

There were no anomalous data points associated with this sampling event. See Section 3.2 for more details. According to the USGS Cisco gaging station, the mean daily Colorado River flow rate was approximately 12,200 cfs during this sampling period.

2.0 Data Assessment Summaries

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 Verifications

The field activities verification processes for these sampling events were documented. As the verification exhibits, all sampling was conducted following the applicable procedures. This verification is provided in Appendix A.

2.2 Laboratory Performance Assessments

2.2.1 Monthly Sampling Event

General Information

Report Identification No. (RIN):	0807019
Sample Event:	Interim Action Well Field Monthly Sampling Event, July 2008
Site(s):	Moab, Utah
Laboratory:	Paragon Analytics, Fort Collins, CO
Sample Data Group (SDG) No.:	0807139, 0807157, 0807192, and 0807211
Analysis:	Metals and Inorganics
Validator:	Rachel Cowan
Review Date:	September 29, 2008

This validation was performed according to the *Environmental Procedures Catalog*, “Standard Practice for Validation of Laboratory Data,” GT-9(P) (2006). The Level 1 validation on 100 percent of the samples included review of the chain of custody (COC), case narratives, field and sample identifications, holding times, preservation, and cooler receipt. When the case narrative identified items of concern, these items were further investigated in a targeted Level 3 validation.

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 3.

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH ₃ -N	WCH-A-005	EPA 350.1	EPA 350.1
Bromide	MIS-A-038	SW-846 9056	SW-846 9056
Calcium	MET-A-020	SW-846 3005A	SW-846 6010
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Copper	MET-A-020	SW-846 3005A	SW-846 6010
Magnesium	MET-A-020	SW-846 3005A	SW-846 6010
Manganese	GJO-17	SW-846 3005A	SW-846 6010
Potassium	MET-A-020	SW-846 3005A	SW-846 6010
Selenium	GJO-14	SW-846 3005A	SW-846 6010
Sodium	MET-A-020	SW-846 3005A	SW-846 6010
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids	WIC-A-033	MCAWW 160.1	MCAWW 160.1
Uranium	GJO-01	SW-846 3005A	SW-846 6020

Data Qualifier Summary

Analytical results were qualified as listed in Table 4. Refer to Table 5 below for an explanation of the data qualifiers applied.

Table 4. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0807139-5 through 0807139-9	0479, 0671, 0673, 0675, 0677	Ammonia as N	J	RS1
All samples in SDG 0807139	All in locations in SDG 0807139	Chloride, Sulfate	J	RS1
All samples in SDG 0807192	All in locations in SDG 0807192	Selenium	J	MS1, RS1, SD1
All samples in SDG 0807211	All in locations in SDG 0807211	Selenium	J	MS1, SD1
All samples in SDG 0807139	All in locations in SDG 0807139	Uranium	J	MS1, RS1, LCS1, SD1
All samples in SDG 0807192	All in locations in SDG 0807192	Uranium	J	MS1, LCS1
All SDGs 0807139, 0807157, 0807211 samples	All SDG 0807139, 0807157, 0807211 locations	Ammonia, Bromide, Chloride, Sulfate, TDS	J	P1

Notes: J indicates results are estimated. For nondetected results, flag becomes UJ.

Table 5. Reason Codes for Data Flags

Reason Code	Qualifier (Detects)	Qualifier (Non-Detects)	Explanation
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 MS sample was (a) from another client, (b) of dissimilar matrix, (c) a field blank or EB, 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, MS 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 EB was used for the replicate analysis.
SD1	J	Not applicable	Results for the affected analyte(s) are regarded as estimated (J) because the frequency requirements for serial dilution analysis were not met and the sample result is greater than or equal to 50 times the practical quantitation limit.

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received a total of 56 samples for RIN 0807019 consisting of four shipments. SDG 0807139 had 15 samples under UPS tracking number 1Z5W1Y510195318950 received July 17; SDG 0807157 had 12 samples under UPS number 1Z5W1Y510194792887 received July 18; SDG 0807192 had 12 samples under UPS number 1Z5W1Y510196320570 received July 24; and SDG 0807211 had 17 samples under UPS number 1Z5W1Y510192245696 received July 25. Each shipment of samples was accompanied by a COC form. Each COC form was checked to confirm that all of the samples were listed on each form with sample collection dates and times and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents for each group of samples, including the COC form and the sample tickets, had no errors or omissions.

Preservation and Holding Times

The sample shipments were received intact with the temperatures within the coolers as follows: 4.4°C for SDG 0807139, 4.6°C for SDG 0807157, 1.4°C for SDG 0807192, and 5.8°C for SDG 08070211. Temperature requirements for ammonia, bromide, chloride, sulfate, and TDS are less than or equal to 4.0°C, so the associated samples are qualified with a “J” flag. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Case Narratives

The case narratives were reviewed, and all detects were found to be within quality control procedures except for the following.

MS and Replicate Analysis

MS sample analysis, performed at a frequency of one per 20 samples unless otherwise noted, is performed as a measure of the ability to recover analytes in a particular matrix. Replicate

analysis consists of matrix spike duplicate (MSD) samples and field duplicates, analyzed at a frequency of one per 20 samples per method or procedural requirements unless otherwise noted. These replicate samples are indicators of laboratory precision for each sample matrix.

Method EPA 350.1, Ammonia as N

For all SDGs, the ammonia concentration in the native sample selected as the MS was 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 qualification was required based on MS criteria.

Method 350.1 requires duplicates to be analyzed for at least 10 percent of the samples. For all SDGs in RIN 0807019, MSDs were analyzed at a frequency of one per 20 samples or prep batch, whichever was smaller. The relative percent difference (RPD) of MSs and MSDs that were performed could not be calculated because the results were out of the analytical range of the instrument. However, a field duplicate was collected for SDG 0807157, SDG 0807192, and SDG 0807211 that satisfied the requirements for those sample data groups. Therefore, “J” qualification was only required for samples 0807139-5 through 0807139-9 because an insufficient number of replicates were performed.

Method SW-846 9056, Chloride

The chloride concentration in the native sample selected as the MS and MSD was 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 qualification was required based on MS requirements.

No SDG met replicate requirements based on MSD results because the results were out of the analytical range of the instrument, so no RPD could be calculated. For SDG 0807157, SDG 0807192, and SDG 0807211, one field duplicate was analyzed which met the replicate precision requirements (see Field Duplicate section below for details). Therefore, “J” qualification was required for SDG 0807139 only.

Method SW-846 6010, Selenium

Selenium samples were only submitted for analysis in SDGs 0807192 and 0807211. No selenium MSs were run for either SDG. These samples were qualified with a “J” flag for this reason.

Neither SDG met replicate requirements based on MSD results because no MSDs were run. However, a field duplicate was analyzed for selenium in SDG 0807211 which met the replicate precision requirements (see field duplicate section below for details). Therefore, “J” qualification was required for SDG 0807192 only, based on replicate requirements.

Method SW-846 9056, Sulfate

The sulfate concentration in the native sample selected as the MS and MSD was above the analytical range of the instrument. Based on validation protocol, qualification requirements are not applicable when the native sample concentration exceeds four times the spike concentration. Therefore, no qualification was required based on MS requirements.

No SDG met replicate requirements based on MSD results because the results were out of the analytical range of the instrument, so no RPD could be calculated. For SDG 0807157, SDG 0807192, and SDG 0807211, one field duplicate was analyzed which met the precision

requirements (see Field Duplicate section below for details). Therefore, “J” qualification was required for SDG 0807139 only.

Method SW-846 6010, Uranium

No MSs were prepared for the uranium analyses for SDGs 0807139 and 0807192. All associated uranium results for these SDGs were “J” flagged based on lack of MS results.

No SDG met replicate requirements based on MSD results because they were not analyzed. However, for SDG 0807211, one field duplicate was analyzed which met the replicate precision requirements (see field duplicate section below for details). Therefore, “J” qualification was required for SDG 0807139 only based on replicate results.

Field Duplicate

Field duplicates are collected during sampling activities. They are labeled with a blind identification (ID) and submitted with the samples to be analyzed by Paragon Analytics. Samples 0807157-12 (2567), 0807192-11 (2568), and 0807211-16 (2569) were the duplicate samples taken from locations 0581, 0240, and 0401, respectively. These samples passed the Environmental Protection Agency (EPA) criteria of ± 20 RPD for all analytes.

Laboratory Control Sample

A laboratory control sample (LCS) must be analyzed at the correct frequency (one LCS per 20 samples) to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. LCSs were prepared and analyzed as appropriate with the following exception.

LCSs were not reported for copper, manganese, selenium, or uranium. As a standard practice, Paragon Analytics does not prepare LCSs for samples that were field filtered and acidified, and then 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. Consequently, only the uranium results from SDGs 0807139 and 0807192 where there were no MS analyses were flagged with a “J” qualifier.

Detection Limits/Dilutions

The required detection limit (RDL) for all analytes was achieved for all SDGs. Serial dilution samples were required for inductively coupled plasma (ICP) sample analysis (copper, manganese, selenium, and uranium). Serial dilutions were run for all ICP analyses, except for selenium in SDGs 0807192 and 0807211 and for uranium in SDG 0807139. These analyses were flagged with a “J.”

EBs

EBs are samples of analyte-free media that have been used to rinse the nondedicated sampling equipment. EBs are collected to document adequate decontamination of nondedicated equipment. EBs are considered to be preparation blanks, and one EB should be prepared with each preparation batch.

Surface Water

The only samples collected on nondedicated equipment were surface water samples from

locations 0240, 0259, and 0242. One EB was collected, but it had concentrations of manganese, sulfate, TDS, and uranium that were above the method detection level (MDL). However, following procedure, only associated results of these analytes that were less than five times the blank concentration needed to be qualified, and none of the results were less than five times the blank concentration, so nothing was qualified.

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 August 4, 13, 15, and 20, 2008. 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: a copper result for sample 08007192-1 (location 0240) was reported in the EDD. This analysis was not requested in the COC forms or sample tickets.

2.2.2 Ground Water/Surface Water Interaction Investigation Sampling Event

General Information

RIN:	0807018
Sample Event:	Moab – Interim Action Well Field Ground Water/Surface Water Interaction Investigation Sampling Event – July 2008
Site(s):	Moab, Utah
Laboratory:	Paragon Analytics, Fort Collins, CO
SDG No.:	0807091
Analysis:	Metals and Inorganics
Validator:	Rebecca Hollis
Review Date:	October 17, 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 Examination. 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 6.

Table 6. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH ₃ -N	WCH-A-005	EPA 350.1	EPA 350.1
Bromide	MIS-A-038	SW-846 9056	SW-846 9056
Calcium	MET-A-020	SW-846 3005A	SW-846 6010B
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Copper	MET-A-020	SW-846 3005A	SW-846 6010B
Magnesium	MET-A-020	SW-846 3005A	SW-846 6010B
Manganese	GJO-17	SW-846 3005A	SW-846 6010B
Potassium	MET-A-020	SW-846 3005A	SW-846 6010B
Selenium	GJO-14	SW-846 3005A	SW-846 6020A
Sodium	MET-A-020	SW-846 3005A	SW-846 6010B
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids	WIC-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 7. Refer to the attached validation worksheets and Table 8 for an explanation of the data qualifiers applied.

Table 7. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
All	All	Chloride, Sulfate	J	SD1
All	All	Potassium	J	MS2
All	All	Bromide, Chloride, Sulfate, Ammonia, Total Dissolved Solids	J	P1
0807091-1 through -5, -8, -14, -17, -18, -19	216, 276, 241, 405, 474, 483, 559, 2493, 2491, SMI-PW01	Chloride	U	B2
0807091-1, -3, -21	216, 241, SMI-PZ1S	Bromide	U	B2
0807091-1, -5, -8, -14	216, 474, 483, 559	Sulfate	U	B2
0807091-1, 0807091-16	216	Copper	J	B3
0807091-17	2493 (this was a false ID for the equipment blank from the surface water tubing)	Manganese	J	B3
0807091-4	0405	Selenium	J	ICS6, MS1, SD1

Notes: J indicates results are estimated and becomes a UJ for analytical results below the detection limit.

Table 8. Reason Codes for Data Flags

Reason Code	Qualifier (Detects)	Qualifier (Nondetects)	Explanation
B2	U	N/A	Results for the affected analyte(s) are regarded as undetected (U) because the result for an associated blank is between the MDL and the practical quantitation limit, and the sample result is less than five times the blank concentration.
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 MDL and the practical quantitation limit, and (b) the sample result is less than five times the MDL.
ICS6	J	N/A	Results for the affected analyte(s) are regarded as estimated (J) because the interference check sample AB recovery for an element is greater than 120 percent.
MS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because the MS sample was (a) from another client, (b) of dissimilar matrix, (c) a field blank or EB, or (d) not analyzed at the proper frequency as stated in the appropriate analytical method.
MS2	J	N/A	Results for the affected analyte(s) are regarded as estimated (J) because the MS recovery exceeds 125 percent.
P1	J	J or R	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, MSD, or LCS duplicate was not analyzed at the appropriate frequency for each matrix or for each data package, or (b) a field blank or EB was used for the replicate analysis.
SD1	J	Not applicable	Results for the affected analyte(s) are regarded as estimated (J) because the frequency requirements for serial dilution analysis were not met and the sample result is greater than or equal to 50 times the practical quantitation limit.

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received a total of 21 samples for RIN 0807018 that arrived on July 11, 2008, under UPS tracking number 1Z5W1Y510191464853. All sample groups were accompanied by COC forms. The COC forms were checked to confirm that all of the samples were listed on each 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 forms and the sample tickets, had no errors or omissions.

Preservation and Holding Times

The sample shipment was received intact with the temperature within the coolers of 4.8 °C, which exceeds the temperature requirements for ammonia, bromide, chloride, sulfate, and TDS. Thus all ammonia, bromide, chloride, sulfate, and TDS results were “J” flagged. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

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 6010B, Calcium, Copper, Magnesium, Manganese, Potassium, and Sodium

Calibrations for calcium, copper, magnesium, manganese, potassium, and sodium were performed on July 17, 2008. All calibrations used three calibration standards and a blank. Calibration and laboratory spike standards were prepared from independent sources. Initial calibration verification (ICV) and continuing calibration verification (CCV) checks were made at the required frequency, resulting in 10 CCVs for the analysis on July 17, 2008. All calibration checks met the acceptance criteria. Reporting limit verifications (CRIs) were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit (PQL). The CRI results were within the acceptance range.

Method SW-846 6020A, Selenium and Uranium

The calibration for the selenium analyses was performed on July 23, 2008. The uranium calibration was performed on July 18, 2008. The initial calibrations for both analytes 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 intercept for selenium was less than three times the MDL. The calibration curve intercept for uranium was negative, and its absolute value was greater than three times the MDL. Therefore, all uranium results were checked to confirm that all results were greater than three times the absolute value of the intercept.

Calibration and laboratory spike standards were prepared from independent sources. ICV and CCV checks were made at the required frequency, resulting in nine CCVs for selenium and 12 CCVs for uranium. All calibration checks met the acceptance criteria. A CRI was made at the required frequency to verify the linearity of the calibration curve near the 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 EPA 350.1, Ammonia as N

Initial calibration for ammonia as N was performed using six calibration standards and a blank on July 16, 2008. The calibration curve had an r^2 value greater than 0.995 and an intercept less than three times the MDL. ICV and CCV checks were made at the required frequency resulting in four CCVs. 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 and a blank on July 17, 2008. The calibration curve r^2 values were greater than 0.995, and the absolute values of the 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, resulting in three CCVs on July 14, 2008; seven CCVs on July 15, 2008; and two CCVs on July 16, 2008. All calibration checks met the acceptance criteria.

Method MCAWW 160.1, Total Dissolved Solids (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 blanks results greater than the MDL or instrument detection limit (IDL) (depending on method requirements) were “U” 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 IDL. Samples (including nondetects) associated with these blank results were “J” qualified when the results were less than five times MDL/IDL concentration.

One EB, sample 0807091-17, was provided for analysis for these samples. All results for this sample were below the PQL. Analysis of the blanks as described above resulted in qualification of the following samples.

The chloride results for samples 0807091-1 through 0807091-5, 0807091-8, 0807091-14, and 0807091-17 through 0807091-19 were flagged as “U” (undetected) because the associated blanks were greater than the IDL, and the sample concentrations were less than five times their associated blank concentrations.

The bromide results for samples 0807091-1, 0807091-3, and 0807091-21 were flagged as “U” because the associated blanks were greater than the IDL, and the sample concentrations were less than five times their associated blank concentrations.

The sulfate results for samples 0807091-1, 0807091-5, 0807091-8, 0807091-14, and 0807091-17 were flagged as “U” because the associated blanks were greater than the IDL, and the sample concentrations were less than five times their associated blank concentrations.

Copper samples 0807091-1 and 0807091-16, and manganese samples 0807091-17 were “J” qualified because the absolute values of the associated blanks were greater than the IDL, and the sample concentrations were less than five times the IDL.

ICP Interference Check Sample Analysis

ICP interference check samples (ICS) A and ICS AB 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 with the following exception.

- The ICSAB percent recovery for selenium analysis exceeded the allowable range. Therefore, all selenium results were “J” qualified.

MS Analysis

MS and MSD pairs were analyzed for all analytes as a measure of method performance in the sample matrix. The spike recoveries met the recovery and precision criteria for all analytes, with the following exceptions.

- 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.
- MS recoveries were greater than the allowable recovery range for potassium analyses. Thus, all potassium sample results were qualified “J” for detects and “UJ” for nondetects.
- The designated quality-control sample was not selected for selenium MS analysis. All associated selenium results were “J” flagged for this SDG.

Laboratory Replicate Analysis

The laboratory replicate results demonstrate acceptable laboratory precision. The 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.

- 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, a field duplicate was analyzed (sample 0807091-19 /field ID SMI-PW01 and false sample ID 0807091-18/field ID 2491) and met the precision requirements. Therefore, no qualification was required.
- Replicate requirements were not met for selenium based on MSD results because the MSD sample was not selected as the quality-control sample for the analytical run. However, a field duplicate was analyzed (sample 0807091-19 /field ID SMI-PW01 and false sample ID 0807091-18/field ID 2491) and met the precision requirements. Therefore, no qualification was required.

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 replicates, which measure only laboratory performance. A duplicate sample was collected from locations SMI-PW01 in the July 2008 sampling event. The duplicate results met the EPA recommended laboratory duplicate criteria of less than 20 RPD for results that are greater than five times the PQL.

LCS

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 calcium, copper, magnesium, manganese, potassium, sodium, or uranium. 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 unless MS results were unacceptable. See the MS 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 spectroscopy 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.

- The serial dilution sample was not selected as the quality-control sample for the selenium analytical run. Therefore, all associated selenium results were “J” flagged for this SDG.

Detection Limits/Dilutions

Dilutions were prepared in a consistent and acceptable manner when dilutions were required. The RDLs were achieved for all analytes.

Completeness

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

EDD File

EDD files arrived on August 1, 2008. 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.

2.3 Field Analyses/Activities

2.3.1 Monthly Sampling Event

The following information summarizes the field analyses and activities for the July 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 EB was collected for the nondedicated surface water collection equipment. Three 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.

2.3.2 Ground Water/Surface Water Interaction Investigation Sampling Event

The following information summarizes the field analyses and activities for the July 2008 ground water/surface water interaction investigation 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. All ground water samples were collected on dedicated equipment. One duplicate sample was collected for 19 samples. 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 EPA criteria of ± 20 RPD and are considered acceptable.

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 Reports (Section 3.1), the Anomalous Data Review Check Sheets (Section 3.2), a table containing the Water Quality Data and Water Level Data (Sections 3.3 and 3.4, respectively), and the Blanks Reports (Section 3.5).

3.1 Minimums and Maximums Reports

The Minimums and Maximums Reports (see Appendix B) are 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 reports 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

As exhibited by the Minimums and Maximums Reports, there are nine anomalous data points associated with each of the sampling events completed this month.

Monthly Sampling Event

Site: Moab UMTRA Site **Sampling Date:** July 14 - 24, 2008

Loc. No.	Analyte	Type of Anomaly	Disposition
0408	Manganese	Low	Analyte dilution in response to spring runoff.
0471	Chloride	Low	Analyte dilution in response to spring runoff.
0471	TDS	Low	Analyte dilution in response to spring runoff.
0581	Manganese	Low	Fewer than 10 samples collected from this location, still establishing analyte range.
0585	Manganese	Low	Fewer than 10 samples collected from this location, still establishing analyte range.
0680	Ammonia	Low	Fewer than 10 samples collected from this location, still establishing analyte range.
0681	Ammonia	Low	Fewer than 10 samples collected from this location, still establishing analyte range.
0782	Manganese	Low	Analyte dilution in response to spring runoff.
0782	TDS	Low	Analyte dilution in response to spring runoff.

Ground Water/Surface Water Interaction Investigation Sampling Event

There were no anomalous results associated with this sampling event.

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 Reports

Monthly Sampling Event

The results of the EB collected during the July 2008 monthly sampling event are presented in the first following table. As the results show, ammonia, bromide, and chloride were below the associated detection limit. The manganese, sulfate, TDS, and uranium results were within five times the detection limit, so the results were due to potential machine error being so close to the detection limit. None of the analyses needed to be “J” flagged.

Ground Water/Surface Interaction Investigation Sampling Event

The results of the EB collected during this sampling event are presented in the second following table. As the results show, ammonia, bromide, calcium, chloride, magnesium, manganese, sulfate, and TDS were at or below the associated detection limit. The potassium and uranium results were within five times the detection limit, so the results were due to potential machine error being so close to the detection limit. Although the EB’s sodium result was high, the associated samples have such high concentrations of sodium that they did not need to be “J” flagged.

July 2008 Monthly Sampling Event - BLANKS REPORT
LAB: PARAGON (Fort Collins, CO)
RIN: 0807019
Report Date: 9/17/2008

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	MOA01	0999	07/24/2008	N001	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	07/24/2008	N001	mg/L	0.2	U	0.2		E
Chloride	MOA01	0999	07/24/2008	N001	mg/L	0.2	U	0.2		E
Manganese	MOA01	0999	07/24/2008	N001	mg/L	0.0014	B	0.0002		E
Sulfate	MOA01	0999	07/24/2008	N001	mg/L	0.58		0.5		E
Total Dissolved Solids	MOA01	0999	07/24/2008	N001	mg/L	21		20		E
Uranium	MOA01	0999	07/24/2008	N001	mg/L	9.5E-005	B	4.5E-006		E

July 2008 GW/SW investigation - BLANKS REPORT
LAB: PARAGON (Fort Collins, CO)
RIN: 0807018
Report Date: 9/10/2008

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	MOA01	0999	07/10/2008	0001	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	07/10/2008	0001	mg/L	0.2	U	0.2		E
Calcium	MOA01	0999	07/10/2008	0001	mg/L	0.0038	U	0.0038		E
Chloride	MOA01	0999	07/10/2008	0001	mg/L	0.2	U	0.2		E
Magnesium	MOA01	0999	07/10/2008	0001	mg/L	0.0047	U	0.0047		E
Manganese	MOA01	0999	07/10/2008	0001	mg/L	0.00013	U	0.00013		E
Potassium	MOA01	0999	07/10/2008	0001	mg/L	0.16	B	0.044		E

July 2008 GW/SW investigation - BLANKS REPORT
 LAB: PARAGON (Fort Collins, CO)
 RIN: 0807018
 Report Date: 9/10/2008

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data	Detection Limit	Uncertainty	Sample Type
Sodium	MOA01	0999	07/10/2008	0001	mg/L	0.21	B	0.0026		E
Sulfate	MOA01	0999	07/10/2008	0001	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	07/10/2008	0001	mg/L	20	U	20		E
Uranium	MOA01	0999	07/10/2008	0001	mg/L	4.3E-005	B	3.5E-006		E

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

SAMPLE TYPES:

- E Equipment Blank.

Appendix A
Water Sampling Field Activities Verification

Appendix A. Water Sampling Field Activities Verification

Sampling Event / RIN	<u>July 2008 / 0807019</u>	Date(s) of Water Sampling	<u>July 14 - 24, 2008</u>
Date(s) of Verification	<u>September 17, 2008</u>	Name of Verifier	<u>Rachel Cowan</u>
		Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, standard operating procedures, instructions.	<u>Yes</u>		
	<u>NA</u>		
2. Were the sampling locations specified in the planning documents sampled?	<u>No</u>	<u>See Section 1.1 for explanation.</u>	
3. Was a pretrip calibration conducted as specified in the aforementioned documents?	<u>Yes</u>		
4. Was an operational check of the field equipment conducted twice daily? Did the operational checks meet criteria?	<u>Yes</u>		
	<u>Yes</u>		
5. Were the number and types (alkalinity, temperature, electrical conductivity, pH, turbidity, dissolved oxygen, oxidation reduction potential) of field measurements taken as specified?	<u>Yes</u>		
6. Was the category of the well documented?	<u>Yes</u>		
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>Yes</u>		
Did the water level stabilize prior to sampling?	<u>Yes</u>		
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>Yes</u>		
Was the flow rate less than 500 milliliters per minute (mL/m)?	<u>Yes</u>		
If a portable pump was used, was there a four-hour delay between pump installation and sampling?	<u>NA</u>		

Appendix A. Water Sampling Field Activities Verification (continued)

- | | |
|--|-----|
| 8. Were the following conditions met when purging a Category II well: | |
| Was the flow rate less than 500 mL/m? | 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 EBs taken at a frequency of one per 20 samples that were collected with nondedicated equipment? | Yes |
| 11. Were trip blanks prepared and included with each shipment of 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 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? | Yes |
| 20. Were water levels measured at the locations specified in the planning documents? | Yes |

Appendix A. Water Sampling Field Activities Verification (continued)

Sampling Event / RIN	July 2008 GW/SW Investigation / 0807018	Date(s) of Water Sampling	July 8-10, 2008
Date(s) of Verification	September 15, 2008	Name of Verifier	Rachel Cowan
		Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, standard operating procedures, instructions.	Yes		
	NA		
2. Were the sampling locations specified in the planning documents sampled?	Yes		
3. Was a pretrip calibration conducted as specified in the aforementioned documents?	Yes		
4. Was an operational check of the field equipment conducted twice daily? Did the operational checks meet criteria?	No	Daily calibration check documentation is missing for the morning of 7/10/2008.	
	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 (mL/m)?	Yes		
If a portable pump was used, was there a four-hour delay between pump installation and sampling?	NA		

Appendix A. Water Sampling Field Activities Verification (continued)

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

Was the flow rate less than 500 mL/m?
Was one pump/tubing volume removed prior to sampling? | Yes

Yes | _____

_____ |
| 9. | Were duplicates taken at a frequency of one per 20 samples? | Yes | Nineteen samples were collected, and one duplicate sample was collected.
_____ |
| 10. | Were EBs taken at a frequency of one per 20 samples that were collected with nondedicated equipment? | Yes | Three surface water samples were collected on nondedicated equipment, and one EB sample was 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?

Was the true identity of the samples recorded on the Quality Assurance Sample Log? | Yes

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 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? | Yes | _____ |
| 20. | Were water levels measured at the locations specified in the planning documents? | Yes | _____ |

Appendix B
Minimums and Maximums Reports

Appendix B. Minimums and Maximums Reports

July 2008 Monthly Sampling Event - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807019

Comparison: All Historical Data

Report Date: 9/16/2008

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum		Historical Minimum		Count	
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect
MOA01	0401	07/24/2008	Manganese	1.4		5.4	J	2.4		7	0
MOA01	0401	07/24/2008	Selenium	0.0052		0.014	F	0.01		5	0
MOA01	0401	07/24/2008	Selenium	0.0051		0.014	F	0.01		5	0
MOA01	0404	07/24/2008	Selenium	0.0092		0.021	F	0.012	J	6	0
MOA01	0406	07/21/2008	Ammonia Total as N	210		510		300	F	12	0
MOA01	0406	07/21/2008	Sulfate	4100		7616.9		4600	F	12	0
MOA01	0406	07/21/2008	Total Dissolved Solids	7400		12000	F	8100	F	11	0
MOA01	0407	07/15/2008	Sulfate	57		12601.1		77		53	0
MOA01	0408	07/15/2008	Manganese	1.4		5.6	F	4.3		14	0
MOA01	0471	07/14/2008	Ammonia Total as N	38		1200		70		43	0
MOA01	0471	07/14/2008	Chloride	150		11000	F	630	J	43	0
MOA01	0471	07/14/2008	Manganese	0.15		4.5	F	0.29	J	9	0
MOA01	0471	07/14/2008	Sulfate	540		11500		930		43	0
MOA01	0471	07/14/2008	Total Dissolved Solids	1200		28000	F	2500		43	0
MOA01	0471	07/14/2008	Uranium	0.29		4	F	0.47	J	43	0

Appendix B. Minimums and Maximums Reports (continued)

July 2008 Monthly Sampling Event - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807019

Comparison: All Historical Data

Report Date: 9/16/2008

Site Code	Location Code	Sample Date	Analyte	Result	Current		Historical Maximum		Historical Minimum			Count	
					Qualifiers		Result	Qualifiers	Result	Qualifiers	N	N Below Detect	
					Lab	Data	Lab	Data	Lab	Data			
MOA01	0473	07/14/2008	Chloride	330			8800	F	550		44	0	
MOA01	0473	07/14/2008	Manganese	0.43			3.8	F	0.69	J	9	0	
MOA01	0473	07/14/2008	Sulfate	890			10000	F	1000		44	0	
MOA01	0473	07/14/2008	Total Dissolved Solids	1600			25000	F	2600		44	0	
MOA01	0473	07/14/2008	Uranium	0.35			4.5		0.48		44	0	
MOA01	0475	07/14/2008	Chloride	740			8600	F	800		44	0	
MOA01	0475	07/14/2008	Manganese	0.96			4.1	F	1.3	J	8	0	
MOA01	0479	07/14/2008	Manganese	1.5			4.5	F	2.3	J	13	0	
MOA01	0547	07/24/2008	Ammonia Total as N	260			950	J	360	J	41	0	
MOA01	0548	07/24/2008	Ammonia Total as N	230			1400		340		35	0	
MOA01	0548	07/24/2008	Sulfate	5100			19000		6200		35	0	
MOA01	0548	07/24/2008	Total Dissolved Solids	12000			44000		18000		35	0	
MOA01	0548	07/24/2008	Uranium	1.6			6.2		1.8	J	35	0	
MOA01	0555	07/17/2008	Chloride	2100			1800	F	1000	J	8	0	
MOA01	0581	07/15/2008	Ammonia Total as N	49			600	F	67	F	27	0	
MOA01	0581	07/15/2008	Ammonia Total as N	58			600	F	67	F	27	0	
MOA01	0581	07/15/2008	Chloride	2400			2200	F	230	F	27	0	

Appendix B. Minimums and Maximums Reports (continued)

July 2008 Monthly Sampling Event - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807019

Comparison: All Historical Data

Report Date: 9/16/2008

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum		Historical Minimum			Count	
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect	
MOA01	0581	07/15/2008	Manganese	0.6		4.7	F	2.6		J	7	0
MOA01	0585	07/15/2008	Manganese	1.4		5.5	J	4.5		F	7	0
MOA01	0589	07/15/2008	Manganese	3.4		11	J	5.1	N	F	25	0
MOA01	0680	07/15/2008	Ammonia Total as N	49		460	J	210		F	9	0
MOA01	0680	07/15/2008	Chloride	810		2400	F	940		F	9	0
MOA01	0680	07/15/2008	Manganese	2.7		5.3	F	3.3			6	0
MOA01	0681	07/15/2008	Ammonia Total as N	0.21		250	F	0.67		F	9	0
MOA01	0681	07/15/2008	Manganese	4.7		4.1		1.8		F	6	0
MOA01	0684	07/14/2008	Chloride	78		1600	F	87			9	0
MOA01	0690	07/22/2008	Chloride	180		1900	QF	300		J	7	0
MOA01	0690	07/22/2008	Sulfate	2300		7300	QF	2400		J	8	0
MOA01	0690	07/22/2008	Uranium	0.79		2.8	QF	1.3		J	8	0
MOA01	0691	07/22/2008	Chloride	540		2960	QF	590		J	22	0
MOA01	0691	07/22/2008	Manganese	0.84		3.91	FQ	0.895	E	QF	16	0
MOA01	0691	07/22/2008	Selenium	0.0037		0.0643	QF	0.0047		J	15	0
MOA01	0691	07/22/2008	Sulfate	2400		9330	QF	3000		J	23	0
MOA01	0691	07/22/2008	Total Dissolved Solids	4600		67100	QF	4930		QF	23	0

Appendix B. Minimums and Maximums Reports (continued)

July 2008 Monthly Sampling Event - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807019

Comparison: All Historical Data

Report Date: 9/16/2008

Site Code	Location Code	Sample Date	Analyte	Result	Current		Historical Maximum			Historical Minimum			Count	
					Qualifiers		Result	Qualifiers	Lab	Data	Result	Qualifiers	Lab	Data
MOA01	0691	07/22/2008	Uranium	0.94			2.36		FQ	0.966		QF	21	0
MOA01	0692	07/22/2008	Ammonia Total as N	130			469		FQ	160			24	0
MOA01	0692	07/22/2008	Chloride	300			2510	J	FQ	550		J	25	0
MOA01	0692	07/22/2008	Manganese	0.72			5.14		QF	0.97			17	0
MOA01	0692	07/22/2008	Sulfate	1500			9580		QF	2900		J	26	0
MOA01	0692	07/22/2008	Total Dissolved Solids	2800			16900		QF	5200			25	0
MOA01	0725	07/22/2008	Sulfate	2400			2000		J	540		J	14	0
MOA01	0725	07/22/2008	Total Dissolved Solids	4400			3300			1100			14	0
MOA01	0770	07/23/2008	Ammonia Total as N	130			1200		F	170		F	12	0
MOA01	0770	07/23/2008	Manganese	1.8			8.2		F	2.9		J	6	0
MOA01	0770	07/23/2008	Sulfate	1800			9400		F	3500		J	12	0
MOA01	0770	07/23/2008	Total Dissolved Solids	9000			64000		F	12000		JF	12	0
MOA01	0770	07/23/2008	Uranium	0.51			2.6			0.93		J	12	0
MOA01	0776	07/23/2008	Chloride	3600			39000		F	5500		F	13	0
MOA01	0776	07/23/2008	Sulfate	1800			10000		F	2000			13	0
MOA01	0776	07/23/2008	Total Dissolved Solids	8600			73000		F	15000			13	0
MOA01	0776	07/23/2008	Uranium	0.39			2.7		F	0.44		J	13	0

Appendix B. Minimums and Maximums Reports (continued)

July 2008 Monthly Sampling Event - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807019

Comparison: All Historical Data

Report Date: 9/16/2008

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum		Historical Minimum			Count	
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect	
MOA01	0778	07/23/2008	Ammonia Total as N	160		1400	F	280			14	0
MOA01	0778	07/23/2008	Chloride	3500		24000	F	5100		J	14	0
MOA01	0778	07/23/2008	Manganese	1.8		9.3	F	2.3		J	6	0
MOA01	0778	07/23/2008	Sulfate	1900		8900	F	3300		J	14	0
MOA01	0778	07/23/2008	Total Dissolved Solids	8400		52000	F	13000			14	0
MOA01	0778	07/23/2008	Uranium	0.51		2.2		0.95		J	14	0
MOA01	0781	07/17/2008	Ammonia Total as N	630		520		25			22	0
MOA01	0781	07/17/2008	Total Dissolved Solids	59000		91000	F	74000		F	22	0
MOA01	0782	07/21/2008	Chloride	3700		54000	J	7200		F	21	0
MOA01	0782	07/21/2008	Manganese	2.2		9.9	J	4.5		J	13	0
MOA01	0782	07/21/2008	Sulfate	3300		10000	F	5800		F	21	0
MOA01	0782	07/21/2008	Total Dissolved Solids	10000		90000		25000			21	0

Appendix B. Minimums and Maximums Reports (continued)

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. | | |

Appendix B. Minimums and Maximums Reports (continued)

July 2008 GW/SW Investigation - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807018

Comparison: All Historical Data

Report Date: 9/10/2008

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum			Historical Minimum			Count	
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect		
MOA01	0482	07/08/2008	Ammonia Total as N	1200		900		500	F	25	0		
MOA01	0482	07/08/2008	Manganese	11		8.7		6.5		8	0		
MOA01	0482	07/08/2008	Sulfate	7400		7000	J	5300		25	0		
MOA01	0482	07/08/2008	Total Dissolved Solids	79000		87000	F	81000	F	25	0		
MOA01	0482	07/08/2008	Uranium	1		0.95	F	0.51	JF	25	0		
MOA01	0485	07/08/2008	Ammonia Total as N	1300		1100		420	F	24	0		
MOA01	0485	07/08/2008	Manganese	9.6		9		6.6	F	8	0		
MOA01	0485	07/08/2008	Sulfate	7900		7500		680	F	24	0		
MOA01	0485	07/08/2008	Total Dissolved Solids	72000		90000	F	74000		24	0		
MOA01	0557	07/08/2008	Ammonia Total as N	410		2400	F	520	J	46	0		
MOA01	0558	07/08/2008	Ammonia Total as N	610		2400	F	840		35	0		
MOA01	0559	07/08/2008	Sulfate	140		8100	F	210	F	47	0		
MOA01	0559	07/08/2008	Uranium	0.12		2.4	F	0.125	F	47	0		
MOA01	0561	07/08/2008	Bromide	10	U	40	U	15	F	15	14		
MOA01	SMI-PW01	07/09/2008	Chloride	860		16998		990		34	0		

Appendix B. Minimums and Maximums Reports (continued)

July 2008 GW/SW Investigation - Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0807018

Comparison: All Historical Data

Report Date: 9/10/2008

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum			Historical Minimum			Count	
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect		
MOA01	SMI-PW01	07/09/2008	Sulfate	5800		14569		6000			34	0	
MOA01	SMI-PZ1M	07/09/2008	Sulfate	11000		17000	F	12000	J		22	0	
MOA01	SMI-PZ1S	07/09/2008	Ammonia Total as N	210		565		230			21	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.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

Appendix C
Water Quality Data

Appendix C. Water Quality Data

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
										Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	0240	SL	07/21/2008	0001	0	-	0	192			0		
Alkalinity, Total (As CaCO3)	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	194			0		
Alkalinity, Total (As CaCO3)	mg/L	0259	SL	07/21/2008	0001	0	-	0	152			0		
Alkalinity, Total (As CaCO3)	mg/L	0401	WL	07/24/2008	0001	18	-	18	290			0		
Alkalinity, Total (As CaCO3)	mg/L	0403	WL	07/15/2008	0001	18	-	18	400			0		
Alkalinity, Total (As CaCO3)	mg/L	0404	WL	07/24/2008	0001	18	-	18	720			0		
Alkalinity, Total (As CaCO3)	mg/L	0406	WL	07/21/2008	0001	18	-	18	500			0		
Alkalinity, Total (As CaCO3)	mg/L	0407	WL	07/15/2008	0001	17	-	17	270			0		
Alkalinity, Total (As CaCO3)	mg/L	0408	WL	07/15/2008	0001	20	-	20	316			0		
Alkalinity, Total (As CaCO3)	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	390			0		
Alkalinity, Total (As CaCO3)	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	390			0		
Alkalinity, Total (As CaCO3)	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	424			0		
Alkalinity, Total (As CaCO3)	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	488			0		
Alkalinity, Total (As CaCO3)	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	454			0		
Alkalinity, Total (As CaCO3)	mg/L	0481	WL	07/15/2008	0001	28	-	28	944			0		
Alkalinity, Total (As CaCO3)	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	1122			0		
Alkalinity, Total (As CaCO3)	mg/L	0547	TS	07/24/2008	0001	0	-	0	460			0		
Alkalinity, Total (As CaCO3)	mg/L	0548	TS	07/24/2008	0001	0	-	0	366			0		
Alkalinity, Total (As CaCO3)	mg/L	0555	WL	07/17/2008	0001	18	-	18	990			0		
Alkalinity, Total (As CaCO3)	mg/L	0581	WL	07/15/2008	0001	18	-	18	528			0		
Alkalinity, Total (As CaCO3)	mg/L	0585	WL	07/15/2008	0001	18	-	18	326			0		
Alkalinity, Total (As CaCO3)	mg/L	0589	WL	07/15/2008	0001	52	-	52	720			0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	486		0		
Alkalinity, Total (As CaCO3)	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	612		0		
Alkalinity, Total (As CaCO3)	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	682		0		
Alkalinity, Total (As CaCO3)	mg/L	0675	WL	07/14/2008	0001	16	-	46	696		0		
Alkalinity, Total (As CaCO3)	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	716		0		
Alkalinity, Total (As CaCO3)	mg/L	0679	WL	07/14/2008	0001	15	-	45	550		0		
Alkalinity, Total (As CaCO3)	mg/L	0680	WL	07/15/2008	0001	18	-	18	492		0		
Alkalinity, Total (As CaCO3)	mg/L	0681	WL	07/15/2008	0001	18	-	18	680		0		
Alkalinity, Total (As CaCO3)	mg/L	0684	WL	07/14/2008	0001	19	-	19	356		0		
Alkalinity, Total (As CaCO3)	mg/L	0688	WL	07/14/2008	0001	39	-	39	1050		0		
Alkalinity, Total (As CaCO3)	mg/L	0689	WL	07/14/2008	0001	54	-	54	630		0		
Alkalinity, Total (As CaCO3)	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	908		0		
Alkalinity, Total (As CaCO3)	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	720		0		
Alkalinity, Total (As CaCO3)	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	546		0		
Alkalinity, Total (As CaCO3)	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	508		0		
Alkalinity, Total (As CaCO3)	mg/L	0730	WL	07/14/2008	0001	18	-	18	310		0		
Alkalinity, Total (As CaCO3)	mg/L	0732	WL	07/14/2008	0001	18	-	18	1416		0		
Alkalinity, Total (As CaCO3)	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	410		0		
Alkalinity, Total (As CaCO3)	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	350		0		
Alkalinity, Total (As CaCO3)	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	490		0		
Alkalinity, Total (As CaCO3)	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	420		0		
Alkalinity, Total (As CaCO3)	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	384		0		
Alkalinity, Total (As CaCO3)	mg/L	0781	WL	07/17/2008	0001	48	-	48	320		0		
Alkalinity, Total (As CaCO3)	mg/L	0782	WL	07/21/2008	0001	31	-	31	314		0		
Alkalinity, Total (As CaCO3)	mg/L	0786	WL	07/21/2008	0001	28	-	28	556		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	0787	WL	07/21/2008	0001	36	-	36	300		0		
Alkalinity, Total (As CaCO3)	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	556		0		
Ammonia Total as N	mg/L	0240	SL	07/21/2008	0001	0	-	0	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0240	SL	07/21/2008	0002	0	-	0	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0259	SL	07/21/2008	0001	0	-	0	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0401	WL	07/24/2008	0001	18	-	18	54		0	10	
Ammonia Total as N	mg/L	0401	WL	07/24/2008	0002	18	-	18	53		0	10	
Ammonia Total as N	mg/L	0403	WL	07/15/2008	0001	18	-	18	48		0	10	
Ammonia Total as N	mg/L	0404	WL	07/24/2008	0001	18	-	18	320		0	10	
Ammonia Total as N	mg/L	0406	WL	07/21/2008	0001	18	-	18	210		0	10	
Ammonia Total as N	mg/L	0407	WL	07/15/2008	0001	17	-	17	3.7		0	0.1	
Ammonia Total as N	mg/L	0408	WL	07/15/2008	0001	20	-	20	77		0	10	
Ammonia Total as N	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	38		0	10	
Ammonia Total as N	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	76		0	10	
Ammonia Total as N	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	160		0	10	
Ammonia Total as N	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	150		0	10	
Ammonia Total as N	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	150		0	10	
Ammonia Total as N	mg/L	0481	WL	07/15/2008	0001	28	-	28	610		0	50	
Ammonia Total as N	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	0.36		0	0.1	
Ammonia Total as N	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	1		0	0.1	
Ammonia Total as N	mg/L	0547	TS	07/24/2008	0001	0	-	0	260		0	10	
Ammonia Total as N	mg/L	0548	TS	07/24/2008	0001	0	-	0	230		0	10	
Ammonia Total as N	mg/L	0555	WL	07/17/2008	0001	18	-	18	200		0	10	
Ammonia Total as N	mg/L	0581	WL	07/15/2008	0001	18	-	18	58		0	10	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data	QA					
Ammonia Total as N	mg/L	0581	WL	07/15/2008	0002	18	-	18	49		0	10	
Ammonia Total as N	mg/L	0585	WL	07/15/2008	0001	18	-	18	19		0	2	
Ammonia Total as N	mg/L	0589	WL	07/15/2008	0001	52	-	52	380		0	10	
Ammonia Total as N	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	90		0	10	
Ammonia Total as N	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	430		0	10	
Ammonia Total as N	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	450		0	20	
Ammonia Total as N	mg/L	0675	WL	07/14/2008	0001	16	-	46	480		0	10	
Ammonia Total as N	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	490		0	20	
Ammonia Total as N	mg/L	0679	WL	07/14/2008	0001	15	-	45	330		0	10	
Ammonia Total as N	mg/L	0680	WL	07/15/2008	0001	18	-	18	49		0	10	
Ammonia Total as N	mg/L	0681	WL	07/15/2008	0001	18	-	18	0.21		0	0.1	
Ammonia Total as N	mg/L	0684	WL	07/14/2008	0001	19	-	19	0.57		0	0.1	
Ammonia Total as N	mg/L	0688	WL	07/14/2008	0001	39	-	39	940		0	50	
Ammonia Total as N	mg/L	0689	WL	07/14/2008	0001	54	-	54	540		0	20	
Ammonia Total as N	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	110		0	10	
Ammonia Total as N	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	130		0	10	
Ammonia Total as N	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	0.1	U	0	0.1	
Ammonia Total as N	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	0.3		0	0.1	
Ammonia Total as N	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	23		0	1	
Ammonia Total as N	mg/L	0730	WL	07/14/2008	0001	18	-	18	33		0	2	
Ammonia Total as N	mg/L	0732	WL	07/14/2008	0001	18	-	18	11		0	1	
Ammonia Total as N	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	130		0	10	
Ammonia Total as N	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	120		0	10	
Ammonia Total as N	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	150		0	10	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Ammonia Total as N	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	270		0	10	
Ammonia Total as N	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	160		0	10	
Ammonia Total as N	mg/L	0781	WL	07/17/2008	0001	48	-	48	630		0	50	
Ammonia Total as N	mg/L	0782	WL	07/21/2008	0001	31	-	31	180		0	10	
Ammonia Total as N	mg/L	0786	WL	07/21/2008	0001	28	-	28	240		0	10	
Ammonia Total as N	mg/L	0787	WL	07/21/2008	0001	36	-	36	170		0	10	
Ammonia Total as N	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	2200		0	50	
Bromide	mg/L	0240	SL	07/21/2008	0001	0	-	0	0.2	U	0	0.2	
Bromide	mg/L	0240	SL	07/21/2008	0002	0	-	0	0.2	U	0	0.2	
Bromide	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	0.2	U	0	0.2	
Bromide	mg/L	0259	SL	07/21/2008	0001	0	-	0	0.2	U	0	0.2	
Bromide	mg/L	0401	WL	07/24/2008	0001	18	-	18	1	U	0	1	
Bromide	mg/L	0401	WL	07/24/2008	0002	18	-	18	1	U	0	1	
Bromide	mg/L	0403	WL	07/15/2008	0001	18	-	18	0.4	U	0	0.4	
Bromide	mg/L	0404	WL	07/24/2008	0001	18	-	18	4	U	0	4	
Bromide	mg/L	0406	WL	07/21/2008	0001	18	-	18	2	U	0	2	
Bromide	mg/L	0407	WL	07/15/2008	0001	17	-	17	0.2	U	0	0.2	
Bromide	mg/L	0408	WL	07/15/2008	0001	20	-	20	1	U	0	1	
Bromide	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	0.4	U	0	0.4	
Bromide	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	1	U	0	1	
Bromide	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	1	U	0	1	
Bromide	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	2	U	0	2	
Bromide	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	1	U	0	1	
Bromide	mg/L	0481	WL	07/15/2008	0001	28	-	28	4	U	0	4	
Bromide	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	4	U	0	4	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Lab	Qualifiers		Detection Limit	Uncertainty
				Date	ID						Data	QA		
Bromide	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	4	U	0	4		
Bromide	mg/L	0547	TS	07/24/2008	0001	0	-	0	4	U	0	4		
Bromide	mg/L	0548	TS	07/24/2008	0001	0	-	0	4	U	0	4		
Bromide	mg/L	0555	WL	07/17/2008	0001	18	-	18	4	U	0	4		
Bromide	mg/L	0581	WL	07/15/2008	0001	18	-	18	4	U	0	4		
Bromide	mg/L	0581	WL	07/15/2008	0002	18	-	18	4	U	0	4		
Bromide	mg/L	0585	WL	07/15/2008	0001	18	-	18	1	U	0	1		
Bromide	mg/L	0589	WL	07/15/2008	0001	52	-	52	4	U	0	4		
Bromide	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	1	U	0	1		
Bromide	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	4	U	0	4		
Bromide	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	4	U	0	4		
Bromide	mg/L	0675	WL	07/14/2008	0001	16	-	46	4	U	0	4		
Bromide	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	4	U	0	4		
Bromide	mg/L	0679	WL	07/14/2008	0001	15	-	45	2	U	0	2		
Bromide	mg/L	0680	WL	07/15/2008	0001	18	-	18	2	U	0	2		
Bromide	mg/L	0681	WL	07/15/2008	0001	18	-	18	1	U	0	1		
Bromide	mg/L	0684	WL	07/14/2008	0001	19	-	19	1	U	0	1		
Bromide	mg/L	0688	WL	07/14/2008	0001	39	-	39	20	U	0	20		
Bromide	mg/L	0689	WL	07/14/2008	0001	54	-	54	20	U	0	20		
Bromide	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	1	U	0	1		
Bromide	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	1	U	0	1		
Bromide	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	1	U	0	1		
Bromide	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	1	U	0	1		
Bromide	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	1	U	0	1		
Bromide	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	0.4	U	0	0.4		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Lab	Qualifiers		Detection Limit	Uncertainty
				Date	ID						Data	QA		
Bromide	mg/L	0730	WL	07/14/2008	0001	18	-	18	1	U	0	1		
Bromide	mg/L	0732	WL	07/14/2008	0001	18	-	18	1	U	0	1		
Bromide	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	2	U	0	2		
Bromide	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	2	U	0	2		
Bromide	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	2	U	0	2		
Bromide	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	2	U	0	2		
Bromide	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	2	U	0	2		
Bromide	mg/L	0781	WL	07/17/2008	0001	48	-	48	10	U	0	10		
Bromide	mg/L	0782	WL	07/21/2008	0001	31	-	31	2	U	0	2		
Bromide	mg/L	0786	WL	07/21/2008	0001	28	-	28	2	U	0	2		
Bromide	mg/L	0787	WL	07/21/2008	0001	36	-	36	10	U	0	10		
Bromide	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	10	U	0	10		
Chloride	mg/L	0240	SL	07/21/2008	0001	0	-	0	55		0	1		
Chloride	mg/L	0240	SL	07/21/2008	0002	0	-	0	54		0	1		
Chloride	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	39		0	1		
Chloride	mg/L	0259	SL	07/21/2008	0001	0	-	0	53		0	1		
Chloride	mg/L	0401	WL	07/24/2008	0001	18	-	18	190		0	10		
Chloride	mg/L	0401	WL	07/24/2008	0002	18	-	18	180		0	10		
Chloride	mg/L	0403	WL	07/15/2008	0001	18	-	18	250		0	4		
Chloride	mg/L	0404	WL	07/24/2008	0001	18	-	18	1500		0	40		
Chloride	mg/L	0406	WL	07/21/2008	0001	18	-	18	700		0	20		
Chloride	mg/L	0407	WL	07/15/2008	0001	17	-	17	17		0	0.2		
Chloride	mg/L	0408	WL	07/15/2008	0001	20	-	20	330		0	10		
Chloride	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	150		0	4		
Chloride	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	330		0	10		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Chloride	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	740		0	20	
Chloride	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	760		0	20	
Chloride	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	760		0	20	
Chloride	mg/L	0481	WL	07/15/2008	0001	28	-	28	4100		0	100	
Chloride	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	4600		0	100	
Chloride	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	2700		0	40	
Chloride	mg/L	0547	TS	07/24/2008	0001	0	-	0	2800		0	40	
Chloride	mg/L	0548	TS	07/24/2008	0001	0	-	0	2800		0	40	
Chloride	mg/L	0555	WL	07/17/2008	0001	18	-	18	2100		0	40	
Chloride	mg/L	0581	WL	07/15/2008	0001	18	-	18	2400		0	40	
Chloride	mg/L	0581	WL	07/15/2008	0002	18	-	18	2400		0	40	
Chloride	mg/L	0585	WL	07/15/2008	0001	18	-	18	710		0	10	
Chloride	mg/L	0589	WL	07/15/2008	0001	52	-	52	2900		0	40	
Chloride	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	730		0	10	
Chloride	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	2600		0	40	
Chloride	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	5800		0	100	
Chloride	mg/L	0675	WL	07/14/2008	0001	16	-	46	4500		0	100	
Chloride	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	2800		0	40	
Chloride	mg/L	0679	WL	07/14/2008	0001	15	-	45	1600		0	40	
Chloride	mg/L	0680	WL	07/15/2008	0001	18	-	18	810		0	20	
Chloride	mg/L	0681	WL	07/15/2008	0001	18	-	18	150		0	10	
Chloride	mg/L	0684	WL	07/14/2008	0001	19	-	19	78		0	1	
Chloride	mg/L	0688	WL	07/14/2008	0001	39	-	39	9500		0	200	
Chloride	mg/L	0689	WL	07/14/2008	0001	54	-	54	35000		0	400	
Chloride	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	180		0	10	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Chloride	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	540		0	10	
Chloride	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	300		0	10	
Chloride	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	150		0	10	
Chloride	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	230		0	10	
Chloride	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	120		0	4	
Chloride	mg/L	0730	WL	07/14/2008	0001	18	-	18	190		0	4	
Chloride	mg/L	0732	WL	07/14/2008	0001	18	-	18	280		0	10	
Chloride	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	3900		0	40	
Chloride	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	3800		0	40	
Chloride	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	2200		0	40	
Chloride	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	3600		0	100	
Chloride	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	3500		0	40	
Chloride	mg/L	0781	WL	07/17/2008	0001	48	-	48	34000		0	400	
Chloride	mg/L	0782	WL	07/21/2008	0001	31	-	31	3700		0	100	
Chloride	mg/L	0786	WL	07/21/2008	0001	28	-	28	1600		0	20	
Chloride	mg/L	0787	WL	07/21/2008	0001	36	-	36	27000		0	400	
Chloride	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	39000		0	400	
Copper	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	0.013	U	0	0.013	
Copper	mg/L	0787	WL	07/21/2008	0001	36	-	36	0.064	U	0	0.064	
Dissolved Oxygen	mg/L	0240	SL	07/21/2008	0001	0	-	0	7.15		0		
Dissolved Oxygen	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	8.41		0		
Dissolved Oxygen	mg/L	0259	SL	07/21/2008	0001	0	-	0	7.08		0		
Dissolved Oxygen	mg/L	0401	WL	07/24/2008	0001	18	-	18	3.8		0		
Dissolved Oxygen	mg/L	0403	WL	07/15/2008	0001	18	-	18	1.45		0		
Dissolved Oxygen	mg/L	0404	WL	07/24/2008	0001	18	-	18	1.85		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Dissolved Oxygen	mg/L	0406	WL	07/21/2008	0001	18	-	18	0.49		0		
Dissolved Oxygen	mg/L	0407	WL	07/15/2008	0001	17	-	17	2.21		0		
Dissolved Oxygen	mg/L	0408	WL	07/15/2008	0001	20	-	20	2.38		0		
Dissolved Oxygen	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	5.71		0		
Dissolved Oxygen	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	4.77		0		
Dissolved Oxygen	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	5.85		0		
Dissolved Oxygen	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	7.84		0		
Dissolved Oxygen	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	4.93		0		
Dissolved Oxygen	mg/L	0481	WL	07/15/2008	0001	28	-	28	0.49		0		
Dissolved Oxygen	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	3.35		0		
Dissolved Oxygen	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	5.88		0		
Dissolved Oxygen	mg/L	0547	TS	07/24/2008	0001	0	-	0	7.69		0		
Dissolved Oxygen	mg/L	0548	TS	07/24/2008	0001	0	-	0	7.2		0		
Dissolved Oxygen	mg/L	0555	WL	07/17/2008	0001	18	-	18	0.28		0		
Dissolved Oxygen	mg/L	0581	WL	07/15/2008	0001	18	-	18	0.48		0		
Dissolved Oxygen	mg/L	0585	WL	07/15/2008	0001	18	-	18	2.73		0		
Dissolved Oxygen	mg/L	0589	WL	07/15/2008	0001	52	-	52	0.77		0		
Dissolved Oxygen	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	5.55		0		
Dissolved Oxygen	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	4.05		0		
Dissolved Oxygen	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	4.62		0		
Dissolved Oxygen	mg/L	0675	WL	07/14/2008	0001	16	-	46	3.47		0		
Dissolved Oxygen	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	2.26		0		
Dissolved Oxygen	mg/L	0679	WL	07/14/2008	0001	15	-	45	2.71		0		
Dissolved Oxygen	mg/L	0680	WL	07/15/2008	0001	18	-	18	1.53		0		
Dissolved Oxygen	mg/L	0681	WL	07/15/2008	0001	18	-	18	2.75		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data	QA					
Dissolved Oxygen	mg/L	0684	WL	07/14/2008	0001	19	-	19	2.13		0		
Dissolved Oxygen	mg/L	0688	WL	07/14/2008	0001	39	-	39	0.65		0		
Dissolved Oxygen	mg/L	0689	WL	07/14/2008	0001	54	-	54	0.22		0		
Dissolved Oxygen	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	5.69		0		
Dissolved Oxygen	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	4.77		0		
Dissolved Oxygen	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	2.81		0		
Dissolved Oxygen	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	2.17		0		
Dissolved Oxygen	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	2.91		0		
Dissolved Oxygen	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	7.47		0		
Dissolved Oxygen	mg/L	0730	WL	07/14/2008	0001	18	-	18	3.18		0		
Dissolved Oxygen	mg/L	0732	WL	07/14/2008	0001	18	-	18	2.6		0		
Dissolved Oxygen	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	8.19		0		
Dissolved Oxygen	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	4.78		0		
Dissolved Oxygen	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	7.36		0		
Dissolved Oxygen	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	9.57		0		
Dissolved Oxygen	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	3.63		0		
Dissolved Oxygen	mg/L	0781	WL	07/17/2008	0001	48	-	48	0.15		0		
Dissolved Oxygen	mg/L	0782	WL	07/21/2008	0001	31	-	31	0.35		0		
Dissolved Oxygen	mg/L	0786	WL	07/21/2008	0001	28	-	28	0.29		0		
Dissolved Oxygen	mg/L	0787	WL	07/21/2008	0001	36	-	36	0.11		0		
Dissolved Oxygen	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	0.05		0		
Manganese	mg/L	0240	SL	07/21/2008	0001	0	-	0	0.0089		0	0.0002	
Manganese	mg/L	0240	SL	07/21/2008	0002	0	-	0	0.0087		0	0.0002	
Manganese	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	0.25		0	0.0002	
Manganese	mg/L	0259	SL	07/21/2008	0001	0	-	0	0.011		0	0.0002	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range		Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	(Ft BLS)	Lab		Data	QA		
Manganese	mg/L	0401	WL	07/24/2008	0001	18	- 18	1.4		0	0.00041	
Manganese	mg/L	0401	WL	07/24/2008	0002	18	- 18	1.4		0	0.00041	
Manganese	mg/L	0403	WL	07/15/2008	0001	18	- 18	1.5		0	0.0002	
Manganese	mg/L	0404	WL	07/24/2008	0001	18	- 18	5		0	0.002	
Manganese	mg/L	0406	WL	07/21/2008	0001	18	- 18	2.1		0	0.001	
Manganese	mg/L	0407	WL	07/15/2008	0001	17	- 17	0.15		0	0.0002	
Manganese	mg/L	0408	WL	07/15/2008	0001	20	- 20	1.4		0	0.00041	
Manganese	mg/L	0471	WL	07/14/2008	0001	10.3	- 19.7	0.15		0	0.0002	
Manganese	mg/L	0473	WL	07/14/2008	0001	10.3	- 19.7	0.43		0	0.00041	
Manganese	mg/L	0475	WL	07/14/2008	0001	10.3	- 19.7	0.96		0	0.001	
Manganese	mg/L	0477	WL	07/14/2008	0001	10.3	- 19.7	1.6		0	0.001	
Manganese	mg/L	0479	WL	07/14/2008	0001	9.3	- 23.6	1.5		0	0.001	
Manganese	mg/L	0481	WL	07/15/2008	0001	28	- 28	5.2		0	0.002	
Manganese	mg/L	0494	WL	07/22/2008	0001	2.4	- 3.4	4.8		0	0.002	
Manganese	mg/L	0495	WL	07/22/2008	0001	4.6	- 5.6	3.1		0	0.002	
Manganese	mg/L	0547	TS	07/24/2008	0001	0	- 0	2.9		0	0.002	
Manganese	mg/L	0548	TS	07/24/2008	0001	0	- 0	2		0	0.002	
Manganese	mg/L	0555	WL	07/17/2008	0001	18	- 18	4.6		0	0.002	
Manganese	mg/L	0581	WL	07/15/2008	0001	18	- 18	0.6		0	0.002	
Manganese	mg/L	0581	WL	07/15/2008	0002	18	- 18	0.6		0	0.002	
Manganese	mg/L	0585	WL	07/15/2008	0001	18	- 18	1.4		0	0.00041	
Manganese	mg/L	0589	WL	07/15/2008	0001	52	- 52	3.4		0	0.002	
Manganese	mg/L	0597	WL	07/22/2008	0001	9.3	- 10.3	2.2		0	0.001	
Manganese	mg/L	0671	WL	07/14/2008	0001	14.4	- 44.4	4		0	0.002	
Manganese	mg/L	0673	WL	07/14/2008	0001	16.3	- 46.3	4.1		0	0.002	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Manganese	mg/L	0675	WL	07/14/2008	0001	16	-	46	4		0	0.002	
Manganese	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	4.3		0	0.002	
Manganese	mg/L	0679	WL	07/14/2008	0001	15	-	45	3		0	0.002	
Manganese	mg/L	0680	WL	07/15/2008	0001	18	-	18	2.7		0	0.001	
Manganese	mg/L	0681	WL	07/15/2008	0001	18	-	18	4.7		0	0.00041	
Manganese	mg/L	0684	WL	07/14/2008	0001	19	-	19	1.2		0	0.00041	
Manganese	mg/L	0688	WL	07/14/2008	0001	39	-	39	5.8		0	0.01	
Manganese	mg/L	0689	WL	07/14/2008	0001	54	-	54	7		0	0.01	
Manganese	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	4.2		0	0.001	
Manganese	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	0.84		0	0.001	
Manganese	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	0.72		0	0.001	
Manganese	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	2.1		0	0.00041	
Manganese	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	2.6		0	0.00041	
Manganese	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	0.62		0	0.0002	
Manganese	mg/L	0730	WL	07/14/2008	0001	18	-	18	0.87		0	0.00041	
Manganese	mg/L	0732	WL	07/14/2008	0001	18	-	18	1		0	0.00041	
Manganese	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	1.8		0	0.002	
Manganese	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	1.4		0	0.002	
Manganese	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	2		0	0.001	
Manganese	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	2.1		0	0.002	
Manganese	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	1.8		0	0.002	
Manganese	mg/L	0781	WL	07/17/2008	0001	48	-	48	6.3		0	0.0051	
Manganese	mg/L	0782	WL	07/21/2008	0001	31	-	31	2.2		0	0.001	
Manganese	mg/L	0786	WL	07/21/2008	0001	28	-	28	3.4		0	0.001	
Manganese	mg/L	0787	WL	07/21/2008	0001	36	-	36	3.8		0	0.01	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Manganese	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	10		0	0.01	
Oxidation Reduction Potential	mV	0240	SL	07/21/2008	0001	0	-	0	-53		0		
Oxidation Reduction Potential	mV	0242	SL	07/21/2008	0001	0.25	-	0.25	40		0		
Oxidation Reduction Potential	mV	0259	SL	07/21/2008	0001	0	-	0	-30		0		
Oxidation Reduction Potential	mV	0401	WL	07/24/2008	0001	18	-	18	19		0		
Oxidation Reduction Potential	mV	0403	WL	07/15/2008	0001	18	-	18	-137.4		0		
Oxidation Reduction Potential	mV	0404	WL	07/24/2008	0001	18	-	18	63		0		
Oxidation Reduction Potential	mV	0406	WL	07/21/2008	0001	18	-	18	-18		0		
Oxidation Reduction Potential	mV	0407	WL	07/15/2008	0001	17	-	17	-182.1		0		
Oxidation Reduction Potential	mV	0408	WL	07/15/2008	0001	20	-	20	-16.7		0		
Oxidation Reduction Potential	mV	0471	WL	07/14/2008	0001	10.3	-	19.7	148.2		0		
Oxidation Reduction Potential	mV	0473	WL	07/14/2008	0001	10.3	-	19.7	143.2		0		
Oxidation Reduction Potential	mV	0475	WL	07/14/2008	0001	10.3	-	19.7	140.7		0		
Oxidation Reduction Potential	mV	0477	WL	07/14/2008	0001	10.3	-	19.7	132.1		0		
Oxidation Reduction Potential	mV	0479	WL	07/14/2008	0001	9.3	-	23.6	124.9		0		
Oxidation Reduction Potential	mV	0481	WL	07/15/2008	0001	28	-	28	-140.1		0		
Oxidation Reduction Potential	mV	0494	WL	07/22/2008	0001	2.4	-	3.4	96		0		
Oxidation Reduction Potential	mV	0495	WL	07/22/2008	0001	4.6	-	5.6	127		0		
Oxidation Reduction Potential	mV	0547	TS	07/24/2008	0001	0	-	0	112		0		
Oxidation Reduction Potential	mV	0548	TS	07/24/2008	0001	0	-	0	101		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Oxidation Reduction Potential	mV	0555	WL	07/17/2008	0001	18	-	18	-84.9		0		
Oxidation Reduction Potential	mV	0581	WL	07/15/2008	0001	18	-	18	-2.8		0		
Oxidation Reduction Potential	mV	0585	WL	07/15/2008	0001	18	-	18	-38.6		0		
Oxidation Reduction Potential	mV	0589	WL	07/15/2008	0001	52	-	52	-97.4		0		
Oxidation Reduction Potential	mV	0597	WL	07/22/2008	0001	9.3	-	10.3	117		0		
Oxidation Reduction Potential	mV	0671	WL	07/14/2008	0001	14.4	-	44.4	38.1		0		
Oxidation Reduction Potential	mV	0673	WL	07/14/2008	0001	16.3	-	46.3	33.6		0		
Oxidation Reduction Potential	mV	0675	WL	07/14/2008	0001	16	-	46	36		0		
Oxidation Reduction Potential	mV	0677	WL	07/14/2008	0001	15.2	-	45.2	31		0		
Oxidation Reduction Potential	mV	0679	WL	07/14/2008	0001	15	-	45	34.3		0		
Oxidation Reduction Potential	mV	0680	WL	07/15/2008	0001	18	-	18	104.7		0		
Oxidation Reduction Potential	mV	0681	WL	07/15/2008	0001	18	-	18	-90.2		0		
Oxidation Reduction Potential	mV	0684	WL	07/14/2008	0001	19	-	19	-48.1		0		
Oxidation Reduction Potential	mV	0688	WL	07/14/2008	0001	39	-	39	-100.9		0		
Oxidation Reduction Potential	mV	0689	WL	07/14/2008	0001	54	-	54	-119.2		0		
Oxidation Reduction Potential	mV	0690	WL	07/22/2008	0001	3.3	-	4.3	-116		0		
Oxidation Reduction Potential	mV	0691	WL	07/22/2008	0001	6.5	-	7.5	-0.9		0		
Oxidation Reduction Potential	mV	0692	WL	07/22/2008	0001	9.7	-	10.1	14		0		
Oxidation Reduction Potential	mV	0724	WL	07/22/2008	0001	2.4	-	3.4	-85		0		
Oxidation Reduction Potential	mV	0725	WL	07/22/2008	0001	4.6	-	5.6	-75		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Oxidation Reduction Potential	mV	0726	WL	07/22/2008	0001	9.7	-	10.3	-149		0		
Oxidation Reduction Potential	mV	0730	WL	07/14/2008	0001	18	-	18	30.6		0		
Oxidation Reduction Potential	mV	0732	WL	07/14/2008	0001	18	-	18	5.1		0		
Oxidation Reduction Potential	mV	0770	WL	07/23/2008	0001	14.9	-	34.8	59		0		
Oxidation Reduction Potential	mV	0772	WL	07/23/2008	0001	15.15	-	35.05	82		0		
Oxidation Reduction Potential	mV	0774	WL	07/23/2008	0001	15.5	-	35.4	86		0		
Oxidation Reduction Potential	mV	0776	WL	07/23/2008	0001	15.15	-	35.05	111.2		0		
Oxidation Reduction Potential	mV	0778	WL	07/23/2008	0001	15.1	-	35	94		0		
Oxidation Reduction Potential	mV	0781	WL	07/17/2008	0001	48	-	48	-28.1		0		
Oxidation Reduction Potential	mV	0782	WL	07/21/2008	0001	31	-	31	73		0		
Oxidation Reduction Potential	mV	0786	WL	07/21/2008	0001	28	-	28	44		0		
Oxidation Reduction Potential	mV	0787	WL	07/21/2008	0001	36	-	36	90		0		
Oxidation Reduction Potential	mV	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	12		0		
pH	s.u.	0240	SL	07/21/2008	0001	0	-	0	8.57		0		
pH	s.u.	0242	SL	07/21/2008	0001	0.25	-	0.25	8.11		0		
pH	s.u.	0259	SL	07/21/2008	0001	0	-	0	8.57		0		
pH	s.u.	0401	WL	07/24/2008	0001	18	-	18	7.13		0		
pH	s.u.	0403	WL	07/15/2008	0001	18	-	18	7.32		0		
pH	s.u.	0404	WL	07/24/2008	0001	18	-	18	6.76		0		
pH	s.u.	0406	WL	07/21/2008	0001	18	-	18	7.1		0		
pH	s.u.	0407	WL	07/15/2008	0001	17	-	17	7.64		0		
pH	s.u.	0408	WL	07/15/2008	0001	20	-	20	7.27		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
pH	s.u.	0471	WL	07/14/2008	0001	10.3	-	19.7	6.68		0		
pH	s.u.	0473	WL	07/14/2008	0001	10.3	-	19.7	7.35		0		
pH	s.u.	0475	WL	07/14/2008	0001	10.3	-	19.7	7.35		0		
pH	s.u.	0477	WL	07/14/2008	0001	10.3	-	19.7	7.32		0		
pH	s.u.	0479	WL	07/14/2008	0001	9.3	-	23.6	7.36		0		
pH	s.u.	0481	WL	07/15/2008	0001	28	-	28	6.96		0		
pH	s.u.	0494	WL	07/22/2008	0001	2.4	-	3.4	7.59		0		
pH	s.u.	0495	WL	07/22/2008	0001	4.6	-	5.6	6.85		0		
pH	s.u.	0547	TS	07/24/2008	0001	0	-	0	6.19		0		
pH	s.u.	0548	TS	07/24/2008	0001	0	-	0	7.48		0		
pH	s.u.	0555	WL	07/17/2008	0001	18	-	18	6.82		0		
pH	s.u.	0581	WL	07/15/2008	0001	18	-	18	7.14		0		
pH	s.u.	0585	WL	07/15/2008	0001	18	-	18	7.06		0		
pH	s.u.	0589	WL	07/15/2008	0001	52	-	52	7.01		0		
pH	s.u.	0597	WL	07/22/2008	0001	9.3	-	10.3	7.25		0		
pH	s.u.	0671	WL	07/14/2008	0001	14.4	-	44.4	7.34		0		
pH	s.u.	0673	WL	07/14/2008	0001	16.3	-	46.3	7.17		0		
pH	s.u.	0675	WL	07/14/2008	0001	16	-	46	7.06		0		
pH	s.u.	0677	WL	07/14/2008	0001	15.2	-	45.2	7.16		0		
pH	s.u.	0679	WL	07/14/2008	0001	15	-	45	7.21		0		
pH	s.u.	0680	WL	07/15/2008	0001	18	-	18	6.87		0		
pH	s.u.	0681	WL	07/15/2008	0001	18	-	18	7.07		0		
pH	s.u.	0684	WL	07/14/2008	0001	19	-	19	6.89		0		
pH	s.u.	0688	WL	07/14/2008	0001	39	-	39	6.87		0		
pH	s.u.	0689	WL	07/14/2008	0001	54	-	54	6.78		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
pH	s.u.	0690	WL	07/22/2008	0001	3.3	-	4.3	7.45		0		
pH	s.u.	0691	WL	07/22/2008	0001	6.5	-	7.5	7.56		0		
pH	s.u.	0692	WL	07/22/2008	0001	9.7	-	10.1	7.43		0		
pH	s.u.	0724	WL	07/22/2008	0001	2.4	-	3.4	7.16		0		
pH	s.u.	0725	WL	07/22/2008	0001	4.6	-	5.6	7.53		0		
pH	s.u.	0726	WL	07/22/2008	0001	9.7	-	10.3	8.63		0		
pH	s.u.	0730	WL	07/14/2008	0001	18	-	18	7.17		0		
pH	s.u.	0732	WL	07/14/2008	0001	18	-	18	7.05		0		
pH	s.u.	0770	WL	07/23/2008	0001	14.9	-	34.8	6.86		0		
pH	s.u.	0772	WL	07/23/2008	0001	15.15	-	35.05	7.49		0		
pH	s.u.	0774	WL	07/23/2008	0001	15.5	-	35.4	7.51		0		
pH	s.u.	0776	WL	07/23/2008	0001	15.15	-	35.05	7.33		0		
pH	s.u.	0778	WL	07/23/2008	0001	15.1	-	35	7.44		0		
pH	s.u.	0781	WL	07/17/2008	0001	48	-	48	6.99		0		
pH	s.u.	0782	WL	07/21/2008	0001	31	-	31	7.29		0		
pH	s.u.	0786	WL	07/21/2008	0001	28	-	28	7.29		0		
pH	s.u.	0787	WL	07/21/2008	0001	36	-	36	7.24		0		
pH	s.u.	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	6.74		0		
Selenium	mg/L	0401	WL	07/24/2008	0001	18	-	18	0.0051		0	0.00012	
Selenium	mg/L	0401	WL	07/24/2008	0002	18	-	18	0.0052		0	0.00012	
Selenium	mg/L	0404	WL	07/24/2008	0001	18	-	18	0.0092		0	0.00012	
Selenium	mg/L	0406	WL	07/21/2008	0001	18	-	18	0.01		0	0.00012	
Selenium	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	0.014		0	0.00012	
Selenium	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	0.0075		0	0.00012	
Selenium	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	0.0037		0	0.00012	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Selenium	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	0.00093			0	0.00012	
Selenium	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	0.0023			0	0.00012	
Specific Conductance	umhos/cm	0240	SL	07/21/2008	0001	0	-	0	795			0		
Specific Conductance	umhos/cm	0242	SL	07/21/2008	0001	0.25	-	0.25	1063			0		
Specific Conductance	umhos/cm	0259	SL	07/21/2008	0001	0	-	0	803			0		
Specific Conductance	umhos/cm	0401	WL	07/24/2008	0001	18	-	18	3386			0		
Specific Conductance	umhos/cm	0403	WL	07/15/2008	0001	18	-	18	2963			0		
Specific Conductance	umhos/cm	0404	WL	07/24/2008	0001	18	-	18	6745			0		
Specific Conductance	umhos/cm	0406	WL	07/21/2008	0001	18	-	18	10441			0		
Specific Conductance	umhos/cm	0407	WL	07/15/2008	0001	17	-	17	628			0		
Specific Conductance	umhos/cm	0408	WL	07/15/2008	0001	20	-	20	4453			0		
Specific Conductance	umhos/cm	0471	WL	07/14/2008	0001	10.3	-	19.7	2192			0		
Specific Conductance	umhos/cm	0473	WL	07/14/2008	0001	10.3	-	19.7	3357			0		
Specific Conductance	umhos/cm	0475	WL	07/14/2008	0001	10.3	-	19.7	7094			0		
Specific Conductance	umhos/cm	0477	WL	07/14/2008	0001	10.3	-	19.7	8107			0		
Specific Conductance	umhos/cm	0479	WL	07/14/2008	0001	9.3	-	23.6	8529			0		
Specific Conductance	umhos/cm	0481	WL	07/15/2008	0001	28	-	28	25660			0		
Specific Conductance	umhos/cm	0494	WL	07/22/2008	0001	2.4	-	3.4	16047			0		
Specific Conductance	umhos/cm	0495	WL	07/22/2008	0001	4.6	-	5.6	24438			0		
Specific Conductance	umhos/cm	0547	TS	07/24/2008	0001	0	-	0	15359			0		
Specific Conductance	umhos/cm	0548	TS	07/24/2008	0001	0	-	0	16886			0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Specific Conductance	umhos /cm	0555	WL	07/17/2008	0001	18	-	18	18656		0		
Specific Conductance	umhos /cm	0581	WL	07/15/2008	0001	18	-	18	18332		0		
Specific Conductance	umhos /cm	0585	WL	07/15/2008	0001	18	-	18	6773		0		
Specific Conductance	umhos /cm	0589	WL	07/15/2008	0001	52	-	52	19083		0		
Specific Conductance	umhos /cm	0597	WL	07/22/2008	0001	9.3	-	10.3	8547		0		
Specific Conductance	umhos /cm	0671	WL	07/14/2008	0001	14.4	-	44.4	18272		0		
Specific Conductance	umhos /cm	0673	WL	07/14/2008	0001	16.3	-	46.3	27490		0		
Specific Conductance	umhos /cm	0675	WL	07/14/2008	0001	16	-	46	24383		0		
Specific Conductance	umhos /cm	0677	WL	07/14/2008	0001	15.2	-	45.2	20813		0		
Specific Conductance	umhos /cm	0679	WL	07/14/2008	0001	15	-	45	13358		0		
Specific Conductance	umhos /cm	0680	WL	07/15/2008	0001	18	-	18	9665		0		
Specific Conductance	umhos /cm	0681	WL	07/15/2008	0001	18	-	18	4256		0		
Specific Conductance	umhos /cm	0684	WL	07/14/2008	0001	19	-	19	3507		0		
Specific Conductance	umhos /cm	0688	WL	07/14/2008	0001	39	-	39	47179		0		
Specific Conductance	umhos /cm	0689	WL	07/14/2008	0001	54	-	54	100711		0		
Specific Conductance	umhos /cm	0690	WL	07/22/2008	0001	3.3	-	4.3	5280		0		
Specific Conductance	umhos /cm	0691	WL	07/22/2008	0001	6.5	-	7.5	6566		0		
Specific Conductance	umhos /cm	0692	WL	07/22/2008	0001	9.7	-	10.1	4707		0		
Specific Conductance	umhos /cm	0724	WL	07/22/2008	0001	2.4	-	3.4	4292		0		
Specific Conductance	umhos /cm	0725	WL	07/22/2008	0001	4.6	-	5.6	4791		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Specific Conductance	umhos /cm	0726	WL	07/22/2008	0001	9.7	-	10.3	1852		0		
Specific Conductance	umhos /cm	0730	WL	07/14/2008	0001	18	-	18	3332		0		
Specific Conductance	umhos /cm	0732	WL	07/14/2008	0001	18	-	18	4570		0		
Specific Conductance	umhos /cm	0770	WL	07/23/2008	0001	14.9	-	34.8	15842		0		
Specific Conductance	umhos /cm	0772	WL	07/23/2008	0001	15.15	-	35.05	13294		0		
Specific Conductance	umhos /cm	0774	WL	07/23/2008	0001	15.5	-	35.4	10268		0		
Specific Conductance	umhos /cm	0776	WL	07/23/2008	0001	15.15	-	35.05	15039		0		
Specific Conductance	umhos /cm	0778	WL	07/23/2008	0001	15.1	-	35	12072		0		
Specific Conductance	umhos /cm	0781	WL	07/17/2008	0001	48	-	48	88084		0		
Specific Conductance	umhos /cm	0782	WL	07/21/2008	0001	31	-	31	11055		0		
Specific Conductance	umhos /cm	0786	WL	07/21/2008	0001	28	-	28	13371		0		
Specific Conductance	umhos /cm	0787	WL	07/21/2008	0001	36	-	36	70916		0		
Specific Conductance	umhos /cm	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	106246		0		
Sulfate	mg/L	0240	SL	07/21/2008	0001	0	-	0	160		0	2.5	
Sulfate	mg/L	0240	SL	07/21/2008	0002	0	-	0	160		0	2.5	
Sulfate	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	79		0	0.5	
Sulfate	mg/L	0259	SL	07/21/2008	0001	0	-	0	160		0	2.5	
Sulfate	mg/L	0401	WL	07/24/2008	0001	18	-	18	1100		0	25	
Sulfate	mg/L	0401	WL	07/24/2008	0002	18	-	18	1100		0	25	
Sulfate	mg/L	0403	WL	07/15/2008	0001	18	-	18	870		0	10	
Sulfate	mg/L	0404	WL	07/24/2008	0001	18	-	18	7000		0	100	
Sulfate	mg/L	0406	WL	07/21/2008	0001	18	-	18	4100		0	50	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Sulfate	mg/L	0407	WL	07/15/2008	0001	17	-	17	57		0	0.5	
Sulfate	mg/L	0408	WL	07/15/2008	0001	20	-	20	1400		0	25	
Sulfate	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	540		0	10	
Sulfate	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	890		0	25	
Sulfate	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	2200		0	50	
Sulfate	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	2800		0	50	
Sulfate	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	3100		0	50	
Sulfate	mg/L	0481	WL	07/15/2008	0001	28	-	28	8700		0	100	
Sulfate	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	15000		0	100	
Sulfate	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	8200		0	100	
Sulfate	mg/L	0547	TS	07/24/2008	0001	0	-	0	4400		0	100	
Sulfate	mg/L	0548	TS	07/24/2008	0001	0	-	0	5100		0	100	
Sulfate	mg/L	0555	WL	07/17/2008	0001	18	-	18	7500		0	100	
Sulfate	mg/L	0581	WL	07/15/2008	0001	18	-	18	6500		0	100	
Sulfate	mg/L	0581	WL	07/15/2008	0002	18	-	18	6600		0	50	
Sulfate	mg/L	0585	WL	07/15/2008	0001	18	-	18	2000		0	25	
Sulfate	mg/L	0589	WL	07/15/2008	0001	52	-	52	5700		0	100	
Sulfate	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	2800		0	25	
Sulfate	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	5800		0	100	
Sulfate	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	6900		0	100	
Sulfate	mg/L	0675	WL	07/14/2008	0001	16	-	46	7200		0	100	
Sulfate	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	7100		0	100	
Sulfate	mg/L	0679	WL	07/14/2008	0001	15	-	45	4700		0	100	
Sulfate	mg/L	0680	WL	07/15/2008	0001	18	-	18	3700		0	50	
Sulfate	mg/L	0681	WL	07/15/2008	0001	18	-	18	1700		0	25	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Sulfate	mg/L	0684	WL	07/14/2008	0001	19	-	19	1800		0	25	
Sulfate	mg/L	0688	WL	07/14/2008	0001	39	-	39	11000		0	1000	
Sulfate	mg/L	0689	WL	07/14/2008	0001	54	-	54	8200		0	50	
Sulfate	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	2300		0	25	
Sulfate	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	2400		0	25	
Sulfate	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	1500		0	25	
Sulfate	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	1900		0	25	
Sulfate	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	2400		0	25	
Sulfate	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	540		0	10	
Sulfate	mg/L	0730	WL	07/14/2008	0001	18	-	18	1100		0	25	
Sulfate	mg/L	0732	WL	07/14/2008	0001	18	-	18	1800		0	25	
Sulfate	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	1800		0	100	
Sulfate	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	1800		0	100	
Sulfate	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	2600		0	50	
Sulfate	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	1800		0	100	
Sulfate	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	1900		0	100	
Sulfate	mg/L	0781	WL	07/17/2008	0001	48	-	48	5700		0	250	
Sulfate	mg/L	0782	WL	07/21/2008	0001	31	-	31	3300		0	50	
Sulfate	mg/L	0786	WL	07/21/2008	0001	28	-	28	4600		0	50	
Sulfate	mg/L	0787	WL	07/21/2008	0001	36	-	36	3600		0	25	
Sulfate	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	10000		0	500	
Temperature	C	0240	SL	07/21/2008	0001	0	-	0	28.33		0		
Temperature	C	0242	SL	07/21/2008	0001	0.25	-	0.25	32.29		0		
Temperature	C	0259	SL	07/21/2008	0001	0	-	0	26.62		0		
Temperature	C	0401	WL	07/24/2008	0001	18	-	18	16.92		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
										Lab	Data QA		
Temperature	C	0403	WL	07/15/2008	0001	18	-	18	16.33		0		
Temperature	C	0404	WL	07/24/2008	0001	18	-	18	16.67		0		
Temperature	C	0406	WL	07/21/2008	0001	18	-	18	17.86		0		
Temperature	C	0407	WL	07/15/2008	0001	17	-	17	16.77		0		
Temperature	C	0408	WL	07/15/2008	0001	20	-	20	16.32		0		
Temperature	C	0471	WL	07/14/2008	0001	10.3	-	19.7	14.49		0		
Temperature	C	0473	WL	07/14/2008	0001	10.3	-	19.7	15.54		0		
Temperature	C	0475	WL	07/14/2008	0001	10.3	-	19.7	14.74		0		
Temperature	C	0477	WL	07/14/2008	0001	10.3	-	19.7	14.92		0		
Temperature	C	0479	WL	07/14/2008	0001	9.3	-	23.6	15.39		0		
Temperature	C	0481	WL	07/15/2008	0001	28	-	28	19.33		0		
Temperature	C	0494	WL	07/22/2008	0001	2.4	-	3.4	19.05		0		
Temperature	C	0495	WL	07/22/2008	0001	4.6	-	5.6	18.7		0		
Temperature	C	0547	TS	07/24/2008	0001	0	-	0	18.26		0		
Temperature	C	0548	TS	07/24/2008	0001	0	-	0	22.78		0		
Temperature	C	0555	WL	07/17/2008	0001	18	-	18	17.59		0		
Temperature	C	0581	WL	07/15/2008	0001	18	-	18	18.7		0		
Temperature	C	0585	WL	07/15/2008	0001	18	-	18	15.94		0		
Temperature	C	0589	WL	07/15/2008	0001	52	-	52	17.9		0		
Temperature	C	0597	WL	07/22/2008	0001	9.3	-	10.3	16.1		0		
Temperature	C	0671	WL	07/14/2008	0001	14.4	-	44.4	16.22		0		
Temperature	C	0673	WL	07/14/2008	0001	16.3	-	46.3	15.97		0		
Temperature	C	0675	WL	07/14/2008	0001	16	-	46	15.77		0		
Temperature	C	0677	WL	07/14/2008	0001	15.2	-	45.2	15.35		0		
Temperature	C	0679	WL	07/14/2008	0001	15	-	45	15.82		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers		Detection Limit	Uncertainty
									Lab	Data QA		
Temperature	C	0680	WL	07/15/2008	0001	18	- 18	17.43		0		
Temperature	C	0681	WL	07/15/2008	0001	18	- 18	15.54		0		
Temperature	C	0684	WL	07/14/2008	0001	19	- 19	18.39		0		
Temperature	C	0688	WL	07/14/2008	0001	39	- 39	17.42		0		
Temperature	C	0689	WL	07/14/2008	0001	54	- 54	17.7		0		
Temperature	C	0690	WL	07/22/2008	0001	3.3	- 4.3	19.35		0		
Temperature	C	0691	WL	07/22/2008	0001	6.5	- 7.5	16.78		0		
Temperature	C	0692	WL	07/22/2008	0001	9.7	- 10.1	17.56		0		
Temperature	C	0724	WL	07/22/2008	0001	2.4	- 3.4	18.37		0		
Temperature	C	0725	WL	07/22/2008	0001	4.6	- 5.6	19.19		0		
Temperature	C	0726	WL	07/22/2008	0001	9.7	- 10.3	19.01		0		
Temperature	C	0730	WL	07/14/2008	0001	18	- 18	18.66		0		
Temperature	C	0732	WL	07/14/2008	0001	18	- 18	19.29		0		
Temperature	C	0770	WL	07/23/2008	0001	14.9	- 34.8	15.45		0		
Temperature	C	0772	WL	07/23/2008	0001	15.15	- 35.05	15.05		0		
Temperature	C	0774	WL	07/23/2008	0001	15.5	- 35.4	13.82		0		
Temperature	C	0776	WL	07/23/2008	0001	15.15	- 35.05	14.61		0		
Temperature	C	0778	WL	07/23/2008	0001	15.1	- 35	19.16		0		
Temperature	C	0781	WL	07/17/2008	0001	48	- 48	18.41		0		
Temperature	C	0782	WL	07/21/2008	0001	31	- 31	15.97		0		
Temperature	C	0786	WL	07/21/2008	0001	28	- 28	15.26		0		
Temperature	C	0787	WL	07/21/2008	0001	36	- 36	16.34		0		
Temperature	C	SMI-PZ1D2	WL	07/21/2008	0001	73	- 73	19.06		0		
Total Dissolved Solids	mg/L	0240	SL	07/21/2008	0001	0	- 0	460		0	20	
Total Dissolved Solids	mg/L	0240	SL	07/21/2008	0002	0	- 0	470		0	20	
Total Dissolved Solids	mg/L	0242	SL	07/21/2008	0001	0.25	- 0.25	380		0	20	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Total Dissolved Solids	mg/L	0259	SL	07/21/2008	0001	0	-	0	480		0	20	
Total Dissolved Solids	mg/L	0401	WL	07/24/2008	0001	18	-	18	2200		0	40	
Total Dissolved Solids	mg/L	0401	WL	07/24/2008	0002	18	-	18	2300		0	40	
Total Dissolved Solids	mg/L	0403	WL	07/15/2008	0001	18	-	18	2000		0	40	
Total Dissolved Solids	mg/L	0404	WL	07/24/2008	0001	18	-	18	13000		0	400	
Total Dissolved Solids	mg/L	0406	WL	07/21/2008	0001	18	-	18	7400		0	200	
Total Dissolved Solids	mg/L	0407	WL	07/15/2008	0001	17	-	17	340		0	20	
Total Dissolved Solids	mg/L	0408	WL	07/15/2008	0001	20	-	20	3000		0	80	
Total Dissolved Solids	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	1200		0	40	
Total Dissolved Solids	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	1600		0	80	
Total Dissolved Solids	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	4800		0	200	
Total Dissolved Solids	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	6000		0	200	
Total Dissolved Solids	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	6300		0	200	
Total Dissolved Solids	mg/L	0481	WL	07/15/2008	0001	28	-	28	19000		0	400	
Total Dissolved Solids	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	33000		0	400	
Total Dissolved Solids	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	18000		0	400	
Total Dissolved Solids	mg/L	0547	TS	07/24/2008	0001	0	-	0	11000		0	200	
Total Dissolved Solids	mg/L	0548	TS	07/24/2008	0001	0	-	0	12000		0	400	
Total Dissolved Solids	mg/L	0555	WL	07/17/2008	0001	18	-	18	16000		0	400	
Total Dissolved Solids	mg/L	0581	WL	07/15/2008	0001	18	-	18	15000		0	400	
Total Dissolved Solids	mg/L	0581	WL	07/15/2008	0002	18	-	18	15000		0	400	
Total Dissolved Solids	mg/L	0585	WL	07/15/2008	0001	18	-	18	5200		0	200	
Total Dissolved Solids	mg/L	0589	WL	07/15/2008	0001	52	-	52	13000		0	400	
Total Dissolved Solids	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	5500		0	80	
Total Dissolved Solids	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	13000		0	400	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Total Dissolved Solids	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	19000		0	400	
Total Dissolved Solids	mg/L	0675	WL	07/14/2008	0001	16	-	46	18000		0	400	
Total Dissolved Solids	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	15000		0	400	
Total Dissolved Solids	mg/L	0679	WL	07/14/2008	0001	15	-	45	9500		0	200	
Total Dissolved Solids	mg/L	0680	WL	07/15/2008	0001	18	-	18	7900		0	200	
Total Dissolved Solids	mg/L	0681	WL	07/15/2008	0001	18	-	18	3600		0	80	
Total Dissolved Solids	mg/L	0684	WL	07/14/2008	0001	19	-	19	3200		0	80	
Total Dissolved Solids	mg/L	0688	WL	07/14/2008	0001	39	-	39	35000		0	2000	
Total Dissolved Solids	mg/L	0689	WL	07/14/2008	0001	54	-	54	72000		0	2000	
Total Dissolved Solids	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	4900		0	80	
Total Dissolved Solids	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	4600		0	200	
Total Dissolved Solids	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	2800		0	80	
Total Dissolved Solids	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	3700		0	80	
Total Dissolved Solids	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	4400		0	80	
Total Dissolved Solids	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	1300		0	40	
Total Dissolved Solids	mg/L	0730	WL	07/14/2008	0001	18	-	18	2300		0	80	
Total Dissolved Solids	mg/L	0732	WL	07/14/2008	0001	18	-	18	3600		0	80	
Total Dissolved Solids	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	9000		0	200	
Total Dissolved Solids	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	8800		0	200	
Total Dissolved Solids	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	7100		0	200	
Total Dissolved Solids	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	8600		0	200	
Total Dissolved Solids	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	8400		0	200	
Total Dissolved Solids	mg/L	0781	WL	07/17/2008	0001	48	-	48	59000		0	1000	
Total Dissolved Solids	mg/L	0782	WL	07/21/2008	0001	31	-	31	10000		0	200	
Total Dissolved Solids	mg/L	0786	WL	07/21/2008	0001	28	-	28	9200		0	200	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Total Dissolved Solids	mg/L	0787	WL	07/21/2008	0001	36	-	36	44000		0	2000	
Total Dissolved Solids	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	68000		0	2000	
Turbidity	NTU	0240	SL	07/21/2008	0001	0	-	0	110		0		
Turbidity	NTU	0242	SL	07/21/2008	0001	0.25	-	0.25	129		0		
Turbidity	NTU	0259	SL	07/21/2008	0001	0	-	0	147		0		
Turbidity	NTU	0401	WL	07/24/2008	0001	18	-	18	4.79		0		
Turbidity	NTU	0403	WL	07/15/2008	0001	18	-	18	2.92		0		
Turbidity	NTU	0404	WL	07/24/2008	0001	18	-	18	3.64		0		
Turbidity	NTU	0406	WL	07/21/2008	0001	18	-	18	2.72		0		
Turbidity	NTU	0407	WL	07/15/2008	0001	17	-	17	1.61		0		
Turbidity	NTU	0408	WL	07/15/2008	0001	20	-	20	9.9		0		
Turbidity	NTU	0471	WL	07/14/2008	0001	10.3	-	19.7	7.46		0		
Turbidity	NTU	0473	WL	07/14/2008	0001	10.3	-	19.7	5.74		0		
Turbidity	NTU	0475	WL	07/14/2008	0001	10.3	-	19.7	5.1		0		
Turbidity	NTU	0477	WL	07/14/2008	0001	10.3	-	19.7	2.63		0		
Turbidity	NTU	0479	WL	07/14/2008	0001	9.3	-	23.6	1.86		0		
Turbidity	NTU	0481	WL	07/15/2008	0001	28	-	28	4.93		0		
Turbidity	NTU	0494	WL	07/22/2008	0001	2.4	-	3.4	780		0		
Turbidity	NTU	0495	WL	07/22/2008	0001	4.6	-	5.6	203		0		
Turbidity	NTU	0547	TS	07/24/2008	0001	0	-	0	5.22		0		
Turbidity	NTU	0548	TS	07/24/2008	0001	0	-	0	7.15		0		
Turbidity	NTU	0555	WL	07/17/2008	0001	18	-	18	2.87		0		
Turbidity	NTU	0581	WL	07/15/2008	0001	18	-	18	4.09		0		
Turbidity	NTU	0585	WL	07/15/2008	0001	18	-	18	7.8		0		
Turbidity	NTU	0589	WL	07/15/2008	0001	52	-	52	5.51		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Turbidity	NTU	0597	WL	07/22/2008	0001	9.3	-	10.3	13.2		0		
Turbidity	NTU	0671	WL	07/14/2008	0001	14.4	-	44.4	4.94		0		
Turbidity	NTU	0673	WL	07/14/2008	0001	16.3	-	46.3	2.5		0		
Turbidity	NTU	0675	WL	07/14/2008	0001	16	-	46	3.1		0		
Turbidity	NTU	0677	WL	07/14/2008	0001	15.2	-	45.2	2.83		0		
Turbidity	NTU	0679	WL	07/14/2008	0001	15	-	45	4.25		0		
Turbidity	NTU	0680	WL	07/15/2008	0001	18	-	18	3.9		0		
Turbidity	NTU	0681	WL	07/15/2008	0001	18	-	18	5.68		0		
Turbidity	NTU	0684	WL	07/14/2008	0001	19	-	19	6.81		0		
Turbidity	NTU	0688	WL	07/14/2008	0001	39	-	39	4.84		0		
Turbidity	NTU	0689	WL	07/14/2008	0001	54	-	54	5.41		0		
Turbidity	NTU	0691	WL	07/22/2008	0001	6.5	-	7.5	365		0		
Turbidity	NTU	0692	WL	07/22/2008	0001	9.7	-	10.1	223		0		
Turbidity	NTU	0724	WL	07/22/2008	0001	2.4	-	3.4	179		0		
Turbidity	NTU	0730	WL	07/14/2008	0001	18	-	18	2.22		0		
Turbidity	NTU	0732	WL	07/14/2008	0001	18	-	18	2.41		0		
Turbidity	NTU	0770	WL	07/23/2008	0001	14.9	-	34.8	147		0		
Turbidity	NTU	0772	WL	07/23/2008	0001	15.15	-	35.05	305		0		
Turbidity	NTU	0774	WL	07/23/2008	0001	15.5	-	35.4	30.5		0		
Turbidity	NTU	0776	WL	07/23/2008	0001	15.15	-	35.05	915		0		
Turbidity	NTU	0778	WL	07/23/2008	0001	15.1	-	35	7.84		0		
Turbidity	NTU	0781	WL	07/17/2008	0001	48	-	48	3.6		0		
Turbidity	NTU	0782	WL	07/21/2008	0001	31	-	31	3.4		0		
Turbidity	NTU	0786	WL	07/21/2008	0001	28	-	28	9.71		0		
Turbidity	NTU	0787	WL	07/21/2008	0001	36	-	36	2.8		0		

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Turbidity	NTU	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	2.93			0		
Uranium	mg/L	0240	SL	07/21/2008	0001	0	-	0	0.0041			0	4.5E-006	
Uranium	mg/L	0240	SL	07/21/2008	0002	0	-	0	0.0044			0	4.5E-006	
Uranium	mg/L	0242	SL	07/21/2008	0001	0.25	-	0.25	0.0017			0	4.5E-006	
Uranium	mg/L	0259	SL	07/21/2008	0001	0	-	0	0.004			0	4.5E-006	
Uranium	mg/L	0401	WL	07/24/2008	0001	18	-	18	0.44			0	4.5E-005	
Uranium	mg/L	0401	WL	07/24/2008	0002	18	-	18	0.38			0	0.00022	
Uranium	mg/L	0403	WL	07/15/2008	0001	18	-	18	0.34			0	7.E-005	
Uranium	mg/L	0404	WL	07/24/2008	0001	18	-	18	2.1			0	0.00022	
Uranium	mg/L	0406	WL	07/21/2008	0001	18	-	18	1.5			0	0.00022	
Uranium	mg/L	0407	WL	07/15/2008	0001	17	-	17	0.063			0	3.5E-006	
Uranium	mg/L	0408	WL	07/15/2008	0001	20	-	20	0.4			0	7.E-005	
Uranium	mg/L	0471	WL	07/14/2008	0001	10.3	-	19.7	0.29			0	0.00018	
Uranium	mg/L	0473	WL	07/14/2008	0001	10.3	-	19.7	0.35			0	7.E-005	
Uranium	mg/L	0475	WL	07/14/2008	0001	10.3	-	19.7	0.88			0	0.00018	
Uranium	mg/L	0477	WL	07/14/2008	0001	10.3	-	19.7	1.2			0	0.00018	
Uranium	mg/L	0479	WL	07/14/2008	0001	9.3	-	23.6	1.1			0	0.00018	
Uranium	mg/L	0481	WL	07/15/2008	0001	28	-	28	2.7			0	0.00035	
Uranium	mg/L	0494	WL	07/22/2008	0001	2.4	-	3.4	18			0	0.0022	
Uranium	mg/L	0495	WL	07/22/2008	0001	4.6	-	5.6	6.4			0	0.00045	
Uranium	mg/L	0547	TS	07/24/2008	0001	0	-	0	1.4			0	0.00022	
Uranium	mg/L	0548	TS	07/24/2008	0001	0	-	0	1.6			0	0.00022	
Uranium	mg/L	0555	WL	07/17/2008	0001	18	-	18	3.4			0	0.00035	
Uranium	mg/L	0581	WL	07/15/2008	0001	18	-	18	3.8			0	0.00035	
Uranium	mg/L	0581	WL	07/15/2008	0002	18	-	18	3.7			0	0.00035	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Uranium	mg/L	0585	WL	07/15/2008	0001	18	-	18	0.57		0	7.E-005	
Uranium	mg/L	0589	WL	07/15/2008	0001	52	-	52	1.6		0	0.00018	
Uranium	mg/L	0597	WL	07/22/2008	0001	9.3	-	10.3	1.6		0	0.00022	
Uranium	mg/L	0671	WL	07/14/2008	0001	14.4	-	44.4	1.9		0	0.00018	
Uranium	mg/L	0673	WL	07/14/2008	0001	16.3	-	46.3	2.1		0	0.00018	
Uranium	mg/L	0675	WL	07/14/2008	0001	16	-	46	2.2		0	0.00018	
Uranium	mg/L	0677	WL	07/14/2008	0001	15.2	-	45.2	2.2		0	0.00018	
Uranium	mg/L	0679	WL	07/14/2008	0001	15	-	45	1.4		0	0.00018	
Uranium	mg/L	0680	WL	07/15/2008	0001	18	-	18	1.7		0	0.00018	
Uranium	mg/L	0681	WL	07/15/2008	0001	18	-	18	0.75		0	7.E-005	
Uranium	mg/L	0684	WL	07/14/2008	0001	19	-	19	0.33		0	0.00018	
Uranium	mg/L	0688	WL	07/14/2008	0001	39	-	39	2.7		0	0.00018	
Uranium	mg/L	0689	WL	07/14/2008	0001	54	-	54	1.2		0	0.00018	
Uranium	mg/L	0690	WL	07/22/2008	0001	3.3	-	4.3	0.79		0	0.00022	
Uranium	mg/L	0691	WL	07/22/2008	0001	6.5	-	7.5	0.94		0	0.00022	
Uranium	mg/L	0692	WL	07/22/2008	0001	9.7	-	10.1	0.59		0	0.00022	
Uranium	mg/L	0724	WL	07/22/2008	0001	2.4	-	3.4	0.33		0	0.00022	
Uranium	mg/L	0725	WL	07/22/2008	0001	4.6	-	5.6	0.45		0	0.00022	
Uranium	mg/L	0726	WL	07/22/2008	0001	9.7	-	10.3	0.38		0	0.00022	
Uranium	mg/L	0730	WL	07/14/2008	0001	18	-	18	0.56		0	0.00018	
Uranium	mg/L	0732	WL	07/14/2008	0001	18	-	18	0.68		0	7.E-005	
Uranium	mg/L	0770	WL	07/23/2008	0001	14.9	-	34.8	0.51		0	0.00022	
Uranium	mg/L	0772	WL	07/23/2008	0001	15.15	-	35.05	0.55		0	0.00022	
Uranium	mg/L	0774	WL	07/23/2008	0001	15.5	-	35.4	0.7		0	0.00022	
Uranium	mg/L	0776	WL	07/23/2008	0001	15.15	-	35.05	0.39		0	4.5E-005	

Appendix C. Water Quality Data (continued)

July 2008 Monthly Sampling Event - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/16/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Uranium	mg/L	0778	WL	07/23/2008	0001	15.1	-	35	0.51		0	0.00022	
Uranium	mg/L	0781	WL	07/17/2008	0001	48	-	48	0.82		0	7.E-005	
Uranium	mg/L	0782	WL	07/21/2008	0001	31	-	31	0.8		0	0.00022	
Uranium	mg/L	0786	WL	07/21/2008	0001	28	-	28	1.4		0	0.00022	
Uranium	mg/L	0787	WL	07/21/2008	0001	36	-	36	0.34		0	2.2E-005	
Uranium	mg/L	SMI-PZ1D2	WL	07/21/2008	0001	73	-	73	1.8		0	9.E-005	

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
										Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	0216	SL	07/08/2008	0001	0	-	0	115			0		
Alkalinity, Total (As CaCO3)	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	166			0		
Alkalinity, Total (As CaCO3)	mg/L	0276	SL	07/10/2008	0001	0	-	0	85			0		
Alkalinity, Total (As CaCO3)	mg/L	0405	WL	07/09/2008	0001	18	-	18	480			0		
Alkalinity, Total (As CaCO3)	mg/L	0480	WL	07/08/2008	0001	18	-	18	779			0		
Alkalinity, Total (As CaCO3)	mg/L	0482	WL	07/08/2008	0001	55	-	55	355			0		
Alkalinity, Total (As CaCO3)	mg/L	0483	WL	07/08/2008	0001	18	-	18	299			0		
Alkalinity, Total (As CaCO3)	mg/L	0485	WL	07/08/2008	0001	55	-	55	398			0		
Alkalinity, Total (As CaCO3)	mg/L	0488	WL	07/09/2008	0001	36	-	36	772			0		
Alkalinity, Total (As CaCO3)	mg/L	0493	WL	07/09/2008	0001	55	-	55	1038			0		
Alkalinity, Total (As CaCO3)	mg/L	0557	WL	07/08/2008	0001	36	-	36	907			0		
Alkalinity, Total (As CaCO3)	mg/L	0558	WL	07/08/2008	0001	36	-	36	745			0		
Alkalinity, Total (As CaCO3)	mg/L	0559	WL	07/08/2008	0001	18	-	18	277			0		
Alkalinity, Total (As CaCO3)	mg/L	0560	WL	07/08/2008	0001	36	-	36	690			0		
Alkalinity, Total (As CaCO3)	mg/L	0561	WL	07/08/2008	0001	55	-	55	491			0		
Alkalinity, Total (As CaCO3)	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	620			0		
Alkalinity, Total (As CaCO3)	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	1029			0		
Alkalinity, Total (As CaCO3)	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	594			0		
Ammonia Total as N	mg/L	0216	SL	07/08/2008	0001	0	-	0	0.1	U		0	0.1	
Ammonia Total as N	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	0.24			0	0.1	
Ammonia Total as N	mg/L	0276	SL	07/10/2008	0001	0	-	0	0.1	U		0	0.1	
Ammonia Total as N	mg/L	0405	WL	07/09/2008	0001	18	-	18	91			0	10	
Ammonia Total as N	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	66			0	10	
Ammonia Total as N	mg/L	0480	WL	07/08/2008	0001	18	-	18	510			0	20	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Ammonia Total as N	mg/L	0482	WL	07/08/2008	0001	55	-	55	1200		0	50	
Ammonia Total as N	mg/L	0483	WL	07/08/2008	0001	18	-	18	52		0	10	
Ammonia Total as N	mg/L	0485	WL	07/08/2008	0001	55	-	55	1300		0	50	
Ammonia Total as N	mg/L	0488	WL	07/09/2008	0001	36	-	36	530		0	20	
Ammonia Total as N	mg/L	0493	WL	07/09/2008	0001	55	-	55	930		0	20	
Ammonia Total as N	mg/L	0557	WL	07/08/2008	0001	36	-	36	410		0	20	
Ammonia Total as N	mg/L	0558	WL	07/08/2008	0001	36	-	36	610		0	20	
Ammonia Total as N	mg/L	0559	WL	07/08/2008	0001	18	-	18	18		0	1	
Ammonia Total as N	mg/L	0560	WL	07/08/2008	0001	36	-	36	750		0	20	
Ammonia Total as N	mg/L	0561	WL	07/08/2008	0001	55	-	55	980		0	20	
Ammonia Total as N	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	320		0	20	
Ammonia Total as N	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	300		0	20	
Ammonia Total as N	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	850		0	50	
Ammonia Total as N	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	210		0	20	
Bromide	mg/L	0216	SL	07/08/2008	0001	0	-	0	0.2	U	0	0.2	
Bromide	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	0.21		0	0.2	
Bromide	mg/L	0276	SL	07/10/2008	0001	0	-	0	0.2	U	0	0.2	
Bromide	mg/L	0405	WL	07/09/2008	0001	18	-	18	1	U	0	1	
Bromide	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	0.4	U	0	0.4	
Bromide	mg/L	0480	WL	07/08/2008	0001	18	-	18	2	U	0	2	
Bromide	mg/L	0482	WL	07/08/2008	0001	55	-	55	20	U	0	20	
Bromide	mg/L	0483	WL	07/08/2008	0001	18	-	18	0.2	U	0	0.2	
Bromide	mg/L	0485	WL	07/08/2008	0001	55	-	55	20	U	0	20	
Bromide	mg/L	0488	WL	07/09/2008	0001	36	-	36	4	U	0	4	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)		Result	Lab	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Data	QA		
Bromide	mg/L	0493	WL	07/09/2008	0001	55	- 55	4	U		0	4	
Bromide	mg/L	0557	WL	07/08/2008	0001	36	- 36	4	U		0	4	
Bromide	mg/L	0558	WL	07/08/2008	0001	36	- 36	4	U		0	4	
Bromide	mg/L	0559	WL	07/08/2008	0001	18	- 18	0.2	U		0	0.2	
Bromide	mg/L	0560	WL	07/08/2008	0001	36	- 36	4	U		0	4	
Bromide	mg/L	0561	WL	07/08/2008	0001	55	- 55	10	U		0	10	
Bromide	mg/L	SMI-PW01	WL	07/09/2008	0001	36	- 36	2	U		0	2	
Bromide	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	- 60.04	2	U		0	2	
Bromide	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	- 55	4	U		0	4	
Bromide	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	- 18	2	U		0	2	
Calcium	mg/L	0216	SL	07/08/2008	0001	0	- 0	50			0	0.0038	
Calcium	mg/L	0241	SL	07/10/2008	0001	0.42	- 0.42	64			0	0.0038	
Calcium	mg/L	0276	SL	07/10/2008	0001	0	- 0	48			0	0.0038	
Calcium	mg/L	0405	WL	07/09/2008	0001	18	- 18	180			0	0.019	
Calcium	mg/L	0474	WL	07/09/2008	0001	10.3	- 19.7	170			0	0.0038	
Calcium	mg/L	0480	WL	07/08/2008	0001	18	- 18	560			0	0.019	
Calcium	mg/L	0482	WL	07/08/2008	0001	55	- 55	1300			0	0.19	
Calcium	mg/L	0483	WL	07/08/2008	0001	18	- 18	11			0	0.0038	
Calcium	mg/L	0485	WL	07/08/2008	0001	55	- 55	1200			0	0.19	
Calcium	mg/L	0488	WL	07/09/2008	0001	36	- 36	410			0	0.038	
Calcium	mg/L	0493	WL	07/09/2008	0001	55	- 55	400			0	0.038	
Calcium	mg/L	0557	WL	07/08/2008	0001	36	- 36	460			0	0.038	
Calcium	mg/L	0558	WL	07/08/2008	0001	36	- 36	480			0	0.038	
Calcium	mg/L	0559	WL	07/08/2008	0001	18	- 18	56			0	0.0038	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)		Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	Lab	Data		QA			
Calcium	mg/L	0560	WL	07/08/2008	0001	36	- 36	380		0	0.095	
Calcium	mg/L	0561	WL	07/08/2008	0001	55	- 55	980		0	0.19	
Calcium	mg/L	SMI-PW01	WL	07/09/2008	0001	36	- 36	400		0	0.019	
Calcium	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	- 60.04	410		0	0.019	
Calcium	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	- 55	440		0	0.095	
Calcium	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	- 18	340		0	0.019	
Chloride	mg/L	0216	SL	07/08/2008	0001	0	- 0	31		0	2	
Chloride	mg/L	0241	SL	07/10/2008	0001	0.42	- 0.42	33		0	2	
Chloride	mg/L	0276	SL	07/10/2008	0001	0	- 0	31		0	2	
Chloride	mg/L	0405	WL	07/09/2008	0001	18	- 18	920		0	10	
Chloride	mg/L	0474	WL	07/09/2008	0001	10.3	- 19.7	390		0	4	
Chloride	mg/L	0480	WL	07/08/2008	0001	18	- 18	4000		0	100	
Chloride	mg/L	0482	WL	07/08/2008	0001	55	- 55	43000		0	1000	
Chloride	mg/L	0483	WL	07/08/2008	0001	18	- 18	110		0	2	
Chloride	mg/L	0485	WL	07/08/2008	0001	55	- 55	39000		0	1000	
Chloride	mg/L	0488	WL	07/09/2008	0001	36	- 36	1300		0	40	
Chloride	mg/L	0493	WL	07/09/2008	0001	55	- 55	3900		0	100	
Chloride	mg/L	0557	WL	07/08/2008	0001	36	- 36	4900		0	100	
Chloride	mg/L	0558	WL	07/08/2008	0001	36	- 36	7900		0	100	
Chloride	mg/L	0559	WL	07/08/2008	0001	18	- 18	42		0	2	
Chloride	mg/L	0560	WL	07/08/2008	0001	36	- 36	7900		0	100	
Chloride	mg/L	0561	WL	07/08/2008	0001	55	- 55	37000		0	1000	
Chloride	mg/L	SMI-PW01	WL	07/09/2008	0001	36	- 36	860		0	20	
Chloride	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	- 60.04	930		0	20	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Chloride	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	4200			0	100	
Chloride	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	1000			0	20	
Copper	mg/L	0561	WL	07/08/2008	0001	55	-	55	0.03	U		0	0.03	
Dissolved Oxygen	mg/L	0216	SL	07/08/2008	0001	0	-	0	6.29			0		
Dissolved Oxygen	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	6.99			0		
Dissolved Oxygen	mg/L	0276	SL	07/10/2008	0001	0	-	0	7.04			0		
Dissolved Oxygen	mg/L	0405	WL	07/09/2008	0001	18	-	18	2.63			0		
Dissolved Oxygen	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	5.85			0		
Dissolved Oxygen	mg/L	0480	WL	07/08/2008	0001	18	-	18	2.87			0		
Dissolved Oxygen	mg/L	0482	WL	07/08/2008	0001	55	-	55	2.23			0		
Dissolved Oxygen	mg/L	0483	WL	07/08/2008	0001	18	-	18	2.28			0		
Dissolved Oxygen	mg/L	0485	WL	07/08/2008	0001	55	-	55	2.51			0		
Dissolved Oxygen	mg/L	0488	WL	07/09/2008	0001	36	-	36	2.32			0		
Dissolved Oxygen	mg/L	0493	WL	07/09/2008	0001	55	-	55	2.54			0		
Dissolved Oxygen	mg/L	0557	WL	07/08/2008	0001	36	-	36	3.6			0		
Dissolved Oxygen	mg/L	0558	WL	07/08/2008	0001	36	-	36	3.01			0		
Dissolved Oxygen	mg/L	0559	WL	07/08/2008	0001	18	-	18	2.85			0		
Dissolved Oxygen	mg/L	0560	WL	07/08/2008	0001	36	-	36	2.21			0		
Dissolved Oxygen	mg/L	0561	WL	07/08/2008	0001	55	-	55	1.08			0		
Dissolved Oxygen	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	1.44			0		
Dissolved Oxygen	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	1.77			0		
Dissolved Oxygen	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	1.88			0		
Magnesium	mg/L	0216	SL	07/08/2008	0001	0	-	0	13			0	0.0047	
Magnesium	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	16			0	0.0047	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Magnesium	mg/L	0276	SL	07/10/2008	0001	0	-	0	12		0	0.0047	
Magnesium	mg/L	0405	WL	07/09/2008	0001	18	-	18	230		0	0.024	
Magnesium	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	57		0	0.0047	
Magnesium	mg/L	0480	WL	07/08/2008	0001	18	-	18	510		0	0.024	
Magnesium	mg/L	0482	WL	07/08/2008	0001	55	-	55	940		0	0.24	
Magnesium	mg/L	0483	WL	07/08/2008	0001	18	-	18	9.7		0	0.0047	
Magnesium	mg/L	0485	WL	07/08/2008	0001	55	-	55	910		0	0.24	
Magnesium	mg/L	0488	WL	07/09/2008	0001	36	-	36	520		0	0.047	
Magnesium	mg/L	0493	WL	07/09/2008	0001	55	-	55	770		0	0.047	
Magnesium	mg/L	0557	WL	07/08/2008	0001	36	-	36	640		0	0.047	
Magnesium	mg/L	0558	WL	07/08/2008	0001	36	-	36	510		0	0.047	
Magnesium	mg/L	0559	WL	07/08/2008	0001	18	-	18	30		0	0.0047	
Magnesium	mg/L	0560	WL	07/08/2008	0001	36	-	36	290		0	0.12	
Magnesium	mg/L	0561	WL	07/08/2008	0001	55	-	55	830		0	0.24	
Magnesium	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	440		0	0.024	
Magnesium	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	450		0	0.024	
Magnesium	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	930		0	0.12	
Magnesium	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	350		0	0.024	
Manganese	mg/L	0216	SL	07/08/2008	0001	0	-	0	0.01	E	0	0.00013	
Manganese	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	1.3		0	0.00013	
Manganese	mg/L	0276	SL	07/10/2008	0001	0	-	0	0.0088	E	0	0.00013	
Manganese	mg/L	0405	WL	07/09/2008	0001	18	-	18	2.4		0	0.00064	
Manganese	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	0.39		0	0.00013	
Manganese	mg/L	0480	WL	07/08/2008	0001	18	-	18	4.6		0	0.00064	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Manganese	mg/L	0482	WL	07/08/2008	0001	55	-	55	11		0	0.0064	
Manganese	mg/L	0483	WL	07/08/2008	0001	18	-	18	0.086		0	0.00013	
Manganese	mg/L	0485	WL	07/08/2008	0001	55	-	55	9.6		0	0.0064	
Manganese	mg/L	0488	WL	07/09/2008	0001	36	-	36	5.6		0	0.0013	
Manganese	mg/L	0493	WL	07/09/2008	0001	55	-	55	7.2		0	0.0013	
Manganese	mg/L	0557	WL	07/08/2008	0001	36	-	36	5.3		0	0.0013	
Manganese	mg/L	0558	WL	07/08/2008	0001	36	-	36	5		0	0.0013	
Manganese	mg/L	0559	WL	07/08/2008	0001	18	-	18	0.44		0	0.00013	
Manganese	mg/L	0560	WL	07/08/2008	0001	36	-	36	3.3		0	0.0032	
Manganese	mg/L	0561	WL	07/08/2008	0001	55	-	55	8		0	0.0064	
Manganese	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	4.8		0	0.00064	
Manganese	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	4.9		0	0.00064	
Manganese	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	8.2		0	0.0032	
Manganese	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	4.1		0	0.00064	
Oxidation Reduction Potential	mV	0216	SL	07/08/2008	0001	0	-	0	-41		0		
Oxidation Reduction Potential	mV	0241	SL	07/10/2008	0001	0.42	-	0.42	-36		0		
Oxidation Reduction Potential	mV	0276	SL	07/10/2008	0001	0	-	0	-50		0		
Oxidation Reduction Potential	mV	0405	WL	07/09/2008	0001	18	-	18	-5		0		
Oxidation Reduction Potential	mV	0474	WL	07/09/2008	0001	10.3	-	19.7	105		0		
Oxidation Reduction Potential	mV	0480	WL	07/08/2008	0001	18	-	18	54		0		
Oxidation Reduction Potential	mV	0482	WL	07/08/2008	0001	55	-	55	96		0		
Oxidation Reduction Potential	mV	0483	WL	07/08/2008	0001	18	-	18	-12		0		

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Oxidation Reduction Potential	mV	0485	WL	07/08/2008	0001	55	-	55	-47		0		
Oxidation Reduction Potential	mV	0488	WL	07/09/2008	0001	36	-	36	12		0		
Oxidation Reduction Potential	mV	0493	WL	07/09/2008	0001	55	-	55	15		0		
Oxidation Reduction Potential	mV	0557	WL	07/08/2008	0001	36	-	36	55		0		
Oxidation Reduction Potential	mV	0558	WL	07/08/2008	0001	36	-	36	-2		0		
Oxidation Reduction Potential	mV	0559	WL	07/08/2008	0001	18	-	18	-88		0		
Oxidation Reduction Potential	mV	0560	WL	07/08/2008	0001	36	-	36	-42		0		
Oxidation Reduction Potential	mV	0561	WL	07/08/2008	0001	55	-	55	-31		0		
Oxidation Reduction Potential	mV	SMI-PW01	WL	07/09/2008	0001	36	-	36	-5		0		
Oxidation Reduction Potential	mV	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	13		0		
Oxidation Reduction Potential	mV	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	-19		0		
pH	s.u.	0216	SL	07/08/2008	0001	0	-	0	8.17		0		
pH	s.u.	0241	SL	07/10/2008	0001	0.42	-	0.42	7.66		0		
pH	s.u.	0276	SL	07/10/2008	0001	0	-	0	7.47		0		
pH	s.u.	0405	WL	07/09/2008	0001	18	-	18	7.04		0		
pH	s.u.	0474	WL	07/09/2008	0001	10.3	-	19.7	6.71		0		
pH	s.u.	0480	WL	07/08/2008	0001	18	-	18	6.89		0		
pH	s.u.	0482	WL	07/08/2008	0001	55	-	55	6.62		0		
pH	s.u.	0483	WL	07/08/2008	0001	18	-	18	8.3		0		
pH	s.u.	0485	WL	07/08/2008	0001	55	-	55	6.71		0		
pH	s.u.	0488	WL	07/09/2008	0001	36	-	36	6.84		0		
pH	s.u.	0493	WL	07/09/2008	0001	55	-	55	6.81		0		
pH	s.u.	0557	WL	07/08/2008	0001	36	-	36	6.76		0		

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
pH	s.u.	0558	WL	07/08/2008	0001	36	-	36	6.86			0		
pH	s.u.	0559	WL	07/08/2008	0001	18	-	18	7.39			0		
pH	s.u.	0560	WL	07/08/2008	0001	36	-	36	7.03			0		
pH	s.u.	0561	WL	07/08/2008	0001	55	-	55	6.74			0		
pH	s.u.	SMI-PW01	WL	07/09/2008	0001	36	-	36	6.76			0		
pH	s.u.	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	6.8			0		
pH	s.u.	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	6.81			0		
Potassium	mg/L	0216	SL	07/08/2008	0001	0	-	0	2.5	N		0	0.044	
Potassium	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	2.8			0	0.044	
Potassium	mg/L	0276	SL	07/10/2008	0001	0	-	0	2.3	N		0	0.044	
Potassium	mg/L	0405	WL	07/09/2008	0001	18	-	18	46			0	0.22	
Potassium	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	45			0	0.044	
Potassium	mg/L	0480	WL	07/08/2008	0001	18	-	18	190			0	0.22	
Potassium	mg/L	0482	WL	07/08/2008	0001	55	-	55	1400			0	2.2	
Potassium	mg/L	0483	WL	07/08/2008	0001	18	-	18	26			0	0.044	
Potassium	mg/L	0485	WL	07/08/2008	0001	55	-	55	1200			0	2.2	
Potassium	mg/L	0488	WL	07/09/2008	0001	36	-	36	180			0	0.44	
Potassium	mg/L	0493	WL	07/09/2008	0001	55	-	55	310			0	0.44	
Potassium	mg/L	0557	WL	07/08/2008	0001	36	-	36	210			0	0.44	
Potassium	mg/L	0558	WL	07/08/2008	0001	36	-	36	460			0	0.44	
Potassium	mg/L	0559	WL	07/08/2008	0001	18	-	18	10			0	0.044	
Potassium	mg/L	0560	WL	07/08/2008	0001	36	-	36	380			0	1.1	
Potassium	mg/L	0561	WL	07/08/2008	0001	55	-	55	910			0	2.2	
Potassium	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	100			0	0.22	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Potassium	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	100		0	0.22	
Potassium	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	300		0	1.1	
Potassium	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	76		0	0.22	
Selenium	mg/L	0405	WL	07/09/2008	0001	18	-	18	0.013		0	0.0002	
Sodium	mg/L	0216	SL	07/08/2008	0001	0	-	0	29		0	0.0026	
Sodium	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	30		0	0.0026	
Sodium	mg/L	0276	SL	07/10/2008	0001	0	-	0	28		0	0.0026	
Sodium	mg/L	0405	WL	07/09/2008	0001	18	-	18	1200		0	0.013	
Sodium	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	350		0	0.026	
Sodium	mg/L	0480	WL	07/08/2008	0001	18	-	18	2900		0	0.26	
Sodium	mg/L	0482	WL	07/08/2008	0001	55	-	55	21000		0	1.3	
Sodium	mg/L	0483	WL	07/08/2008	0001	18	-	18	230		0	0.0026	
Sodium	mg/L	0485	WL	07/08/2008	0001	55	-	55	20000		0	0.26	
Sodium	mg/L	0488	WL	07/09/2008	0001	36	-	36	2300		0	0.026	
Sodium	mg/L	0493	WL	07/09/2008	0001	55	-	55	4300		0	0.26	
Sodium	mg/L	0557	WL	07/08/2008	0001	36	-	36	3800		0	0.26	
Sodium	mg/L	0558	WL	07/08/2008	0001	36	-	36	5200		0	0.26	
Sodium	mg/L	0559	WL	07/08/2008	0001	18	-	18	68		0	0.0026	
Sodium	mg/L	0560	WL	07/08/2008	0001	36	-	36	5500		0	0.065	
Sodium	mg/L	0561	WL	07/08/2008	0001	55	-	55	19000		0	1.3	
Sodium	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	1600		0	0.13	
Sodium	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	1500		0	0.13	
Sodium	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	5100		0	0.065	
Sodium	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	1500		0	0.13	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data		
Specific Conductance	umhos/cm	0216	SL	07/08/2008	0001	0	-	0	661		0		
Specific Conductance	umhos/cm	0241	SL	07/10/2008	0001	0.42	-	0.42	610		0		
Specific Conductance	umhos/cm	0276	SL	07/10/2008	0001	0	-	0	688		0		
Specific Conductance	umhos/cm	0405	WL	07/09/2008	0001	18	-	18	8616		0		
Specific Conductance	umhos/cm	0474	WL	07/09/2008	0001	10.3	-	19.7	3643		0		
Specific Conductance	umhos/cm	0480	WL	07/08/2008	0001	18	-	18	22850		0		
Specific Conductance	umhos/cm	0482	WL	07/08/2008	0001	55	-	55	109455		0		
Specific Conductance	umhos/cm	0483	WL	07/08/2008	0001	18	-	18	1765		0		
Specific Conductance	umhos/cm	0485	WL	07/08/2008	0001	55	-	55	101774		0		
Specific Conductance	umhos/cm	0488	WL	07/09/2008	0001	36	-	36	17557		0		
Specific Conductance	umhos/cm	0493	WL	07/09/2008	0001	55	-	55	28762		0		
Specific Conductance	umhos/cm	0557	WL	07/08/2008	0001	36	-	36	25393		0		
Specific Conductance	umhos/cm	0558	WL	07/08/2008	0001	36	-	36	34839		0		
Specific Conductance	umhos/cm	0559	WL	07/08/2008	0001	18	-	18	1017		0		
Specific Conductance	umhos/cm	0560	WL	07/08/2008	0001	36	-	36	33071		0		
Specific Conductance	umhos/cm	0561	WL	07/08/2008	0001	55	-	55	92097		0		
Specific Conductance	umhos/cm	SMI-PW01	WL	07/09/2008	0001	36	-	36	13441		0		
Specific Conductance	umhos/cm	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	33026		0		
Specific Conductance	umhos/cm	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	11794		0		
Sulfate	mg/L	0216	SL	07/08/2008	0001	0	-	0	93		0	5	
Sulfate	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	73		0	0.5	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Sulfate	mg/L	0276	SL	07/10/2008	0001	0	-	0	99		0	0.5	
Sulfate	mg/L	0405	WL	07/09/2008	0001	18	-	18	3200		0	25	
Sulfate	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	980		0	10	
Sulfate	mg/L	0480	WL	07/08/2008	0001	18	-	18	7600		0	50	
Sulfate	mg/L	0482	WL	07/08/2008	0001	55	-	55	7400		0	50	
Sulfate	mg/L	0483	WL	07/08/2008	0001	18	-	18	320		0	5	
Sulfate	mg/L	0485	WL	07/08/2008	0001	55	-	55	7900		0	50	
Sulfate	mg/L	0488	WL	07/09/2008	0001	36	-	36	8300		0	100	
Sulfate	mg/L	0493	WL	07/09/2008	0001	55	-	55	13000		0	250	
Sulfate	mg/L	0557	WL	07/08/2008	0001	36	-	36	9200		0	250	
Sulfate	mg/L	0558	WL	07/08/2008	0001	36	-	36	8700		0	250	
Sulfate	mg/L	0559	WL	07/08/2008	0001	18	-	18	140		0	5	
Sulfate	mg/L	0560	WL	07/08/2008	0001	36	-	36	8600		0	250	
Sulfate	mg/L	0561	WL	07/08/2008	0001	55	-	55	9100		0	500	
Sulfate	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	5800		0	50	
Sulfate	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	6000		0	50	
Sulfate	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	11000		0	250	
Sulfate	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	4900		0	50	
Temperature	C	0216	SL	07/08/2008	0001	0	-	0	27.5		0		
Temperature	C	0241	SL	07/10/2008	0001	0.42	-	0.42	22.32		0		
Temperature	C	0276	SL	07/10/2008	0001	0	-	0	21.96		0		
Temperature	C	0405	WL	07/09/2008	0001	18	-	18	15.31		0		
Temperature	C	0474	WL	07/09/2008	0001	10.3	-	19.7	14.8		0		
Temperature	C	0480	WL	07/08/2008	0001	18	-	18	16.27		0		

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Temperature	C	0482	WL	07/08/2008	0001	55	-	55	17.35		0		
Temperature	C	0483	WL	07/08/2008	0001	18	-	18	15.78		0		
Temperature	C	0485	WL	07/08/2008	0001	55	-	55	18.26		0		
Temperature	C	0488	WL	07/09/2008	0001	36	-	36	17.39		0		
Temperature	C	0493	WL	07/09/2008	0001	55	-	55	17.19		0		
Temperature	C	0557	WL	07/08/2008	0001	36	-	36	17.04		0		
Temperature	C	0558	WL	07/08/2008	0001	36	-	36	19		0		
Temperature	C	0559	WL	07/08/2008	0001	18	-	18	17.2		0		
Temperature	C	0560	WL	07/08/2008	0001	36	-	36	17.18		0		
Temperature	C	0561	WL	07/08/2008	0001	55	-	55	17.34		0		
Temperature	C	SMI-PW01	WL	07/09/2008	0001	36	-	36	21.23		0		
Temperature	C	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	18.11		0		
Temperature	C	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	17.7		0		
Total Dissolved Solids	mg/L	0216	SL	07/08/2008	0001	0	-	0	300		0	20	
Total Dissolved Solids	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	350		0	20	
Total Dissolved Solids	mg/L	0276	SL	07/10/2008	0001	0	-	0	300		0	20	
Total Dissolved Solids	mg/L	0405	WL	07/09/2008	0001	18	-	18	6500		0	80	
Total Dissolved Solids	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	2200		0	80	
Total Dissolved Solids	mg/L	0480	WL	07/08/2008	0001	18	-	18	17000		0	200	
Total Dissolved Solids	mg/L	0482	WL	07/08/2008	0001	55	-	55	79000		0	2000	
Total Dissolved Solids	mg/L	0483	WL	07/08/2008	0001	18	-	18	910		0	40	
Total Dissolved Solids	mg/L	0485	WL	07/08/2008	0001	55	-	55	72000		0	2000	
Total Dissolved Solids	mg/L	0488	WL	07/09/2008	0001	36	-	36	14000		0	400	
Total Dissolved Solids	mg/L	0493	WL	07/09/2008	0001	55	-	55	23000		0	400	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Total Dissolved Solids	mg/L	0557	WL	07/08/2008	0001	36	-	36	20000		0	400	
Total Dissolved Solids	mg/L	0558	WL	07/08/2008	0001	36	-	36	24000		0	400	
Total Dissolved Solids	mg/L	0559	WL	07/08/2008	0001	18	-	18	600		0	40	
Total Dissolved Solids	mg/L	0560	WL	07/08/2008	0001	36	-	36	23000		0	400	
Total Dissolved Solids	mg/L	0561	WL	07/08/2008	0001	55	-	55	67000		0	1000	
Total Dissolved Solids	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	10000		0	200	
Total Dissolved Solids	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	10000		0	200	
Total Dissolved Solids	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	27000		0	400	
Total Dissolved Solids	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	9000		0	200	
Turbidity	NTU	0216	SL	07/08/2008	0001	0	-	0	101		0		
Turbidity	NTU	0241	SL	07/10/2008	0001	0.42	-	0.42	212		0		
Turbidity	NTU	0276	SL	07/10/2008	0001	0	-	0	175		0		
Turbidity	NTU	0405	WL	07/09/2008	0001	18	-	18	3.49		0		
Turbidity	NTU	0474	WL	07/09/2008	0001	10.3	-	19.7	35.8		0		
Turbidity	NTU	0480	WL	07/08/2008	0001	18	-	18	5.15		0		
Turbidity	NTU	0482	WL	07/08/2008	0001	55	-	55	9.72		0		
Turbidity	NTU	0483	WL	07/08/2008	0001	18	-	18	7.16		0		
Turbidity	NTU	0485	WL	07/08/2008	0001	55	-	55	4.78		0		
Turbidity	NTU	0488	WL	07/09/2008	0001	36	-	36	4.28		0		
Turbidity	NTU	0493	WL	07/09/2008	0001	55	-	55	7.17		0		
Turbidity	NTU	0557	WL	07/08/2008	0001	36	-	36	6.21		0		
Turbidity	NTU	0558	WL	07/08/2008	0001	36	-	36	4.12		0		
Turbidity	NTU	0559	WL	07/08/2008	0001	18	-	18	3.19		0		
Turbidity	NTU	0560	WL	07/08/2008	0001	36	-	36	5.12		0		

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Turbidity	NTU	0561	WL	07/08/2008	0001	55	-	55	10		0		
Turbidity	NTU	SMI-PW01	WL	07/09/2008	0001	36	-	36	4.04		0		
Turbidity	NTU	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	3.16		0		
Turbidity	NTU	SMI-PZ1S	WL	07/09/2008	0001	18	-	18	3.9		0		
Uranium	mg/L	0216	SL	07/08/2008	0001	0	-	0	0.0021		0	3.5E-006	
Uranium	mg/L	0241	SL	07/10/2008	0001	0.42	-	0.42	0.0026		0	3.5E-006	
Uranium	mg/L	0276	SL	07/10/2008	0001	0	-	0	0.002		0	3.5E-006	
Uranium	mg/L	0405	WL	07/09/2008	0001	18	-	18	1.8		0	0.00018	
Uranium	mg/L	0474	WL	07/09/2008	0001	10.3	-	19.7	0.35		0	3.5E-005	
Uranium	mg/L	0480	WL	07/08/2008	0001	18	-	18	2.4		0	0.00018	
Uranium	mg/L	0482	WL	07/08/2008	0001	55	-	55	1		0	0.00018	
Uranium	mg/L	0483	WL	07/08/2008	0001	18	-	18	0.3		0	3.5E-005	
Uranium	mg/L	0485	WL	07/08/2008	0001	55	-	55	1.2		0	0.00018	
Uranium	mg/L	0488	WL	07/09/2008	0001	36	-	36	1.9		0	0.00018	
Uranium	mg/L	0493	WL	07/09/2008	0001	55	-	55	2.8		0	0.00018	
Uranium	mg/L	0557	WL	07/08/2008	0001	36	-	36	2.8		0	0.00018	
Uranium	mg/L	0558	WL	07/08/2008	0001	36	-	36	2.5		0	0.00018	
Uranium	mg/L	0559	WL	07/08/2008	0001	18	-	18	0.12		0	3.5E-005	
Uranium	mg/L	0560	WL	07/08/2008	0001	36	-	36	1.7		0	0.00018	
Uranium	mg/L	0561	WL	07/08/2008	0001	55	-	55	1.5		0	0.00018	
Uranium	mg/L	SMI-PW01	WL	07/09/2008	0001	36	-	36	1.7		0	0.00018	
Uranium	mg/L	SMI-PW02	WL	07/09/2008	0002	20.04	-	60.04	1.7		0	0.00018	
Uranium	mg/L	SMI-PZ1M	WL	07/09/2008	0001	55	-	55	2.9		0	0.00018	

Appendix C. Water Quality Data (continued)

July 2008 GW/SW Investigation - General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/10/2008

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID			Lab	Data	QA		
Uranium	mg/L	SMI-PZ1S	WL	07/09/2008	0001	18 - 18	1.9			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.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Appendix D
Water Level Data

Appendix D. Water Level Data

July 2008 Monthly Sampling Event - STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 9/19/2008

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0401	O	3969.6	07/24/2008		13.76	3955.84	
0403	O	3968.95	07/15/2008		12.28	3956.67	
0404	O	3968.3	07/24/2008		13.35	3954.95	
0406	O	3969.91	07/21/2008		13.23	3956.68	
0407	O	3969.09	07/15/2008		12.75	3956.34	
0408	O	3969.17	07/15/2008		12.28	3956.89	
0471		3964.37	07/14/2008		8.55	3955.82	
0473		3964.66	07/14/2008		8.91	3955.75	
0475		3964.97	07/14/2008		9.36	3955.61	
0477		3965.08	07/14/2008		9.82	3955.26	
0479		3964.67	07/14/2008		9	3955.67	
0481		3968.83	07/15/2008		11.85	3956.98	
0494		3958.79	07/22/2008		2.77	3956.02	
0495		3959.89	07/22/2008		3.5	3956.39	
0555		3969.31	07/17/2008		12.89	3956.42	
0581		3969.02	07/15/2008		11.26	3957.76	
0585		3969.36	07/15/2008		12.29	3957.07	
0589		3968.87	07/15/2008		11.46	3957.41	
0597		3959.11	07/22/2008		2.74	3956.37	
0671		3969.5	07/14/2008		13.68	3955.82	
0673		3969.44	07/14/2008		14.21	3955.23	
0675		3969.64	07/14/2008		15.77	3953.87	
0677		3969.61	07/14/2008		13.76	3955.85	
0679		3969.59	07/14/2008		13.59	3956	

Appendix D. Water Level Data (continued)

July 2008 Monthly Sampling Event - STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 9/19/2008

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0680		3969.8	07/15/2008		13.56	3956.24	
0681		3970.67	07/15/2008		14.52	3956.15	
0684		3970.22	07/14/2008		13.61	3956.61	
0690		3963.83	07/22/2008		4.4	3959.43	
0691		3962.7	07/22/2008		3.44	3959.26	
0692		3962.29	07/22/2008		2.83	3959.46	
0724		3959.11	07/22/2008		2.92	3956.19	
0725		3959.95	07/22/2008		3.81	3956.14	
0726		3958.81	07/22/2008		9.65	3949.16	
0730		3967.6	07/14/2008		10.46	3957.14	
0732		3968.99	07/14/2008		12	3956.99	
0770		3968.86	07/23/2008		15.06	3953.8	
0772		3969.21	07/23/2008		15.52	3953.69	
0774		3968.77	07/23/2008		14.68	3954.09	
0776		3968.97	07/23/2008		14.85	3954.12	
0778		3968.93	07/23/2008		14.37	3954.56	
0781		3968.56	07/17/2008		12.31	3956.25	
0782		3968.46	07/21/2008		13.08	3955.38	
0786		3968.14	07/21/2008		12.95	3955.19	
0787		3968.43	07/21/2008		12.99	3955.44	
SMI-PZ1D2	O	3968.26	07/21/2008		12.18	3956.08	

Appendix D. Water Level Data (continued)

July 2008 SW/GW Investigation STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 8/27/2008

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0405	O	3968.47	07/09/2008		10.19	3958.28	
0474		3964.99	07/09/2008		8.19	3956.8	
0480		3968.65	07/08/2008		11.62	3957.03	
0482		3968.7	07/08/2008		12.84	3955.86	
0483		3968.9	07/08/2008		11.89	3957.01	
0485		3968.81	07/08/2008		12.73	3956.08	
0488		3968.48	07/09/2008		10.09	3958.39	
0493		3967.89	07/08/2008		9.75	3958.14	
0557		3968.85	07/08/2008		11.42	3957.43	
0558		3968.79	07/08/2008		11.62	3957.17	
0559		3969.92	07/08/2008		12.55	3957.37	
0560		3968.77	07/08/2008		11.21	3957.56	
0561		3968.56	07/08/2008		12.11	3956.45	
SMI-PW01	O	3968.45	07/09/2008		10.05	3958.4	
SMI-PZ1M	O	3968.29	07/09/2008		10.27	3958.02	
SMI-PZ1S	O	3969.13	07/09/2008		10.71	3958.42	

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 Trip Report

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report



DATE: August 28, 2008
TO: K. Pill, M. Mullis
FROM: E. Glowiak
SUBJECT: July 2008 Interim Action Monthly Sampling Event Trip Report

Site: Moab – Interim Action Well Field

Date of Sampling Event: July 14-24, 2008

Team Members: Steve Back, James Ritchey, Elizabeth Glowiak

RIN Number Assigned: All samples were assigned to RIN 0807019.

Sample Shipment: All samples were shipped in a cooler overnight UPS to Paragon Analytics, Inc. from Moab, Utah, on July 17, 23, and 24, 2008 (Tracking Nos. 94792887, 96320570, and 92245696).

July 2008 Configuration 1 Sampling

Number of Locations Sampled: Five extraction wells (0471, 0473, 0475, 0477, and 0479), four observation wells (0403, 0407, 0481, and 0555), and two evaporation pond (0547 and 0548) locations were sampled during the July 2008 sampling event. A large number of the Configuration 1 observation wells, one extraction well, and one surface water location were sampled under RIN 0807018 in July 2008. A total of 11 samples were collected from Configuration 1 during the July Monthly Sampling Event.

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Location No.	Type	Reason
0562, 0563, 0606, 0608, 0611, 0612, 0564, 0565, 0607	Well Points	Inaccessible due to high river flow
0216, 0245	Surface Water	Location 0216 was shipped with RIN 08007018 and 0245 was inaccessible

Field Variance: None

Attachment 1. Interim Action Well Field Monthly Sampling Trip Report

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	07/14/2008	09:02	8.55	18
0473	07/14/2008	09:16	8.91	18
0475	07/14/2008	09:30	9.36	18
0477	07/14/2008	09:43	9.82	18
0479	07/14/2008	09:52	9.00	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	07/15/2008	14:16	12.28	18
0407	07/15/2008	16:03	12.75	17
0481	07/15/2008	15:40	11.85	28
0555	07/17/2008	10:42	12.89	18

July 2008 Configuration 2 Sampling

Number of Locations Sampled: Five observation wells (0401, 0408, 0581, 0585, and 0589) and one surface water location (0240) were sampled. Including three duplicates and one EB, a total of 10 samples were collected during the July Monthly Sampling Event.

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
2567	0581	Duplicate from 18 ft bgs	Ground Water	NFC 847
2568	0240	Duplicate of surface water	Surface Water	NFC 786
2569	0401	Duplicate from 18 ft bgs	Ground Water	NFC 698
2566	N/A	EB of surface water reel	DI Water	NFC 672

DI = Deionized

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Location No.	Type	Reason
0571, 0573, 0575, 0577, 0579	Remediation Wells	Not running.
0590, 0591, 0603, 0613, 0614, 0605, 0604, 0605, 0615, 0616	Well Points	Inaccessible due to high river flow
0236, 0239	Surface Water	Inaccessible due to high river flow

Field Variance: None

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report

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)
0401	07/24/2008	10:09	13.76	18
0408	07/15/2008	09:02	12.28	20
0581	07/15/2008	13:40	11.76	18
0585	07/15/2008	10:39	12.29	18
0589	07/15/2008	11:05	11.46	52

Location-Specific Information- Surface Water Sampling: The table below represents the surface water locations sampled.

SW No.	Date	Time	Depth (in. below surface)	Characteristics
0240	07/21/2008	15:38	Unknown	Taken in main backwater channel, approximately 2 ft deep, channel is open both up and down river, moderate flow and turbidity



Surface Water Location 0240.

July 2008 Configuration 3 Sampling

Number of Locations Sampled: Five remediation wells (0671, 0673, 0675, 0677, and 0679), six observation wells (0688-39, 0689-54, 0404, 0680, 0681, and 0684), three well points (0690, 0691, and 0692), and one surface water location (0259) was sampled during the July 2008 sampling event. A total of 15 locations were sampled.

Attachment 1. Interim Action Well Field Monthly Sampling Trip Report

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Location No.	Type	Reason
0693, 0694, 0695, 0696, 0697, 0698	Well Points	Inaccessible due to high river flow
0257, 0258	Surface Water	Dry

Field Variance: Well point 0691 was submitted to the laboratory with a limited volume due to lack of recharge.

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

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0671	07/14/2008	10:27	13.68	35
0673	07/14/2008	10:38	14.21	35
0675	07/14/2008	10:47	13.94	35
0677	07/14/2008	10:58	13.76	35
0679	07/14/2008	11:09	13.59	35

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	07/24/2008	10:34	13.35	18
0680	07/15/2008	08:05	13.56	18
0681	07/15/2008	08:32	14.52	18
0684	07/14/2008	14:21	13.61	19
0688-39	07/14/2008	16:20	12.69	39
0689-54	07/14/2008	15:56	12.59	54

Location-Specific Information – Well Point Sampling: The table below presents the water level, stick up height, and depth to the river surface prior to the initial purge.

WP No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0690	07/22/2008	16:00	4.40	1.75	Dry at base
0691	07/22/2008	16:13	3.44	0.63	Dry at base
0692	07/22/2008	15:41	2.83	0.32	Dry at base

Location-Specific Information- Surface Water Sampling: The table below represents the surface water locations sampled.

SW No.	Date	Time	Depth (in. below surface)	Characteristics
0259	07/21/2008	14:48	Unknown	Taken 2 ft off bank, sandy substrate, moderate flow

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report



Configuration 3 River Bank Well Points.



Surface Water Location 0259.

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report
July 2008 Configuration 4 Sampling

Number of Locations Sampled: Five remediation wells (0770, 0772, 0774, 0776, and 0778), four observation wells (0781, 0782, 0786, and 0787) were sampled during the July 2008 sampling event. A total of nine samples were collected.

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Location No.	Type	Reason
0790, 0791, 0792, 0793, 0794, 0795	Well Points	Inaccessible due to high river flow
0274	Surface Water	Inaccessible due to high river flow

Field Variance: None.

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

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0770	07/23/2008	08:43	15.06	30
0772	07/23/2008	08:53	15.52	30
0774	07/23/2008	09:03	14.68	30
0776	07/23/2008	09:13	14.85	30
0778	07/23/2008	09:20	14.37	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	07/17/2008	11:11	12.31	48
0782	07/21/2008	08:52	13.08	31
0786	07/21/2008	09:42	12.95	28
0787	07/21/2008	09:17	12.99	36

July 2008 Infiltration Trench Sampling

Number of Locations Sampled: Two observation wells (0730 and 0732) and three well points (0724, 0725, and 0726) were sampled during the July 2008 sampling event.

Field Variance: Sample location 0726 was submitted to the laboratory with a limited volume due to a lack of recharge.

Location Specific Information – Observation Wells: All observation wells were sampled

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report

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	07/14/2008	13:36	10.46	18
0732	07/14/2008	13:58	12.00	18

Location-Specific Information – Well Point Sampling: The table below presents the water level, stick up height, and depth to the river surface prior to the initial purge.

WP No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0724	07/22/2008	10:23	2.92	1.34	Dry at base
0725	07/22/2008	10:20	3.81	2.20	Dry at base
0726	07/22/2008	10:15	9.65	1.05	Dry at base



Infiltration Trench Well Points.

July 2008 Baseline Sampling

Number of Locations Sampled: Two observation wells (0406 and SMI-PZ1D2), three well points (0494, 0495, and 0597), and one surface water location (0242) were sampled during the July 2008 sampling event.

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report

Location No.	Type	Reason
0496, 0497, 0598, 0617, 0618, 0599	Well Points	Inaccessible
0241	Surface Water	Dry
0243	Surface Water	Inaccessible

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)
0406	07/21/2008	10:55	13.23	18
SMI- PZ1D2	07/21/2008	11:32	12.18	73

Location-Specific Information – Well Point Sampling: The table below presents the water level, stick up height, and depth to the river surface prior to the initial purge.

WP No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0494	07/22/2008	09:31	2.77	0.89	Dry at base
0495	07/22/2008	09:15	3.50	1.76	Dry at base
0597	07/22/2008	09:21	2.74	1.06	Dry at base

Location-Specific Information- Surface Water Sampling: The table below represents the surface water locations sampled.

SW No.	Date	Time	Depth (in. below surface)	Characteristics
0242	07/21/2008	13:54	3	Stagnant water, closed up and down river, fish observed, 3 ft deep, slight surface sheen

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report



Baseline River Bank Well Points.



Surface Water Location 0242.

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.

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report

Date	Daily Mean Flow (cfs)
07/14/2008	9,990
07/15/2008	9,590
07/16/2008	8,910
07/17/2008	8,300
07/21/2008	7,370
07/22/2008	7,090
07/23/2008	7,340
07/24/2008	7,450

Equipment Issues: None.

Corrective Action Required/Taken: None.

Attachment 2
Ground Water/Surface Water Interaction Investigation Sampling
Trip Report

Attachment 2.
Ground Water/Surface Water Interaction Investigation
Sampling Trip Report



DATE: July 30, 2008
TO: K. Pill, M. Mullis
FROM: E. Glowiak
SUBJECT: July 2008 Ground Water/Surface Water Interaction Investigation Sampling Event
Trip Report

Site: Moab – Interim Action Well Field

Date of Sampling Event: July 8-10, 2008

Team Members: S. Back, E. Glowiak

RIN Number Assigned: All samples were assigned to RIN 0806018.

Sample Shipment: All samples were shipped in a cooler overnight UPS to Paragon Analytics Inc. from Moab, Utah, on July 10, 2008 (Tracking No. 91464853).

Purpose: The purpose of this investigation is to determine whether infiltration along the Colorado River adjacent to the Moab UMTRA Site during high river flows could potentially dilute the site contaminants. If the contaminants are diluted, the interim action remedial system could be halted during high river stage to save evaporation pond capacity for pumping during periods when cotaminants are at higher concentrations. A series of surface water locations, well points, extraction wells, and observation wells from Configuration 1 and the Baseline Area were sampled at varying depths and distances from the river channel. The surface water elevation during this sampling event was 11.8 ft below location 0276.

July 2008 Configuration 1 Sampling

Number of Locations Sampled: One extraction well (0474), nine observation wells (0480, 0482, 0483, 0485, 0557, 0558, 0559, 0560, and 0561), one surface water location (0216) were sampled during the July 2008 sampling event. A total of 11 samples were collected.

Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Attachment 2.
Ground Water/Surface Water Interaction Investigation
Sampling Trip Report

Location No.	Type	Reason
0606, 0562, 0563	Well Points	Inaccessible

Field Variance: Surface water location 0216 was sampled approximately 40 ft up river from its true location due to accessibility issues.

Location Specific Information – Configuration 1 Extraction Wells: This extraction well was sampled with dedicated tubing and a peristaltic pump. The dedicated submersible pump was not running at this time due to the possibility of flooding of the well vaults.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0474	07/09/2008	07:52	8.19	18

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)
0480	07/08/2008	09:11	11.62	18
0482	07/08/2008	08:50	12.84	55
0483	07/08/2008	09:37	11.89	18
0485	07/08/2008	10:51	12.73	55
0557	07/08/2008	08:28	11.42	36
0558	07/08/2008	11:10	11.62	36
0559	07/08/2008	15:09	12.55	18
0560	07/08/2008	13:57	11.21	36
0561	07/08/2008	14:20	12.11	55

Location-Specific Information – Surface Water Sampling: The table below represents the surface water locations sampled.

SW No.	Date	Time	Depth (in. below surface)	Characteristics
0216	07/08/2008	15:52	Unknown	Taken about 40 ft up-river from 0216, turbid, slow flow, flooded into walking path on slope.

July 2008 Baseline Sampling

Number of Locations Sampled: Six observation wells (SMI-PZ1M, SMI-PZ1S, SMI-PW01, 0405, 0488, and 0495), and two surface water locations (0276 and 0241) were sampled during the July 2008 sampling event. Including one duplicate and one blank, a total of 10 samples were collected.

Attachment 2. Ground Water/Surface Water Interaction Investigation Sampling Trip Report

Locations Not Sampled: Locations Not Sampled: The following locations were not sampled during the July 2008 sampling event.

Location No.	Type	Reason
0494, 0495, 0597	Well Points	Inaccessible

Field Variance: Surface water location 0241 was sampled approximately 40 feet down river from the actual location due to accessibility issues. At this time location 0241 was a stagnant channel of water that was not connected up or down river. This sample event signifies the first time that location 0276 was sampled.

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
2491	SMI-PW02	Duplicate from 36 ft bgs	Ground Water	NFC 715
2493	N/A	EB from surface water tubing	DI Water	NFC 719

DI = Deionized

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)
SMI-PZ1M	07/09/2008	09:39	10.27	55
SMI-PZ1S	07/09/2008	10:30	10.71	18
SMI-PW01	07/09/2008	10:02	10.05	36
0405	07/09/2008	08:45	10.19	18
0488	07/09/2008	09:05	10.09	36
0493	07/09/2008	08:11	9.75	55

Location-Specific Information – Surface Water Sampling: The table below represents the surface water locations sampled.

SW No.	Date	Time	Depth (in. below surface)	Characteristics
0241	07/10/2008	08:30	~5-in.	Collected off of river bank, water is stagnant and is an isolated body of water
0276	07/10/2008	08:10	Unknown	Taken off of the river pump cat walk, moderate flow, first time this location has been sampled

Attachment 2.
Ground Water/Surface Water Interaction Investigation
Sampling Trip Report



Configuration 1 Surface Water Location 0216.



Baseline Surface Water Location 0241. (Photo taken a few days after sampled channel dried up.)

Attachment 2.
Ground Water/Surface Water Interaction Investigation
Sampling Trip Report



Surface Water Location 0276.

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)
07/08/2008	No data
07/09/2008	No data
07/10/2008	12,200

Equipment Issues: None.

Corrective Action Required/Taken: None.