

Office of Environmental Management – Grand Junction



Moab UMTRA Project
October 2008 Validation Data Package
for Performance Assessment of the
Monthly Sampling for the Ground Water
Interim Action

April 2009



U.S. Department
of Energy

Office of Environmental Management

**Moab UMTRA Project
October 2008 Validation Data Package for Performance Assessment
of the Monthly Sampling for the
Ground Water Interim Action**

April 2009

**Moab UMTRA Project
October 2008 Ground Water Sampling Event**

Revision 0

Review and Approval

KGP

4/28/09

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4/29/09

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Acronyms and Abbreviations

bgs	below ground surface
CCV	continuing calibration verification
CF	Configuration
COC	chain of custody
CRI	reporting limit verification
EB	equipment blank
EDD	electronic data deliverable
EPA	Environment Protection Agency
ft	feet
gpm	gallons per minute
ICP	inductively coupled plasma
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control sample
MB	method blank
MDL	method detection limit
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
r^2	correlation coefficient
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
SD	serial dilution
SDG	sample data group
TDS	total dissolved solids
UMTRA	Uranium Mill Tailings Remedial Action
USGS	U.S. Geological Survey
VDP	validation data package

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 Summary Criteria, Sampling Event Summary, and Sampling and Analyses. Section 2 provides the Data Assessment Summary, 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 Reports tables, and the Equipment Blanks Report. The trip report is included as Attachment 1. All Colorado River flow discussed in this document is measured from the U.S. Geological Survey (USGS) Cisco gaging station No. 09180500.

This validation data package (VDP) presents the results of the October 2008 monthly sampling event completed from October 7 through 23, 2008, in which ground water and surface water samples were collected from a variety of locations across the well field. Section 1.0 contains the Summary Criteria with a sample location map (Section 1.1), the Sampling Event Summary (Section 1.2), and the Sampling and Analyses (Section 1.3) for this October 2008 monthly sampling event.

1.1 Summary Criteria

Sampling Period: October 7 through 23, 2008

The purpose of this sampling was to collect data that can be used to evaluate the performance 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?

Possibly. Of the nine anomalous data points, eight were high concentrations associated with locations adjacent to the infiltration trench. The first freshwater injection in 2008 was initiated on October 14, the day before the majority of these samples were collected. High concentrations in the area are the result of the preceding inactivity of the infiltration trench

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

Yes. During this sampling event, Configurations (CFs) 3 and 4 were shut down to lower the evaporation pond level as required for the continued extraction over the winter from CF1. There was no riparian habitat channel adjacent to CF3. CF1 wells were extracting approximately 15 gallons per minute (gpm) during this event, and CFs 3 and 4 remediation wells were extracting approximately 30 and 35 gpm, respectively, prior to being shut off on October 15. CF2 was not operating because there was no adjacent riparian habitat channel, and well specific capacities were low. The infiltration trench operated at approximately 10 gpm.

3. Was the evaporation pond functioning properly?

Yes. The pond level decreased from 6.3 to 4.9 feet (ft) during this sampling event. The drop in the level can be attributed to the continued use of the sprinkler system while CFs 3 and 4 were shut down to increase the pond storage capacity.

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

No. Two of the surface water sample locations (0241 and 0242) and two well points (0494 and 0497) in the baseline area were dry and were not sampled.

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

No.

1.2 Sampling Event Summary

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

A list of flagged data is presented in Table 3 in Section 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.

While independent of the data validation process, a brief summary of the most recent concentration trends based on the October 2008 data is provided for CFs 3, 2, 1, and 4 (listed from north to south) within the well field. Time versus concentration (ammonia, total dissolved solids [TDS], and uranium) plots for selected performance indicator monitoring wells located upgradient or downgradient within the interim action well field are presented to display historical trends exhibited by the data 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. Plots are not shown for CF1 because the performance indicator monitoring wells were not sampled during this sampling event.

CF3

Among the locations typically discussed in this section for CF3, samples were collected from 0688 (31 ft below ground surface [bgs]) and 0689 (46 ft bgs) during this past month. A review of the time versus concentration plots (Figures 2, 3, and 4) suggests ammonia, TDS, and uranium concentrations in samples collected from these locations have stayed within the historical range and, in general, have fully rebounded to prerunoff concentrations.

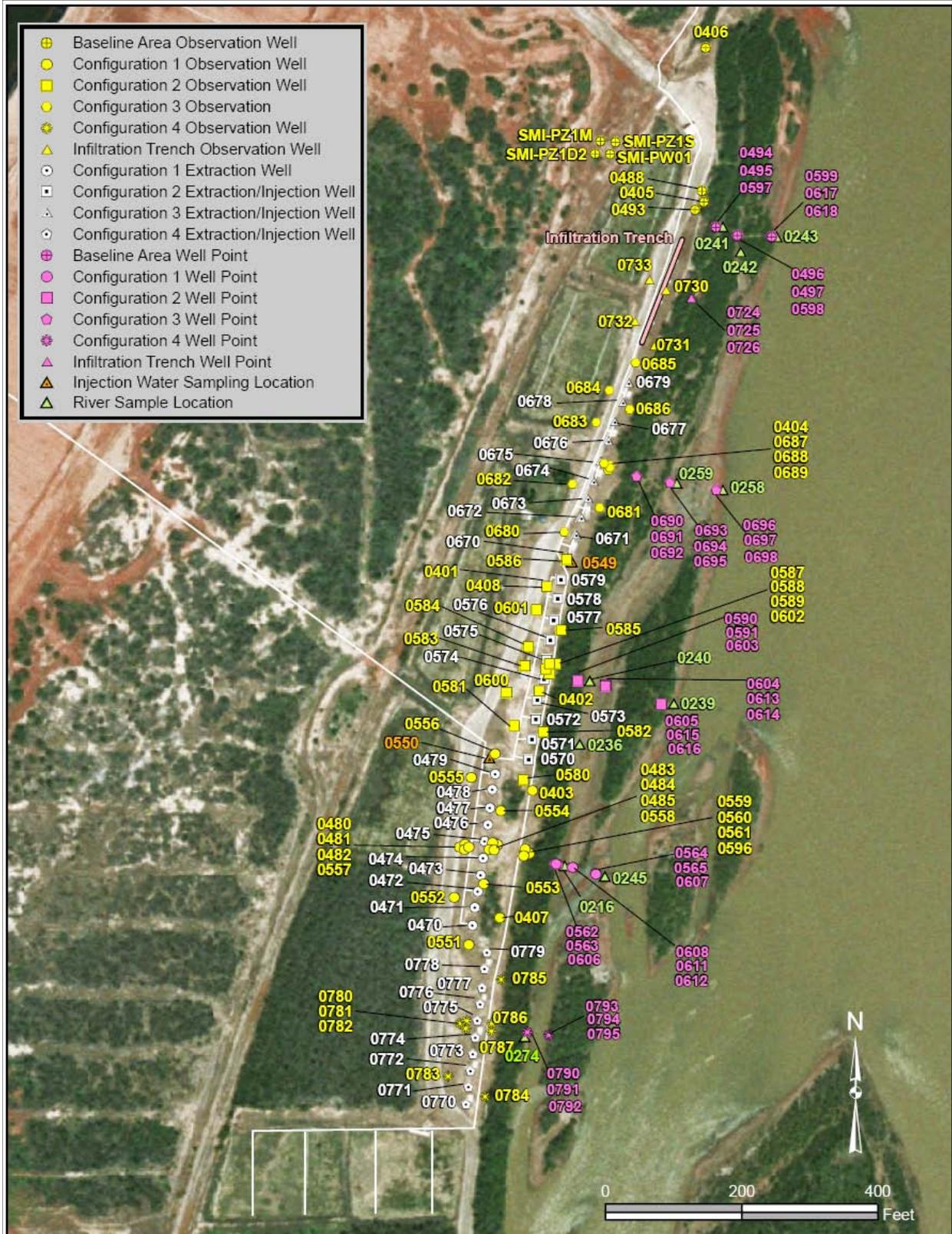


Figure 1. Sample Locations at the Interim Action Well Field and Baseline Area (may include locations not sampled)

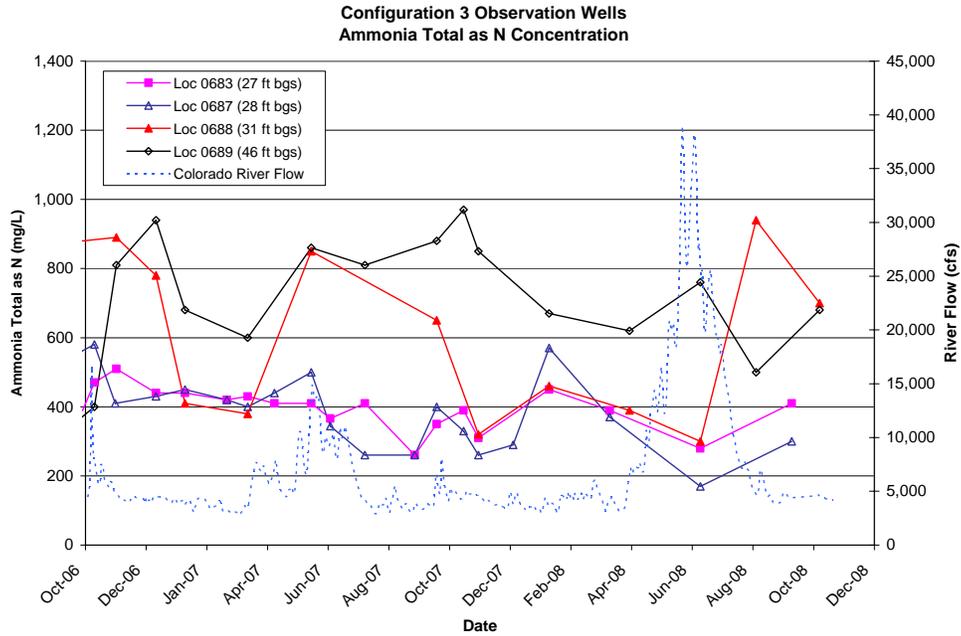


Figure 2. CF3 Observation Wells Time Versus Ammonia Total as N Concentration Plot

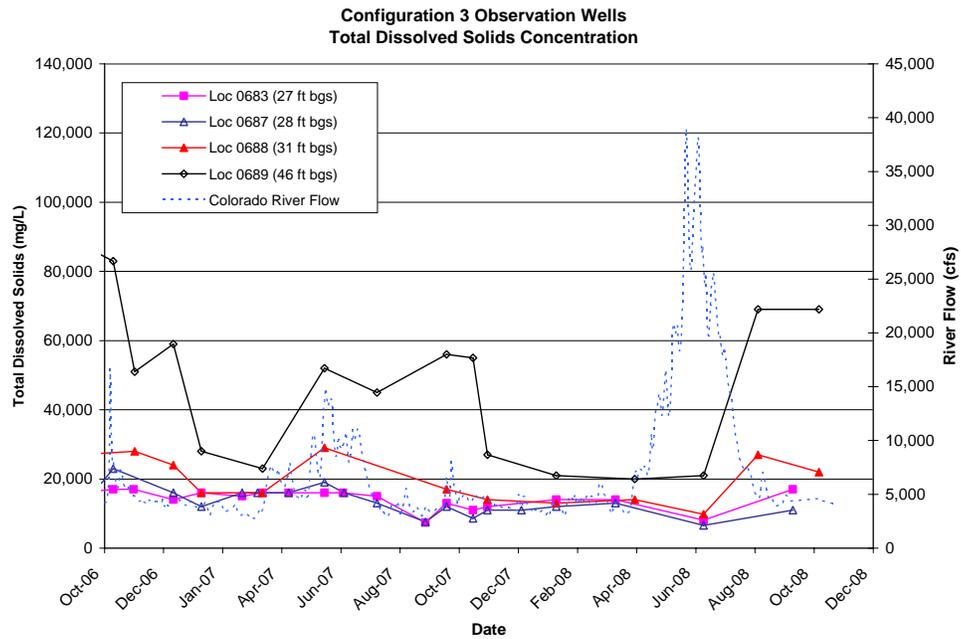


Figure 3. CF3 Observation Wells Time Versus TDS Concentration Plot

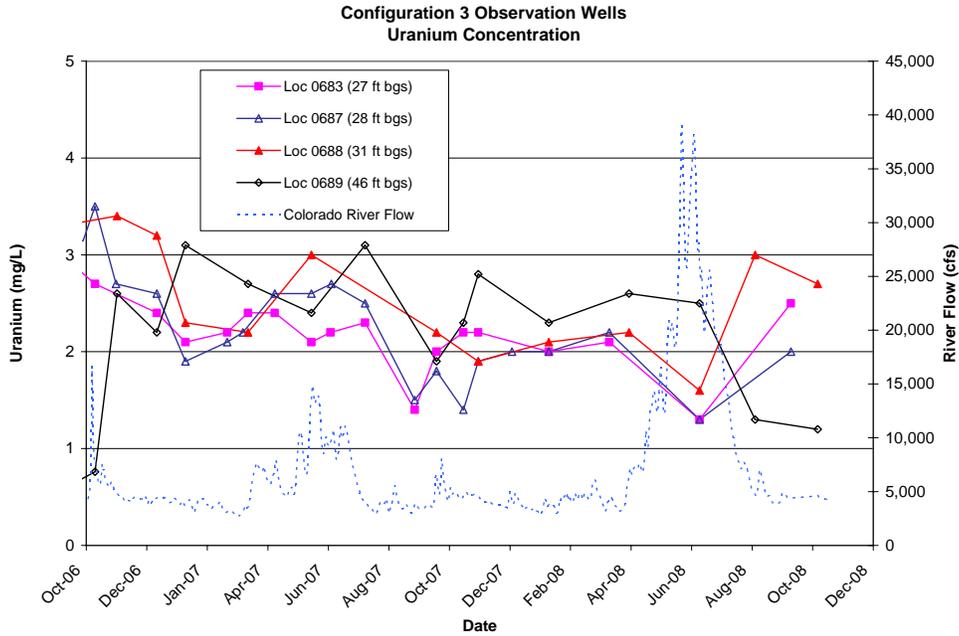


Figure 4. CF3 Observation Wells Time Versus Uranium Concentration Plot

CF2

Among the indicator wells, samples were collected only from 0408 (26 ft bgs) and 0589 (52 ft bgs) during this past month. The time versus ammonia (Figure 5), TDS (Figure 6), and uranium (Figure 7) concentration plots indicate these analyte concentrations have also either rebounded or nearly rebounded to prerunoff levels.

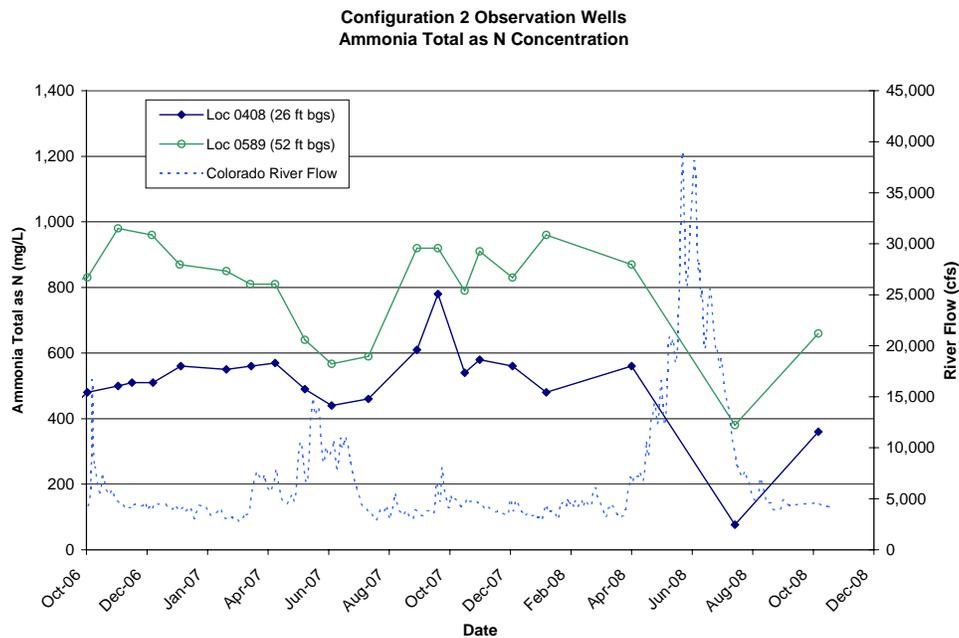


Figure 5. CF2 Observation Wells Time Versus Ammonia Total as N Concentration Plot

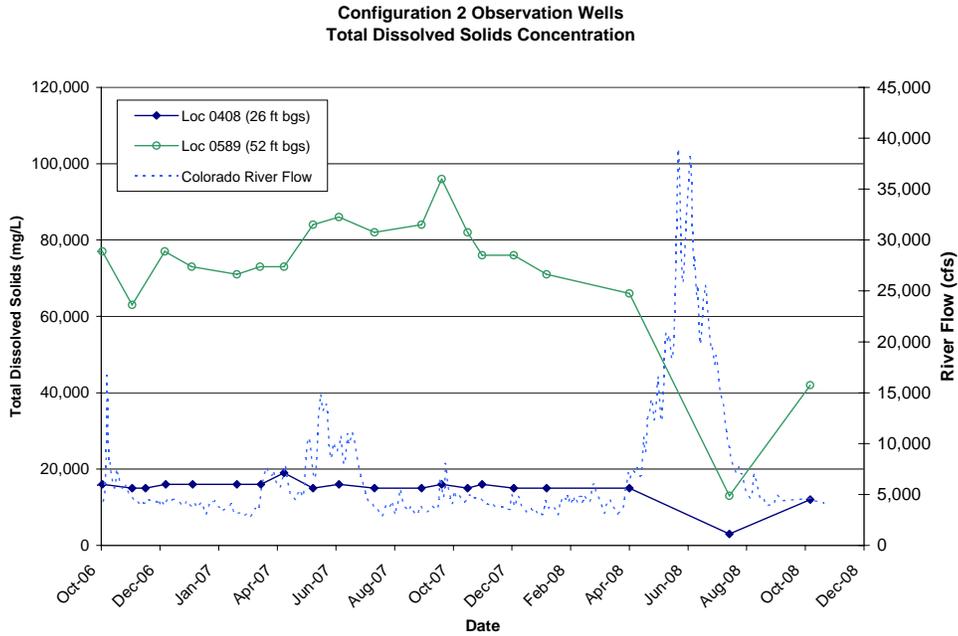


Figure 6. CF2 Observation Wells Time Versus TDS Concentration Plot

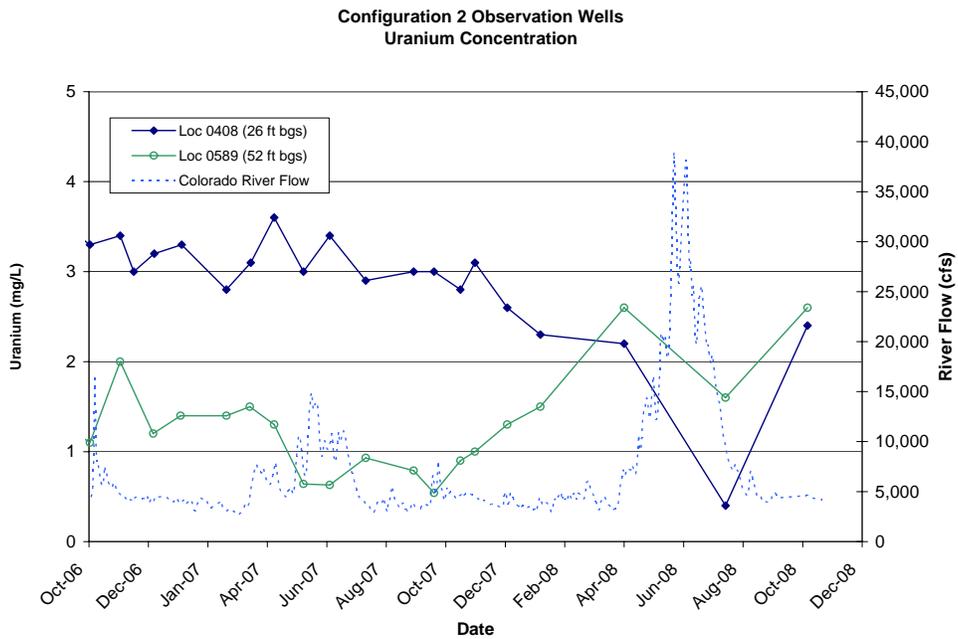


Figure 7. CF2 Observation Wells Time Versus Uranium Concentration Plot

CF1 Observation Wells 0403 and 0407

Samples were collected from these locations, which are located on the river bank within CF1, during the October 2008 monthly sampling event. As shown in the time versus analyte concentration plots below (Figures 8, 9, and 10), these concentrations have also continued to rebound to prerunoff levels, with well 0403 continuing to have higher analyte concentrations.

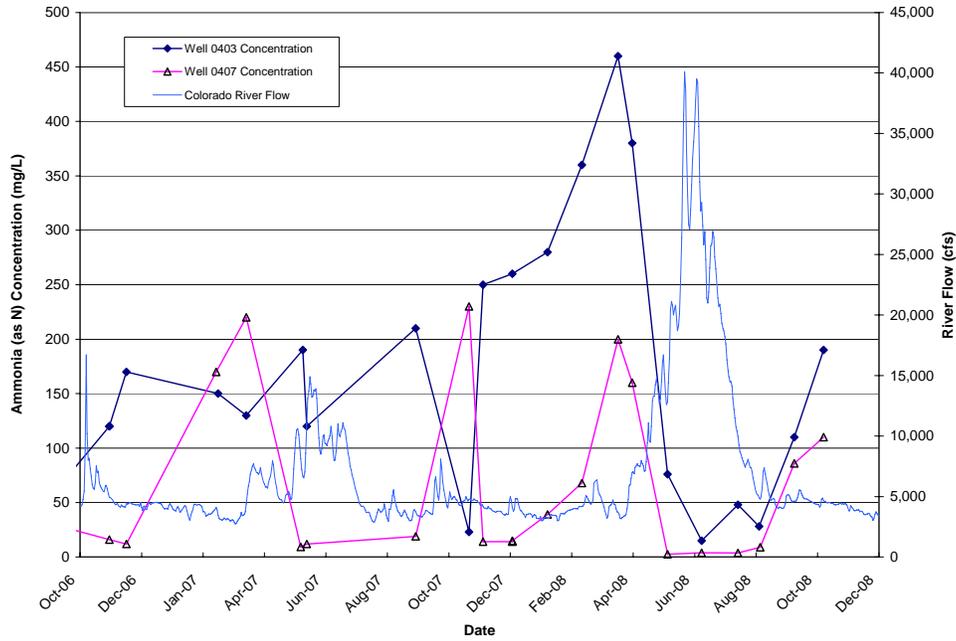


Figure 8. CF1 Observation Wells 0403 and 0407 Time Versus Ammonia Total as N Concentration Plot

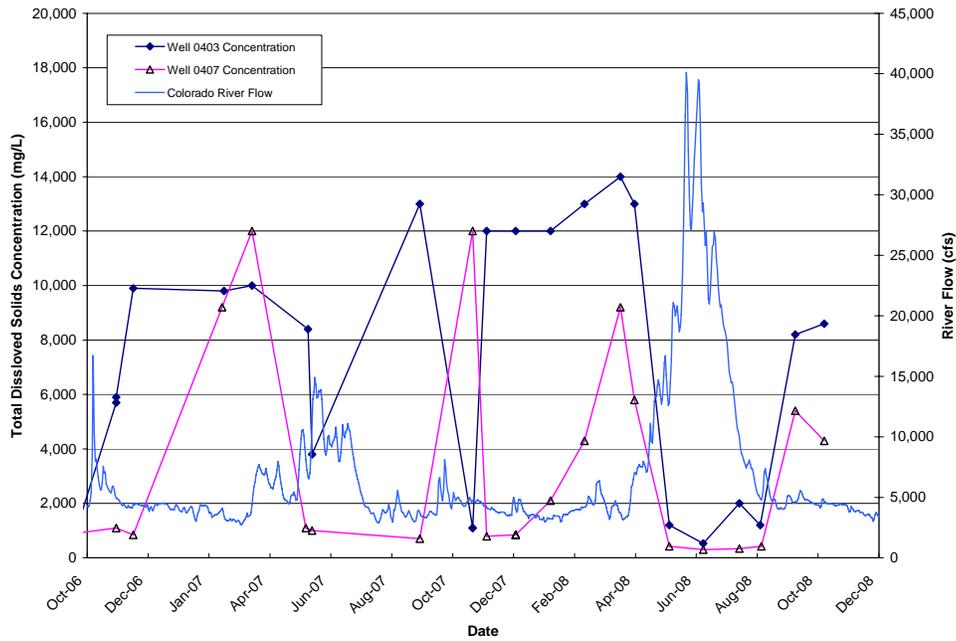


Figure 9. CF1 Observation Wells 0403 and 0407 Time Versus TDS Concentration Plot

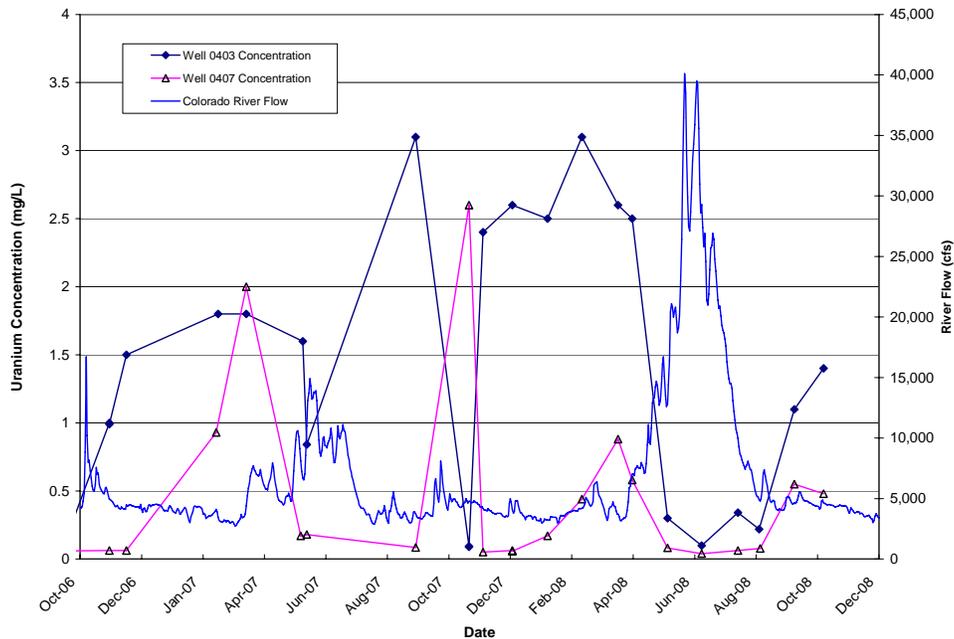


Figure 10. CF1 Observation Wells 0403 and 0407 Time Versus Uranium Concentration Plot

CF4

Of the indicator wells typically discussed in this summary for CF4, only location 0780 (28 ft bgs) was sampled during October 2008 and does not warrant the update of the time versus concentration plots. Since this location was last sampled in August 2008, the ammonia concentration has remained stable (from 480 to 440 milligrams per liter [mg/L]), while the TDS concentration has increased from 15,000 to 20,000 mg/L over the same time period. Uranium concentrations have also significantly increased, from 2.3 to 3.5 mg/L. All these analyte concentrations have remained within the historical range for this location.

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. Ground Water/Surface Water Interaction Investigation Sampling 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	10/21/08	15.8	8.41	2.2	2.59	1.17
0243	10/21/08	11.1	8.3	0.51	3.15	1.52
0245	10/21/08	11.5	8.23	0.1	3.83	1.79

- Notes: Loc = location, Temp = temperature, AWQC = ambient water quality criteria
 (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, two of the three surface water samples collected during this sampling event were below state and federal acute and chronic criteria. However, the sample collected from 0216 (located in a riparian side channel adjacent to CF1) exceeded the chronic criteria. Although the river was only flowing at 4,300 cfs during sample collection, the riparian side channel was connected to the main channel in both the upstream and downstream directions. The higher temperature of the water at this location and the inactivity of CF2 may have contributed to the chronic criteria being exceeded.

1.3 Sampling and Analyses

Sampling and analyses were conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, April 2008*. Although not listed here, the normal set of locations were sampled. Please refer to the attached trip report (Attachment 1) for specific sampled locations and an explanation of why some locations were not sampled, such as dry conditions at specific surface water locations.

The data validations indicate that the data meet the quality-control criteria specified for this project. 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 (MBs), or matrix spikes (MSs), except as qualified or noted in the Laboratory Performance Assessment (Section 2.2).

There were nine anomalous (all historical high) data points associated with five locations. Of these five locations, four were located adjacent to the infiltration trench, and one was a well point downgradient from CF1. See the Anomalous Data Review (Section 3.2) for details.

According to the USGS Cisco gaging station, the mean daily Colorado River flows ranged from 4,150 to 4,680 cubic feet per second during this sampling period.

2.0 Data Assessment Summary

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

2.1 Water Sampling Field Activities Verification

The field activities verification 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 Assessment

General Information

Report Identification No.

(RIN):0810024

Sample Event:

Interim Action Well Field Monthly Sampling Event –
October 2008

Site(s): Moab, Utah
 Laboratory: Paragon Analytics, Fort Collins, Colorado
 Sample Data Group (SDG) Nos.: 0810086, 0810151, 0810199
 Analysis: Metals and Inorganics
 Validator: Rachel Cowan
 Review Date: January 5, 2009

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 1, Data Deliverables Examination. The Level 1 validation was performed on 100 percent of the samples, which 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 2.

Table 2. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia	WCH-A-005	EPA 350.1	EPA 350.1
Bromide	MIS-A-038	SW-846 9056	SW-846 9056
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Copper	MET-A-020	SW-846 3005A	SW-846 6010B
Manganese	G17	SW-846 3005A	SW-846 6010B
Selenium	G14	SW-846 3005A	SW-846 6020A
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
TDS	WIC-A-033	MCAWW 160.1	MCAWW 160.1
Uranium	G1	SW-846 3005A	SW-846 6020A

Data Qualifier Summary

Analytical results were qualified as listed in Table 3. Refer to the attached validation worksheets and Table 4 below for an explanation of the data qualifiers applied.

Table 3. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0810086-2 to 9, 19 to 21; 0810151-2 to 9; 0810199-2 to 9, 19 to 24	0407, 0408, 0481, 0555, 0581, 0585, 0589, 0680, 0783, 0784, 0785, 0472, 0476, 0478, 0671, 0673, 0674, 0677, 0678, 0243, 0245, 0495, 0496, 0547, 0548, 0562, 0563, 0612, 0617, 0618.	Ammonia	J	MS1
All 0810086, 0810151 samples	All 0810086, 0810151 locations	Ammonia	J	RS1

Table 3. Data Qualifiers (continued)

Sample Number	Location	Analyte	Flag	Reason
0810086-1 to 20, 0810151-1 to 14, 16, 17	All 0810086 locations except 0785; All 0810151 locations except 0777	Chloride, Sulfate	J	CV1
0810086-21, 0810199-21 to 24	0785, 0618	Chloride, Sulfate	J	MS1
0810151-10	0725	Manganese	J	ICS2
0810199-23	2010 (equipment blank)	Manganese	J	IC9
0810199-4, 5, 12 to 15, 20, 21	0495, 0496, 0597, 0598, 0599, 0606, 0617, 0618	Selenium	J	MS1, RS1, SD1
0810086-21, 0810199-21 to 24	0785, 0618	TDS	J	RS1
0810086-21	0785	Uranium	J	LCS1, RS1
0810086-1, 2	0403, 0407	Uranium	J	CRI1
0810199-22 to 24, 8	2010 (equipment blank), 0562	Uranium	J	LCS1

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

Table 4. Reason Codes for Data Flags

Reason Code	Qualifier (Detects)	Qualifier (Nondetects)	Explanation
CRI1	J	N/A	Data for the reporting limit verification standard was not given, or a reporting limit verification was not run.
CV1	J	R	An initial calibration verification wasn't analyzed, or the continuing calibration verification frequency criteria was not met.
IC9	J	NA	The intercept of a calibration curve is positive, but the result of the analysis is less than three times the intercept.
ICS2	J	N/A	Results for the affected analyte(s) are regarded as estimated (J) because the interference check sample A result for an element is greater than the method detection limit.
LCS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because the laboratory control sample was not analyzed at the proper frequency as stated in the appropriate analytical method.
MS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because the MS sample was (a) from another client, (b) of dissimilar matrix, (c) a field blank or equipment blank, or (d) not analyzed at the proper frequency as stated in the appropriate analytical method.
RS1	J	UJ	Results for the affected analyte(s) are regarded as estimated (J) because (a) the replicate sample, matrix spike duplicate, or laboratory control sample duplicate was not analyzed at the appropriate frequency for each matrix or for each data package, or (b) a field blank or equipment blank was used for the replicate analysis.
SD1	J	N/A	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 62 samples for RIN 0810024 in three shipments. SDG 0810086 of 21 samples arrived on October 10, 2008 (UPS tracking number 1Z5W1Y510198250820); SDG 0810151 of 17 samples arrived on October 17, 2008 (UPS tracking number 1Z5W1Y510193845894); and SDG 0810199 of 24 samples arrived on October 24, 2008 (UPS tracking numbers 1Z5W1Y510194298715 and 1Z5W1Y510190482728). 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 except for the following.

Sample 0810199-14 (location 0599) had a different time on the COC form (09:54) than the sample ticket (09:25). The field data sheet also had 09:25 as the collection time. COC forms for SDG 0810086 (page 9) did not have a time relinquished entered.

Preservation and Holding Times

The sample shipments were received intact with the temperatures within the coolers ranging from 0.1 to 0.8°C, which complies with requirements. 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, Copper and Manganese

Calibrations for copper and manganese were performed on October 17, 2008, and for manganese only on October 28 and 31, 2008. All calibrations used three calibration standards and a blank, resulting in calibration curves with correlation coefficient (r^2) values greater than 0.995. The copper intercept was negative and more than three times the method detection limit (MDL), but the copper result was greater than three times the absolute value of the intercept, and so did not need to be qualified with a "J." Although the calibration curve intercepts for manganese were positive, their absolute values were greater than three times the MDL. Therefore, all manganese results from all SDGs were checked to confirm that all results were greater than three times the absolute value of the intercept; however, none needed to be flagged for this reason. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (ICV and CCV) checks were made at the required frequency, resulting in two CCVs for copper analysis on October 17 and in four CCVs (October 17), two CCVs (October 28), and four CCVs (October 31) for manganese. 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 reporting limit (RL). The CRI results were within the acceptance range.

Method SW-846 6020A, Selenium and Uranium

The calibration for the selenium analyses was performed on October 27, 2008. The uranium calibrations were performed on October 14, 16, 21, and 28, 2008. The initial calibrations for both analytes were performed using eight calibration standards and one blank, resulting in calibration curves with r^2 values greater than 0.995. The absolute value of the calibration curve intercept for selenium was less than three times the MDL. Although the calibration curve intercepts for uranium were positive, their absolute values were greater than three times the MDL. Therefore, all uranium results from all SDGs were checked to confirm that all results were greater than three times the absolute value of the intercept; however, none needed to be flagged for this reason.

Calibration and laboratory spike standards were prepared from independent sources. ICV and CCV checks were made at the required frequency, resulting in four CCVs (October 27) and two CCVs (October 28) for selenium and in two CCVs (October 14), four CCVs (October 16), three CCVs (October 21), and four CCVs (October 27) for uranium. All calibration checks met the acceptance criteria. CRIs were made at the required frequency to verify the linearity of the calibration curve near the RL, with the exception of the uranium analyses on October 14. The uranium analyses from this analytical run were “J”-qualified for this reason. 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 October 15, 21, and November 3, 2008. The calibration curves had r^2 values greater than 0.995 and intercepts less than three times the MDL. ICV and CCV checks were made at the required frequency resulting in three CCVs (October 15), four CCVs (October 21), and three CCVs (November 3). All calibration check results were within the acceptance criteria.

Method SW-846 9056, Chloride and Sulfate

Initial calibrations for chloride and sulfate were performed using five calibration standards and a blank on October 14, 15, 21, 28, and 29, 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. ICV and CCV check standards were prepared from independent sources. ICV and CCV checks were made at the required frequency, resulting in two CCVs (October 14), three CCVs (October 15), five CCVs (October 21), two CCVs (October 28), four CCVs (October 28), and two CCVs (October 29). All calibration checks met the acceptance criteria. However, for the chloride and sulfate analyses on October 13 and 27, 2008, the data for the ICV was not provided. Therefore, all associated chloride and sulfate results were qualified “J” for this reason.

Method MCAWW 160.1, TDS

There is no initial or continuing calibration requirement associated with the determination of TDS.

Method and Calibration Blanks

MBs are analyzed to assess any contamination that may have occurred during sample preparation. Both initial calibration and continuing 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.

Manganese, selenium, uranium, and chloride blanks results from all SDGs were greater than the respective MDLs/IDLs. However, all results were greater than five times the associated blanks’ concentrations, so no results needed to be qualified.

Some ammonia blanks results (SDGs 0810086 and 0810199) were negative and had absolute values greater than the MDL or IDL. However, ammonia results from these SDGs were all greater than five times the associated blanks’ concentrations.

One equipment blank (EB), sample 08100199-23, was provided for determining additional accuracy of analysis for surface water samples. All results for this sample were below the practical quantitation limit except for manganese and uranium, which were both below the RL. Because the manganese result was less than or equal to five times the IDL, it was “J”-qualified.

Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma (ICP) interference check samples (ICSA and ICSAB) are analyzed to verify the instrument’s interelement and background correction factors. For one of the samples, the calcium result was higher than the ICSA standard. The manganese result for sample 0810151-10 was qualified “J” for this reason.

For the uranium and selenium analyses in all 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.

MS Analysis

MS samples were prepared and 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 in SDG 0810199 and the ammonia samples in SDGs 0810086 and 0810151 because the analyte concentrations in the native samples 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. However, there were not enough MS samples prepared for these SDGs (one MS sample per 20 field samples is needed for chloride and sulfate, and one MS sample per 10 field samples is needed for ammonia), so certain samples in each of these SDGs were qualified “J” as shown in Table 3.

There were not enough MS samples for ammonia (SDG 0810199) and TDS (SDGs 0810086 and 0810199) (one MS sample per 20 field samples is needed for TDS, and one MS sample per 10 field samples is needed for ammonia), so samples in each of these SDGs were qualified “J” as shown in Table 3.

The designated quality-control sample was not selected for selenium MS analysis in SDG 0810199. All associated selenium results were “J”-flagged for this SDG.

Laboratory Replicate Analysis

The laboratory replicate results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the reported laboratory replicate sample and the matrix spike duplicate (MSD) sample results for all analytes were less than 20 percent for results greater than five times the RL with the following exceptions.

The RPD could not be determined for the chloride or sulfate duplicates in SDG 0810199 because the analyte concentrations in the native sample were above the analytical range. However, field duplicate samples were analyzed (samples 0810199-22 and 0810199-24) and met the precision requirements. Therefore, no qualification was required.

The RPD could not be determined for the ammonia duplicates in SDGs 0810086 and 0810151 because the analyte concentrations in the native sample were above the analytical range. In addition, field duplicate samples (samples 0810151-17 and 0810199022) did not meet the precision requirements. Associated samples were qualified "J" for this reason.

Replicate requirements were not met for selenium in SDG 0810199 based on MSD results because the MSD sample was not selected as the quality-control sample for the analytical run. Therefore, all associated samples were qualified as "J" for this reason.

The RPD was too high for uranium results in one MSD sample in SDG 0810086. There were no field duplicate samples analyzed in this SDG, so one sample was qualified "J" for this reason.

Paragon Analytical Laboratories also flagged the selenium RPD in SDG 0810086. However, according to the manual Pro2Serve uses, the RPD was acceptable, so no selenium analyses for this SDG were flagged.

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. Duplicate samples were collected from locations 0245 (0810199-24), 0677 (0810151-17), and 0243 (0810199-22) in the October 2008 monthly sampling event. The duplicate results met the U.S. Environmental Protection Agency (EPA) recommended laboratory duplicate criteria of less than 20 RPD for results that are greater than five times the RL, except for ammonia in sample 0810151-17, which had a 26 RPD.

Laboratory Control Sample

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

LCSs were not reported for copper, manganese, or uranium. 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, 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 MS Analysis section for required qualification.

Metals Serial Dilution

Serial dilution (SD) samples were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. ICP-mass spectroscopy SD data are evaluated when the concentration of the undiluted sample is greater than 100 times the RL. ICP-atomic emission spectroscopy SD data are evaluated when the concentration of the undiluted sample is greater than 50 times the RL. All evaluated SD data were acceptable with the following exception.

The SD sample selected as the quality-control sample for the selenium analytical run on October 27, 2008, was not from samples in SDG 0810199. Therefore, all associated selenium results were “J”-flagged for this SDG.

The manganese SD sample in SDG 0810199, the selenium SD sample in SDG 0810151, and the copper SD sample in SDG 0810086 all had RPDs that were greater than allowed, but all of these samples were less than 50 times the RL (manganese and copper) or less than 100 times the RL (selenium), and so no associated results were qualified.

Detection Limits/Dilutions

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

Completeness

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

Electronic Data Deliverable File

The Electronic Data Deliverable (EDD) files arrived on October 23 (SDG 0810086), November 3 (SDG 0810151), and November 13 (SDG 0810199), 2008. The contents of the EDD were manually examined to ensure all and only the requested data were delivered in compliance with requirements and that the sample results accurately reflected the data contained in the sample data package.

2.3 Field Analyses/Activities

The following information summarizes the field analyses and activities for the October 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 surface water samples collected using nondedicated surface water sampling 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 from the field duplicates met the EPA criteria of ± 20 RPD for results that are greater than five times the RL and were considered acceptable, except for the ammonia result in field duplicate sample 0810151-17, which had a 26 RPD.

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 RLs 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 (Section 3.2), tables containing the Water Quality Data and Water Level Data (Sections 3.3 and 3.4, respectively), and the Blanks Report (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

Any results that are considered anomalous based on the Minimums and Maximums Reports are listed below. As shown, all anomalous data associated with this sampling event were historically high concentrations. Of the nine anomalous data points, eight were associated with locations adjacent to the infiltration trench. The first freshwater injection in 2008 was initiated on October 14, the day before the majority of these samples were collected. The infiltration trench probably had not yet had any effect on reducing the previously high concentrations in the area.

Site: Moab UMTRA Site

Sampling Dates: October 7 to 22, 2008

Loc. No.	Analyte	Type of Anomaly	Disposition
0565	Manganese	High	Less than 10 samples collected from this location, still establishing analyte concentration range
0725	Chloride	High	Undetermined
0726	Chloride	High	Undetermined
0726	Manganese	High	Undetermined
0726	Sulfate	High	Undetermined
0726	TDS	High	Undetermined
0730	Manganese	High	Fewer than 10 samples collected from this location, still establishing analyte concentration range
0730	Sulfate	High	Fewer than 10 samples collected from this location, still establishing analyte concentration range
0732	Manganese	High	Fewer than 10 samples collected from this location, still establishing analyte concentration range

3.3 Water Quality Data

All water quality data are presented in Appendix C.

3.4 Water Level Data

All water level data are presented in Appendix D.

3.5 Blanks Report

Three surface water samples were collected using nondedicated equipment, and as a result, one EB was collected during this sampling event. This meets the requirement of one EB for every 20 samples collected on nondedicated equipment. The blank sample results are discussed in Section 2.2, and the Equipment Blanks Report is presented in Appendix E.

Appendix A.
Water Sampling Field Activities Verification

Appendix A. Water Sampling Field Activities Verification

Sampling Event / RIN	October 2008 Monthly Event/0810024	Date(s) of Water Sampling	October 7-22, 2008
Date(s) of Verification	September 30, 2008	Name of Verifier	Rachel Cowan

	Response (Yes, No, NA)	Comments
1. Is the Sampling Analysis Plan 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?	No	See Section 1.1 for explanation.
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?	Yes	
	Yes	
5. Were the number and types (alkalinity, temperature, electrical conductivity, pH, turbidity, dissolved oxygen, oxidation reduction potential) of field measurements taken as specified?	Yes	
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 milliliters per minute?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Appendix A. Water Sampling Field Activities Verification (continued)

- | | |
|--|---|
| 8. Were the following conditions met when purging a Category II well: | |
| Was the flow rate less than 500 milliliters per minute? | Yes |
| Was one pump/tubing volume removed prior to sampling? | Yes |
| 9. Were duplicates taken at a frequency of one per 20 samples? | A total of three duplicates were collected for 59 sample locations. |
| 10. Were EBs taken at a frequency of one per 20 samples that were collected with nondedicated equipment? | One EB was collected for the three surface water samples collected using nondedicated equipment. |
| 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? | The presence or absence of ice was not documented for the well 0565 sample; however, the samples taken before and after this sample were documented with ice in the cooler. |
| 20. Were water levels measured at the locations specified in the planning documents? | Yes |

Appendix B.
Minimums and Maximums Reports

Appendix B. Minimums and Maximums Reports

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0810024

Comparison: All Historical Data

Report Date: 12/28/2008

Site Code	Location Code	Sample Date	Analyte	Result	Current		Historical Maximum			Historical Minimum			Count	
					Qualifiers		Result	Qualifiers	Lab	Data	Result	Qualifiers	Lab	Data
MOA01	0478	10/15/2008	Manganese	2.8			4.9		F	3.2		J	10	0
MOA01	0547	10/22/2008	Ammonia Total as N	240			950		J	260		J	44	0
MOA01	0547	10/22/2008	Chloride	1400			16000			1800		J	44	0
MOA01	0547	10/22/2008	Total Dissolved Solids	8100			30000			10000			44	0
MOA01	0555	10/08/2008	Ammonia Total as N	140			450		F	170		F	9	0
MOA01	0555	10/08/2008	Manganese	2.9			4.6		F	3		J	8	0
MOA01	0555	10/08/2008	Sulfate	4600			8400		F	5200			9	0
MOA01	0555	10/08/2008	Total Dissolved Solids	8800			16000		F	9600			9	0
MOA01	0555	10/08/2008	Uranium	2			3.5		F	2.1			9	0
MOA01	0562	10/20/2008	Ammonia Total as N	150			140		FQ	1.2		FQ	27	0
MOA01	0565	10/22/2008	Manganese	1.1			0.69			0.313		E QFJ	6	0
MOA01	0598	10/21/2008	Selenium	0.0078			0.089		F	0.0089			12	0
MOA01	0611	10/21/2008	Uranium	0.03			0.0284		FQ	0.000019		B J	11	0
MOA01	0680	10/07/2008	Chloride	730			2400		F	810		J	10	0
MOA01	0680	10/07/2008	Manganese	2.4			5.3		F	2.7			7	0
MOA01	0681	10/07/2008	Manganese	5.2			4.7			1.8		F	7	0
MOA01	0689	10/07/2008	Manganese	7.8			7.7			3			21	0

Appendix B. Minimums and Maximums Reports (continued)

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0810024

Comparison: All Historical Data

Report Date: 12/28/2008

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	0725	10/15/2008	Chloride	500		230	J	49	J	15	1
MOA01	0726	10/15/2008	Ammonia Total as N	150		139	QF	8.8	J	13	0
MOA01	0726	10/15/2008	Chloride	900		350		57	J	11	0
MOA01	0726	10/15/2008	Manganese	2.8		1.7		0.12	QF	12	0
MOA01	0726	10/15/2008	Sulfate	5600		1800		340	J	12	0
MOA01	0726	10/15/2008	Total Dissolved Solids	10000		4520	QF	450		13	0
MOA01	0726	10/15/2008	Uranium	2		1.48	QF	0.11	J	13	0
MOA01	0730	10/09/2008	Ammonia Total as N	210		140	F	2.8		9	0
MOA01	0730	10/09/2008	Chloride	980		760	F	78	J	9	0
MOA01	0730	10/09/2008	Manganese	4		1.9	J	0.073	J	9	0
MOA01	0730	10/09/2008	Sulfate	6200		4100	F	300	J	9	0
MOA01	0730	10/09/2008	Total Dissolved Solids	11000		7800	F	580		9	0
MOA01	0731	10/09/2008	Chloride	550		430		50	J	10	0
MOA01	0731	10/09/2008	Sulfate	3200		2200	J	170	J	10	0
MOA01	0731	10/09/2008	Total Dissolved Solids	6000		4400		490		10	0
MOA01	0731	10/09/2008	Uranium	1.1		0.88		0.022	J	10	0
MOA01	0732	10/08/2008	Manganese	2.3		1.5	J	0.086	J	9	1
MOA01	0773	10/15/2008	Total Dissolved Solids	17000		78000	F	18000		8	0
MOA01	0777	10/15/2008	Chloride	4900		42000	F	5400		9	0

Appendix B. Minimums and Maximums Reports (continued)

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 0810024

Comparison: All Historical Data

Report Date: 12/28/2008

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	0777	10/15/2008	Total Dissolved Solids	14000		82000	F	15000			9	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 Tentatively identified compound (TIC) is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and contract-required detection limit (CRDL). Organic: Analyte also found in method blank.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative.
- 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: TIC.
- P > 25% difference in detected pesticide or Aroclor concentrations between two columns.
- U Analytical result below detection limit.
- W Postdigestion 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 three 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

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0216	SL	10/21/2008	0001	0.33	-	0.33	440		#		
Alkalinity, Total (As CaCO3)	mg/L	0243	SL	10/21/2008	0001	0.5	-	0.5	300		#		
Alkalinity, Total (As CaCO3)	mg/L	0245	SL	10/22/2008	0001	0.33	-	0.33	430		#		
Alkalinity, Total (As CaCO3)	mg/L	0403	WL	10/08/2008	0001	18	-	18	564		#		
Alkalinity, Total (As CaCO3)	mg/L	0407	WL	10/08/2008	0001	17	-	17	370		#		
Alkalinity, Total (As CaCO3)	mg/L	0408	WL	10/07/2008	0001	26	-	26	732		#		
Alkalinity, Total (As CaCO3)	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	894		#		
Alkalinity, Total (As CaCO3)	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	702		#		
Alkalinity, Total (As CaCO3)	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	680		#		
Alkalinity, Total (As CaCO3)	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	748		#		
Alkalinity, Total (As CaCO3)	mg/L	0481	WL	10/08/2008	0001	28	-	28	982		#		
Alkalinity, Total (As CaCO3)	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	1000		#		
Alkalinity, Total (As CaCO3)	mg/L	0547	TS	10/22/2008	0001	0	-	0	600		#		
Alkalinity, Total (As CaCO3)	mg/L	0548	TS	10/22/2008	0001	0	-	0	640		#		
Alkalinity, Total (As CaCO3)	mg/L	0555	WL	10/08/2008	0001	18	-	18	790		#		
Alkalinity, Total (As CaCO3)	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	600		#		
Alkalinity, Total (As CaCO3)	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	420		#		
Alkalinity, Total (As CaCO3)	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	240		#		
Alkalinity, Total (As CaCO3)	mg/L	0565	WL	10/22/2008	0001	4	-	5	1048		#		
Alkalinity, Total (As CaCO3)	mg/L	0581	WL	10/08/2008	0001	18	-	18	700		#		
Alkalinity, Total (As CaCO3)	mg/L	0585	WL	10/07/2008	0001	18	-	18	744		#		
Alkalinity, Total (As CaCO3)	mg/L	0589	WL	10/07/2008	0001	52	-	52	850		#		
Alkalinity, Total (As CaCO3)	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	616		#		
Alkalinity, Total (As CaCO3)	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	714		#		
Alkalinity, Total (As CaCO3)	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	700		#		
Alkalinity, Total (As CaCO3)	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	400		#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0607	WL	10/22/2008	0001	9.6	-	10.6	500		#		
Alkalinity, Total (As CaCO3)	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	436		#		
Alkalinity, Total (As CaCO3)	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	302		#		
Alkalinity, Total (As CaCO3)	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	260		#		
Alkalinity, Total (As CaCO3)	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	714		#		
Alkalinity, Total (As CaCO3)	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	650		#		
Alkalinity, Total (As CaCO3)	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	814		#		
Alkalinity, Total (As CaCO3)	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	1012		#		
Alkalinity, Total (As CaCO3)	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	1030		#		
Alkalinity, Total (As CaCO3)	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	780		#		
Alkalinity, Total (As CaCO3)	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	950		#		
Alkalinity, Total (As CaCO3)	mg/L	0680	WL	10/07/2008	0001	18	-	18	762		#		
Alkalinity, Total (As CaCO3)	mg/L	0681	WL	10/07/2008	0001	18	-	18	482		#		
Alkalinity, Total (As CaCO3)	mg/L	0684	WL	10/07/2008	0001	19	-	19	760		#		
Alkalinity, Total (As CaCO3)	mg/L	0688	WL	10/07/2008	0001	31	-	31	922		#		
Alkalinity, Total (As CaCO3)	mg/L	0689	WL	10/07/2008	0001	46	-	46	520		#		
Alkalinity, Total (As CaCO3)	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	520		#		
Alkalinity, Total (As CaCO3)	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	490		#		
Alkalinity, Total (As CaCO3)	mg/L	0730	WL	10/09/2008	0001	18	-	18	654		#		
Alkalinity, Total (As CaCO3)	mg/L	0731	WL	10/09/2008	0001	18	-	18	620		#		
Alkalinity, Total (As CaCO3)	mg/L	0732	WL	10/08/2008	0001	18	-	18	724		#		
Alkalinity, Total (As CaCO3)	mg/L	0733	WL	10/09/2008	0001	18	-	18	800		#		
Alkalinity, Total (As CaCO3)	mg/L	0771	WL	10/15/2008	0001	15	-	34.9	764		#		
Alkalinity, Total (As CaCO3)	mg/L	0773	WL	10/15/2008	0001	15.15	-	35.05	712		#		
Alkalinity, Total (As CaCO3)	mg/L	0775	WL	10/15/2008	0001	15.1	-	35	930		#		
Alkalinity, Total (As CaCO3)	mg/L	0777	WL	10/15/2008	0001	15.3	-	35.2	468		#		
Alkalinity, Total (As CaCO3)	mg/L	0779	WL	10/15/2008	0001	15.66	-	35.56	602		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

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	0780	WL	10/09/2008	0001	28	-	28	972			#		
Alkalinity, Total (As CaCO3)	mg/L	0783	WL	10/09/2008	0001	18	-	18	800			#		
Alkalinity, Total (As CaCO3)	mg/L	0784	WL	10/09/2008	0001	18	-	18	460			#		
Alkalinity, Total (As CaCO3)	mg/L	0785	WL	10/09/2008	0001	18	-	18	1138			#		
Ammonia Total as N	mg/L	0216	SL	10/21/2008	0001	0.33	-	0.33	2.2			#	0.1	
Ammonia Total as N	mg/L	0243	SL	10/21/2008	0001	0.5	-	0.5	0.51		J	#	0.1	
Ammonia Total as N	mg/L	0243	SL	10/21/2008	0002	0.5	-	0.5	0.39		J	#	0.1	
Ammonia Total as N	mg/L	0245	SL	10/22/2008	0001	0.33	-	0.33	0.1	U		#	0.1	
Ammonia Total as N	mg/L	0245	SL	10/22/2008	0002	0.33	-	0.33	0.1	U		#	0.1	
Ammonia Total as N	mg/L	0403	WL	10/08/2008	0001	18	-	18	190		J	#	10	
Ammonia Total as N	mg/L	0407	WL	10/08/2008	0001	17	-	17	110		J	#	10	
Ammonia Total as N	mg/L	0408	WL	10/07/2008	0001	26	-	26	360		J	#	10	
Ammonia Total as N	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	460		J	#	20	
Ammonia Total as N	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	240		J	#	20	
Ammonia Total as N	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	170		J	#	20	
Ammonia Total as N	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	250		J	#	20	
Ammonia Total as N	mg/L	0481	WL	10/08/2008	0001	28	-	28	630		J	#	20	
Ammonia Total as N	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	0.1	U	J	#	0.1	
Ammonia Total as N	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	110		J	#	20	
Ammonia Total as N	mg/L	0547	TS	10/22/2008	0001	0	-	0	240		J	#	20	
Ammonia Total as N	mg/L	0548	TS	10/22/2008	0001	0	-	0	380		J	#	20	
Ammonia Total as N	mg/L	0555	WL	10/08/2008	0001	18	-	18	140		J	#	10	
Ammonia Total as N	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	150		J	#	20	
Ammonia Total as N	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	94		J	#	20	
Ammonia Total as N	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	0.14			#	0.1	
Ammonia Total as N	mg/L	0565	WL	10/22/2008	0001	4	-	5	1.6			#	0.1	
Ammonia Total as N	mg/L	0581	WL	10/08/2008	0001	18	-	18	180		J	#	10	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0585	WL	10/07/2008	0001	18	-	18	240	J	#	10	
Ammonia Total as N	mg/L	0589	WL	10/07/2008	0001	52	-	52	660	J	#	50	
Ammonia Total as N	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	140		#	20	
Ammonia Total as N	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	170		#	20	
Ammonia Total as N	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	180		#	20	
Ammonia Total as N	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	160		#	20	
Ammonia Total as N	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	63		#	5	
Ammonia Total as N	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	110		#	20	
Ammonia Total as N	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	1		#	0.1	
Ammonia Total as N	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	9.5	J	#	0.5	
Ammonia Total as N	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	150	J	#	20	
Ammonia Total as N	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	150	J	#	20	
Ammonia Total as N	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	470	J	#	20	
Ammonia Total as N	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	650	J	#	20	
Ammonia Total as N	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	670	J	#	20	
Ammonia Total as N	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	610	J	#	20	
Ammonia Total as N	mg/L	0677	WL	10/15/2008	0002	15.2	-	45.2	790	J	#	20	
Ammonia Total as N	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	400	J	#	20	
Ammonia Total as N	mg/L	0680	WL	10/07/2008	0001	18	-	18	140	J	#	10	
Ammonia Total as N	mg/L	0681	WL	10/07/2008	0001	18	-	18	1.8	J	#	0.1	
Ammonia Total as N	mg/L	0684	WL	10/07/2008	0001	19	-	19	40	J	#	10	
Ammonia Total as N	mg/L	0688	WL	10/07/2008	0001	31	-	31	700	J	#	50	
Ammonia Total as N	mg/L	0689	WL	10/07/2008	0001	46	-	46	680	J	#	20	
Ammonia Total as N	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	1.3	J	#	0.1	
Ammonia Total as N	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	150	J	#	20	
Ammonia Total as N	mg/L	0730	WL	10/09/2008	0001	18	-	18	210	J	#	10	
Ammonia Total as N	mg/L	0731	WL	10/09/2008	0001	18	-	18	2.2	J	#	0.1	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range		Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	(Ft BLS)	Lab		Data	QA		
Ammonia Total as N	mg/L	0732	WL	10/08/2008	0001	18	- 18	2	J	#	0.1	
Ammonia Total as N	mg/L	0733	WL	10/09/2008	0001	18	- 18	2.1	J	#	0.1	
Ammonia Total as N	mg/L	0771	WL	10/15/2008	0001	15	- 34.9	340	J	#	20	
Ammonia Total as N	mg/L	0773	WL	10/15/2008	0001	15.15	- 35.05	340	J	#	20	
Ammonia Total as N	mg/L	0775	WL	10/15/2008	0001	15.1	- 35	740	J	#	20	
Ammonia Total as N	mg/L	0777	WL	10/15/2008	0001	15.3	- 35.2	390	J	#	20	
Ammonia Total as N	mg/L	0779	WL	10/15/2008	0001	15.66	- 35.56	790	J	#	20	
Ammonia Total as N	mg/L	0780	WL	10/09/2008	0001	28	- 28	440	J	#	20	
Ammonia Total as N	mg/L	0783	WL	10/09/2008	0001	18	- 18	120	J	#	10	
Ammonia Total as N	mg/L	0784	WL	10/09/2008	0001	18	- 18	14	J	#	2	
Ammonia Total as N	mg/L	0785	WL	10/09/2008	0001	18	- 18	18	J	#	2	
Chloride	mg/L	0216	SL	10/21/2008	0001	0.33	- 0.33	120		#	2	
Chloride	mg/L	0243	SL	10/21/2008	0001	0.5	- 0.5	100		#	2	
Chloride	mg/L	0243	SL	10/21/2008	0002	0.5	- 0.5	98	J	#	2	
Chloride	mg/L	0245	SL	10/22/2008	0001	0.33	- 0.33	99		#	2	
Chloride	mg/L	0245	SL	10/22/2008	0002	0.33	- 0.33	97	J	#	2	
Chloride	mg/L	0403	WL	10/08/2008	0001	18	- 18	1500	J	#	40	
Chloride	mg/L	0407	WL	10/08/2008	0001	17	- 17	1100	J	#	20	
Chloride	mg/L	0408	WL	10/07/2008	0001	26	- 26	1500	J	#	40	
Chloride	mg/L	0470	WL	10/15/2008	0001	10.3	- 19.7	2200	J	#	40	
Chloride	mg/L	0472	WL	10/15/2008	0001	10.3	- 19.7	800	J	#	20	
Chloride	mg/L	0476	WL	10/15/2008	0001	10.3	- 19.7	730	J	#	20	
Chloride	mg/L	0478	WL	10/15/2008	0001	9.6	- 23.9	1700	J	#	20	
Chloride	mg/L	0481	WL	10/08/2008	0001	28	- 28	3900	J	#	100	
Chloride	mg/L	0495	WL	10/21/2008	0001	4.6	- 5.6	1200		#	20	
Chloride	mg/L	0496	WL	10/21/2008	0001	2.2	- 3.2	790		#	20	
Chloride	mg/L	0547	TS	10/22/2008	0001	0	- 0	1400		#	20	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Chloride	mg/L	0548	TS	10/22/2008	0001	0	-	0	4800			#	100	
Chloride	mg/L	0555	WL	10/08/2008	0001	18	-	18	1000		J	#	40	
Chloride	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	1500			#	20	
Chloride	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	560			#	20	
Chloride	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	94			#	4	
Chloride	mg/L	0565	WL	10/22/2008	0001	4	-	5	93			#	4	
Chloride	mg/L	0581	WL	10/08/2008	0001	18	-	18	1300		J	#	40	
Chloride	mg/L	0585	WL	10/07/2008	0001	18	-	18	1300		J	#	40	
Chloride	mg/L	0589	WL	10/07/2008	0001	52	-	52	18000		J	#	400	
Chloride	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	490			#	20	
Chloride	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	550			#	20	
Chloride	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	670			#	20	
Chloride	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	630			#	20	
Chloride	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	220			#	10	
Chloride	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	690			#	10	
Chloride	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	130			#	2	
Chloride	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	130			#	4	
Chloride	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	840			#	20	
Chloride	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	730	N	J	#	20	
Chloride	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	3400		J	#	40	
Chloride	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	7700		J	#	100	
Chloride	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	6100		J	#	100	
Chloride	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	3800			#	40	
Chloride	mg/L	0677	WL	10/15/2008	0002	15.2	-	45.2	3800			#	40	
Chloride	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	2800		J	#	40	
Chloride	mg/L	0680	WL	10/07/2008	0001	18	-	18	730		J	#	20	
Chloride	mg/L	0681	WL	10/07/2008	0001	18	-	18	350		J	#	20	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range		Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	(Ft BLS)	Lab		Data	QA		
Chloride	mg/L	0684	WL	10/07/2008	0001	19	- 19	690		#	20	
Chloride	mg/L	0688	WL	10/07/2008	0001	31	- 31	4200	J	#	100	
Chloride	mg/L	0689	WL	10/07/2008	0001	46	- 46	39000	J	#	400	
Chloride	mg/L	0725	WL	10/15/2008	0001	4.6	- 5.6	500	J	#	10	
Chloride	mg/L	0726	WL	10/15/2008	0001	9.7	- 10.3	900	J	#	20	
Chloride	mg/L	0730	WL	10/09/2008	0001	18	- 18	980	J	#	40	
Chloride	mg/L	0731	WL	10/09/2008	0001	18	- 18	550	J	#	20	
Chloride	mg/L	0732	WL	10/08/2008	0001	18	- 18	330	J	#	20	
Chloride	mg/L	0733	WL	10/09/2008	0001	18	- 18	260	J	#	20	
Chloride	mg/L	0771	WL	10/15/2008	0001	15	- 34.9	8900	J	#	100	
Chloride	mg/L	0773	WL	10/15/2008	0001	15.15	- 35.05	5300	J	#	100	
Chloride	mg/L	0775	WL	10/15/2008	0001	15.1	- 35	4200	J	#	100	
Chloride	mg/L	0777	WL	10/15/2008	0001	15.3	- 35.2	4900		#	100	
Chloride	mg/L	0779	WL	10/15/2008	0001	15.66	- 35.56	9800		#	100	
Chloride	mg/L	0780	WL	10/09/2008	0001	28	- 28	3300	J	#	40	
Chloride	mg/L	0783	WL	10/09/2008	0001	18	- 18	1600	J	#	40	
Chloride	mg/L	0784	WL	10/09/2008	0001	18	- 18	98	J	#	4	
Chloride	mg/L	0785	WL	10/09/2008	0001	18	- 18	99	J	#	4	
Copper	mg/L	0785	WL	10/09/2008	0001	18	- 18	0.0028	B	#	0.0013	
Dissolved Oxygen	mg/L	0216	SL	10/21/2008	0001	0.33	- 0.33	10.23		#		
Dissolved Oxygen	mg/L	0243	SL	10/21/2008	0001	0.5	- 0.5	9.9		#		
Dissolved Oxygen	mg/L	0245	SL	10/22/2008	0001	0.33	- 0.33	11		#		
Dissolved Oxygen	mg/L	0403	WL	10/08/2008	0001	18	- 18	0.25		#		
Dissolved Oxygen	mg/L	0407	WL	10/08/2008	0001	17	- 17	0.42		#		
Dissolved Oxygen	mg/L	0408	WL	10/07/2008	0001	26	- 26	1.08		#		
Dissolved Oxygen	mg/L	0470	WL	10/15/2008	0001	10.3	- 19.7	2.79		#		
Dissolved Oxygen	mg/L	0472	WL	10/15/2008	0001	10.3	- 19.7	3.45		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

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	0476	WL	10/15/2008	0001	10.3	-	19.7	3		#		
Dissolved Oxygen	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	3.59		#		
Dissolved Oxygen	mg/L	0481	WL	10/08/2008	0001	28	-	28	0.26		#		
Dissolved Oxygen	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	5.33		#		
Dissolved Oxygen	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	2.6		#		
Dissolved Oxygen	mg/L	0547	TS	10/22/2008	0001	0	-	0	5.8		#		
Dissolved Oxygen	mg/L	0548	TS	10/22/2008	0001	0	-	0	6.19		#		
Dissolved Oxygen	mg/L	0555	WL	10/08/2008	0001	18	-	18	0.15		#		
Dissolved Oxygen	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	1.8		#		
Dissolved Oxygen	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	4.05		#		
Dissolved Oxygen	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	1.02		#		
Dissolved Oxygen	mg/L	0565	WL	10/22/2008	0001	4	-	5	1.13		#		
Dissolved Oxygen	mg/L	0581	WL	10/08/2008	0001	18	-	18	0.23		#		
Dissolved Oxygen	mg/L	0585	WL	10/07/2008	0001	18	-	18	0.48		#		
Dissolved Oxygen	mg/L	0589	WL	10/07/2008	0001	52	-	52	0.2		#		
Dissolved Oxygen	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	0.77		#		
Dissolved Oxygen	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	0.89		#		
Dissolved Oxygen	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	1.44		#		
Dissolved Oxygen	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	0.8		#		
Dissolved Oxygen	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	3.71		#		
Dissolved Oxygen	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	0.41		#		
Dissolved Oxygen	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	1.55		#		
Dissolved Oxygen	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	0.7		#		
Dissolved Oxygen	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	1.43		#		
Dissolved Oxygen	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	0.84		#		
Dissolved Oxygen	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	5.22		#		
Dissolved Oxygen	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	4.71		#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0674	WL	10/15/2008	0001	15.1	- 45.1	4.25		#		
Dissolved Oxygen	mg/L	0677	WL	10/15/2008	0001	15.2	- 45.2	6.02		#		
Dissolved Oxygen	mg/L	0678	WL	10/15/2008	0001	16.3	- 46.3	3.58		#		
Dissolved Oxygen	mg/L	0680	WL	10/07/2008	0001	18	- 18	0.47		#		
Dissolved Oxygen	mg/L	0681	WL	10/07/2008	0001	18	- 18	0.37		#		
Dissolved Oxygen	mg/L	0684	WL	10/07/2008	0001	19	- 19	0.45		#		
Dissolved Oxygen	mg/L	0688	WL	10/07/2008	0001	39	- 39	0.08		#		
Dissolved Oxygen	mg/L	0688	WL	10/07/2008	0001	31	- 31	0.15		#		
Dissolved Oxygen	mg/L	0689	WL	10/07/2008	0001	54	- 54	0.04		#		
Dissolved Oxygen	mg/L	0689	WL	10/07/2008	0001	46	- 46	0.06		#		
Dissolved Oxygen	mg/L	0725	WL	10/15/2008	0001	4.6	- 5.6	4.98		#		
Dissolved Oxygen	mg/L	0726	WL	10/15/2008	0001	9.7	- 10.3	3.56		#		
Dissolved Oxygen	mg/L	0730	WL	10/09/2008	0001	18	- 18	0.15		#		
Dissolved Oxygen	mg/L	0731	WL	10/09/2008	0001	18	- 18	0.19		#		
Dissolved Oxygen	mg/L	0732	WL	10/08/2008	0001	18	- 18	0.63		#		
Dissolved Oxygen	mg/L	0733	WL	10/09/2008	0001	18	- 18	0.38		#		
Dissolved Oxygen	mg/L	0771	WL	10/15/2008	0001	15	- 34.9	1.31		#		
Dissolved Oxygen	mg/L	0773	WL	10/15/2008	0001	15.15	- 35.05	4.56		#		
Dissolved Oxygen	mg/L	0775	WL	10/15/2008	0001	15.1	- 35	6.72		#		
Dissolved Oxygen	mg/L	0777	WL	10/15/2008	0001	15.3	- 35.2	3.46		#		
Dissolved Oxygen	mg/L	0779	WL	10/15/2008	0001	15.66	- 35.56	5.41		#		
Dissolved Oxygen	mg/L	0780	WL	10/09/2008	0001	28	- 28	0.51		#		
Dissolved Oxygen	mg/L	0783	WL	10/09/2008	0001	18	- 18	0.16		#		
Dissolved Oxygen	mg/L	0784	WL	10/09/2008	0001	18	- 18	0.51		#		
Dissolved Oxygen	mg/L	0785	WL	10/09/2008	0001	18	- 18	0.09		#		
Manganese	mg/L	0216	SL	10/21/2008	0001	0.33	- 0.33	0.067		#	0.0002	
Manganese	mg/L	0243	SL	10/21/2008	0001	0.5	- 0.5	0.014	E	#	0.0002	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Manganese	mg/L	0243	SL	10/21/2008	0002	0.5	-	0.5	0.012	E	#		0.0002	
Manganese	mg/L	0245	SL	10/22/2008	0001	0.33	-	0.33	0.008		#		0.0002	
Manganese	mg/L	0245	SL	10/22/2008	0002	0.33	-	0.33	0.0077		#		0.0002	
Manganese	mg/L	0403	WL	10/08/2008	0001	18	-	18	4.2		#		0.002	
Manganese	mg/L	0407	WL	10/08/2008	0001	17	-	17	2.1		#		0.001	
Manganese	mg/L	0408	WL	10/07/2008	0001	26	-	26	4.5		#		0.002	
Manganese	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	3.8		#		0.002	
Manganese	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	2.7		#		0.001	
Manganese	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	2.4		#		0.001	
Manganese	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	2.8		#		0.001	
Manganese	mg/L	0481	WL	10/08/2008	0001	28	-	28	5.4		#		0.0051	
Manganese	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	1.1		#		0.002	
Manganese	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	1.6		#		0.002	
Manganese	mg/L	0547	TS	10/22/2008	0001	0	-	0	2.8		#		0.002	
Manganese	mg/L	0548	TS	10/22/2008	0001	0	-	0	2.3		#		0.002	
Manganese	mg/L	0555	WL	10/08/2008	0001	18	-	18	2.9		#		0.002	
Manganese	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	4.6		#		0.002	
Manganese	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	0.86		#		0.001	
Manganese	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	0.59		#		0.0002	
Manganese	mg/L	0565	WL	10/22/2008	0001	4	-	5	1.1		#		0.0002	
Manganese	mg/L	0581	WL	10/08/2008	0001	18	-	18	3		#		0.002	
Manganese	mg/L	0585	WL	10/07/2008	0001	18	-	18	3.7		#		0.002	
Manganese	mg/L	0589	WL	10/07/2008	0001	52	-	52	5.7		#		0.1	
Manganese	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	2.2		#		0.001	
Manganese	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	2.2		#		0.001	
Manganese	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	2.4		#		0.002	
Manganese	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	0.29		#		0.001	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Manganese	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	0.037		#	0.00041	
Manganese	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	0.16		#	0.001	
Manganese	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	1.5		#	0.0002	
Manganese	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	0.57		#	0.0002	
Manganese	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	3.4		#	0.001	
Manganese	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	2.6		#	0.001	
Manganese	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	4.7		#	0.002	
Manganese	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	4.9		#	0.002	
Manganese	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	4.9		#	0.002	
Manganese	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	5.4		#	0.002	
Manganese	mg/L	0677	WL	10/15/2008	0002	15.2	-	45.2	5.3		#	0.002	
Manganese	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	4.7		#	0.002	
Manganese	mg/L	0680	WL	10/07/2008	0001	18	-	18	2.4		#	0.001	
Manganese	mg/L	0681	WL	10/07/2008	0001	18	-	18	5.2		#	0.001	
Manganese	mg/L	0684	WL	10/07/2008	0001	19	-	19	1.8		#	0.001	
Manganese	mg/L	0688	WL	10/07/2008	0001	31	-	31	4.2		#	0.01	
Manganese	mg/L	0689	WL	10/07/2008	0001	46	-	46	7.8		#	0.02	
Manganese	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	2.2	J	#	0.00041	
Manganese	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	2.8		#	0.001	
Manganese	mg/L	0730	WL	10/09/2008	0001	18	-	18	4		#	0.002	
Manganese	mg/L	0731	WL	10/09/2008	0001	18	-	18	1.3		#	0.001	
Manganese	mg/L	0732	WL	10/08/2008	0001	18	-	18	2.3		#	0.001	
Manganese	mg/L	0733	WL	10/09/2008	0001	18	-	18	2.1		#	0.001	
Manganese	mg/L	0771	WL	10/15/2008	0001	15	-	34.9	3.6		#	0.002	
Manganese	mg/L	0773	WL	10/15/2008	0001	15.15	-	35.05	4		#	0.002	
Manganese	mg/L	0775	WL	10/15/2008	0001	15.1	-	35	5.1		#	0.002	
Manganese	mg/L	0777	WL	10/15/2008	0001	15.3	-	35.2	3.3		#	0.002	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Manganese	mg/L	0779	WL	10/15/2008	0001	15.66	-	35.56	4.5		#	0.0051	
Manganese	mg/L	0780	WL	10/09/2008	0001	28	-	28	6		#	0.002	
Manganese	mg/L	0783	WL	10/09/2008	0001	18	-	18	3.2		#	0.002	
Manganese	mg/L	0784	WL	10/09/2008	0001	18	-	18	1.8		#	0.0002	
Manganese	mg/L	0785	WL	10/09/2008	0001	18	-	18	0.71		#	0.0002	
Oxidation Reduction Potential	mV	0216	SL	10/21/2008	0001	0.33	-	0.33	-78		#		
Oxidation Reduction Potential	mV	0243	SL	10/21/2008	0001	0.5	-	0.5	-38		#		
Oxidation Reduction Potential	mV	0245	SL	10/22/2008	0001	0.33	-	0.33	-68		#		
Oxidation Reduction Potential	mV	0403	WL	10/08/2008	0001	18	-	18	-45		#		
Oxidation Reduction Potential	mV	0407	WL	10/08/2008	0001	17	-	17	-121		#		
Oxidation Reduction Potential	mV	0408	WL	10/07/2008	0001	26	-	26	-70		#		
Oxidation Reduction Potential	mV	0470	WL	10/15/2008	0001	10.3	-	19.7	79		#		
Oxidation Reduction Potential	mV	0472	WL	10/15/2008	0001	10.3	-	19.7	63		#		
Oxidation Reduction Potential	mV	0476	WL	10/15/2008	0001	10.3	-	19.7	30		#		
Oxidation Reduction Potential	mV	0478	WL	10/15/2008	0001	9.6	-	23.9	33		#		
Oxidation Reduction Potential	mV	0481	WL	10/08/2008	0001	28	-	28	-90		#		
Oxidation Reduction Potential	mV	0495	WL	10/21/2008	0001	4.6	-	5.6	-44		#		
Oxidation Reduction Potential	mV	0496	WL	10/21/2008	0001	2.2	-	3.2	-162		#		
Oxidation Reduction Potential	mV	0547	TS	10/22/2008	0001	0	-	0	-22		#		
Oxidation Reduction Potential	mV	0548	TS	10/22/2008	0001	0	-	0	-17		#		
Oxidation Reduction Potential	mV	0555	WL	10/08/2008	0001	18	-	18	-42		#		
Oxidation Reduction Potential	mV	0562	WL	10/20/2008	0001	1.3	-	2.3	7		#		
Oxidation Reduction Potential	mV	0563	WL	10/20/2008	0001	4.6	-	5.6	-93		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

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	0564	WL	10/22/2008	0001	1.2	-	2.2	-150			#		
Oxidation Reduction Potential	mV	0565	WL	10/22/2008	0001	4	-	5	-128			#		
Oxidation Reduction Potential	mV	0581	WL	10/08/2008	0001	18	-	18	-22			#		
Oxidation Reduction Potential	mV	0585	WL	10/07/2008	0001	18	-	18	-76			#		
Oxidation Reduction Potential	mV	0589	WL	10/07/2008	0001	52	-	52	-54			#		
Oxidation Reduction Potential	mV	0597	WL	10/21/2008	0001	9.3	-	10.3	-52			#		
Oxidation Reduction Potential	mV	0598	WL	10/21/2008	0001	9.1	-	10.1	-52			#		
Oxidation Reduction Potential	mV	0599	WL	10/21/2008	0001	9.4	-	10.4	-9			#		
Oxidation Reduction Potential	mV	0606	WL	10/20/2008	0001	9.3	-	10.3	-148			#		
Oxidation Reduction Potential	mV	0607	WL	10/22/2008	0001	9.6	-	10.6	-139			#		
Oxidation Reduction Potential	mV	0608	WL	10/21/2008	0001	8.9	-	9.9	-158			#		
Oxidation Reduction Potential	mV	0611	WL	10/21/2008	0001	2.2	-	3.2	-86			#		
Oxidation Reduction Potential	mV	0612	WL	10/21/2008	0001	4.3	-	5.3	-103			#		
Oxidation Reduction Potential	mV	0617	WL	10/21/2008	0001	1.7	-	2.7	-34			#		
Oxidation Reduction Potential	mV	0618	WL	10/21/2008	0001	5.3	-	6.3	-23			#		
Oxidation Reduction Potential	mV	0671	WL	10/15/2008	0001	14.4	-	44.4	70			#		
Oxidation Reduction Potential	mV	0673	WL	10/15/2008	0001	16.3	-	46.3	38			#		
Oxidation Reduction Potential	mV	0674	WL	10/15/2008	0001	15.1	-	45.1	7			#		
Oxidation Reduction Potential	mV	0677	WL	10/15/2008	0001	15.2	-	45.2	5			#		
Oxidation Reduction Potential	mV	0678	WL	10/15/2008	0001	16.3	-	46.3	32			#		
Oxidation Reduction Potential	mV	0680	WL	10/07/2008	0001	18	-	18	-70			#		
Oxidation Reduction Potential	mV	0681	WL	10/07/2008	0001	18	-	18	-84			#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0684	WL	10/07/2008	0001	19	-	19	-74			#		
Oxidation Reduction Potential	mV	0688	WL	10/07/2008	0001	31	-	31	-81			#		
Oxidation Reduction Potential	mV	0688	WL	10/07/2008	0001	39	-	39	-61			#		
Oxidation Reduction Potential	mV	0689	WL	10/07/2008	0001	54	-	54	-63			#		
Oxidation Reduction Potential	mV	0689	WL	10/07/2008	0001	46	-	46	-41			#		
Oxidation Reduction Potential	mV	0725	WL	10/15/2008	0001	4.6	-	5.6	-176			#		
Oxidation Reduction Potential	mV	0726	WL	10/15/2008	0001	9.7	-	10.3	-221			#		
Oxidation Reduction Potential	mV	0730	WL	10/09/2008	0001	18	-	18	-107			#		
Oxidation Reduction Potential	mV	0731	WL	10/09/2008	0001	18	-	18	-98			#		
Oxidation Reduction Potential	mV	0732	WL	10/08/2008	0001	18	-	18	-90			#		
Oxidation Reduction Potential	mV	0733	WL	10/09/2008	0001	18	-	18	-71			#		
Oxidation Reduction Potential	mV	0771	WL	10/15/2008	0001	15	-	34.9	197			#		
Oxidation Reduction Potential	mV	0773	WL	10/15/2008	0001	15.15	-	35.05	137			#		
Oxidation Reduction Potential	mV	0775	WL	10/15/2008	0001	15.1	-	35	161			#		
Oxidation Reduction Potential	mV	0777	WL	10/15/2008	0001	15.3	-	35.2	128			#		
Oxidation Reduction Potential	mV	0779	WL	10/15/2008	0001	15.66	-	35.56	119			#		
Oxidation Reduction Potential	mV	0780	WL	10/09/2008	0001	28	-	28	-116			#		
Oxidation Reduction Potential	mV	0783	WL	10/09/2008	0001	18	-	18	-131			#		
Oxidation Reduction Potential	mV	0784	WL	10/09/2008	0001	18	-	18	-135			#		
Oxidation Reduction Potential	mV	0785	WL	10/09/2008	0001	18	-	18	-151			#		
pH	s.u.	0216	SL	10/21/2008	0001	0.33	-	0.33	8.41			#		
pH	s.u.	0243	SL	10/21/2008	0001	0.5	-	0.5	8.3			#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
pH	s.u.	0245	SL	10/22/2008	0001	0.33	-	0.33	8.23		#		
pH	s.u.	0403	WL	10/08/2008	0001	18	-	18	6.84		#		
pH	s.u.	0407	WL	10/08/2008	0001	17	-	17	7.18		#		
pH	s.u.	0408	WL	10/07/2008	0001	26	-	26	6.73		#		
pH	s.u.	0470	WL	10/15/2008	0001	10.3	-	19.7	7.13		#		
pH	s.u.	0472	WL	10/15/2008	0001	10.3	-	19.7	7.12		#		
pH	s.u.	0476	WL	10/15/2008	0001	10.3	-	19.7	7.14		#		
pH	s.u.	0478	WL	10/15/2008	0001	9.6	-	23.9	7.04		#		
pH	s.u.	0481	WL	10/08/2008	0001	28	-	28	6.84		#		
pH	s.u.	0495	WL	10/21/2008	0001	4.6	-	5.6	7.2		#		
pH	s.u.	0496	WL	10/21/2008	0001	2.2	-	3.2	8.44		#		
pH	s.u.	0547	TS	10/22/2008	0001	0	-	0	7.05		#		
pH	s.u.	0548	TS	10/22/2008	0001	0	-	0	7.86		#		
pH	s.u.	0555	WL	10/08/2008	0001	18	-	18	6.73		#		
pH	s.u.	0562	WL	10/20/2008	0001	1.3	-	2.3	6.88		#		
pH	s.u.	0563	WL	10/20/2008	0001	4.6	-	5.6	8.16		#		
pH	s.u.	0564	WL	10/22/2008	0001	1.2	-	2.2	7.13		#		
pH	s.u.	0565	WL	10/22/2008	0001	4	-	5	7.67		#		
pH	s.u.	0581	WL	10/08/2008	0001	18	-	18	6.84		#		
pH	s.u.	0585	WL	10/07/2008	0001	18	-	18	6.76		#		
pH	s.u.	0589	WL	10/07/2008	0001	52	-	52	6.71		#		
pH	s.u.	0597	WL	10/21/2008	0001	9.3	-	10.3	7		#		
pH	s.u.	0598	WL	10/21/2008	0001	9.1	-	10.1	7.4		#		
pH	s.u.	0599	WL	10/21/2008	0001	9.4	-	10.4	7.12		#		
pH	s.u.	0606	WL	10/20/2008	0001	9.3	-	10.3	8.06		#		
pH	s.u.	0607	WL	10/22/2008	0001	9.6	-	10.6	8.64		#		
pH	s.u.	0608	WL	10/21/2008	0001	8.9	-	9.9	8.18		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
pH	s.u.	0611	WL	10/21/2008	0001	2.2	-	3.2	7.48		#		
pH	s.u.	0612	WL	10/21/2008	0001	4.3	-	5.3	7.72		#		
pH	s.u.	0617	WL	10/21/2008	0001	1.7	-	2.7	7.25		#		
pH	s.u.	0618	WL	10/21/2008	0001	5.3	-	6.3	7.15		#		
pH	s.u.	0671	WL	10/15/2008	0001	14.4	-	44.4	6.99		#		
pH	s.u.	0673	WL	10/15/2008	0001	16.3	-	46.3	6.93		#		
pH	s.u.	0674	WL	10/15/2008	0001	15.1	-	45.1	7.09		#		
pH	s.u.	0677	WL	10/15/2008	0001	15.2	-	45.2	7.03		#		
pH	s.u.	0678	WL	10/15/2008	0001	16.3	-	46.3	7.05		#		
pH	s.u.	0680	WL	10/07/2008	0001	18	-	18	6.8		#		
pH	s.u.	0681	WL	10/07/2008	0001	18	-	18	6.86		#		
pH	s.u.	0684	WL	10/07/2008	0001	19	-	19	6.74		#		
pH	s.u.	0688	WL	10/07/2008	0001	39	-	39	6.68		#		
pH	s.u.	0688	WL	10/07/2008	0001	31	-	31	6.89		#		
pH	s.u.	0689	WL	10/07/2008	0001	46	-	46	6.69		#		
pH	s.u.	0689	WL	10/07/2008	0001	54	-	54	6.72		#		
pH	s.u.	0725	WL	10/15/2008	0001	4.6	-	5.6	7.69		#		
pH	s.u.	0726	WL	10/15/2008	0001	9.7	-	10.3	8.62		#		
pH	s.u.	0730	WL	10/09/2008	0001	18	-	18	6.88		#		
pH	s.u.	0731	WL	10/09/2008	0001	18	-	18	6.78		#		
pH	s.u.	0732	WL	10/08/2008	0001	18	-	18	6.77		#		
pH	s.u.	0733	WL	10/09/2008	0001	18	-	18	6.8		#		
pH	s.u.	0771	WL	10/15/2008	0001	15	-	34.9	6.73		#		
pH	s.u.	0773	WL	10/15/2008	0001	15.15	-	35.05	6.99		#		
pH	s.u.	0775	WL	10/15/2008	0001	15.1	-	35	7.04		#		
pH	s.u.	0777	WL	10/15/2008	0001	15.3	-	35.2	7.1		#		
pH	s.u.	0779	WL	10/15/2008	0001	15.66	-	35.56	7.04		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
pH	s.u.	0780	WL	10/09/2008	0001	28	-	28	6.86			#		
pH	s.u.	0783	WL	10/09/2008	0001	18	-	18	7.01			#		
pH	s.u.	0784	WL	10/09/2008	0001	18	-	18	7.06			#		
pH	s.u.	0785	WL	10/09/2008	0001	18	-	18	7.55			#		
Selenium	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	0.019		J	#	0.00012	
Selenium	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	0.0013		J	#	0.00012	
Selenium	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	0.0097		J	#	0.00012	
Selenium	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	0.0078		J	#	0.00012	
Selenium	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	0.012		J	#	0.00012	
Selenium	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	0.0067		J	#	0.00012	
Selenium	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	0.0083		J	#	0.00012	
Selenium	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	0.013		J	#	0.00012	
Selenium	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	0.00072			#	0.00012	
Selenium	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	0.007			#	0.00012	
Specific Conductance	µmhos/cm	0216	SL	10/21/2008	0001	0.33	-	0.33	1294			#		
Specific Conductance	µmhos/cm	0243	SL	10/21/2008	0001	0.5	-	0.5	1202			#		
Specific Conductance	µmhos/cm	0245	SL	10/22/2008	0001	0.33	-	0.33	1062			#		
Specific Conductance	µmhos/cm	0403	WL	10/08/2008	0001	18	-	18	10320			#		
Specific Conductance	µmhos/cm	0407	WL	10/08/2008	0001	17	-	17	6343			#		
Specific Conductance	µmhos/cm	0408	WL	10/07/2008	0001	26	-	26	15537			#		
Specific Conductance	µmhos/cm	0470	WL	10/15/2008	0001	10.3	-	19.7	15222			#		
Specific Conductance	µmhos/cm	0472	WL	10/15/2008	0001	10.3	-	19.7	8185			#		
Specific Conductance	µmhos/cm	0476	WL	10/15/2008	0001	10.3	-	19.7	7688			#		
Specific Conductance	µmhos/cm	0478	WL	10/15/2008	0001	9.6	-	23.9	11863			#		
Specific Conductance	µmhos/cm	0481	WL	10/08/2008	0001	28	-	28	21775			#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Specific Conductance	µmhos/cm	0495	WL	10/21/2008	0001	4.6	-	5.6	8944		#		
Specific Conductance	µmhos/cm	0496	WL	10/21/2008	0001	2.2	-	3.2	6411		#		
Specific Conductance	µmhos/cm	0547	TS	10/22/2008	0001	0	-	0	8435		#		
Specific Conductance	µmhos/cm	0548	TS	10/22/2008	0001	0	-	0	15949		#		
Specific Conductance	µmhos/cm	0555	WL	10/08/2008	0001	18	-	18	9897		#		
Specific Conductance	µmhos/cm	0562	WL	10/20/2008	0001	1.3	-	2.3	10652		#		
Specific Conductance	µmhos/cm	0563	WL	10/20/2008	0001	4.6	-	5.6	3676		#		
Specific Conductance	µmhos/cm	0564	WL	10/22/2008	0001	1.2	-	2.2	1057		#		
Specific Conductance	µmhos/cm	0565	WL	10/22/2008	0001	4	-	5	1064		#		
Specific Conductance	µmhos/cm	0581	WL	10/08/2008	0001	18	-	18	11457		#		
Specific Conductance	µmhos/cm	0585	WL	10/07/2008	0001	18	-	18	13803		#		
Specific Conductance	µmhos/cm	0589	WL	10/07/2008	0001	52	-	52	63227		#		
Specific Conductance	µmhos/cm	0597	WL	10/21/2008	0001	9.3	-	10.3	6524		#		
Specific Conductance	µmhos/cm	0598	WL	10/21/2008	0001	9.1	-	10.1	6638		#		
Specific Conductance	µmhos/cm	0599	WL	10/21/2008	0001	9.4	-	10.4	8375		#		
Specific Conductance	µmhos/cm	0606	WL	10/20/2008	0001	9.3	-	10.3	5446		#		
Specific Conductance	µmhos/cm	0607	WL	10/22/2008	0001	9.6	-	10.6	2085		#		
Specific Conductance	µmhos/cm	0608	WL	10/21/2008	0001	8.9	-	9.9	1455		#		
Specific Conductance	µmhos/cm	0611	WL	10/21/2008	0001	2.2	-	3.2	1394		#		
Specific Conductance	µmhos/cm	0612	WL	10/21/2008	0001	4.3	-	5.3	1434		#		
Specific Conductance	µmhos/cm	0617	WL	10/21/2008	0001	1.7	-	2.7	8931		#		
Specific Conductance	µmhos/cm	0618	WL	10/21/2008	0001	5.3	-	6.3	8418		#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Specific Conductance	µmhos/cm	0671	WL	10/15/2008	0001	14.4	-	44.4	19773			#		
Specific Conductance	µmhos/cm	0673	WL	10/15/2008	0001	16.3	-	46.3	28949			#		
Specific Conductance	µmhos/cm	0674	WL	10/15/2008	0001	15.1	-	45.1	27840			#		
Specific Conductance	µmhos/cm	0677	WL	10/15/2008	0001	15.2	-	45.2	22418			#		
Specific Conductance	µmhos/cm	0678	WL	10/15/2008	0001	16.3	-	46.3	18006			#		
Specific Conductance	µmhos/cm	0680	WL	10/07/2008	0001	18	-	18	9447			#		
Specific Conductance	µmhos/cm	0681	WL	10/07/2008	0001	18	-	18	5578			#		
Specific Conductance	µmhos/cm	0684	WL	10/07/2008	0001	19	-	19	10121			#		
Specific Conductance	µmhos/cm	0688	WL	10/07/2008	0001	31	-	31	30442			#		
Specific Conductance	µmhos/cm	0688	WL	10/07/2008	0001	39	-	39	76048			#		
Specific Conductance	µmhos/cm	0689	WL	10/07/2008	0001	46	-	46	99348			#		
Specific Conductance	µmhos/cm	0689	WL	10/07/2008	0001	54	-	54	104371			#		
Specific Conductance	µmhos/cm	0725	WL	10/15/2008	0001	4.6	-	5.6	4347			#		
Specific Conductance	µmhos/cm	0726	WL	10/15/2008	0001	9.7	-	10.3	2389			#		
Specific Conductance	µmhos/cm	0730	WL	10/09/2008	0001	18	-	18	11617			#		
Specific Conductance	µmhos/cm	0731	WL	10/09/2008	0001	18	-	18	6348			#		
Specific Conductance	µmhos/cm	0732	WL	10/08/2008	0001	18	-	18	5440			#		
Specific Conductance	µmhos/cm	0733	WL	10/09/2008	0001	18	-	18	6055			#		
Specific Conductance	µmhos/cm	0771	WL	10/15/2008	0001	15	-	34.9	27557			#		
Specific Conductance	µmhos/cm	0773	WL	10/15/2008	0001	15.15	-	35.05	21971			#		
Specific Conductance	µmhos/cm	0775	WL	10/15/2008	0001	15.1	-	35	22925			#		
Specific Conductance	µmhos/cm	0777	WL	10/15/2008	0001	15.3	-	35.2	19848			#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID					Lab	Data	QA		
Specific Conductance	µmhos/cm	0779	WL	10/15/2008	0001	15.66	-	35.56	30482			#		
Specific Conductance	µmhos/cm	0780	WL	10/09/2008	0001	28	-	28	21625			#		
Specific Conductance	µmhos/cm	0783	WL	10/09/2008	0001	18	-	18	11200			#		
Specific Conductance	µmhos/cm	0784	WL	10/09/2008	0001	18	-	18	2021			#		
Specific Conductance	µmhos/cm	0785	WL	10/09/2008	0001	18	-	18	1216			#		
Sulfate	mg/L	0216	SL	10/21/2008	0001	0.33	-	0.33	370	N		#	5	
Sulfate	mg/L	0243	SL	10/21/2008	0001	0.5	-	0.5	320			#	5	
Sulfate	mg/L	0243	SL	10/21/2008	0002	0.5	-	0.5	320		J	#	5	
Sulfate	mg/L	0245	SL	10/22/2008	0001	0.33	-	0.33	310			#	5	
Sulfate	mg/L	0245	SL	10/22/2008	0002	0.33	-	0.33	310		J	#	5	
Sulfate	mg/L	0403	WL	10/08/2008	0001	18	-	18	4200		J	#	100	
Sulfate	mg/L	0407	WL	10/08/2008	0001	17	-	17	1900		J	#	50	
Sulfate	mg/L	0408	WL	10/07/2008	0001	26	-	26	6800		J	#	100	
Sulfate	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	5900		J	#	100	
Sulfate	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	2900		J	#	50	
Sulfate	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	2900		J	#	50	
Sulfate	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	5000		J	#	50	
Sulfate	mg/L	0481	WL	10/08/2008	0001	28	-	28	9800		J	#	250	
Sulfate	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	4100			#	50	
Sulfate	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	3100			#	50	
Sulfate	mg/L	0547	TS	10/22/2008	0001	0	-	0	4300			#	50	
Sulfate	mg/L	0548	TS	10/22/2008	0001	0	-	0	7600			#	100	
Sulfate	mg/L	0555	WL	10/08/2008	0001	18	-	18	4600		J	#	100	
Sulfate	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	4700			#	50	
Sulfate	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	1700			#	50	
Sulfate	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	290			#	10	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	Lab	Data	QA					
Sulfate	mg/L	0565	WL	10/22/2008	0001	4	-	5	260		#	10	
Sulfate	mg/L	0581	WL	10/08/2008	0001	18	-	18	5200	J	#	100	
Sulfate	mg/L	0585	WL	10/07/2008	0001	18	-	18	5500	J	#	100	
Sulfate	mg/L	0589	WL	10/07/2008	0001	52	-	52	11000	J	#	1000	
Sulfate	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	2800		#	50	
Sulfate	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	3600		#	50	
Sulfate	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	4100		#	50	
Sulfate	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	1800		#	50	
Sulfate	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	390		#	5	
Sulfate	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	1200		#	25	
Sulfate	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	390		#	5	
Sulfate	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	390		#	10	
Sulfate	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	4400		#	50	
Sulfate	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	4100	J	#	50	
Sulfate	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	7500	J	#	100	
Sulfate	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	8200	J	#	250	
Sulfate	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	9100	J	#	100	
Sulfate	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	9300	J	#	100	
Sulfate	mg/L	0677	WL	10/15/2008	0002	15.2	-	45.2	9200		#	100	
Sulfate	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	7200	J	#	100	
Sulfate	mg/L	0680	WL	10/07/2008	0001	18	-	18	3700	J	#	50	
Sulfate	mg/L	0681	WL	10/07/2008	0001	18	-	18	2300	J	#	50	
Sulfate	mg/L	0684	WL	10/07/2008	0001	19	-	19	4300	J	#	50	
Sulfate	mg/L	0688	WL	10/07/2008	0001	31	-	31	12000	J	#	250	
Sulfate	mg/L	0689	WL	10/07/2008	0001	46	-	46	9200	J	#	1000	
Sulfate	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	2200	J	#	25	
Sulfate	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	5600	J	#	50	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
				Date	ID	Lab	Data		QA				
Sulfate	mg/L	0730	WL	10/09/2008	0001	18	- 18	6200	J	#	100		
Sulfate	mg/L	0731	WL	10/09/2008	0001	18	- 18	3200	J	#	50		
Sulfate	mg/L	0732	WL	10/08/2008	0001	18	- 18	2900	J	#	50		
Sulfate	mg/L	0733	WL	10/09/2008	0001	18	- 18	3300	J	#	50		
Sulfate	mg/L	0771	WL	10/15/2008	0001	15	- 34.9	5100	J	#	100		
Sulfate	mg/L	0773	WL	10/15/2008	0001	15.15	- 35.05	6000	J	#	100		
Sulfate	mg/L	0775	WL	10/15/2008	0001	15.1	- 35	9000	J	#	100		
Sulfate	mg/L	0777	WL	10/15/2008	0001	15.3	- 35.2	5100		#	100		
Sulfate	mg/L	0779	WL	10/15/2008	0001	15.66	- 35.56	5900		#	250		
Sulfate	mg/L	0780	WL	10/09/2008	0001	28	- 28	11000	J	#	100		
Sulfate	mg/L	0783	WL	10/09/2008	0001	18	- 18	5900	J	#	100		
Sulfate	mg/L	0784	WL	10/09/2008	0001	18	- 18	900	N	J	#	10	
Sulfate	mg/L	0785	WL	10/09/2008	0001	18	- 18	230	J	#	10		
Temperature	C	0216	SL	10/21/2008	0001	0.33	- 0.33	15.83		#			
Temperature	C	0243	SL	10/21/2008	0001	0.5	- 0.5	11.12		#			
Temperature	C	0245	SL	10/22/2008	0001	0.33	- 0.33	11.53		#			
Temperature	C	0403	WL	10/08/2008	0001	18	- 18	15.53		#			
Temperature	C	0407	WL	10/08/2008	0001	17	- 17	15.83		#			
Temperature	C	0408	WL	10/07/2008	0001	26	- 26	17.24		#			
Temperature	C	0470	WL	10/15/2008	0001	10.3	- 19.7	16.6		#			
Temperature	C	0472	WL	10/15/2008	0001	10.3	- 19.7	16.7		#			
Temperature	C	0476	WL	10/15/2008	0001	10.3	- 19.7	17.06		#			
Temperature	C	0478	WL	10/15/2008	0001	9.6	- 23.9	16.49		#			
Temperature	C	0481	WL	10/08/2008	0001	28	- 28	16.43		#			
Temperature	C	0495	WL	10/21/2008	0001	4.6	- 5.6	15.81		#			
Temperature	C	0496	WL	10/21/2008	0001	2.2	- 3.2	15.28		#			
Temperature	C	0547	TS	10/22/2008	0001	0	- 0	19.46		#			

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Temperature	C	0548	TS	10/22/2008	0001	0	-	0	15.56		#		
Temperature	C	0555	WL	10/08/2008	0001	18	-	18	16.55		#		
Temperature	C	0562	WL	10/20/2008	0001	1.3	-	2.3	13.88		#		
Temperature	C	0563	WL	10/20/2008	0001	4.6	-	5.6	14.73		#		
Temperature	C	0564	WL	10/22/2008	0001	1.2	-	2.2	12.51		#		
Temperature	C	0565	WL	10/22/2008	0001	4	-	5	13.59		#		
Temperature	C	0581	WL	10/08/2008	0001	18	-	18	16.46		#		
Temperature	C	0585	WL	10/07/2008	0001	18	-	18	18.39		#		
Temperature	C	0589	WL	10/07/2008	0001	52	-	52	17.31		#		
Temperature	C	0597	WL	10/21/2008	0001	9.3	-	10.3	16.86		#		
Temperature	C	0598	WL	10/21/2008	0001	9.1	-	10.1	15.68		#		
Temperature	C	0599	WL	10/21/2008	0001	9.4	-	10.4	14.31		#		
Temperature	C	0606	WL	10/20/2008	0001	9.3	-	10.3	14.36		#		
Temperature	C	0607	WL	10/22/2008	0001	9.6	-	10.6	14.27		#		
Temperature	C	0608	WL	10/21/2008	0001	8.9	-	9.9	14.69		#		
Temperature	C	0611	WL	10/21/2008	0001	2.2	-	3.2	15.3		#		
Temperature	C	0612	WL	10/21/2008	0001	4.3	-	5.3	15.61		#		
Temperature	C	0617	WL	10/21/2008	0001	1.7	-	2.7	11.77		#		
Temperature	C	0618	WL	10/21/2008	0001	5.3	-	6.3	14.5		#		
Temperature	C	0671	WL	10/15/2008	0001	14.4	-	44.4	17.12		#		
Temperature	C	0673	WL	10/15/2008	0001	16.3	-	46.3	15.82		#		
Temperature	C	0674	WL	10/15/2008	0001	15.1	-	45.1	17.84		#		
Temperature	C	0677	WL	10/15/2008	0001	15.2	-	45.2	16.21		#		
Temperature	C	0678	WL	10/15/2008	0001	16.3	-	46.3	16.87		#		
Temperature	C	0680	WL	10/07/2008	0001	18	-	18	19.17		#		
Temperature	C	0681	WL	10/07/2008	0001	18	-	18	16.84		#		
Temperature	C	0684	WL	10/07/2008	0001	19	-	19	16.03		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range		Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	(Ft BLS)	Lab		Data	QA		
Temperature	C	0688	WL	10/07/2008	0001	39	- 39	16.03		#		
Temperature	C	0688	WL	10/07/2008	0001	31	- 31	16.61		#		
Temperature	C	0689	WL	10/07/2008	0001	46	- 46	16.23		#		
Temperature	C	0689	WL	10/07/2008	0001	54	- 54	16.23		#		
Temperature	C	0725	WL	10/15/2008	0001	4.6	- 5.6	17.89		#		
Temperature	C	0726	WL	10/15/2008	0001	9.7	- 10.3	18.22		#		
Temperature	C	0730	WL	10/09/2008	0001	18	- 18	18.82		#		
Temperature	C	0731	WL	10/09/2008	0001	18	- 18	18.79		#		
Temperature	C	0732	WL	10/08/2008	0001	18	- 18	18.67		#		
Temperature	C	0733	WL	10/09/2008	0001	18	- 18	17.47		#		
Temperature	C	0771	WL	10/15/2008	0001	15	- 34.9	15.6		#		
Temperature	C	0773	WL	10/15/2008	0001	15.15	- 35.05	15.05		#		
Temperature	C	0775	WL	10/15/2008	0001	15.1	- 35	15.35		#		
Temperature	C	0777	WL	10/15/2008	0001	15.3	- 35.2	15.18		#		
Temperature	C	0779	WL	10/15/2008	0001	15.66	- 35.56	14.97		#		
Temperature	C	0780	WL	10/09/2008	0001	28	- 28	17.18		#		
Temperature	C	0783	WL	10/09/2008	0001	18	- 18	18.02		#		
Temperature	C	0784	WL	10/09/2008	0001	18	- 18	17.84		#		
Temperature	C	0785	WL	10/09/2008	0001	18	- 18	15.64		#		
Total Dissolved Solids	mg/L	0216	SL	10/21/2008	0001	0.33	- 0.33	830		#	40	
Total Dissolved Solids	mg/L	0243	SL	10/21/2008	0001	0.5	- 0.5	750		#	40	
Total Dissolved Solids	mg/L	0243	SL	10/21/2008	0002	0.5	- 0.5	720		#	40	
Total Dissolved Solids	mg/L	0245	SL	10/22/2008	0001	0.33	- 0.33	740		#	40	
Total Dissolved Solids	mg/L	0245	SL	10/22/2008	0002	0.33	- 0.33	720		#	40	
Total Dissolved Solids	mg/L	0403	WL	10/08/2008	0001	18	- 18	8600		#	400	
Total Dissolved Solids	mg/L	0407	WL	10/08/2008	0001	17	- 17	4300		#	200	
Total Dissolved Solids	mg/L	0408	WL	10/07/2008	0001	26	- 26	12000		#	400	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data	QA					
Total Dissolved Solids	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	12000		#	400	
Total Dissolved Solids	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	5800		#	200	
Total Dissolved Solids	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	5800		#	200	
Total Dissolved Solids	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	10000		#	200	
Total Dissolved Solids	mg/L	0481	WL	10/08/2008	0001	28	-	28	19000		#	400	
Total Dissolved Solids	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	8800		#	200	
Total Dissolved Solids	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	5700		#	200	
Total Dissolved Solids	mg/L	0547	TS	10/22/2008	0001	0	-	0	8100		#	200	
Total Dissolved Solids	mg/L	0548	TS	10/22/2008	0001	0	-	0	17000		#	400	
Total Dissolved Solids	mg/L	0555	WL	10/08/2008	0001	18	-	18	8800		#	200	
Total Dissolved Solids	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	9100		#	200	
Total Dissolved Solids	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	3200		#	200	
Total Dissolved Solids	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	730		#	40	
Total Dissolved Solids	mg/L	0565	WL	10/22/2008	0001	4	-	5	700		#	40	
Total Dissolved Solids	mg/L	0581	WL	10/08/2008	0001	18	-	18	10000		#	400	
Total Dissolved Solids	mg/L	0585	WL	10/07/2008	0001	18	-	18	11000		#	400	
Total Dissolved Solids	mg/L	0589	WL	10/07/2008	0001	52	-	52	42000		#	4000	
Total Dissolved Solids	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	5100		#	200	
Total Dissolved Solids	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	5800		#	200	
Total Dissolved Solids	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	7000		#	200	
Total Dissolved Solids	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	3300		#	200	
Total Dissolved Solids	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	1200		#	80	
Total Dissolved Solids	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	2700		#	80	
Total Dissolved Solids	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	960		#	40	
Total Dissolved Solids	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	980		#	40	
Total Dissolved Solids	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	7700		#	200	
Total Dissolved Solids	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	6900	J	#	200	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

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	0671	WL	10/15/2008	0001	14.4	- 44.4	16000		#	400	
Total Dissolved Solids	mg/L	0673	WL	10/15/2008	0001	16.3	- 46.3	24000		#	400	
Total Dissolved Solids	mg/L	0674	WL	10/15/2008	0001	15.1	- 45.1	22000		#	400	
Total Dissolved Solids	mg/L	0677	WL	10/15/2008	0001	15.2	- 45.2	19000		#	400	
Total Dissolved Solids	mg/L	0677	WL	10/15/2008	0002	15.2	- 45.2	19000		#	400	
Total Dissolved Solids	mg/L	0678	WL	10/15/2008	0001	16.3	- 46.3	15000		#	400	
Total Dissolved Solids	mg/L	0680	WL	10/07/2008	0001	18	- 18	6600		#	200	
Total Dissolved Solids	mg/L	0681	WL	10/07/2008	0001	18	- 18	4600		#	200	
Total Dissolved Solids	mg/L	0684	WL	10/07/2008	0001	19	- 19	7500		#	200	
Total Dissolved Solids	mg/L	0688	WL	10/07/2008	0001	31	- 31	22000		#	1000	
Total Dissolved Solids	mg/L	0689	WL	10/07/2008	0001	46	- 46	69000		#	2000	
Total Dissolved Solids	mg/L	0725	WL	10/15/2008	0001	4.6	- 5.6	4300		#	80	
Total Dissolved Solids	mg/L	0726	WL	10/15/2008	0001	9.7	- 10.3	10000		#	200	
Total Dissolved Solids	mg/L	0730	WL	10/09/2008	0001	18	- 18	11000		#	200	
Total Dissolved Solids	mg/L	0731	WL	10/09/2008	0001	18	- 18	6000		#	200	
Total Dissolved Solids	mg/L	0732	WL	10/08/2008	0001	18	- 18	5400		#	200	
Total Dissolved Solids	mg/L	0733	WL	10/09/2008	0001	18	- 18	5900		#	200	
Total Dissolved Solids	mg/L	0771	WL	10/15/2008	0001	15	- 34.9	21000		#	400	
Total Dissolved Solids	mg/L	0773	WL	10/15/2008	0001	15.15	- 35.05	17000		#	400	
Total Dissolved Solids	mg/L	0775	WL	10/15/2008	0001	15.1	- 35	19000		#	400	
Total Dissolved Solids	mg/L	0777	WL	10/15/2008	0001	15.3	- 35.2	14000		#	400	
Total Dissolved Solids	mg/L	0779	WL	10/15/2008	0001	15.66	- 35.56	23000		#	400	
Total Dissolved Solids	mg/L	0780	WL	10/09/2008	0001	28	- 28	20000		#	400	
Total Dissolved Solids	mg/L	0783	WL	10/09/2008	0001	18	- 18	11000		#	200	
Total Dissolved Solids	mg/L	0784	WL	10/09/2008	0001	18	- 18	1800		#	40	
Total Dissolved Solids	mg/L	0785	WL	10/09/2008	0001	18	- 18	720	J	#	20	
Turbidity	NTU	0216	SL	10/21/2008	0001	0.33	- 0.33	158		#		

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Turbidity	NTU	0243	SL	10/21/2008	0001	0.5	-	0.5	90.4		#		
Turbidity	NTU	0245	SL	10/22/2008	0001	0.33	-	0.33	46.9		#		
Turbidity	NTU	0403	WL	10/08/2008	0001	18	-	18	0.7		#		
Turbidity	NTU	0407	WL	10/08/2008	0001	17	-	17	1		#		
Turbidity	NTU	0408	WL	10/07/2008	0001	26	-	26	8.53		#		
Turbidity	NTU	0470	WL	10/15/2008	0001	10.3	-	19.7	2.64		#		
Turbidity	NTU	0472	WL	10/15/2008	0001	10.3	-	19.7	2.64		#		
Turbidity	NTU	0476	WL	10/15/2008	0001	10.3	-	19.7	3.77		#		
Turbidity	NTU	0478	WL	10/15/2008	0001	9.6	-	23.9	1.26		#		
Turbidity	NTU	0481	WL	10/08/2008	0001	28	-	28	2.55		#		
Turbidity	NTU	0495	WL	10/21/2008	0001	4.6	-	5.6	181.2		#		
Turbidity	NTU	0547	TS	10/22/2008	0001	0	-	0	15.6		#		
Turbidity	NTU	0548	TS	10/22/2008	0001	0	-	0	8.08		#		
Turbidity	NTU	0555	WL	10/08/2008	0001	18	-	18	2.08		#		
Turbidity	NTU	0562	WL	10/20/2008	0001	1.3	-	2.3	18.5		#		
Turbidity	NTU	0563	WL	10/20/2008	0001	4.6	-	5.6	64.2		#		
Turbidity	NTU	0564	WL	10/22/2008	0001	1.2	-	2.2	16.5		#		
Turbidity	NTU	0565	WL	10/22/2008	0001	4	-	5	50.5		#		
Turbidity	NTU	0581	WL	10/08/2008	0001	18	-	18	8.2		#		
Turbidity	NTU	0585	WL	10/07/2008	0001	18	-	18	1.15		#		
Turbidity	NTU	0589	WL	10/07/2008	0001	52	-	52	11.98		#		
Turbidity	NTU	0597	WL	10/21/2008	0001	9.3	-	10.3	12.2		#		
Turbidity	NTU	0598	WL	10/21/2008	0001	9.1	-	10.1	7.76		#		
Turbidity	NTU	0599	WL	10/21/2008	0001	9.4	-	10.4	59.2		#		
Turbidity	NTU	0606	WL	10/20/2008	0001	9.3	-	10.3	49.7		#		
Turbidity	NTU	0608	WL	10/21/2008	0001	8.9	-	9.9	549		#		
Turbidity	NTU	0611	WL	10/21/2008	0001	2.2	-	3.2	13.4		#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Turbidity	NTU	0612	WL	10/21/2008	0001	4.3	-	5.3	6.83		#		
Turbidity	NTU	0618	WL	10/21/2008	0001	5.3	-	6.3	52.4		#		
Turbidity	NTU	0671	WL	10/15/2008	0001	14.4	-	44.4	6.34		#		
Turbidity	NTU	0673	WL	10/15/2008	0001	16.3	-	46.3	6.34		#		
Turbidity	NTU	0674	WL	10/15/2008	0001	15.1	-	45.1	2.92		#		
Turbidity	NTU	0677	WL	10/15/2008	0001	15.2	-	45.2	2.92		#		
Turbidity	NTU	0678	WL	10/15/2008	0001	16.3	-	46.3	1.42		#		
Turbidity	NTU	0680	WL	10/07/2008	0001	18	-	18	1.02		#		
Turbidity	NTU	0681	WL	10/07/2008	0001	18	-	18	7.23		#		
Turbidity	NTU	0684	WL	10/07/2008	0001	19	-	19	1.4		#		
Turbidity	NTU	0688	WL	10/07/2008	0001	31	-	31	1.07		#		
Turbidity	NTU	0688	WL	10/07/2008	0001	39	-	39	2.95		#		
Turbidity	NTU	0689	WL	10/07/2008	0001	46	-	46	1.11		#		
Turbidity	NTU	0689	WL	10/07/2008	0001	54	-	54	3.06		#		
Turbidity	NTU	0726	WL	10/15/2008	0001	9.7	-	10.3	132		#		
Turbidity	NTU	0730	WL	10/09/2008	0001	18	-	18	0.77		#		
Turbidity	NTU	0731	WL	10/09/2008	0001	18	-	18	2.6		#		
Turbidity	NTU	0732	WL	10/08/2008	0001	18	-	18	0.87		#		
Turbidity	NTU	0733	WL	10/09/2008	0001	18	-	18	0.97		#		
Turbidity	NTU	0771	WL	10/15/2008	0001	15	-	34.9	1.14		#		
Turbidity	NTU	0773	WL	10/15/2008	0001	15.15	-	35.05	0.92		#		
Turbidity	NTU	0775	WL	10/15/2008	0001	15.1	-	35	2.11		#		
Turbidity	NTU	0777	WL	10/15/2008	0001	15.3	-	35.2	6.62		#		
Turbidity	NTU	0779	WL	10/15/2008	0001	15.66	-	35.56	1.03		#		
Turbidity	NTU	0780	WL	10/09/2008	0001	28	-	28	1.42		#		
Turbidity	NTU	0783	WL	10/09/2008	0001	18	-	18	0.97		#		
Turbidity	NTU	0784	WL	10/09/2008	0001	18	-	18	1.94		#		

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID	Lab	Data	QA					
Turbidity	NTU	0785	WL	10/09/2008	0001	18	-	18	5.43		#		
Uranium	mg/L	0216	SL	10/21/2008	0001	0.33	-	0.33	0.031		#	4.5E-006	
Uranium	mg/L	0243	SL	10/21/2008	0001	0.5	-	0.5	0.017		#	4.5E-006	
Uranium	mg/L	0243	SL	10/21/2008	0002	0.5	-	0.5	0.015		#	4.5E-006	
Uranium	mg/L	0245	SL	10/22/2008	0001	0.33	-	0.33	0.01		#	4.5E-006	
Uranium	mg/L	0245	SL	10/22/2008	0002	0.33	-	0.33	0.0099		#	4.5E-006	
Uranium	mg/L	0403	WL	10/08/2008	0001	18	-	18	1.4	J	#	0.00022	
Uranium	mg/L	0407	WL	10/08/2008	0001	17	-	17	0.48	J	#	0.00022	
Uranium	mg/L	0408	WL	10/07/2008	0001	26	-	26	2.4		#	0.00045	
Uranium	mg/L	0470	WL	10/15/2008	0001	10.3	-	19.7	2.1		#	0.00022	
Uranium	mg/L	0472	WL	10/15/2008	0001	10.3	-	19.7	1.1		#	0.00022	
Uranium	mg/L	0476	WL	10/15/2008	0001	10.3	-	19.7	1.1		#	0.00022	
Uranium	mg/L	0478	WL	10/15/2008	0001	9.6	-	23.9	1.9		#	0.00022	
Uranium	mg/L	0481	WL	10/08/2008	0001	28	-	28	3.2		#	0.00045	
Uranium	mg/L	0495	WL	10/21/2008	0001	4.6	-	5.6	4.8		#	0.00045	
Uranium	mg/L	0496	WL	10/21/2008	0001	2.2	-	3.2	6.2		#	0.00045	
Uranium	mg/L	0547	TS	10/22/2008	0001	0	-	0	1.5		#	0.00022	
Uranium	mg/L	0548	TS	10/22/2008	0001	0	-	0	2.3		#	0.00022	
Uranium	mg/L	0555	WL	10/08/2008	0001	18	-	18	2		#	0.00045	
Uranium	mg/L	0562	WL	10/20/2008	0001	1.3	-	2.3	1.5	J	#	0.00022	
Uranium	mg/L	0563	WL	10/20/2008	0001	4.6	-	5.6	0.55		#	0.00022	
Uranium	mg/L	0564	WL	10/22/2008	0001	1.2	-	2.2	0.0079		#	4.5E-006	
Uranium	mg/L	0565	WL	10/22/2008	0001	4	-	5	0.01		#	4.5E-006	
Uranium	mg/L	0581	WL	10/08/2008	0001	18	-	18	2.6		#	0.00045	
Uranium	mg/L	0585	WL	10/07/2008	0001	18	-	18	2.5		#	0.00045	
Uranium	mg/L	0589	WL	10/07/2008	0001	52	-	52	2.6		#	0.00045	
Uranium	mg/L	0597	WL	10/21/2008	0001	9.3	-	10.3	1.1		#	0.00022	

Appendix C. Water Quality Data (continued)

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

REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Uranium	mg/L	0598	WL	10/21/2008	0001	9.1	-	10.1	1.5		#	0.00022	
Uranium	mg/L	0599	WL	10/21/2008	0001	9.4	-	10.4	1.7		#	0.00022	
Uranium	mg/L	0606	WL	10/20/2008	0001	9.3	-	10.3	0.44		#	0.00022	
Uranium	mg/L	0607	WL	10/22/2008	0001	9.6	-	10.6	0.64		#	0.00022	
Uranium	mg/L	0608	WL	10/21/2008	0001	8.9	-	9.9	0.3		#	0.00022	
Uranium	mg/L	0611	WL	10/21/2008	0001	2.2	-	3.2	0.03		#	4.5E-006	
Uranium	mg/L	0612	WL	10/21/2008	0001	4.3	-	5.3	0.091		#	4.5E-005	
Uranium	mg/L	0617	WL	10/21/2008	0001	1.7	-	2.7	2		#	0.00022	
Uranium	mg/L	0618	WL	10/21/2008	0001	5.3	-	6.3	1.7		#	0.00022	
Uranium	mg/L	0671	WL	10/15/2008	0001	14.4	-	44.4	2.3		#	0.00022	
Uranium	mg/L	0673	WL	10/15/2008	0001	16.3	-	46.3	2.1		#	0.00022	
Uranium	mg/L	0674	WL	10/15/2008	0001	15.1	-	45.1	2.4		#	0.00022	
Uranium	mg/L	0677	WL	10/15/2008	0001	15.2	-	45.2	2.3		#	0.00045	
Uranium	mg/L	0677	WL	10/15/2008	0002	15.2	-	45.2	2.7		#	0.00022	
Uranium	mg/L	0678	WL	10/15/2008	0001	16.3	-	46.3	2.1		#	0.00045	
Uranium	mg/L	0680	WL	10/07/2008	0001	18	-	18	1.9		#	0.00045	
Uranium	mg/L	0681	WL	10/07/2008	0001	18	-	18	0.6		#	4.5E-005	
Uranium	mg/L	0684	WL	10/07/2008	0001	19	-	19	1.8		#	0.00022	
Uranium	mg/L	0688	WL	10/07/2008	0001	31	-	31	2.7		#	0.00022	
Uranium	mg/L	0689	WL	10/07/2008	0001	46	-	46	1.2		#	0.00022	
Uranium	mg/L	0725	WL	10/15/2008	0001	4.6	-	5.6	0.63		#	0.00022	
Uranium	mg/L	0726	WL	10/15/2008	0001	9.7	-	10.3	2		#	0.00022	
Uranium	mg/L	0730	WL	10/09/2008	0001	18	-	18	2.1		#	0.00045	
Uranium	mg/L	0731	WL	10/09/2008	0001	18	-	18	1.1		#	0.00022	
Uranium	mg/L	0732	WL	10/08/2008	0001	18	-	18	0.78		#	0.00022	
Uranium	mg/L	0733	WL	10/09/2008	0001	18	-	18	0.9		#	0.00022	
Uranium	mg/L	0771	WL	10/15/2008	0001	15	-	34.9	1.5		#	0.00022	

Appendix C. Water Quality Data (continued)

October 2008 Monthly Sampling Event – General Water Quality Data by Parameter (USEE205) FOR SITE MOA01, Moab Site
 REPORT DATE: 4/14/2009

Parameter	Units	Location ID	Location Type	Sample		Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
				Date	ID					Lab	Data QA		
Uranium	mg/L	0773	WL	10/15/2008	0001	15.15	-	35.05	2		#	0.00022	
Uranium	mg/L	0775	WL	10/15/2008	0001	15.1	-	35	3		#	0.00022	
Uranium	mg/L	0777	WL	10/15/2008	0001	15.3	-	35.2	1.7		#	0.00022	
Uranium	mg/L	0779	WL	10/15/2008	0001	15.66	-	35.56	1.7		#	0.00022	
Uranium	mg/L	0780	WL	10/09/2008	0001	28	-	28	3.5		#	0.00045	
Uranium	mg/L	0783	WL	10/09/2008	0001	18	-	18	1.8		#	0.00045	
Uranium	mg/L	0784	WL	10/09/2008	0001	18	-	18	0.35		#	4.5E-005	
Uranium	mg/L	0785	WL	10/09/2008	0001	18	-	18	0.096		J #	4.5E-005	

Note: BLS = below land surface; C = centigrade; µmhos/cm = micromhos per centimeter; mV = millivolt; NTU = nephelometric turbidity unit; SL = surface location; S.U. = standard unit; TS = treatment system; WL = well

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 Tentatively identified compound (TIC) is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and contract-required detection limit. Organic: Analyte also found in method blank.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative.
- 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: TIC.
- P > 25% difference in detected pesticide or Aroclor concentrations between two columns.
- U Analytical result below detection limit.
- W Postdigestion 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 three 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

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 1/12/2009

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0403	O	3968.95	10/08/2008		15.68	3953.27	
0407	O	3969.09	10/08/2008		16.3	3952.79	
0408	O	3969.17	10/07/2008		15.35	3953.82	
0470		3964.12	10/15/2008		13.35	3950.77	
0472		3964.4	10/15/2008		12.31	3952.09	
0476		3965.24	10/15/2008		13.19	3952.05	
0478		3964.91	10/15/2008		13.22	3951.69	
0481		3968.83	10/08/2008		15.28	3953.55	
0495		3959.89	10/21/2008		4.85	3955.04	
0496		3956.98	10/21/2008		1.45	3955.53	
0555		3969.31	10/07/2008		15.86	3953.45	
0562		3955.37	10/20/2008		2.66	3952.71	
0563		3958.04	10/20/2008		5.37	3952.67	
0564		3956.03	10/22/2008		3.17	3952.86	
0565		3955.47	10/22/2008		2.63	3952.84	
0581		3969.02	10/08/2008		15.3	3953.72	
0585		3969.36	10/07/2008		15.3	3954.06	
0589		3968.87	10/07/2008		14.6	3954.27	
0597		3959.11	10/21/2008		4.39	3954.72	
0598		3957.01	10/21/2008		2.45	3954.56	
0599		3956.52	10/21/2008		2.3	3954.22	
0606		3955.69	10/20/2008		2.84	3952.85	
0607		3955.62	10/22/2008		2.82	3952.8	
0608		3955.71	10/21/2008		3.87	3951.84	
0611		3957.48	10/21/2008		4.73	3952.75	
0612		3955.27	10/21/2008		4.9	3950.37	
0617		3955.85	10/21/2008		2	3953.85	

Appendix D. Water Level Data (continued)

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 1/12/2009

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0618		3955.16	10/21/2008		1	3954.16	
0671		3969.5	10/15/2008		16.37	3953.13	
0673		3969.44	10/15/2008		17.55	3951.89	
0674		3969.49	10/15/2008		17.7	3951.79	
0677		3969.61	10/15/2008		16.11	3953.5	
0678		3969.65	10/15/2008		16.11	3953.54	
0680		3969.8	10/07/2008		16.26	3953.54	
0681		3970.67	10/07/2008		17.38	3953.29	
0684		3970.22	10/07/2008		16.65	3953.57	
0688		3968.66	10/07/2008		15.33	3953.33	
0689		3968.66	10/07/2008		13.33	3955.33	
0725		3959.95	10/15/2008		5.25	3954.7	
0726		3958.81	10/15/2008		5.95	3952.86	
0730		3967.6	10/09/2008		13.22	3954.38	
0731		3968.77	10/09/2008		15.1	3953.67	
0732		3968.99	10/08/2008		14.7	3954.29	
0733		3968.5	10/09/2008		14.94	3953.56	
0771		3969.04	10/15/2008		17.15	3951.89	
0773		3969.15	10/15/2008		17.73	3951.42	
0775		3969.18	10/15/2008		16.91	3952.27	
0777		3968.76	10/15/2008		17.05	3951.71	
0779		3968.43	10/15/2008		16.38	3952.05	
0780		3968.45	10/09/2008		15.88	3952.57	
0783		3968.82	10/09/2008		15.85	3952.97	
0784		3968.73	10/09/2008		15.84	3952.89	
0785		3969.24	10/09/2008		16.04	3953.2	

Flow Codes: B = background; C = cross gradient; D = downgradient; O = on site; U = upgradient
 Water Level Flags: D = dry

Appendix E.
Equipment Blanks Report

Appendix E. Equipment Blanks Report

BLANKS REPORT

LAB: PARAGON (Fort Collins, CO)

RIN: 0810024

Report Date: 12/28/2008

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	10/22/2008	N001	mg/L	0.1	U	0.1		E
Chloride	MOA01	0999	10/22/2008	N001	mg/L	0.2	U	0.2		E
Manganese	MOA01	0999	10/22/2008	N001	mg/L	0.0011	B	0.0002		E
Sulfate	MOA01	0999	10/22/2008	N001	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	10/22/2008	N001	mg/L	20	U	20		E
Uranium	MOA01	0999	10/22/2008	N001	mg/L	3.2E-005	B	4.5E-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 Tentatively identified compound (TIC) is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and the contract-required detection limit. Organic: Analyte also found in method blank.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative.
- 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: TIC.
- P > 25% difference in detected pesticide or Aroclor concentrations between two columns.
- U Analytical result below detection limit.
- W Postdigestion 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 three 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.

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report



DATE: October 27, 2008

TO: K. Pill, M. Mullis

FROM: E. Glowiak

SUBJECT: Trip Report

Site: Moab – Interim Action Well Field Monthly Sampling – October 2008

Date of Sampling Event: October 7 - October 22, 2008

Team Members: Steve Back, Elizabeth Glowiak, Ryan Moran, Ken Pill

RIN Number Assigned: All samples were assigned to RIN 0810024.

Sample Shipment: All samples were shipped in a cooler overnight UPS to Paragon Analytics, Inc. from Moab, Utah, on October 1, 9, 16, and 22 (Tracking Nos. 91714663, 98250820, 93845894, and 94298715).

October 2008 CF1 Sampling

Number of Locations Sampled: Four extraction wells (0470, 0472, 0476, and 0478), four observation wells (0403, 0407, 0481, and 0555), nine well points (0562, 0563, 0606, 0608, 0611, 0612, 0564, 0565, and 0607), two surface water locations (0216 and 0245) and two evaporation pond locations (0547 and 0548) were sampled. Including one duplicate and one EB, a total of 23 samples were collected during the October 2008 monthly sampling event.

Locations Not Sampled: None

Field Variance: None

Quality-Control Sample Cross Reference: Following are the false identifications assigned to the quality-control samples.

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2008	0245	Duplicate of Surface Water	Surface Water	NFC 970
2010	N/A	EB of sample tubing	DI Water	NFC 867

Note: DI = deionized; ID = identification

Attachment 1. Interim Action Well Field Monthly Sampling Trip Report (continued)

Location-Specific Information – CF1 Extraction Wells: Extraction wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0470	10/15/2008	10:44	13.35	18
0472	10/15/2008	10:54	12.31	18
0476	10/15/2008	11:25	13.19	18
0478	10/15/2008	11:33	13.22	23

Note: btoc = below top of casing

Location-Specific Information – Observation Wells: All observation wells were sampled using micropurge 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	10/08/2008	09:17	15.68	18
0407	10/08/2008	10:47	16.30	17
0481	10/08/2008	10:18	15.28	28
0555	10/08/2008	09:44	15.86	18

Note: btoc = below top of casing

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)
0562	10/20/2008	15:49	2.66	2.20	Dry
0563	10/20/2008	16:13	5.37	2.80	Dry
0606	10/20/2008	16:00	2.84	1.50	Dry
0608	10/21/2008	15:47	3.87	0	Dry
0611	10/21/2008	15:35	4.73	2.04	Dry
0612	10/21/2008	15:22	4.90	1.95	Dry
0564	10/22/2008	10:10	3.17	2.33	Dry
0565	10/22/2008	10:33	2.63	1.70	Dry
0607	10/22/2008	10:20	2.82	1.75	Dry

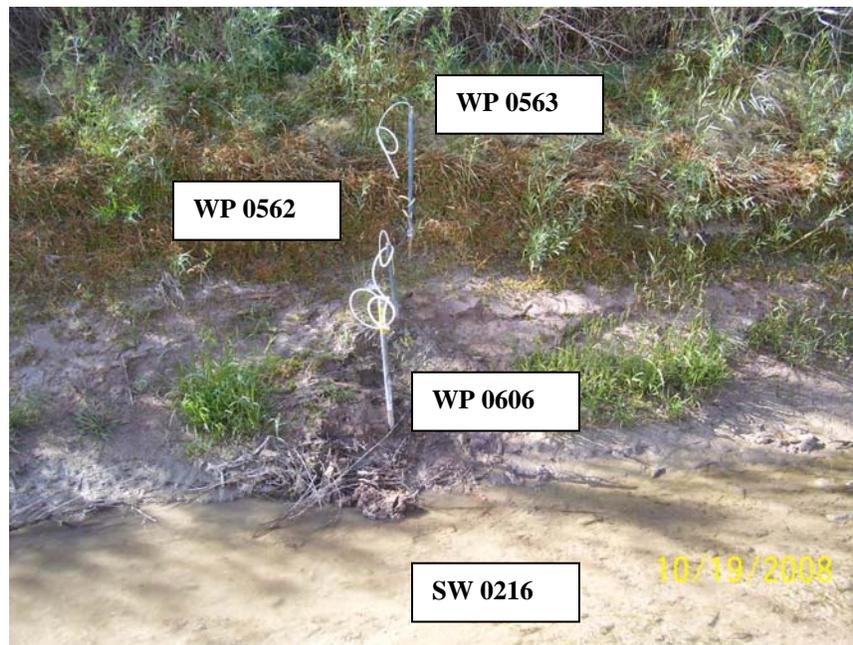
Note: btoc = below top of casing; WP = well point

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

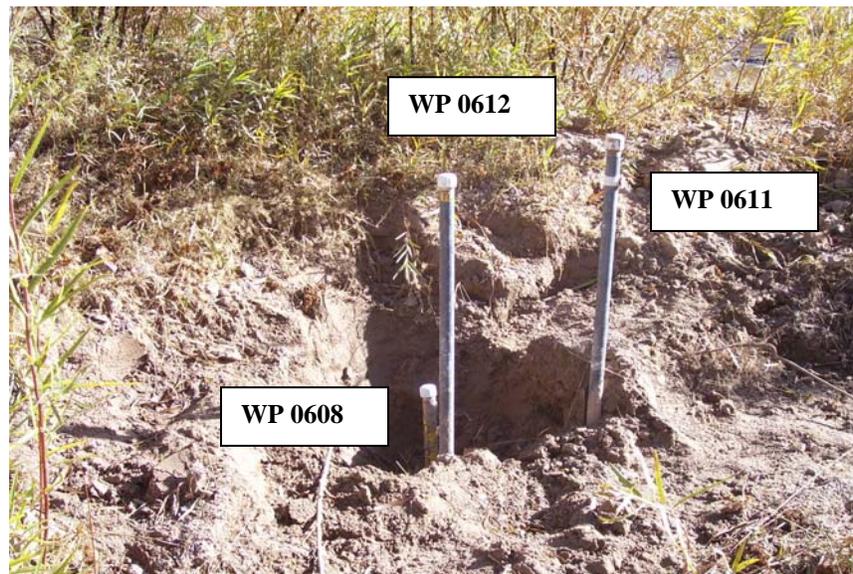
SW No.	Date	Time	Depth (inches below surface)	Characteristics
0216	10/21/2008	15:58	4"	Open up and down river, mossy substrate, slow flow
0245	10/22/2008	10:40	4"	Open up and down river, moderate flow

Note: SW = surface water

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)

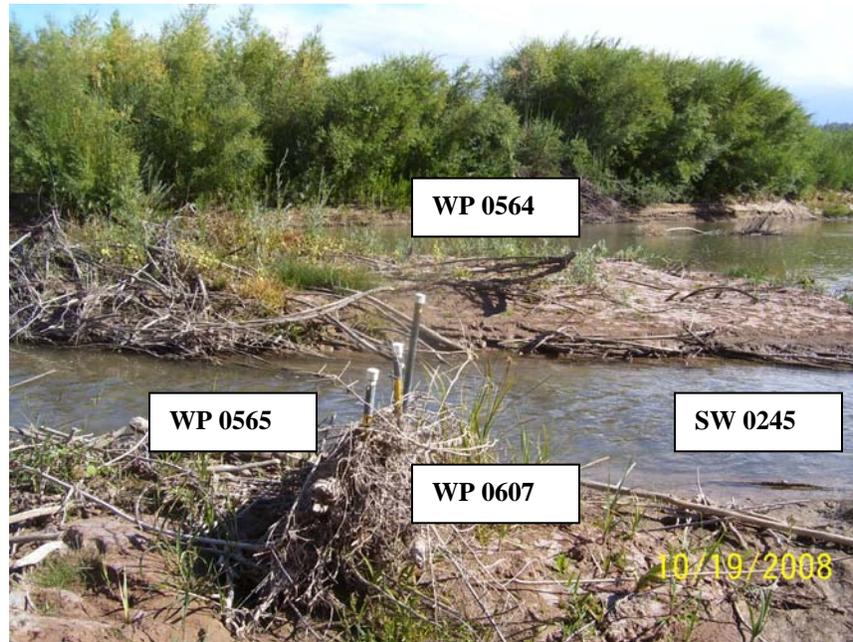


CF1 River Bank Well Points



CF1 Intermediate Well Points

**Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)**



CF1 River Edge Well Points

October 2008 CF2 Sampling

Number of Locations Sampled: Four observation wells (0408, 0581, 0585, and 0589) were sampled during the October 2008 monthly sampling event.

Locations Not Sampled: None

Field Variance: None

Location-Specific Information – Observation Wells: All observation wells were sampled using micropurge 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)
0408	10/07/2008	14:23	15.35	26
0581	10/08/2008	08:43	15.30	18
0585	10/07/2008	15:01	15.30	18
0589	10/07/2008	15:34	14.60	52

Note: btoc = below top of casing

October 2008 CF3 Sampling

Number of Locations Sampled: Five remediation wells (0671, 0673, 0674, 0677, and 0678) and five observation wells (0680, 0681, 0684, 0688-31, and 0689-46) were sampled. Including one duplicate, a total of 11 locations were sampled during the October 2008 monthly sampling event.

Locations Not Sampled: None.

Attachment 1. Interim Action Well Field Monthly Sampling Trip Report (continued)

Field Variance: None.

Locations in Which Field Parameters Were Measured Only: Parameters were measured at locations 0688 at 39 ft and 0689 at 54 ft.

Well No.	Date	Time	Depth (ft bgs)	Depth To Water (ft btoc)	Field Parameters					
					Temp (°C)	Spec Cond (µS/cm)	D.O. (mg/L)	pH	ORP	Turb. (NTUs)
0688	10/07/2008	10:44	39	15.33	16.03	76,048	0.08	6.68	-61	2.95
0689	10/07/2008	10:25	54	15.40	16.23	104,371	0.04	6.72	-63	3.06

Note: btoc = below top of casing; D.O. = dissolved oxygen; ORP = oxidation reduction potential; Temp = temperature; Spec Cond = special conditions; Turb. = turbidity

Quality-Control Sample Cross Reference: Following is the false identification assigned to the quality-control sample.

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2000	0677	Duplicate from 35 ft bgs	Ground Water	NFC 449

Note: ID = identification

Location-Specific Information – CF3 Remediation Wells: Extraction wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0671	10/15/2008	12:28	16.37	35
0673	10/15/2008	12:45	17.55	35
0674	10/15/2008	14:46	17.70	35
0677	10/15/2008	14:57	16.11	35
0678	10/15/2008	15:07	16.11	35

Note: btoc = below top of casing

Location-Specific Information – Observation Wells: All observation wells were sampled using micropurge 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)
0680	10/07/2008	13:53	16.26	18
0681	10/07/2008	11:20	17.38	18
0684	10/07/2008	09:55	16.65	19
0688-31	10/07/2008	10:57	15.33	31
0689-46	10/07/2008	10:14	15.33	46

Note: btoc = below top of casing

October 2008 Configuration 4 Sampling

Number of Locations Sampled: Five remediation wells (0771, 0773, 0775, 0777, and 0779) and four observation wells (0780, 0783, 0784, and 0785) were sampled. A total of nine samples were collected during the October 2008 monthly sampling event.

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)

Locations Not Sampled: None.

Field Variance: None.

Location-Specific Information – CF4 Remediation Wells: Extraction wells were sampled using dedicated submersible pumps.

Well No.	Date	Time	Water Level (ft btoc)	Pump Intake (ft bgs)
0771	10/15/2008	09:41	17.15	30
0773	10/15/2008	09:53	17.73	30
0775	10/15/2008	10:06	16.91	30
0777	10/15/2008	10:14	17.05	30
0779	10/15/2008	10:28	16.38	30

Note: btoc = below top of casing

Location-Specific Information – Observation Wells: All observation wells were sampled using micropurge 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)
0780	10/09/2008	10:54	15.88	28
0783	10/09/2008	13:30	15.85	18
0784	10/09/2008	11:39	15.84	18
0785	10/09/2008	11:14	16.04	18

Note: btoc = below top of casing

October 2008 Baseline Sampling

Number of Locations Sampled: Seven well points (0495, 0597, 0496, 0598, 0599, 0617, and 0618) and one surface water location (0243) were sampled. Including one duplicate, a total of nine samples were collected during the October 2008 monthly sampling event.

Locations Not Sampled: Surface water locations 0241 and 0242 and well points 0494 and 0497 were dry and, therefore, not sampled.

Field Variance: Well point 0496 did not generate a sufficient recharge volume, and a limited amount of sample was submitted to the laboratory.

Quality-Control Sample Cross Reference: Following is the false identification assigned to the quality-control sample.

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2003	0243	Duplicate of Surface Water	Surface Water	NFC 960

Note: ID = identification

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)

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.

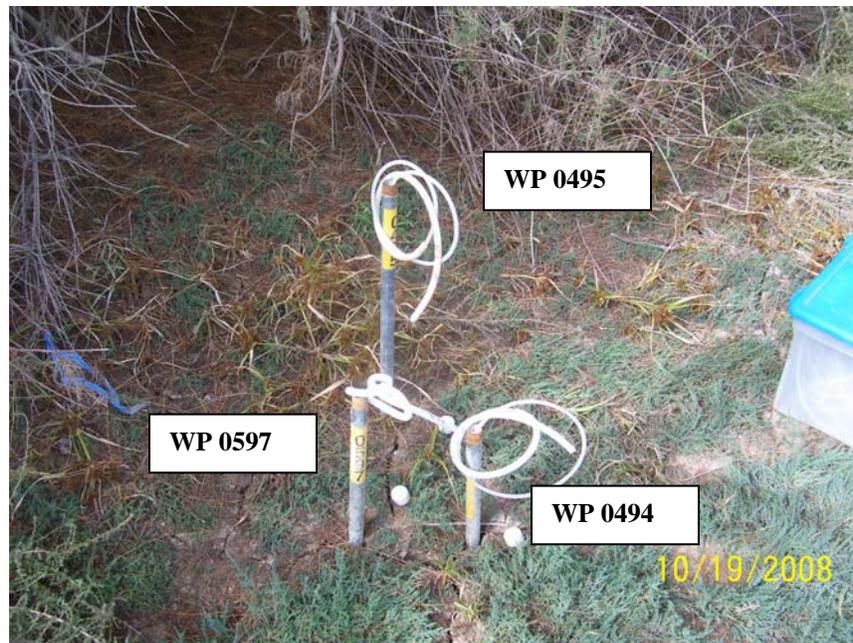
WP No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0494	10/21/2008	11:23	Dry	0.90	Dry
0495	10/21/2008	11:19	4.85	1.80	Dry
0597	10/21/2008	14:41	4.39	1.15	Dry
0496	10/21/2008	11:03	1.45	0.55	Dry
0497	10/21/2008	10:44	Dry	0.80	Dry
0598	10/21/2008	10:48	2.45	0.50	Dry
0599	10/21/2008	09:15	2.30	2.65	Dry
0617	10/21/2008	09:36	2.00	2.00	Dry
0618	10/21/2008	09:26	1.00	1.50	Dry

Note: btoc = below top of casing

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

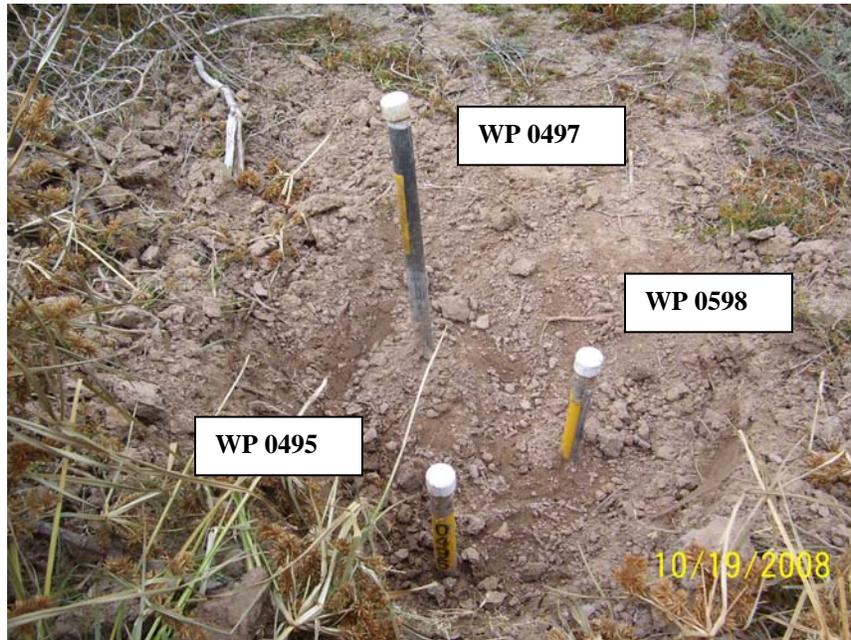
SW No.	Date	Time	Depth (inches below surface)	Characteristics
0243	10/21/2008	09:57	6"	Open up and down river, off of main river channel

Note: SW = surface water

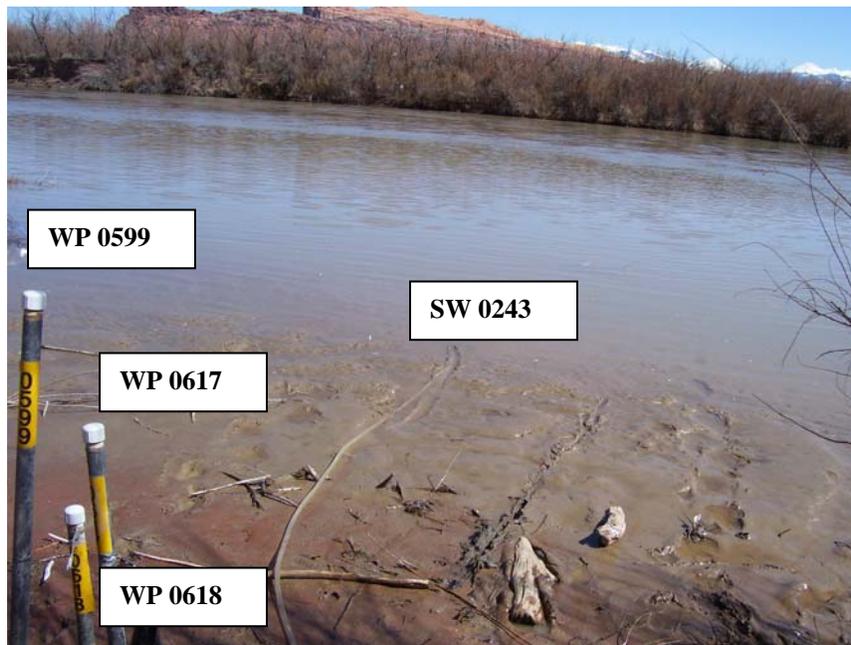


Baseline Area River Bank Well Points

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)



Baseline Area Intermediate Well Points



Baseline Area River Edge Well Points and Surface Water Location 0243

October 2008 Infiltration Trench Sampling

Number of Locations Sampled: Four observation wells (0730, 0731, 0732, and 0733) and three well points (0724, 0725, and 0726) were sampled during the October 2008 monthly sampling event.

Attachment 1. Interim Action Well Field Monthly Sampling Trip Report (continued)

Field Variance: Well point 0726 did not recharge a sufficient volume, and a limited volume was sent to the laboratory for analysis.

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

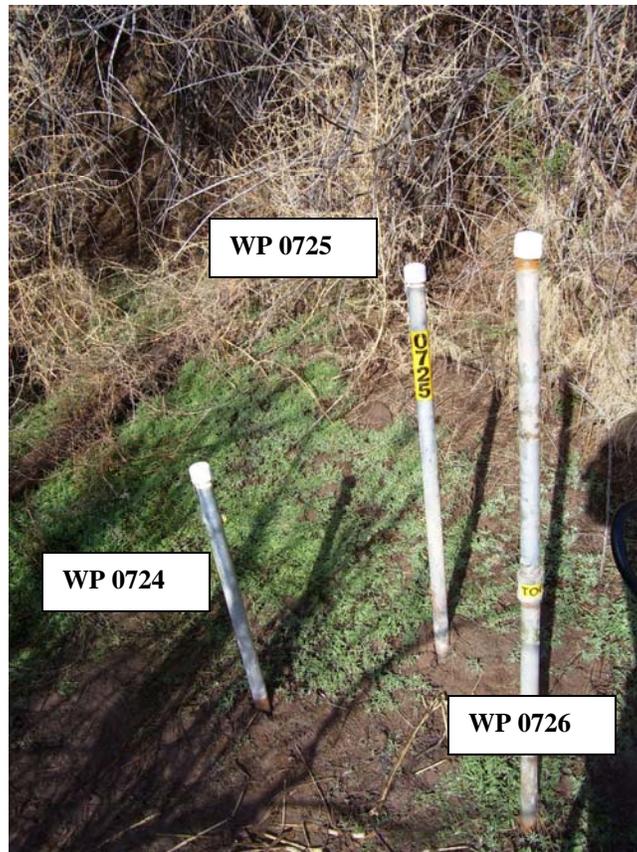
Well No.	Date	Time	Depth to Water (ft btoc)	Sample Depth (ft bgs)
0730	10/09/2008	09:19	13.22	18
0731	10/09/2008	09:38	15.10	18
0732	10/09/2008	11:24	14.70	18
0733	10/09/2008	08:56	14.94	18

Note: btoc = below top of casing

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	10/15/2008	15:44	Dry	1.35	Dry
0725	10/15/2008	15:51	5.25	2.45	Dry
0726	10/15/2008	15:45	5.95	2.70	Dry

Note: btoc = below top of casing; WP = well point



Infiltration Trench Well Points

Attachment 1.
Interim Action Well Field Monthly Sampling Trip Report (continued)

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)
09/29/2008	4,260
09/30/2008	4,220
10/01/2008	4,220
10/02/2008	4,200
10/06/2008	4,600
10/07/2008	4,680
10/08/2008	4,470
10/09/2008	4,420
10/13/2008	4,350
10/14/2008	4,330
10/15/2008	4,300
10/16/2008	4,280
10/20/2008	4,150
10/21/2008	4,200
10/22/2008	4,200

Note: cfs = cubic feet per second

Equipment Issues: None.

Corrective Action Required/Taken: None.