

*Office of Environmental Management – Grand Junction*



**November 2005 Water Sampling**

**Validation Data Package for  
Ground Water Interim Action  
Monthly Sampling  
Moab, Utah**

**February 2006**



U.S. Department  
of Energy

**Office of Environmental Management**

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for  
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# Moab, Utah

November 2005

## Data Package Contents

This data package includes the following information:

<u>Item No.</u>	<u>Description of Contents</u>
1.	<b>Sampling Event Summary</b>
2.	<b>Sample Location Maps</b>
3.	<b>Data Assessment Summary</b>
	Water Sampling Field Activities Verification Checklist
	Laboratory Performance Assessment
	Field Analyses/Activities
	Certification

### **Attachment 1—Data Presentation**

Minimums and Maximums Report  
Anomalous Data Review Checksheet  
Water Quality Data  
Environmental Sciences Laboratory Water Quality Data  
Water Level Data  
Blanks Report  
Time Versus Concentration Graphs

### **Attachment 2—Trip Reports**

## **Sampling Event Summary**

**Site:** Moab, Utah

**Sampling Period:** November 8–15 and 28–29, 2005

The purpose of this sampling was to collect data that can be used to evaluate the performance of all configurations of the interim action well field. This report is a compilation of all sampling activities conducted during the month of November, with the exception of the routine sampling, which is done every four months. Previously, data validation reports were segregated by well field configuration (i.e., Configurations 1–3 and Baseline areas). However, because the interim action effort has grown and will continue to expand, it was deemed to be more cost effective and less cumbersome to the reader to combine the data validation reports. This comprehensive report is similar in format to the previous segregated reports.

Sampling and analysis, as usual, were conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, February 2004*. Although not listed here, the normal set of locations were sampled. Please refer to the attached trip reports for specific sampled locations and/or an explanation of why some locations were not sampled.

According to the United States Geological Survey (USGS) Cisco Gaging Station, the mean daily Colorado River flow rates varied between 3,460 and 4,130 cubic feet per second (cfs).

Pumping rates for extraction wells 0470 through 0479 ranged from 1 to 4.3 gallons per minute (gpm) per well. The pumping rate for well SMI-PW02 was 15.0 gpm. These rates are average for the Configuration 1 well field. Pumping rates for extraction wells 0670 through 0679 ranged from 2 to 2.7 gpm per well. These rates are typical for the Configuration 3 well field. A detailed discussion of Configuration 1 extraction well field performance is presented in the *Fall 2004 Performance Assessment of the Ground Water Interim Action Well Fields at the Moab, Utah, Project Site, January 2005*. An updated performance assessment for ground water extraction associated with Configurations 1 and 3 is scheduled for submittal in May 2006, and will include the validated data in this package.

Time versus concentration graphs for selected key performance indicator wells and major contaminants of concern are included. Data presented in these graphs indicate that contaminant concentrations are at expected levels. Ammonia and uranium concentrations generally have stabilized. The exception to this includes well 0405 in the Baseline Area, which has shown an increase in uranium concentrations from less than 1.5 milligrams per liter (mg/L) to greater than 3.5 mg/L in the past several months. The data for this well will be evaluated in successive monthly reports to help determine if this trend is particular to just this well or to the area.

For the past several months, contaminant concentrations in wells near the Configuration 2 well field continued to be suppressed by the injection of fresh water. Well 0589 is an exception to this trend; the time versus concentration graph shows uranium concentrations decreasing from September 2004 through January 2005. Thereafter, uranium concentrations increased to levels between 2 and 2.5 mg/L, which is greater than first measured. This well is considered a deep zone well, with a screen interval from 43 to 53 feet (ft) below ground surface (bgs).

Two other observation wells near Configuration 2 that have been identified in the past several Validation Data Package reports for further evaluation include well 0408 (screened 13 to 18 ft bgs) and well 0588 (screened 25 to 35 ft bgs). The data for these two wells showed that during the past several months there were increasing ammonia and uranium concentrations, as compared to late 2004 through fall 2005. The data for both of these wells now indicate decreasing ammonia and uranium concentrations, and the trend will continue to be evaluated in successive monthly reports.

It should also be noted that the time versus concentration graphs for key performance indicator wells (0687, 0688, and 0689) for Configuration 3 only include the time period from August 2005 to November 2005.

Because this is only the fourth sampling event for the wells associated with the Configuration 3 well field, there are no established historical minimum or maximum concentrations for those wells. For the remaining wells sampled during this event, there were three anomalous data identified. The chloride and sulfate concentrations for observation well 0591 were much lower than the previous minimum concentrations. Also, well 0589 had sulfate at a much higher concentration (23,600 mg/L) than the historical maximum of 14,800 mg/L. These two wells are located near the Configuration 2 well field.

The data validations indicate the data meet the quality control criteria specified for this project. No significant discrepancies were noted regarding sample shipping/receiving, preservation and holding times, instrument calibration, method blanks, matrix spikes, etc., except as qualified.

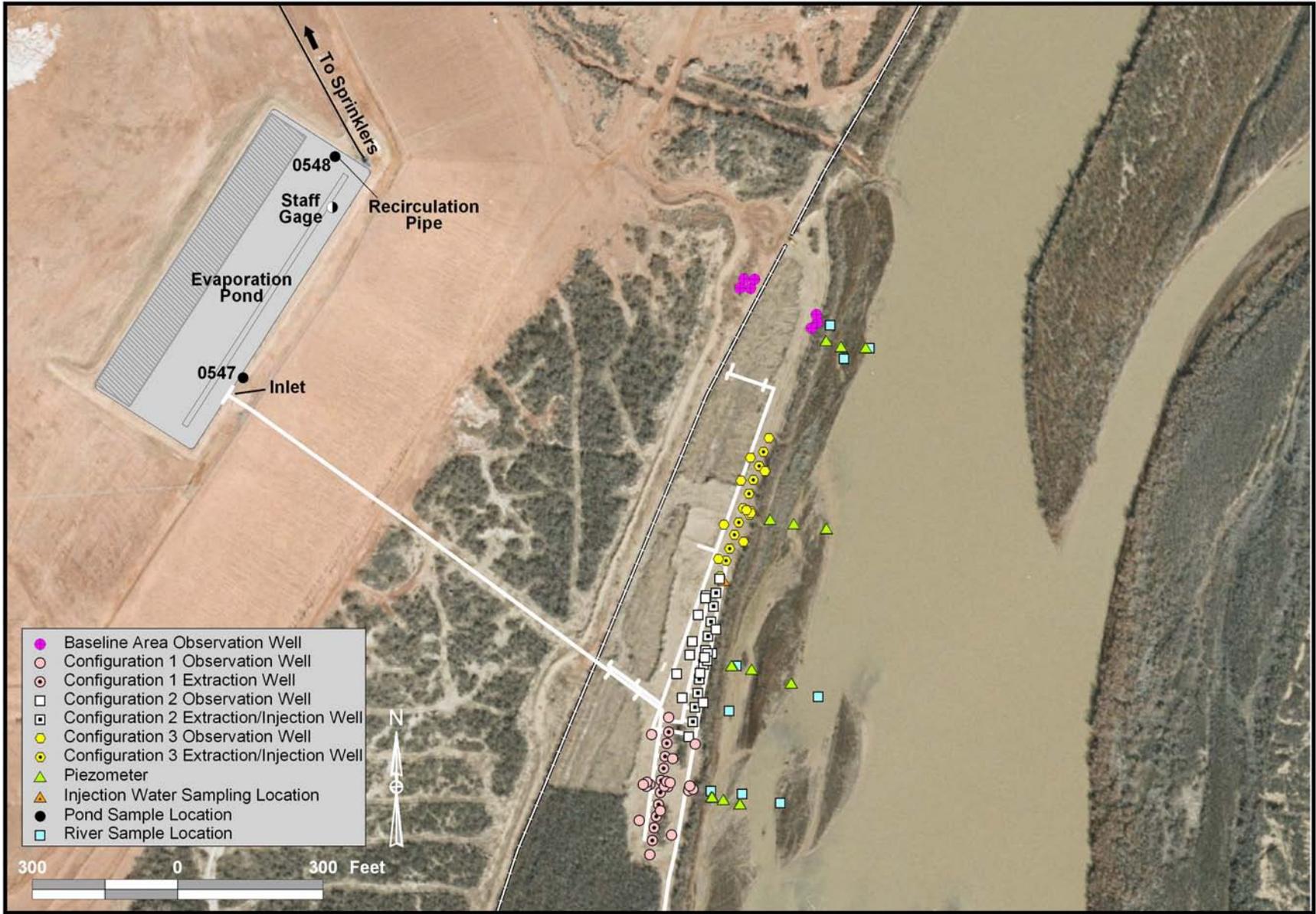


John R. Ford  
Ground Water Lead



Date

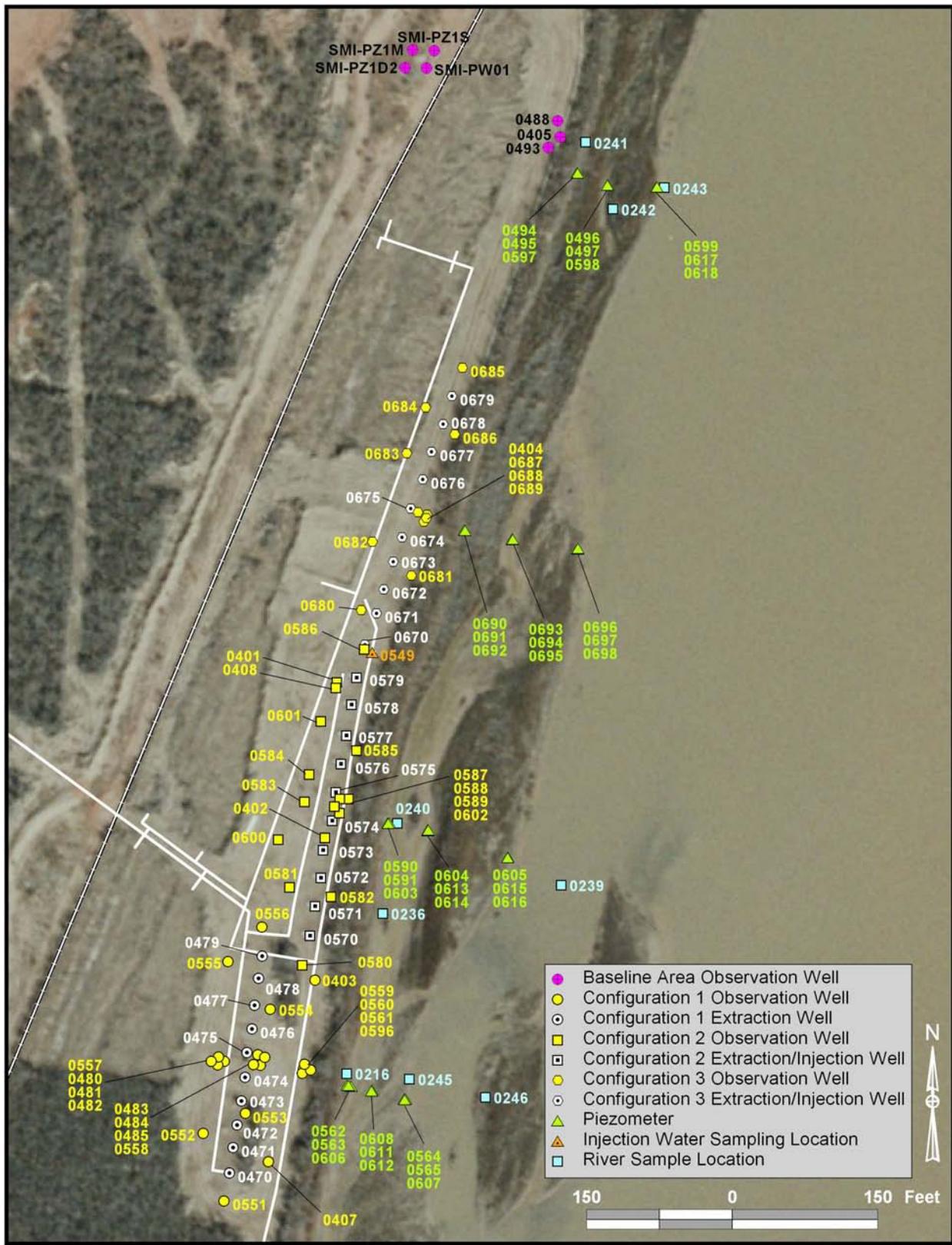
## **Sample Location Maps**



n:\m\04\999\0009\011005\01285\0128500.apr smthw 12/7/2005, 12.32

X0128500-01

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



Existing Well Locations

## **Data Assessment Summary**

## Water Sampling Field Activities Verification Checklist

<b>Project</b>	<u>Moab, Utah</u>	<b>Date(s) of Water Sampling</b>	<u>November 8–29, 2005</u>
<b>Date(s) of Verification</b>	<u>January 16, 2005</u>	<b>Name of Verifier</b>	<u>Jeff Price</u>

	<b>Response (Yes, No, NA)</b>	<b>Comments</b>
1. Is the SAP the primary document directing field procedures? List other documents, SOP's, instructions.	<u>Yes</u>	
	<u>NA</u>	
2. Were the sampling locations specified in the planning documents sampled?	<u>No</u>	<u>See trip report for explanation.</u>
3. Was a pre-trip calibration conducted as specified in the above-named documents?	<u>Yes</u>	
4. Was an operational check of the field equipment conducted twice daily? Did the operational checks meet criteria?	<u>Yes</u>	
	<u>Yes</u>	
5. Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified?	<u>Yes</u>	
6. Was the category of the well documented?	<u>Yes</u>	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>Yes</u>	
Did the water level stabilize prior to sampling?	<u>Yes</u>	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>Yes</u>	
Was the flow rate less than 500 mL/min?	<u>Yes</u>	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	<u>NA</u>	

## Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

## Laboratory Performance Assessment

### General Information

Requisition No. (RIN): 05110255  
 Sample Event: November 9, 2005  
 Site(s): Moab, Utah  
 Laboratory: Paragon Analytics  
 Work Order No.: 0511119  
 Analysis: Metals and Inorganics  
 Validator: Steve Donivan  
 Review Date: December 30, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data”, GT-9(P). All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1. The samples were analyzed concurrently with those from requisitions 05110256, 05110257, and 05110258. The sample matrix for all samples is equivalent allowing the use common quality assurance samples.

*Table 1. Analytes and Methods*

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Bromide, Br	MIS-A-038	SW-846 9056	SW-846 9056
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO <sub>4</sub>	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids , TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

### Data Qualifier Summary

Analytical results were qualified as listed in Table 2. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

*Table 2. Data Qualifiers*

Sample Number	Location	Analyte	Flag	Reason
0511119-10	2228 (Equip blank)	U	U	Less than 5 times the calibration blank

### Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 15 samples on November 12, 2005 accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the forms with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents, including the COC form and the sample tickets, had no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 2.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and 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 6020A*

Calibration for uranium was performed on December 15, 2005. The initial calibration was performed using six calibration standards resulting in a calibration curve with a correlation coefficient ( $r^2$ ) value greater than 0.995. The absolute value of the curve intercept was less than 3 times the Method Detection Limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in nine CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check was within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

#### *Method SW-846 9056*

The initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards each on November 11, 2005. The calibration curve  $r^2$  values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in eight CCVs. The calibration checks met the acceptance criteria.

### *Method MCAWW 350.1*

The initial calibrations for ammonia as N were performed using six calibration standards on November 16, 2005, resulting in a calibration curve with an  $r^2$  value greater than 0.995 and an intercept less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency resulting in nine CCVs. All calibration check results were within the acceptance criteria.

### *Method MCAWW 160.1*

There is no initial or continuing calibration requirement associated with the determination of Total Dissolved Solids (TDS).

### Method and Calibration Blanks

The uranium initial and continuing calibration blanks were below the practical quantitation limits but greater than the MDL. The uranium result for sample 0511119-10 was less than 5 times the concentration of the associated continuing calibration blank and is qualified as “U”. The chloride, sulfate, ammonia as N, and TDS method blanks, and initial and continuing calibration blanks were below the MDLs.

### Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for uranium, bromide, chloride, sulfate, and ammonia as N as a measure of method performance in the sample matrix. The spike recoveries met the recovery and precision criteria for all analytes.

### Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample and MSD sample results for all analytes were less than 20 percent, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The results were acceptable for all analytes.

### Metals Serial Dilution

Serial dilutions were performed during the uranium analysis to monitor physical or chemical interferences that may exist in the sample matrix. The results met the acceptance criteria.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

### Completeness

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

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

### Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on December 23, 2005. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## General Information

Requisition No. (RIN): 05110256  
Sample Event: November 9–11, 2005  
Site(s): Moab, Utah  
Laboratory: Paragon Analytics  
Work Order No.: 0511121  
Analysis: Metals and Inorganics  
Validator: Steve Donovan  
Review Date: December 30, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data”, GT-9(P). All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 3. The samples were analyzed concurrently with those from requisitions 05110255, 05110257, and 05110258. The sample matrix for all samples is equivalent allowing the use common quality assurance samples.

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Bromide, Br	MIS-A-038	SW-846 9056	SW-846 9056
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO <sub>4</sub>	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

## Data Qualifier Summary

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

Table 4. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0511121-23	2235 (Equip blank)	U	U	Less than 5 times the calibration blank

## Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 24 samples on November 12, 2005 accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the forms with sample collection dates and times, and that

signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form and the sample tickets had no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 4.6 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and 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 6020A*

Calibrations for uranium were performed on December 7, 2005 and December 15, 2005. The initial calibrations were performed using six calibration standards resulting in calibration curves with a correlation coefficient ( $r^2$ ) values greater than 0.995. The absolute values of the curves intercept were less than 3 times the Method Detection Limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 15 CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check was within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

#### *Method SW-846 9056*

The initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards each on November 15, 2005. The calibration curve  $r^2$  values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in 11 CCVs. The calibration checks met the acceptance criteria.

### *Method MCAWW 350.1*

The initial calibrations for ammonia as N were performed using six calibration standards on November 16, 2005 and November 18, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency resulting in 16 CCVs. All calibration check results were within the acceptance criteria.

### *Method MCAWW 160.1*

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

### Method and Calibration Blanks

The uranium initial and continuing calibration blanks were below the practical quantitation limits but greater than the MDL. The uranium result for sample 0511121-23 was less than 5 times the concentration of the associated continuing calibration blank and is qualified as “U”. The chloride, sulfate, ammonia as N, and TDS method blanks, and initial and continuing calibration blanks were below the MDLs.

### Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for uranium, bromide, chloride, sulfate, and ammonia as N as a measure of method performance in the sample matrix. The chloride and sulfate matrix spike data were not evaluated because the concentration of the unspiked sample was greater than four times the spike concentration. The spike recoveries met the recovery and precision criteria for all analytes with the following exception. The ammonia as N MSD recovery was outside the acceptance range, however the MS recovery was acceptable. Data were not qualified on the basis of this failure because there is no definitive evidence of a matrix interference.

### Laboratory Replicate Analysis

The relative percent difference (RPD) values for the laboratory replicate sample and MSD sample results for all analytes were less than 20 percent, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The results were acceptable for all analytes.

### Metals Serial Dilution

Serial dilutions were performed during the uranium analysis to monitor physical or chemical interferences that may exist in the sample matrix. The results met the acceptance criteria.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

### Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. The EDD file validation indicated that a sulfate result was not reported for location 2234. A report revision was requested on December 30, 2005 and the revision received on January 6, 2006.

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

### Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on December 23, 2005 and a revision on January 6, 2006. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## General Information

Requisition No. (RIN): 05110257  
Sample Event: November 9–15, 2005  
Site(s): Moab, Utah  
Laboratory: Paragon Analytics  
Work Order No.: 0511118  
Analysis: Metals and Inorganics  
Validator: Steve Donovan  
Review Date: December 29, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data”, GT-9(P). 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 5. The samples were analyzed concurrently with those from requisitions 05110255, 05110256, and 05110258. The sample matrix for all samples is equivalent allowing the use common quality assurance samples.

Table 5. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Bromide, Br	MIS-A-038	SW-846 9056	SW-846 9056
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO <sub>4</sub>	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

## Data Qualifier Summary

Analytical results were qualified as listed in Table 6. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 6. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0511118-8	2238 (Equip Blank)	U	U	Less than 5 times the calibration blank

## Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 15 samples on November 12, 2005 and an additional 9 samples on November 16, 2005, accompanied by Chain of Custody (COC) forms. The COC forms were checked to confirm that all of the samples were listed on the forms with

sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC forms and the sample tickets had no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 0.2 °C and 1.8 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and 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 6020A*

Calibrations for uranium were performed on December 7, 2005 and December 15, 2005. The initial calibrations were performed using six calibration standards resulting in calibration curves with a correlation coefficient ( $r^2$ ) values greater than 0.995. The absolute values of the curves intercept were less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 15 CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check was within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

#### *Method SW-846 9056*

The initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards each on November 16, 2005. The calibration curve  $r^2$  values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in sixteen CCVs. The calibration checks met the acceptance criteria.

### *Method MCAWW 350.1*

The initial calibrations for ammonia as N were performed using six calibration standards on November 16, 2005 and November 18, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency resulting in eighteen CCVs. All calibration check results were within the acceptance criteria.

### *Method MCAWW 160.1*

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

### Method and Calibration Blanks

The uranium initial and continuing calibration blanks were below the practical quantitation limits but greater than the MDL. The uranium result for sample 0511118-8 was less than 5 times the concentration of the associated continuing calibration blank and is qualified as “U”. The chloride, sulfate, ammonia as N, and TDS method blanks, and initial and continuing calibration blanks were below the MDLs.

### Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for uranium, bromide, chloride, sulfate, and ammonia as N as a measure of method performance in the sample matrix. The ammonia as N matrix spike data were not evaluated because the concentration of the unspiked sample was greater than four times the spike concentration. The spike recoveries met the recovery and precision criteria for all analytes.

### Laboratory Replicate Analysis

The relative percent difference (RPD) values for the laboratory replicate sample and MSD sample results for all analytes were less than 20 percent, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The results were acceptable for all analytes.

### Metals Serial Dilution

Serial dilutions were performed during the uranium analysis to monitor physical or chemical interferences that may exist in the sample matrix. The results met the acceptance criteria.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

### Completeness

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

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. Review of the data indicated that the bromide peak was mis-integrated for some of the samples. A report revision was requested on December 30, 2005 and the revision received on January 6, 2006. There all manual integrations performed and all peak integrations were satisfactory after revision.

### Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on December 28, 2005 and a revision on January 6, 2006. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## General Information

Requisition No. (RIN): 05110258  
Sample Event: November 9–11, 2005  
Site(s): Moab, Utah  
Laboratory: Paragon Analytics  
Work Order No.: 0511123  
Analysis: Metals and Inorganics  
Validator: Steve Donovan  
Review Date: December 29, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data”, GT-9(P). 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 7. The samples were analyzed concurrently with those from requisitions 05110255, 05110256, and 05110257. The sample matrix for all samples is equivalent allowing the use common quality assurance samples.

Table 7. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Bromide, Br	MIS-A-038	SW-846 9056	SW-846 9056
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO <sub>4</sub>	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids , TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

## Data Qualifier Summary

Analytical results were qualified as listed in Table 8. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 8. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
0511123-19	2242 (Equip Blank)	U	U	Less than 5 times the calibration blank

## Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 19 samples on November 12, 2005, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all

of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form and the sample tickets had no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 2.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and 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 6020A*

Calibration for uranium was performed on December 7, 2005. The initial calibration was performed using six calibration standards resulting in a calibration curve with a correlation coefficient ( $r^2$ ) value greater than 0.995. The absolute value of the curve intercept was less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 14 CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check was within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

#### *Method SW-846 9056*

The initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards each on November 16, 2005. The calibration curve  $r^2$  values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in eight CCVs. The calibration checks met the acceptance criteria.

### *Method MCAWW 350.1*

The initial calibrations for ammonia as N were performed using six calibration standards on November 18, 2005, resulting in a calibration curve with an  $r^2$  value greater than 0.995 and an intercept less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency resulting in nine CCVs. All calibration check results were within the acceptance criteria.

### *Method MCAWW 160.1*

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

### Method and Calibration Blanks

The uranium initial and continuing calibration blanks were below the practical quantitation limits but greater than the MDL. The uranium result for sample 051123-19 was less than 5 times the concentration of the associated continuing calibration blank and is qualified as “U”. The chloride, sulfate, ammonia as N, TDS method blanks, and initial and continuing calibration blanks were below the MDLs.

### Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for uranium, bromide, chloride, sulfate, and ammonia as N as a measure of method performance in the sample matrix. The chloride and sulfate matrix spike data were not evaluated because the concentration of the unspiked sample was greater than four times the spike concentration. The spike recoveries met the recovery and precision criteria for all analytes with the following exception. The ammonia as N MSD recovery was outside the acceptance range, however the MS recovery was acceptable. Data were not qualified on the basis of this failure because there is no definitive evidence of a matrix interference.

### Laboratory Replicate Analysis

The relative percent difference (RPD) values for the laboratory replicate sample and MSD sample results for all analytes were less than 20 percent, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The results were acceptable for all analytes.

### Metals Serial Dilution

Serial dilutions were performed during the uranium analysis to monitor physical or chemical interferences that may exist in the sample matrix. The results met the acceptance criteria.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

### Completeness

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

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

### Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on December 22, 2005. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## General Information

Requisition No. (RIN): 05110267  
 Sample Event: November 28–29, 2005  
 Site(s): Moab, Utah  
 Laboratory: Severn Trent, St. Louis  
 Work Order No.: F5L010192  
 Analysis: Metals, Inorganics  
 Validator: Steve Donovan  
 Review Date: February 1, 2006

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data,” GT-9(P) (2004). See attached Data Validation Worksheets for supporting documentation on the data review and 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 9.

Table 9. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH <sub>3</sub> -N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Bromide, Br	MIS-A-038	MCAWW 300.0A	MCAWW 300.0A
Chemical Oxygen Demand, COD	WCH-A-010	MCAWW 410.4	MCAWW 410.4
Chloride, Cl	MIS-A-039	MCAWW 300.0A	MCAWW 300.0A
Dissolved Organic Carbon, DOC	WCH-A-024	MCAWW 415.1	MCAWW 415.1
Iron, Fe	GJO-16	SW-846 3005A	SW-846 6010B
Manganese, Mn	GJO-17	SW-846 3005A	SW-846 6010B
Nitrite/Nitrate as N, NO <sub>2</sub> /NO <sub>3</sub> -N	WCH-A-005	MCAWW 353.2	MCAWW 353.2
Phosphate as P	WCH-A-029	MCAWW 365.2	MCAWW 365.2
Selenium, Se	GJO-14	SW-846 3005A	SW-846 6020A
Sulfate, SO <sub>4</sub>	MIS-A-044	MCAWW 300.0A	MCAWW 300.0A
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Total Inorganic Carbon, TIC	GJO-49	MCAWW 415.1	MCAWW 415.1
Total Kjeldahl Nitrogen, TKN	WCH-A-039	MCAWW 351.2	MCAWW 351.2
Total Organic Carbon, TOC	WCH-A-025	MCAWW 415.1	MCAWW 415.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

## Data Qualifier Summary

Analytical results were qualified as listed in Table 10. Refer to the sections below for an explanation of the data qualifiers applied.

Table 10. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
F5L010192001	0588	Fe	U	Less than 5 times the calibration blank
F5L010192001	0588	TIC	J	Matrix spike failure
F5L010192002	0589	Fe	U	Less than 5 times the calibration blank
F5L010192002	0589	TIC	J	Matrix spike failure
F5L010192004	0602	Fe	U	Less than 5 times the calibration blank
F5L010192004	0602	TIC	J	Matrix spike failure
F5L010192008	2281 (0589 dup)	Fe	U	Less than 5 times the calibration blank
F5L010192008	2281 (0589 dup)	TIC	J	Matrix spike failure
F5L010192009	2282 (Equip Blank)	TIC	J	Matrix spike failure
F5L010192010	0588	DOC	J	Matrix interference
F5L010192011	0589	DOC	J	Matrix interference
F5L010192012	0602	DOC	J	Matrix interference
F5L010192014	2281 (0589 dup)	DOC	J	Matrix interference
F5L010192015	2282 (Equip Blank)	DOC	J	Matrix interference

### Sample Shipping/Receiving

Severn Trent Laboratories in St. Louis, Missouri received 15 water samples on December 1, 2005, accompanied by Chain of Custody (COC). The COC form was checked to confirm that all of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents, including the COC form and the sample tickets, had no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 3 °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*

Calibrations for iron and manganese were performed on December 2, 2005, using three calibration standards resulting in calibration curves with correlation coefficient ( $r^2$ ) values greater than 0.995. The absolute values of the calibration curve intercepts were less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 11 CCVs. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the beginning and end of the analytical sequence to verify the linearity of the calibration curve near the practical quantitation limit. All results were within the acceptance range.

#### *Method SW-846 6020A*

Calibrations for selenium and uranium were performed on December 7-8, 2005. The initial calibrations were performed using five calibration standards resulting in calibration curves with  $r^2$  values greater than 0.995. The absolute values of the curve intercepts were less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and CCV checks were made at the required frequency resulting in 13 CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check results for all analytes 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 MCAWW 300.0A*

The initial calibrations for bromide, chloride, and sulfate were performed using five calibration standards each on December 9, 2005. The calibration curve  $r^2$  values were greater than 0.995 and intercepts were less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in 10 CCVs. All calibration checks met the acceptance criteria.

#### *Method MCAWW 160.1*

There is no initial or continuing calibration requirement associated with the determination of total dissolved solids (TDS).

#### *Method MCAWW 350.1*

The initial calibrations for ammonia as N were performed using six calibration standards on December 2, 2005, resulting in a calibration curve with an  $r^2$  value greater than 0.995 and an intercept less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in 5 CCVs. All calibration check results met the acceptance criteria.

#### *Method MCAWW 351.2*

The initial calibrations for total Kjeldahl nitrogen were performed using five calibration standards on December 5, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in three CCVs. All calibration check results met the acceptance criteria.

#### *Method MCAWW 353.2*

The initial calibrations for nitrite/nitrate as N were performed using seven calibration standards on December 8, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in four CCVs. All calibration check results met the acceptance criteria.

#### *Method MCAWW 365.2*

The initial calibrations for phosphate as P were performed using four calibration standards on December 13, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in two CCVs. All calibration check results met the acceptance criteria.

#### *Method MCAWW 410.4*

There is no initial or continuing calibration requirement associated with the determination of chemical oxygen demand (COD).

#### *Method MCAWW 415.1 Organic Carbon, Total and Dissolved*

The initial calibrations for organic carbon were performed using three calibration standards on December 13, 2005 resulting in a calibration curve with  $r^2$  values greater than 0.995 and an intercept less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in five CCVs. All calibration check results met the acceptance criteria. All sample concentrations were above the linear range of the calibration curve. Dilution and re-analysis of the samples resulted in results below the detection limit indicating a matrix interference. All results are qualified with a "J" flag as estimated values.

#### *Method MCAWW 415.1 Total Inorganic Carbon*

The initial calibrations for total inorganic carbon were performed using three calibration standards on December 9, 2005, resulting in calibration curves with  $r^2$  values greater than 0.995 and intercepts less than 3 times the MDL. Initial and CCV checks were made at the required frequency resulting in five CCVs. All calibration check results met the acceptance criteria.

### Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blanks and calibration blanks were below the required detection limits. In cases where blank concentration exceeds the instrument detection limit, the associated sample results are qualified with a “U” flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

### Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike samples were analyzed for all analytes as a measure of method performance in the sample matrix. The spike recoveries met the recovery and precision criteria for all analytes with the following exceptions. The total inorganic carbon spike recovery was outside the acceptance range. All results are qualified with a “J” flag as estimated values.

### Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample and matrix spike duplicate sample results for all analytes were less than twenty percent for results that are greater than five times the practical quantitation limit, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The results were acceptable for all analytes.

### Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. All results met the acceptance criteria.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

### Completeness

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

### Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed, and all peak integrations were satisfactory.

### Electronic Data Deliverable File

The electronic data deliverable (EDD) file arrived on December 23, 2005. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## General Information

Requisition No. (RIN): 05110268  
Sample Event: November 28-29, 2005  
Site(s): Moab, Utah  
Laboratory: Microseeps, Pittsburgh, PA  
Work Order No.: P0512041  
Analysis: Dissolved Gasses, Reduced Metals  
Validator: Steve Donovan  
Review Date: February 9, 2006

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), "Standard Practice for Validation of Laboratory Data," GT-9(P) (2004). See attached Data Validation Worksheets for supporting documentation on the data review and 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 11.

Table 11. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Dissolved Gasses	GJO-52	AM20GAX	AM20GAX
Manganese (II)	GJO-53	Mod.7199	Mod.7199
Iron (II)	GJO-54	Mod.7199	Mod.7199

### Data Qualifier Summary

None of the analytical results required qualification.

### Sample Shipping/Receiving

Microseeps, in Pittsburgh, Pennsylvania, received eight water samples on November 30, 2005, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC form was complete with no errors or omissions.

### Preservation and Holding Times

The sample shipment was received cool and intact on November 30, 2005. All samples were received in the correct container types and had been preserved correctly for the requested analyses. There are no standard holding times for these analytes and the analyses were completed as quickly as possible.

### Laboratory Instrument Calibration

Data for this RIN were report at Analysis Report Category II (results plus quality control) and do not include calibration data.

### Method Blanks

All method blank results were below the practical quantitation limits.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate samples (MS/MSD) were analyzed for carbon dioxide, methane, iron (II) and manganese (II) as a measure of method performance in the sample matrix. The MS/MSD analyses resulted in acceptable recovery and precision for all analytes.

### Laboratory Replicate Analysis

The relative percent difference (RPD) values for the laboratory control sample duplicate samples and MSD sample results for all analytes were less than 20 percent indicating acceptable precision.

### Laboratory Control Sample

Laboratory control samples (LCS) were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The LCS results were acceptable for all analysis categories.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The required detection limits were met 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) file arrived on December 12, 2005. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

## Field Analyses/Activities

The following information summarizes the field analyses and activities for this sampling event period.

### Field Activities

All monitor well results were qualified with an “F” flag in the database indicating the wells were purged and sampled using the low-flow sampling method. Extraction wells are not sampled using the low-flow sampling method.

Five equipment blanks were collected and analyzed for the same constituents as the Moab environmental samples. Analyte concentrations measured in the equipment blanks, with the exception of one TDS result, were below their respective contract required detection limits and are considered acceptable. Nine duplicate samples were collected. There are no established regulatory criteria for the evaluation of field duplicate samples; therefore, U.S. Environmental Protection Agency (EPA) guidance for laboratory duplicates (which is conservative for field duplicates) was used to assess the precision of the field duplicates. Duplicate results for most analytes from the 0589 duplicate were outside the duplicate criteria of +/-20 RPD. All other duplicate results met the laboratory and are considered acceptable.

### Certification

Results were reported in correct units for all analytes requested. Appropriate contract-required laboratory qualifiers and target analyte lists were used. The required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative. All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality by Parameter, or equipment/trip blank database printouts. The meaning of data qualifiers is defined on the database printouts or defined in the 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.

Laboratory Validation Lead: Steve Donivan 2-21-06  
Steve Donivan Date

Field Activities Validation Lead: Jeff Price February 21, 06  
Jeff Price Date

**Attachment 1**

**Data Presentation**

# **Minimums and Maximums Reports**

## **Minimums and Maximums Report**

The Minimums and Maximums Report is generated by a data validation application (DataVal) used to query the SEEPro database. The DataVal compares the new data set with historical data and lists all new data that fall outside the historical data range. Values listed in the report are further screened and the results are not considered anomalous if: (1) identified low concentrations are the result of low detection limits; (2) the concentration detected is within 50 percent of historical minimum or maximum values; or (3) there were fewer than five historical samples for comparison.

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110255

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/13/06 09:50:12: AM

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	0488	11/09/2005	Ammonia Total as N	700	F	880	F	722	F	8	0
MOA01	0488	11/09/2005	Uranium	2.7	F	2.6	F	1.8	F	8	0
MOA01	0493	11/09/2005	Uranium	3.5	F	3.4	F	2.5	F	8	0
MOA01	SMI-PW01	11/09/2005	Ammonia Total as N	460	F	1620		490		11	0
MOA01	SMI-PW01	11/09/2005	Ammonia Total as N	440	F	1620		490		11	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110256

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/24/06 08:08:39: AM

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	0547	11/11/2005	Ammonia Total as N	460		950	J	530		16	0
MOA01	0548	11/11/2005	Ammonia Total as N	470		1400		580		15	0
MOA01	0562	11/09/2005	Ammonia Total as N	3.5	QF	66	QF	4.1	QF	7	0
MOA01	0562	11/09/2005	Total Dissolved Solids	440	QF	4300	FQ	540	FQ	8	0
MOA01	0564	11/09/2005	Ammonia Total as N	0.14	QF	1.3	FQ	0.16	QF	7	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110257

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/24/06 08:09:22: AM

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	0402	11/10/2005	Sulfate	490	F	8862.6		540	F	17	0
MOA01	0402	11/10/2005	Total Dissolved Solids	1100	F	14000	F	1300	F	16	0
MOA01	0550	11/15/2005	Chloride	110		95		21		6	0
MOA01	0550	11/15/2005	Uranium	0.0064		0.0062		0.0015		6	0
MOA01	0585	11/15/2005	Ammonia Total as N	25	F	500	F	37	F	9	0
MOA01	0585	11/15/2005	Sulfate	480	F	7700	F	560	F	9	0
MOA01	0585	11/15/2005	Total Dissolved Solids	990	F	14000	F	1100	F	9	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110258

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/24/06 08:09:56: AM

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	0678	11/09/2005	Chloride	4700		4500		470		5	0
MOA01	0678	11/09/2005	Sulfate	12000		11000	F	1100		5	0

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

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: STS, SEVERN TRENT ST. LOUIS (Earth City, MO)

LAB REQUISITION(S): 05110267

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/24/06 08:11:59: AM

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	0589	11/29/2005	Sulfate	17800	J	F	14800		F	3800		F	19	0
MOA01	0589	11/29/2005	Sulfate	23600	J	F	14800		F	3800		F	19	0
MOA01	0589	11/29/2005	Uranium	2.81		F	2.3		F	0.42		F	19	0
MOA01	0589	11/29/2005	Uranium	2.85		F	2.3		F	0.42		F	19	0
MOA01	0591	11/29/2005	Chloride	20.4	J	F	3900		F	200		QF	15	0
MOA01	0591	11/29/2005	Sulfate	96.4	J	F	13000		F	630		QF	15	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters

LAB CODE: STS, SEVERN TRENT ST. LOUIS (Earth City, MO)

LAB REQUISITION(S): 05110267

HISTORY BEGIN DATE: comparing to all historical data

REPORT DATE: 02/24/06 08:11:59: AM

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

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

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

# **Anomalous Data Review Checksheet**



# **Water Quality Data**

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Ammonia Total as N	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	5.3	F #	0.2	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	5.3	F #	0.2	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	34	F #	1	-
	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	210	F #	10	-
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	400	#	10	-
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	490	#	10	-
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	350	#	10	-
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	220	#	10	-
	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	270	#	10	-
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	250	#	10	-
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	240	#	20	-
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	230	#	10	-
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	210	#	10	-
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	290	#	10	-
	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	260	#	10	-
	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	700	F #	20	-
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	780	F #	20	-
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	1100	F #	50	-
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	330	QF #	20	-
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	440	QF #	20	-
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	460	#	10	-
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	470	#	10	-
	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	0.1	U #	0.1	-
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	1100	F #	50	-
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	1500	F #	50	-
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	1500	F #	50	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Ammonia Total as N	mg/L	0562	WL, PZ	11/09/2005	0001	1.80 - 1.80	3.5	QF	#		0.1	-
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	0.14	QF	#		0.1	-
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	36	F	#		1	-
	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	110	F	#		20	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	110	F	#		20	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	65	F	#		2	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	290	F	#		20	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	250	F	#		10	-
	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	25	F	#		1	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	16	F	#		0.5	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	39	F	#		1	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	47	F	#		2	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	830	F	#		20	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	917.000	F	#		5.49	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	987.000	F	#		5.49	-
	mg/L	0590	WL, PZ	11/09/2005	0001	1.50 - 1.50	63	QF	#		2	-
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	280	F	#		10	-
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	520	QF	#		20	-
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	490	QF	#		20	-
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	730	F	#		20	-
	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	460	F	#		10	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	116.000	F	#		5.49	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	208.000	F	#		5.49	-
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	230	QF	#		20	-
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	120	QF	#		10	-
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	2.4	QF	#		0.1	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY	
				DATE	ID			LAB	DATA	QA			
Ammonia Total as N	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	1.5		QF	#	0.1	-	
	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	240		QF	#	20	-	
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	2.1		QF	#	0.1	-	
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	100		QF	#	20	-	
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	79		QF	#	20	-	
	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	490		QF	#	20	-	
	mg/L	0670	WL, EXT	11/09/2005	0001		180	N		#	10	-	
	mg/L	0671	WL, EXT	11/09/2005	0001		420			#	10	-	
	mg/L	0672	WL, EXT	11/09/2005	0001		490			#	10	-	
	mg/L	0673	WL, EXT	11/09/2005	0001		650			#	20	-	
	mg/L	0674	WL, EXT	11/09/2005	0001		590			#	20	-	
	mg/L	0675	WL, EXT	11/09/2005	0001		440			#	10	-	
	mg/L	0676	WL, EXT	11/09/2005	0001		410			#	10	-	
	mg/L	0677	WL, EXT	11/09/2005	0001		640			#	20	-	
	mg/L	0678	WL, EXT	11/09/2005	0001		600			#	20	-	
	mg/L	0679	WL, EXT	11/09/2005	0001		430			#	10	-	
	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	830		F	#	20	-	
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	590		F	#	20	-	
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	560		F	#	20	-	
	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	110		QF	#	10	-	
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	37		QF	#	1	-	
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	230		F	#	10	-	
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	230		F	#	10	-	
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	530		QF	#	20	-	
	mg/L		SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	460		F	#	20	-
	mg/L		SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	440		F	#	20	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Ammonia Total as N	mg/L	SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	920	F	#		20	-
	mg/L	SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	1800	F	#		50	-
	mg/L	SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	980	F	#		20	-
	mg/L	SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	430	F	#		20	-
Bromide	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	0.4	U	F	#	0.4	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	0.4	U	F	#	0.4	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	0.4	U	F	#	0.4	-
	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	2	U	F	#	2	-
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	4	U		#	4	-
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	4	U		#	4	-
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	4	U		#	4	-
	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	4	U		#	4	-
	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	4	U	F	#	4	-
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	4	U	F	#	4	-
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	10	U	F	#	10	-
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	4	U	QF	#	4	-
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	4	U	QF	#	4	-
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	10	U		#	10	-
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	10	U		#	10	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Bromide	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	0.4	U		#	0.4	-
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	10	U	F	#	10	-
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	20	U	F	#	20	-
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	20	U	F	#	20	-
	mg/L	0562	WL, PZ	11/09/2005	0001	1.80 - 1.80	0.2	U	QF	#	0.2	-
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	0.2	U	QF	#	0.2	-
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	1	U	F	#	1	-
	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	1	U	F	#	1	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	1	U	F	#	1	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	1	U	F	#	1	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	4	U	F	#	4	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	4	U	F	#	4	-
	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	0.4	U	F	#	0.4	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	0.4	U	F	#	0.4	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	1	U	F	#	1	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	1	U	F	#	1	-
	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.65		F	#	0.026	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	10	U	F	#	10	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	128	U	F	#	128	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	128	U	F	#	128	-
	mg/L	0590	WL, PZ	11/09/2005	0001	1.50 - 1.50	10	U	QF	#	10	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	0.19	B	F	#	0.026	-
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	2	U	F	#	2	-
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	4	U	QF	#	4	-
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	4	U	QF	#	4	-
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	4	U	F	#	4	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Bromide	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	4	U	F	#	4	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.15	B	F	#	0.026	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	0.026	U	F	#	0.026	-
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	2	U	QF	#	2	-
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	2	U	QF	#	2	-
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	0.2	U	QF	#	0.2	-
	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	0.2	U	QF	#	0.2	-
	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	4	U	QF	#	4	-
	mg/L	0614	WL, PZ	11/29/2005	0001	5.60 - 5.60	128	U	F	#	128	-
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	0.4	U	QF	#	0.4	-
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	1	U	QF	#	1	-
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	4	U	QF	#	4	-
	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	4	U	QF	#	4	-
	mg/L	0670	WL, EXT	11/09/2005	0001		2	U		#	2	-
	mg/L	0671	WL, EXT	11/09/2005	0001		4	U		#	4	-
	mg/L	0672	WL, EXT	11/09/2005	0001		10	U		#	10	-
	mg/L	0673	WL, EXT	11/09/2005	0001		10	U		#	10	-
	mg/L	0674	WL, EXT	11/09/2005	0001		10	U		#	10	-
	mg/L	0675	WL, EXT	11/09/2005	0001		10	U		#	10	-
	mg/L	0676	WL, EXT	11/09/2005	0001		4	U		#	4	-
	mg/L	0677	WL, EXT	11/09/2005	0001		1100			#	10	-
	mg/L	0678	WL, EXT	11/09/2005	0001		10	U		#	10	-
	mg/L	0679	WL, EXT	11/09/2005	0001		4	U		#	4	-
	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	4	U	F	#	4	-
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	20	U	F	#	20	-
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	20	U	F	#	20	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Bromide	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	1	U	QF	#	1	-
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	0.4	U	QF	#	0.4	-
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	2	U	F	#	2	-
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	2	U	F	#	2	-
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	4	U	QF	#	4	-
	mg/L	SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	4	U	F	#	4	-
	mg/L	SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	4	U	F	#	4	-
	mg/L	SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	10	U	F	#	10	-
	mg/L	SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	20	U	F	#	20	-
	mg/L	SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	10	U	F	#	10	-
	mg/L	SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	4	U	F	#	4	-
Carbon Dioxide	mg/L	0588	WL	11/28/2005	0002	26.00 - 26.00	13		F	#	0.53	-
	mg/L	0589	WL	11/29/2005	0002	44.00 - 44.00	73		F	#	0.53	-
	mg/L	0589	WL	11/29/2005	0004	44.00 - 44.00	39		F	#	0.53	-
	mg/L	0591	WL, PZ	11/29/2005	0002	4.40 - 4.40	1.9	J	F	#	0.53	-
	mg/L	0602	WL	11/29/2005	0002	18.00 - 18.00	4.5	J	F	#	0.53	-
	mg/L	0603	WL, PZ	11/29/2005	0002	9.70 - 9.70	0.78	J	F	#	0.53	-
	mg/L	0604	WL, PZ	11/29/2005	0002	7.80 - 7.80	1.2	J	F	#	0.53	-
	mg/L	0614	WL, PZ	11/29/2005	0002	5.60 - 5.60	22		F	#	0.53	-
Chemical Oxygen Demand	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	60.0		F	#	9.2	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	14.0	B	F	#	9.2	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	1000		F	#	9.2	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	24.0		F	#	9.2	-
Chloride	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	160		F	#	4	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	150		F	#	4	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	140		F	#	4	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Chloride	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	340	F	#	20	-	
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	3900		#	40	-	
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	4600		#	100	-	
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	3400		#	40	-	
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	2200		#	40	-	
	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	2700		#	40	-	
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	2400		#	40	-	
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	2300		#	40	-	
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	1900		#	40	-	
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	2100		#	40	-	
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	3900		#	40	-	
	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	2200		#	40	-	
	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	1500	F	#	40	-	
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	1800	F	#	40	-	
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	7500	F	#	100	-	
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	2200	QF	#	40	-	
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	3200	QF	#	40	-	
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	8600		#	100	-	
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	8600		#	100	-	
	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	110		#	4	-	
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	14000	F	#	200	-	
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	37000	F	#	400	-	
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	36000	F	#	400	-	
	mg/L	0562	WL, PZ	11/09/2005	0001	1.80 - 1.80	97	QF	#	2	-	
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	110	QF	#	2	-	
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	350	F	#	10	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Chloride	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	470		F	#	10	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	480		F	#	10	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	270		F	#	10	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	1400		F	#	40	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	1500		F	#	40	-
	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	140		F	#	4	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	120		F	#	4	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	320		F	#	10	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	830		F	#	10	-
	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	994	J	F	#	5	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	27000		F	#	400	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	26900	J	F	#	250	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	12000	J	F	#	250	-
	mg/L	0590	WL, PZ	11/09/2005	0001	1.50 - 1.50	460		QF	#	10	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	20.4	J	F	#	0.25	-
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	2000		F	#	40	-
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	2100		QF	#	40	-
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	2400		QF	#	40	-
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	3100		F	#	40	-
	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	1200		F	#	40	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	231	J	F	#	2.5	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	461	J	F	#	2.5	-
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	700		QF	#	20	-
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	1100		QF	#	20	-
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	96		QF	#	2	-
	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	96		QF	#	2	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY	
				DATE	ID			LAB	DATA	QA			
Chloride	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	1700		QF	#	40	-	
	mg/L	0614	WL, PZ	11/29/2005	0001	5.60 - 5.60	6900	J	F	#	125	-	
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	100		QF	#	4	-	
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	190		QF	#	10	-	
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	2800		QF	#	40	-	
	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	2400		QF	#	40	-	
	mg/L	0670	WL, EXT	11/09/2005	0001		1500			#	20	-	
	mg/L	0671	WL, EXT	11/09/2005	0001		4800			#	100	-	
	mg/L	0672	WL, EXT	11/09/2005	0001		7800			#	100	-	
	mg/L	0673	WL, EXT	11/09/2005	0001		9300			#	100	-	
	mg/L	0674	WL, EXT	11/09/2005	0001		7100			#	100	-	
	mg/L	0675	WL, EXT	11/09/2005	0001		5100			#	100	-	
	mg/L	0676	WL, EXT	11/09/2005	0001		3500			#	40	-	
	mg/L	0677	WL, EXT	11/09/2005	0001		4800			#	100	-	
	mg/L	0678	WL, EXT	11/09/2005	0001		4700			#	100	-	
	mg/L	0679	WL, EXT	11/09/2005	0001		3200			#	40	-	
	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	3800		F	#	40	-	
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	49000		F	#	1000	-	
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	49000		F	#	1000	-	
	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	470		QF	#	10	-	
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	100		QF	#	4	-	
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	720		F	#	20	-	
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	740		F	#	20	-	
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	1800		QF	#	40	-	
	mg/L		SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	1600		F	#	40	-
	mg/L		SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	1600		F	#	40	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Chloride	mg/L	SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	23000	F	#	400	-	
	mg/L	SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	19000	F	#	400	-	
	mg/L	SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	6700	F	#	100	-	
	mg/L	SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	1700	F	#	40	-	
Dissolved Organic Carbon	mg/L	0588	WL	11/28/2005	N001	26.00 - 26.00	5.3	B	JF	#	4.7	-
	mg/L	0589	WL	11/29/2005	N001	44.00 - 44.00	8.7	B	JF	#	4.7	-
	mg/L	0589	WL	11/29/2005	N003	44.00 - 44.00	5.3	B	JF	#	4.7	-
	mg/L	0602	WL	11/29/2005	N001	18.00 - 18.00	5.1	B	JF	#	4.7	-
	mg/L	0603	WL, PZ	11/29/2005	N001	9.70 - 9.70	10.7	F	#	4.7	-	
Iron	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.0254	B	UF	#	0.0074	-
	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.03		F	#	0.03	-
	mg/L	0589	WL	11/28/2005	0005	44.00 - 44.00	0.04		F	#	0.03	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	0.0150	B	UF	#	0.0074	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	0.0367	B	UF	#	0.0074	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	0.03	U	F	#	0.03	-
	mg/L	0602	WL	11/28/2005	0005	18.00 - 18.00	0.03		F	#	0.03	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.0108	B	UF	#	0.0074	-
Iron (II)	mg/L	0588	WL	11/28/2005	0002	26.00 - 26.00	1	U	F	#	0.1	-
	mg/L	0589	WL	11/29/2005	0002	44.00 - 44.00	5	U	F	#	0.6	-
	mg/L	0589	WL	11/29/2005	0004	44.00 - 44.00	10	U	F	#	1.1	-
	mg/L	0591	WL, PZ	11/29/2005	0002	4.40 - 4.40	1	U	F	#	0.1	-
	mg/L	0602	WL	11/29/2005	0002	18.00 - 18.00	1	U	F	#	0.1	-
	mg/L	0603	WL, PZ	11/29/2005	0002	9.70 - 9.70	1	U	F	#	0.1	-
	mg/L	0604	WL, PZ	11/29/2005	0002	7.80 - 7.80	1	U	F	#	0.1	-
	mg/L	0614	WL, PZ	11/29/2005	0002	5.60 - 5.60	1	U	F	#	0.1	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
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PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Manganese	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.946	F	#	0.001	-	
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	5.140	F	#	0.001	-	
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	5.200	F	#	0.001	-	
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.564	F	#	0.001	-	
Manganese (II)	mg/L	0588	WL	11/28/2005	0002	26.00 - 26.00	1	J	F	#	-	-
	mg/L	0589	WL	11/29/2005	0002	44.00 - 44.00	6.9		F	#	0.2	-
	mg/L	0589	WL	11/29/2005	0004	44.00 - 44.00	7.3	J	F	#	0.3	-
	mg/L	0591	WL, PZ	11/29/2005	0002	4.40 - 4.40	0.5	J	F	#	-	-
	mg/L	0602	WL	11/29/2005	0002	18.00 - 18.00	0.5	J	F	#	-	-
	mg/L	0603	WL, PZ	11/29/2005	0002	9.70 - 9.70	0.6	J	F	#	-	-
	mg/L	0604	WL, PZ	11/29/2005	0002	7.80 - 7.80	0.1	J	F	#	-	-
	mg/L	0614	WL, PZ	11/29/2005	0002	5.60 - 5.60	3.1		F	#	-	-
Methane	ug/L	0588	WL	11/28/2005	0002	26.00 - 26.00	1.8		F	#	0.011	-
	ug/L	0589	WL	11/29/2005	0002	44.00 - 44.00	3.8		F	#	0.011	-
	ug/L	0589	WL	11/29/2005	0004	44.00 - 44.00	2.6		F	#	0.011	-
	ug/L	0591	WL, PZ	11/29/2005	0002	4.40 - 4.40	4.7		F	#	0.011	-
	ug/L	0602	WL	11/29/2005	0002	18.00 - 18.00	5		F	#	0.011	-
	ug/L	0603	WL, PZ	11/29/2005	0002	9.70 - 9.70	1.8		F	#	0.011	-
	ug/L	0604	WL, PZ	11/29/2005	0002	7.80 - 7.80	1.6		F	#	0.011	-
	ug/L	0614	WL, PZ	11/29/2005	0002	5.60 - 5.60	3.5		F	#	0.011	-
Nitrogen, Total	mg/L	0588	WL	11/28/2005	0002	26.00 - 26.00	24		F	#	0.06	-
	mg/L	0589	WL	11/29/2005	0002	44.00 - 44.00	15		F	#	0.06	-
	mg/L	0589	WL	11/29/2005	0004	44.00 - 44.00	11		F	#	0.06	-
	mg/L	0591	WL, PZ	11/29/2005	0002	4.40 - 4.40	21		F	#	0.06	-
	mg/L	0602	WL	11/29/2005	0002	18.00 - 18.00	23		F	#	0.06	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
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PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Nitrogen, Total	mg/L	0603	WL, PZ	11/29/2005	0002	9.70 - 9.70	10	F	#		0.06	-
	mg/L	0604	WL, PZ	11/29/2005	0002	7.80 - 7.80	18	F	#		0.06	-
	mg/L	0614	WL, PZ	11/29/2005	0002	5.60 - 5.60	19	F	#		0.06	-
Phosphorus	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.0356	B	F	#	0.0101	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	0.0356	B	F	#	0.0101	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	0.0210	B	F	#	0.0101	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.0392	B	F	#	0.0101	-
Selenium	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.0048	B	F	#	0.00057	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	0.00057	U	F	#	0.00057	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	0.00057	U	F	#	0.00057	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.0095		F	#	0.00057	-
Sulfate	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	460		F	#	10	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	460		F	#	10	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	490		F	#	10	-
	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	3100		F	#	50	-
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	6800			#	100	-
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	7600			#	100	-
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	6500			#	100	-
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	5700			#	100	-
	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	6300			#	100	-
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	5600			#	100	-
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	5600			#	100	-
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	5700			#	100	-
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	6200			#	100	-
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	6400			#	100	-
	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	5100			#	100	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
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PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Sulfate	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	10000	F	#		100	-
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	12000	F	#		100	-
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	16000	F	#		250	-
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	7700	QF	#		100	-
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	12000	QF	#		100	-
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	7800		#		250	-
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	8800		#		250	-
	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	290		#		10	-
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	9700	F	#		250	-
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	9500	F	#		50	-
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	9600	F	#		50	-
	mg/L	0562	WL, PZ	11/09/2005	0001	1.80 - 1.80	270	QF	#		5	-
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	270	QF	#		5	-
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	1500	F	#		25	-
	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	1900	F	#		25	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	1800	F	#		25	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	1100	F	#		25	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	5600	F	#		100	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	5400	F	#		100	-
	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	480	F	#		10	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	360	F	#		10	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	1500	F	#		25	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	840	F	#		25	-
	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	1030	J	F	#	6.1	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	9400		F	#	500	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	17800	J	F	#	306	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Sulfate	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	23600	J	F	#	306	-
	mg/L	0590	WL, PZ	11/09/2005	0001	1.50 - 1.50	1700		QF	#	25	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	96.4	J	F	#	0.61	-
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	3200		F	#	100	-
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	8600		QF	#	100	-
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	9500		QF	#	100	-
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	11000		F	#	100	-
	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	6500		F	#	100	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	1040	J	F	#	6.1	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	2850	J	F	#	30.6	-
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	2200		QF	#	50	-
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	1100		QF	#	50	-
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	300		QF	#	5	-
	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	290		QF	#	5	-
	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	4000		QF	#	100	-
	mg/L	0614	WL, PZ	11/29/2005	0001	5.60 - 5.60	24800	J	F	#	306	-
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	250		QF	#	10	-
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	640		QF	#	25	-
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	10000		QF	#	100	-
	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	9700		QF	#	100	-
	mg/L	0670	WL, EXT	11/09/2005	0001		3100			#	50	-
	mg/L	0671	WL, EXT	11/09/2005	0001		7500			#	100	-
	mg/L	0672	WL, EXT	11/09/2005	0001		7800			#	250	-
	mg/L	0673	WL, EXT	11/09/2005	0001		9400			#	250	-
	mg/L	0674	WL, EXT	11/09/2005	0001		9400			#	250	-
	mg/L	0675	WL, EXT	11/09/2005	0001		10000			#	250	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Sulfate	mg/L	0676	WL, EXT	11/09/2005	0001		11000		#		100	-
	mg/L	0677	WL, EXT	11/09/2005	0001		11000		#		250	-
	mg/L	0678	WL, EXT	11/09/2005	0001		12000		#		250	-
	mg/L	0679	WL, EXT	11/09/2005	0001		11000		#		100	-
	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	13000	F	#		100	-
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	7000	F	#		50	-
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	7000	F	#		50	-
	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	1900	QF	#		25	-
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	350	QF	#		10	-
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	3000	F	#		50	-
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	3100	F	#		50	-
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	7300	QF	#		100	-
	mg/L	SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	8500	F	#		100	-
	mg/L	SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	8500	F	#		100	-
	mg/L	SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	8600	F	#		250	-
	mg/L	SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	8400	F	#		500	-
	mg/L	SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	17000	F	#		250	-
	mg/L	SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	8100	F	#		100	-
Total Dissolved Solids	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	1100	F	#		40	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	1100	F	#		40	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	1100	F	#		40	-
	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	4500	F	#		200	-
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	15000		#		400	-
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	16000		#		400	-
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	14000		#		400	-
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	11000		#		400	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Total Dissolved Solids	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	13000			#	400	-
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	11000			#	400	-
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	12000			#	400	-
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	11000			#	400	-
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	12000			#	400	-
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	15000			#	400	-
	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	11000			#	400	-
	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	15000	F		#	400	-
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	18000	F		#	400	-
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	32000	F		#	1000	-
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	14000	QF		#	400	-
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	21000	QF		#	400	-
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	22000			#	1000	-
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	26000			#	1000	-
	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	770			#	40	-
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	33000	F		#	1000	-
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	68000	F		#	2000	-
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	68000	F		#	2000	-
	mg/L	0562	WL, PZ	11/09/2005	0001	1.80 - 1.80	440	QF		#	80	-
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	700	QF		#	80	-
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	3100	F		#	80	-
	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	3500	F		#	80	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	3500	F		#	80	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	2100	F		#	80	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	10000	F		#	400	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	10000	F		#	400	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Total Dissolved Solids	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	990	F	#		40	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	830	F	#		40	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	3200	F	#		80	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	2500	F	#		80	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	54000	F	#		2000	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	45200	F	#		3.6	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	41700	F	#		3.6	-
	mg/L	0590	WL, PZ	11/09/2005	0001	1.50 - 1.50	3200	QF	#		200	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	1910	F	#		3.6	-
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	7400	F	#		400	-
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	14000	QF	#		400	-
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	16000	QF	#		400	-
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	19000	F	#		400	-
	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	11000	F	#		400	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	1720	F	#		3.6	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	4260	F	#		3.6	-
	mg/L	0604	WL, PZ	11/29/2005	0001	7.80 - 7.80	9330	F	#		3.6	-
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	4300	QF	#		200	-
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	3300	QF	#		200	-
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	680	QF	#		80	-
	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	780	QF	#		80	-
	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	8600	QF	#		400	-
	mg/L	0614	WL, PZ	11/29/2005	0001	5.60 - 5.60	15600	F	#		3.6	-
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	800	QF	#		80	-
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	1400	QF	#		80	-
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	19000	QF	#		400	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Total Dissolved Solids	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	17000	QF	#	400	-	
	mg/L	0670	WL, EXT	11/09/2005	0001		6600		#	200	-	
	mg/L	0671	WL, EXT	11/09/2005	0001		18000		#	400	-	
	mg/L	0672	WL, EXT	11/09/2005	0001		24000		#	1000	-	
	mg/L	0673	WL, EXT	11/09/2005	0001		28000		#	1000	-	
	mg/L	0674	WL, EXT	11/09/2005	0001		25000		#	1000	-	
	mg/L	0675	WL, EXT	11/09/2005	0001		23000		#	400	-	
	mg/L	0676	WL, EXT	11/09/2005	0001		21000		#	400	-	
	mg/L	0677	WL, EXT	11/09/2005	0001		23000		#	400	-	
	mg/L	0678	WL, EXT	11/09/2005	0001		22000		#	400	-	
	mg/L	0679	WL, EXT	11/09/2005	0001		20000		#	400	-	
	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	22000	F	#	400	-	
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	79000	F	#	2000	-	
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	82000	F	#	2000	-	
	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	3700	QF	#	200	-	
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	800	QF	#	80	-	
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	5400	F	#	200	-	
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	5400	F	#	200	-	
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	12000	QF	#	400	-	
	mg/L		SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	14000	F	#	400	-
mg/L		SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	14000	F	#	400	-	
mg/L		SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	45000	F	#	2000	-	
mg/L		SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	74000	F	#	8000	-	
mg/L		SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	33000	F	#	1000	-	
mg/L		SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	14000	F	#	400	-	
Total Inorganic Carbon	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	84.2	JF	#	11.1	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			UN-CERTAINTY
				DATE	ID			LAB	DATA	QA	
Total Inorganic Carbon	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	99.6	JF	#	11.1	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	84.4	JF	#	11.1	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	71.0	JF	#	11.1	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	73.8	F	#	11.1	-
Total Kjeldahl Nitrogen	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	96.1	F	#	6.1	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	1910	F	#	1.2	-
	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	1950	F	#	1.2	-
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	149	F	#	0.12	-
Total Organic Carbon	mg/L	0588	WL	11/28/2005	N001	26.00 - 26.00	2.8	F	#	0.47	-
	mg/L	0589	WL	11/29/2005	N001	44.00 - 44.00	2.6	F	#	0.47	-
	mg/L	0589	WL	11/29/2005	N003	44.00 - 44.00	2.5	F	#	0.47	-
	mg/L	0602	WL	11/29/2005	N001	18.00 - 18.00	3.2	F	#	0.47	-
Uranium	mg/L	0401	WL	11/15/2005	0001	18.00 - 18.00	0.220	F	#	4.8E-05	-
	mg/L	0401	WL	11/15/2005	0002	18.00 - 18.00	0.220	F	#	4.8E-05	-
	mg/L	0402	WL	11/10/2005	0001	17.00 - 17.00	0.140	F	#	0.00024	-
	mg/L	0408	WL	11/15/2005	0001	26.00 - 26.00	0.650	F	#	0.00024	-
	mg/L	0470	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.200		#	0.00048	-
	mg/L	0471	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.600		#	0.00048	-
	mg/L	0472	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.700		#	0.00048	-
	mg/L	0473	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.400		#	0.00048	-
	mg/L	0474	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.800		#	0.00048	-
	mg/L	0475	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.500		#	0.00048	-
	mg/L	0475	WL, EXT	11/10/2005	0002	10.30 - 19.70	2.300		#	0.00048	-
	mg/L	0476	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.300		#	0.00048	-
	mg/L	0477	WL, EXT	11/10/2005	0001	10.30 - 19.70	2.700		#	0.00048	-
	mg/L	0478	WL, EXT	11/10/2005	0001	9.60 - 23.90	2.700		#	0.00048	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Uranium	mg/L	0479	WL, EXT	11/10/2005	0001	9.30 - 23.60	2.000			#	0.00048	-
	mg/L	0488	WL	11/09/2005	0001	26.00 - 26.00	2.100	F		#	0.00024	-
	mg/L	0488	WL	11/09/2005	0001	39.00 - 39.00	2.700	F		#	0.00048	-
	mg/L	0493	WL	11/09/2005	0001	54.00 - 54.00	3.500	F		#	0.00024	-
	mg/L	0496	WL, PZ	11/09/2005	0001	2.70 - 2.70	0.00045	QF		#	4.8E-06	-
	mg/L	0497	WL, PZ	11/09/2005	0001	4.80 - 4.80	1.400	QF		#	0.00024	-
	mg/L	0547	TS, INFL	11/11/2005	0001	0.00 - 0.00	2.600			#	0.00048	-
	mg/L	0548	TS, EPND	11/11/2005	0001	0.00 - 0.00	3.000			#	0.00048	-
	mg/L	0550	IS, IHYD	11/15/2005	0001	0.00 - 0.00	0.0064			#	4.8E-06	-
	mg/L	0557	WL	11/10/2005	0001	40.00 - 40.00	2.600	F		#	0.00048	-
	mg/L	0560	WL	11/10/2005	0001	31.00 - 31.00	1.500	F		#	0.00024	-
	mg/L	0560	WL	11/10/2005	0002	31.00 - 31.00	1.600	F		#	0.00048	-
	mg/L	0564	WL, PZ	11/09/2005	0001	1.70 - 1.70	0.00065	QF		#	4.8E-06	-
	mg/L	0580	WL	11/10/2005	0001	18.00 - 18.00	0.370	F		#	0.00024	-
	mg/L	0581	WL	11/10/2005	0001	18.00 - 18.00	0.560	F		#	0.00024	-
	mg/L	0581	WL	11/10/2005	0002	18.00 - 18.00	0.590	F		#	0.00024	-
	mg/L	0582	WL	11/10/2005	0001	18.00 - 18.00	0.300	F		#	0.00024	-
	mg/L	0583	WL	11/15/2005	0001	18.00 - 18.00	1.900	F		#	0.00024	-
	mg/L	0584	WL	11/15/2005	0001	18.00 - 18.00	1.800	F		#	0.00024	-
	mg/L	0585	WL	11/15/2005	0001	18.00 - 18.00	0.140	F		#	2.4E-05	-
	mg/L	0586	WL	11/15/2005	0001	18.00 - 18.00	0.120	F		#	4.8E-05	-
	mg/L	0587	WL	11/10/2005	0001	18.00 - 18.00	0.560	F		#	0.00024	-
	mg/L	0588	WL	11/10/2005	0001	30.00 - 30.00	0.140	F		#	2.4E-05	-
	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.238	F		#	0.00068	-
	mg/L	0589	WL	11/10/2005	0001	48.00 - 48.00	2.100	F		#	0.00024	-
	mg/L	0589	WL	11/29/2005	0001	44.00 - 44.00	2.810	F		#	0.00068	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Uranium	mg/L	0589	WL	11/29/2005	0003	44.00 - 44.00	2.850	F	#	0.00068	-	
	mg/L	0596	WL	11/10/2005	0001	24.00 - 24.00	0.960	F	#	0.00024	-	
	mg/L	0598	WL, PZ	11/09/2005	0001	9.60 - 9.60	1.700	QF	#	0.00024	-	
	mg/L	0599	WL, PZ	11/09/2005	0001	9.90 - 9.90	2.300	QF	#	0.00024	-	
	mg/L	0600	WL	11/10/2005	0001	28.00 - 28.00	2.600	F	#	0.00048	-	
	mg/L	0601	WL	11/15/2005	0001	28.00 - 28.00	1.700	F	#	0.00024	-	
	mg/L	0602	WL	11/29/2005	0001	18.00 - 18.00	0.327	F	#	0.00068	-	
	mg/L	0605	WL, PZ	11/09/2005	0001	9.90 - 9.90	0.170	QF	#	2.4E-05	-	
	mg/L	0608	WL, PZ	11/09/2005	0001	9.40 - 9.40	0.00072	QF	#	4.8E-06	-	
	mg/L	0611	WL, PZ	11/09/2005	0001	2.70 - 2.70	0.00016	QF	#	4.8E-06	-	
	mg/L	0612	WL, PZ	11/09/2005	0001	4.80 - 4.80	0.017	QF	#	4.8E-06	-	
	mg/L	0613	WL, PZ	11/09/2005	0001	1.70 - 1.70	0.740	QF	#	0.00024	-	
	mg/L	0615	WL, PZ	11/09/2005	0001	1.90 - 1.90	0.011	QF	#	2.4E-05	-	
	mg/L	0616	WL, PZ	11/09/2005	0001	5.80 - 5.80	0.016	QF	#	2.4E-05	-	
	mg/L	0617	WL, PZ	11/09/2005	0001	2.20 - 2.20	1.000	QF	#	0.00024	-	
	mg/L	0618	WL, PZ	11/09/2005	0001	5.80 - 5.80	0.450	QF	#	2.4E-05	-	
	mg/L	0670	WL, EXT	11/09/2005	0001		0.860		#	0.00048	-	
	mg/L	0671	WL, EXT	11/09/2005	0001		2.200		#	0.00048	-	
	mg/L	0672	WL, EXT	11/09/2005	0001		2.300		#	0.00048	-	
	mg/L	0673	WL, EXT	11/09/2005	0001		2.600		#	0.00048	-	
	mg/L	0674	WL, EXT	11/09/2005	0001		2.900		#	0.00048	-	
	mg/L	0675	WL, EXT	11/09/2005	0001		3.100		#	0.00048	-	
	mg/L	0676	WL, EXT	11/09/2005	0001		3.200		#	0.00048	-	
	mg/L	0677	WL, EXT	11/09/2005	0001		3.300		#	0.00048	-	
	mg/L	0678	WL, EXT	11/09/2005	0001		3.400		#	0.00048	-	
	mg/L	0679	WL, EXT	11/09/2005	0001		4.700		#	0.00048	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE:		DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS:			DETECTION LIMIT	UN-CERTAINTY
				DATE	ID			LAB	DATA	QA		
Uranium	mg/L	0688	WL	11/09/2005	0001	31.00 - 31.00	3.600	F	#	0.00048	-	
	mg/L	0689	WL	11/09/2005	0001	54.00 - 54.00	0.980	F	#	9.5E-05	-	
	mg/L	0689	WL	11/09/2005	0002	54.00 - 54.00	0.810	F	#	9.5E-05	-	
	mg/L	0693	WL, PZ	11/09/2005	0001	2.00 - 2.00	0.550	QF	#	9.5E-05	-	
	mg/L	0696	WL, PZ	11/09/2005	0001	1.80 - 1.80	0.0016	QF	#	4.8E-06	-	
	mg/L	0697	WL, PZ	11/09/2005	0001	4.80 - 4.80	0.830	F	#	0.00048	-	
	mg/L	0697	WL, PZ	11/09/2005	0002	4.80 - 4.80	0.830	F	#	0.00048	-	
	mg/L	0698	WL, PZ	11/09/2005	0001	9.80 - 9.80	0.0016	QF	#	4.8E-06	-	
	mg/L	SMI-PW01	WL	11/09/2005	0001	40.00 - 40.00	2.100	F	#	0.00024	-	
	mg/L	SMI-PW01	WL	11/09/2005	0002	20.09 - 60.09	2.100	F	#	0.00024	-	
	mg/L	SMI-PW02	WL	11/11/2005	0001	20.04 - 60.04	2.400	F	#	0.00024	-	
	mg/L	SMI-PZ1D2	WL	11/09/2005	0001	73.00 - 73.00	1.000	F	#	0.00024	-	
	mg/L	SMI-PZ1M	WL	11/09/2005	0001	57.00 - 57.00	3.600	F	#	0.00048	-	
	mg/L	SMI-PZ1S	WL	11/09/2005	0001	18.00 - 18.00	1.700	F	#	0.00024	-	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:33 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	SAMPLE: ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site\_code='MOA01' AND quality\_assurance = TRUE AND (data\_validation\_qualifiers IS NULL OR data\_validation\_qualifiers NOT LIKE '%X%' ) AND cas in('NH3+NH4-N','BROMIDE','00124-38-9','COD','CHLORIDE','DOC','07439-89-6','FE (II)','07439-96-5','MN (II)','000074-82-8','07727-37-9','007723-14-0','07782-49-2','SULFATE','TDS','TIC','TKN','TOC','07440-61-1') AND DATE\_SAMPLED between #11/7/2005# and #11/30/2005#

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

LOCATION TYPES: IS INJECTION SYSTEM TS TREATMENT SYSTEM WL WELL

LOCATION SUBTYPES: EPND Evaporation Pond EXT Extraction Well IHYD Injection System Hydrant INFL Treatment System Influent  
 PZ Piezometer

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

**Environmental Sciences Laboratory**  
**Water Quality Data**

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:36 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Biochemical Oxygen Dema	mg/L	0589	WL	11/28/2005	N005	44.00 - 44.00	0.32	F #	0.1	-
	mg/L	0591	WL, PZ	11/29/2005	N001	4.40 - 4.40	4.73	F #	0.1	-
	mg/L	0602	WL	11/28/2005	N005	18.00 - 18.00	0.4	F #	0.1	-
Nitrifying Bacteria	cfu/mL	0588	WL	11/28/2005	N001	26.00 - 26.00	1000	U F #	1000	-
	cfu/mL	0589	WL	11/28/2005	N005	44.00 - 44.00	1000	U F #	1000	-
	cfu/mL	0591	WL, PZ	11/29/2005	N001	4.40 - 4.40	1000	F #	1000	-
	cfu/mL	0602	WL	11/28/2005	N005	18.00 - 18.00	1000	U F #	1000	-
	cfu/mL	0603	WL, PZ	11/29/2005	N001	9.70 - 9.70	1000	U F #	1000	-
	cfu/mL	0604	WL, PZ	11/29/2005	N001	7.80 - 7.80	100000	F #	1000	-
	cfu/mL	0614	WL, PZ	11/29/2005	N001	5.60 - 5.60	10000	F #	1000	-
Nitrite as Nitrogen	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.008	F #	0.005	-
	mg/L	0589	WL	11/28/2005	0005	44.00 - 44.00	0.005	U F #	0.005	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	0.196	F #	0.005	-
	mg/L	0602	WL	11/28/2005	0005	18.00 - 18.00	0.005	U F #	0.005	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	0.005	U F #	0.005	-
ortho-Phosphate	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.3	U F #	0.3	-
	mg/L	0589	WL	11/28/2005	0005	44.00 - 44.00	0.3	U F #	0.3	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	0.3	U F #	0.3	-
	mg/L	0602	WL	11/28/2005	0005	18.00 - 18.00	0.3	U F #	0.3	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	0.3	F #	0.3	-
Sulfide	mg/L	0588	WL	11/28/2005	0001	26.00 - 26.00	0.01	F #	0.01	-
	mg/L	0589	WL	11/28/2005	0005	44.00 - 44.00	0.01	F #	0.01	-
	mg/L	0591	WL, PZ	11/29/2005	0001	4.40 - 4.40	0.01	F #	0.01	-
	mg/L	0602	WL	11/28/2005	0005	18.00 - 18.00	0.01	F #	0.01	-
	mg/L	0603	WL, PZ	11/29/2005	0001	9.70 - 9.70	0.02	F #	0.01	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site  
 REPORT DATE: 2/13/2006 10:36 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site\_code='MOA01' AND quality\_assurance = TRUE AND (data\_validation\_qualifiers IS NULL OR data\_validation\_qualifiers NOT LIKE '%R%' AND data\_validation\_qualifiers NOT LIKE '%X%') AND cas in('00010-26-4','NITRIF BACTE','NITRITE AS N','00011-36-9','SULFIDE') AND DATE\_SAMPLED between #11/7/2005# and #11/30/2005#

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

LOCATION TYPES: WL WELL

LOCATION SUBTYPES: PZ Piezometer

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic & Radiochemistry: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

## **Water Level Data**

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site  
 REPORT DATE: 1/16/2006 11:06 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0401	O	3969.60	11/15/2005	13:52	15.98	3953.62	
0402	O	3968.63	11/10/2005	14:00	15.45	3953.18	
0408	O	3969.17	11/15/2005	13:26	15.54	3953.63	
0470		3964.12	11/10/2005	08:55	13.94	3950.18	
0471		3964.37	11/10/2005	09:15	13.92	3950.45	
0472		3964.40	11/10/2005	09:26	13.75	3950.65	
0473		3964.66	11/10/2005	09:37	14.21	3950.45	
0474		3964.99	11/10/2005	09:47	13.39	3951.60	
0475		3964.97	11/10/2005	09:58	14.69	3950.28	
0476		3965.24	11/10/2005	10:17	15.73	3949.51	
0477		3965.08	11/10/2005	10:25	14.09	3950.99	
0478		3964.91	11/10/2005	10:35	15.39	3949.52	
0479		3964.67	11/10/2005	10:45	13.36	3951.31	
0488		3968.48	11/09/2005	09:50	14.44	3954.04	
0493		3967.89	11/09/2005	09:28	14.09	3953.80	
0494		3959.27	11/08/2005	14:45		-	D
0496		3957.48	11/08/2005	14:52	3.72	3953.76	
0497		3955.66	11/08/2005	14:57	1.91	3953.75	
0557		3968.85	11/10/2005	08:34	15.92	3952.93	
0560		3968.77	11/10/2005	08:08	16.12	3952.65	
0562		3956.29	11/08/2005	17:01	3.71	3952.58	
0564		3956.39	11/08/2005	17:22	3.95	3952.44	
0580		3969.32	11/10/2005	11:38	16.85	3952.47	
0581		3969.02	11/10/2005	12:08	16.01	3953.01	
0582		3969.65	11/10/2005	12:35	16.51	3953.14	
0583		3969.64	11/15/2005	11:33	16.33	3953.31	
0584		3969.13	11/15/2005	11:57	15.74	3953.39	
0585		3969.36	11/15/2005	12:28	15.85	3953.51	
0586		3969.20	11/15/2005	14:14	15.51	3953.69	
0587		3968.89	11/10/2005	15:20	14.96	3953.93	

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site  
 REPORT DATE: 1/16/2006 11:06 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0588		3968.82	11/10/2005	14:57	15.35	3953.47	
0589		3968.87	11/10/2005	14:35	15.16	3953.71	
0590		3956.70	11/08/2005	16:05	3.40	3953.30	
0596		3968.76	11/10/2005	07:47	16.36	3952.40	
0598		3957.38	11/08/2005	15:20	4.80	3952.58	
0599		3955.93	11/08/2005	15:12	2.16	3953.77	
0600		3968.77	11/10/2005	13:24	15.60	3953.17	
0601		3968.73	11/15/2005	12:54	15.25	3953.48	
0605		3956.10	11/08/2005	16:44	3.59	3952.51	
0608		3956.34	11/08/2005	17:10	4.83	3951.51	
0611		3955.90	11/08/2005	17:14	3.41	3952.49	
0612		3955.77	11/08/2005	17:17	3.57	3952.20	
0613		3957.11	11/08/2005	16:31	4.04	3953.07	
0615		3957.10	11/08/2005	16:47	3.88	3953.22	
0616		3955.26	11/08/2005	16:49	2.33	3952.93	
0617		3956.76	11/08/2005	15:05	3.32	3953.44	
0618		3954.96	11/08/2005	15:09	1.58	3953.38	
0670		3969.54	11/09/2005	14:27	16.10	3953.44	
0671		3969.50	11/09/2005	14:34	16.44	3953.06	
0672		3969.57	11/09/2005	14:47	16.83	3952.74	
0673		3969.44	11/09/2005	14:52	16.88	3952.56	
0674		3969.49	11/09/2005	15:03	16.82	3952.67	
0675		3969.64	11/09/2005	15:11	16.78	3952.86	
0676		3969.69	11/09/2005	15:23	16.54	3953.15	
0677		3969.61	11/09/2005	15:31	16.51	3953.10	
0678		3969.65	11/09/2005	15:41	16.39	3953.26	
0679		3969.59	11/09/2005	15:52	16.35	3953.24	
0688		3968.66	11/09/2005	13:41	15.58	3953.08	
0689		3968.66	11/09/2005	14:00	15.66	3953.00	
0690		3958.92	11/08/2005	15:35		-	D

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site  
 REPORT DATE: 1/16/2006 11:06 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0693		3957.31	11/08/2005	15:41	3.95	3953.36	
0696		3957.18	11/08/2005	15:51	3.83	3953.35	
0697		3956.12	11/08/2005	15:54	2.67	3953.45	
0698		3956.01	11/08/2005	16:02	3.69	3952.32	
SMI-PW01	O	3968.45	11/09/2005	08:43	14.27	3954.18	
SMI-PW02	O	3967.48	11/11/2005	08:00	15.05	3952.43	
SMI-PZ1D2	O	3968.26	11/09/2005	08:20	14.93	3953.33	
SMI-PZ1M	O	3968.29	11/09/2005	08:02	14.16	3954.13	
SMI-PZ1S	O	3969.13	11/09/2005	07:43	14.98	3954.15	

RECORDS: SELECTED FROM USEE700 WHERE site\_code='MOA01' AND LOG\_DATE between #11/6/2005# and #11/17/2005#

FLOW CODES: O ON-SITE

WATER LEVEL FLAGS:  
 D Dry

# **Blanks Report**

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110255

REPORT DATE: 02/24/06 08:19:54: AM

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	11/09/2005	0001	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	11/09/2005	0001	mg/L	0.2	U	0.2		E
Chloride	MOA01	0999	11/09/2005	0001	mg/L	0.2	U	0.2		E
Sulfate	MOA01	0999	11/09/2005	0001	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	11/09/2005	0001	mg/L	20	U	20		E
Uranium	MOA01	0999	11/09/2005	0001	mg/L	0.000046	B U	0.0000048		E

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110256

REPORT DATE: 02/24/06 08:20:26: AM

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	11/11/2005	0001	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	11/11/2005	0001	mg/L	0.2	U	0.2		E
Chloride	MOA01	0999	11/11/2005	0001	mg/L	0.2	U	0.2		E
Sulfate	MOA01	0999	11/11/2005	0001	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	11/11/2005	0001	mg/L	20	U	20		E
Uranium	MOA01	0999	11/11/2005	0001	mg/L	0.000072	B U	0.0000048		E

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110257

REPORT DATE: 02/24/06 08:20:58: AM

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	11/10/2005	0001	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	11/10/2005	0001	mg/L	0.2	U	0.2		E
Chloride	MOA01	0999	11/10/2005	0001	mg/L	0.2	U	0.2		E
Sulfate	MOA01	0999	11/10/2005	0001	mg/L	0.5	U	0.5		E
Total Dissolved Solids	MOA01	0999	11/10/2005	0001	mg/L	20	U	20		E
Uranium	MOA01	0999	11/10/2005	0001	mg/L	0.000019	B U	0.0000048		E

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

LAB REQUISITION(S): 05110258

REPORT DATE: 02/24/06 08:21:23: AM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	ID	UNITS	RESULT	QUALIFIERS LAB DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
Ammonia Total as N	MOA01	0999	11/11/2005	0002	mg/L	0.1	U	0.1		E
Bromide	MOA01	0999	11/11/2005	0002	mg/L	0.2	U	0.2		E
Chloride	MOA01	0999	11/11/2005	0002	mg/L	0.2	U	0.2		E
Sulfate	MOA01	0999	11/11/2005	0002	mg/L	0.51		0.5		E
Total Dissolved Solids	MOA01	0999	11/11/2005	0002	mg/L	20	U	20		E
Uranium	MOA01	0999	11/11/2005	0002	mg/L	0.00002	B U	0.0000048		E

BLANKS REPORT

LAB CODE: STS, SEVERN TRENT ST. LOUIS (Earth City, MO)

LAB REQUISITION(S): 05110267

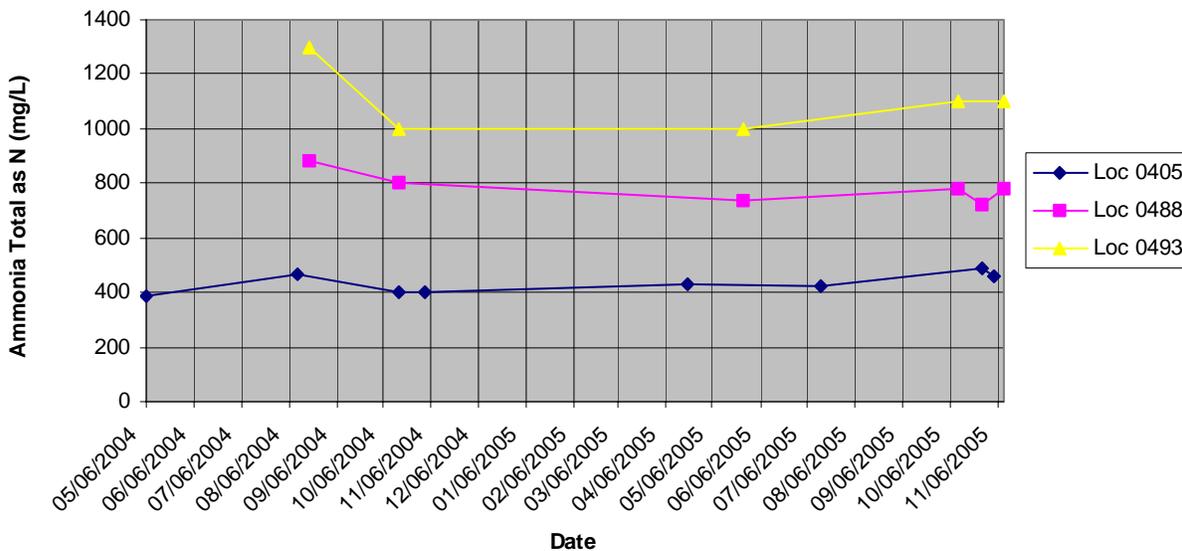
REPORT DATE: 02/13/06 09:53:30: AM

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	11/29/2005	0001	mg/L	0.0055	U	0.0055		E
Bromide	MOA01	0999	11/29/2005	0001	mg/L	0.026	U	0.026		E
Chemical Oxygen Demand	MOA01	0999	11/29/2005	0001	mg/L	9.2	U	9.2		E
Chloride	MOA01	0999	11/29/2005	0001	mg/L	0.025	U	0.025		E
Dissolved Organic Carbon	MOA01	0999	11/29/2005	N001	mg/L	4.7	U J	4.7		E
Iron	MOA01	0999	11/29/2005	0001	mg/L	0.0074	U	0.0074		E
Manganese	MOA01	0999	11/29/2005	0001	mg/L	0.001	U	0.001		E
Nitrate + Nitrite as Nitrogen	MOA01	0999	11/29/2005	0001	mg/L	0.0027	U	0.0027		E
Phosphorus	MOA01	0999	11/29/2005	0001	mg/L	0.0101	U	0.0101		E
Selenium	MOA01	0999	11/29/2005	0001	mg/L	0.00057	U	0.00057		E
Sulfate	MOA01	0999	11/29/2005	0001	mg/L	0.061	U	0.061		E
Total Dissolved Solids	MOA01	0999	11/29/2005	0001	mg/L	177		3.6		E
Total Inorganic Carbon	MOA01	0999	11/29/2005	0001	mg/L	0.27	B J	0.22		E
Total Kjeldahl Nitrogen	MOA01	0999	11/29/2005	0001	mg/L	0.35		0.061		E
Total Organic Carbon	MOA01	0999	11/29/2005	N001	mg/L	0.63	B	0.47		E
Uranium	MOA01	0999	11/29/2005	0001	mg/L	0.00014	U	0.00014		E

## **Time Versus Concentration Graphs**

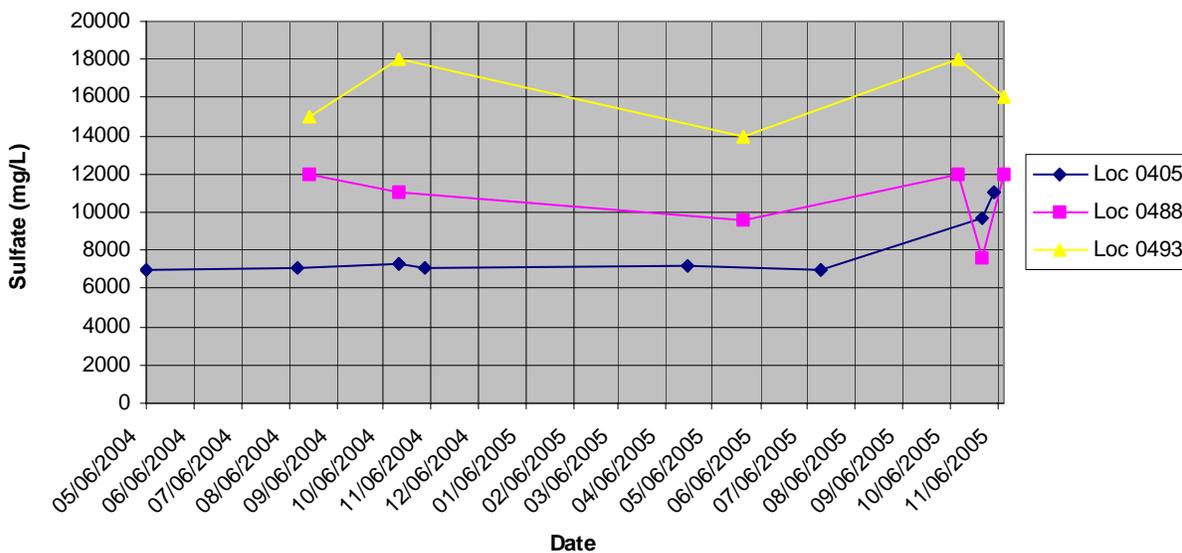
Moab Site (MOA01)

Ammonia Total as N Concentration



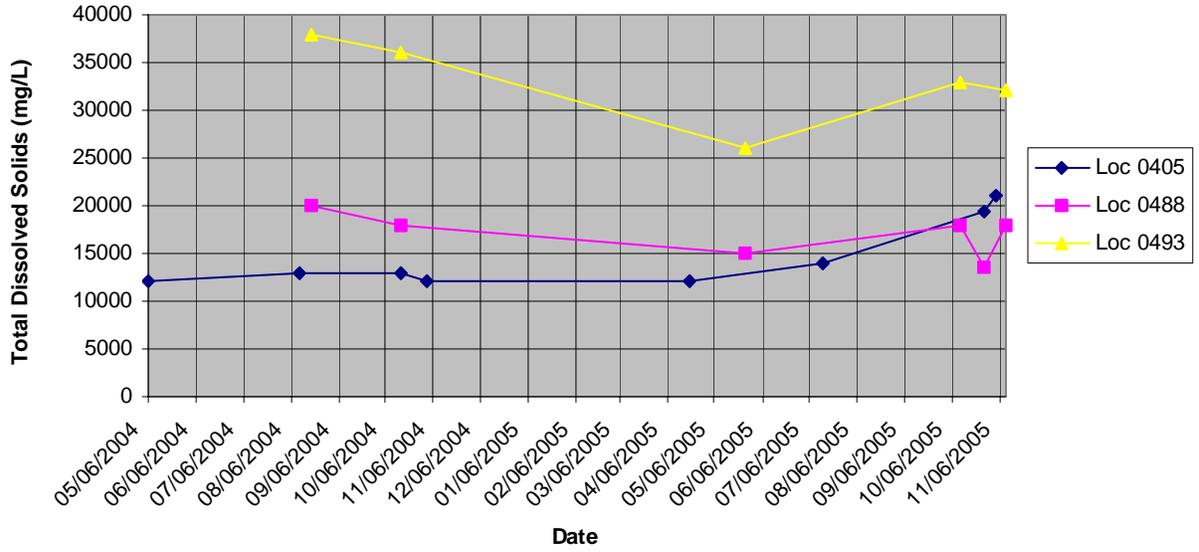
Moab Site (MOA01)

Sulfate Concentration



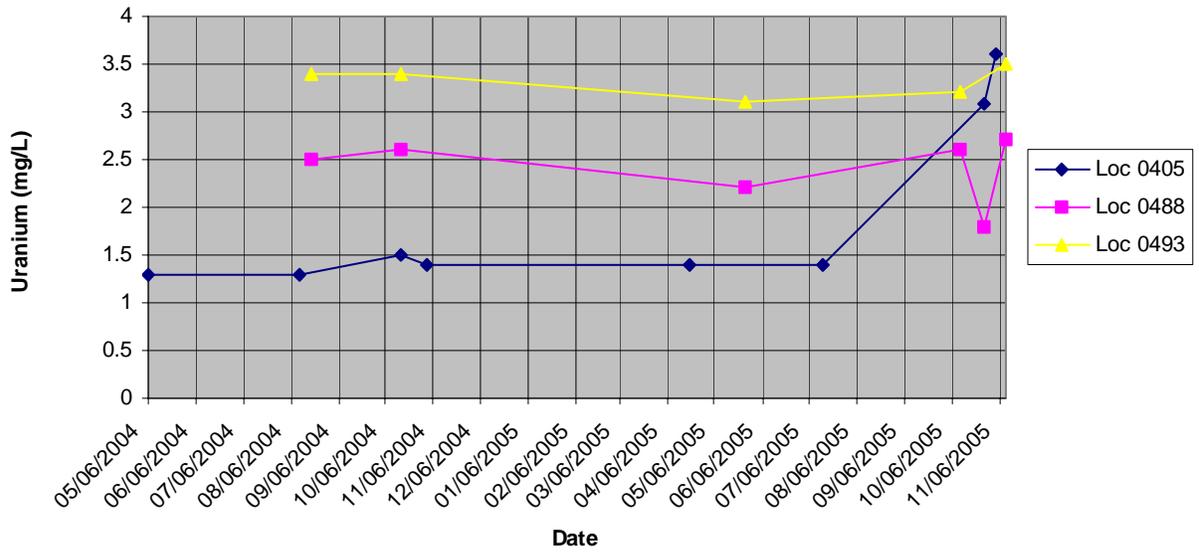
Moab Site (MOA01)

Total Dissolved Solids Concentration



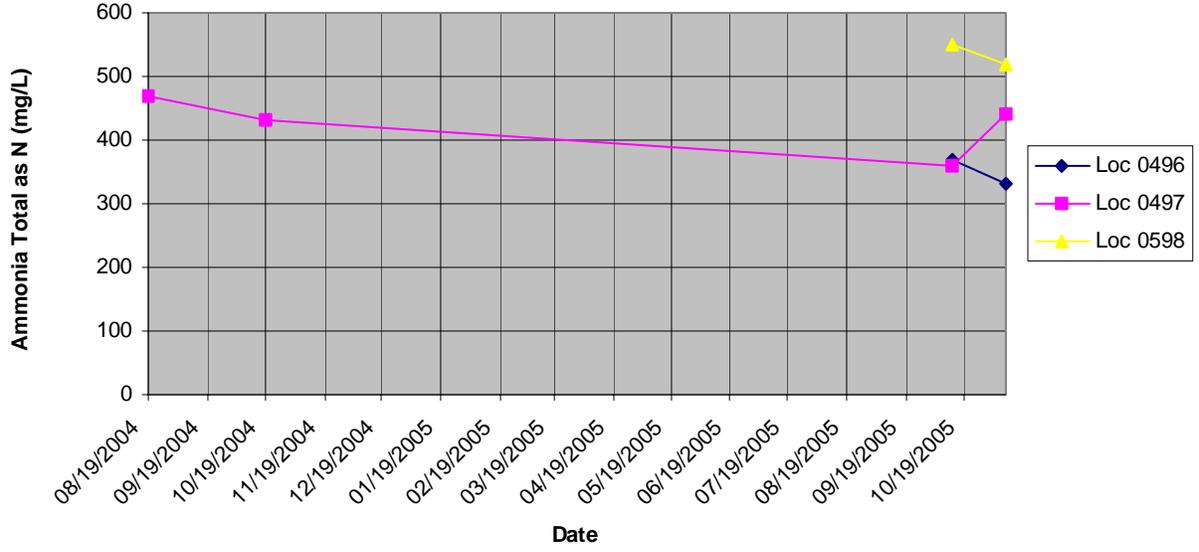
Moab Site (MOA01)

Uranium Concentration



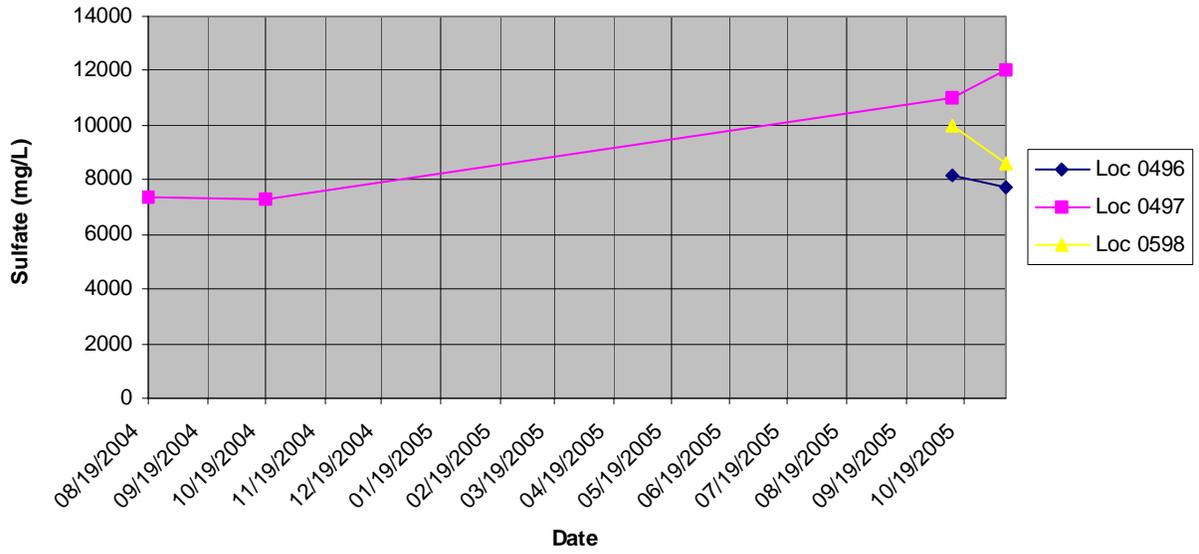
Moab Site (MOA01)

Ammonia Total as N Concentration



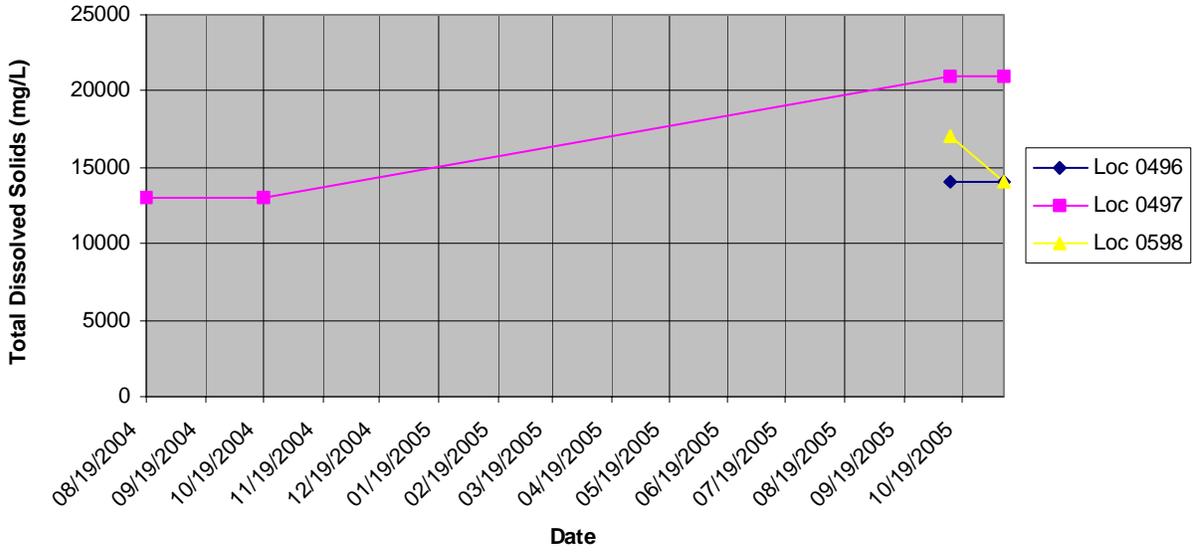
Moab Site (MOA01)

Sulfate Concentration



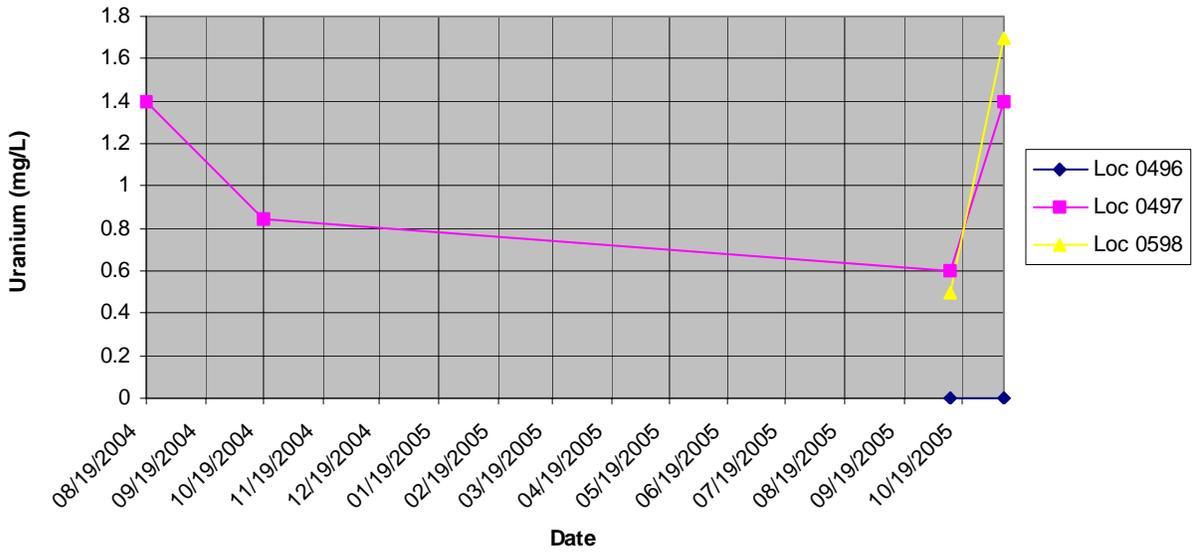
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Total Dissolved Solids Concentration



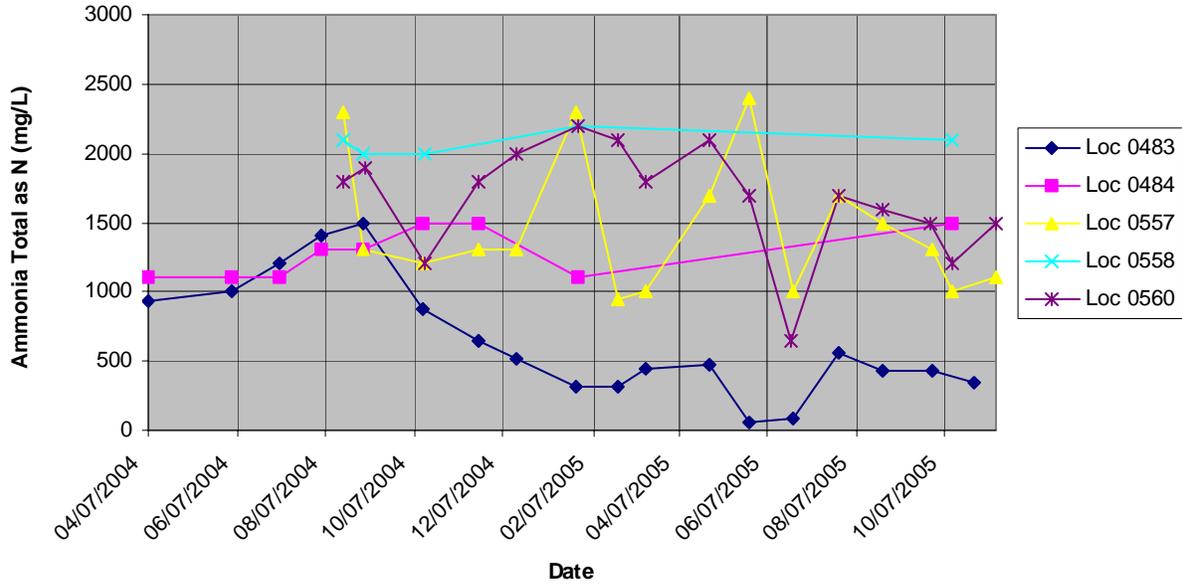
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Uranium Concentration



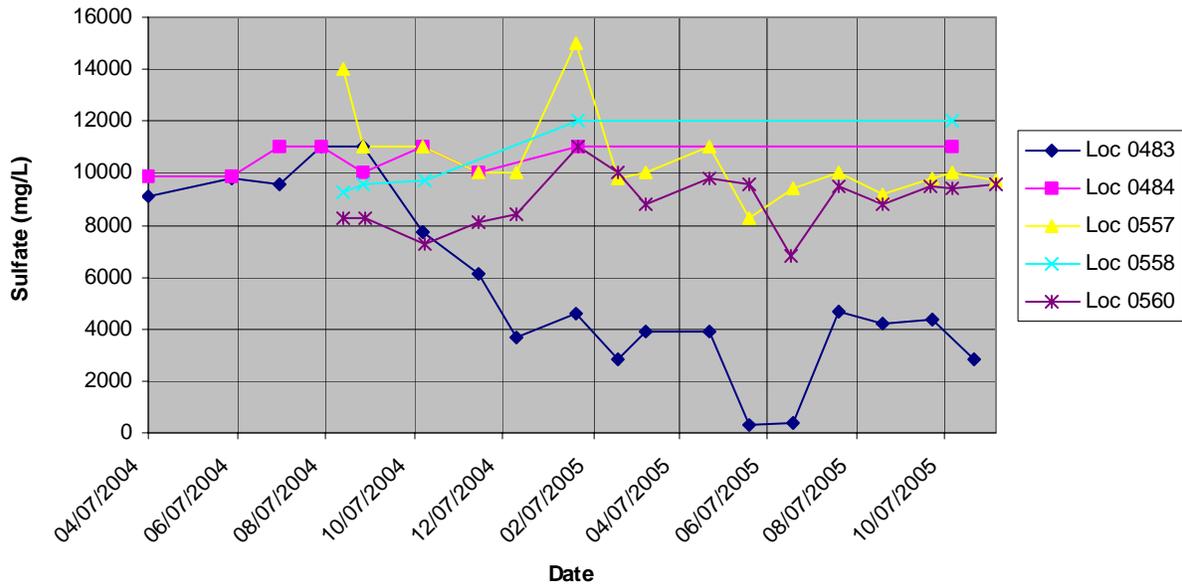
### Moab Site (MOA01)

#### Ammonia Total as N Concentration



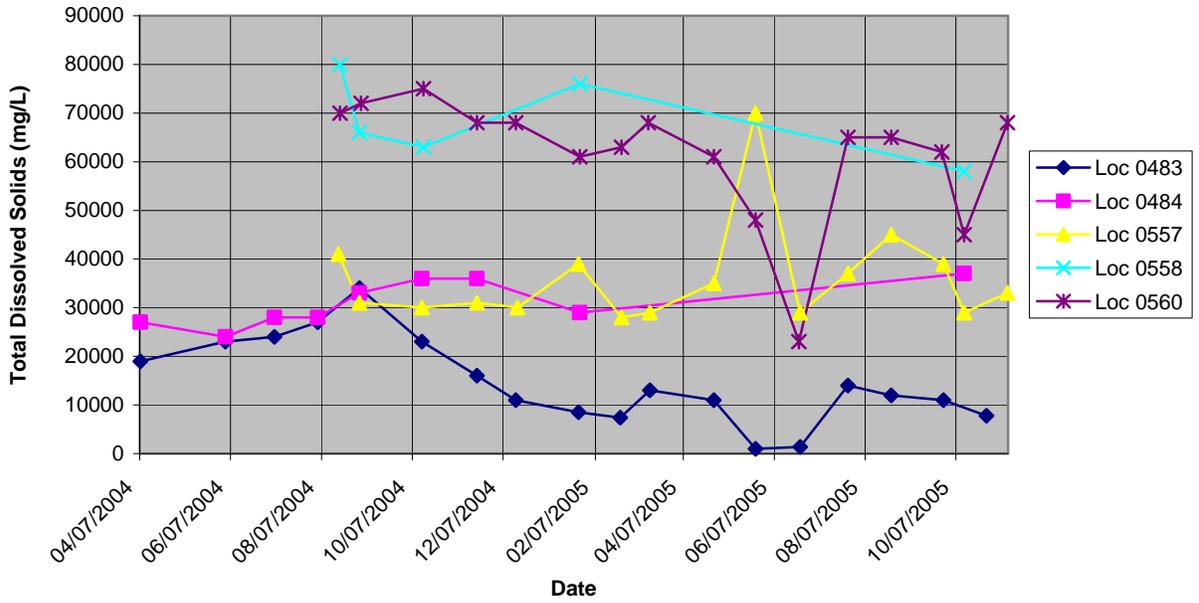
### Moab Site (MOA01)

#### Sulfate Concentration



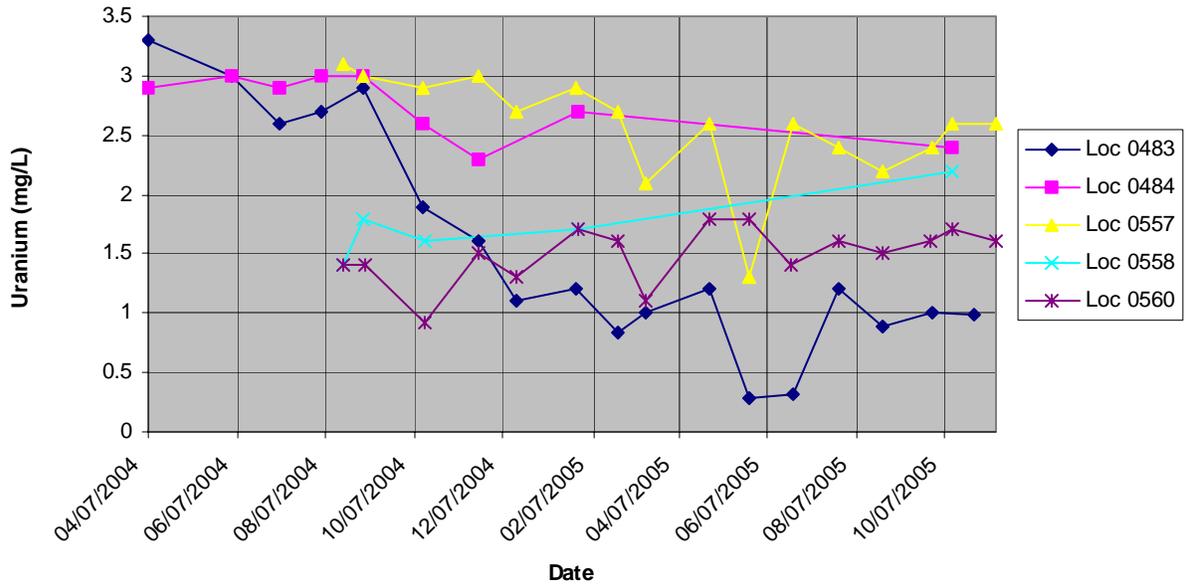
Moab Site (MOA01)

Total Dissolved Solids Concentration



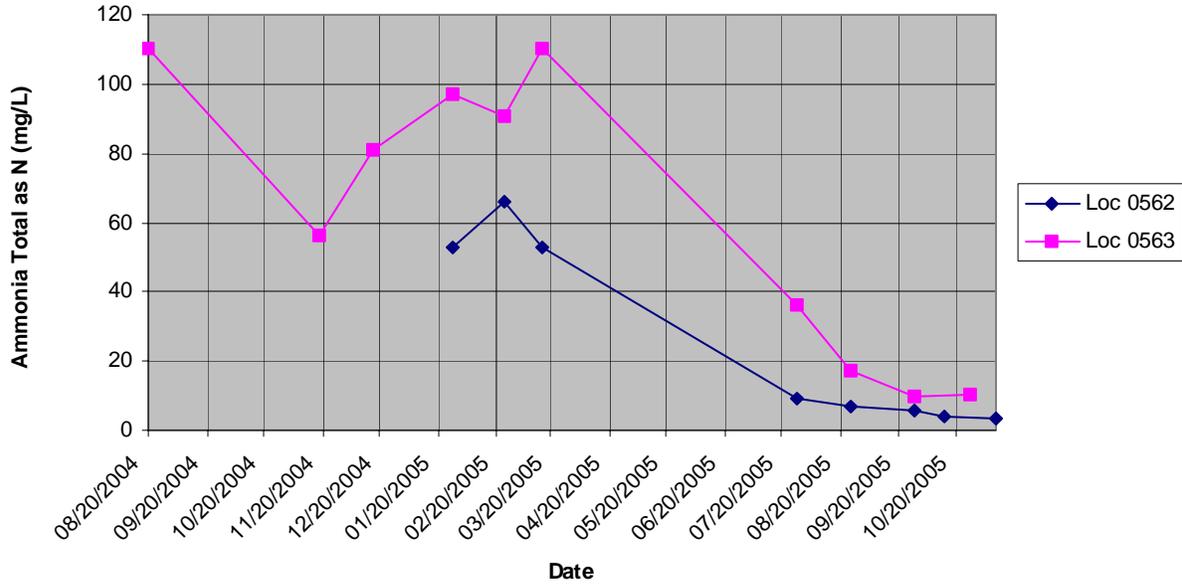
Moab Site (MOA01)

Uranium Concentration



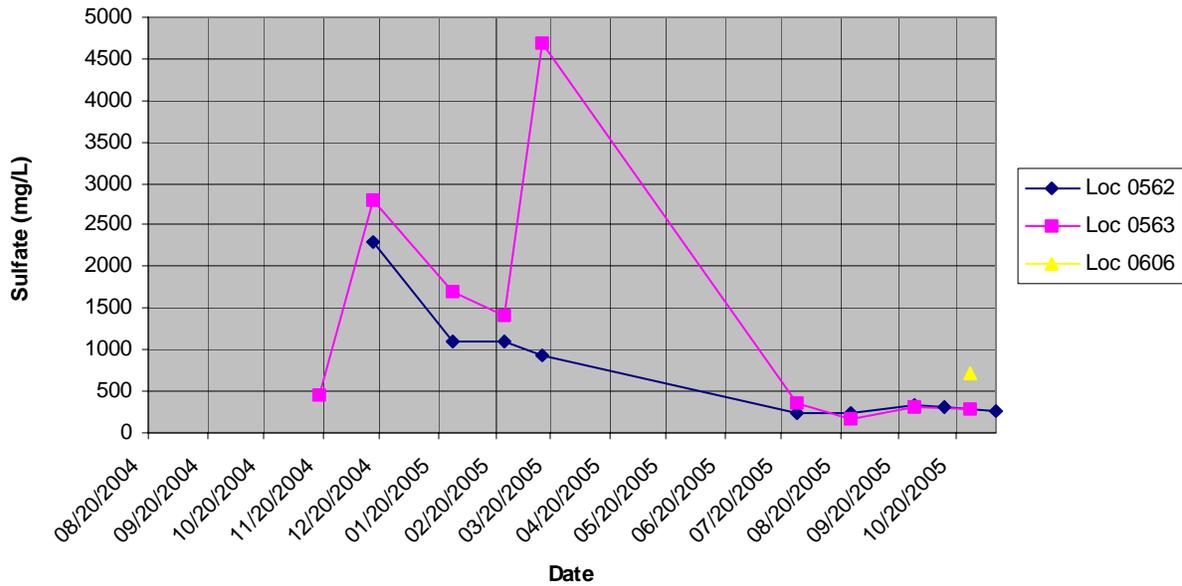
### Moab Site (MOA01)

#### Ammonia Total as N Concentration



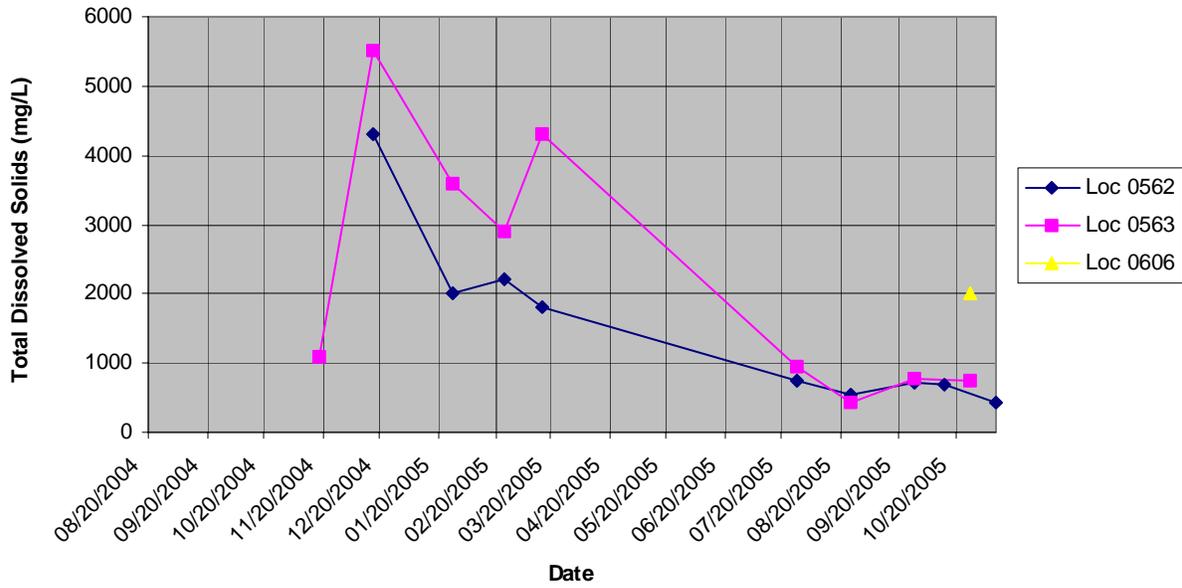
### Moab Site (MOA01)

#### Sulfate Concentration



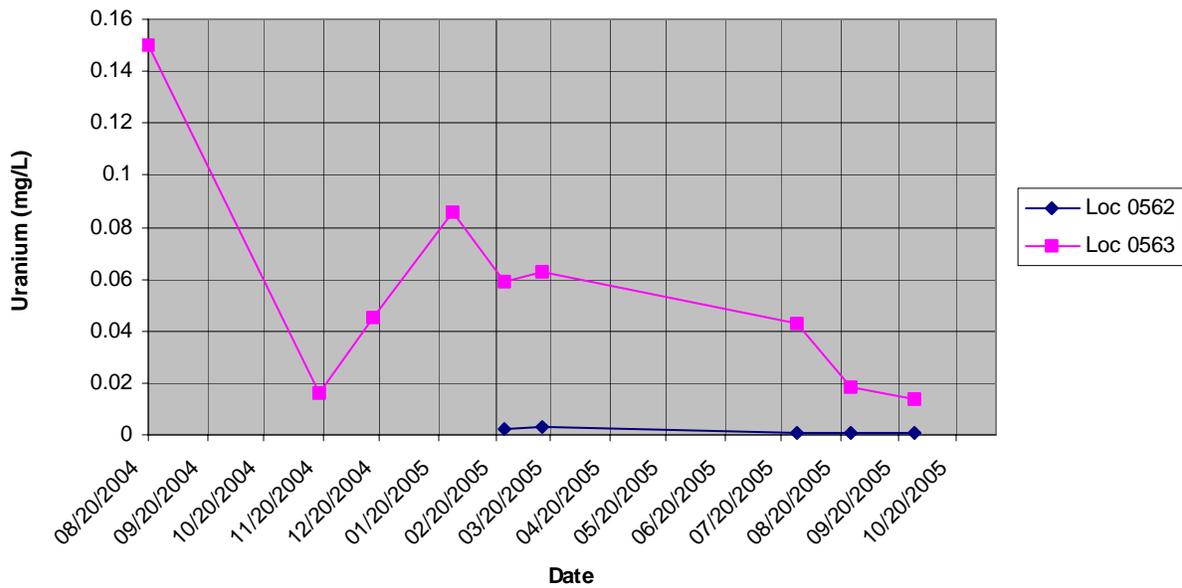
### Moab Site (MOA01)

#### Total Dissolved Solids Concentration



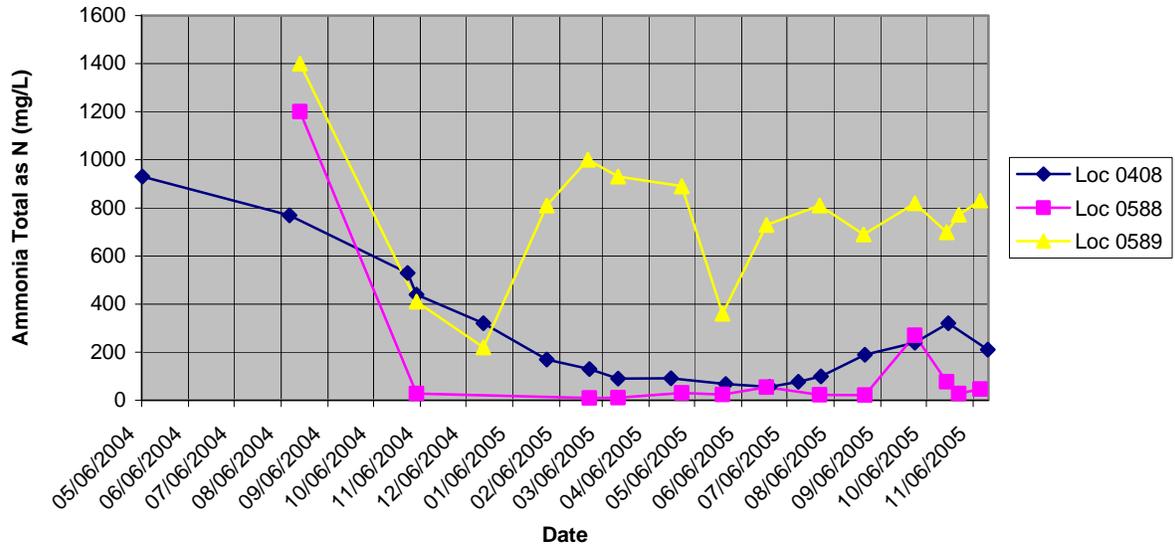
### Moab Site (MOA01)

#### Uranium Concentration



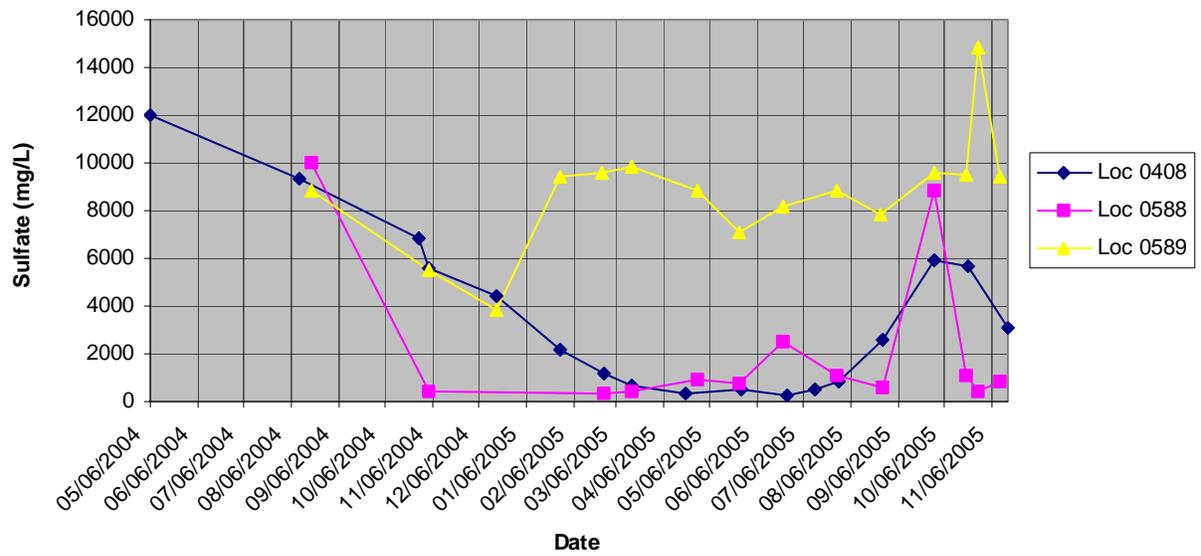
Moab Site (MOA01)

Ammonia Total as N Concentration



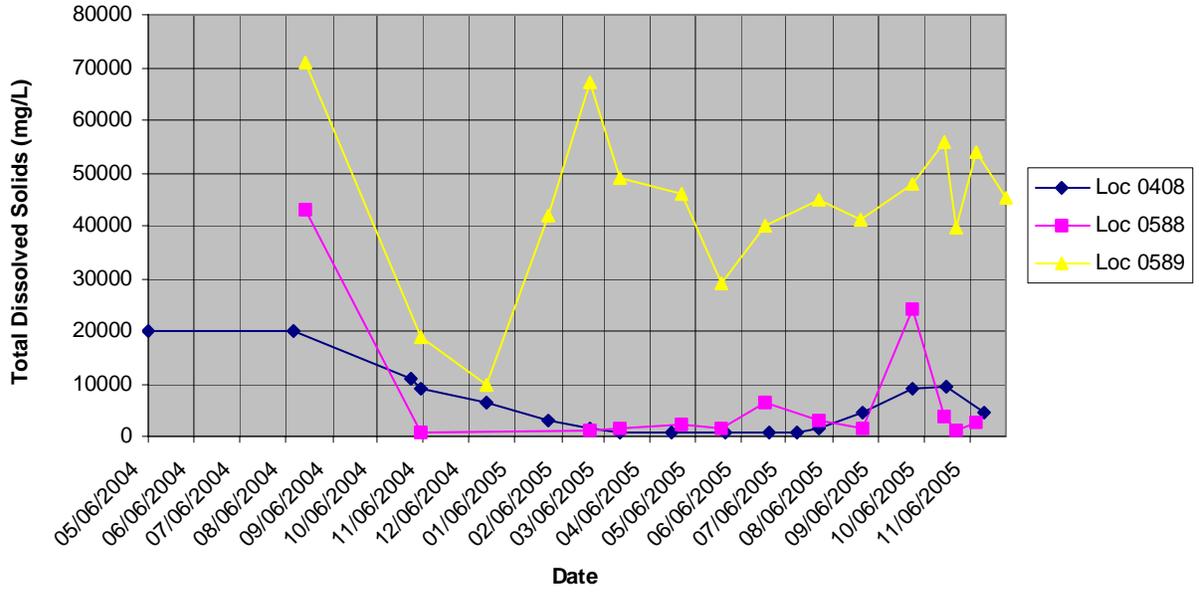
Moab Site (MOA01)

Sulfate Concentration



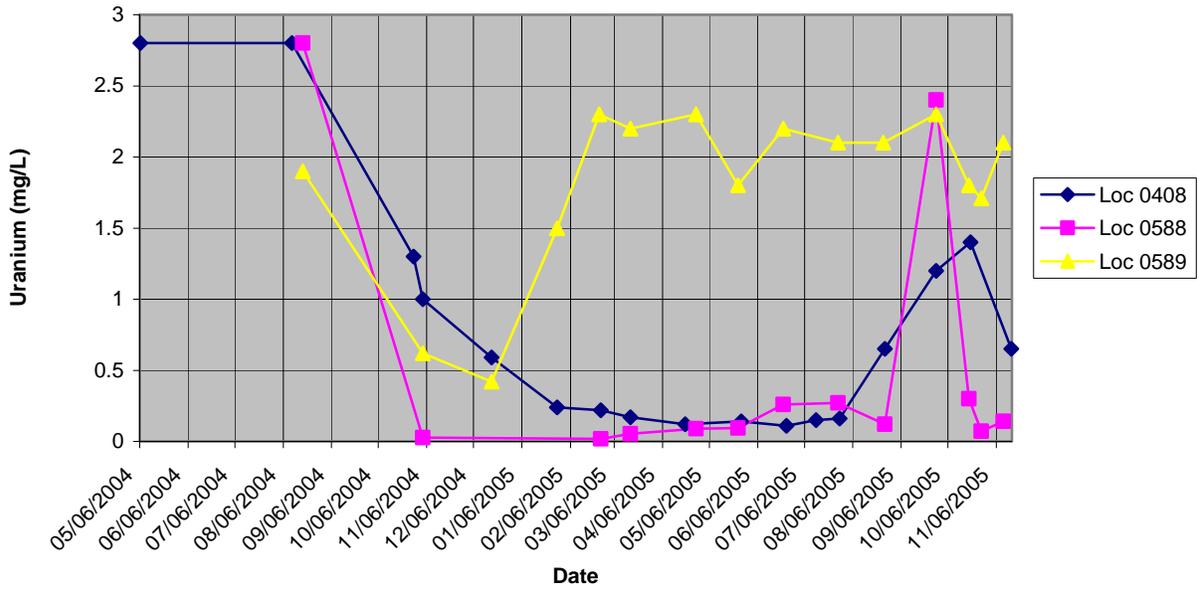
Moab Site (MOA01)

Total Dissolved Solids Concentration



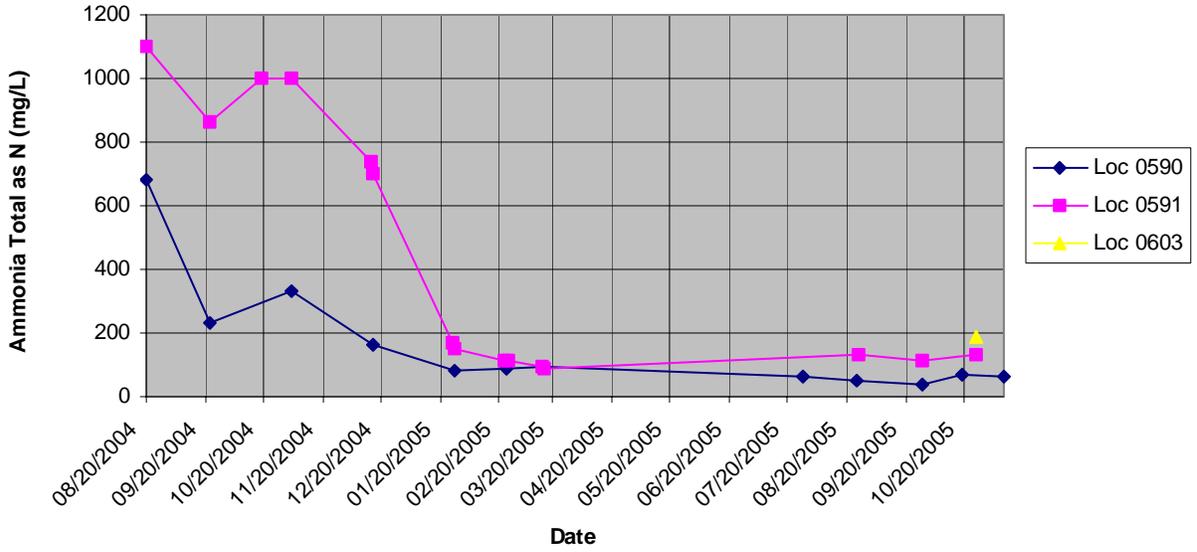
Moab Site (MOA01)

Uranium Concentration



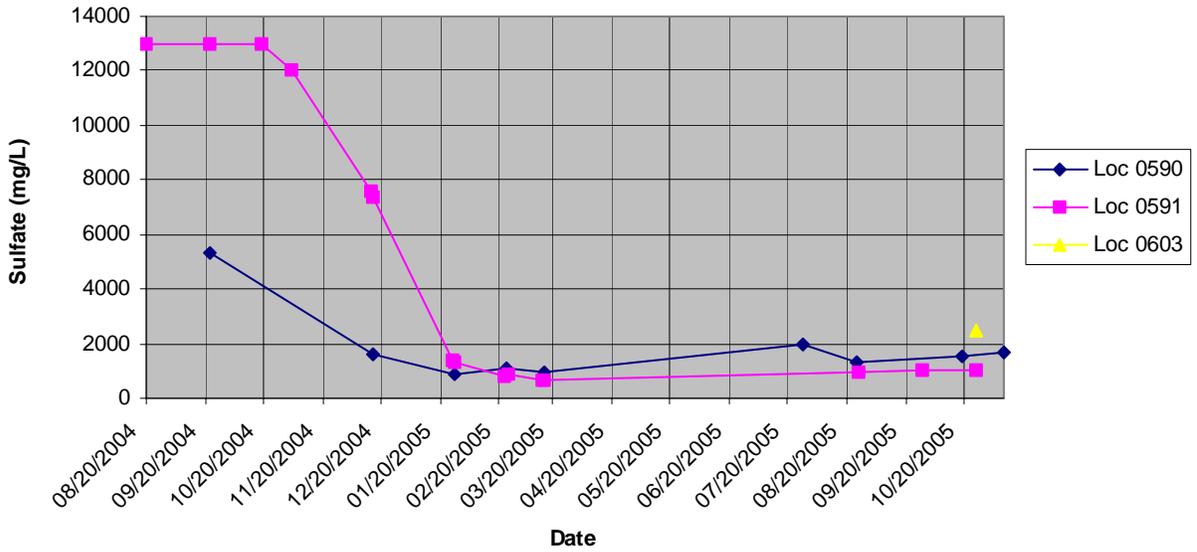
Moab Site (MOA01)

Ammonia Total as N Concentration



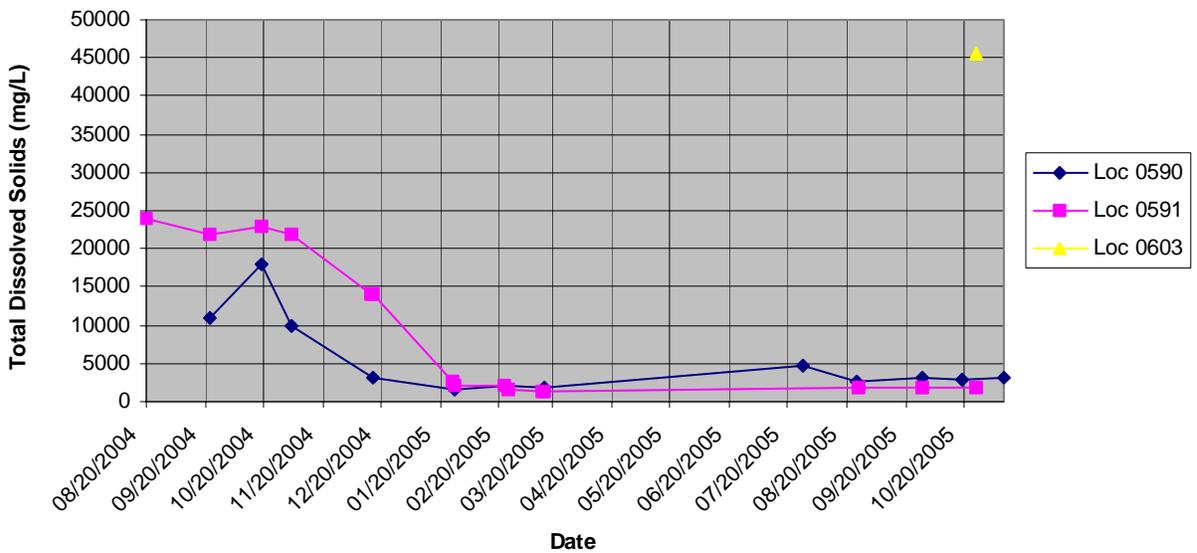
Moab Site (MOA01)

Sulfate Concentration



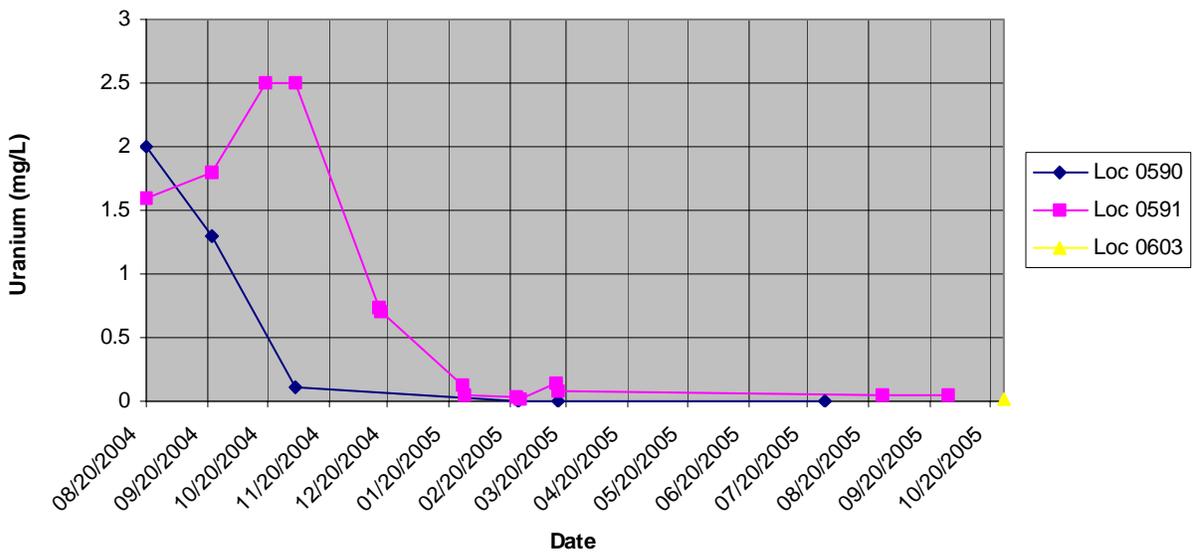
Moab Site (MOA01)

Total Dissolved Solids Concentration



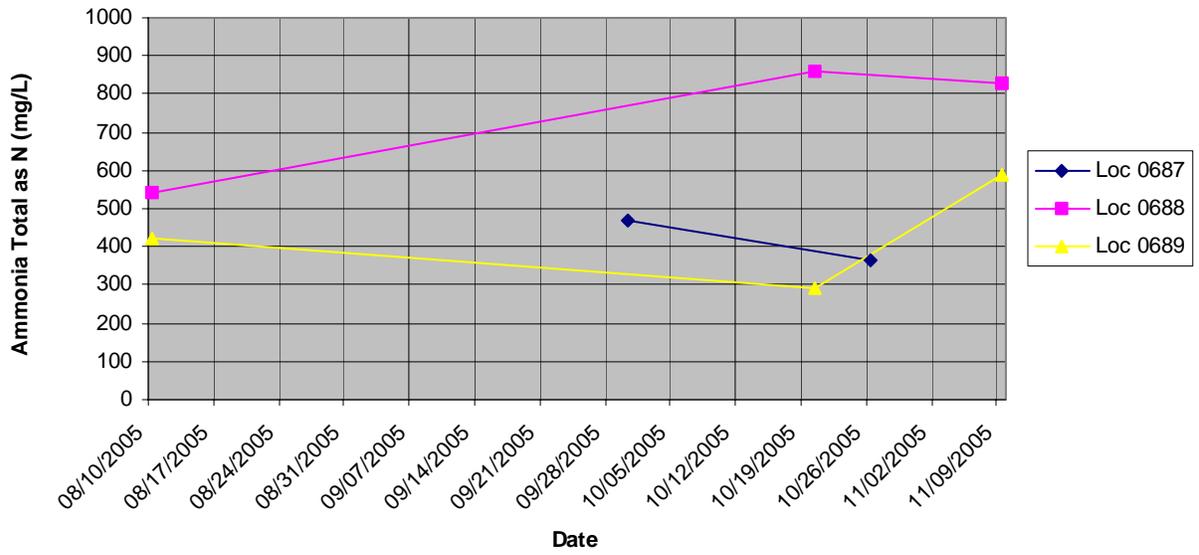
Moab Site (MOA01)

Uranium Concentration



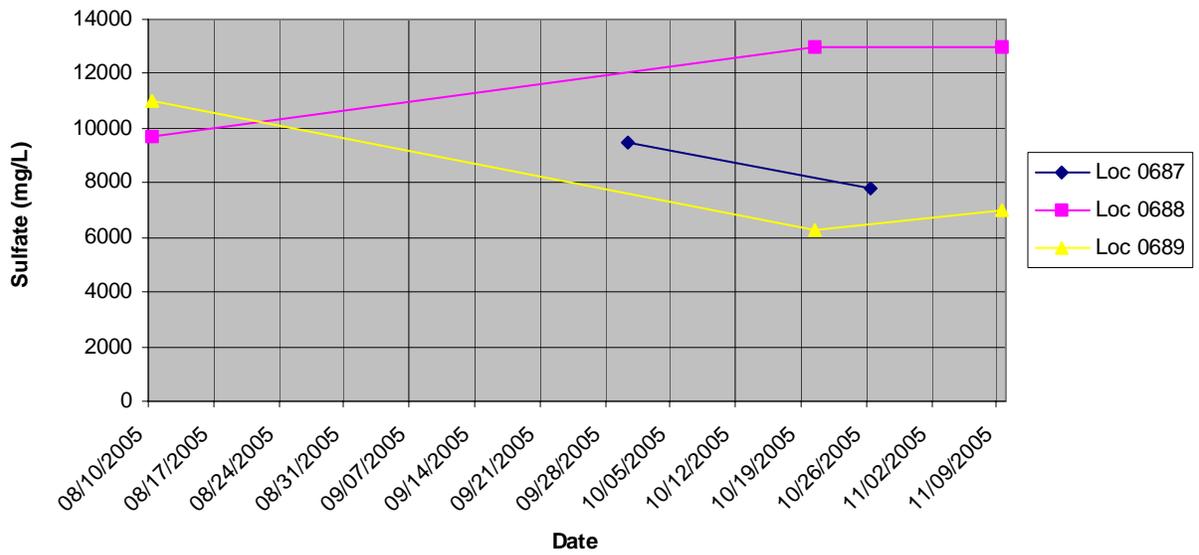
Moab Site (MOA01)

Ammonia Total as N Concentration



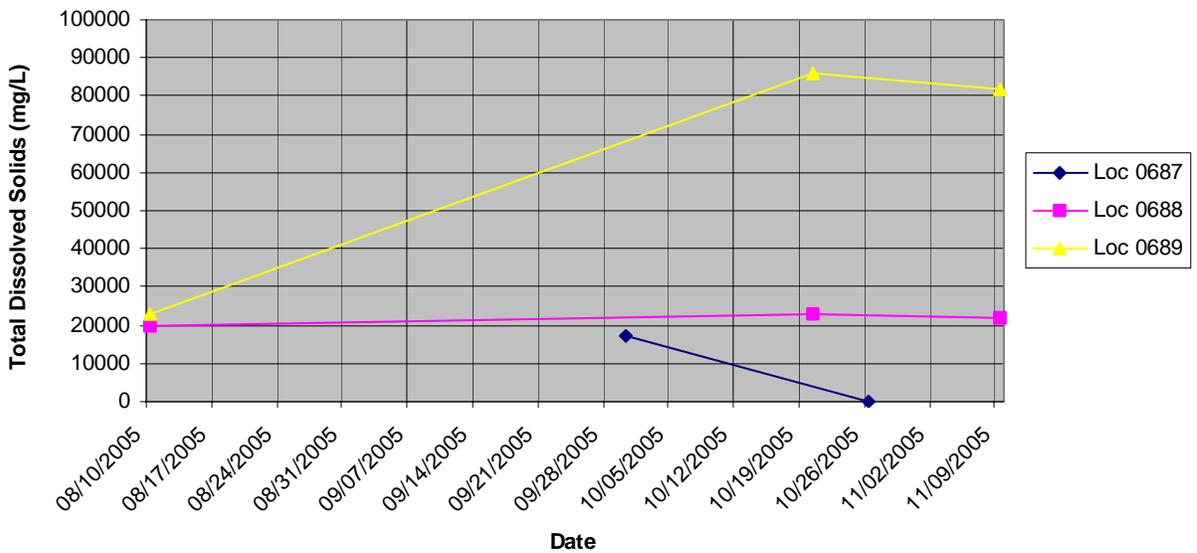
Moab Site (MOA01)

Sulfate Concentration



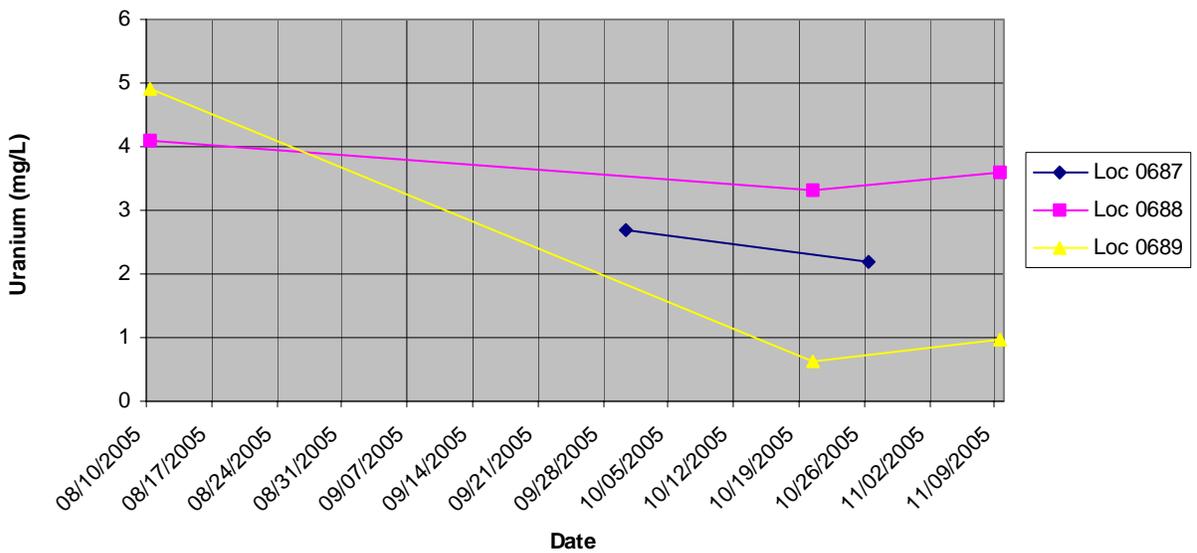
Moab Site (MOA01)

Total Dissolved Solids Concentration



Moab Site (MOA01)

Uranium Concentration



## **Attachment 2**

### **Trip Reports**

DATE: December 20, 2005

TO: John Ford

FROM: K. G. Pill

SUBJECT: Trip Report

**Site:** Moab – Interim Action Baseline Area Well Field Monthly Sampling – November 2005

**Date of Sampling Event:** November 8 through 10, 2005.

**Team Members:** Ken Pill and Michelle Hershey

**Number of Locations Sampled:** Six observation wells (0488 [samples collected from 26 and 39 ft bgs], 0493, SMI-PW01, SMI-PZ1D2, SMI-PZ1M, and SMI-PZ1S), and six piezometers (0496, 0497, 0598, 0599, 0617, 0618) were sampled. Including one duplicate and one equipment blank, a total of 15 samples were collected.

**Locations Not Sampled/Reason:** Piezometer 0494 was dry, so no sample was collected. Observation well 0405 and piezometers 0495 and 0597 were sampled the week of October 25, 2005, as part of the biogeochemistry sampling event, and were not included during this event. Surface water locations 0241 and 0242 were dry, and samples were collected in the vicinity of 0243 the previous week as part of the routine sampling event. As a result, samples were not collected from these locations.

**Field Variance:** Only a 125-mL sample was collected for uranium analysis, as opposed to the standard 500-mL sample volume for metals. No other metals are being sampled, and this volume is sufficient for the uranium analysis. Limited sample volume was available for analysis from locations 0496, 0497, 0617, and 0618. These samples were split and preserved as directed by the laboratory for proper analysis.

**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
2227	SMI-PW01	Duplicate from 40 ft bgs	Ground Water	NDV-070
2228	NA	Equipment Blank – GW Equip	DI Water	NDV-073

**RIN Number Assigned:** All samples were assigned to RIN **05110255**.

**Sample Shipment:** All samples were shipped in one cooler overnight via FedEx to Paragon Analytics, Inc. from Moab, Utah, on November 11, 2005 (Airbill No. 8527 5847 9178).

**Location Specific Information – Observation Wells:** All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated 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)
0488	11/9/05	09:50	14.44	26/39
0493	11/9/05	09:28	14.09	54
SMI-PW01	11/9/05	08:43	14.27	40
SMI-PZ1S	11/9/05	07:43	14.98	18
SMI-PZ1M	11/9/05	08:02	14.16	57
SMI-PZ1D2	11/9/05	08:20	14.93	73

\*Below top of casing

**Location Specific Information – Piezometer Sampling:** The piezometers were initially purged on November 8, and sampled on November 9 and 10 (if necessary). The table below presents the water levels, stick up height, and depth to the river surface prior to the initial purge.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0496	11/8/05	14:52	3.72	2.22	Dry at base
0497	11/8/05	14:57	1.91	0.66	Dry at base
0598	11/8/05	15:20	4.80	2.48	Dry at base
0599	11/8/05	15:12	2.16	2.03	Dry at base
0617	11/8/05	15:05	3.32	2.81	Dry at base
0618	11/8/05	15:09	1.58	1.18	Dry at base

Approximately 110 mLs were collected from 0496, 250 mLs from 0497, 175 mLs from 0598, 120 mLs from 0617, and 250 mLs from 0618 for analysis. These samples were split and preserved as directed by the laboratory for proper analysis. Piezometer 0599 recharged instantaneously, and was sampled using standard procedures.

**Well Inspection Summary:** A well inspection was not conducted.

**Equipment:** No issues to report.

**Site Issues:** According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River flow rates during the time period of this sampling event were:

Date	Daily Mean Flow (cfs)
11/7/2005	4,020
11/8/2005	3,900
11/9/2005	3,880
11/10/2005	3,940
11/11/2005	3,800
11/12/2005	3,940

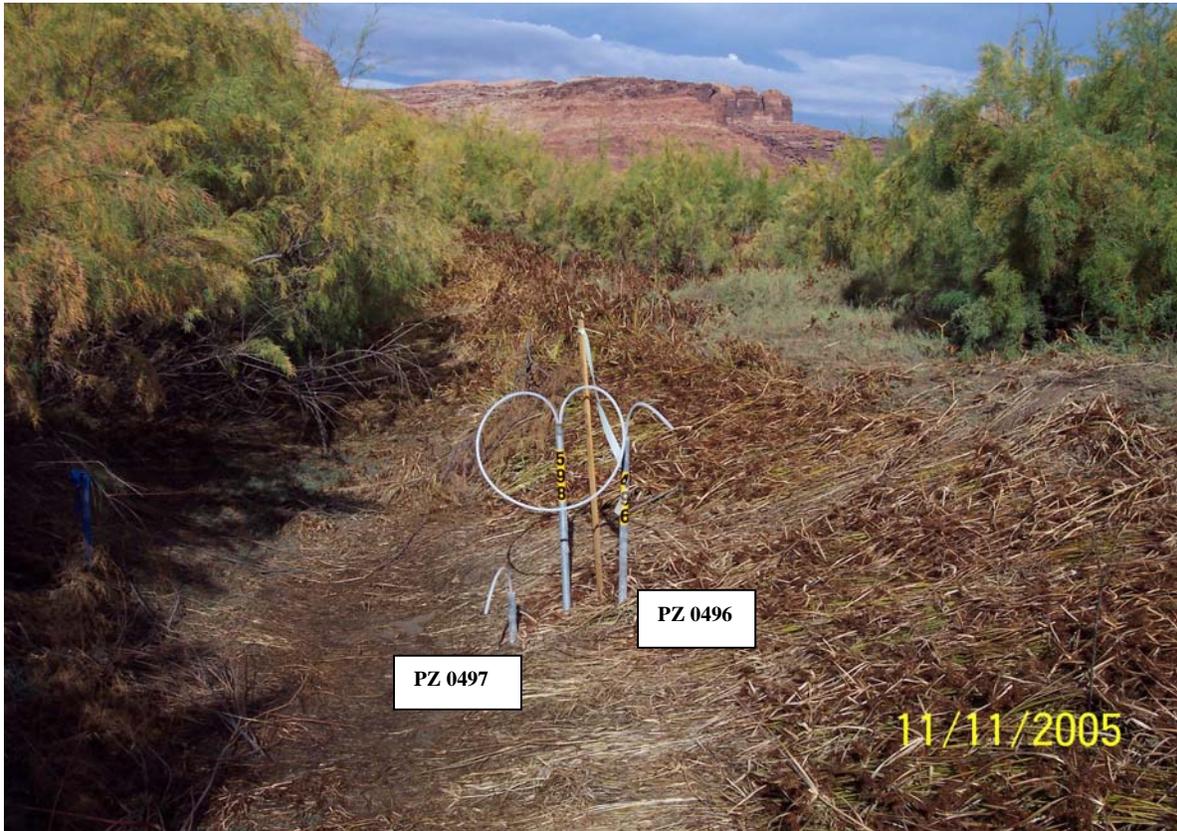
**Corrective Action Required/Taken:** None.

(KGP/lcg)

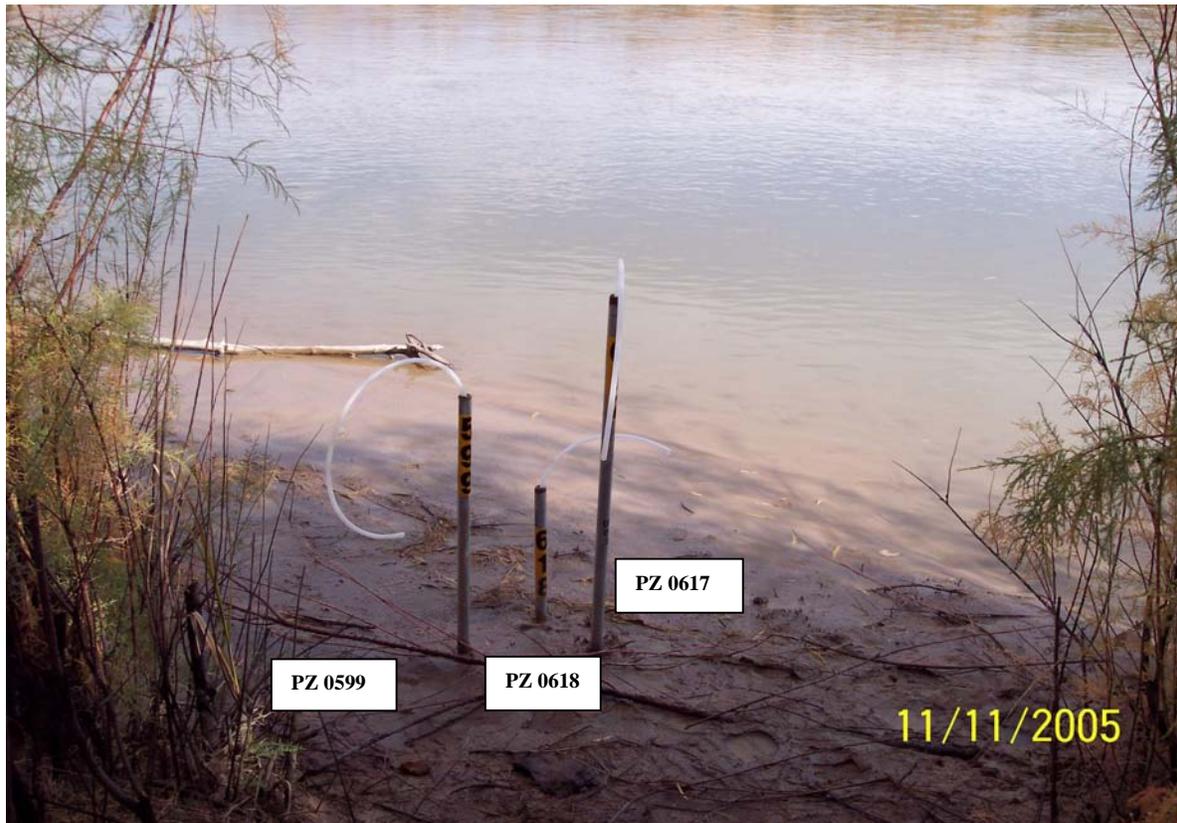
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D. R. Metzler, DOE-EM  
C. I. Bahrke, Stoller (e)  
L. E. Cummins, Stoller (e)  
S. E. Donovan, Stoller (e)  
L. M. Edwards, Stoller (e)  
J. R. Ford, Stoller (e)  
K. E. Karp, Stoller (e)  
S. D. Lyon, Stoller (e)  
K. E. Miller, Stoller  
K. G. Pill, Stoller (e)  
J. E. Price, Stoller (e)



Piezometer 0494



Piezometers 0496 and 0497



Piezometers 0599, 0617, and 0618

DATE: December 20, 2005

TO: John Ford

FROM: K. G. Pill

SUBJECT: Trip Report

**Site:** Moab – Interim Action Configuration 1 Well Field Monthly Sampling – November 2005

**Date of Sampling Event:** November 8 through 11, 2005.

**Team Members:** Ken Pill and Michelle Hershey

**Number of Locations Sampled:** Eleven extraction wells (0470 through 0479 and SMI-PW02), three observation wells (0557, 0560, and 0596), six piezometers (0562, 0564, 0608, 0611, and 0612), and two treatment system locations (0547 and 0548) were sampled. Including two duplicates and one equipment blank, a total of 24 samples were collected.

**Locations Not Sampled/Reason:** Observation wells 0403, 0407, 0483, and 0559 and piezometers 0563, 0565, 0606, and 0607 were sampled the week of October 25, 2005, as part of the biogeochemical study sampling event. Due to the short time frame between this sampling event and the biogeochemical sampling event, these locations were not sampled. Surface water samples were collected in the vicinity of locations 0216 and 0245 during the routine sampling event that was completed the previous week. As a result, samples were not collected from these locations either.

**Field Variance:** Only a 125-mL sample was collected for uranium analysis, as opposed to the standard 500-mL sample volume for metals. No other metals are being sampled, and this volume is sufficient for the uranium analysis. Limited sample volume was available for analysis from locations 0562, 0564, 0611, and 0612. These samples were split and preserved as directed by the laboratory for proper analysis.

**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
2233	0560	Duplicate from 31 ft bgs	Ground Water	NDV-700
2234	0475	Duplicate	Ground Water	NFK-183
2235	NA	Equipment Blank – GW Equip	DI Water	NDV-252

**RIN Number Assigned:** All samples were assigned to RIN **05110256**.

**Sample Shipment:** All samples were shipped in one cooler overnight FedEx to Paragon Analytics, Inc. from Moab, Utah, on November 11, 2005 (Airbill No. 8527 5847 9204).

**Location Specific Information – Extraction Wells:** Extraction wells were sampled using dedicated submersible pumps. Water levels and pumping rates (gpm) for each extraction well prior to sampling are provided in the table below.

Well No.	Date	Time	Water Level (ft btoc)	Pumping Rate (gpm)
0470	11/10/05	08:55	13.94	4.27
0471	11/10/05	09:15	13.92	3.20
0472	11/10/05	09:26	13.75	2.46
0473	11/10/05	09:37	14.21	2.39
0474	11/10/05	09:47	13.39	1.02
0475	11/10/05	09:58	14.69	2.60
0476	11/10/05	10:17	15.73	2.58
0477	11/10/05	10:25	14.09	1.92
0478	11/10/05	10:35	15.39	2.74
0479	11/10/05	10:45	13.36	1.74
SMI-PW02	11/11/05	08:00	15.05	15.0

**Location Specific Information – Observation Wells:** All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated 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)
0557	11/10/05	08:34	15.92	40
0560	11/10/05	08:08	16.12	31
0596	11/10/05	07:47	16.36	24

**Location-Specific Information – Piezometer Sampling:** The piezometers were initially purged on November 8, and sampled on November 9 and 10 (if necessary). The table below presents the water levels, stick up height, and depth to the river surface prior to the initial purge.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0562	11/08/05	17:01	3.71	3.22	Dry at base
0564	11/08/05	17:22	3.95	3.23	Dry at base
0608	11/08/05	17:10	4.83	2.60	Dry at base
0611	11/08/05	17:14	3.41	2.33	Dry at base
0612	11/08/05	17:17	3.57	2.22	Dry at base

Limited sample volumes were collected from locations 0562, 0564, 0611, and 0612. Approximately 90 mLs were collected from 0562, 125 mLs from 0564, 175 mLs from 0611, and 250 mLs from 0612 for analysis. These samples were split and preserved as directed by the laboratory for proper analysis.

**Location Specific Information – Treatment System Sampling:** Locations 0547 and 0548 were sampled when the evaporation pond level was 6.2 ft. The sample for location 0548 was collected off the pond discharge line. Water was barely flowing out of this line when sampling. It was later found out that the pump was not running when the sample was collected.

**Well Inspection Summary:** A well inspection was not conducted.

**Equipment:** No issues to report.

**Site Issues:** According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River flow rates during the time period of this sampling event were:

Date	Daily Mean Flow (cfs)
11/7/2005	4,020
11/8/2005	3,900
11/9/2005	3,880
11/10/2005	3,940
11/11/2005	3,800
11/12/2005	3,940

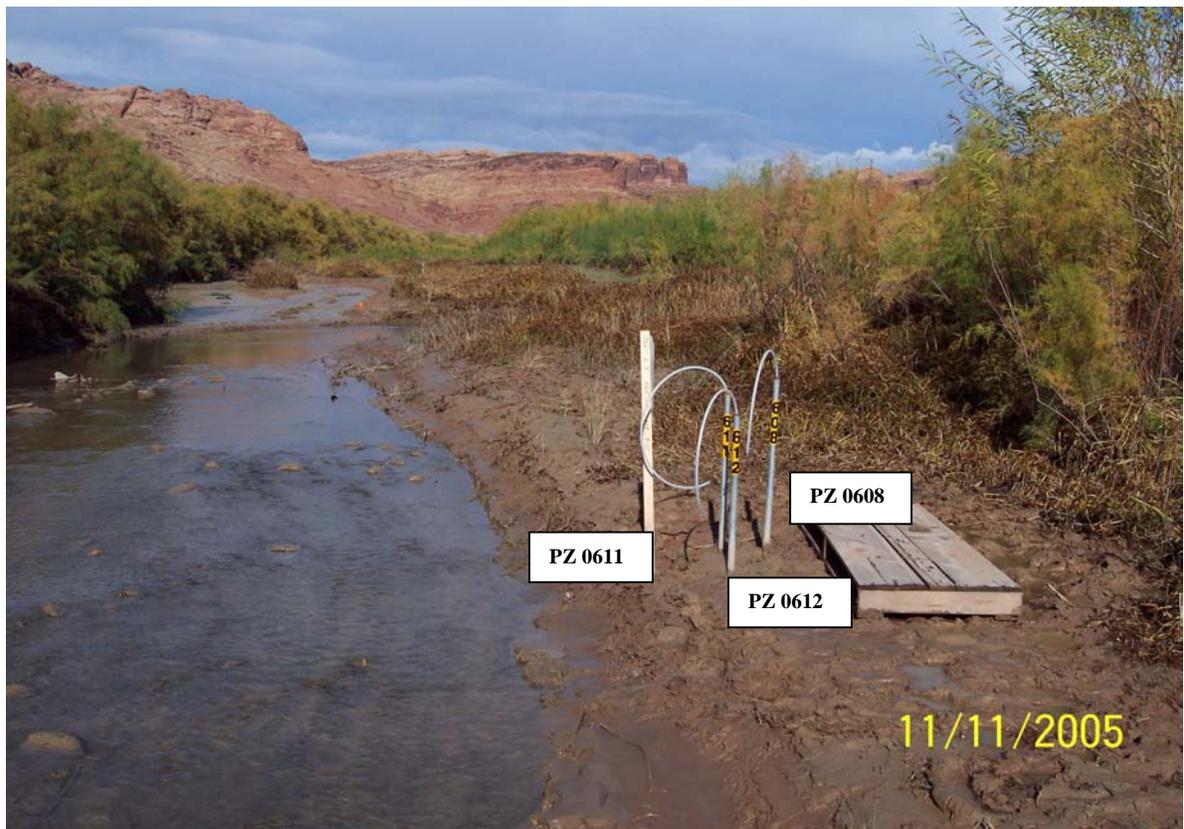
**Corrective Action Required/Taken:** None.

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)  
D. R. Metzler, DOE-EM  
C. I. Bahrke, Stoller (e)  
L. E. Cummins, Stoller (e)  
S. E. Donovan, Stoller (e)  
L. M. Edwards, Stoller (e)  
J. R. Ford, Stoller (e)  
K. E. Karp, Stoller (e)  
S. D. Lyon, Stoller (e)  
K. E. Miller, Stoller  
K. G. Pill, Stoller (e)  
J. E. Price, Stoller (e)



Piezometer 0562



Piezometers 0608, 0611, and 0612



Piezometer 0564

DATE: December 20, 2005

TO: John Ford

FROM: K. G. Pill

SUBJECT: Trip Report

**Site:** Moab – Interim Action Configuration 2 Injection Test Sampling – November 2005

**Date of Sampling Event:** November 8 through 10 and November 15, 2005.

**Team Members:** Ken Pill, Michelle Hershey, and Steve Back

**Number of Locations Sampled:** Fifteen CF2 observation wells (0401, 0402, 0408, 0580 through 0589, 0600, and 0601, five piezometers (0590, 0605, 0613, 0615, and 0616), and one injection water sample (0550). Including one equipment blank and two duplicates, a total of 24 samples were collected.

**Locations in Which Field Parameters Were Measured Only:** None.

**Locations Not Sampled/Reason:** Observation wells 0588 (from 26 ft bgs), 0589 (from 44 ft bgs), and 0602 were sampled as part of the biogeochemical sampling during the week of October 25, 2005. In addition, piezometers 0591, 0603, 0604, and 0614 were also sampled at this time. Due to the short time frame between this sampling event and the biogeochemical sampling event, these locations were not sampled. Surface water locations 0236 and 0240 were dry. Surface water samples were collected in the vicinity of location 0239 during the routine sampling event that was completed the week before this event. As a result, samples were not collected from these locations.

**Field Variance:** Only a 125-mL sample was collected for uranium analysis as opposed to the standard 500-mL sample volume. No other metals are being sampled, and this volume is sufficient for the uranium analysis. Limited sample volume was available for analysis from locations 0590, 0613, 0615, and 0616. These samples were split and preserved as directed by the laboratory for proper analysis.

**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
2237	0401	Duplicate from 18 ft bgs	Ground Water	NDV-260
2238	NA	Equipment Blank – GW Equip	DI Water	NFK-190
2239	0581	Duplicate from 18 ft bgs	Ground Water	NFK -191

**RIN Number Assigned:** All samples were assigned to RIN **05110257**.

**Sample Shipment:** One half of the samples were shipped in one cooler overnight FedEx to Paragon Analytics, Inc. from Moab, Utah, on November 11, 2005 (Airbill No. 8527 5847 9190). The remaining samples were shipped from Moab, Utah, on November 15, 2005 (Airbill No. 8527 5847 8767).

**Location Specific Information – CF2 Observation Wells:** All observation wells were sampled using micro-purge techniques with a peristaltic pump and downhole tubing. Sample depths and water levels for each observation well are listed below.

Well No.	Date	Time	Depth to Water (ft btoc)	Sample Depth (ft bgs)
0401	11/15/05	13:52	15.98	18
0402	11/10/05	14:00	15.45	17
0408	11/15/05	13:26	15.54	26
0580	11/10/05	11:38	16.85	18
0581	11/10/05	12:08	16.01	18
0582	11/10/05	12:35	16.51	18
0583	11/15/05	11:33	16.33	18
0584	11/15/05	11:57	15.74	18
0585	11/15/05	12:28	15.85	18
0586	11/15/05	14:14	15.51	18
0587	11/10/05	15:20	14.96	18
0588	11/10/05	14:57	15.35	30
0589	11/10/05	14:35	15.16	48
0600	11/10/05	13:24	15.60	28
0601	11/15/05	12:54	15.25	28

**Location Specific Information – Piezometer Sampling:** All piezometers were purged on November 8, and sampled on November 9 and 10 (if necessary). The table below presents the water level, stick up height, and depth to the river surface for the piezometers prior to the initial purge.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0590	11/8/05	16:05	3.40	3.45	Dry at base
0605	11/8/05	16:44	3.59	2.09	Dry at base
0613	11/8/05	16:31	4.04	3.25	Dry at base
0615	11/8/05	16:47	3.88	3.08	Dry at base
0616	11/8/05	16:49	2.33	1.19	Dry at base

Limited sample volume was available for analysis from locations 0590, 0613, 0615, and 0616. Approximately 100 mLs were collected from 0590, 90 mLs from 0613, 250 mLs from 0615, and

200 mLs from 0616 for analysis. These samples were split and preserved as directed by the laboratory for proper analysis.

**Location Specific Information – Injection Water Sampling:** The fresh water injection source was sampled from the injection well 0570 well head, prior to the well head filter. No fresh water was available from the hydrant located off the southern end of the CF2 well field from which this sample is usually collected (because no irrigation is taking place off the well field).

**Well Inspection Summary:** A well inspection was not conducted.

**Equipment:** No issues to report.

**Site Issues:** The injection test had been running approximately one year and five weeks (since October 6, 2004).

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

Date	Daily Mean Flow (cfs)
11/7/2005	4,020
11/8/2005	3,900
11/9/2005	3,880
11/10/2005	3,940
11/11/2005	3,800
11/12/2005	3,940
11/13/2005	4,130
11/14/2005	3,960
11/15/2005	3,900
11/16/2005	3,950

**Corrective Action Required/Taken:** None.

(KGP/lcg)

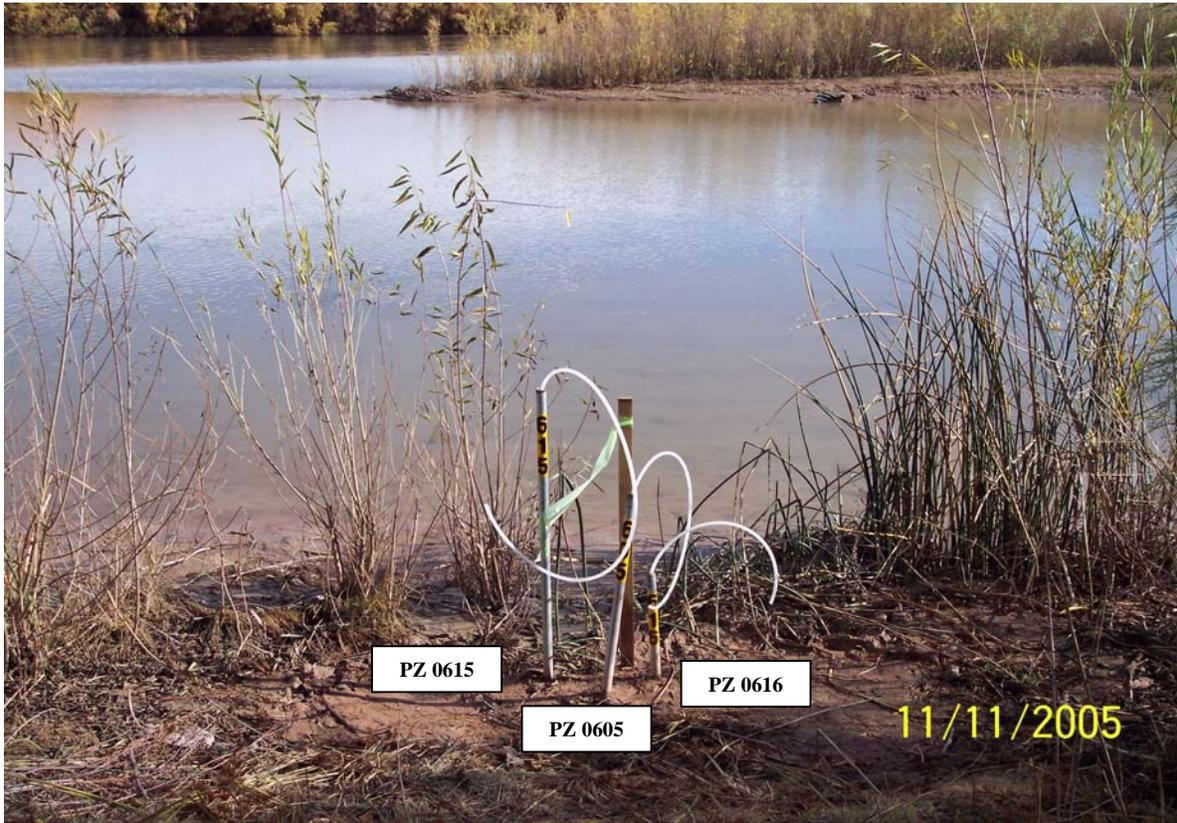
cc: J. D. Berwick, DOE-EM (e) K. G. Pill, Stoller (e)  
D. R. Metzler, DOE-EM J. E. Price, Stoller (e)  
C. I. Bahrke, Stoller (e)  
L. E. Cummins, Stoller (e)  
S. E. Donivan, Stoller (e)  
L. M. Edwards, Stoller (e)  
J. R. Ford, Stoller, (e)  
K. E. Karp, Stoller (e)  
S. D. Lyon, Stoller (e)  
K. E. Miller, Stoller



Piezometer 0590



Piezometer 0613



Piezometers 0605, 0615, and 0616

DATE: December 20, 2005

TO: John Ford

FROM: K. G. Pill

SUBJECT: Trip Report

**Site:** Moab – Interim Action Configuration 3 Well Field Monthly Sampling – November 2005

**Date of Sampling Event:** November 8 through 11, 2005.

**Team Members:** Ken Pill and Michelle Hershey

**Number of Locations Sampled:** Ten remediation wells (0670 through 0679), two observation wells (0688 and 0689), and four piezometers (0693, 0696, 0697, and 0698). Including two duplicates and one equipment blank, a total of 19 samples were collected.

**Locations Not Sampled/Reason:** Piezometer 0690 was dry, and no sample was collected. Surface water locations 0257 and 0258 were also dry. Observation wells 0686 and 0687 and piezometers 0691, 0692, 0694, and 0695 were sampled as part of the biogeochemical sampling event completed just 2 weeks prior to this event, and these locations were not sampled. No sample was collected from surface water location 0259 because extensive surface water sampling was completed in the vicinity of this location during the routine ground water – surface water event completed the previous week.

**Field Variance:** Only a 125-mL sample was collected for uranium analysis as opposed to the standard 500-mL sample volume. No other metals are being sampled, and this volume is sufficient for the uranium analysis. Limited sample volume was available for analysis from locations 0693, 0696, and 0698. These samples were split and preserved as directed by the laboratory for proper analysis.

**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
2240	0689	Duplicate from 54 ft bgs	Ground Water	NFK-133
2241	0697	Duplicate	Ground Water	NFK-144
2242	NA	Equipment Blank – GW Equip	DI Water	NFK-199

**RIN Number Assigned:** All samples were assigned to RIN **05110258**.

**Sample Shipment:** Samples were shipped in one cooler overnight FedEx to Paragon Analytics, Inc. from Moab, Utah, on November 11, 2005 (Airbill No. 8527 5847 9198).

**Location Specific Information – Remediation Wells:** Remediation wells were sampled using dedicated submersible pumps with the pump intake set at a depth of approximately 40 ft bgs. The well field has been operating consistently since the last week of August 2005.

Well No.	Date	Time	Water Level (ft btoc)	Pumping Rate (gpm)
0670	11/9/05	14:27	16.10	2.22
0671	11/9/05	14:34	16.44	2.07
0672	11/9/05	14:47	16.83	2.26
0673	11/9/05	14:52	16.88	2.32
0674	11/9/05	15:03	16.82	2.09
0675	11/9/05	15:11	16.78	2.70
0676	11/9/05	15:23	16.54	2.29
0677	11/9/05	15:31	16.51	2.12
0678	11/9/05	15:41	16.39	2.80
0679	11/9/05	15:52	16.35	2.16

**Location Specific Information – Observation Wells:** All observation wells were sampled using micro-purge techniques with a peristaltic pump and dedicated 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)
0688	11/9/05	13:41	15.58	31
0689	11/9/05	14:00	15.66	54

**Location Specific Information – Piezometer Sampling:** Each piezometer was purged on November 8, and samples were collected starting on November 9. The table below presents the water level, stick up height, and depth to the river surface for the piezometers prior to the initial purge.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0693	11/8/05	15:41	3.95	3.14	Dry at base
0696	11/8/05	15:51	3.83	3.15	Dry at base
0697	11/8/05	15:54	2.67	2.19	Dry at base
0698	11/8/05	16:02	3.69	2.24	Dry at base

Limited sample volume was available for analysis from locations 0693, 0696, and 0698. Piezometer 0697 recharged immediately after the initial purge. After purging approximately 1 liter on November 8, the sample was collected on November 9, 2005 after purging another liter just prior to sampling.

**Well Inspection Summary:** A well inspection was not conducted.

**Equipment:** No problems to report.

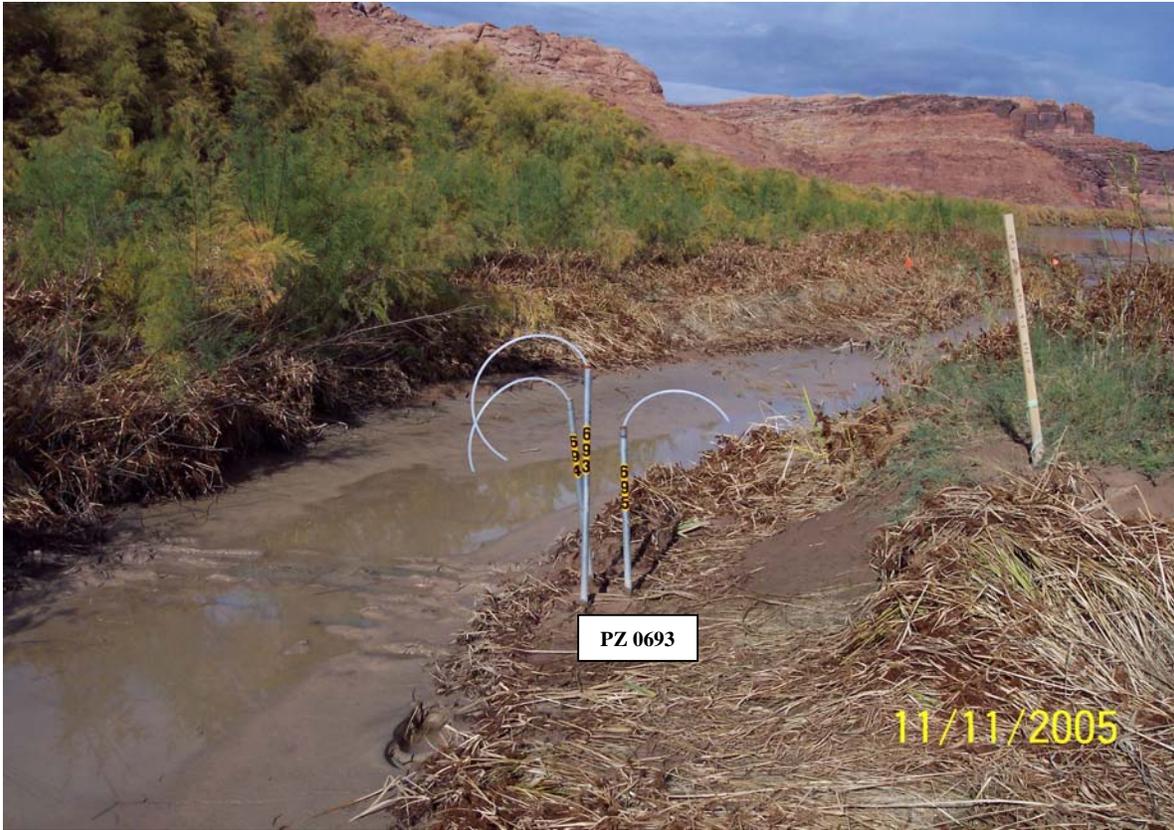
**Site Issues:** According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River flow rates during the time period of this sampling event were:

<b>Date</b>	<b>Daily Mean Flow (cfs)</b>
11/7/2005	4,020
11/8/2005	3,900
11/9/2005	3,880
11/10/2005	3,940
11/11/2005	3,800
11/12/2005	3,940

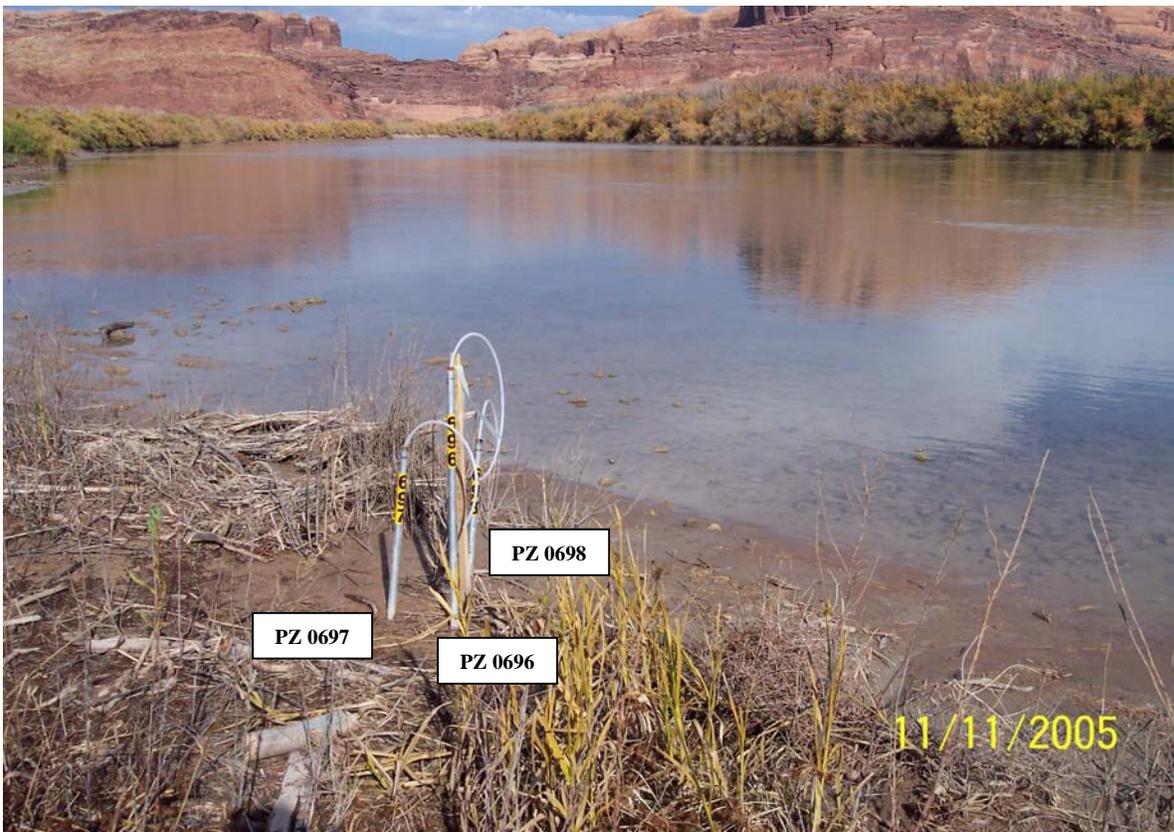
**Corrective Action Required/Taken:** None.

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)  
D. R. Metzler, DOE-EM  
C. I. Bahrke, Stoller (e)  
L. E. Cummins, Stoller (e)  
S. E. Donivan, Stoller (e)  
L. M. Edwards, Stoller (e)  
J. R. Ford, Stoller (e)  
K. E. Karp, Stoller (e)  
S. D. Lyon, Stoller (e)  
K. E. Miller, Stoller  
K. G. Pill, Stoller (e)  
J. E. Price, Stoller (e)



Piezometer 0693



Piezometers 0696, 0697, and 0698

DATE: February 2, 2006  
TO: John Ford  
FROM: K. G. Pill  
SUBJECT: REVISED Trip Report

**Site:** Moab – Interim Action Configuration 2 Well Field Biogeochemical Sampling Event – November 2005

**Date of Sampling Event:** November 28 and 29, 2005.

**Team Members:** Emile Bettez and Steve Back.

**Sampling Event Background:** This biogeochemical sampling was designed to relatively measure microorganism populations in area where the shallow aquifer intersects the riverbed of the Moab site, and evaluate the attenuation of contaminant concentrations in ground water and the river because of biologically mediated reactions. Specific locations from Configuration 2 were sampled.

**Number of Locations Sampled:** Three Configuration 2 observation wells (0588, 0589, and 0602), and four piezometers (0591, 0603, 0604, and 0614). Including one equipment blank and one duplicate, a total of nine samples were collected and sent to Severn Trent Laboratories for analysis. Only eight samples (an equipment blank was not included) were collected and sent to Microseeps, Inc. for analysis.

**Locations Not Sampled/Reason:** None

**Field Variance:** Two ticket numbers were assigned to each sampled because the samples were submitted to two different labs for analysis (two RIN numbers were also assigned for the same reason).

Limited sample volume was available for analysis from each of the piezometers. These samples were analyzed for highest priority analytes, and split and preserved as directed by the laboratory for proper analysis.

**Sample Analysis:** Submitted samples were analyzed by Severn Trent Laboratories, Microseeps, Inc. and the Grand Junction Office Environmental Sciences Laboratory (ESL) for the following analytes:

Analyte	Laboratory	Priority
Nitrate / Nitrite as N	Severn Trent	High
Ferrous Iron / Divalent Manganese	Microseeps	
Carbon Dioxide / Methane / Nitrogen / Oxygen	Microseeps	
Bromide / Chloride / Sulfate	Severn Trent	
Nitrifying Bacteria	ESL	
Biological Oxygen Demand	ESL	
Total Dissolved Solids	Severn Trent	
Total Iron	ESL	
Nitrite (as N)	ESL	
Sulfide	ESL	
Orthophosphate	ESL	
Ammonia (as N)	Severn Trent	
Dissolved Organic Carbon / Total Inorganic Carbon	Severn Trent	
Iron / Manganese / Selenium / Uranium	Severn Trent	
Total Organic Carbon	Severn Trent	
Chemical Oxygen Demand / Total Phosphorus / Total Kjeldahl Nitrogen	Severn Trent	Low

The analytes are listed from high to low priority for locations in which sufficient sample volume was not available (i.e., riverbed piezometers) for complete analyses.

**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
2283 and 2281	0589	Duplicate from 44 ft bgs	Ground Water	NDZ 190 and NDZ 191
2282	NA	Equipment Blank – GW Equip	DI Water	NDZ 196

**RIN Numbers Assigned:** Because of the nature of this sampling effort (analysis by two different labs), two RIN numbers were assigned. All samples analyzed by Severn Trent Laboratories were assigned to RIN **05110267**. Samples analyzed by Microseeps, Inc. were assigned RIN **05110268**.

**Sample Shipment:** Two coolers were sent overnight FedEx (one cooler to Microseeps, Inc. and the other cooler to Severn Trent Laboratories) from Grand Junction, Colorado, on November 30, 2005 (Airbill No. 790728981063).

**Location Specific Information – Configuration 2 Observation Wells:** All observation wells were sampled using micro-purge techniques with a peristaltic pump 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)
0588	11/28/05	14:55	15.54	26
0589	11/29/05	10:00	15.26	44
0602	11/28/05	11:20	16.29	18

**Location Specific Information – Configuration 2 Piezometer Sampling:** All piezometers were purged on November 28 and sampled on November 29, 2005. The table below presents the water level, stick up height, and depth to the river surface for the piezometers prior to the initial purge.

PZ No.	Date	Time	Depth to Water (ft btoc)	Stick Up Height (ft)	Depth to River Surface (ft btoc)
0591	11/28/05	14:25	1.24	1.02	Dry at base
0603	11/28/05	14:17	2.38	2.26	Dry at base
0604	11/28/05	14:45	5.26	4.25	Dry at base
0614	11/28/05	14:35	0.8	1.42	Dry at base

Limited sample volume was available for analysis from each location. These samples were analyzed for highest priority analytes, and split and preserved as directed by the laboratory for proper analysis.

**Well Inspection Summary:** A well inspection was not conducted.

**Equipment:** No issues to report.

**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)
11/27/2005	3,570
11/28/2005	3,590
11/29/2005	3,560
11/30/2005	3,460

**Corrective Action Required/Taken:** None.

(KGP/lcg)

cc: C. I. Bahrke, Stoller (e)                      S. D. Lyon, Stoller (e)  
 J. E. Price, Stoller (e)                            K. G. Pill, Stoller (e)  
 L. E. Cummins, Stoller (e)                      K. E. Miller, Stoller  
 S. E. Donovan, Stoller (e)  
 L. M. Edwards, Stoller (e)  
 K. E. Karp, Stoller (e)