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Moab UMTRA Project
Groundwater and Surface Water Monitoring Report
January through June 2023

Revision 0

October 2023

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Review and Approval

10/19/2023

X James Ritchey

James Ritchey
RAC Groundwater Technician
Signed by: JAMES RITCHEY (Affiliate)

10/18/2023

X Ken Pill

Kenneth Pill
RAC Groundwater Manager
Signed by: KENNETH PILL (Affiliate)

10/19/2023

X Heather White

Greg Church
RAC Program Manager
Signed by: HEATHER WHITE (Affiliate)

Revision History

Revision	Date	Description
0	October 2023	Initial issue.

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Tables

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Acronyms and Abbreviations

bgs	below ground surface
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	Configuration
cfs	cubic feet per second
CFR	Code of Federal Regulations
cm	centimeter
COC	chain-of-custody
CRI	reporting limit verification
DOE	U.S. Department of Energy
EB	equipment blank
EIS	Environmental Impact Statement
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
ft	feet or foot
ICP	inductively coupled plasma
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
µmhos	micro mhos
MB	method blank
MDL	method detection limit
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
PCOC	Potential Contaminant of Concern
QC	quality control
r^2	correlation coefficient
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
SD	serial dilution
SDG	sample data group
UMTRA	Uranium Mill Tailings Remedial Action

1.0 Introduction

1.1 Purpose

The purpose of this semi-annual report is to present the results and provide interpretation of the data associated with groundwater and surface water samples collected from the U.S. Department of Energy (DOE) Moab Uranium Mill Tailings Remedial Action (UMTRA) Project site during the first half of calendar year 2023. The results of the data validation process are also presented.

The site wide sampling event took place from January through March 2023. Samples were collected from site-wide groundwater and surface water locations shown on Figures 1 and 2, respectively. Site-wide groundwater sampling was conducted to assess any changes and trends in water quality. The surface water samples associated with this event were collected to assess surface water quality adjacent to the site compared to up- and down-stream water quality.

1.2 Scope

This report presents a summary of sampling events and data assessments, including a summary of the anomalous data generated by the validation process and results for these events. Sampling and analyses were conducted in accordance with the *Moab UMTRA Project Groundwater/ Surface Water Sampling and Analysis Plan* (DOE-EM/GJRAC1830). All data validation follows criteria in the *Moab UMTRA Project Standard Practice for Validation of Laboratory Data* (DOE-EM/GJRAC1855). The Site Wide Sampling event was validated to Level 3.

The documentation associated with the January through March 2023 site-wide sampling event is provided in Appendix A.

All Colorado River flows discussed in this document were measured from the U.S. Geological Survey Cisco gaging station number 09180500. River elevation data were collected adjacent to the site, and river flows are reported as cubic feet per second (cfs).

The Minimums and Maximums analyses were generated by the Moab Environmental Sampling (MESa) database to determine if the applicable data were within a normal statistical range. The new data set was compared to the historical data to determine if the new data fall outside the historical range. The results are not considered anomalous if: (1) identified low concentrations are the result of low detection limits, (2) the concentration detected is less or more than 50 percent of historical minimum or maximum values, or (3) there were fewer than five historical samples for comparison. Anomalous results are provided in tables in the "Data Assessment" section for each sampling event.

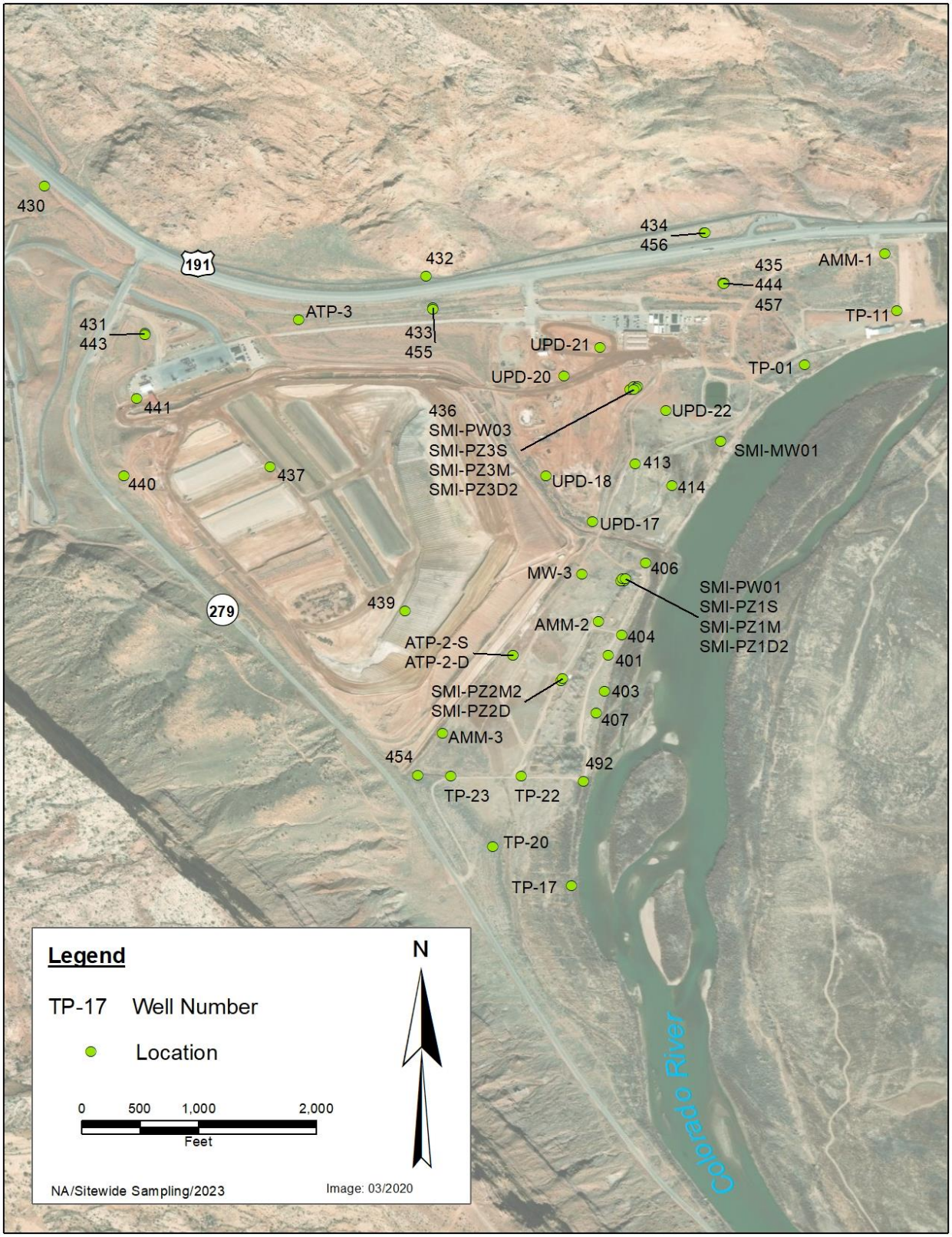

Figure 1. January through March 2023 Site-wide Groundwater Sampling Locations

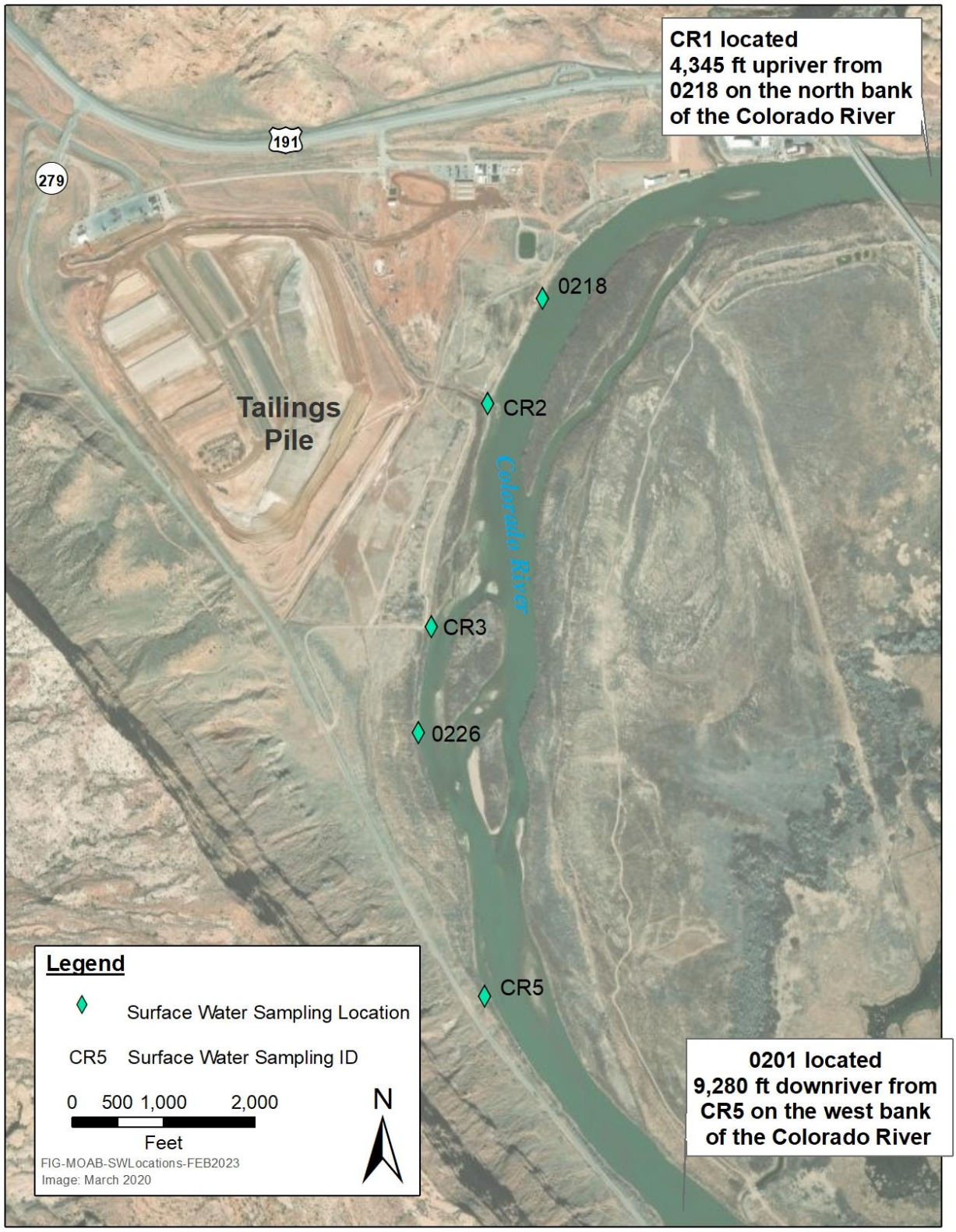

Figure 2. January through March 2023 Surface Water Sampling Locations

1.3 Data Validation Definitions

The following definitions are associated with the data validation process and apply to Section 3.0. Data validation details are provided in the following sections of this report for the individual sampling events.

Laboratory Instrument Calibration
Compliance requirements for satisfactory instrument calibration are established to ensure the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates 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 the instrument continues to produce acceptable qualitative and quantitative data.

Method and Calibration Blanks
Method blanks (MBs) are analyzed to assess any contamination that may have occurred during sample preparation. Both initial calibration blanks and continuing calibration blanks (CCBs) are analyzed to assess instrument contamination before and during sample analysis. Depending on method requirements, detected sample results greater than the method detection limit (MDL) or instrument detection limit (IDL) are qualified "J" when the detections are less than five times the blank concentration. Non-detects are not qualified.

Equipment Blanks
An equipment blank (EB) is a sample of analyte-free media collected from a rinse of non-dedicated sampling equipment used to sample surface water. EBs are collected to document adequate decontamination of non-dedicated equipment.

Laboratory Control Sample Duplicates
Laboratory Control Sample Duplicates (LCSDs) that contain known concentrations of the analyte of interest are prepared in the laboratory. Matrix spike (MS) samples may not be generated due to a limited sample volume. Instead, laboratory control sample duplicates LCSDs are performed. The results are used to demonstrate the laboratory is in control of the preparation and analysis of samples.

Matrix Spike and Replicate Analysis
MS sample analysis, performed at a frequency of one per 20 samples unless otherwise noted, is a measure of the ability to recover analytes in a particular matrix. The MS sample results are required to be within the recovery limits.

Laboratory Replicate Analysis
The laboratory replicate results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the reported matrix spike duplicate (MSD) results for all other analytes should be less than 20 percent for results greater than five times the RL.

Field Duplicate Analysis
Field duplicate samples are collected and analyzed as an indication of the overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory replicates, which measure only laboratory performance. The duplicate results must meet the U.S. Environmental Protection Agency (EPA)-recommended

laboratory duplicate criteria of less than 20 RPD for results that are greater than five times the RL.

Laboratory Control Samples
LCSs provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. Per national environmental laboratory accreditation requirements provided by the National Environmental Laboratory Accreditation Institute, an MS may be used in place of an LCS provided the acceptance criteria are as stringent.

Metals Serial Dilution
Serial dilution (SD) samples are prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix.

Detection Limits/Dilutions
Dilutions are prepared in a consistent and acceptable manner when they are required. CRIs are re-run at the beginning of each analytical run as a measure of accuracy near the RL. CRIs were made at the required frequency to verify the linearity of the calibration curve near the RL.

2.0 January through March 2023 Site-wide Sampling Event

2.1 Summary

Eighty groundwater and surface water samples (including QA samples) were collected as part of the site-wide event. This event is conducted when the Colorado River is at base flow conditions. All samples were submitted to GEL Laboratories for ammonia, arsenic, copper, manganese, selenium, sulfate, total dissolved solids, and uranium analysis..

2.2 January through March 2023 Site-wide Sampling Event Data Assessment

2.2.1 Laboratory Performance Assessment
This validation was performed according to *Standard Practice for Validation of Laboratory Data*. The procedure was applied at Level 3, Data Deliverables Examination. All analyses were successfully completed.

General Information and Validation Results

RIN	2301141
Laboratory:	GEL Laboratories, Charleston, SC
SDG Numbers:	609488, 609491, 610061, 611005, 612169, 613649, 614530
Analysis:	Metals and Inorganics
Validator:	James Ritchey, Thomas Prichard
Review Date:	June 2023

The samples were prepared and analyzed using accepted procedures as shown in Table 1. Analytical results were qualified as listed in Table 2. Refer to Table 3 for an explanation of the data qualifiers applied.

Table 1. 2023 Site-wide Sampling Event, Analytes and Methods

Analyte	Preparation Method	Analytical Method
Ammonia as N, NH3-N	EPA 350.1	EPA 350.1
Uranium	SW-846 3005A	SW-846 6020A
Arsenic	SW-846 3005A	ICP-MS 6020B
Copper	SW-846 3005A	SW-846 6020B
Manganese	SW-846 3005A	SW-846 6020B
Selenium	SW-846 3005A	ICP-MS 6020B
Sulfate	EPA 300.0	EPA 300.0
Total Dissolved Solids		SM 2540C

Table 2. 2023 Site-wide Sampling Event, Data Qualifiers

Flag	Reason	Sample Number	Analyte	Location
J	MS-1	609488001 – 042	All	All
J	MSD-1	609488001 – 042	All	All
		609491001 – 042	All	All
		610061001 – 030	All	All
J	MS-2	609491001 – 042	All	All
		610061001 – 030	All	All
J	MS-3	611005001, -004, -006, -008, -009, -011, -014, -015, -017, -020	Ammonia	0435, 0444, 0454, 0457, AMM-1, AMM-2, AMM-3, SMI-PZ2D, SMI-PZ2M2
		61349001 - 033	Uranium	All
J	D-1	609491001 – 042	Ammonia	All
		610061001 – 030	Ammonia, Copper, Selenium	All
J	B-1	610061001 – 030	Selenium	All
		611005008, -009, -022	Ammonia	0457, AMM-1-19, TP-01
		612169009, -011, -014, -018, -027	Selenium	0430, 0432, 0433, 0434, ATP-3

Notes: “J” indicates results are estimated and becomes “UJ” for analytical results lower than the detection limit.

Table 3. 2023 Site-wide Sampling Event, Reason Codes for Data Flags

Reason Code	Qualifier (Detects)	Qualifier (Non-detects)	Explanation
MS-1	J	U	No MS data was included in narrative.
MSD-1	J	U	No MSD data was included in the narrative.
MS-2	J	U	The MS failed due to a low percent recovery.
MS-3	J	R	MS returned value out of range
D-1	J	U	Samples did not meet recommended duplicate criteria.
B-1	J		Analyte was detected in blank.

Notes: "J" indicates results are estimated and becomes "UJ" for analytical results lower than the detection limit. U indicates the result is below the detection limit.

Sample Shipping/Receiving

GEL Laboratories in Charleston, South Carolina received a total of 80 samples for RIN 2301141 in seven shipments.

The seven SDGs were 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 forms and the sample tickets, had no errors or omissions.

Preservation and Holding Times

All of the SDGs were received intact. Six of the seven SDGs were received with compliant temperatures (see Table 4). SDG 609488 was delayed while shipping and was received outside of compliant temperature range and past the hold time for certain analytes. The lab communicated this delay and was directed to run analyses for metals, which were still within allowable hold times and temperatures. The locations in this SDG were resampled and the inorganic, non-metal analytes from SDG 611005. All samples were received in the correct container types and were analyzed within the applicable holding.

Case Narratives

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

Laboratory Instrument Calibration

Method SW-846 6020A, Uranium

The initial calibrations were all performed using four calibration standards and one blank, resulting in calibration curves with correlation coefficient (r^2) values greater than 0.995. The values of the calibration curve intercepts for uranium were positive and less than 3 times the IDL.

Initial calibration verification (ICV) and continuing calibration verification (CCV) checks were made at the required frequency. All calibration checks met the acceptance criteria.

Internal standard recoveries were stable and within acceptable ranges.

Method ICP-MS 6020B, Arsenic, Copper, Manganese, and Selenium

The initial calibrations were all performed using four calibration standards and one blank, resulting

in calibration curves with correlation coefficient (r^2) values greater than 0.995.

Initial calibration verification (ICV) and continuing calibration verification (CCV) checks were made at the required frequency. All calibration checks met the acceptance criteria.

Internal standard recoveries were stable and within acceptable ranges.

EPA 350.1, Ammonia as N

Initial calibrations for ammonia as N on all SDGs were performed using five calibration standards and one blank.

ICV and CCV checks were made at the required frequency. All calibration check results for all SDGs were within the acceptance criteria.

EPA 300.0, Sulfate

Initial calibrations for sulfate on all SDGs were performed using five calibration standards and one blank.

ICV and CCV checks were made at the required frequency. All calibration check results for all SDGs were within the acceptance criteria.

Method and Calibration Blanks

Method blanks (MBs) are analyzed to assess any contamination that may have occurred during sample preparation. Both initial calibration blanks (ICB) and continuing calibration blanks (CCBs) are analyzed to assess instrument contamination prior to and during sample analysis.

Copper was detected in a CCB in SDGs 610061 and 612169. Selenium was detected in CCBs in SDGs 609488, 609491, 610061, and 612169. Uranium was detected in a CCB for SDG 609491 and for SDG 610061. Ammonia was detected in the MB for SDG 611005.

Equipment Blanks

An equipment blank (EB) is a sample of analyte-free media collected from a rinse of non-dedicated sampling equipment used to sample surface water. EBs are collected to document adequate decontamination of non-dedicated equipment. One EB should be prepared with each preparation batch.

One equipment blank (Location 0999) was collected after the surface water tubing was decontaminated. All blank results were either at the method detection limit or significantly lower than any analytical results of the surface water samples.

Matrix Spike Analysis

For SDG 609488, no matrix spike was included in the report. Results for all analytes in this SDG were flagged "J" for reason MS-1. SDGs 609491 and 610061 had matrix spike results with low percent recovery and results for all analytes in these SDGs were flagged "J" for reason MS-2. For all uranium results in SDG 61349 and certain ammonia results were flagged "J" for reason MS-3; the matrix spike returned a value out of range.

Laboratory Replicate Analysis

The laboratory replicate results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the reported matrix spike duplicate (MSD) results for all other analytes should be less than 20 percent for results greater than 5 times the RL.

SDGs 609488, 60949, and 610061 did not include any matrix spike duplicate data. Results for all analytes in these SDGs were flagged "J" for reason MSD-1.

In the report narratives it is noted that LCSD (laboratory control sample duplicates) were used in place of MSD due to limited sample volume.

Field Duplicate Analysis
Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory replicates, which measure only laboratory performance. Five duplicate samples were collected from locations AMM-3, SMI-PZ1D2, 0492, and SMI-PW03. Two different duplicates were collected from AMM-3 on different dates. The U.S. Environmental Protection Agency (EPA) has a recommended laboratory duplicate criterion of less than 20 percent relative difference (RPD) for results that are greater than 5 times the RL. In SDG 609491 (associated with location SMI-PZ1D2), ammonia did not meet the recommended criterion. All ammonia results in SDG 609491 were "J" for reason D-1; field duplicate did not meet recommended criterion. In SDG 610061 (associated with location 0492), ammonia, selenium, and copper did not meet the recommended criterion. All ammonia, copper, and selenium results in SDG 610061 were flagged "J" for reason D-1.

Laboratory Control Samples
Laboratory control samples (LCS) provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. LCS results were acceptable for ammonia analyses. Per national environmental laboratory accreditation requirements provided by the National Environmental Laboratory Accreditation Conference Institute, an MS may be used in place of an LCS provided the acceptance criteria are as stringent. However, LCSs were run for analyses in all SDGs for this event.

Metals Serial Dilution
Serial dilution (SD) samples are prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial Dilutions were run for all metals analyses in all SDGs.

Detection Limits/Dilutions
Dilutions were prepared in a consistent and acceptable manner when they were required. The required detection limits were achieved for all analytes.

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

Electronic Data Deliverable Files
The Electronic Data Deliverable (EDD) files arrived February 23, February 17, February 22, March 1, March 10, March 27, and March 31, 2023, for SDGs 609488, 609491, 610061, 611005, 612169, 613649, and 614530, respectively. The contents of the EDD were manually examined to ensure all and only the requested data were delivered in compliance with requirements and that the sample results accurately reflected the data contained in the sample data package.

2.2.2 Minimums and Maximums Report and Anomalous Data Review
In this sampling event there were 27 results that were below a location's historical minimum and

34 results that were above the historical maximum. Based on the definition of an anomalous data point, twenty-one of those results are considered anomalous data points (3 low, 18 high). See Table 16 for the location and analyte of the anomalous data. The database Minimums and Maximums Report is provided in Appendix A.

Table 4. Anomalous Data Associated with the January Site-wide Sampling Event

Location	Sample Date	Concentration (mg/L)	Historical Min (mg/L)	Historical Max (mg/L)	Disposition
Ammonia Total as N					
0436	3/7/2023	0.24	2.4	950	This concentration is lower than the historical minimum for this location.
Arsenic					
0414	2/20/2023	0.00761	0.016	0.361	These locations will continue to be monitored to determine if this is indicative of a trend.
0437	3/14/2023	0.00532	0.0001	0.0029	
AMM-3	1/31/2023	0.0193	0.001	0.011	
Copper					
0201	2/6/2023	0.00338	0.00035	0.0015	These copper concentrations are higher than historical results. These are all surface water locations and occur both up- and down-stream of the site, possibly indicating a changing condition unrelated to the site. Locations will continue to be monitored to determine if this is indicative of a trend.
CR1	2/6/2023	0.0043	0.00035	0.0014	
CR2	2/7/2023	0.00464	0.0006	0.002	
CR3	2/6/2023	0.00431	0.0006	0.002	
CR5	2/6/2023	0.00382	0.00035	0.002	
Manganese					
0437	3/14/2023	0.0981	0.22	5.14	This concentration is lower than the historical minimum for this location.
Selenium					
0403	2/02/2023	0.0843	0.00015	0.027	These concentrations are higher than historical results but many locations have been sampled relatively few times for this analyte. Locations will continue to be monitored to determine if this is indicative of a trend.
0430	2/02/2023	0.0135	0.0001	0.005	
0436	2/20/2023	0.0316	0.00034	0.0047	
0444	3/07/2023	0.184	0.0001	0.0014	
CR1	1/30/2023	0.2	0.0001	0.00088	
SMI-PW01	2/06/2023	0.0145	0.0013	0.0079	
SMI-PZ1S	2/01/2023	0.2	0.017	0.12	
SMI-PZ3D2	2/01/2023	0.0286	0.0055	0.016	
SMI-PZ3M	2/01/2023	0.104	0.004	0.05	
UPD-17	3/07/2023	0.0125	0.00043	0.0022	
Sulfate					
TP-11	2/13/2023	9250	1	3500	This location has been sampled few times and will continue to be monitored to determine what is normal ranges for this location.

2.3 January through March 2023 Site-wide Sampling Event Results

In addition to ammonia and uranium, during the recent site-wide event samples were also analyzed for the five other potential contaminants of concern (PCOCs) (arsenic, copper, manganese, selenium, and sulfate) that were identified in the screening process and presented in Appendix A-2 of the EIS.. The groundwater system underlying the site is not a drinking water source, and these analyses were for informational purposes only. Results for each of these PCOCs are discussed individually below.

Ammonia
Samples have been analyzed for ammonia consistently since initial characterization of the site because it is one of the two primary (the other being uranium) site contaminants. There are no regulatory groundwater ammonia standards; however, provided in the EIS is a proposed standard of 3 mg/L for the site based on dilution factors and surface water impacts. With the exception of upgradient and other locations beyond the extent of the ammonia plume, groundwater samples collected across the majority of the site exceed this 3 mg/L ammonia concentration. More detailed information regarding the ammonia results are provided below.

Arsenic
Since 2022, arsenic has part of the standard sampling suite. During this most recent event, zero locations had concentrations that exceeded the 40 CFR 192 Sub A, Table 1 standard of 0.05 mg/L.

Copper
The only applicable groundwater standard for copper is the EPA Action Level of 1.3 mg/L. Samples were collected from 65 locations, and the concentrations ranged from 0.003 (the detection limit) to 0.0415 mg/L. Therefore, none of these exceeded this action level.

Manganese
The only applicable groundwater standard for manganese is an EPA Secondary Drinking Water Regulation of 0.05 mg/L. Samples were collected from 65 locations during this recent event, and 41 were above the 0.05 mg/L concentration. Table 5 provides the locations, sample depths, and associated results.

Table 5. January through March 2023 Groundwater Locations Exceeding the Manganese 0.05 mg/L EPA Secondary Drinking Water Regulation

Well Number	Date	Location	Sample Depth (ft bgs)	Manganese Concentration (mg/L)
0401	2/2/2023	CF2	18	3.59
0403	2/2/2023	CF1	18	2.35
0407	2/2/2023	CF1	18	2.5
0413	2/20/2023	NE Uranium Plume Area	10	0.0804
0414	2/20/2023	NE Uranium Plume Area	7.5	0.139
0431	3/13/2023	N of Queue	91	0.0973
0434	2/21/2023	Upgradient of site	80	0.374
0435	1/30/2023	Upgradient of site	173	0.386
0436	3/7/2023	NE Uranium Plume Area	197	3.7
0437	3/14/2023	On Tailings Pile	NA	0.0981

Table 5. January through March 2023 Groundwater Locations Exceeding the Manganese 0.05 mg/L EPA Secondary Drinking Water Regulation (continued)

Well Number	Date	Location	Sample Depth (ft bgs)	Manganese Concentration (mg/L)
0439	3/8/2023	On Tailings Pile	NA	0.169
0444	1/30/2023	Upgradient of site	116	1.95
0454	1/30/2023	Along SW Site Boundary	13	0.0697
0455	2/21/2023	Upgradient of site	46	0.655
0457	1/30/2023	Upgradient of site	29	3.59
0492	2/6/2023	Along S Site Boundary	18	3.34
AMM-2	1/31/2023	Near CF5	48	0.28
AMM-3	1/31/2023	Base of tailings pile	48	3.4
ATP-2-D	2/1/2023	Base of tailings pile	88	1.73
ATP-3	2/20/2023	Upgradient of site	51	0.472
MW-3	2/1/2023	Near CF5	44	7.17
SMI-MW01	2/20/2023	NE Uranium Plume Area	16	0.608
SMI-PW03	3/7/2023	NE Uranium Plume Area	60	1.24
SMI-PZ1D2	2/1/2023	CF5 Vicinity	73	9.42
SMI-PZ1M	2/1/2023	CF5 Vicinity	57	5.69
SMI-PZ1S	2/1/2023	CF5 Vicinity	18	1.46
SMI-PZ2D	1/31/2023	CF5 Vicinity	75	6.62
SMI-PZ2M2	1/31/2023	CF5 Vicinity	56	6.37
SMI-PZ3D2	3/7/2023	NE Uranium Plume Area	78	6.37
SMI-PZ3M	3/7/2023	NE Uranium Plume Area	59	0.134
TP-01	1/30/2023	NE Uranium Plume Area	22	1.29
TP-11	1/30/2023	E edge of site	30	0.672
TP-17	2/6/2023	NE Uranium Plume Area	17	1.91
TP-20	2/1/2023	CF5 Vicinity	32	2.07
UPD-17	3/7/2023	NE Uranium Plume Area	14	4.74
UPD-22	2/20/2023	NE Uranium Plume Area	9	0.0712

Selenium

Similar to the samples collected for arsenic analysis, since 2022 all sitewide samples were analyzed for selenium. Of the 65 samples collected, 55 had selenium concentrations above the 0.01 mg/L standard (40 CFR 192 Sub A, Table 1). These results presented in Table 6.

Table 6. January through March 2023 Groundwater Locations Exceeding the Selenium 0.01 mg/L 40 CFR 192 Sub A Standard

Well Number	Date	Location	Sample Depth (ft bgs)	Selenium Concentration (mg/L)
0226	2/6/2023	Surface Water (adjacent)	0	0.0117
0401	2/2/2023	CF2	18	0.06
0403	2/2/2023	CF1	18	0.0843
0404	2/2/2023	CF2	18	0.0397
0406	2/2/2023	Moab Wash	18	0.214
0407	2/2/2023	CF1	18	0.0135
0413	2/20/2023	NE Uranium Plume Area	10	0.124

Table 6. January through March 2023 Groundwater Locations Exceeding the Selenium 0.01 mg/L 40 CFR 192 Sub A Standard (continued)

Well Number	Date	Location	Sample Depth (ft bgs)	Selenium Concentration (mg/L)
0414	2/20/2023	NE Uranium Plume Area	7.5	0.0749
0430	2/20/2023	Upgradient of site	101	0.0316
0432	2/21/2023	Upgradient of site	55	0.0306
0433	2/20/2023	Upgradient of site	99	0.0326
0434	2/21/2023	Upgradient of site	80	0.0403
0435	1/30/2023	Upgradient of site	173	0.189
0436	3/7/2023	NE Uranium Plume Area	196	0.184
0437	3/14/2023	On Tailings Pile	NA	0.12
0440	3/14/2023	Along SW Site Boundary	117	0.06
0441	3/13/2023	Along SW Site Boundary	53	0.665
0443	3/13/2023	Upgradient of site	73	0.0131
0444	1/30/2023	Upgradient of site	116	0.2
0454	1/30/2023	Along SW Site Boundary	13	0.198
0455	2/21/2023	Upgradient of site	46	0.0267
0456	2/21/2023	Upgradient of site	53	0.0386
0492	2/6/2023	Along S Site Boundary	18	0.019
AMM-1	1/30/2023	E edge of site	19	0.0303
AMM-2	1/31/2023	Near CF5	48	0.0244
AMM-3	1/31/2023	Base of tailings pile	48	0.0117
ATP-2-D	2/1/2023	Base of tailings pile	88	0.212
ATP-2-S	2/1/2023	Base of tailings pile	25	0.0143
ATP-3	2/20/2023	Upgradient of site	51	0.0241
CR1	2/6/2023	Surface Water (upstream)	0	0.0145
MW-3	2/1/2023	Near CF5	44	0.0322
SMI-MW01	2/20/2023	NE Uranium Plume Area	16	0.0523
SMI-PW01	2/1/2023	CF5 Vicinity	40	0.2
SMI-PW03	3/7/2023	NE Uranium Plume Area	60	0.0243
SMI-PZ1D2	2/1/2023	CF5 Vicinity	73	0.19
SMI-PZ1M	2/1/2023	CF5 Vicinity	57	0.0286
SMI-PZ1S	2/1/2023	CF5 Vicinity	18	0.104
SMI-PZ2D	1/31/2023	CF5 Vicinity	75	0.23
SMI-PZ2M2	1/31/2023	CF5 Vicinity	56	0.196
SMI-PZ3D2	3/7/2023	NE Uranium Plume Area	78	0.0862
SMI-PZ3M	3/7/2023	NE Uranium Plume Area	59	0.0125
SMI-PZ3S	3/7/2023	NE Uranium Plume Area	25	0.052
TP-01	1/30/2023	NE Uranium Plume Area	22	0.0141
TP-11	1/30/2023	E edge of site	30	0.0245
TP-17	2/6/2023	NE Uranium Plume Area	17	0.0626
TP-20	2/1/2023	CF5 Vicinity	32	0.153
TP-22	1/31/2023	CF5 Vicinity	17	0.107
TP-23	1/30/2023	CF5 Vicinity	25	0.132
UPD-17	3/7/2023	NE Uranium Plume Area	14	0.133

Table 6. January through March 2023 Groundwater Locations Exceeding the Selenium 0.01 mg/L 40 CFR 192 Sub A Standard (continued)

Well Number	Date	Location	Sample Depth (ft bgs)	Selenium Concentration (mg/L)
UPD-18	3/7/2023	NE Uranium Plume Area	13	0.0979
UPD-20	3/7/2023	NE Uranium Plume Area	25	0.0179
UPD-21	3/7/2023	NE Uranium Plume Area	25	0.112
UPD-22	2/20/2023	NE Uranium Plume Area	9	0.0638

Sulfate

Similar to manganese, there is only an EPA Secondary Drinking Water Regulation for sulfate, which is 250 mg/L. Of the 65 locations sampled, 64 exceeded this standard. The sulfate concentration ranged from 150 to 15,500 mg/L, with a geometric mean of 1,932 mg/L. The high concentrations can be attributed to the presence of the naturally occurring brine within the groundwater system.

Uranium

All samples collected during this event were analyzed for uranium. Table 20 presents all locations sampled that exceeded the 0.044 mg/L uranium groundwater standard. This standard is based on Table 1 in *Title 40 Code of Federal Regulations Part 192 (40 CFR 192) "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, Subpart A, Standards for the Control of Residual Radioactive Materials from Inactive Uranium Processing Sites*," assuming uranium-234 and uranium-238 activities are in equilibrium.

Table 7. January through March 2023 Sampling Events, Groundwater Locations Exceeding the 0.044 mg/L UMTRA Uranium Groundwater Standard

Well Number	Date	Location	Sample Depth (ft bgs)	Uranium Concentration (mg/L)
0401	2/2/2023	CF2	18	1.76
0403	2/2/2023	CF1	18	1.05
0404	2/2/2023	CF2	18	1.66
0406	2/2/2023	Moab Wash	18	1.24
0407	2/2/2023	CF1	18	1.09
0413	2/20/2023	NE Uranium Plume Area	10	2.22
0414	2/20/2023	NE Uranium Plume Area	7.5	3.0
0437	3/14/2023	On Tailings Pile	NA	2.26
0439	3/8/2023	On Tailings Pile	NA	1.51
0441	3/13/2023	Along SW Site Boundary	53	0.0567
0454	1/30/2023	Along SW Site Boundary	13	1.74
0492	2/6/2023	Along S Site Boundary	18	1.59
AMM-2	1/31/2023	Near CF5	48	2.26
AMM-3	1/31/2023	Base of tailings pile	48	2.19
MW-3	2/1/2023	Near CF5	44	2.71
SMI-MW01	2/20/2023	NE Uranium Plume Area	16	2.32
SMI-PW01	2/1/2023	CF5 Vicinity	40	1.19
SMI-PW03	3/7/2023	NE Uranium Plume Area	60	0.333
SMI-PZ1D2	2/1/2023	CF5 Vicinity	73	1.65

Table 7. January through March 2023 Sampling Events, Groundwater Locations Exceeding the 0.044 mg/L UMTRA Uranium Groundwater Standard (continued)

Well Number	Date	Location	Sample Depth (ft bgs)	Uranium Concentration (mg/L)
SMI-PZ1M	2/1/2023	CF5 Vicinity	57	2.73
SMI-PZ1S	2/1/2023	CF5 Vicinity	18	0.476
SMI-PZ2D	1/31/2023	CF5 Vicinity	75	1.07
SMI-PZ2M2	1/31/2023	CF5 Vicinity	56	3.63
SMI-PZ3D2	3/7/2023	NE Uranium Plume Area	78	0.621
SMI-PZ3M	3/7/2023	NE Uranium Plume Area	59	0.264
SMI-PZ3S	3/7/2023	NE Uranium Plume Area	25	0.723
TP-01	1/30/2023	NE Uranium Plume Area	22	0.0464
TP-22	1/31/2023	CF5 Vicinity	17	0.394
TP-23	1/30/2023	CF5 Vicinity	25	3.28
UPD-17	3/7/2023	NE Uranium Plume Area	14	1.16
UPD-18	3/7/2023	NE Uranium Plume Area	13	0.637
UPD-20	3/7/2023	NE Uranium Plume Area	25	0.0671
UPD-21	3/7/2023	NE Uranium Plume Area	25	7.0
UPD-22	2/20/2023	NE Uranium Plume Area	9	2.11

Notes: NE = northeastern; SW = southwestern

To more easily present the trends observed in the water chemistry for the site-wide locations, the site was divided into six areas. These include:

- The Northeastern Base of the Tailings Pile
- The Northeastern Uranium Plume Area
- The Southeastern Base of the Tailings Pile
- The Southwestern Site Boundary
- The Site Boundary along the Colorado River
- The Southern and Off-site Areas

Also included is a response to CF5 extraction system activity on nearby monitoring wells SMI-PZ2M2 and AMM-2. All results since 2010 are plotted against the Colorado River flow to determine if the river stage may impact the concentrations. Refer to Figure 1 for the site-wide groundwater sampling locations.

2.3.1 Northeastern Base of Tailings Pile

Figures 3 and 4 are time versus ammonia and uranium concentration plots, respectively, for locations UPD-17 and UPD-18. Because of these location's proximity to the Colorado River and Moab Wash (in which the Colorado River tends to flood during peak runoff), prior to 2019 ammonia concentrations (Figure 3) have displayed a general trend of higher ammonia concentrations during river base flows and, conversely, lower concentrations during the spring runoff (or higher flows). Since 2019 the ammonia concentrations have not followed this trend, and most recently the concentrations have increased at both locations and are still within the historical range. Overall the ammonia concentrations have been gradually decreasing at approximately the same rate.

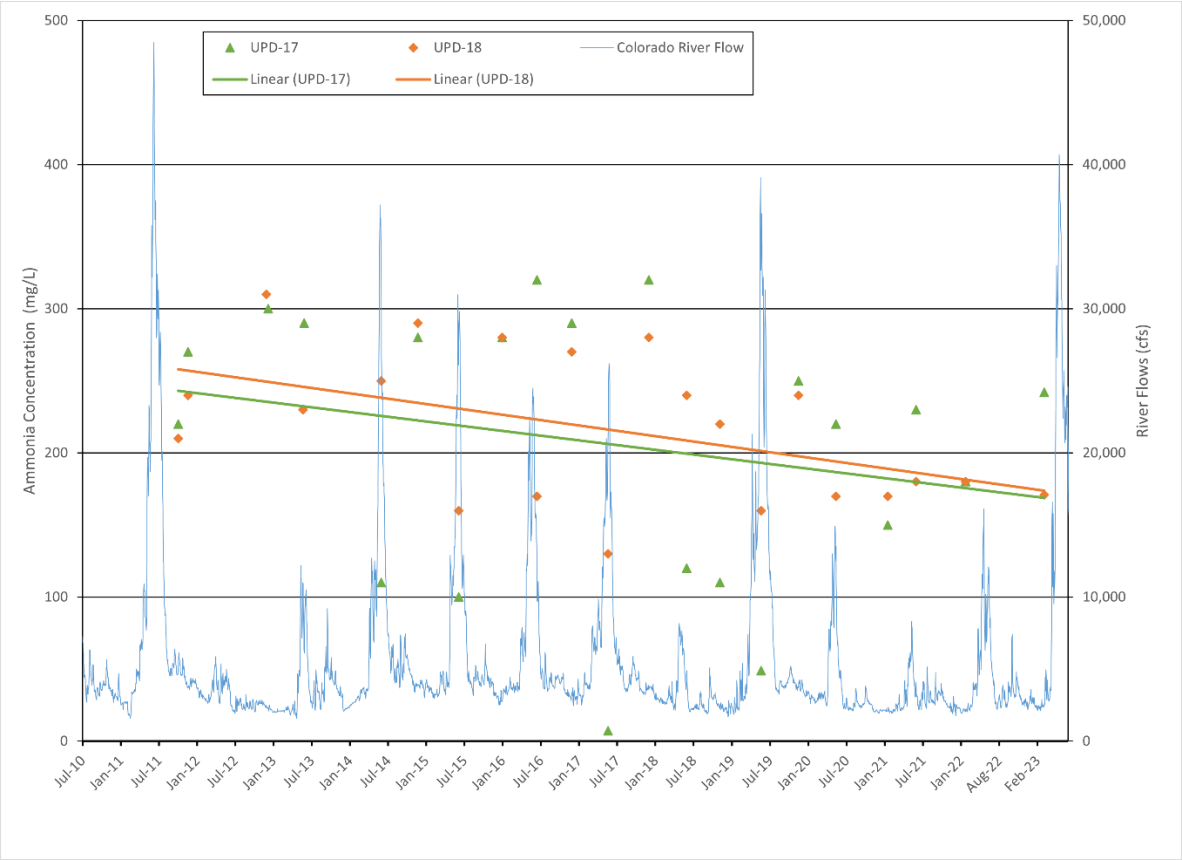

Figure 3. Wells UPD-17 and UPD-18 Time versus Ammonia Concentration Plot

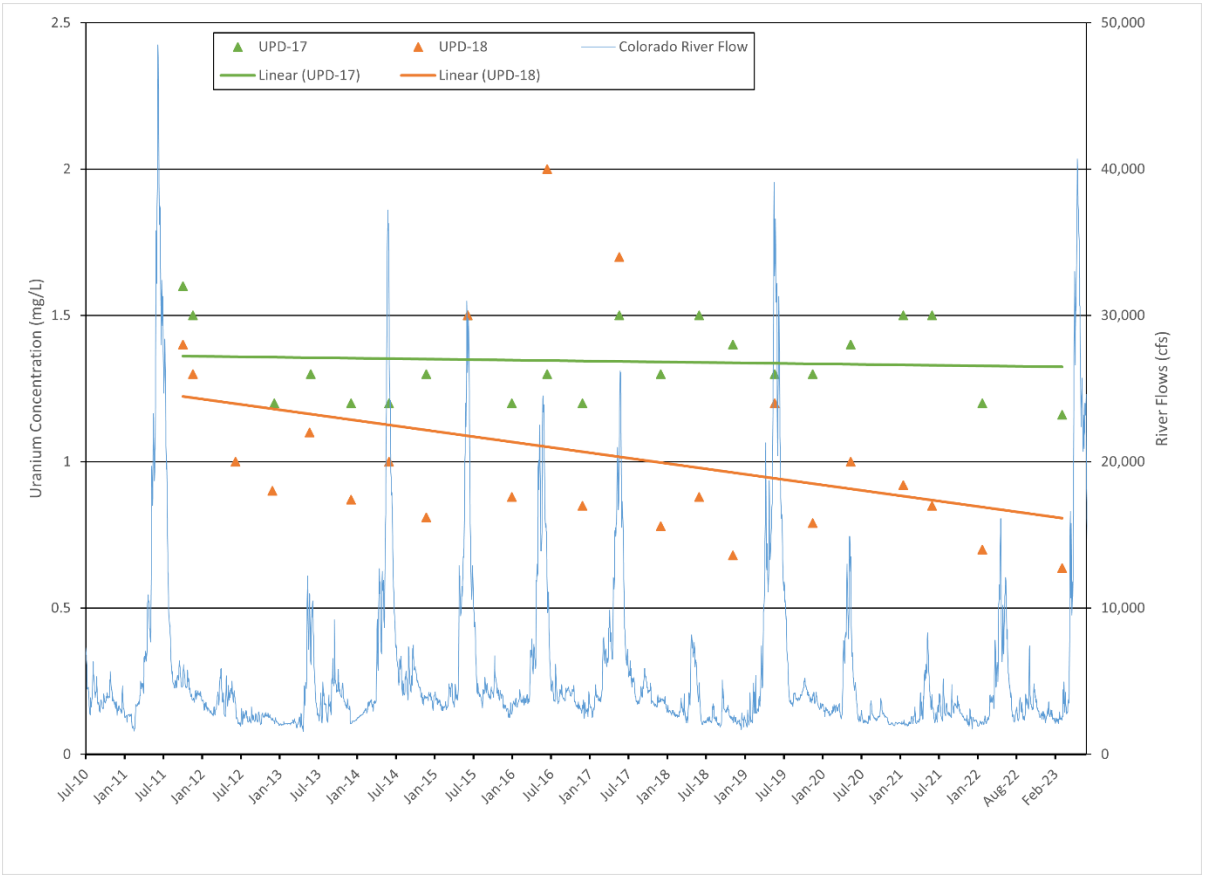

Figure 4. Wells UPD-17 and UPD-18 Time versus Uranium Concentration Plot

Uranium concentrations (Figure 4) tend to increase during higher river stages, where oxygenated water enters the subsurface and increases the uranium solubility. This geochemical reaction is especially evident in the samples collected from the well UPD-18. In the past 10 years the uranium concentrations in samples collected from UPD-17 have slightly decreased, and the concentrations have decreased in the samples collected from UPD-18.

2.3.2 Northeastern Uranium Plume Area

Due to the number of wells associated with the northeastern uranium plume, this area of the site was further subdivided into the center of the plume, the northern edge of plume area, and the northeastern edge of the plume area.

Center of Northeastern Uranium Plume Area

Figures 5 and 6 are the time versus ammonia and uranium concentration plots, respectively, for the center of the northeastern uranium plume area, which includes locations UPD-20, 0411, 0413, and 0414 (listed from upgradient to downgradient). It has not been possible to collect a sample from 0411 over the past several years.

Well 0413 is approximately 650 ft from the Colorado River, and the ammonia concentrations (Figure 5) collected from this location have been consistently higher since 2011 compared to the samples collected from well 0414. Well 0413 is less susceptible to impacts of the river stage compared to well 0414 (located only 250 ft from the river) when this area is not flooded. Trendlines indicate ammonia concentrations over the past 10 years have steadily increased.

The uranium concentration (Figure 6) in the sample collected from well UPD-20 was again just above the 0.044 mg/L standard (as it has been since this well was installed in 2011), with a concentration of 0.067 mg/L. Since 2012 the concentration has ranged from 0.056 to 0.095 mg/L. The uranium concentrations in samples collected from wells 0413 and 0414 have generally been similar since June 2013. By the most recent event, the trendlines suggest the uranium concentrations in the samples collected from 0413 have generally increased and in 0414 decreased over the past 10 years.

Northern Edge of Uranium Plume Area

The ammonia and uranium concentrations associated with samples collected from locations in the northern edge of the plume area displayed in Figures 7 and 8, respectively. These wells include 0410, UPD-21, UPD-23, and UPD-24, all of which were sampled at a depth of approximately 25 ft bgs. It has not been possible to sample well 0410 in the past several years.

As shown in Figure 7, the ammonia concentrations in samples collected from UPD-21 and UPD-23 during this site-wide event were less than 5 mg/L. Historically this area of the site has had the highest uranium concentrations (Figure 8) in groundwater, particularly in wells UPD-21 and -24. The uranium concentrations in samples collected from wells 0410 and UPD-23 remain lower than 1.0 mg/L and have not significantly changed since 2012, suggesting the uranium plume has not extended to the north/northeast during this time. The trendlines displayed in Figure 8 suggests that the UPD-21 and UPD-24 concentrations have decreased at a similar rate over the past 10 years.

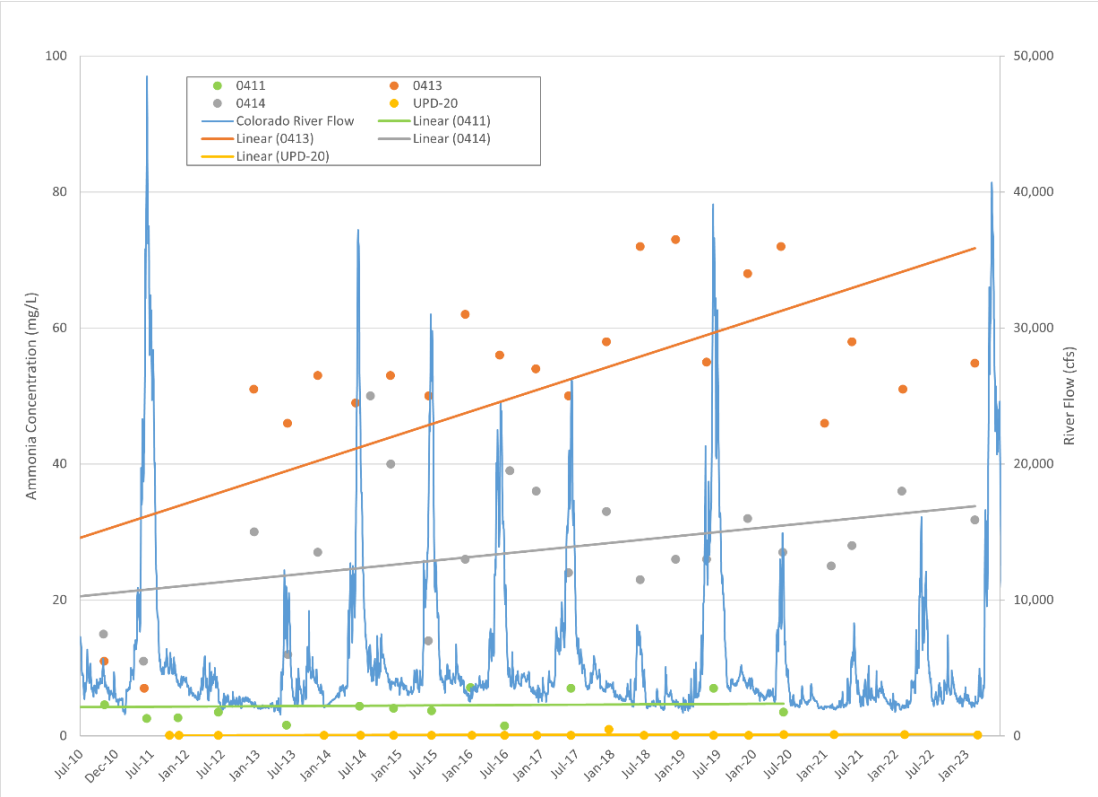

Figure 5. Center of Northeastern Uranium Plume Area Observation Wells 0411, 0413, 0414, and UPD-20 Time versus Ammonia Concentration Plot

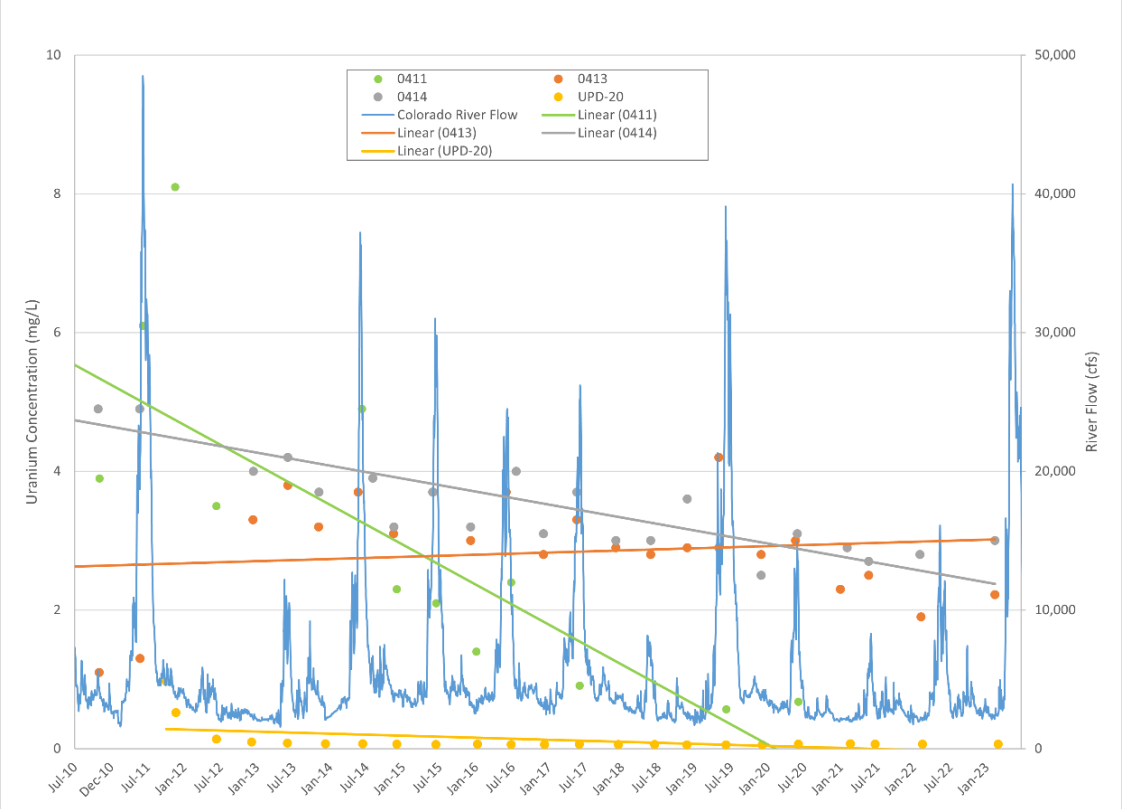

Figure 6. Center of Northeastern Uranium Plume Area Observation Wells 0411, 0413, 0414, and UPD-20 Time versus Uranium Concentration Plot

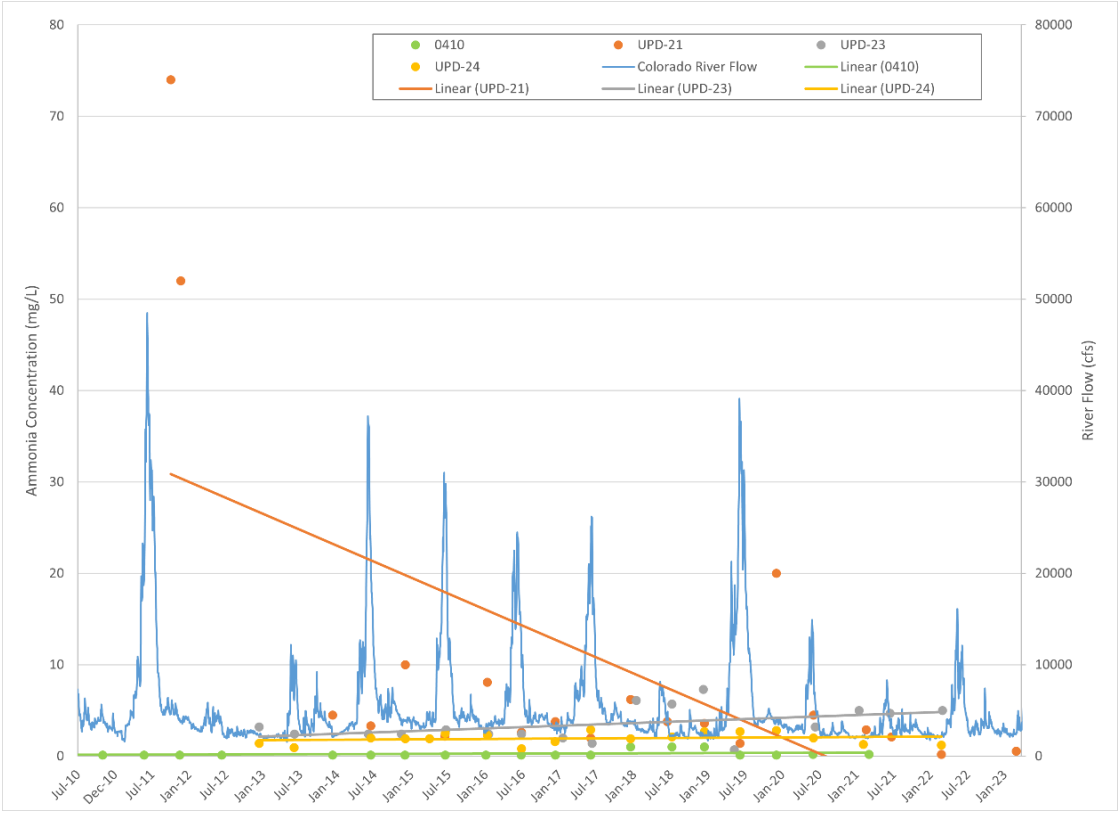

Figure 7. Northern Edge of Uranium Plume Area Observation Wells 0410, UPD-21, UPD-23, and UPD-24 Time versus Ammonia Concentration Plot

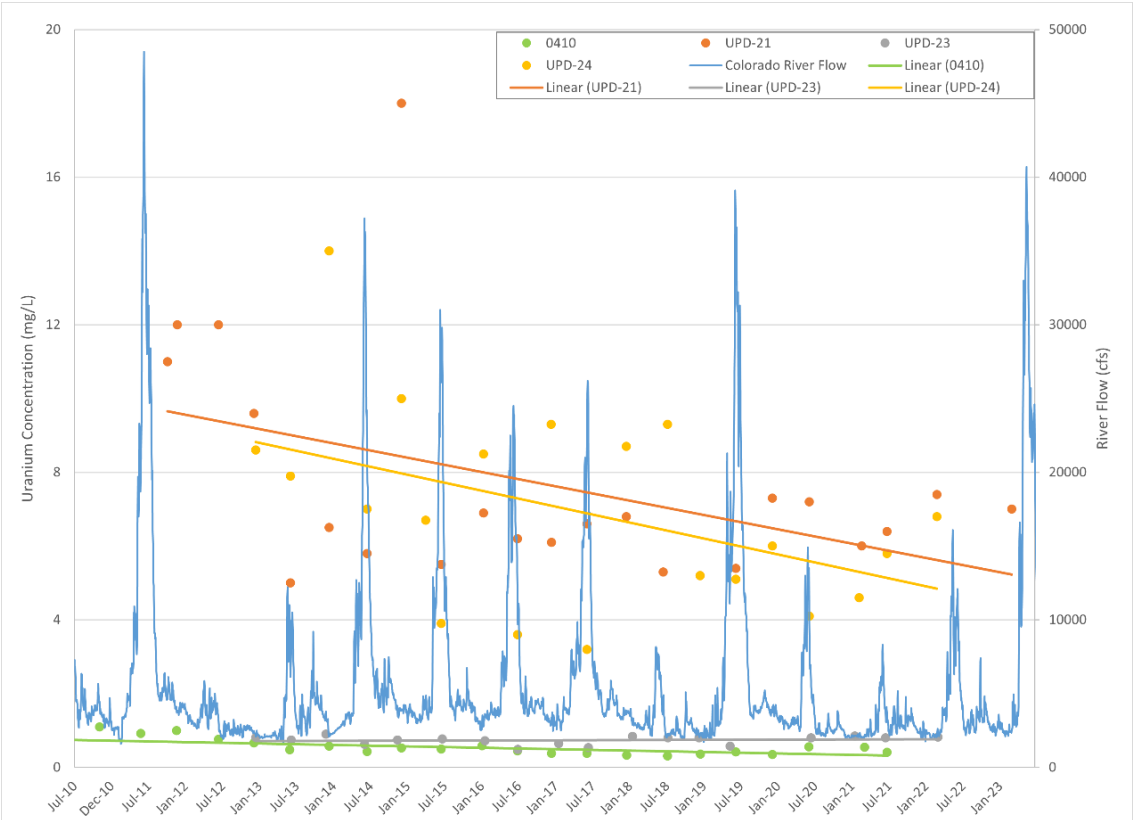

Figure 8. Northern Edge of Uranium Plume Area Observation Wells 0410, UPD-21, UPD-23, and UPD-24 Time versus Uranium Concentration Plot

Northeastern Edge of Uranium Plume Area

Figures 9 and 10 display ammonia and uranium concentration data for the wells located in the vicinity of the northeastern edge of the plume area. This includes wells SMI-PZ3S, UPD-22, 0412 and SMI-MW01 (listed from upgradient to downgradient). Well SMI-PZ3S is located approximately 850 ft from the river bank, and SMI-MW01 is only 50 ft off the bank. Well 0412 is near SMI-MW01, approximately 60 ft upgradient, but sampled at different depths (11 and 16 ft bgs, respectively). It has not been possible to sample well 0412 in recent years due to low groundwater elevations.

As Figure 9 exhibits, the ammonia concentrations associated with the sampling of these wells increases moving away from the river bank. The fluctuations displayed in the concentrations associated with 0412 are a function of detection limits. The concentrations measured in the samples collected from SMI-MW01 and 0412 have remained below 3 mg/L since 2010, suggesting this area is close to the edge of the ammonia plume. Through 2015 the concentrations measured in samples collected from well UPD-22 were below 5 mg/L, increased to nearly 10 mg/L in 2017 and have gradually decreased suggesting some minimal plume movement.

With this set of wells located downgradient of the former processing area, the uranium concentrations are impacted by the upgradient conditions. However, consistently the uranium concentrations measured in the samples collected from the well closest to the former processing area cluster (SMI-PZ3S) are the lowest of this set of wells. Additionally well SMI-PZ3S is near UPD-24, approximately 200 ft downgradient, but the concentrations are significantly different (25 and 27 ft bgs). As shown in Figure 10, moving in the southeast (downgradient) direction concentrations generally increase, with the highest associated with the sample collected from well 0412. The concentration increase in the downgradient direction suggests the uranium plume is being impacted by another source, possibly the remnants of the berm that was in place during mill site operations through 2011.

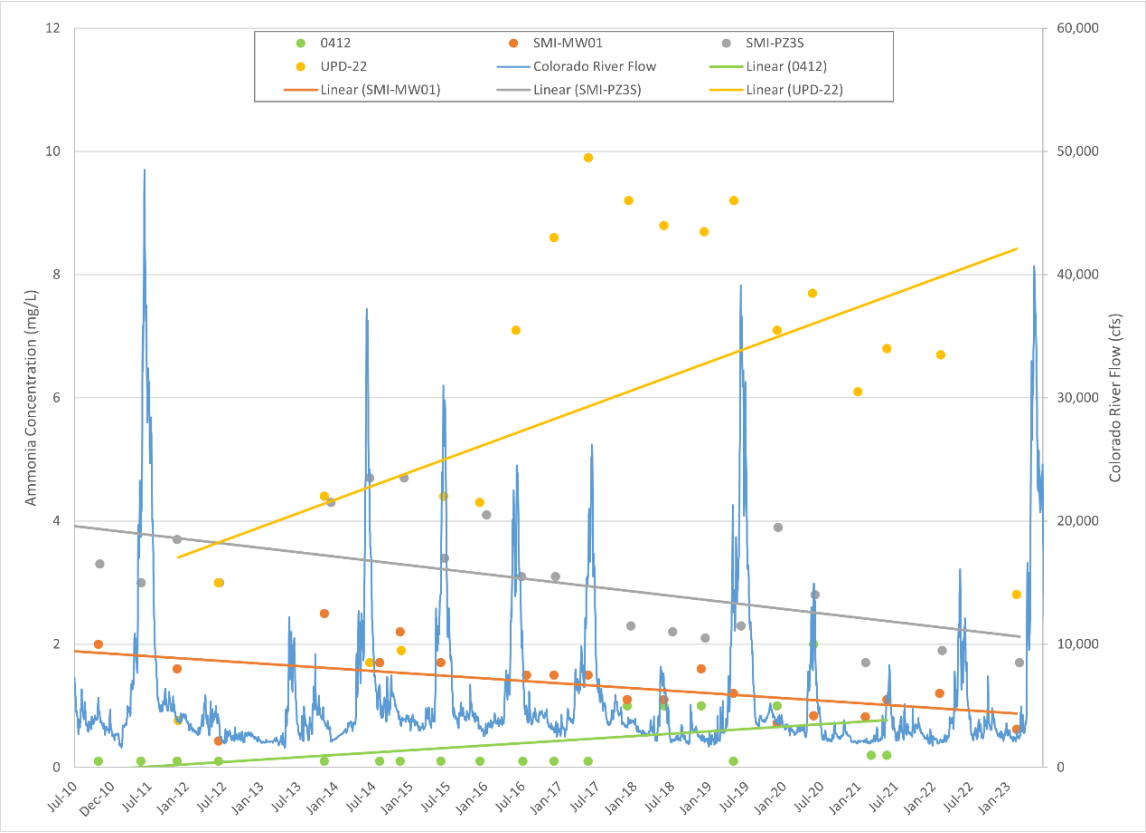

Figure 9. Northeastern Edge of Uranium Plume Area Observation Wells 0412, SMI-MW01, SMI-PZ3S, and UPD-22 Time versus Ammonia Concentration Plot

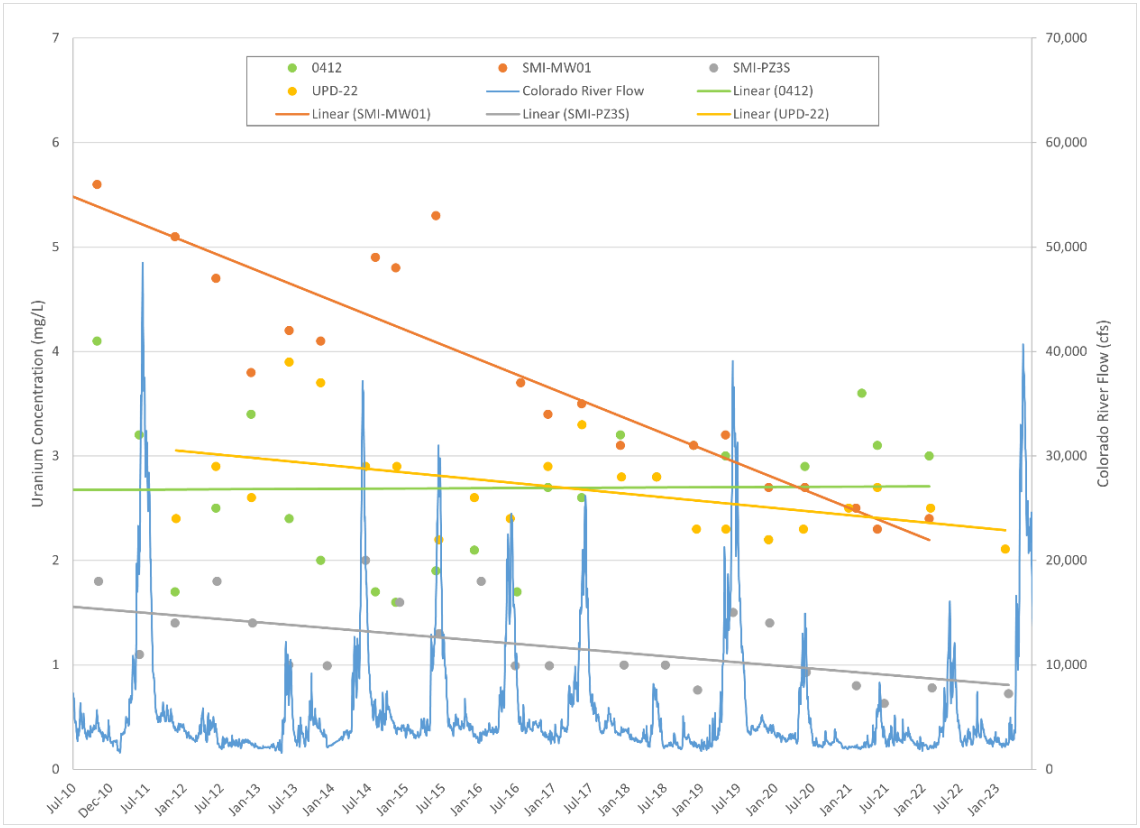

Figure 10. Northeastern Edge of Uranium Plume Area Observation Wells 0412, SMI-MW01, SMI-PZ3S, and UPD-22 Time versus Uranium Concentration Plot

2.3.3 Southeastern Base of Tailings Pile

The time versus ammonia and uranium concentration plots for the area near the base of the tailings pile are presented in Figures 11 and 12 for wells 0454, AMM-3, ATP-2-S, ATP-2-D, and MW-3 (listed from south to north). These wells are sampled over a variety of depths, ranging from 13 to 88 ft bgs. They are also located at approximately the same ground surface elevation.

Starting from the southern corner of the base of the pile, the samples collected 13 ft bgs from well 0454 provide ammonia concentrations in the shallowest zone. Figure 11 displays how this zone of the plume is impacted by the river stage, with a significant decrease when the river is experiencing spring runoff flows. Because this well is located in a slight depression off the southern tip of the pile, it is susceptible to being submerged during flood events (most recently in 2019). Between July 2017 and January 2019 ammonia concentrations were comparable to those in samples collected from other wells along the tailings pile base, approximately 400 mg/L. The concentration decreased to 55 mg/L during the 2019 flood and has continued to rebound. Based on the recent event, the 0454 concentration has increased in a similar fashion to AMM-3 and MW-3.

Wells ATP-2-S and ATP-2-D are contained within a well cluster that is located near the center of the tailings pile base. Since 2010 ammonia concentrations have been similar from depths of 25 and 88 ft bgs. This not only provides a general idea of the depth of the plume, but also suggests there is minimal impact from the river stage on the ammonia plume down to a depth of at least 25 ft bgs. However, the ATP-2-S ammonia concentration decreased significantly during the 2020 and 2021 sampling events, returning to pre-flood levels . During this same time frame the ATP-2-D concentration remained within the historical range, suggesting this portion of the plume was diluted while the deeper zone was not impacted. Well MW-3 is located near the northeastern end of the plume, and ammonia concentrations in samples collected at this location are similar and tend to mimic those associated with the ATP-2-D.

Well 0454 displays the impact of the river stage on the uranium concentration in the shallowest zone (Figure 12), where uranium concentrations tend to decrease in response to high river flows. The samples collected from well MW-3 have had the highest uranium concentration of this group of wells consistently since 2011, while concentrations in wells ATP-2-S and ATP-2-D have all been less than 0.015 mg/L since 2010. One would expect the ATP well concentrations to be higher, especially in the sample associated with ATP-2-S (from 25 ft bgs), since the samples collected along the base of the tailings between 13 (0454) and 44 ft bgs (MW-3) range from 1.7 to 2.7 mg/L.

2.3.4 Southwestern Site Boundary

Figures 13 and 14 are time versus concentration plots for ammonia and uranium, respectively, for locations 0441, 0440, 0453, and 0454 (listed from northwest to southeast). These locations are all along the furthest western extent of the alluvial aquifer. Due to the varying topography along this boundary, sample depths range from 13 to 117 ft bgs. The results associated with well 0454 are again presented in this section because in addition to being located along the base of the tailings pile, it is also along this site boundary. Water levels in well 0453 have dropped below the level of the bladder pump, preventing sample collection.

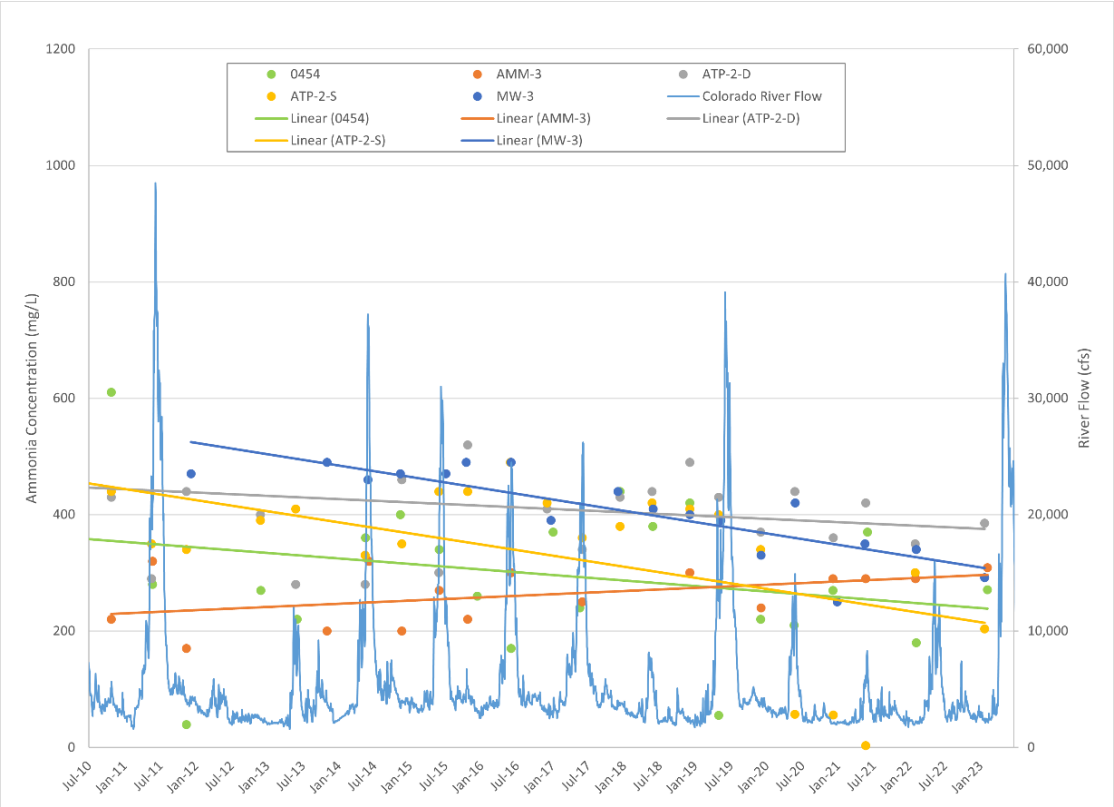

Figure 11. Base of Tailings Pile Observation Wells 0454, AMM-3, ATP-2-S, ATP-2-D, and MW-3 Time versus Ammonia Concentration Plot

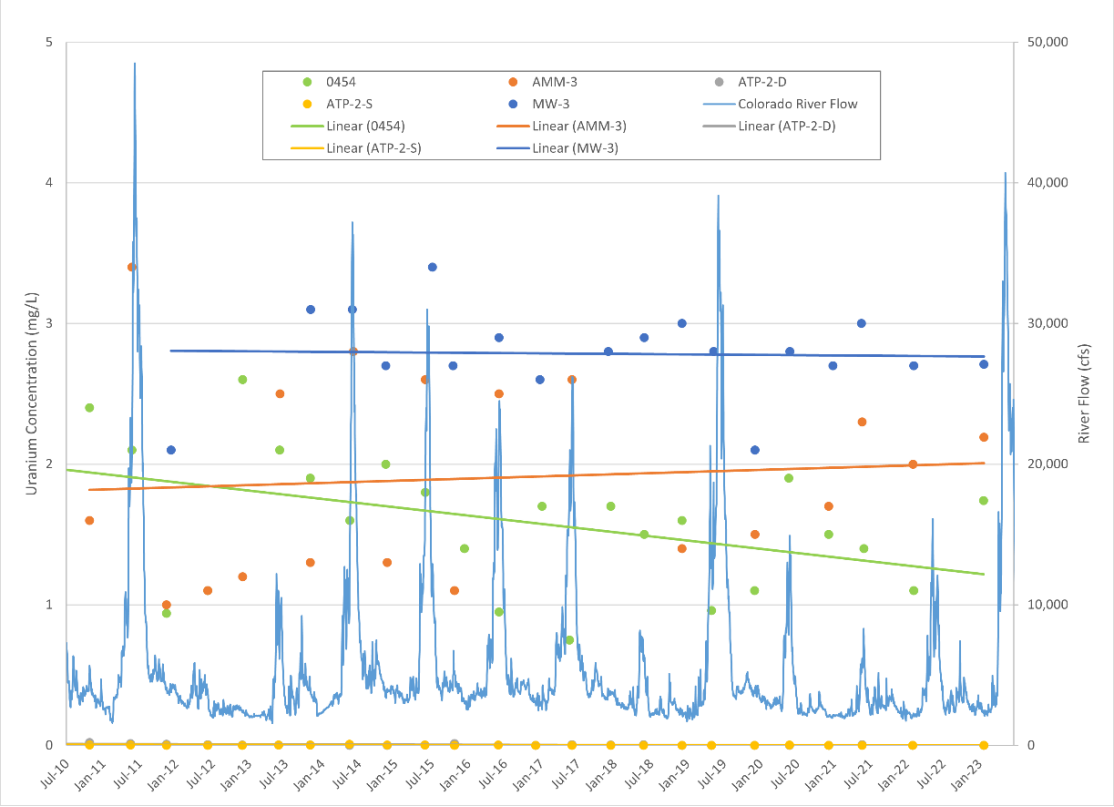

Figure 12. Base of Tailings Pile Observation Wells 0454, AMM-3, ATP-2-S, ATP-2-D, and MW-3 Time versus Uranium Concentration Plot

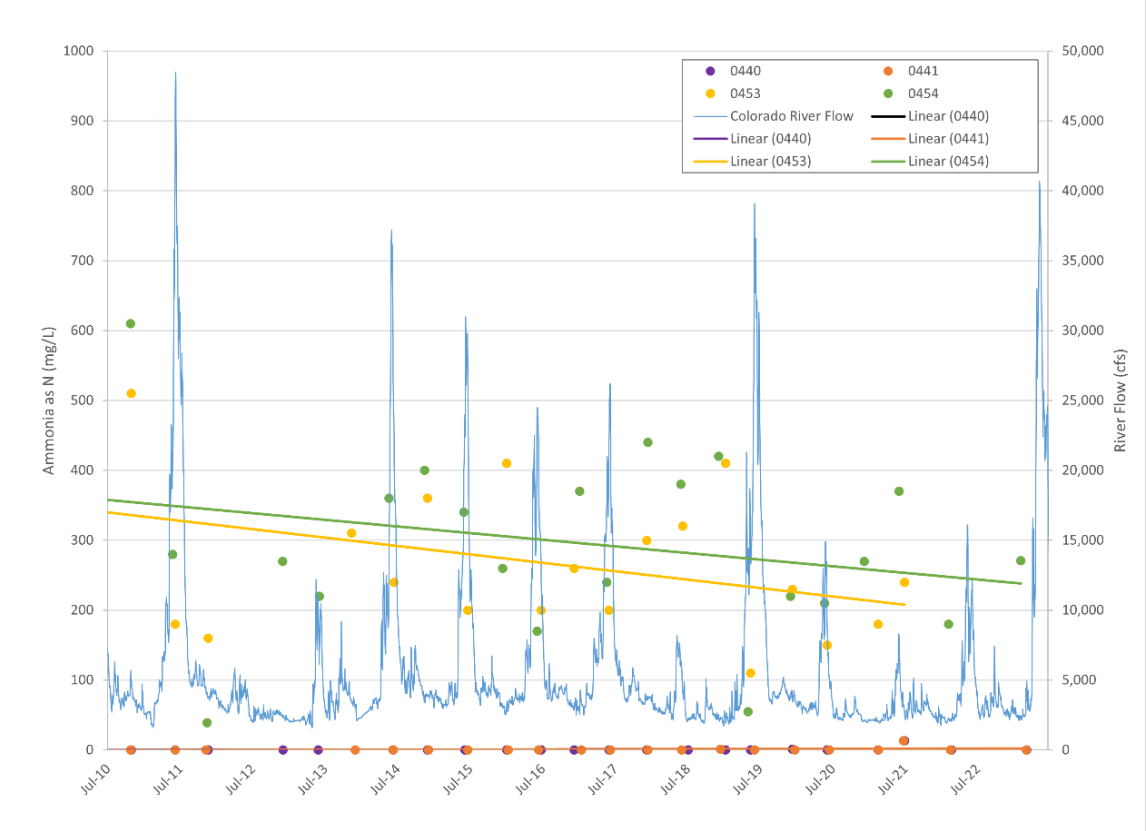

Figure 13. Southwestern Boundary Observation Wells 0453, 0454, 0440, and 0441 Time versus Ammonia Concentration Plot

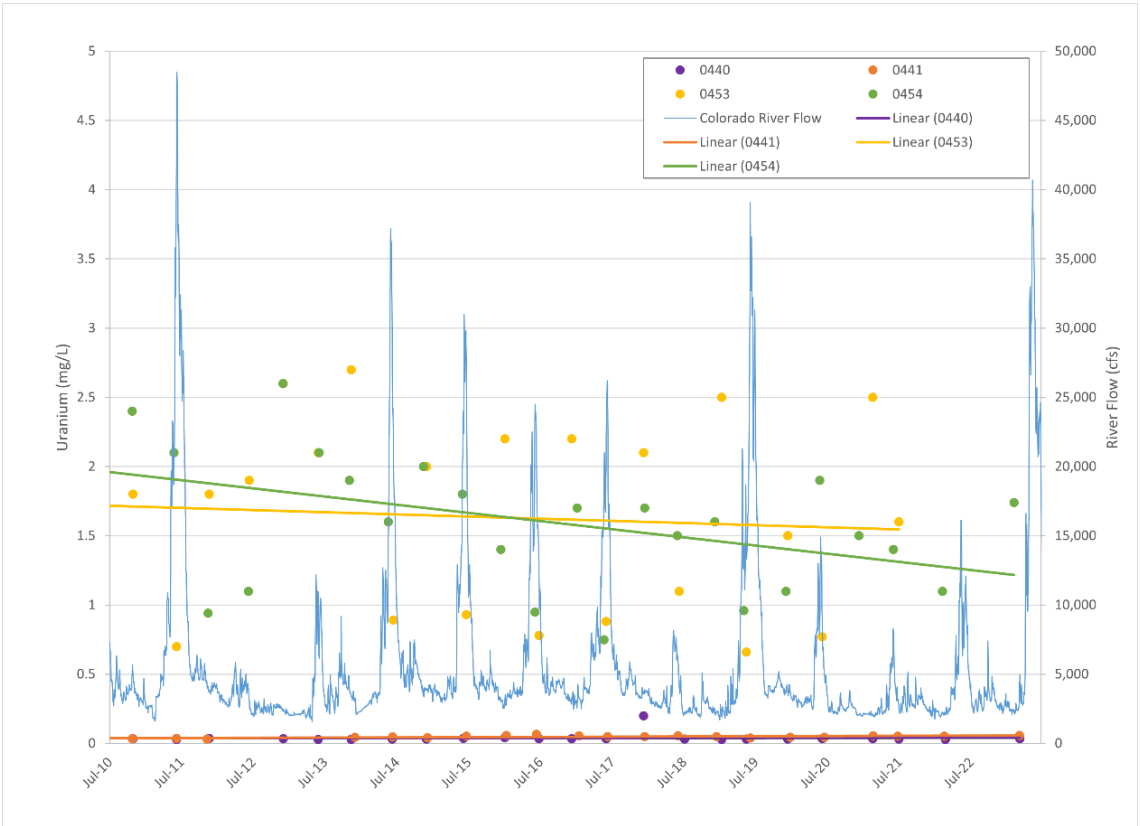

Figure 14. Southwestern Boundary Observation Wells 0453, 0454, 0440, and 0441 Time versus Uranium Concentration Plot

Ammonia concentrations and fluctuations are similar in the samples collected from 0453 and 0454 (Figure 13).

Wells 0453 and 0454 uranium concentrations (Figure 14) display significant seasonal fluctuations similar to those displayed by ammonia concentrations, with lower concentrations during the peak river flows and increased concentrations during river base flows. The sample collected from well 0440 (0.034 mg/L) is below the 0.044 mg/L uranium UMTRA standard, and the 0441 concentration measured from the sample collected during this most recent event is above the standard (0.057 mg/L). These data suggests there has been minimal change in the northwest corner of the plume.

2.3.5 Site Boundary along the Colorado River

Figures 15 and 16 are the time versus ammonia and uranium concentration plots, respectively, for the locations sampled along the riverbank. Wells TP-17, 0492, 0407, 0401, 0404, SMI-MW01, and TP-01 (listed from the south to the north) were sampled from depths ranging from 17 to 28 ft bgs. Because these wells are located along the riverbank, the water chemistry has historically been heavily influenced by the Colorado River stage fluctuations.

The results presented in Figure 15 suggest the ammonia plume continues migrating to the south since 2017, based on the sample data collected from well 0492. Between November 2011 and January 2017 the ammonia concentrations associated with this location were below 10 mg/L. Since that time the concentrations have ranged from 16 to 300 mg/L. It is possible that this increase is in response to low river stages between August 2017 and April 2019 (and after 2019), allowing for uninhibited migration from the upgradient plume source. Ammonia concentration increases also occurred in the samples collected from wells 0401, 0407, and especially well 0404, which increased from 380 to 670 mg/L during this same timeframe. Ammonia concentrations have gradually decreased since the December 2018 peak in the samples from well 0404, with the most recent event having a concentration of 295 mg/L. The lowest ammonia concentrations were associated with the samples collected from the wells TP-17, SMI-MW01, and TP-01. The data suggests the plume is contained within the area bounded to the south by TP-17 and between SMI-MW01 and TP-01 to the north.

As displayed in Figure 16, the uranium concentration in the sample from 0492 continued to decrease during the most recent event after a peak of 3.1 mg/L in 2021, the highest concentration detected since 2006. The uranium concentrations in samples collected from 0401 and 0404 have remained consistent over the past five years (both between 1 and 2 mg/L), suggesting no significant plume migration in this area of the plume. Uranium concentrations associated with SMI-MW01 (located downgradient of the northeast uranium plume) have continued to decrease over the past 10 years.

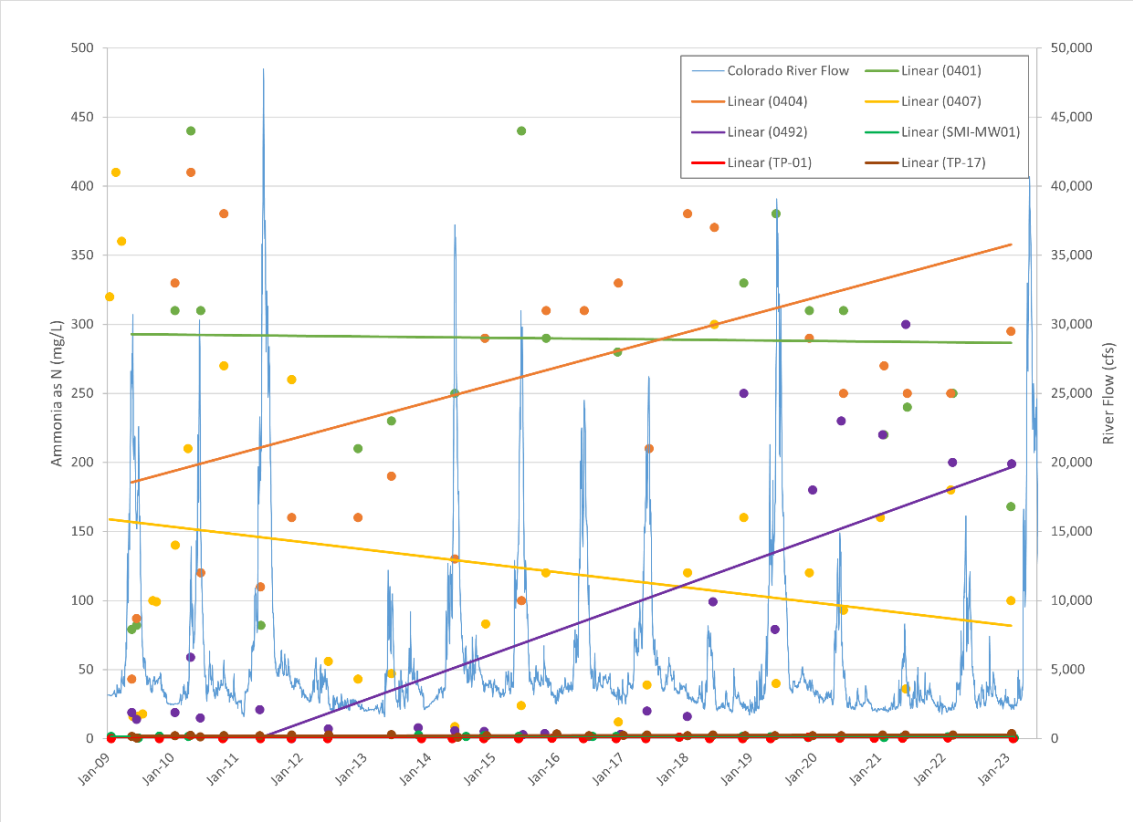

Figure 15. Riverbank Observation Wells TP-17, 0492, 0407, 0401, 0404, SMI-MW01, and TP-01 Time versus Ammonia Concentration Plot

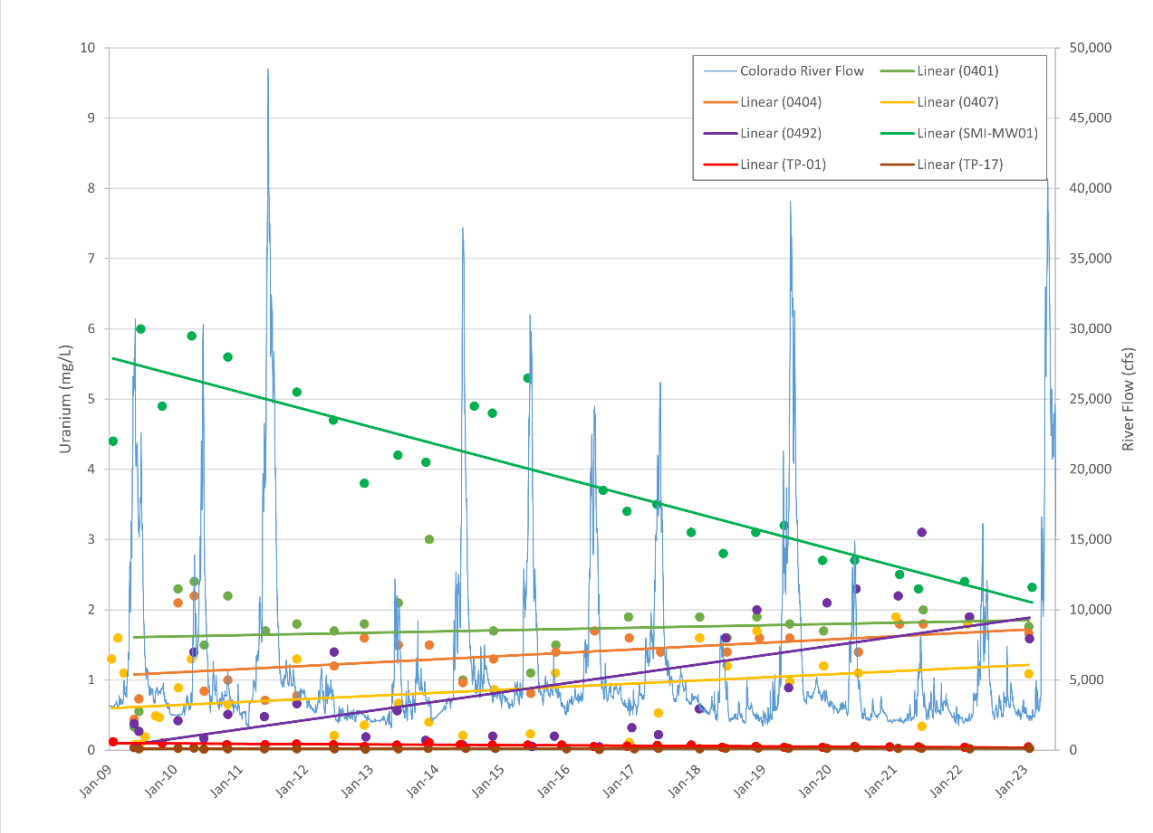

Figure 16. Riverbank Observation Wells TP-17, 0492, 0407, 0401, 0404, SMI-MW01, and TP-01 Time versus Uranium Concentration Plot

The results also suggest the uranium plume is bounded to the south near the location of well TP-17, where uranium concentrations have ranged from 0.012 to 0.037 since 2009. To the north, the results indicate the plume extent is in the vicinity of well TP-01, where the uranium concentrations have been below 0.1 mg/L since 2013 and above or just below the 0.044 mg/L UMTRA standard. During this most recent event the TP-01 concentration was 0.046 mg/L. These data indicate the uranium plume has not significantly migrated to the north or south in the past 10 years.

2.3.6 Southern and Off-site Areas

Figures 17 and 18 are the plots for four locations sampled at the southern end of the site, wells TP-17, TP-20, TP-23, and 0454. Well TP-17 is located along the riverbank, TP-20 is located approximately 500 ft off the riverbank, and TP-23 and 0454 are located closer to the toe of the tailings pile. Sample depths range from 13 ft bgs (well 0454) to 32 ft bgs (TP-20).

Ammonia concentrations (Figure 17) in samples collected from wells TP-17 and TP-20 have consistently been below 5 mg/L since 2000, suggesting the ammonia plume has not significantly migrated past these locations during this time period. Groundwater flow is likely impeded by groundwater density differences related to the presence of the high density brine unit. During this sampling event specific conductance values were above 101,000 micro ohms per centimeter (µmhos/cm) at a depth of just 28 ft bgs and more than 135,000 µmhos/cm at a depth 32 ft bgs for wells TP-17 and -20 (respectively). These values suggest the brine unit is near the groundwater surface in this area of the site.

Ammonia concentrations in samples collected from well 0454 are impacted by flood events, as evidenced by the significant decrease observed in 2019. The specific conductance during this recent sampling event was more than 79,000 µmhos/cm at a depth of only 13 ft bgs, near the southwestern boundary of the groundwater system. Likewise, the sample from TP-23 was collected with a specific conductance of approximately 31,000 µmhos/cm at a depth of 25 ft bgs. Well TP-23 is located 225 ft directly east of 0454, and the results from these samples provides insight into the ammonia concentration vertical differences in this portion of the ammonia plume. The ammonia concentration in TP-23 dropped to the lowest value recorded since 2011 (69 mg/L) whereas 0454 had ammonia value of 271 mg/L, within the range typically shown by this well.

Similar to the ammonia concentration results, uranium concentrations measured from wells TP-17 and TP-20 (Figure 18) suggest no uranium plume migration in this area of the site, likely for the same reason (presence of brine in near the groundwater surface). The sample collected from well TP-17 continues to be below the 0.044 mg/L UMTRA standard (since 2008), while the concentrations in samples from location TP-20 have been at or below this standard since 1997. Trendlines presented in Figure 18 indicate the uranium concentrations have decreased over the past 10 years.

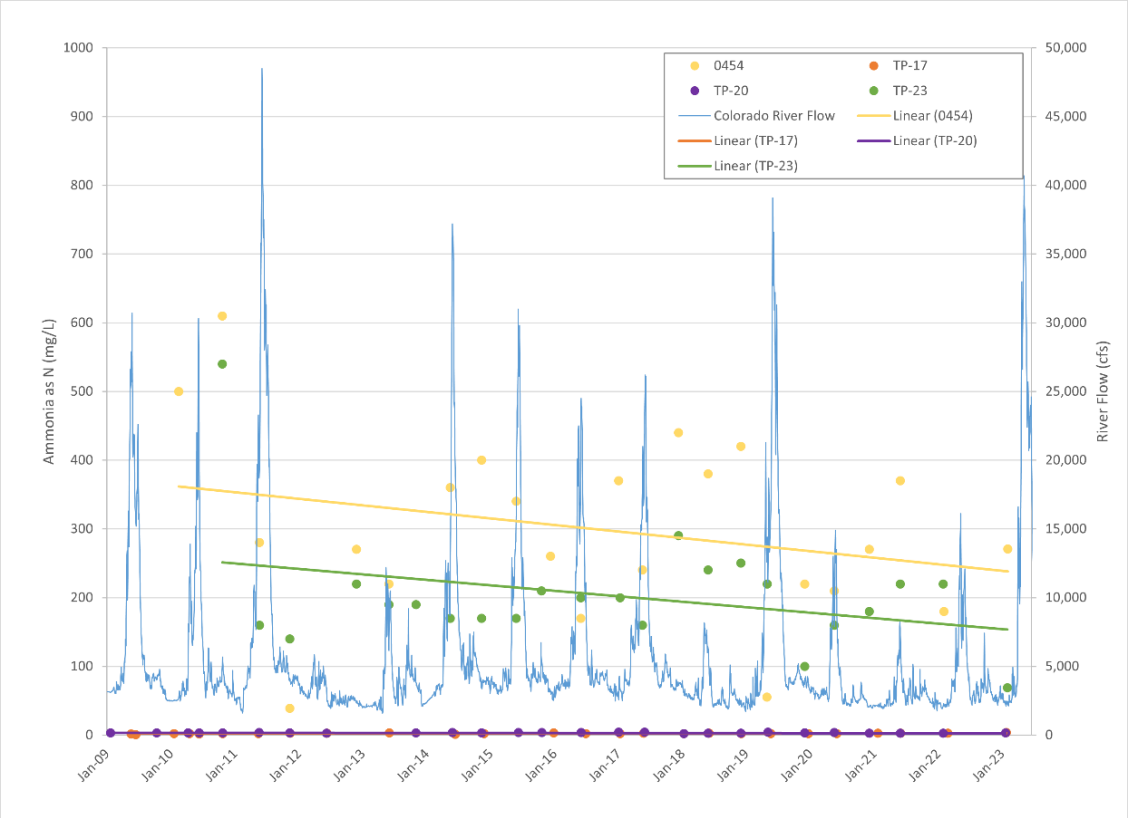

Figure 17. South of Site Observation Wells TP-17, TP-20, TP-23, and 0454 Time versus Ammonia Concentration Plot

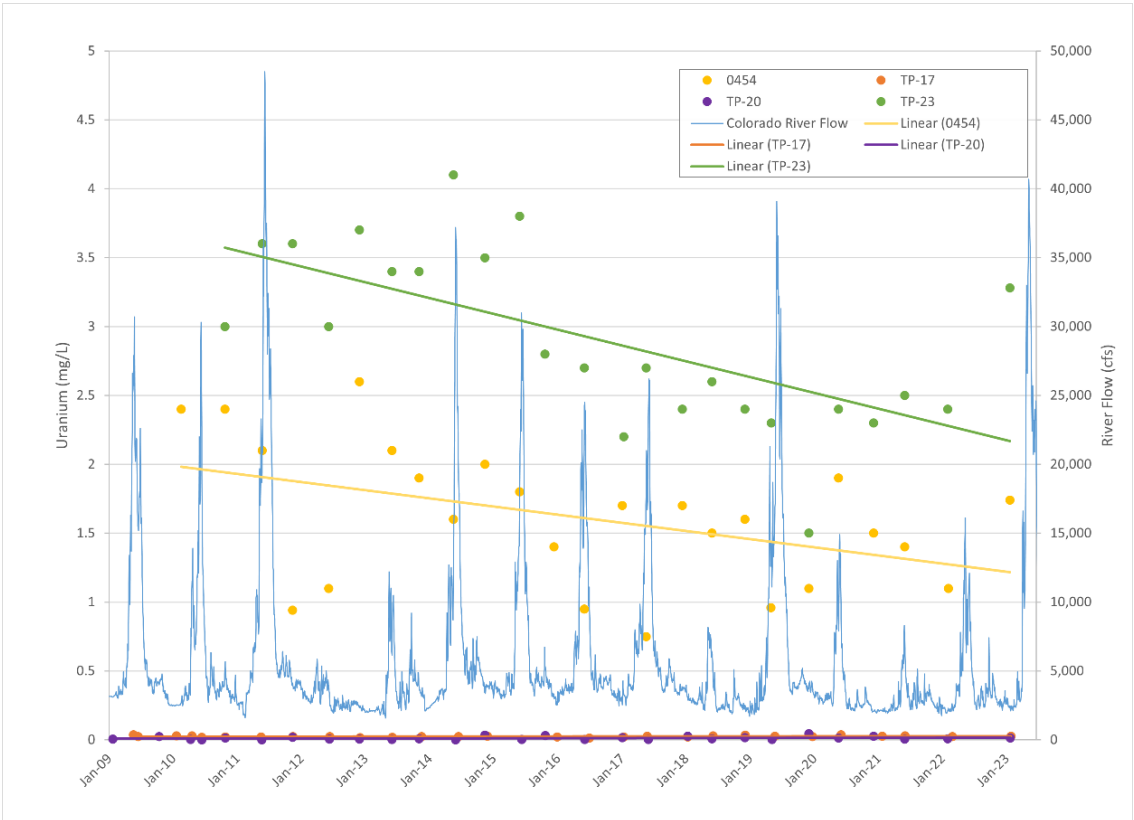

Figure 18. South of Site Observation Wells TP-17, TP-20, TP-23, and 0454 Time versus Uranium Concentration Plot

2.3.7 Surface Water Sampling Results

Table 8 presents the ammonia results from the surface water samples collected in February 2023 from locations 0201, 0218, 0226, CR1, CR2, CR3, and CR5 (as shown in Figure 2). The ammonia results are used along with the temperature and pH data to derive applicable EPA criteria for both acute and chronic levels. These criteria are presented with the ammonia results in Table 25 and represent a snapshot at the time the samples were collected. Appendix A details how these instantaneous criteria are used to derive monthly averages for habitat management.

Table 8. January through March 2023 Site-wide Surface Water Ammonia Concentrations and Comparisons to EPA Acute and Chronic Criteria

Location	Date	Temp (ºC)	pH	February 2023 Ammonia as N (mg/L)	EPA - Acute Total as N (mg/L)*	EPA - Chronic Total as N (mg/L)**
0201	2/6/2023	4.1	8.53	<0.017	3.3	0.80
0218	2/3/2023	4.2	8.5	0.0687	3.3	0.80
0226	2/6/2023	4.3	8.86	0.107	1.6	0.42
CR1	2/7/2023	3.5	8.44	0.078	4.1	0.95
CR2	2/6/2023	3.3	8.47	0.0906	3.3	0.80
CR3	2/6/2023	6.8	8.65	0.456	2.3	0.57
CR5	2/6/2023	3.8	8.59	0.109	2.8	0.68

Notes: *U.S. EPA Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater State (Effective April 2013), Table N.4. Temperature and pH-Dependent Values, Acute Concentration of Total Ammonia as N (mg/L)
**U.S. EPA Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater State (Effective April 2013), Table 6. Temperature and pH-Dependent Values, Chronic Concentration of Total Ammonia as N (mg/L)

All locations had ammonia concentrations below both acute and chronic thresholds.

2.4 Groundwater Surface Elevations

Water level data to generate the groundwater surface contour map were collected in January through March 2023. The Colorado River mean daily flows during this time period ranged from 2,110 to 4,430 cfs, which correlates to a river surface elevation at the river inlet of 3,953.0 to 3,954.2 feet above mean sea level. These flows ranged from below average to above average (the average mean daily flows (1913 - 2022) for these days ranged from 3,040 to 3,610 cfs) due to a high snowpack.

River elevations fluctuated approximately 1 ft during this time period. However, the greatest increase in river flow occurred in the last two days of sampling which coincided with sampling wells furthest from the river. The water level data collected during this time frame could therefore be used to generate the groundwater surface contour map displayed in Figure 32. This contour map displays how the site groundwater system responds to the river during primary gaining conditions, when groundwater discharges into the river. Groundwater flow direction and the gradient displayed in this contour map are comparable to historical contour maps generated using groundwater data collected during river base flow conditions.

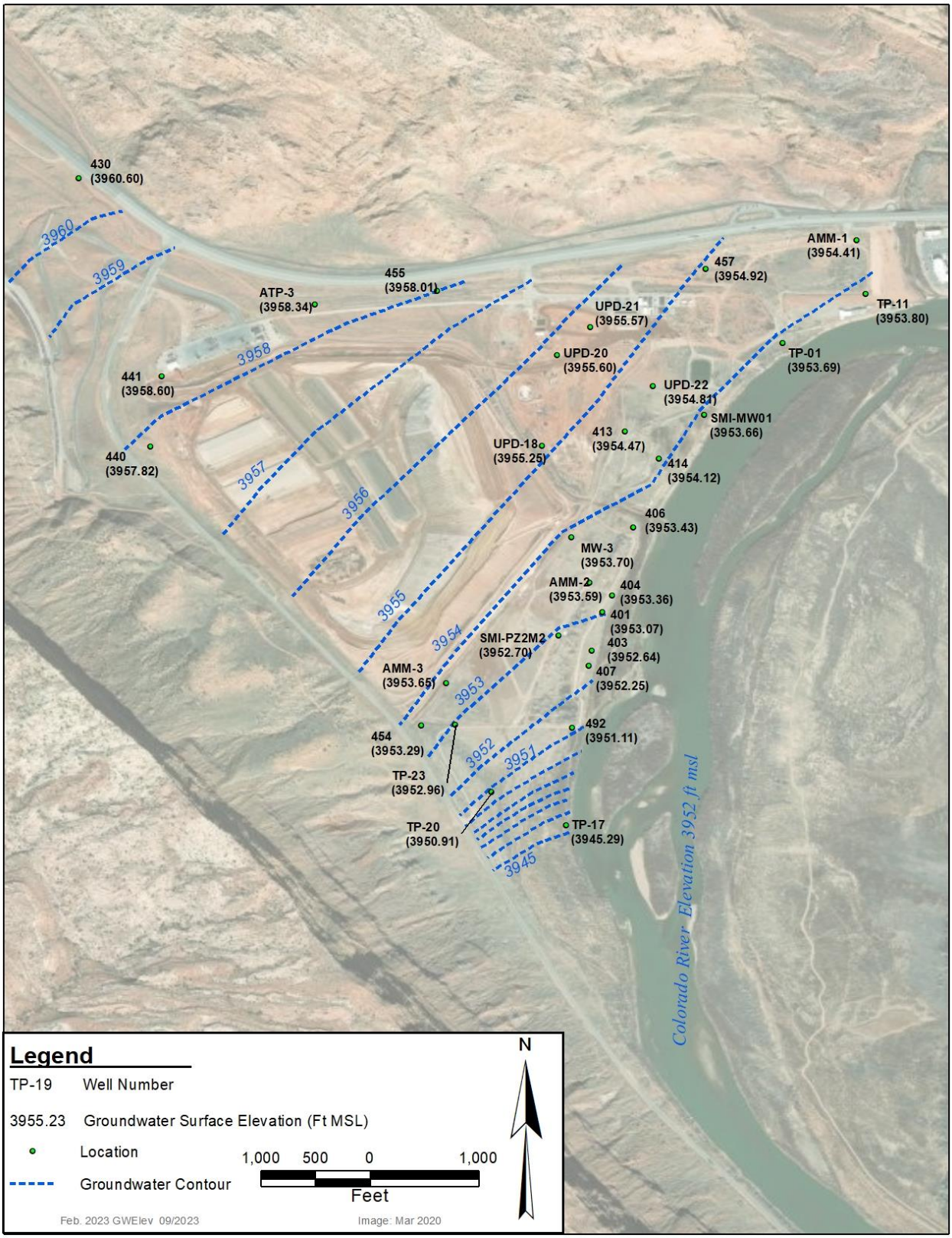

Figure 19. Site-wide Groundwater Elevations, January through March 2023

2.5 Contaminant Distribution

Figures 33 and 34 are maps showing shallow groundwater ammonia and uranium plumes, respectively, using data collected during the January through March 2023 site-wide event. Data collected typically from less than 50 ft bgs were used to generate these plume maps.

During river base flows, contaminant concentrations tend to rebound after being diluted during spring runoff peak flows. Minimal plume migration has occurred since the previous site-wide event, as discussed in Sections 4.3.4, 4.3.5, and 4.3.6. In general, the plume maps are comparable to previous plume maps generated using data collected during the river base flows.

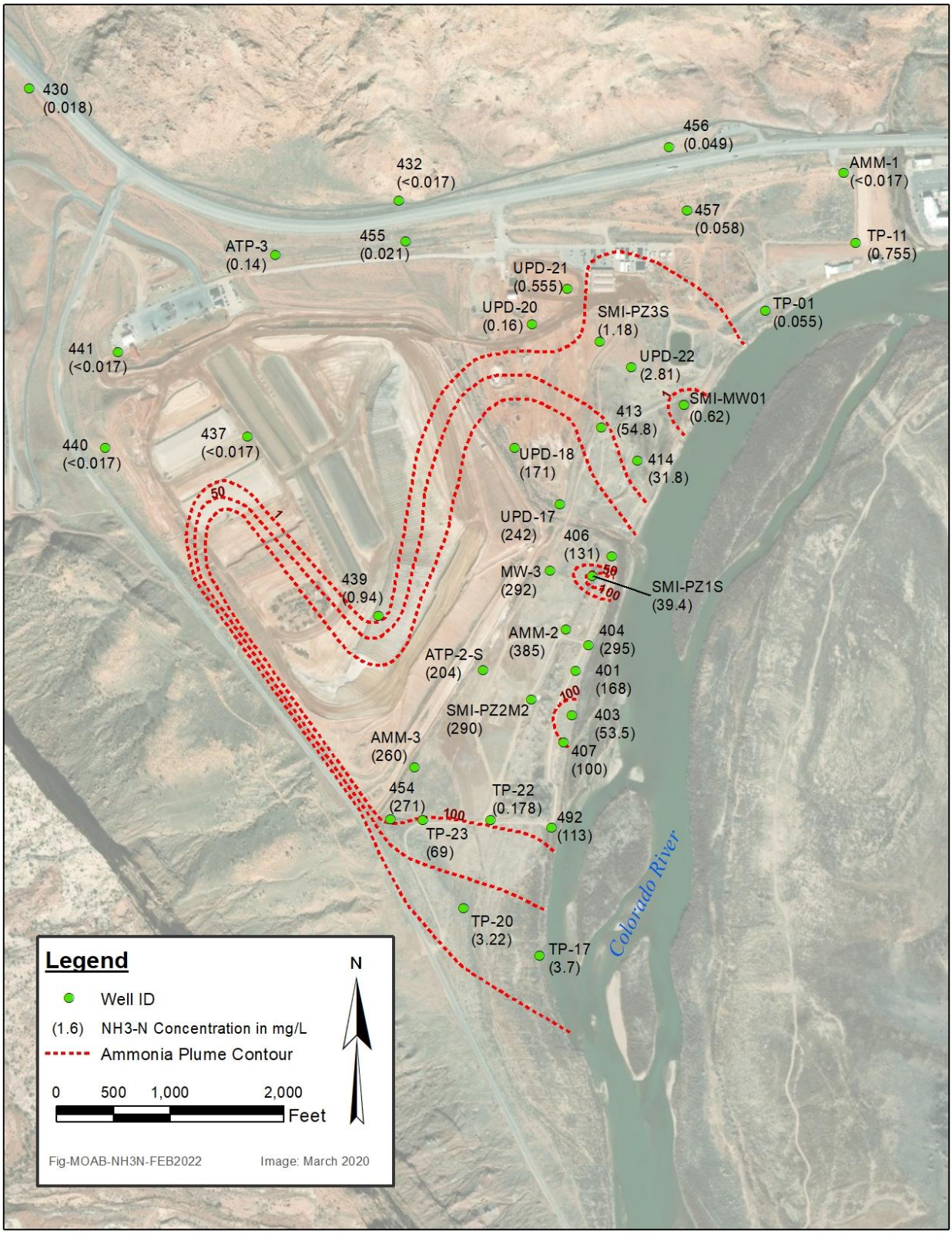

Figure 20. Ammonia Plume in Shallow Groundwater, January through March 2023

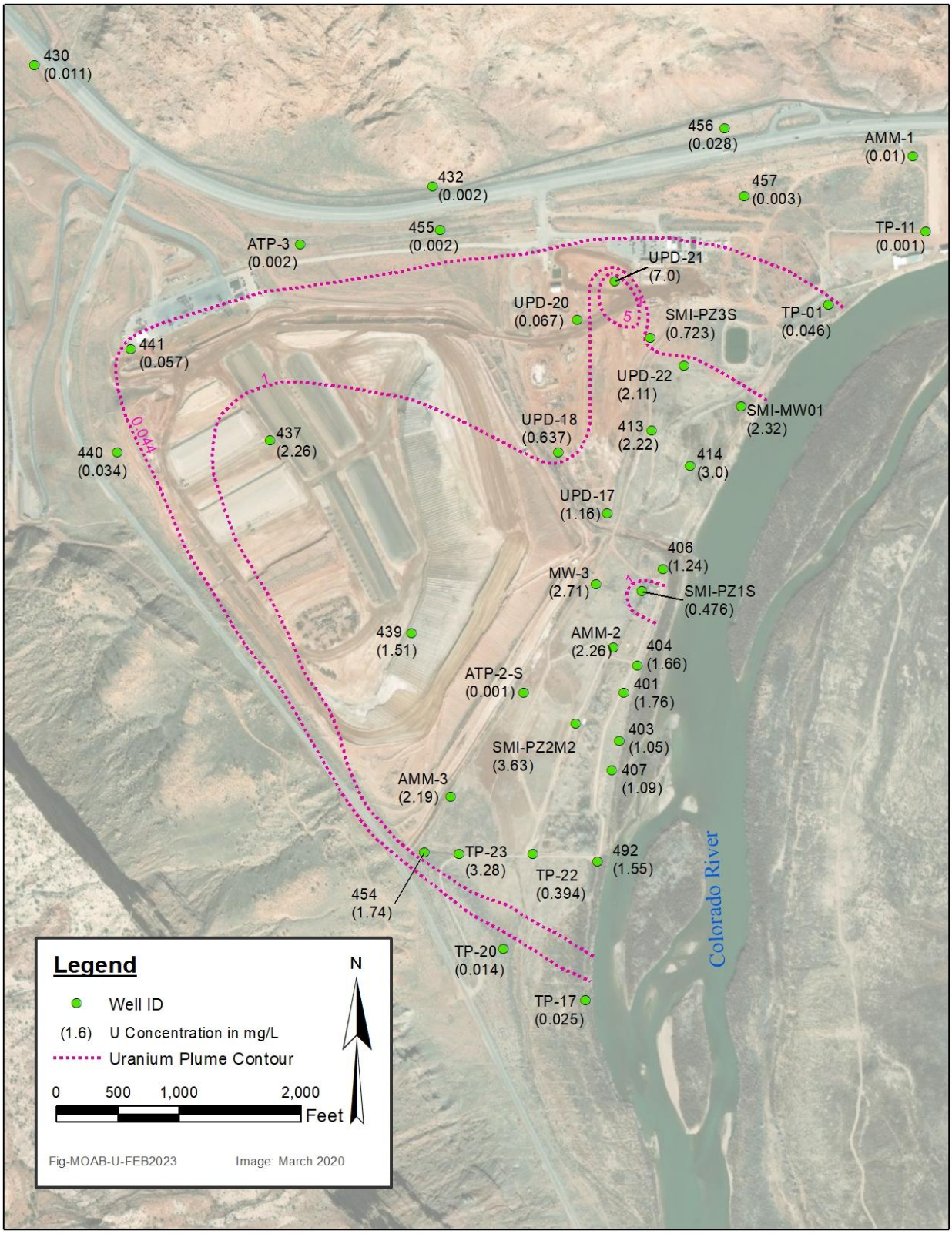

Figure 21. Uranium Plume in Shallow Groundwater, January through March 2023

3.0 Conclusions

3.1 January-March 2023 Site-wide Sampling Event

The rationale for conducting the January-March 2023 site-wide sampling event was to collect data from the site during Colorado River base flows and to assess any changes in the contaminant plume migration or trends in the groundwater system water chemistry. Of the PCOCS for which analyses were run, two of these (selenium and uranium) had results exceeding 40 CFR 192 Sub A standards, two exceeded secondary EPA drinking water standards (manganese and sulfate), and ammonia exceeded the concentration recommended by USFWS.

The river flows ranged from average to above average at this time of year. Surface water sampling was also conducted to assess surface water quality adjacent to the site compared to upstream and downstream water quality. Of the surface water samples, two samples showed elevated levels of selenium (one location upstream of the site and one location adjacent of the site).

In general, there was minimal plume migration based on the samples collected from wells located along the plume boundaries. Ammonia concentrations from the seven surface water samples collected during this sampling event below the applicable EPA criteria (for a suitable habitat) for both acute and chronic concentrations

4.0 References

40 CFR 192A (Code of Federal Regulations) Subpart A, “Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, Standards for the Control of Residual Radioactive Materials from Inactive Uranium Processing Sites.”

DOE (U.S. Department of Energy), *Characterization of Groundwater Brine Zones at the Moab Project Site (Phase 1)* (GJO-2002-333-TAR, GJO-MOA 19.1.2-3).

DOE (U.S. Department of Energy), *Moab UMTRA Project Groundwater/ Surface Water Sampling and Analysis Plan* (DOE-EM/GJRAC1830).

DOE (U.S. Department of Energy), *Moab UMTRA Project Standard Practice for Validation of Laboratory Data* (DOE-EM/GJRAC1855).

Appendix A.
January-March 2023 Site Wide Sampling Event

Water Sampling Field Activities Verification
Water Quality Data
Minimums and Maximums Report
Trip Report

Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

Sampling Event/RIN	Site Wide Sampling Event / RIN 2301141	**Date(s) of Water Sampling**	January 30 – March 14, 2023
Date(s) of Verification	June 2023	**Name of Verifier**	T. Prichard, J. Ritchey

	Response (Yes, No, NA)	**Comments**
1. Is the Sampling Analysis Plan (SAP) the primary document directing field procedures?	Yes	
2. List other documents, standard operating procedures, instructions.	NA	
3. Were the sampling locations specified in the planning documents sampled?	Yes	
4. Was a pre-trip calibration conducted as specified in the aforementioned documents?	Yes	
5. Was an operational check of the field equipment conducted in accordance with the SAP?	Yes	
6. Did the operational checks meet criteria?	Yes	
7. Were the number and types (alkalinity, temperature, electrical conductivity, pH, turbidity, oxidation reduction potential) of field measurements taken as specified?	Yes	Field measurements for temperature, pH, turbidity, oxidation reduction potential, and conductivity were collected.
8. Was the category of the well documented?	Yes	
9. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged before sampling?	Yes	
Did the water level stabilize before sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize before sampling?	Yes	
Was the flow rate less than 500 milliliters per minute?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	N/A	
10. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 milliliters per minute?	NA	
Was one pump/tubing volume removed before sampling?	NA	
11. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate was collected from locations AMM-3 (2000), SMI-PZ1D (2001), 0492 (2002), AMM-3 (2003), and SMI-PW03 (20004) .

Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

Sampling Event/RIN	Site Wide Sampling Event / RIN 2301141	**Date(s) of Water Sampling**	January 30 – March 14, 2023
Date(s) of Verification	June 2023	**Name of Verifier**	T. Prichard, J. Ritchey

	Response (Yes, No, NA)	Comments
12. Were EBs taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	NA	An equipment blank (2005) was collected on non-dedicated surface water sampling equipment.
13. Were trip blanks prepared and included with each shipment of volatile organic compound samples?	NA	
14. Were quality-control samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the quality assurance sample log?	Yes	
15. Were samples collected in the containers specified?	Yes	
16. Were samples filtered and preserved as specified?	Yes	
17. Were the number and types of samples collected as specified?	Yes	
18. Were COC records completed, and was sample custody maintained?	Yes	
19. Are field data sheets signed and dated by both team members?	Yes	
20. Was all other pertinent information documented on the field data sheets?	NA	
21. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
22. Were water levels measured at the locations specified in the planning documents?	Yes	

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

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	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.0170	U			0.017	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.0687				0.017	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.107				0.017	-
	mg/L	0401	WL	02/02/2023	0001	18.00	168				4.25	-
	mg/L	0403	WL	02/02/2023	0001	18.00	53.5				0.85	-
	mg/L	0404	WL	02/02/2023	0001	18.00	295				4.25	-
	mg/L	0406	WL	02/02/2023	0001	18.00	131				4.25	-
	mg/L	0407	WL	02/02/2023	0001	17.00	100				4.25	-
	mg/L	0413	WL	02/20/2023	0001	10.50	54.8				1.7	-
	mg/L	0414	WL	02/20/2023	0001	7.50	31.8				1.7	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.0180	J			0.017	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.0170	U			0.017	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.0170	U			0.017	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.0220	J			0.017	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.0450	J			0.017	-
	mg/L	0435	WL	02/14/2023	0001	173.00	1.91				0.017	-
	mg/L	0436	WL	03/07/2023	0001	197.00	0.240	J			0.085	-
	mg/L	0437	WL	03/14/2023	0001	97.00	0.0170	U			0.017	-
	mg/L	0439	WL	03/08/2023	0001	118.00	0.940				0.085	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.0170	U			0.017	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.0170	U			0.017	-
	mg/L	0443	WL	03/13/2023	0001	73.00	0.0170	U			0.017	-
	mg/L	0444	WL	02/14/2023	0001	116.00	1.67				0.017	-
	mg/L	0454	WL	02/14/2023	0001	13.00	271				8.5	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.0210	J			0.017	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.0490	J			0.017	-
	mg/L	0457	WL	02/14/2023	0001	29.00	0.0581				0.017	-
	mg/L	0492	WL	02/06/2023	0001	18.00	113				1.7	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	199				1.7	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.0170	U			0.017	-
	mg/L	AMM-1-19	WL	02/13/2023	0001	20.00	0.0170	U			0.017	-

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Ammonia Total as N	mg/L	AMM-2	WL	02/13/2023 0001	48.00	385		8.5	-
	mg/L	AMM-3	WL	02/14/2023 0001	48.00	260		8.5	-
	mg/L	AMM-3	WL	02/14/2023 0002	30.00 - 49.75	309		8.5	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023 0001	88.00	385		4.25	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023 0001	25.00	204		8.5	-
	mg/L	ATP-3	WL	02/20/2023 0001	51.00	0.140	J	0.085	-
	mg/L	CR1	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.0780		0.017	-
	mg/L	CR2	SL, RIV	02/07/2023 0001	0.00 - 0.00	0.0906		0.017	-
	mg/L	CR3	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.456		0.017	-
	mg/L	CR5	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.109		0.017	-
	mg/L	MW-3	WL	02/01/2023 0001	44.00	292		8.5	-
	mg/L	SMI-MW01	WL	02/20/2023 0001	16.00	0.620		0.085	-
	mg/L	SMI-PW01	WL	02/01/2023 0001	40.00	175		4.25	-
	mg/L	SMI-PW03	WL	03/07/2023 0001	60.00	34.1		1.7	-
	mg/L	SMI-PW03	WL	03/07/2023 0002	20.23 - 60.23	33.1		1.7	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0001	73.00	975		8.5	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0002	69.75 - 74.75	740		8.5	-
	mg/L	SMI-PZ1M	WL	02/01/2023 0001	57.00	385		8.5	-
	mg/L	SMI-PZ1S	WL	02/01/2023 0001	18.00	39.4		0.85	-
	mg/L	SMI-PZ2D	WL	02/13/2023 0001	75.00	376		8.5	-
	mg/L	SMI-PZ2M2	WL	02/13/2023 0001	56.00	290		8.5	-
	mg/L	SMI-PZ3D2	WL	03/07/2023 0001	78.00	297		8.5	-
	mg/L	SMI-PZ3M	WL	03/07/2023 0001	59.00	18.1		1.7	-
	mg/L	SMI-PZ3S	WL	03/07/2023 0001	25.00	1.18		0.085	-
	mg/L	TP-01	WL	02/14/2023 0001	22.00	0.0549		0.017	-
	mg/L	TP-11	WL	02/13/2023 0001	30.00	0.755		0.017	-
	mg/L	TP-17	WL	02/06/2023 0001	28.00	3.70		0.085	-
	mg/L	TP-20	WL	02/01/2023 0001	32.00	3.22		0.17	-
	mg/L	TP-22	WL	02/14/2023 0001	17.00	0.178		0.017	-
	mg/L	TP-23	WL	02/13/2023 0001	25.00	69.0		8.5	-
	mg/L	UPD-17	WL	03/07/2023 0001	14.50	242		8.5	-
	mg/L	UPD-18	WL	03/07/2023 0001	13.00	171		8.5	-
	mg/L	UPD-20	WL	03/07/2023 0001	25.00	0.160	J	0.085	-
	mg/L	UPD-21	WL	03/07/2023 0001	25.00	0.555		0.085	-
	mg/L	UPD-22	WL	02/20/2023 0001	9.00	2.81		0.085	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00500	U		0.005	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.00500	U		0.005	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00500	U		0.005	-
	mg/L	0401	WL	02/02/2023	0001	18.00	0.00500	U		0.005	-
	mg/L	0403	WL	02/02/2023	0001	18.00	0.00500	U		0.005	-
	mg/L	0404	WL	02/02/2023	0001	18.00	0.00500	U		0.005	-
	mg/L	0406	WL	02/02/2023	0001	18.00	0.0167	B		0.005	-
	mg/L	0407	WL	02/02/2023	0001	17.00	0.00500	U		0.005	-
	mg/L	0413	WL	02/20/2023	0001	10.50	0.0443			0.005	-
	mg/L	0414	WL	02/20/2023	0001	7.50	0.00761	B		0.005	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.00500	U		0.005	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.00500	U		0.005	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.00500	U		0.005	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.00500	U		0.005	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.00500	U		0.005	-
	mg/L	0435	WL	01/30/2023	0001	173.00	0.0500	U		0.05	-
	mg/L	0436	WL	03/07/2023	0001	197.00	0.0500	U		0.05	-
	mg/L	0437	WL	03/14/2023	0001	97.00	0.00532	B		0.005	-
	mg/L	0439	WL	03/08/2023	0001	118.00	0.00500	U		0.005	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.00500	U		0.005	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.00500	U		0.005	-
	mg/L	0443	WL	03/13/2023	0001	73.00	0.00500	U		0.005	-
	mg/L	0444	WL	01/30/2023	0001	116.00	0.0500	U		0.05	-
	mg/L	0454	WL	01/30/2023	0001	13.00	0.00500	U		0.005	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.00500	U		0.005	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.00500	U		0.005	-
	mg/L	0457	WL	01/30/2023	0001	29.00	0.00500	U		0.005	-
	mg/L	0492	WL	02/06/2023	0001	18.00	0.00500	U		0.005	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	0.00500	U		0.005	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.00500	U		0.005	-
	mg/L	AMM-1-19	WL	01/30/2023	0001	19.00	0.00500	U		0.005	-

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Arsenic	mg/L	AMM-2	WL	01/31/2023 0001	48.00	0.00516	B	0.005	-
	mg/L	AMM-3	WL	01/31/2023 0001	48.00	0.0193	B	0.005	-
	mg/L	AMM-3	WL	01/31/2023 0002	30.00 - 49.75	0.0150	B	0.005	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023 0001	88.00	0.00500	U	0.005	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023 0001	25.00	0.00562	B	0.005	-
	mg/L	ATP-3	WL	02/20/2023 0001	51.00	0.00500	U	0.005	-
	mg/L	CR1	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00500	U	0.005	-
	mg/L	CR2	SL, RIV	02/07/2023 0001	0.00 - 0.00	0.00500	U	0.005	-
	mg/L	CR3	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00500	U	0.005	-
	mg/L	CR5	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00500	U	0.005	-
	mg/L	MW-3	WL	02/01/2023 0001	44.00	0.0114	B	0.005	-
	mg/L	SMI-MW01	WL	02/20/2023 0001	16.00	0.00500	U	0.005	-
	mg/L	SMI-PW01	WL	02/01/2023 0001	40.00	0.00841	B	0.005	-
	mg/L	SMI-PW03	WL	03/07/2023 0001	60.00	0.00500	U	0.005	-
	mg/L	SMI-PW03	WL	03/07/2023 0002	20.23 - 60.23	0.00500	U	0.005	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0001	73.00	0.0121	B	0.005	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0002	69.75 - 74.75	0.00965	B	0.005	-
	mg/L	SMI-PZ1M	WL	02/01/2023 0001	57.00	0.0217	B	0.005	-
	mg/L	SMI-PZ1S	WL	02/01/2023 0001	18.00	0.00500	U	0.005	-
	mg/L	SMI-PZ2D	WL	01/31/2023 0001	75.00	0.0500	U	0.05	-
	mg/L	SMI-PZ2M2	WL	01/31/2023 0001	56.00	0.0127	B	0.005	-
	mg/L	SMI-PZ3D2	WL	03/07/2023 0001	78.00	0.00500	U	0.005	-
	mg/L	SMI-PZ3M	WL	03/07/2023 0001	59.00	0.00500	U	0.005	-
	mg/L	SMI-PZ3S	WL	03/07/2023 0001	25.00	0.0236	B	0.005	-
	mg/L	TP-01	WL	01/30/2023 0001	22.00	0.00500	U	0.005	-
	mg/L	TP-11	WL	01/30/2023 0001	30.00	0.00500	U	0.005	-
	mg/L	TP-17	WL	02/06/2023 0001	28.00	0.00500	U	0.005	-
	mg/L	TP-20	WL	02/01/2023 0001	32.00	0.00500	U	0.005	-
	mg/L	TP-22	WL	01/31/2023 0001	17.00	0.00500	U	0.005	-
	mg/L	TP-23	WL	01/30/2023 0001	25.00	0.00736	B	0.005	-
	mg/L	UPD-17	WL	03/07/2023 0001	14.50	0.0206	B	0.005	-
	mg/L	UPD-18	WL	03/07/2023 0001	13.00	0.0169	B	0.005	-
	mg/L	UPD-20	WL	03/07/2023 0001	25.00	0.00500	U	0.005	-
	mg/L	UPD-21	WL	03/07/2023 0001	25.00	0.00500	U	0.005	-
	mg/L	UPD-22	WL	02/20/2023 0001	9.00	0.00500	U	0.005	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Copper	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00338	B		0.003	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.00440	B		0.003	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00378	B		0.003	-
	mg/L	0401	WL	02/02/2023	0001	18.00	0.00300	U		0.003	-
	mg/L	0403	WL	02/02/2023	0001	18.00	0.00300	U		0.003	-
	mg/L	0404	WL	02/02/2023	0001	18.00	0.00300	U		0.003	-
	mg/L	0406	WL	02/02/2023	0001	18.00	0.00300	U		0.003	-
	mg/L	0407	WL	02/02/2023	0001	17.00	0.00300	U		0.003	-
	mg/L	0413	WL	02/20/2023	0001	10.50	0.00300	U		0.003	-
	mg/L	0414	WL	02/20/2023	0001	7.50	0.00300	U		0.003	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.00300	U		0.003	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.00300	U		0.003	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.00300	U		0.003	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.00300	U		0.003	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.00300	U		0.003	-
	mg/L	0435	WL	01/30/2023	0001	173.00	0.0300	U		0.03	-
	mg/L	0436	WL	03/07/2023	0001	197.00	0.0300	U		0.03	-
	mg/L	0437	WL	03/14/2023	0001	97.00	0.00337	B		0.003	-
	mg/L	0439	WL	03/08/2023	0001	118.00	0.00300	U		0.003	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.00300	U		0.003	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.00300	U		0.003	-
	mg/L	0443	WL	03/13/2023	0001	73.00	0.00300	U		0.003	-
	mg/L	0444	WL	01/30/2023	0001	116.00	0.0300	U		0.03	-
	mg/L	0454	WL	01/30/2023	0001	13.00	0.00300	U		0.003	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.00300	U		0.003	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.00587	B		0.003	-
	mg/L	0457	WL	01/30/2023	0001	29.00	0.00300	U		0.003	-
	mg/L	0492	WL	02/06/2023	0001	18.00	0.00450	B		0.003	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	0.0110	B		0.003	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.00300	U		0.003	-
	mg/L	AMM-1-19	WL	01/30/2023	0001	19.00	0.00300	U		0.003	-

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Copper	mg/L	AMM-2	WL	01/31/2023 0001	48.00	0.00300	U	0.003	-
	mg/L	AMM-3	WL	01/31/2023 0001	48.00	0.00300	U	0.003	-
	mg/L	AMM-3	WL	01/31/2023 0002	30.00 - 49.75	0.00300	U	0.003	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023 0001	88.00	0.00300	U	0.003	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023 0001	25.00	0.00300	U	0.003	-
	mg/L	ATP-3	WL	02/20/2023 0001	51.00	0.00431	B	0.003	-
	mg/L	CR1	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00430	B	0.003	-
	mg/L	CR2	SL, RIV	02/07/2023 0001	0.00 - 0.00	0.00464	B	0.003	-
	mg/L	CR3	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00431	B	0.003	-
	mg/L	CR5	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.00382	B	0.003	-
	mg/L	MW-3	WL	02/01/2023 0001	44.00	0.00300	U	0.003	-
	mg/L	SMI-MW01	WL	02/20/2023 0001	16.00	0.00300	U	0.003	-
	mg/L	SMI-PW01	WL	02/01/2023 0001	40.00	0.00300	U	0.003	-
	mg/L	SMI-PW03	WL	03/07/2023 0001	60.00	0.00300	U	0.003	-
	mg/L	SMI-PW03	WL	03/07/2023 0002	20.23 - 60.23	0.00300	U	0.003	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0001	73.00	0.00300	U	0.003	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0002	69.75 - 74.75	0.00300	U	0.003	-
	mg/L	SMI-PZ1M	WL	02/01/2023 0001	57.00	0.00300	U	0.003	-
	mg/L	SMI-PZ1S	WL	02/01/2023 0001	18.00	0.00300	U	0.003	-
	mg/L	SMI-PZ2D	WL	01/31/2023 0001	75.00	0.0415	B	0.03	-
	mg/L	SMI-PZ2M2	WL	01/31/2023 0001	56.00	0.0116	B	0.003	-
	mg/L	SMI-PZ3D2	WL	03/07/2023 0001	78.00	0.00300	U	0.003	-
	mg/L	SMI-PZ3M	WL	03/07/2023 0001	59.00	0.00300	U	0.003	-
	mg/L	SMI-PZ3S	WL	03/07/2023 0001	25.00	0.00300	U	0.003	-
	mg/L	TP-01	WL	01/30/2023 0001	22.00	0.00300	U	0.003	-
	mg/L	TP-11	WL	01/30/2023 0001	30.00	0.00300	U	0.003	-
	mg/L	TP-17	WL	02/06/2023 0001	28.00	0.00789	B	0.003	-
	mg/L	TP-20	WL	02/01/2023 0001	32.00	0.00300	U	0.003	-
	mg/L	TP-22	WL	01/31/2023 0001	17.00	0.00518	B	0.003	-
	mg/L	TP-23	WL	01/30/2023 0001	25.00	0.00359	B	0.003	-
	mg/L	UPD-17	WL	03/07/2023 0001	14.50	0.00300	U	0.003	-
	mg/L	UPD-18	WL	03/07/2023 0001	13.00	0.00300	U	0.003	-
	mg/L	UPD-20	WL	03/07/2023 0001	25.00	0.00300	U	0.003	-
	mg/L	UPD-21	WL	03/07/2023 0001	25.00	0.00300	U	0.003	-
	mg/L	UPD-22	WL	02/20/2023 0001	9.00	0.00356	B	0.003	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.0276			0.002	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.0290			0.002	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.0317			0.002	-
	mg/L	0401	WL	02/02/2023	0001	18.00	3.590			0.002	-
	mg/L	0403	WL	02/02/2023	0001	18.00	2.350			0.002	-
	mg/L	0404	WL	02/02/2023	0001	18.00	0.0212			0.002	-
	mg/L	0406	WL	02/02/2023	0001	18.00	0.0179			0.002	-
	mg/L	0407	WL	02/02/2023	0001	17.00	2.500			0.002	-
	mg/L	0413	WL	02/20/2023	0001	10.50	0.0804			0.002	-
	mg/L	0414	WL	02/20/2023	0001	7.50	0.139			0.002	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.00248	B		0.002	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.0973			0.002	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.00200	U		0.002	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.00200	U		0.002	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.374			0.002	-
	mg/L	0435	WL	01/30/2023	0001	173.00	0.386			0.02	-
	mg/L	0436	WL	03/07/2023	0001	197.00	3.700			0.02	-
	mg/L	0437	WL	03/14/2023	0001	97.00	0.0981			0.002	-
	mg/L	0439	WL	03/08/2023	0001	118.00	0.169			0.002	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.00200	U		0.002	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.00200	U		0.002	-
	mg/L	0443	WL	03/13/2023	0001	73.00	0.00200	U		0.002	-
	mg/L	0444	WL	01/30/2023	0001	116.00	1.950			0.02	-
	mg/L	0454	WL	01/30/2023	0001	13.00	2.350			0.002	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.0697			0.002	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.00200	U		0.002	-
	mg/L	0457	WL	01/30/2023	0001	29.00	0.655			0.002	-
	mg/L	0492	WL	02/06/2023	0001	18.00	3.340			0.002	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	3.320			0.002	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.00200	U		0.002	-
	mg/L	AMM-1-19	WL	01/30/2023	0001	19.00	0.00200	U		0.002	-

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Manganese	mg/L	AMM-2	WL	01/31/2023 0001	48.00	0.280		0.002	-
	mg/L	AMM-3	WL	01/31/2023 0001	48.00	3.390		0.002	-
	mg/L	AMM-3	WL	01/31/2023 0002	30.00 - 49.75	3.400		0.002	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023 0001	88.00	1.730		0.002	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023 0001	25.00	0.0258		0.002	-
	mg/L	ATP-3	WL	02/20/2023 0001	51.00	0.472		0.002	-
	mg/L	CR1	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.0283		0.002	-
	mg/L	CR2	SL, RIV	02/07/2023 0001	0.00 - 0.00	0.0397		0.002	-
	mg/L	CR3	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.0382		0.002	-
	mg/L	CR5	SL, RIV	02/06/2023 0001	0.00 - 0.00	0.0405		0.002	-
	mg/L	MW-3	WL	02/01/2023 0001	44.00	7.170		0.002	-
	mg/L	SMI-MW01	WL	02/20/2023 0001	16.00	0.608		0.002	-
	mg/L	SMI-PW01	WL	02/01/2023 0001	40.00	0.0146		0.002	-
	mg/L	SMI-PW03	WL	03/07/2023 0001	60.00	1.190		0.002	-
	mg/L	SMI-PW03	WL	03/07/2023 0002	20.23 - 60.23	1.240		0.002	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0001	73.00	9.420		0.002	-
	mg/L	SMI-PZ1D2	WL	02/01/2023 0002	69.75 - 74.75	9.140		0.002	-
	mg/L	SMI-PZ1M	WL	02/01/2023 0001	57.00	5.690		0.002	-
	mg/L	SMI-PZ1S	WL	02/01/2023 0001	18.00	1.460		0.002	-
	mg/L	SMI-PZ2D	WL	01/31/2023 0001	75.00	6.620		0.02	-
	mg/L	SMI-PZ2M2	WL	01/31/2023 0001	56.00	6.370		0.002	-
	mg/L	SMI-PZ3D2	WL	03/07/2023 0001	78.00	0.134		0.002	-
	mg/L	SMI-PZ3M	WL	03/07/2023 0001	59.00	1.290		0.002	-
	mg/L	SMI-PZ3S	WL	03/07/2023 0001	25.00	0.0210		0.002	-
	mg/L	TP-01	WL	01/30/2023 0001	22.00	0.672		0.002	-
	mg/L	TP-11	WL	01/30/2023 0001	30.00	1.910		0.002	-
	mg/L	TP-17	WL	02/06/2023 0001	28.00	2.070		0.002	-
	mg/L	TP-20	WL	02/01/2023 0001	32.00	0.173		0.002	-
	mg/L	TP-22	WL	01/31/2023 0001	17.00	0.00215	B	0.002	-
	mg/L	TP-23	WL	01/30/2023 0001	25.00	4.740		0.002	-
	mg/L	UPD-17	WL	03/07/2023 0001	14.50	0.760		0.002	-
	mg/L	UPD-18	WL	03/07/2023 0001	13.00	0.00856	B	0.002	-
	mg/L	UPD-20	WL	03/07/2023 0001	25.00	0.0181		0.002	-
	mg/L	UPD-21	WL	03/07/2023 0001	25.00	0.0326		0.002	-
	mg/L	UPD-22	WL	02/20/2023 0001	9.00	0.0712		0.002	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0201	SL, RIV	02/06/2023	N001	0.00 - 0.00	221			-	-
	mV	0218	SL, RIV	02/03/2023	N001	0.00 - 0.00	188			-	-
	mV	0226	SL, RIV	02/06/2023	N001	0.00 - 0.00	-56			-	-
	mV	0401	WL	02/02/2023	N001	18.00	37			-	-
	mV	0403	WL	02/02/2023	N001	18.00	61			-	-
	mV	0404	WL	02/02/2023	N001	18.00	26			-	-
	mV	0406	WL	02/02/2023	N001	18.00	-87			-	-
	mV	0407	WL	02/02/2023	N001	17.00	55			-	-
	mV	0413	WL	02/20/2023	N001	10.50	-1			-	-
	mV	0414	WL	02/20/2023	N001	7.50	-22			-	-
	mV	0430	WL	02/20/2023	N001	101.00	15			-	-
	mV	0431	WL	03/13/2023	N001	91.00	203			-	-
	mV	0432	WL	02/21/2023	N001	55.00	48			-	-
	mV	0433	WL	02/20/2023	N001	99.00	59			-	-
	mV	0434	WL	02/21/2023	N001	35.00	-94			-	-
	mV	0435	WL	01/30/2023	N001	173.00	-213			-	-
	mV	0435	WL	02/14/2023	N001	173.00	-123			-	-
	mV	0436	WL	03/07/2023	N001	197.00	-214			-	-
	mV	0437	WL	03/14/2023	N001	97.00	239			-	-
	mV	0439	WL	03/08/2023	N001	118.00	245			-	-
	mV	0440	WL	03/14/2023	N001	117.00	275			-	-
	mV	0441	WL	03/13/2023	N001	53.00	247			-	-
	mV	0443	WL	03/13/2023	N001	73.00	207			-	-
	mV	0444	WL	01/30/2023	N001	116.00	-155			-	-
	mV	0444	WL	02/14/2023	N001	116.00	-74			-	-
	mV	0454	WL	01/30/2023	N001	13.00	44			-	-
	mV	0454	WL	02/14/2023	N001	13.00	180			-	-
	mV	0455	WL	02/21/2023	N001	46.00	230			-	-
	mV	0456	WL	02/21/2023	N001	53.00	9			-	-
	mV	0457	WL	01/30/2023	N001	29.00	-122			-	-
	mV	0457	WL	02/14/2023	N001	29.00	-132			-	-

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GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	0492	WL	02/06/2023	N001	18.00	65			-	-
	mV	AMM-1-19	WL	01/30/2023	N001	19.00	243			-	-
	mV	AMM-1-19	WL	02/13/2023	N001	20.00	246			-	-
	mV	AMM-2	WL	01/31/2023	N001	48.00	-83			-	-
	mV	AMM-2	WL	02/13/2023	N001	48.00	109			-	-
	mV	AMM-3	WL	01/31/2023	N001	48.00	-115			-	-
	mV	AMM-3	WL	02/14/2023	N001	48.00	-103			-	-
	mV	ATP-2-D	WL, PZ	02/01/2023	N001	88.00	-349			-	-
	mV	ATP-2-S	WL, PZ	02/01/2023	N001	25.00	155			-	-
	mV	ATP-3	WL	02/20/2023	N001	51.00	-141			-	-
	mV	CR1	SL, RIV	02/06/2023	N001	0.00 - 0.00	258			-	-
	mV	CR2	SL, RIV	02/07/2023	N001	0.00 - 0.00	222			-	-
	mV	CR3	SL, RIV	02/06/2023	N001	0.00 - 0.00	-25			-	-
	mV	CR5	SL, RIV	02/06/2023	N001	0.00 - 0.00	224			-	-
	mV	MW-3	WL	02/01/2023	N001	44.00	3			-	-
	mV	SMI-MW01	WL	02/20/2023	N001	16.00	-55			-	-
	mV	SMI-PW01	WL	02/01/2023	N001	40.00	145			-	-
	mV	SMI-PW03	WL	03/07/2023	N001	60.00	-14			-	-
	mV	SMI-PZ1D2	WL	02/01/2023	N001	73.00	41			-	-
	mV	SMI-PZ1M	WL	02/01/2023	N001	57.00	16			-	-
	mV	SMI-PZ1S	WL	02/01/2023	N001	18.00	12			-	-
	mV	SMI-PZ2D	WL	01/31/2023	N001	75.00	87			-	-
	mV	SMI-PZ2D	WL	02/13/2023	N001	75.00	32			-	-
	mV	SMI-PZ2M2	WL	01/31/2023	N001	56.00	106			-	-
	mV	SMI-PZ2M2	WL	02/13/2023	N001	56.00	97			-	-
	mV	SMI-PZ3D2	WL	03/07/2023	N001	78.00	41			-	-
	mV	SMI-PZ3M	WL	03/07/2023	N001	59.00	-62			-	-
	mV	SMI-PZ3S	WL	03/07/2023	N001	25.00	-149			-	-
	mV	TP-01	WL	01/30/2023	N001	22.00	-58			-	-
	mV	TP-01	WL	02/14/2023	N001	22.00	-42			-	-
	mV	TP-11	WL	01/30/2023	N001	30.00	-148			-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potential	mV	TP-11	WL	02/13/2023	N001	30.00	-130		-	-
	mV	TP-17	WL	02/06/2023	N001	28.00	-158		-	-
	mV	TP-20	WL	02/01/2023	N001	32.00	-220		-	-
	mV	TP-22	WL	01/31/2023	N001	17.00	52		-	-
	mV	TP-22	WL	02/14/2023	N001	17.00	135		-	-
	mV	TP-23	WL	01/30/2023	N001	25.00	80		-	-
	mV	TP-23	WL	02/13/2023	N001	25.00	131		-	-
	mV	UPD-17	WL	03/07/2023	N001	14.50	263		-	-
	mV	UPD-18	WL	03/07/2023	N001	13.00	265		-	-
	mV	UPD-20	WL	03/07/2023	N001	25.00	226		-	-
	mV	UPD-21	WL	03/07/2023	N001	25.00	56		-	-
	mV	UPD-22	WL	02/20/2023	N001	9.00	10		-	-
pH	s.u.	0201	SL, RIV	02/06/2023	N001	0.00 - 0.00	8.53		-	-
	s.u.	0218	SL, RIV	02/03/2023	N001	0.00 - 0.00	8.50		-	-
	s.u.	0226	SL, RIV	02/06/2023	N001	0.00 - 0.00	8.86		-	-
	s.u.	0401	WL	02/02/2023	N001	18.00	6.80		-	-
	s.u.	0403	WL	02/02/2023	N001	18.00	6.82		-	-
	s.u.	0404	WL	02/02/2023	N001	18.00	6.83		-	-
	s.u.	0406	WL	02/02/2023	N001	18.00	7.07		-	-
	s.u.	0407	WL	02/02/2023	N001	17.00	7.01		-	-
	s.u.	0413	WL	02/20/2023	N001	10.50	7.55		-	-
	s.u.	0414	WL	02/20/2023	N001	7.50	7.24		-	-
	s.u.	0430	WL	02/20/2023	N001	101.00	7.32		-	-
	s.u.	0431	WL	03/13/2023	N001	91.00	7.13		-	-
	s.u.	0432	WL	02/21/2023	N001	55.00	7.56		-	-
	s.u.	0433	WL	02/20/2023	N001	99.00	7.59		-	-
	s.u.	0434	WL	02/21/2023	N001	35.00	7.08		-	-
	s.u.	0435	WL	01/30/2023	N001	173.00	7.08		-	-
	s.u.	0435	WL	02/14/2023	N001	173.00	7.11		-	-
	s.u.	0436	WL	03/07/2023	N001	197.00	7.20		-	-
	s.u.	0437	WL	03/14/2023	N001	97.00	7.37		-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0439	WL	03/08/2023	N001	118.00	6.93				-	-
	s.u.	0440	WL	03/14/2023	N001	117.00	6.97				-	-
	s.u.	0441	WL	03/13/2023	N001	53.00	7.16				-	-
	s.u.	0443	WL	03/13/2023	N001	73.00	7.30				-	-
	s.u.	0444	WL	01/30/2023	N001	116.00	6.99				-	-
	s.u.	0444	WL	02/14/2023	N001	116.00	7.02				-	-
	s.u.	0454	WL	01/30/2023	N001	13.00	6.83				-	-
	s.u.	0454	WL	02/14/2023	N001	13.00	6.86				-	-
	s.u.	0455	WL	02/21/2023	N001	46.00	7.62				-	-
	s.u.	0456	WL	02/21/2023	N001	53.00	7.68				-	-
	s.u.	0457	WL	01/30/2023	N001	29.00	7.84				-	-
	s.u.	0457	WL	02/14/2023	N001	29.00	7.93				-	-
	s.u.	0492	WL	02/06/2023	N001	18.00	7.10				-	-
	s.u.	AMM-1-19	WL	01/30/2023	N001	19.00	7.39				-	-
	s.u.	AMM-1-19	WL	02/13/2023	N001	20.00	7.42				-	-
	s.u.	AMM-2	WL	01/31/2023	N001	48.00	6.96				-	-
	s.u.	AMM-2	WL	02/13/2023	N001	48.00	6.97				-	-
	s.u.	AMM-3	WL	01/31/2023	N001	48.00	6.99				-	-
	s.u.	AMM-3	WL	02/14/2023	N001	48.00	7.05				-	-
	s.u.	ATP-2-D	WL, PZ	02/01/2023	N001	88.00	8.12				-	-
	s.u.	ATP-2-S	WL, PZ	02/01/2023	N001	25.00	9.44				-	-
	s.u.	ATP-3	WL	02/20/2023	N001	51.00	7.62				-	-
	s.u.	CR1	SL, RIV	02/06/2023	N001	0.00 - 0.00	8.44				-	-
	s.u.	CR2	SL, RIV	02/07/2023	N001	0.00 - 0.00	8.47				-	-
	s.u.	CR3	SL, RIV	02/06/2023	N001	0.00 - 0.00	8.65				-	-
	s.u.	CR5	SL, RIV	02/06/2023	N001	0.00 - 0.00	8.59				-	-
	s.u.	MW-3	WL	02/01/2023	N001	44.00	6.97				-	-
	s.u.	SMI-MW01	WL	02/20/2023	N001	16.00	7.47				-	-
	s.u.	SMI-PW01	WL	02/01/2023	N001	40.00	6.87				-	-
	s.u.	SMI-PW03	WL	03/07/2023	N001	60.00	7.57				-	-
	s.u.	SMI-PZ1D2	WL	02/01/2023	N001	73.00	6.78				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	SMI-PZ1M	WL	02/01/2023	N001	57.00	6.97				-	-
	s.u.	SMI-PZ1S	WL	02/01/2023	N001	18.00	7.06				-	-
	s.u.	SMI-PZ2D	WL	01/31/2023	N001	75.00	6.86				-	-
	s.u.	SMI-PZ2D	WL	02/13/2023	N001	75.00	6.92				-	-
	s.u.	SMI-PZ2M2	WL	01/31/2023	N001	56.00	7.02				-	-
	s.u.	SMI-PZ2M2	WL	02/13/2023	N001	56.00	7.11				-	-
	s.u.	SMI-PZ3D2	WL	03/07/2023	N001	78.00	7.23				-	-
	s.u.	SMI-PZ3M	WL	03/07/2023	N001	59.00	7.59				-	-
	s.u.	SMI-PZ3S	WL	03/07/2023	N001	25.00	8.23				-	-
	s.u.	TP-01	WL	01/30/2023	N001	22.00	7.58				-	-
	s.u.	TP-01	WL	02/14/2023	N001	22.00	7.62				-	-
	s.u.	TP-11	WL	01/30/2023	N001	30.00	7.49				-	-
	s.u.	TP-11	WL	02/13/2023	N001	30.00	7.52				-	-
	s.u.	TP-17	WL	02/06/2023	N001	28.00	7.32				-	-
	s.u.	TP-20	WL	02/01/2023	N001	32.00	7.12				-	-
	s.u.	TP-22	WL	01/31/2023	N001	17.00	7.11				-	-
	s.u.	TP-22	WL	02/14/2023	N001	17.00	7.11				-	-
	s.u.	TP-23	WL	01/30/2023	N001	25.00	7.14				-	-
	s.u.	TP-23	WL	02/13/2023	N001	25.00	7.07				-	-
	s.u.	UPD-17	WL	03/07/2023	N001	14.50	7.00				-	-
	s.u.	UPD-18	WL	03/07/2023	N001	13.00	7.08				-	-
	s.u.	UPD-20	WL	03/07/2023	N001	25.00	7.68				-	-
	s.u.	UPD-21	WL	03/07/2023	N001	25.00	7.41				-	-
	s.u.	UPD-22	WL	02/20/2023	N001	9.00	7.82				-	-
Selenium	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00979	B			0.006	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.00872	B			0.006	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.0117	B			0.006	-
	mg/L	0401	WL	02/02/2023	0001	18.00	0.0600	U			0.06	-
	mg/L	0403	WL	02/02/2023	0001	18.00	0.0843	B			0.06	-
	mg/L	0404	WL	02/02/2023	0001	18.00	0.0397				0.006	-
	mg/L	0406	WL	02/02/2023	0001	18.00	0.214	B			0.06	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	0407	WL	02/02/2023	0001	17.00	0.0135	B		0.006	-
	mg/L	0413	WL	02/20/2023	0001	10.50	0.124			0.006	-
	mg/L	0414	WL	02/20/2023	0001	7.50	0.0749			0.006	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.0316			0.006	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.00858	B		0.006	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.0306			0.006	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.0326			0.006	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.0403			0.006	-
	mg/L	0435	WL	01/30/2023	0001	173.00	0.189	B		0.06	-
	mg/L	0436	WL	03/07/2023	0001	197.00	0.184	B		0.06	-
	mg/L	0437	WL	03/14/2023	0001	97.00	0.120			0.006	-
	mg/L	0439	WL	03/08/2023	0001	118.00	0.00600	U		0.006	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.0600	U		0.06	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.665			0.06	-
	mg/L	0443	WL	03/13/2023	0001	73.00	0.0131	B		0.006	-
	mg/L	0444	WL	01/30/2023	0001	116.00	0.200	B		0.06	-
	mg/L	0454	WL	01/30/2023	0001	13.00	0.198	B		0.06	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.0267	B		0.006	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.0386			0.006	-
	mg/L	0457	WL	01/30/2023	0001	29.00	0.00805	B		0.006	-
	mg/L	0492	WL	02/06/2023	0001	18.00	0.00796	B		0.006	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	0.0190	B		0.006	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.00600	U		0.006	-
	mg/L	AMM-1-19	WL	01/30/2023	0001	19.00	0.0303			0.006	-
	mg/L	AMM-2	WL	01/31/2023	0001	48.00	0.0244	B		0.006	-
	mg/L	AMM-3	WL	01/31/2023	0001	48.00	0.00847	B		0.006	-
	mg/L	AMM-3	WL	01/31/2023	0002	30.00 - 49.75	0.0117	B		0.006	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023	0001	88.00	0.212	B		0.06	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023	0001	25.00	0.0143	B		0.006	-
	mg/L	ATP-3	WL	02/20/2023	0001	51.00	0.0241	B		0.006	-
	mg/L	CR1	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.0145	B		0.006	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	CR2	SL, RIV	02/07/2023	0001	0.00 - 0.00	0.00600	U		0.006	-
	mg/L	CR3	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00985	B		0.006	-
	mg/L	CR5	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00957	B		0.006	-
	mg/L	MW-3	WL	02/01/2023	0001	44.00	0.0322			0.006	-
	mg/L	SMI-MW01	WL	02/20/2023	0001	16.00	0.0523			0.006	-
	mg/L	SMI-PW01	WL	02/01/2023	0001	40.00	0.200	B		0.06	-
	mg/L	SMI-PW03	WL	03/07/2023	0001	60.00	0.0223	B		0.006	-
	mg/L	SMI-PW03	WL	03/07/2023	0002	20.23 - 60.23	0.0243	B		0.006	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0001	73.00	0.144	B		0.06	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0002	69.75 - 74.75	0.190	B		0.06	-
	mg/L	SMI-PZ1M	WL	02/01/2023	0001	57.00	0.0286	B		0.006	-
	mg/L	SMI-PZ1S	WL	02/01/2023	0001	18.00	0.104			0.006	-
	mg/L	SMI-PZ2D	WL	01/31/2023	0001	75.00	0.230	B		0.06	-
	mg/L	SMI-PZ2M2	WL	01/31/2023	0001	56.00	0.196	B		0.06	-
	mg/L	SMI-PZ3D2	WL	03/07/2023	0001	78.00	0.0862			0.006	-
	mg/L	SMI-PZ3M	WL	03/07/2023	0001	59.00	0.0125	B		0.006	-
	mg/L	SMI-PZ3S	WL	03/07/2023	0001	25.00	0.0520			0.006	-
	mg/L	TP-01	WL	01/30/2023	0001	22.00	0.0141	B		0.006	-
	mg/L	TP-11	WL	01/30/2023	0001	30.00	0.0245	B		0.006	-
	mg/L	TP-17	WL	02/06/2023	0001	28.00	0.0626			0.006	-
	mg/L	TP-20	WL	02/01/2023	0001	32.00	0.153	B		0.06	-
	mg/L	TP-22	WL	01/31/2023	0001	17.00	0.107	B		0.06	-
	mg/L	TP-23	WL	01/30/2023	0001	25.00	0.132	B		0.06	-
	mg/L	UPD-17	WL	03/07/2023	0001	14.50	0.133			0.006	-
	mg/L	UPD-18	WL	03/07/2023	0001	13.00	0.0979			0.006	-
	mg/L	UPD-20	WL	03/07/2023	0001	25.00	0.0179	B		0.006	-
	mg/L	UPD-21	WL	03/07/2023	0001	25.00	0.112			0.006	-
	mg/L	UPD-22	WL	02/20/2023	0001	9.00	0.0638			0.006	-
Specific Conductance	umhos/cm	0201	SL, RIV	02/06/2023	N001	0.00 - 0.00	1426			-	-
	umhos/cm	0218	SL, RIV	02/03/2023	N001	0.00 - 0.00	1466			-	-
	umhos/cm	0226	SL, RIV	02/06/2023	N001	0.00 - 0.00	1830			-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0401	WL	02/02/2023	N001	18.00	14081				-	-
	umhos/cm	0403	WL	02/02/2023	N001	18.00	10275				-	-
	umhos/cm	0404	WL	02/02/2023	N001	18.00	13571				-	-
	umhos/cm	0406	WL	02/02/2023	N001	18.00	8938				-	-
	umhos/cm	0407	WL	02/02/2023	N001	17.00	8936				-	-
	umhos/cm	0413	WL	02/20/2023	N001	10.50	7529				-	-
	umhos/cm	0414	WL	02/20/2023	N001	7.50	10675				-	-
	umhos/cm	0430	WL	02/20/2023	N001	101.00	6107				-	-
	umhos/cm	0431	WL	03/13/2023	N001	91.00	34134				-	-
	umhos/cm	0432	WL	02/21/2023	N001	55.00	3217				-	-
	umhos/cm	0433	WL	02/20/2023	N001	99.00	4758				-	-
	umhos/cm	0434	WL	02/21/2023	N001	35.00	49306				-	-
	umhos/cm	0435	WL	01/30/2023	N001	173.00	145609				-	-
	umhos/cm	0435	WL	02/14/2023	N001	173.00	124120				-	-
	umhos/cm	0436	WL	03/07/2023	N001	197.00	131907				-	-
	umhos/cm	0437	WL	03/14/2023	N001	97.00	11277				-	-
	umhos/cm	0439	WL	03/08/2023	N001	118.00	10755				-	-
	umhos/cm	0440	WL	03/14/2023	N001	117.00	8360				-	-
	umhos/cm	0441	WL	03/13/2023	N001	53.00	19271				-	-
	umhos/cm	0443	WL	03/13/2023	N001	73.00	6832				-	-
	umhos/cm	0444	WL	01/30/2023	N001	116.00	143032				-	-
	umhos/cm	0444	WL	02/14/2023	N001	116.00	121952				-	-
	umhos/cm	0454	WL	01/30/2023	N001	13.00	79210				-	-
	umhos/cm	0454	WL	02/14/2023	N001	13.00	68727				-	-
	umhos/cm	0455	WL	02/21/2023	N001	46.00	2970				-	-
	umhos/cm	0456	WL	02/21/2023	N001	53.00	7860				-	-
	umhos/cm	0457	WL	01/30/2023	N001	29.00	6893				-	-
	umhos/cm	0457	WL	02/14/2023	N001	29.00	5863				-	-
	umhos/cm	0492	WL	02/06/2023	N001	18.00	10444				-	-
	umhos/cm	AMM-1-19	WL	01/30/2023	N001	19.00	14300				-	-
	umhos/cm	AMM-1-19	WL	02/13/2023	N001	20.00	11951				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	AMM-2	WL	01/31/2023	N001	48.00	17472				-	-
	umhos/cm	AMM-2	WL	02/13/2023	N001	48.00	17256				-	-
	umhos/cm	AMM-3	WL	01/31/2023	N001	48.00	19522				-	-
	umhos/cm	AMM-3	WL	02/14/2023	N001	48.00	19754				-	-
	umhos/cm	ATP-2-D	WL, PZ	02/01/2023	N001	88.00	119335				-	-
	umhos/cm	ATP-2-S	WL, PZ	02/01/2023	N001	25.00	13063				-	-
	umhos/cm	ATP-3	WL	02/20/2023	N001	51.00	2531				-	-
	umhos/cm	CR1	SL, RIV	02/06/2023	N001	0.00 - 0.00	1488				-	-
	umhos/cm	CR2	SL, RIV	02/07/2023	N001	0.00 - 0.00	1462				-	-
	umhos/cm	CR3	SL, RIV	02/06/2023	N001	0.00 - 0.00	1602				-	-
	umhos/cm	CR5	SL, RIV	02/06/2023	N001	0.00 - 0.00	1471				-	-
	umhos/cm	MW-3	WL	02/01/2023	N001	44.00	23158				-	-
	umhos/cm	SMI-MW01	WL	02/20/2023	N001	16.00	5059				-	-
	umhos/cm	SMI-PW01	WL	02/01/2023	N001	40.00	11457				-	-
	umhos/cm	SMI-PW03	WL	03/07/2023	N001	60.00	9686				-	-
	umhos/cm	SMI-PZ1D2	WL	02/01/2023	N001	73.00	99504				-	-
	umhos/cm	SMI-PZ1M	WL	02/01/2023	N001	57.00	23970				-	-
	umhos/cm	SMI-PZ1S	WL	02/01/2023	N001	18.00	5237				-	-
	umhos/cm	SMI-PZ2D	WL	01/31/2023	N001	75.00	104883				-	-
	umhos/cm	SMI-PZ2D	WL	02/13/2023	N001	75.00	105189				-	-
	umhos/cm	SMI-PZ2M2	WL	01/31/2023	N001	56.00	58999				-	-
	umhos/cm	SMI-PZ2M2	WL	02/13/2023	N001	56.00	49648				-	-
	umhos/cm	SMI-PZ3D2	WL	03/07/2023	N001	78.00	19838				-	-
	umhos/cm	SMI-PZ3M	WL	03/07/2023	N001	59.00	8110				-	-
	umhos/cm	SMI-PZ3S	WL	03/07/2023	N001	25.00	4465				-	-
	umhos/cm	TP-01	WL	01/30/2023	N001	22.00	8937				-	-
	umhos/cm	TP-01	WL	02/14/2023	N001	22.00	7648				-	-
	umhos/cm	TP-11	WL	01/30/2023	N001	30.00	19509				-	-
	umhos/cm	TP-11	WL	02/13/2023	N001	30.00	16447				-	-
	umhos/cm	TP-17	WL	02/06/2023	N001	28.00	101389				-	-
	umhos/cm	TP-20	WL	02/01/2023	N001	32.00	135689				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	TP-22	WL	01/31/2023	N001	17.00	34088		-	-
	umhos/cm	TP-22	WL	02/14/2023	N001	17.00	28390		-	-
	umhos/cm	TP-23	WL	01/30/2023	N001	25.00	34607		-	-
	umhos/cm	TP-23	WL	02/13/2023	N001	25.00	30997		-	-
	umhos/cm	UPD-17	WL	03/07/2023	N001	14.50	9628		-	-
	umhos/cm	UPD-18	WL	03/07/2023	N001	13.00	8017		-	-
	umhos/cm	UPD-20	WL	03/07/2023	N001	25.00	3987		-	-
	umhos/cm	UPD-21	WL	03/07/2023	N001	25.00	4553		-	-
	umhos/cm	UPD-22	WL	02/20/2023	N001	9.00	4626		-	-
Sulfate	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	275		13.3	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	278		13.3	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	276		13.3	-
	mg/L	0401	WL	02/02/2023	0001	18.00	6770		66.5	-
	mg/L	0403	WL	02/02/2023	0001	18.00	4400		66.5	-
	mg/L	0404	WL	02/02/2023	0001	18.00	6450		66.5	-
	mg/L	0406	WL	02/02/2023	0001	18.00	3790		66.5	-
	mg/L	0407	WL	02/02/2023	0001	17.00	3910		66.5	-
	mg/L	0413	WL	02/20/2023	0001	10.50	2030		66.5	-
	mg/L	0414	WL	02/20/2023	0001	7.50	5120		66.5	-
	mg/L	0430	WL	02/20/2023	0001	101.00	150		2.66	-
	mg/L	0431	WL	03/13/2023	0001	91.00	1660		66.5	-
	mg/L	0432	WL	02/21/2023	0001	55.00	363		66.5	-
	mg/L	0433	WL	02/20/2023	0001	99.00	368		66.5	-
	mg/L	0434	WL	02/21/2023	0001	35.00	1710		66.5	-
	mg/L	0435	WL	02/14/2023	0001	173.00	4260		66.5	-
	mg/L	0436	WL	03/07/2023	0001	197.00	4910		66.5	-
	mg/L	0437	WL	03/14/2023	0001	97.00	4020		66.5	-
	mg/L	0439	WL	03/08/2023	0001	118.00	5250		66.5	-
	mg/L	0440	WL	03/14/2023	0001	117.00	2460		66.5	-
	mg/L	0441	WL	03/13/2023	0001	53.00	1810		66.5	-
	mg/L	0443	WL	03/13/2023	0001	73.00	453		66.5	-

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0444	WL	02/14/2023	0001	116.00	4240				66.5	-
	mg/L	0454	WL	02/14/2023	0001	13.00	6770				66.5	-
	mg/L	0455	WL	02/21/2023	0001	46.00	342				66.5	-
	mg/L	0456	WL	02/21/2023	0001	53.00	828				66.5	-
	mg/L	0457	WL	02/14/2023	0001	29.00	571				66.5	-
	mg/L	0492	WL	02/06/2023	0001	18.00	4370				33.3	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	4310				33.3	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.133	U			0.133	-
	mg/L	AMM-1-19	WL	02/13/2023	0001	20.00	961				66.5	-
	mg/L	AMM-2	WL	02/13/2023	0001	48.00	8920				66.5	-
	mg/L	AMM-3	WL	02/14/2023	0001	48.00	11300				133	-
	mg/L	AMM-3	WL	02/14/2023	0002	30.00 - 49.75	11200				133	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023	0001	88.00	5760				66.5	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023	0001	25.00	5920				66.5	-
	mg/L	ATP-3	WL	02/20/2023	0001	51.00	273				66.5	-
	mg/L	CR1	SL, RIV	02/06/2023	0001	0.00 - 0.00	272				13.3	-
	mg/L	CR2	SL, RIV	02/07/2023	0001	0.00 - 0.00	278				13.3	-
	mg/L	CR3	SL, RIV	02/06/2023	0001	0.00 - 0.00	283				13.3	-
	mg/L	CR5	SL, RIV	02/06/2023	0001	0.00 - 0.00	274				13.3	-
	mg/L	MW-3	WL	02/01/2023	0001	44.00	12600				133	-
	mg/L	SMI-MW01	WL	02/20/2023	0001	16.00	870				66.5	-
	mg/L	SMI-PW01	WL	02/01/2023	0001	40.00	4940				66.5	-
	mg/L	SMI-PW03	WL	03/07/2023	0001	60.00	893				66.5	-
	mg/L	SMI-PW03	WL	03/07/2023	0002	20.23 - 60.23	886				66.5	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0001	73.00	9740				133	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0002	69.75 - 74.75	9480				133	-
	mg/L	SMI-PZ1M	WL	02/01/2023	0001	57.00	12000				133	-
	mg/L	SMI-PZ1S	WL	02/01/2023	0001	18.00	1740				13.3	-
	mg/L	SMI-PZ2D	WL	02/13/2023	0001	75.00	6960				66.5	-
	mg/L	SMI-PZ2M2	WL	02/13/2023	0001	56.00	15500				133	-
	mg/L	SMI-PZ3D2	WL	03/07/2023	0001	78.00	3040				66.5	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	SMI-PZ3M	WL	03/07/2023	0001	59.00	703		66.5	-
	mg/L	SMI-PZ3S	WL	03/07/2023	0001	25.00	685		66.5	-
	mg/L	TP-01	WL	02/14/2023	0001	22.00	876		133	-
	mg/L	TP-11	WL	02/13/2023	0001	30.00	9250		66.5	-
	mg/L	TP-17	WL	02/06/2023	0001	28.00	6280		53.2	-
	mg/L	TP-20	WL	02/01/2023	0001	32.00	6310		66.5	-
	mg/L	TP-22	WL	02/14/2023	0001	17.00	1910		66.5	-
	mg/L	TP-23	WL	02/13/2023	0001	25.00	833		66.5	-
	mg/L	UPD-17	WL	03/07/2023	0001	14.50	3690		66.5	-
	mg/L	UPD-18	WL	03/07/2023	0001	13.00	2650		66.5	-
	mg/L	UPD-20	WL	03/07/2023	0001	25.00	766		66.5	-
	mg/L	UPD-21	WL	03/07/2023	0001	25.00	706		66.5	-
	mg/L	UPD-22	WL	02/20/2023	0001	9.00	674		66.5	-
Temperature	C	0201	SL, RIV	02/06/2023	N001	0.00 - 0.00	4.10		-	-
	C	0218	SL, RIV	02/03/2023	N001	0.00 - 0.00	4.20		-	-
	C	0226	SL, RIV	02/06/2023	N001	0.00 - 0.00	4.30		-	-
	C	0401	WL	02/02/2023	N001	18.00	16.00		-	-
	C	0403	WL	02/02/2023	N001	18.00	15.10		-	-
	C	0404	WL	02/02/2023	N001	18.00	16.30		-	-
	C	0406	WL	02/02/2023	N001	18.00	14.40		-	-
	C	0407	WL	02/02/2023	N001	17.00	14.70		-	-
	C	0413	WL	02/20/2023	N001	10.50	11.10		-	-
	C	0414	WL	02/20/2023	N001	7.50	11.00		-	-
	C	0430	WL	02/20/2023	N001	101.00	17.90		-	-
	C	0431	WL	03/13/2023	N001	91.00	18.20		-	-
	C	0432	WL	02/21/2023	N001	55.00	19.00		-	-
	C	0433	WL	02/20/2023	N001	99.00	18.10		-	-
	C	0434	WL	02/21/2023	N001	35.00	17.90		-	-
	C	0435	WL	01/30/2023	N001	173.00	15.80		-	-
	C	0435	WL	02/14/2023	N001	173.00	15.70		-	-
	C	0436	WL	03/07/2023	N001	197.00	17.50		-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0437	WL	03/14/2023	N001	97.00	16.80				-	-
	C	0439	WL	03/08/2023	N001	118.00	15.70				-	-
	C	0440	WL	03/14/2023	N001	117.00	17.30				-	-
	C	0441	WL	03/13/2023	N001	53.00	16.40				-	-
	C	0443	WL	03/13/2023	N001	73.00	18.00				-	-
	C	0444	WL	01/30/2023	N001	116.00	16.40				-	-
	C	0444	WL	02/14/2023	N001	116.00	15.90				-	-
	C	0454	WL	01/30/2023	N001	13.00	15.20				-	-
	C	0454	WL	02/14/2023	N001	13.00	14.30				-	-
	C	0455	WL	02/21/2023	N001	46.00	17.90				-	-
	C	0456	WL	02/21/2023	N001	53.00	18.30				-	-
	C	0457	WL	01/30/2023	N001	29.00	16.50				-	-
	C	0457	WL	02/14/2023	N001	29.00	16.00				-	-
	C	0492	WL	02/06/2023	N001	18.00	15.50				-	-
	C	AMM-1-19	WL	01/30/2023	N001	19.00	13.10				-	-
	C	AMM-1-19	WL	02/13/2023	N001	20.00	14.90				-	-
	C	AMM-2	WL	01/31/2023	N001	48.00	14.50				-	-
	C	AMM-2	WL	02/13/2023	N001	48.00	15.10				-	-
	C	AMM-3	WL	01/31/2023	N001	48.00	17.40				-	-
	C	AMM-3	WL	02/14/2023	N001	48.00	17.90				-	-
	C	ATP-2-D	WL, PZ	02/01/2023	N001	88.00	14.70				-	-
	C	ATP-2-S	WL, PZ	02/01/2023	N001	25.00	14.40				-	-
	C	ATP-3	WL	02/20/2023	N001	51.00	17.90				-	-
	C	CR1	SL, RIV	02/06/2023	N001	0.00 - 0.00	3.50				-	-
	C	CR2	SL, RIV	02/07/2023	N001	0.00 - 0.00	3.30				-	-
	C	CR3	SL, RIV	02/06/2023	N001	0.00 - 0.00	6.80				-	-
	C	CR5	SL, RIV	02/06/2023	N001	0.00 - 0.00	3.80				-	-
	C	MW-3	WL	02/01/2023	N001	44.00	15.20				-	-
	C	SMI-MW01	WL	02/20/2023	N001	16.00	14.70				-	-
	C	SMI-PW01	WL	02/01/2023	N001	40.00	12.40				-	-
	C	SMI-PW03	WL	03/07/2023	N001	60.00	17.80				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	SMI-PZ1D2	WL	02/01/2023	N001	73.00	14.50				-	-
	C	SMI-PZ1M	WL	02/01/2023	N001	57.00	13.80				-	-
	C	SMI-PZ1S	WL	02/01/2023	N001	18.00	11.30				-	-
	C	SMI-PZ2D	WL	01/31/2023	N001	75.00	14.20				-	-
	C	SMI-PZ2D	WL	02/13/2023	N001	75.00	14.40				-	-
	C	SMI-PZ2M2	WL	01/31/2023	N001	56.00	15.00				-	-
	C	SMI-PZ2M2	WL	02/13/2023	N001	56.00	14.90				-	-
	C	SMI-PZ3D2	WL	03/07/2023	N001	78.00	17.70				-	-
	C	SMI-PZ3M	WL	03/07/2023	N001	59.00	18.00				-	-
	C	SMI-PZ3S	WL	03/07/2023	N001	25.00	17.70				-	-
	C	TP-01	WL	01/30/2023	N001	22.00	16.50				-	-
	C	TP-01	WL	02/14/2023	N001	22.00	16.40				-	-
	C	TP-11	WL	01/30/2023	N001	30.00	16.10				-	-
	C	TP-11	WL	02/13/2023	N001	30.00	16.00				-	-
	C	TP-17	WL	02/06/2023	N001	28.00	13.80				-	-
	C	TP-20	WL	02/01/2023	N001	32.00	16.30				-	-
	C	TP-22	WL	01/31/2023	N001	17.00	16.20				-	-
	C	TP-22	WL	02/14/2023	N001	17.00	15.90				-	-
	C	TP-23	WL	01/30/2023	N001	25.00	17.10				-	-
	C	TP-23	WL	02/13/2023	N001	25.00	16.70				-	-
	C	UPD-17	WL	03/07/2023	N001	14.50	14.50				-	-
	C	UPD-18	WL	03/07/2023	N001	13.00	15.20				-	-
	C	UPD-20	WL	03/07/2023	N001	25.00	16.60				-	-
	C	UPD-21	WL	03/07/2023	N001	25.00	17.80				-	-
	C	UPD-22	WL	02/20/2023	N001	9.00	15.00				-	-
Total Dissolved Solids	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	866				4.76	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	868				4.76	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	906				4.76	-
	mg/L	0401	WL	02/02/2023	0001	18.00	11400				4.76	-
	mg/L	0403	WL	02/02/2023	0001	18.00	8580				4.76	-
	mg/L	0404	WL	02/02/2023	0001	18.00	10900				4.76	-

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GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	0406	WL	02/02/2023	0001	18.00	6830			2.38	-
	mg/L	0407	WL	02/02/2023	0001	17.00	7010			4.76	-
	mg/L	0413	WL	02/20/2023	0001	10.50	4550			23.8	-
	mg/L	0414	WL	02/20/2023	0001	7.50	8410			23.8	-
	mg/L	0430	WL	02/20/2023	0001	101.00	2670			23.8	-
	mg/L	0431	WL	03/13/2023	0001	91.00	22700			23.8	-
	mg/L	0432	WL	02/21/2023	0001	55.00	1520			23.8	-
	mg/L	0433	WL	02/20/2023	0001	99.00	2800			23.8	-
	mg/L	0434	WL	02/21/2023	0001	35.00	30900			23.8	-
	mg/L	0435	WL	02/14/2023	0001	173.00	95500			23.8	-
	mg/L	0436	WL	03/07/2023	0001	197.00	96000			23.8	-
	mg/L	0437	WL	03/14/2023	0001	97.00	8860			23.8	-
	mg/L	0439	WL	03/08/2023	0001	118.00	10400			23.8	-
	mg/L	0440	WL	03/14/2023	0001	117.00	5220			23.8	-
	mg/L	0441	WL	03/13/2023	0001	53.00	12800			23.8	-
	mg/L	0443	WL	03/13/2023	0001	73.00	2990			23.8	-
	mg/L	0444	WL	02/14/2023	0001	116.00	82800			23.8	-
	mg/L	0454	WL	02/14/2023	0001	13.00	64800			23.8	-
	mg/L	0455	WL	02/21/2023	0001	46.00	1840			23.8	-
	mg/L	0456	WL	02/21/2023	0001	53.00	5120			23.8	-
	mg/L	0457	WL	02/14/2023	0001	29.00	3370			23.8	-
	mg/L	0492	WL	02/06/2023	0001	18.00	7410			23.8	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	8390			23.8	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	23.8	U		23.8	-
	mg/L	AMM-1-19	WL	02/13/2023	0001	20.00	7920			23.8	-
	mg/L	AMM-2	WL	02/13/2023	0001	48.00	14000			23.8	-
	mg/L	AMM-3	WL	02/14/2023	0001	48.00	18100			23.8	-
	mg/L	AMM-3	WL	02/14/2023	0002	30.00 - 49.75	17900			23.8	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023	0001	88.00	90700			4.76	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023	0001	25.00	9400			4.76	-
	mg/L	ATP-3	WL	02/20/2023	0001	51.00	1270			23.8	-

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GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	CR1	SL, RIV	02/06/2023	0001	0.00 - 0.00	894			4.76	-
	mg/L	CR2	SL, RIV	02/07/2023	0001	0.00 - 0.00	878			4.76	-
	mg/L	CR3	SL, RIV	02/06/2023	0001	0.00 - 0.00	922			4.76	-
	mg/L	CR5	SL, RIV	02/06/2023	0001	0.00 - 0.00	898			4.76	-
	mg/L	MW-3	WL	02/01/2023	0001	44.00	22600			4.76	-
	mg/L	SMI-MW01	WL	02/20/2023	0001	16.00	3150			23.8	-
	mg/L	SMI-PW01	WL	02/01/2023	0001	40.00	8790			4.76	-
	mg/L	SMI-PW03	WL	03/07/2023	0001	60.00	4790			23.8	-
	mg/L	SMI-PW03	WL	03/07/2023	0002	20.23 - 60.23	6160			23.8	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0001	73.00	69700			4.76	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0002	69.75 - 74.75	70300			4.76	-
	mg/L	SMI-PZ1M	WL	02/01/2023	0001	57.00	21100			4.76	-
	mg/L	SMI-PZ1S	WL	02/01/2023	0001	18.00	3560			4.76	-
	mg/L	SMI-PZ2D	WL	02/13/2023	0001	75.00	78900			23.8	-
	mg/L	SMI-PZ2M2	WL	02/13/2023	0001	56.00	44300			23.8	-
	mg/L	SMI-PZ3D2	WL	03/07/2023	0001	78.00	11200			23.8	-
	mg/L	SMI-PZ3M	WL	03/07/2023	0001	59.00	4130			23.8	-
	mg/L	SMI-PZ3S	WL	03/07/2023	0001	25.00	2180			23.8	-
	mg/L	TP-01	WL	02/14/2023	0001	22.00	4330			23.8	-
	mg/L	TP-11	WL	02/13/2023	0001	30.00	9720			23.8	-
	mg/L	TP-17	WL	02/06/2023	0001	28.00	85700			23.8	-
	mg/L	TP-20	WL	02/01/2023	0001	32.00	104000			4.76	-
	mg/L	TP-22	WL	02/14/2023	0001	17.00	22000			23.8	-
	mg/L	TP-23	WL	02/13/2023	0001	25.00	31300			23.8	-
	mg/L	UPD-17	WL	03/07/2023	0001	14.50	6410			23.8	-
	mg/L	UPD-18	WL	03/07/2023	0001	13.00	5340			23.8	-
	mg/L	UPD-20	WL	03/07/2023	0001	25.00	2070			23.8	-
	mg/L	UPD-21	WL	03/07/2023	0001	25.00	2740			23.8	-
	mg/L	UPD-22	WL	02/20/2023	0001	9.00	2900			23.8	-
Turbidity	NTU	0201	SL, RIV	02/06/2023	N001	0.00 - 0.00	29.80			-	-
	NTU	0218	SL, RIV	02/03/2023	N001	0.00 - 0.00	125.00			-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0226	SL, RIV	02/06/2023	N001	0.00 - 0.00	21.50				-	-
	NTU	0401	WL	02/02/2023	N001	18.00	4.55				-	-
	NTU	0403	WL	02/02/2023	N001	18.00	2.70				-	-
	NTU	0404	WL	02/02/2023	N001	18.00	1.29				-	-
	NTU	0406	WL	02/02/2023	N001	18.00	6.99				-	-
	NTU	0407	WL	02/02/2023	N001	17.00	1.95				-	-
	NTU	0413	WL	02/20/2023	N001	10.50	2.77				-	-
	NTU	0414	WL	02/20/2023	N001	7.50	7.03				-	-
	NTU	0430	WL	02/20/2023	N001	101.00	2.29				-	-
	NTU	0431	WL	03/13/2023	N001	91.00	2.56				-	-
	NTU	0432	WL	02/21/2023	N001	55.00	3.51				-	-
	NTU	0433	WL	02/20/2023	N001	99.00	5.02				-	-
	NTU	0434	WL	02/21/2023	N001	35.00	8.96				-	-
	NTU	0435	WL	01/30/2023	N001	173.00	1.66				-	-
	NTU	0435	WL	02/14/2023	N001	173.00	1.81				-	-
	NTU	0436	WL	03/07/2023	N001	197.00	2.56				-	-
	NTU	0437	WL	03/14/2023	N001	97.00	2.48				-	-
	NTU	0439	WL	03/08/2023	N001	118.00	16.70				-	-
	NTU	0440	WL	03/14/2023	N001	117.00	16.50				-	-
	NTU	0441	WL	03/13/2023	N001	53.00	1.71				-	-
	NTU	0443	WL	03/13/2023	N001	73.00	1.08				-	-
	NTU	0444	WL	01/30/2023	N001	116.00	2.87				-	-
	NTU	0444	WL	02/14/2023	N001	116.00	3.05				-	-
	NTU	0454	WL	01/30/2023	N001	13.00	7.38				-	-
	NTU	0454	WL	02/14/2023	N001	13.00	4.70				-	-
	NTU	0455	WL	02/21/2023	N001	46.00	999.00				-	-
	NTU	0456	WL	02/21/2023	N001	53.00	999.00				-	-
	NTU	0457	WL	01/30/2023	N001	29.00	2.37				-	-
	NTU	0457	WL	02/14/2023	N001	29.00	3.25				-	-
	NTU	0492	WL	02/06/2023	N001	18.00	3.78				-	-
	NTU	AMM-1-19	WL	01/30/2023	N001	19.00	1.08				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
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GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	AMM-1-19	WL	02/13/2023	N001	20.00	2.10				-	-
	NTU	AMM-2	WL	01/31/2023	N001	48.00	5.85				-	-
	NTU	AMM-2	WL	02/13/2023	N001	48.00	4.26				-	-
	NTU	AMM-3	WL	01/31/2023	N001	48.00	2.53				-	-
	NTU	AMM-3	WL	02/14/2023	N001	48.00	3.02				-	-
	NTU	ATP-2-D	WL, PZ	02/01/2023	N001	88.00	9.78				-	-
	NTU	ATP-2-S	WL, PZ	02/01/2023	N001	25.00	454.00				-	-
	NTU	ATP-3	WL	02/20/2023	N001	51.00	4.83				-	-
	NTU	CR1	SL, RIV	02/06/2023	N001	0.00 - 0.00	33.00				-	-
	NTU	CR2	SL, RIV	02/07/2023	N001	0.00 - 0.00	129.00				-	-
	NTU	CR3	SL, RIV	02/06/2023	N001	0.00 - 0.00	161.00				-	-
	NTU	CR5	SL, RIV	02/06/2023	N001	0.00 - 0.00	114.00				-	-
	NTU	MW-3	WL	02/01/2023	N001	44.00	1.49				-	-
	NTU	SMI-MW01	WL	02/20/2023	N001	16.00	11.50				-	-
	NTU	SMI-PW01	WL	02/01/2023	N001	40.00	2.91				-	-
	NTU	SMI-PW03	WL	03/07/2023	N001	60.00	43.40				-	-
	NTU	SMI-PZ1D2	WL	02/01/2023	N001	73.00	16.60				-	-
	NTU	SMI-PZ1M	WL	02/01/2023	N001	57.00	7.56				-	-
	NTU	SMI-PZ1S	WL	02/01/2023	N001	18.00	8.74				-	-
	NTU	SMI-PZ2D	WL	01/31/2023	N001	75.00	1.01				-	-
	NTU	SMI-PZ2D	WL	02/13/2023	N001	75.00	4.99				-	-
	NTU	SMI-PZ2M2	WL	01/31/2023	N001	56.00	2.12				-	-
	NTU	SMI-PZ2M2	WL	02/13/2023	N001	56.00	5.70				-	-
	NTU	SMI-PZ3D2	WL	03/07/2023	N001	78.00	5.20				-	-
	NTU	SMI-PZ3M	WL	03/07/2023	N001	59.00	1.64				-	-
	NTU	SMI-PZ3S	WL	03/07/2023	N001	25.00	3.24				-	-
	NTU	TP-01	WL	01/30/2023	N001	22.00	1.70				-	-
	NTU	TP-01	WL	02/14/2023	N001	22.00	1.24				-	-
	NTU	TP-11	WL	01/30/2023	N001	30.00	7.47				-	-
	NTU	TP-11	WL	02/13/2023	N001	30.00	5.90				-	-
	NTU	TP-17	WL	02/06/2023	N001	28.00	12.50				-	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	TP-20	WL	02/01/2023	N001	32.00	3.38				-	-
	NTU	TP-22	WL	01/31/2023	N001	17.00	27.20				-	-
	NTU	TP-22	WL	02/14/2023	N001	17.00	13.40				-	-
	NTU	TP-23	WL	01/30/2023	N001	25.00	4.14				-	-
	NTU	TP-23	WL	02/13/2023	N001	25.00	4.42				-	-
	NTU	UPD-17	WL	03/07/2023	N001	14.50	5.26				-	-
	NTU	UPD-18	WL	03/07/2023	N001	13.00	9.20				-	-
	NTU	UPD-20	WL	03/07/2023	N001	25.00	155.00				-	-
	NTU	UPD-21	WL	03/07/2023	N001	25.00	5.20				-	-
	NTU	UPD-22	WL	02/20/2023	N001	9.00	3.19				-	-
Uranium	mg/L	0201	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00592				6.7E-05	-
	mg/L	0218	SL, RIV	02/03/2023	0001	0.00 - 0.00	0.00559				6.7E-05	-
	mg/L	0226	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00636				6.7E-05	-
	mg/L	0401	WL	02/02/2023	0001	18.00	1.760				0.000335	-
	mg/L	0403	WL	02/02/2023	0001	18.00	1.050				0.000335	-
	mg/L	0404	WL	02/02/2023	0001	18.00	1.660				0.000335	-
	mg/L	0406	WL	02/02/2023	0001	18.00	1.240				6.7E-05	-
	mg/L	0407	WL	02/02/2023	0001	17.00	1.090				6.7E-05	-
	mg/L	0413	WL	02/20/2023	0001	10.50	2.220				6.7E-05	-
	mg/L	0414	WL	02/20/2023	0001	7.50	3.000				6.7E-05	-
	mg/L	0430	WL	02/20/2023	0001	101.00	0.0110				6.7E-05	-
	mg/L	0431	WL	03/13/2023	0001	91.00	0.0105				0.000335	-
	mg/L	0432	WL	02/21/2023	0001	55.00	0.00193				6.7E-05	-
	mg/L	0433	WL	02/20/2023	0001	99.00	0.00191				6.7E-05	-
	mg/L	0434	WL	02/21/2023	0001	35.00	0.0245				0.000335	-
	mg/L	0435	WL	01/30/2023	0001	173.00	0.0353				0.00335	-
	mg/L	0436	WL	03/07/2023	0001	197.00	0.00840				0.000335	-
	mg/L	0437	WL	03/14/2023	0001	97.00	2.260				0.00335	-
	mg/L	0439	WL	03/08/2023	0001	118.00	1.510				0.00134	-
	mg/L	0440	WL	03/14/2023	0001	117.00	0.0335				6.7E-05	-
	mg/L	0441	WL	03/13/2023	0001	53.00	0.0567				0.000335	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0443	WL	03/13/2023	0001	73.00	0.0129				6.7E-05	-
	mg/L	0444	WL	01/30/2023	0001	116.00	0.0176				0.00335	-
	mg/L	0454	WL	01/30/2023	0001	13.00	1.740				0.00134	-
	mg/L	0455	WL	02/21/2023	0001	46.00	0.00233				6.7E-05	-
	mg/L	0456	WL	02/21/2023	0001	53.00	0.0278				6.7E-05	-
	mg/L	0457	WL	01/30/2023	0001	29.00	0.00261				6.7E-05	-
	mg/L	0492	WL	02/06/2023	0001	18.00	1.550				6.7E-05	-
	mg/L	0492	WL	02/06/2023	0002	14.86 - 19.79	1.590				6.7E-05	-
	mg/L	0999	BH	03/14/2023	0001	0.00 - 0.00	0.000204				6.7E-05	-
	mg/L	AMM-1-19	WL	01/30/2023	0001	19.00	0.00970				0.000335	-
	mg/L	AMM-2	WL	01/31/2023	0001	48.00	2.260				0.00268	-
	mg/L	AMM-3	WL	01/31/2023	0001	48.00	2.190				0.00268	-
	mg/L	AMM-3	WL	01/31/2023	0002	30.00 - 49.75	2.120				0.00268	-
	mg/L	ATP-2-D	WL, PZ	02/01/2023	0001	88.00	0.00134	U			0.00134	-
	mg/L	ATP-2-S	WL, PZ	02/01/2023	0001	25.00	0.00122				0.000335	-
	mg/L	ATP-3	WL	02/20/2023	0001	51.00	0.00236				6.7E-05	-
	mg/L	CR1	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00550				6.7E-05	-
	mg/L	CR2	SL, RIV	02/07/2023	0001	0.00 - 0.00	0.00685				6.7E-05	-
	mg/L	CR3	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00927				6.7E-05	-
	mg/L	CR5	SL, RIV	02/06/2023	0001	0.00 - 0.00	0.00636				6.7E-05	-
	mg/L	MW-3	WL	02/01/2023	0001	44.00	2.710				0.000335	-
	mg/L	SMI-MW01	WL	02/20/2023	0001	16.00	2.320				6.7E-05	-
	mg/L	SMI-PW01	WL	02/01/2023	0001	40.00	1.190				0.000335	-
	mg/L	SMI-PW03	WL	03/07/2023	0001	60.00	0.324				0.00067	-
	mg/L	SMI-PW03	WL	03/07/2023	0002	20.23 - 60.23	0.333				0.00067	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0001	73.00	1.570				0.00067	-
	mg/L	SMI-PZ1D2	WL	02/01/2023	0002	69.75 - 74.75	1.650				0.00067	-
	mg/L	SMI-PZ1M	WL	02/01/2023	0001	57.00	2.730				0.00067	-
	mg/L	SMI-PZ1S	WL	02/01/2023	0001	18.00	0.476				6.7E-05	-
	mg/L	SMI-PZ2D	WL	01/31/2023	0001	75.00	1.070				0.00268	-
	mg/L	SMI-PZ2M2	WL	01/31/2023	0001	56.00	3.630				0.00268	-

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Appendix A. January - March 2023 Site Wide Sampling Event
Water Sampling Field Activities Verification

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site

REPORT DATE: 9/21/2023 2:05 PM

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	SMI-PZ3D2	WL	03/07/2023	0001	78.00	0.621			0.00067	-
	mg/L	SMI-PZ3M	WL	03/07/2023	0001	59.00	0.264			0.00067	-
	mg/L	SMI-PZ3S	WL	03/07/2023	0001	25.00	0.723			0.00134	-
	mg/L	TP-01	WL	01/30/2023	0001	22.00	0.0464			6.7E-05	-
	mg/L	TP-11	WL	01/30/2023	0001	30.00	0.000590	B		0.000335	-
	mg/L	TP-17	WL	02/06/2023	0001	28.00	0.0250			0.00134	-
	mg/L	TP-20	WL	02/01/2023	0001	32.00	0.0138			0.00134	-
	mg/L	TP-22	WL	01/31/2023	0001	17.00	0.394			0.000335	-
	mg/L	TP-23	WL	01/30/2023	0001	25.00	3.280			0.00268	-
	mg/L	UPD-17	WL	03/07/2023	0001	14.50	1.160			0.00134	-
	mg/L	UPD-18	WL	03/07/2023	0001	13.00	0.637			0.00067	-
	mg/L	UPD-20	WL	03/07/2023	0001	25.00	0.0671			0.000134	-
	mg/L	UPD-21	WL	03/07/2023	0001	25.00	7.000			0.0067	-
	mg/L	UPD-22	WL	02/20/2023	0001	9.00	2.110			6.7E-05	-

RECORDS: SELECTED FROM USEE205 WHERE RIN = '2301141' AND SiteCode = 'MOA01' AND (DataValidationQualifiers IS NULL OR (DataValidationQualifiers NOT LIKE '%N%' AND DataValidationQualifiers NOT LIKE '%R%' AND DataValidationQualifiers NOT LIKE '%X%'))

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

LAB QUALIFERS:

- * 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 compund (TIC).

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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 QUALIFERS:

F Low flow sampling method used.

L Less than 3 bore volumes purged prior to sampling.

R Unusable result.

G Possible grout contamination, pH > 9.

N Presumptive evidence that analyte is present. The analyte is "tentatively identified".

U Parameter analyzed for but was not detected.

J Estimated value.

Q Qualitative result due to sampling technique

X Location is undefined.

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

Appendix A. January - March 2023 Site Wide Sampling Event
Minimums and Maximums Report

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: GEL Laboratories of Ohio LLC

RIN: 2301141

Comparison: All Historical Data

Report Date: 10/18/2023 12:33 PM

				Current			Historical Maximum			Historical Minimum			Count	
					Qualifiers			Qualifiers			Qualifiers			
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
MOA01	0201	02/06/2023	Ammonia Total as N	0.017	U		2	U		0.0659	B		42	32
MOA01	0201	02/06/2023	Copper	0.00338	B		0.0015	B		0.00035	U	J	6	4
MOA01	0201	02/06/2023	Selenium	0.00979	B		0.0077			0.0015			9	0
MOA01	0218	02/03/2023	Ammonia Total as N	0.0687			2	U		0.1	U		31	29
MOA01	0226	02/06/2023	Total Dissolved Solids	906			810			200			11	0
MOA01	0401	02/02/2023	Selenium	0.06	U		0.016			0.0051		J	20	0
MOA01	0403	02/02/2023	Selenium	0.0843	B		0.027			0.00015			19	3
MOA01	0404	02/02/2023	Manganese	0.0212			5.5		F	0.026			17	0
MOA01	0404	02/02/2023	Selenium	0.0397			0.031		J	0.008			16	0
MOA01	0406	02/02/2023	Selenium	0.214	B		0.2			0.0098	E		6	0
MOA01	0407	02/02/2023	Selenium	0.0135	B		0.005	U	F	0.0001			18	7
MOA01	0413	02/20/2023	Arsenic	0.0443			0.041			0.00095	B	LQ	6	0
MOA01	0413	02/20/2023	Total Dissolved Solids	4550			4400			1900			11	0
MOA01	0414	02/20/2023	Arsenic	0.00761	B		0.361		F	0.016			8	0
MOA01	0414	02/20/2023	Total Dissolved Solids	8410			7600			2860		FQ	9	0
MOA01	0430	02/20/2023	Arsenic	0.005	U		0.00044	B	F	0.00012	J		5	0
MOA01	0430	02/20/2023	Selenium	0.0316			0.0047	B	F	0.00034	B	F	6	0
MOA01	0431	03/13/2023	Ammonia Total as N	0.017	U		15			0.0262	B	FJQ	23	18
MOA01	0431	03/13/2023	Manganese	0.0973			0.961		FQ	0.15			7	0
MOA01	0432	02/21/2023	Sulfate	363			342		F	321		F	5	0
MOA01	0432	02/21/2023	Total Dissolved Solids	1520			7500			1780		F	9	0
MOA01	0434	02/21/2023	Ammonia Total as N	0.045	J		13			0.0854		FJ	21	3
MOA01	0434	02/21/2023	Manganese	0.374			2.89		F	0.44			7	0
MOA01	0435	01/30/2023	Manganese	0.386			1.59		F	0.54			6	0
MOA01	0436	03/07/2023	Ammonia Total as N	0.24	J		950			2.4		J	20	0
MOA01	0436	03/07/2023	Manganese	3.7			4.6			3.73		F	6	0
MOA01	0436	03/07/2023	Selenium	0.184	B		0.0014	J	J	0.0001	U	F	5	3

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Appendix A. January - March 2023 Site Wide Sampling Event
Minimums and Maximums Report

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: GEL Laboratories of Ohio LLC

RIN: 2301141

Comparison: All Historical Data

Report Date: 10/18/2023 12:33 PM

MOA01	0437	03/14/2023	Arsenic	0.00532	B	0.0029			0.0001	B	QJ	9	0
MOA01	0437	03/14/2023	Manganese	0.0981		5.14		Q	0.22			20	0
MOA01	0439	03/08/2023	Manganese	0.169		52.6		Q	0.27			27	0
MOA01	0440	03/14/2023	Ammonia Total as N	0.017	U	13			0.0507	B	FJQ	27	21
MOA01	0441	03/13/2023	Total Dissolved Solids	12800		12000			2800			5	0
MOA01	0444	01/30/2023	Selenium	0.2	B	0.00088	J		0.0001	U	F	6	5
MOA01	0454	02/14/2023	Total Dissolved Solids	64800		45000			4800			5	0
MOA01	0455	02/21/2023	Total Dissolved Solids	1840		1755		FQ	900			9	0
MOA01	0456	02/21/2023	Selenium	0.0386		0.0292		F	0.016			6	0
MOA01	0456	02/21/2023	Sulfate	828		1140		F	870			5	0
MOA01	0457	01/30/2023	Manganese	0.655		0.64			0.48		J	6	0
MOA01	AMM-2	01/31/2023	Manganese	0.28		9.14			0.39			19	0
MOA01	AMM-3	01/31/2023	Arsenic	0.015	B	0.011			0.001	U		13	2
MOA01	AMM-3	01/31/2023	Arsenic	0.0193	B	0.011			0.001	U		13	2
MOA01	AMM-3	02/14/2023	Sulfate	11200		11000			1110			64	0
MOA01	AMM-3	02/14/2023	Sulfate	11300		11000			1110			64	0
MOA01	ATP-2-S	02/01/2023	Manganese	0.0258		6.62			0.027			27	0
MOA01	CR1	02/06/2023	Arsenic	0.005	U	0.0039	U		0.00052	B		9	4
MOA01	CR1	02/06/2023	Copper	0.0043	B	0.0014	B		0.00035	U	J	15	10
MOA01	CR1	02/06/2023	Selenium	0.0145	B	0.0079			0.0013			17	0
MOA01	CR2	02/07/2023	Copper	0.00464	B	0.002	U		0.0006	U		8	4
MOA01	CR3	02/06/2023	Copper	0.00431	B	0.002	U		0.0006	U		9	5
MOA01	CR3	02/06/2023	Selenium	0.00985	B	0.0073			0.0011			11	0
MOA01	CR5	02/06/2023	Copper	0.00382	B	0.002			0.00035	U	J	15	9
MOA01	SMI-PW01	02/01/2023	Selenium	0.2	B	0.12			0.017		F	6	0
MOA01	SMI-PW03	03/07/2023	Sulfate	886		2712			990			12	0
MOA01	SMI-PW03	03/07/2023	Sulfate	893		2712			990			12	0
MOA01	SMI-PZ1M	02/01/2023	Ammonia Total as N	385		1590			460			33	0
MOA01	SMI-PZ1M	02/01/2023	Copper	0.003	U	0.035	B	UF	0.0031	J		6	3
MOA01	SMI-PZ1M	02/01/2023	Selenium	0.0286	B	0.016		F	0.0055	J		6	0
MOA01	SMI-PZ1S	02/01/2023	Selenium	0.104		0.05		J	0.004	J		5	0

Appendix A. January - March 2023 Site Wide Sampling Event
Minimums and Maximums Report

Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: GEL Laboratories of Ohio LLC

RIN: 2301141

Comparison: All Historical Data

Report Date: 10/18/2023 12:33 PM

MOA01	SMI-PZ2M2	02/13/2023	Ammonia Total as N	290		4600			380			25	0
MOA01	SMI-PZ2M2	02/13/2023	Sulfate	15500		11308			8100			5	0
MOA01	SMI-PZ2M2	01/31/2023	Uranium	3.63		3			0.5			25	0
MOA01	SMI-PZ3D2	03/07/2023	Manganese	0.134		5.43		F	0.18			10	0
MOA01	SMI-PZ3D2	03/07/2023	Selenium	0.0862		0.063			0.005	B	F	5	0
MOA01	SMI-PZ3D2	03/07/2023	Total Dissolved Solids	11200		21000			12000			11	0
MOA01	SMI-PZ3D2	03/07/2023	Uranium	0.621		7			0.69			30	0
MOA01	SMI-PZ3M	03/07/2023	Arsenic	0.005	U	0.0012	J		0.00063	B	F	5	0
MOA01	SMI-PZ3M	03/07/2023	Selenium	0.0125	B	0.0022	B	F	0.00043	B	F	6	0
MOA01	SMI-PZ3M	03/07/2023	Uranium	0.264		1.9		J	0.27			27	0
MOA01	SMI-PZ3S	03/07/2023	Ammonia Total as N	1.18		18			1.7		J	35	0
MOA01	SMI-PZ3S	03/07/2023	Sulfate	685		1300			750			12	0
MOA01	SMI-PZ3S	03/07/2023	Total Dissolved Solids	2180		3720		F	2600			13	0
MOA01	TP-01	01/30/2023	Selenium	0.0141	B	0.0132		F	0.0015	J		12	1
MOA01	TP-11	02/13/2023	Sulfate	9250		3500			1	U		5	1
MOA01	TP-20	02/01/2023	Sulfate	6310		5520		F	2300			7	0
MOA01	TP-23	02/13/2023	Ammonia Total as N	69		540		J	100			22	0
MOA01	UPD-17	03/07/2023	Arsenic	0.0206	B	0.019			0.016			5	0
MOA01	UPD-17	03/07/2023	Selenium	0.133		0.12			0.081	J		5	0
MOA01	UPD-17	03/07/2023	Uranium	1.16		1.6			1.2			21	0
MOA01	UPD-18	03/07/2023	Uranium	0.637		2			0.68			22	0
MOA01	UPD-22	02/20/2023	Uranium	2.11		3.9			2.2			24	0

Note: all concentrations are in mg/L

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

LAB QUALIFERS:

- * 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.

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Data Validation Minimums and Maximums Report - No Field Parameters

Laboratory: GEL Laboratories of Ohio LLC

RIN: 2301141

Comparison: All Historical Data

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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 compund (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 QUALIFERS:

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.	N	Presumptive evidence that analyte is present. The analyte is "tentatively identified".	Q	Qualitative result due to sampling technique
R	Unusable result.	U	Parameter analyzed for but was not detected.	X	Location is undefined.

Report generated with the Moab Environmental Sampling Database System, (MESa)

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Date: March 16, 2022

To: Ken Pill

From: James Ritchey

Subject: January 2023 Site Wide Sampling Event

Site: Moab – Site Wide Sampling Event – January 2023

Date of Sampling Event: January 30 – March 14, 2023

Team Members: T. Prichard and J. Ritchey

RIN Number Assigned: All samples were assigned to RIN 2301141.

Sample Shipment: Seven coolers were shipped overnight to GEL Laboratory from Moab, Utah, on Jan 31, Feb 2, Feb 7, Feb 14, Feb 21, Mar 8, and Mar 14 of 2022 (Tracking numbers: 771175191489 (FedEx), 771201255808 (FedEx), 1ZE243120198513633 (UPS), 1ZE243121394969734 (UPS), 1ZE243120193217945 (UPS), 1ZE243120193412420 (UPS), and 1ZE243120195271687 (UPS)).

Number of Locations Sampled: The purpose of the Site Wide Sampling Event is to update contaminant plume maps. A total of 64 locations (seven surface samples and 56 monitoring wells) were sampled during this event. Including four duplicates and an equipment blank, a total of 68 samples were collected during the Feb 2022 Site Wide Sampling Event.

Locations Not Sampled/Reason: Wells 0410 and UPD-23 did not provide enough water to sample. Wells 0411 and 0412 was dry. In well 0453, the pump was not sufficiently submerged to draw water. Well UPD-24 was overlooked.

Field Variance: The first shipment of samples was delayed and missed the hold time for ammonia, sulfate, and TDS. These samples were resampled for those analytes and shipped within proper hold times. Affected locations will have additional water levels and sample dates.

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

False ID	True ID	Sample Type	Associated matrix
2000	AMM-3	Duplicate from 88 ft bgs	Ground Water
2001	SMI-PZ1D	Duplicate from 59 ft bgs	Ground Water
2002	0492	Duplicate from 18 ft bgs	Ground Water
2003	AMM-3	Duplicate from 48 ft bgs	Ground Water
2004	SMI-PW03	Duplicate from 60 ft bgs	Ground Water
2005	0999	Equipment blank	DI Water

Location Specific Information: All of the observation wells were sampled using a peristaltic pump and dedicated tubing unless otherwise noted. The surface water samples were collected with dedicated surface water tubing that was decontaminated with Alconox® and de-ionized water between locations. The table below provides additional information:

Location	Date	Sample Depth (ft bgs)	Depth to Water (ft btoc)	Comments
0201	2/6/2023	NA	NA	Collected 5 ft off bank, 1.5 ft deep.
0218	2/6/2023	NA	NA	~7 ft from bank on silty gravel, ~1 ft deep.
0226	2/6/2023	NA	NA	4 ft out, 3 ft deep, below cut bank of tamarisk.
0401	2/2/2023	18	14.29	
0403	2/2/2023	18	16.31	
0404	2/2/2023	18	14.94	
0406	2/2/2023	18	11.16	Floaties. Sulfurous odor.
0407	2/2/2023	17	16.84	
0412	-	9.5	-	
0413	2/20/2023	10.5	8.72	
0414	2/20/2023	7.5	5.08	
0430	2/20/2023	101	61.50	Bladder pump.
0431	3/13/2023	91	48.73	Bladder pump.
0432	2/21/2023	55	43.27	
0433	2/20/2023	99	32.81	
0434	2/21/2023	35	34.14	Bladder pump.
0435	1/30/2023	173	15.38	Had to readjust tubing.
0435	2/14/2023	173	15.33	
0436	3/7/2023	197	11.23	Sulfur smell. “Very eggy.”
0437	3/14/2023	97	49.10	Bladder pump. Consistent with historical sampling depth.
0439	3/8/2023	118	18.25	Bladder pump.
0440	3/14/2023	117	112.81	Bladder pump. Insect nest/cocoon of some kind in tubing. Turbidity stabilized above 10 NTU.
0441	3/13/2023	53	50.04	Bladder pump. Slow. Water level close to pump.
0443	3/13/2023	73	48.06	Bladder pump.
0444	1/30/2023	116	15.80	
0444	2/14/2023	116	15.77	
0453	3/14/2023	80	73.56	Top of pump = 73.56 ft btoc, Water = 75.06 ft btoc, TD = 82.0 ft btoc. No sample collected.
0454	1/30/2023	13	13.19	
0454	2/14/2023	13	13.24	
0455	2/21/2023	46	32.19	Inertia pump. Filtered in lab.
0456	2/21/2023	53	35.25	Inertia pump. Filtered in lab.
0457	1/30/2023	29	16.42	
0457	2/14/2023	29	16.38	

0492	2/6/2023	18	16.45	Duplicate 2002 – JAN 036 – 14:35
AMM-1-19	1/30/2023	19	17.50	
AMM-1-19	2/13/2023	19	17.49	
AMM-2	1/31/2023	48	10.71	
AMM-2	2/13/2023	48	10.50	
AMM-3	1/31/2023	48	9.50	Duplicate 2000 – JAN 014 – 10:45
AMM-3	2/14/2023	48	9.25	Duplicate 2003 – JAN 048
ATP-2-D	2/1/2023	88	7.21	
ATP-2-S	2/1/2023	25	8.85	Sulfur odor.
ATP-3	2/20/2023	51	39.95	
CR1	2/6/2023	NA	NA	4 ft off shore, ~2 ft deep.
CR2	2/7/2023	NA	NA	~4 ft off bank, 4 inches deep, silty substrate.
CR3	2/6/2023	NA	NA	6 inches out, 2 inches deep. Out across a mud flat.
CR5	2/6/2023	NA	NA	~9 ft off bank, 2.5 ft deep.
MW-3	2/1/2023	44	12.28	
SMI-MW01	2/20/2023	16	6.63	
SMI-PW01	2/1/2023	40	10.39	
SMI-PW03	3/7/2023	60	19.96	Duplicate 2004 – JAN 072. Cloudy water. Turbidity stabilized.
SMI-PZ1D	2/1/2023	88	10.08	Duplicate 2001 – JAN 023
SMI-PZ1M	2/1/2023	57	9.27	
SMI-PZ1S	2/1/2023	18	10.52	
SMI-PZ2D	1/30/2023	75	16.21	
SMI-PZ2D	2/13/2023	75	15.79	
SMI-PZ2M2	1/30/2023	56	14.73	
SMI-PZ2M2	2/13/2023	56	14.48	
SMI-PZ3D2	3/7/2023	78	20.31	
SMI-PZ3M	3/7/2023	59	20.23	
SMI-PZ3S	3/7/2023	25	20.05	
TP-01	1/30/2023	22	14.07	Sulfur odor.
TP-01	2/14/2023	22	14.02	
TP-11	1/30/2023	30	12.82	Some chunky debris. Tubing was stuck in casing at first. Possibly frozen or silted at bottom. Sulfurous odor.
TP-11	2/13/2023	30	12.81	
TP-17	2/6/2023	28	18.40	Smells sulphury or stinky. Gray water with many black particles.
TP-20	2/1/2023	32	16.64	
TP-22	1/30/2023	17	14.16	Dewatered at 2.0L Sampled the following morning (1/31/23 9:00). Filtered in lab.
TP-22	2/13/2023	17	14.09	Dewatered at 2L. Sampled next day (2/14/23) at 8:45.
TP-23	1/30/2023	25	9.85	
TP-23	2/13/2023	25	9.64	
UPD-17	3/7/2023	14.5	12.82	

UPD-18	3/7/2023	13	13.49	Slow flow. Sampled near bottom.
UPD-20	3/7/2023	17	23.10	Pump couldn't draw water up. Tubing was raised and lowered to assist pump. Grayish color.
UPD-21	3/7/2023	25	25.90	
UPD-22	2/20/2023	9	11.39	
UPD-23	3/7/2023	26	27.13	Dewatered at full flow cell. Had difficulty fulling water with smaller tubing. No sample collected.
UPD-24	-	27	-	No sample collected.

Notes: ft bgs = feet below ground surface

Water Level Measurements: Water level data are provided in the table below. These data represent depth to water (ft btoc) measurements.

Location	Date	Depth to Water (ft btoc)
0401	2/2/2023	14.29
0403	2/2/2023	16.31
0404	2/2/2023	14.94
0406	2/2/2023	11.16
0407	2/2/2023	16.84
0413	2/20/2023	8.72
0414	2/20/2023	5.08
0430	2/20/2023	61.5
0431	3/13/2023	48.73
0432	2/21/2023	43.27
0433	2/20/2023	32.81
0434	2/21/2023	34.14
0435*	1/30/2023	15.38
0435	2/14/2023	15.33
0436	3/7/2023	11.23
0437	3/14/2023	49.1
0439	3/8/2023	18.25
0440	3/14/2023	112.81
0441	3/13/2023	50.04
0443	3/13/2023	48.06
0444*	1/30/2023	15.8
0444	2/14/2023	15.77
0454*	1/30/2023	13.19
0454	2/14/2023	13.24
0455	2/21/2023	32.19
0456	2/21/2023	35.25
0457*	1/30/2023	16.42
0457	2/14/2023	16.38
0492	2/6/2023	16.45

AMM-1*	1/30/2023	17.5
AMM-1	2/13/2023	17.49
AMM-2*	1/31/2023	10.71
AMM-2	2/13/2023	10.5
AMM-3*	1/31/2023	9.5
AMM-3	2/14/2023	9.25
ATP-2-D	2/1/2023	7.21
ATP-2-S	2/1/2023	8.85
ATP-3	2/20/2023	39.95
MW-3	2/1/2023	12.28
SMI-MW01	2/20/2023	6.63
SMI-PW01	2/1/2023	10.39
SMI-PW03	3/7/2023	19.96
SMI-PZ1D2	2/1/2023	10.08
SMI-PZ1M	2/1/2023	9.27
SMI-PZ1S	2/1/2023	10.52
SMI-PZ2D*	1/31/2023	16.21
SMI-PZ2D	2/13/2023	15.79
SMI-PZ2M2*	1/31/2023	14.73
SMI-PZ2M2	2/13/2023	14.48
SMI-PZ3D2	3/7/2023	20.31
SMI-PZ3M	3/7/2023	20.23
SMI-PZ3S	3/7/2023	20.05
TP-01*	1/30/2023	14.07
TP-01	2/14/2023	14.02
TP-11*	1/30/2023	12.82
TP-11	2/13/2023	12.81
TP-17	2/6/2023	18.4
TP-20	2/1/2023	16.64
TP-22*	1/30/2023	14.16
TP-22	2/13/2023	14.09
TP-23*	1/30/2023	9.85
TP-23	2/13/2023	9.64
UPD-17	3/7/2023	12.82
UPD-18	3/7/2023	13.49
UPD-20	3/7/2023	23.1
UPD-21	3/7/2023	25.9
UPD-22	2/20/2023	11.39

*Duplicate water level from resampled locations.

Well Inspection Summary: A well inspection was not conducted.

Equipment: None.

Regulatory: None.

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

Date	Daily Mean Flow (cfs)
1/30/2023	2,460
1/31/2023	2,470
2/1/2023	2,370
2/2/2023	2,200
2/3/2023	2,160
2/4/2023	2,110
2/5/2023	2,290
2/6/2023	2,390
2/7/2023	2,440
2/8/2023	2,480
2/9/2023	2,400
2/10/2023	2,340
2/11/2023	2,330
2/12/2023	2,240
2/13/2023	2,260
2/14/2023	2,420
2/15/2023	2,410
2/16/2023	2,410
2/17/2023	2,160
2/18/2023	2,130
2/19/2023	2,200
2/20/2023	2,380
2/21/2023	2,430
2/22/2023	2,400
2/23/2023	2,910
2/24/2023	2,760
2/25/2023	2,520
2/26/2023	2,390
2/27/2023	2,470
2/28/2023	2,460
3/1/2023	2,470
3/2/2023	2,470
3/3/2023	2,410
3/4/2023	2,480
3/5/2023	2,370
3/6/2023	2,360
3/7/2023	2,550
3/8/2023	2,560
3/9/2023	2,620

3/10/2023	2,560
3/11/2023	2,800
3/12/2023	4,430
3/13/2023	4,210
3/14/2023	3,580

Corrective Action Required/Taken: None.