



Moab UMTRA Project  
Environmental Air Monitoring Data Quarterly  
Report for the Moab and Crescent Junction, Utah,  
Sites Second Quarter (April – June 2023)

Revision 0

November 2023



U.S. Department  
of Energy

**Office of Environmental Management**

**Moab UMTRA Project  
Environmental Air Monitoring Data Quarterly Report for the Moab and Crescent  
Junction, Utah, Sites Second Quarter 2023 (April - June 2023)**

---

**Revision 0**

---

**Review and Approval**

11/6/2023

**X** Katrina Lund

---

Katrina Lund  
RAC Environmental Compliance Manager  
Signed by: KATRINA LUND (Affiliate)

11/6/2023

**X** Ronald Daily

---

Ronald R. Daily  
RAC Radiological Control Manager  
Signed by: Ronald Daily

11/6/2023

**X** Tim Mason

---

Tim Mason  
RAC ESH&Q Manager  
Signed by: TIMOTHY MASON (Affiliate)

11/6/2023

**X** Greg D. Church

---

Greg Church  
RAC Program Manager  
Signed by: Department of Energy

## Revision History

Revision	Date	Description
0	November 2023	Initial issue.

## Contents

<i>Section</i>	<i>Page</i>
Acronyms and Abbreviations .....	iv
<b>1.0 Introduction.....</b>	<b>1</b>
<b>2.0 Regulatory Requirements .....</b>	<b>1</b>
<b>3.0 Radiological Monitoring and Results.....</b>	<b>1</b>
3.1 Radon .....	5
3.2 Direct Gamma.....	6
3.3 Radioparticulates.....	9
3.4 Total Effective Dose .....	11
<b>4.0 Meteorological Monitoring and Analysis .....</b>	<b>12</b>
<b>5.0 Data Quality .....</b>	<b>14</b>
5.1 Station Duplicates .....	14
5.2 Suspected Anomalies .....	14
<b>6.0 Conclusion .....</b>	<b>14</b>
<b>7.0 References.....</b>	<b>15</b>

## Figures

<i>Figure</i>	<i>Page</i>
Figure 1 Moab Off-site and Maximally Exposed Individual Environmental Air Monitoring Locations.....	2
Figure 2 Moab On-site Environmental Air Monitoring Locations.....	3
Figure 3. Crescent Junction Site Environmental Air Monitoring Locations.....	4
Figure 4. Moab Wind Rose for Second Quarter 2023.....	13
Figure 5. Crescent Junction Wind Rose for Second Quarter 2023.....	14

## Tables

<i>Table</i>	<i>Page</i>
Table 1. Quarterly and Average Radon Concentrations for the Moab Site for the Past Four Quarters.....	5
Table 2. Quarterly and Average Radon Concentrations for the Crescent Junction Site for the Past Four Quarters.....	6
Table 3. Direct Gamma Doses for the Maximally Exposed Individual (MEI) and Representative Person at the Moab Site for the Past Four Quarters .....	7
Table 4. Direct Gamma Doses for the Maximally Exposed Individual (MEI) at the Crescent Junction Site for the Past Four Quarters .....	9
Table 5. Radioparticulate Dose for Moab Site for the Past Four Quarters .....	10
Table 6. Radioparticulate Doses for Crescent Junction Site for the Past Four Quarters .....	11

## Acronyms and Abbreviations

DOE	Department of Energy
KWRS	Ken's Weather Reporting System
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDC	minimum detectable concentration
MEI	maximally exposed individual
met	meteorology
mrem	millirem
O	Order
OSL	optically stimulated luminescence
pCi	picocurie
pCi/L	picocurie per liter
RAC	Remedial Action Contractor
RRM	residual radioactive material
SAP	sampling analysis plan
TAC	Technical Assistance Contractor
TED	total effective dose
TLD	thermoluminescent dosimeter
UMTRA	Uranium Mill Tailings Remedial Action

## 1.0 Introduction

The purpose of this Report is to present the results of environmental air monitoring at the U.S. Department of Energy (DOE) Moab Uranium Mill Tailings Remedial Action (UMTRA) Project sites during the second calendar quarter of 2023 (April - June). The Project sites consist of the former uranium ore-processing mill located three miles north of Moab, Utah, and the disposal site located near Crescent Junction, Utah.

## 2.0 Regulatory Requirements

This Report demonstrates compliance with DOE Order (O) 458.1, Admin Chg 4, “Radiation Protection of the Public and the Environment,” which states DOE radiological activities must be conducted in a manner that does not cause total effective dose (TED) to the public to exceed 100 millirems (mrem) in a year, or an equivalent dose to the lens of the eye exceeding 1,500 mrem in a year, or an equivalent dose to the skin or extremities of 5,000 mrem in a year. For the Project, the TED is the sum of the direct gamma radiation (minus background) and radioactive particulate material (radioparticulate) exposure. This DOE limit excludes doses from background radiation, radon gas and its decay products in air, occupational doses, and medical exposures.

DOE O 458.1 also specifies releases of radioactive material to the atmosphere from DOE activities shall not exceed an annual average concentration of 3 picocuries per liter (pCi/L) of radon or its decay products, excluding background, at the site boundary.

Compliance with DOE O 458.1 is demonstrated by calculating the TED to the maximally exposed individual (MEI) or the representative person or group from the public likely to receive the highest radiation dose based on exposure pathways and parameters. The Project has established MEIs for each of the Moab and Crescent Junction Project sites.

## 3.0 Radiological Monitoring and Results

The Moab UMTRA Project monitors the following:

- radon, using alpha-track detectors.
- direct gamma radiation, using optically stimulated luminescence (OSL) dosimeters.
- radioparticulates, using environmental air sampling equipment.

Off-site monitoring locations, including the Maximally Exposed Individual (MEI), for the Moab site are shown on Figure 1. On-site Moab locations are shown on Figure 2. All monitoring locations for the Crescent Junction sites are shown on Figure 3.

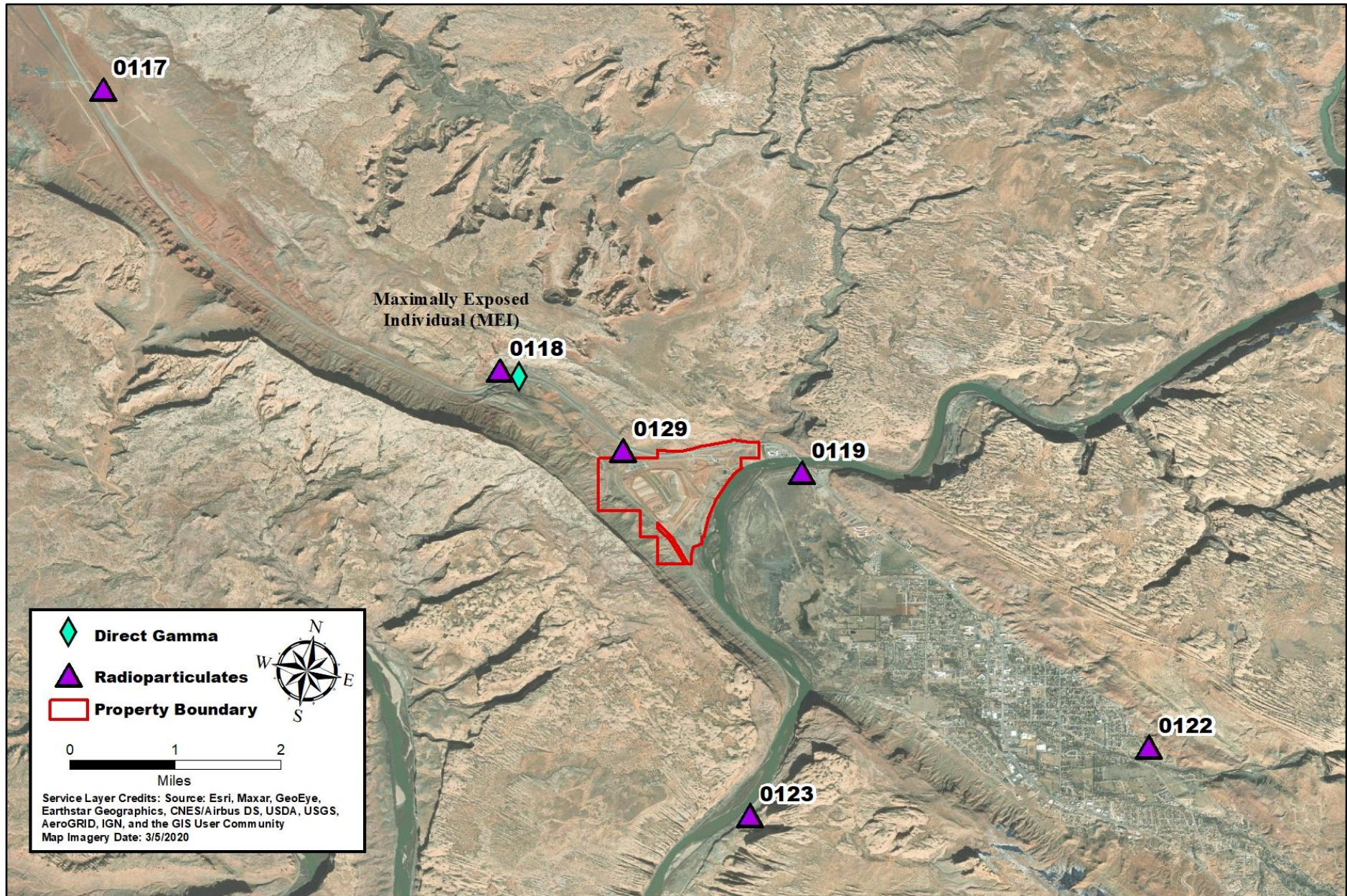


Figure 1. Moab Off-site and Maximally Exposed Individual Environmental Air Monitoring Locations

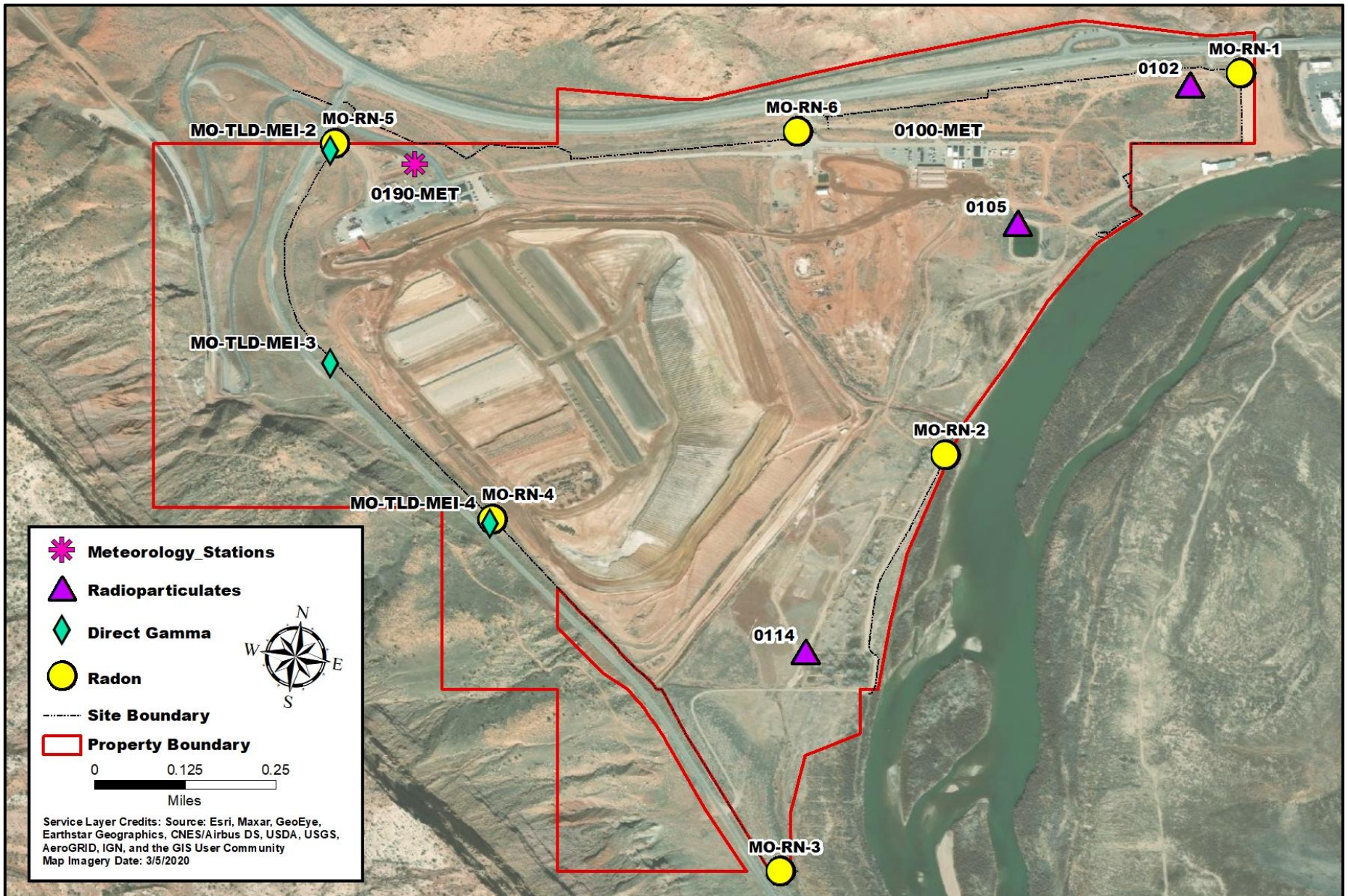


Figure 2. Moab On-site Environmental Air Monitoring Locations



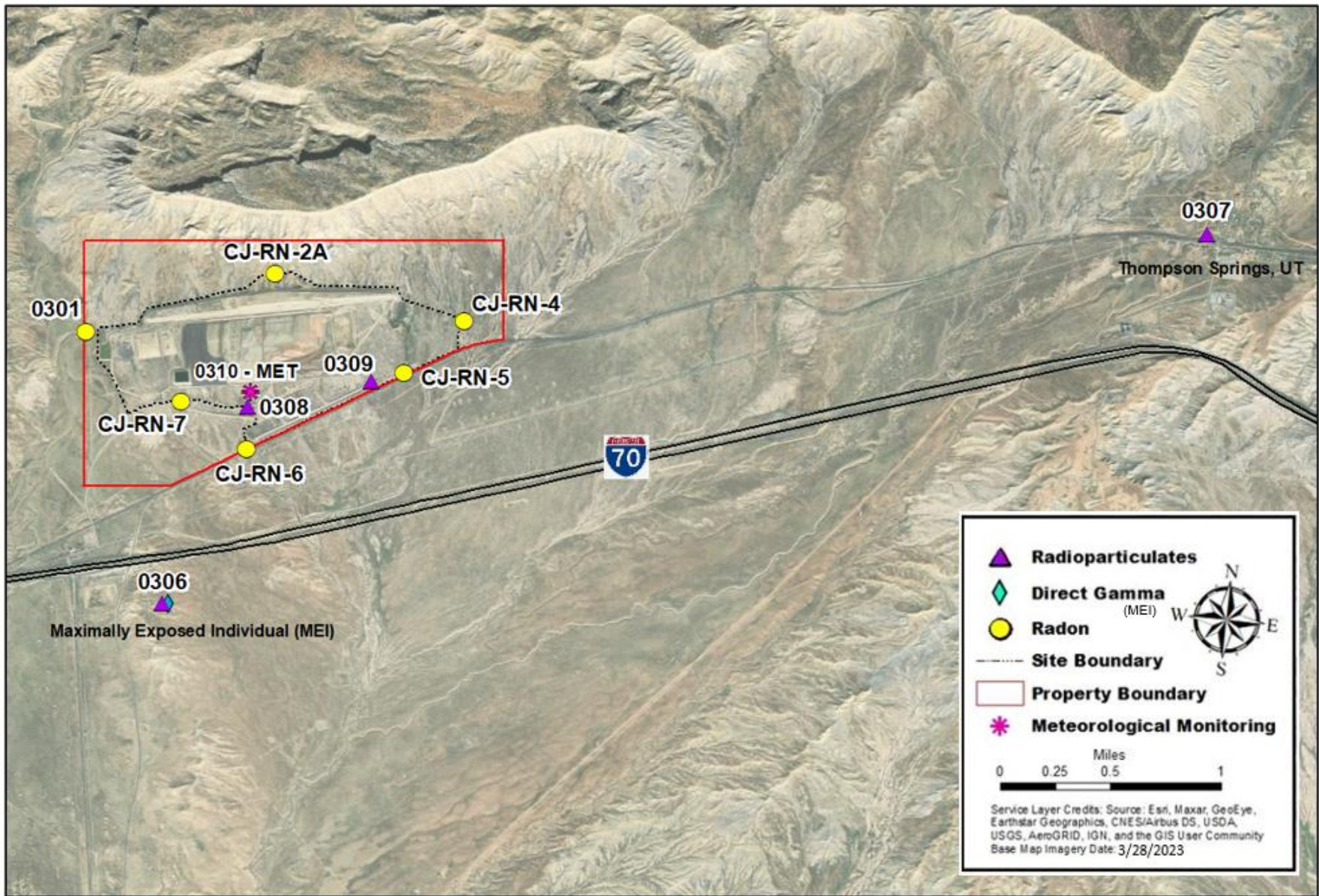


Figure 3. Crescent Junction Site Environmental Air Monitoring Locations

### 3.1 Radon

Radon is a radioactive, colorless, odorless, tasteless noble gas, which occurs naturally in minute quantities as an intermediate step in the normal radioactive decay chains through which thorium and uranium decay into various short-lived radioactive elements and lead. Radon is the immediate decay product of radium. The most stable isotope, Rn-222, has a half-life of only 3.8 days, making it one of the rarest elements. Since thorium and uranium are two of the most common radioactive elements on earth (including in the Moab project tailings) while also having three isotopes with half-lives on the order of several billion years, radon will be present on earth long into the future despite its short half-life. The decay of radon produces many other short-lived nuclides, known as "radon daughters", ending at stable isotopes of lead. As a noble gas radon does not stay in the lungs when breathed in, but it can produce a radiation dose to lung tissue while it is in the lungs when present in air we breathe.

The radon monitoring network consists of 13 total radon monitors along the site boundaries: 6 monitors at the Moab site and 7 monitors at the Crescent Junction site (DOE O 458.1 4f; Figures 2 and 3). Background radon for both the Moab and Crescent Junction project sites is 0.6 pCi/L.

#### Moab Site Results

Table 1 shows quarterly and average radon results for the past four quarters at the Moab site boundary. The background value of 0.6 pCi/L has been subtracted from the past four quarters average.

*Table 1. Quarterly and Average Radon Concentrations for the Moab Site for the Past Four Quarters*

Station Number	3rd Quarter 2022 (pCi/L)	4th Quarter 2022 (pCi/L)	1st Quarter 2023 (pCi/L)	2nd Quarter 2023 (pCi/L)	Past 4 Quarters Average (pCi/L) (Background subtracted)
<b>MO-RN-1</b> (NE corner of site)	0.72	2.25	0.80	0.49	<b>0.46</b>
<b>MO-RN-2</b> (wellfield, south of Moab Wash)	1.80	4.45	2.30	1.50	<b>1.90</b>
<b>MO-RN-3</b> (south end of site)	0.96	2.25	0.84	0.51	<b>0.54</b>
<b>MO-RN-4</b> (along Potash Rd)	1.90	2.80	0.95	1.10	<b>1.09</b>
<b>MO-RN-5</b> (jct of haul road & Potash Rd)	1.20	2.40	0.81	1.00	<b>0.75</b>
<b>MO-RN-6</b> (by main entrance)	1.60	3.30	1.10	1.10	<b>1.18</b>

The Project’s measured annual average radon emission at the Moab site boundary is below the DOE limit of 3.0 pCi/L. The Project is compliant with DOE O 458.1 4F.

### Crescent Junction Site

Table 2 shows quarterly and average radon results for the past four quarters at the Crescent Junction site boundary. Background value of 0.6 pCi/L has been subtracted from the average of the past four quarters.

Table 2. Quarterly and Average Radon Concentrations for the Crescent Junction Site for the Past Four Quarters

Station Number	Third Quarter 2022 (pCi/L)	Fourth Quarter 2022 (pCi/L)	First Quarter 2023 (pCi/L)	Second Quarter 2023 (pCi/L)	Past 4 Quarters Average (pCi/L) (Background subtracted)
<b>0301</b> (west side)	ND	0.89	0.35	0.16	<Background <sup>1</sup>
<b>CJ-RN-1</b> (west side)	0.43	removed	removed	removed	<Background <sup>2</sup>
<b>CJ-RN-2</b> (NW side)	0.54	removed	removed	removed	<Background <sup>2</sup>
<b>CJ-RN-2A</b> (north side)	ND	0.81	0.35	0.00	<b>0.39</b> <sup>1</sup>
<b>CJ-RN-3</b> (NE side)	0.43	removed	removed	removed	<Background <sup>2</sup>
<b>CJ-RN-4</b> (east side)	0.42	1.05	0.44	0.16	<b>0.52</b>
<b>CJ-RN-5</b> (SE side)	0.74	1.50	0.58	0.35	<b>0.19</b>
<b>CJ-RN-6</b> (south side)	0.98	1.80	0.65	0.30	<b>0.33</b>
<b>CJ-RN-7</b> (SW side)	0.97	2.00	0.51	0.19	<b>0.35</b>

ND = No Data (station not installed yet)

1 = Average is based on three quarters, not four (Background subtracted is still 0.6 pCi/L)

2 = Average is based on one quarter, not four (Background subtracted is still 0.6 pCi/L).

The Project’s annual average radon emission at the Crescent Junction site boundary is below the limit of 3.0 pCi/L (DOE O 458.1 4F) and the Project is in compliance.

### 3.2 Direct Gamma

Direct Gamma is monitored for the Project’s Maximally Exposed Individuals (MEIs) of the general public at Moab and Crescent Junction. The MEI for the Moab Project Site is located at Arches National Park, and the MEI for Crescent Junction is a resident located within one mile of the site.

As a best management practice, the Project also monitors direct gamma for a representative person at the Moab Site. The representative person for the Moab Project Site is a hypothetical person that rides a bike past the Site along State Route 279. It is not possible or practical to monitor if a person has the assumed living habits in the scenario presented in this representative person evaluation. However, considering the high recreational activity of the area, it is not unreasonable to assume that somebody in the local community would take part in an activity that would cause them to receive a dose from the Site while in this area.

The annual background direct gamma dose is 84 mrem for Moab and 92.5 mrem for Crescent Junction, based on three years of data collected from 2006 to 2009.

Direct gamma is calculated for each station by using the following equation:

$$R1 - T \text{ \& BKG} = \text{Quarterly Total Dose (mrem)}$$

Where:

R1: Report dose from vendor

T: Transit dose (dose received during shipping of samples)

BKG: Background

Direct gamma background doses have been combined with transit background dose and the combination was subtracted from the reported dose from the vendor. Total dose is calculated for each direct gamma station quarterly along with a total for the past four quarters.

### Moab Site Results

Doses from the direct gamma results can be found in Table 3 below.

*Table 3. Direct Gamma Doses for the Maximally Exposed Individual (MEI) and Representative Person at the Moab Site for the Past Four Quarters*

Station Number & Description	Direct Gamma Dose Calculation	3rd Quarter 2022 (mrem)	4th Quarter 2022 (mrem)	1st Quarter 2023 (mrem)	2nd Quarter 2023 (mrem)	Total Dose Based on Four Quarters (mrem)
MO-TLD-MEI (formerly 0118) Arches	Report Dose from Vendor	28.0	27.0	49.5	1.7	
	Transit/Bkg. dose subtracted	24.0	25.0	51.6	30.5	
	<b>Total Dose</b>	<b>4.0</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	
MO-TLD-MEI-2 (formerly 0112) Potash Rd	Report Dose from Vendor	104.0	108.0	161.7	0.3	Total Dose Based on Four Quarters (mrem)
	Transit/Bkg. dose subtracted	24.0	25.0	51.6	30.5	
	<b>Total Dose</b>	<b>80.0</b>	<b>83.0</b>	<b>110.1</b>	<b>0.0</b>	

Table 3. Direct Gamma Doses for the Maximally Exposed Individual (MEI) and Representative Person at the Moab Site for the Past Four Quarters (continued)

<b>MO-TLD-MEI-3</b> (formerly 0110) Potash Rd	Report Dose from Vendor	<b>82.0</b>	<b>101.0</b>	<b>149.9</b>	<b>3.4</b>	<b>Total Dose Based on Four Quarters (mrem)</b>
	Transit/Bkg. dose subtracted	<b>24.0</b>	<b>25.0</b>	<b>51.6</b>	<b>30.5</b>	
	<b>Total Dose</b>	<b>58.0</b>	<b>76.0</b>	<b>98.3</b>	<b>0.0</b>	
<b>MO-TLD-MEI-4</b> (formerly 0109) Potash Rd	Report Dose from Vendor	<b>32.0</b>	<b>34.0</b>	<b>56.6</b>	<b>1.5</b>	<b>Total Dose Based on Four Quarters (mrem)</b>
	Transit/Bkg. dose subtracted	<b>24.0</b>	<b>25.0</b>	<b>51.6</b>	<b>30.5</b>	
	<b>Total Dose</b>	<b>8.0</b>	<b>9.0</b>	<b>5.0</b>	<b>0.0</b>	

Results from this quarter show a decrease in direct gamma dose at all four stations compared to the first quarter of 2023. Beginning in April 2023, a significant amount of residual radioactive material (RRM) consisting of 14 autoclaves and other mill debris buried in the southwest portion of the tailings pile was removed. Station MO-TLD-MEI-4, closest to the autoclave location, shows the most significant decrease (125 mrem in first quarter of 2023 compared to 22 mrem this quarter). The RRM was transported to the permanent disposal cell in Crescent Junction. As the RRM at the site continues to be reduced, it is anticipated that both onsite and offsite doses will be reduced.

Although two stations (decreased from three compared to first quarter of 2023) are above the 100 mrem public limit (DOE O 458.1), the residency status of the individual must be considered. This dose represents 100% occupancy of this location for a year. For the representative person, it is a hypothetical person riding past the Site on a bicycle and not occupying this location. See Section 3.4 for the TED of the representative person, which is well below the DOE O 458.1 limit. The MEI dose is indistinguishable from background. Given this information, the Moab site is within compliance with DOE O 458.1.

### Crescent Junction Site Results

Results for direct gamma from the Crescent Junction site can be found in Table 4 below. Only the MEI station collects direct gamma at the Crescent Junction site.

Table 4. Direct Gamma Doses for the Maximally Exposed Individual (MEI) at the Crescent Junction Site for the Past Four Quarters

Station Number & Description	Direct Gamma Dose Calculation	3 <sup>rd</sup> Quarter 2022 (mrem)	4 <sup>th</sup> Quarter 2022 (mrem)	1 <sup>st</sup> Quarter 2023 (mrem)	2 <sup>nd</sup> Quarter 2023 (mrem)	Total Dose Based on Four Quarters (mrem)
CJ MEI	Report Dose from Vendor	28.0	27.0	29.0	2.1	
	Transit/Bkg. dose subtracted	42.0	24.0	25.0	30.5	
	<b>Total Dose</b>	<b>0.0</b>	<b>3.0</b>	<b>4.0</b>	<b>0.0</b>	<b>7.0</b>

The direct gamma results for the Crescent Junction MEI is indistinguishable from background radiation and is in compliance with DOE O 458.1.

### 3.3 Radioparticulates

Radioparticulates are small particles of radioactive material, which can become airborne during project activities such as excavation and loading of RRM, or by wind. Breathing these particles can result in an internal radiation dose. Radioparticulates, along with direct gamma, is used to calculate TED.

The radioparticulate monitoring network for the Moab site consists of nine continuous air samplers: six off site (Figure 1) and three on site (Figure 2). The radioparticulate monitoring network for the Crescent Junction site consists of four stations: two off site and two on site (Figure 3).

The radionuclides of concern on the Project are those inherent in the process of extracting uranium during the milling process when the mill was operational. However, because the radionuclides are part of the uranium decay series, which is naturally occurring, they are considered part of the emissions from the Project. Therefore, all radioparticulates measured at the Project’s monitoring stations are assumed to be from the Project.

The uranium milling operations at the Moab site created mill tailings from the processing of extracting the uranium from the ore. The tailings, along with radioactively inert crushed rock, water, residual milling chemicals, and process-related wastes are collectively known as residual radioactive material (RRM). The physical properties of the RRM vary from a clay-like material to a sandy material. These physical properties cause the material to have a low potential to adhere to other surfaces under dry conditions; however, when moist or wet, the material will adhere to those surfaces. Dry RRM is prone to wind dispersion, especially during disturbances, such as moving the material around the pile or loading it into containers.

#### Moab Site Results

Table 5 provides the dose from inhalation of radioparticulates for the second quarter 2023 and the

previous three quarters at the Moab site. Filters were analyzed at an approved laboratory for concentrations of total Uranium, Actinium-227, Thorium-230, Radium-226, and Polonium-210. Actinium-227 and Protactinium-231 are assumed to be in equilibrium.

In this quarter, the Actinium-227 and Potactinium-231 results were not included in the calculations, because the Total Propagated Uncertainty was greater than the results.

In late May of 2023, the Colorado River flooded and inundated portions of the Moab site. Station 0114, located in the wellfield, was in the flood zone. Power was shut off between 5/3/2023 and remained off for the rest of the second quarter. This did not seem to affect the results.

*Table 5. Radioparticulate Dose for Moab Site for the Past Four Quarters*

Station Number & Description	Third Quarter 2022 (mrem)	Fourth Quarter 2022 (mrem)	First Quarter 2023 (mrem)	Second Quarter 2023 (mrem)	Past 4 Quarters Total (mrem)
<b>Moab Onsite Locations</b>					
<b>0102</b> (NE corner)	0.79	0.64	0.31	0.41	<b>2.15</b>
<b>0105</b> (By freshwater pond)	0.66	0.90	0.40	0.53	<b>2.49</b>
<b>0114</b> (Wellfield)	0.99	0.87	0.31	0.29	<b>2.46</b>
<b>Moab Offsite Locations</b>					
<b>0117</b> (Bar M)	0.58	0.52	0.62	0.33	<b>2.05</b>
<b>0118-MEI</b> (Arches NP)	0.62	0.78	1.40	0.58	<b>3.38</b>
<b>0119</b> (Matheson Wetlands)	0.44	0.61	0.44	0.20	<b>1.69</b>
<b>0122</b> (Recycling Center)	0.63	0.51	0.34	0.29	<b>1.77</b>
<b>0123</b> (Kane Creek)	0.55	0.63	0.25	0.33	<b>1.76</b>
<b>0129</b> (Potash Rd)	1.10	0.85	0.55	0.79	<b>3.29</b>

All radioparticulate dose results from the Moab site are below the DOE O 458.1 limit of 100 mrem/year for the general public.

## Crescent Junction Results

Table 6 provides the quarterly and average of past four quarters dose from inhalation of radioparticulates at the Crescent Junction site. Filters were analyzed at an approved laboratory for concentrations of total Uranium, Actinium-227, Thorium-230, Radium-226, and Polonium-210. Actinium-227 and Protactinium-231 are assumed to be in equilibrium.

Table 6. Radioparticulate Effective Doses for the Crescent Junction Site for the Past Four Quarters

Station Number & Description	Third Quarter 2022 (mrem)	Fourth Quarter 2022 (mrem)	First Quarter 2023 (mrem)	Second Quarter 2023 (mrem)	Past 4 Quarters Total (mrem)
<b>CJ Onsite Locations</b>					
<b>0308</b> (Guard Station)	0.76	0.41	0.35	0.26	<b>1.78</b>
<b>0309</b> (SE Boundary)	0.67	0.78	0.40	0.13	<b>1.98</b>
<b>CJ Offsite Locations</b>					
<b>0306 (MEI)</b> (South of site, by Hwy 191)	0.49	0.50	0.37	0.23	<b>1.59</b>
<b>0307</b> (Thompson Springs)	1.00	0.41	0.26	0.31	<b>1.98</b>

All radioparticulate dose results from the Crescent Junction site are below the DOE O 458.1 limit of 100 mrem/year for the general public.

### 3.4 Total Effective Dose

**Total Effective Dose (TED)** for the Project is calculated for the MEI and representative person by using the following equation:

$$\Upsilon + P_1 = \text{TED (mrem)}$$

Where:

$\Upsilon$ : Direct Gamma Dose with background subtracted (mrem)

$P_1$ : Radioparticulate Dose (mrem)

### Moab Site Results

For the Moab MEI, the TED for the past four quarters is calculated as the following:

$$6.0 \text{ mrem/yr} + 3.38 \text{ mrem/yr} = \mathbf{9.38 \text{ mrem/yr}}$$

### Representative Person

Because there are no radioparticulate monitoring stations along Route 279, the representative person TED is based solely on direct gamma. For the representative person, the TED for the past four quarters is calculated with the following scenario:



- Recreational bicycling 2 days/week for 18 weeks/year.
- Estimated round trip travel distance along State Route 279 is 2.8 miles.
- It takes 14 minutes round trip to travel 2.8 miles.
- 2 days x 18 weeks x 14 minutes = 504 minutes/year
- Total minutes in one year: 365 days x 24 hrs x 60 minutes = 525,600 minutes/year

### **Dose Received During Trip**

Applicable Monitoring Stations (total dose of past 4 quarters):

MO-TLD MEI 2 = 273.1 mrem/yr

MO-TLD MEI 3 = 232.3 mrem/yr

MO-TLD MEI 4 = 22.0 mrem/yr

Average Dose per year from these three stations = 175.8 mrem/yr

TED for Representative Person is calculated by the following:

$175.8 \text{ mrem/yr} / 525,600 \text{ min/yr} = 0.0003 \text{ mrem/min}$

$0.0003 \text{ mrem/min} \times 504 \text{ min occupancy time} = \mathbf{0.17 \text{ mrem/yr for representative person}}$

Both TEDs are below the 100 mrem/year limit and the Moab site is in compliance with DOE O 458.1, including the dose to the lens of the eye, skin, and extremities.

### **Crescent Junction Results**

For the Crescent Junction MEI, the TED for the past four quarters is calculated using the TED formula above:

$$7.0 \text{ mrem/yr} + 1.59 \text{ mrem/yr} = \mathbf{8.59 \text{ mrem/yr}}$$

The TED for the MEI at Crescent Junction is below the 100 mrem/year limit and is also in compliance with DOE O 458.1, including the dose to the lens of the eye, skin, and extremities.

## **4.0 Meteorological Monitoring and Analysis**

For both sites, meteorological data are collected from onsite meteorological (met) stations where data is uploaded to Ken's Weather Reporting System (KWRS), a site-specific online database created by the Project's Technical Assistance Contractor (TAC).

Moab and Crescent Junction met stations measure wind speed and direction, temperature, and precipitation. Precipitation is collected primarily with a heated rain gauge and a manual rain gauge is used for back-up purposes. Data is downloaded from KWRS, and hourly averages are analyzed. Refer to the *Moab UMTRA Project Meteorology Station Sampling and Analysis Plan* (DOE-EM/GJTAC3075) and the *Moab UMTRA Project TAC Environmental Air Monitoring Sampling and Analysis Plan* (DOE-EM/GJTAC2219) for more information and will be updated to remedial action contractor (RAC) documents in the near future.

### **Moab Site**

In the second quarter 2023, the winds were predominantly out of the northwest and the southeast. Data shows winds out of the southeast were higher speeds but less frequent. Figure 4 displays the

wind rose for this quarter, with the wedges showing the frequency, speed, and direction the wind was coming from.

The average temperature for the quarter was 68° F. The lowest recorded temperature for the quarter was 26° F and the highest was 97° F. The Moab Site received 1.01 inches of precipitation during second quarter of 2023.

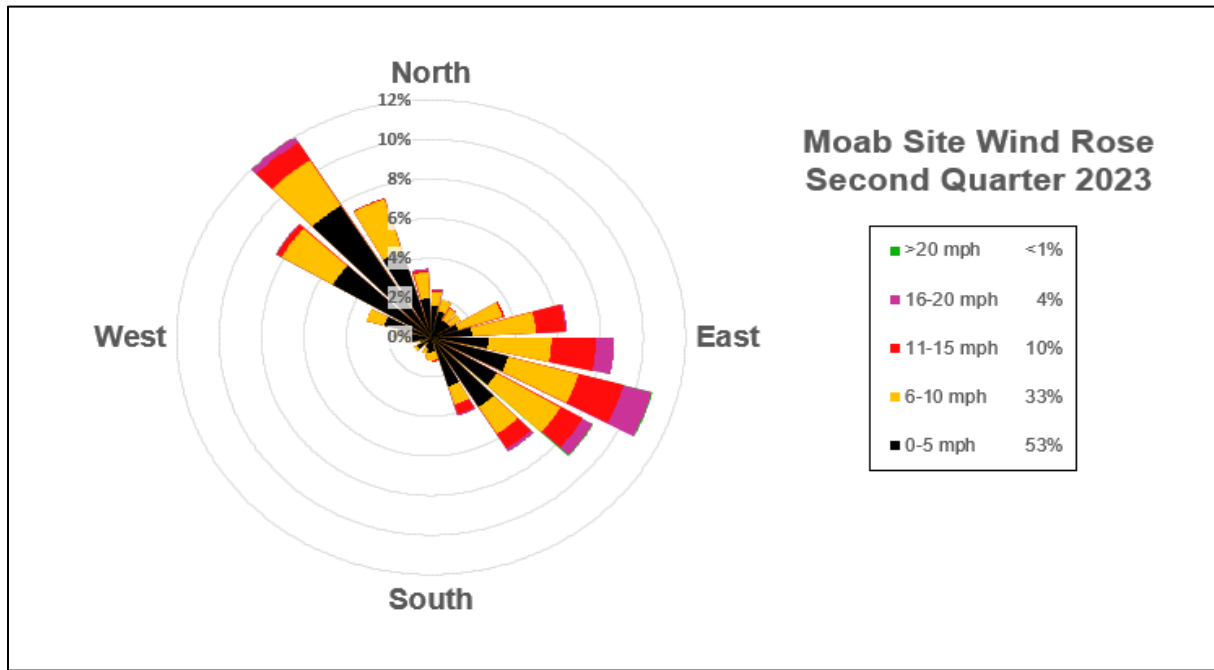


Figure 4. Moab Wind Rose for Second Quarter 2023

### Crescent Junction Site

The onsite meteorological station at the Crescent Junction site was used to analyze wind, precipitation, and temperature data during this quarter.

In second quarter 2023, the prevailing winds were from the south and southeast direction with the occasional stronger winds coming from the northwest and northeast direction (Figure 5). The site received 0.76 inches of precipitation. The average temperature for the quarter was 63° F. The lowest recorded temperature for the quarter was 22° F and the highest was 92° F.

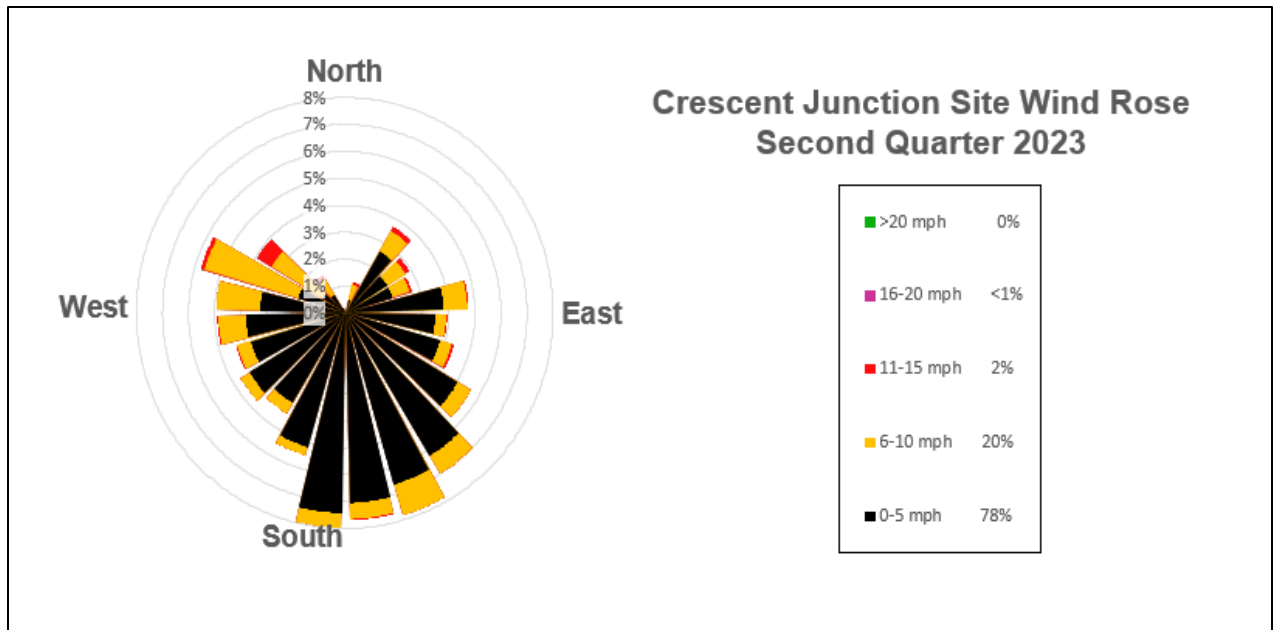


Figure 5. Crescent Junction Wind Rose for Second Quarter 2023

## 5.0 Data Quality

Radon measuring devices, optically stimulated luminescence (OSL) for gamma dose measurements, and radioparticulate sample filters were sent to approved off-site laboratories for analyses in accordance with the *Moab UMTRA Project Environmental Air Monitoring Sampling and Analysis Plan (SAP)* (DOE-EM/GJTAC2219). Qualified Project personnel evaluated the analytical data received for consistency with other data points and Quality Assurance/Quality Control samples.

### 5.1 Station Duplicates

Duplicate monitoring samples for radon and direct gamma were collected at both sites. Qualified personnel analyzed results and there were no significant variances between results.

### 5.2 Suspected Anomalies

All analytical data are reviewed for anomalous or outlying data points. Monitoring data are evaluated against historical and minimum/maximum values to determine if the reported data are within reasonable expected ranges. Any anomalous data would be investigated and documented. No anomalous data were noted for this quarter.

## 6.0 Conclusion

This second quarter 2023 report provides documentation of the compliance to DOE O 458.1 and demonstrates the dedication of the Moab UMTRA Project to the environment and public health and safety.

## 7.0 References

DOE (U.S. Department of Energy), *Moab UMTRA Project Environmental Air Monitoring Sampling and Analysis Plan* (DOE-EM/GJTAC2219).

DOE (U.S. Department of Energy), *Moab UMTRA Project Health Physics Plan* (DOE-EM/GJ3003).

DOE (U.S. Department of Energy), *Moab UMTRA Project Meteorology Station Sampling and Analysis Plan* (DOE-EM/GJTAC3075).

DOE (U.S. Department of Energy) Order 458.1, Admin Chg. 4, “Radiation Protection of the Public and the Environment”.