DOE-EM/GJ1235

Office of Environmental Management – Grand Junction

UMTRA Project

Moab UMTRA Project
Crescent Junction Fugitive Dust Control Plan

Revision 5

April 2021

U.S. Department of Energy

Office of Environmental Management

Prepared by the Technical Assistance Contractor under contract number DE-EM0005014
and the Remedial Action Contractor under contract number DE-DT0011049
for the U.S. Department of Energy Office of Environmental Management, Grand Junction, Colorado.

Moab UMTRA Project

Crescent Junction Site Fugitive Dust Control Plan

Revision 5

Review and Approval

4/19/2021

X Stephanie R Lein

Stephanie Lien
TAC Environmental Air Quality Technician
Signed by: Department of Energy

4/19/2021

X Elizabeth Moran

Elizabeth Moran
TAC Environmental Manager
Signed by: ELIZABETH MORAN (Affiliate)

4/15/2021

X Michael McCullough

Michael T. McCullough
RAC CJ Operations/Site Manager
Signed by: MICHAEL MCCULLOUGH (Affiliate)

4/19/2021

X Greg D. Church

Greg D. Church
RAC Project Manager
Signed by: GREGORY CHURCH (Affiliate)

4/19/2021

X Swaine Skeen

Swaine Skeen
TAC Senior Program Manager
Signed by: Swaine Skeen

Revision History

Revision	Date	Description
0	July 2006	Initial issue.
1	July 2014	Revision includes updates reflecting Project progress.
2	June 2016	Periodic update reflecting Project progress.
3	July 2017	Changed to a Project-wide document and updates made throughout.
4	September 2018	Revision includes updates reflecting Project progress.
5	April 2021	Updated to reflect changes in Project and to comply with Utah Division of Air Quality Fugitive Dust Control Plan document guidelines.

Contents

Figures

Acronyms and Abbreviations

BLM	Bureau of Land Management
DOE	Department of Energy
EPA	Environmental Protection Agency
NWS	National Weather Service
RAC	Remedial Action Contractor
UAC	Utah Administrative Code
UMTRA	Uranium Mill Tailings Remedial Action

1.0 Introduction

1.1 Purpose

The purpose of this Crescent Junction Site Fugitive Dust Control Plan is to:

- Comply with Utah Administrative Code (UAC) Rule R307-205-8 (UAC R307-205-8) , "Emission Standards: Fugitive Emissions and Fugitive Dust, Tailings Piles and Ponds," requiring owners or operators of an existing tailings operation to take steps to minimize fugitive dust resulting from grading, excavating, depositing, natural erosion, or other causes in association with such operation.
- Comply with Utah Administrative Code (UAC) Rule R307-205-4, "Emission Standards: Fugitive Emissions," and R307-205-5 "Emission Standards: Fugitive Dust," which applies to fugitive emissions from statewide sources.
- Describe the engineering and administrative controls used to minimize and control fugitive dust emissions from activities and operations conducted by the U.S. Department of Energy (DOE) Moab Uranium Mill Tailings Remedial Action (UMTRA) Project Crescent Junction site.

1.2 Scope

This document describes the controls used to minimize fugitive dust emission from operation activities and its implementation of controls as it relates to compliance of UAC R307-205. In addition, this document identifies the sources of fugitive dust to better implement controls of this Plan.

1.3 Regulations

1. UAC R307-205, "Emission Standards: Fugitive Emissions and Fugitive Dust"
2. UAC R307-201, "Emission Standards: General Emission Standards"

1.4 Requirements

1. "Fugitive emissions from sources constructed or modified after April 25, 1971, shall not exceed 20 percent opacity."
2. "(9) Opacity Observation. Opacity observations of emissions from stationary sources shall be conducted in accordance with Environmental Protection Agency (EPA) Method 9. Opacity observers of mobile and intermittent sources shall use procedures similar to Method 9, but the requirement for observations made at 15-second intervals over a 6-minute period shall not apply."

This Plan complies with UAC R307-205-8, which requires owners or operators of an existing tailings operation to take steps to minimize fugitive dust resulting from grading, excavating, depositing, natural erosion, or other causes in association with such operation. Under Title 40 Code of Federal Regulations Part 81.345, Utah (40 CFR 81.345-Utah), "Protection of Environment, Designation of Areas for Air Quality Purposes – Utah," Grand County is classified as "attainment" or "unclassifiable" for $PM_{2.5}$ and PM_{10} and follows regulations applicable to attainment areas.

Even though the county has minimal restrictions related to fugitive dust emissions, the site will strive to limit fugitive dust emissions and follow best practices to keep emissions at or below 20 percent opacity as per the applicable Utah Administration Codes.

This Plan describes the engineering and administrative controls used to minimize and control fugitive dust emissions from activities and operations conducted by the DOE UMTRA Project Crescent Junction site. This site-specific Plan is updated as necessary to reflect dust controls for current and ongoing site activities and operations.

2.0 Site Description

The Crescent Junction site is located about 1 mile northeast of the junction of U.S. Highway 191 (US-191) and Interstate 70 (I-70), approximately 30 miles north of the Moab site (see Figure 1). The Crescent Junction site location was designated as the disposal cell for Moab site contaminated materials. The site occupies 936 acres and consists of a disposal cell, soil stockpile areas, support facilities, rail load-out area, roads, sediment basins, and a construction water pond (see Figure 2). The site is surrounded on three sides by land administered by the Bureau of Land Management (BLM). BLM has designated the area as access-limited to existing roads. The talus slopes of the Book Cliffs delineate the northern boundary. The Union Pacific Railroad bounds the property on the south.

2.1 Project/Site Information

Name of operation, physical site address, and owner/operator contact information is provided below. Figure 1 shows the location of the site. Figure 2 is a map of site features.

Name of Operation
Moab UMTRA Project: Crescent Junction site

Physical Address of Operation
0.15 County Road 223, Thompson Springs, Grand County, Utah 84540
Latitude: 38.957792
Longitude: 109.799183

Owner
U.S. Department of Energy, Grand Junction office, 200 Grand Avenue, Suite 500
Grand Junction, Colorado 81501
DOE Federal Cleanup Director: (970) 257-2115

Operator
Remedial Action Contractor (RAC) North Wind Portage
200 Grand Avenue, Suite 319
Grand Junction, Colorado 81501
Project Manager: Greg Church (970) 257-2117
Crescent Junction Operations/Site Manager: Mike McCullough (435) 564-3425 extension 1003
On-call Manager (after hours): (970) 361-8335

2.2 Meteorology and Climate

A meteorological monitoring station is located at the Crescent Junction site, and another one is located off-site near the junction of I-70 and US-191. Wind speed and direction data are used to determine when certain dust controls are initiated to keep opacity below 20 percent. The semiarid desert climate of the Crescent Junction site is characterized by hot summers and mild winters. Daily and weekly National Weather Service (NWS) weather forecasts are monitored daily to identify potential for dust generating weather to plan controls. Ongoing precipitation and soil moisture is also used to predict periods of greater risk.

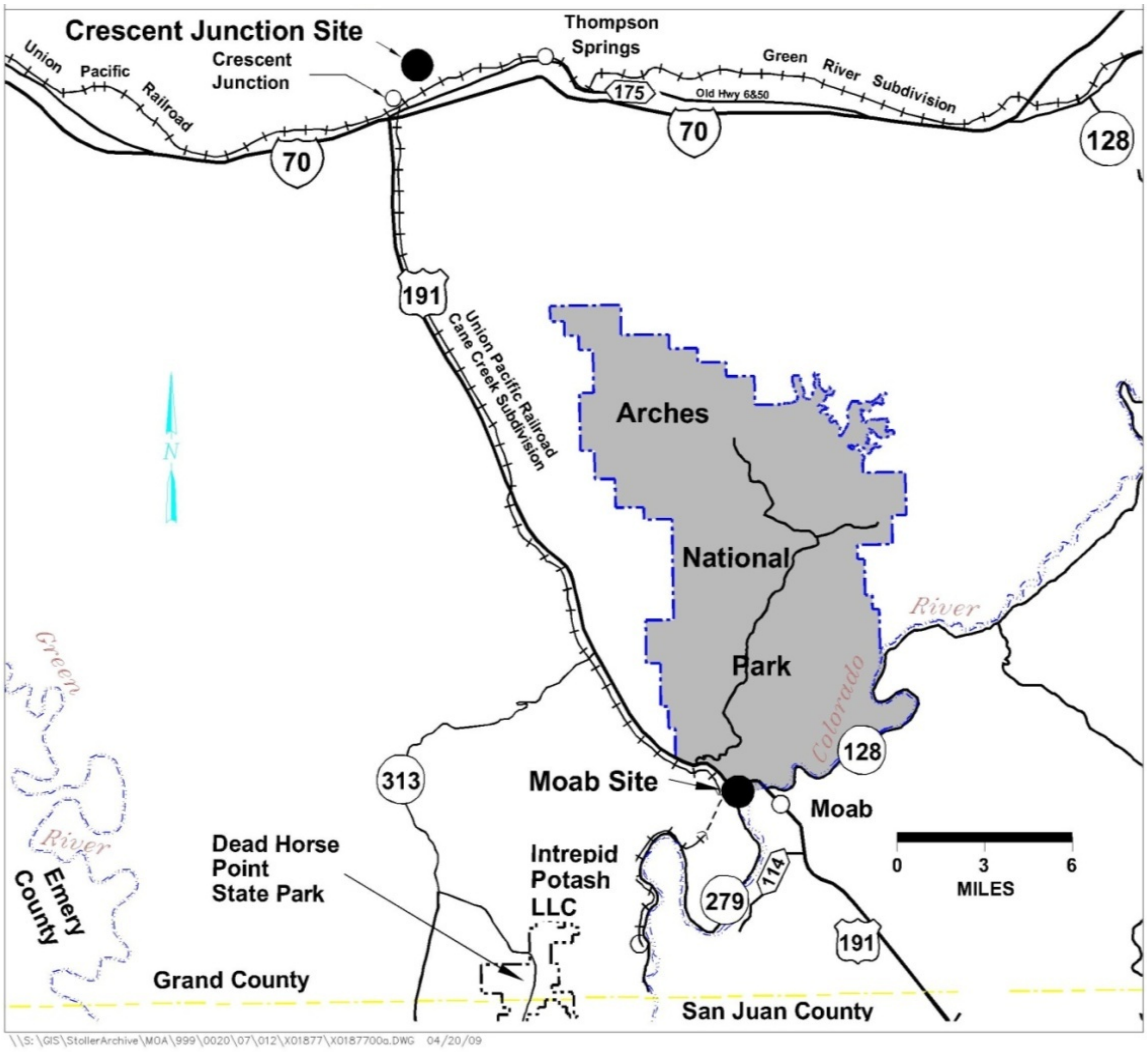

Figure 1. Location of Crescent Junction Site

The average annual temperature is about 55ºF. January is the coldest month of the year, with low temperatures averaging 25ºF. July is generally the warmest month, with high temperatures averaging 83ºF. Relative humidity is low, averaging 25 percent during the summer months while the winter months' relative humidity is higher, with an average of 67 percent. The 10-year precipitation average for the Crescent Junction site is 7.82 inches per year. The average wind direction for the Crescent Junction site is generally from the west. Wind speeds greater than 13 mph (wind speed at which loose soils/dust become airborne based on the Beaufort Wind Scale) are generally from the west northwest.

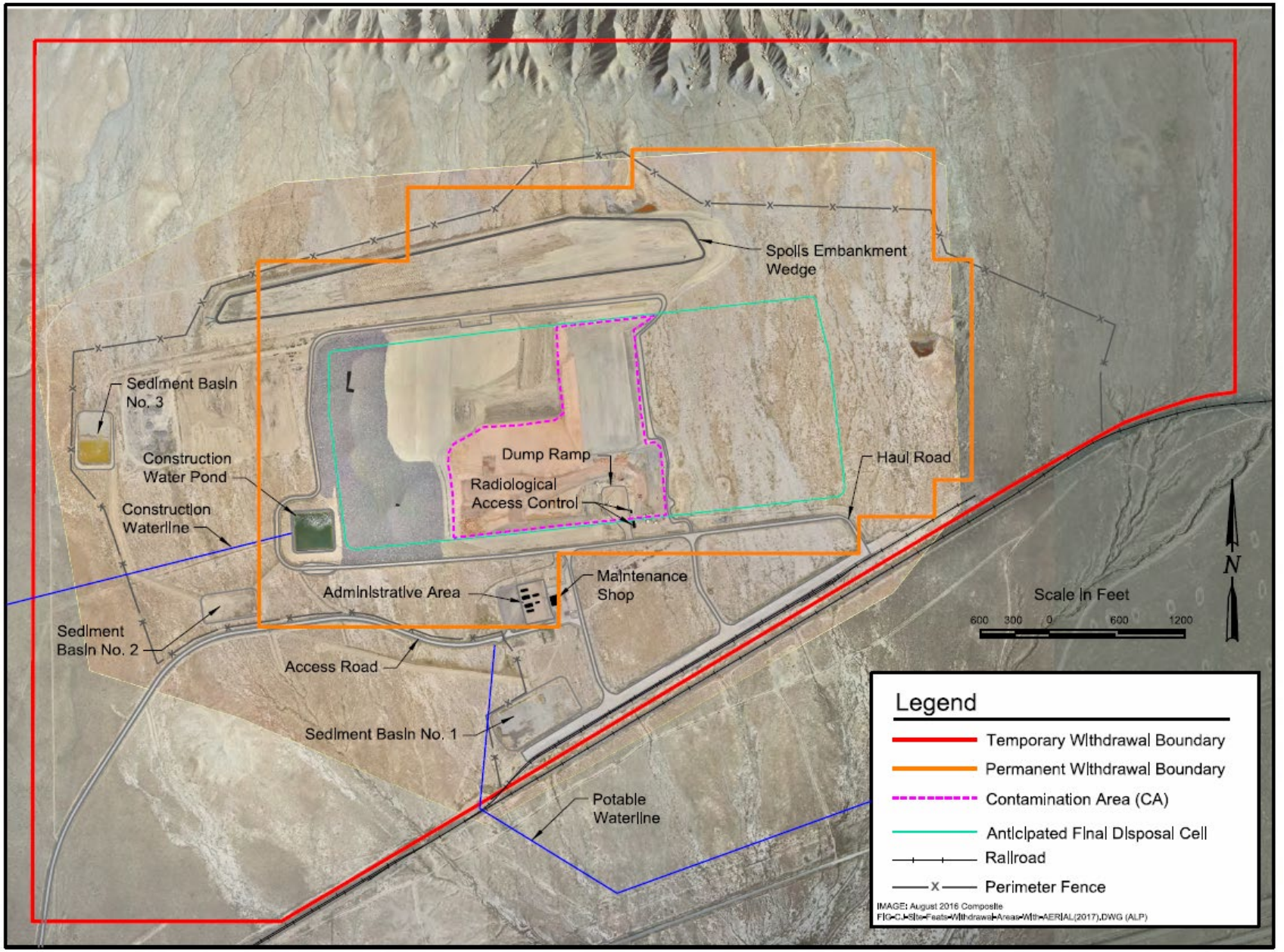

Figure 2. Crescent Junction Site Features

3.0 Sources of Fugitive Dust

3.1 Tailings Disposal Process

Uranium mill tailings are a fine-grained, sand-like material that is susceptible to wind erosion. Tailings from the Moab site are transported by rail in lidded containers to the Crescent Junction site, off-loaded from the railcars to haul trucks, driven to the disposal cell for dumping, and placed in the cell.

The cell is excavated in phases to a depth of approximately 25 feet below grade. To date, an area encompassing about 105 acres has been excavated. Excavated material is used for perimeter embankments, as cell cover material, and for a soils embankment (wedge) located north of the cell. Tailings are placed and compacted in layers in the cell. Once contaminated materials have reached design grade, a multi-layer cover of soil and rock is placed to prevent radon emanation and bio intrusion and to stabilize the soil. About 30 acres have final cover rock, and another 35 acres have a compacted soil cover.

3.2 High-potential Source Areas and Activities

Certain portions of the Crescent Junction site are considered high-potential sources of fugitive dust emissions. These areas are characterized by loose, poorly consolidated soils and sediments; poor vegetative cover; or high levels of current or future/anticipated activity or disturbance.

Areas of high-potential sources are:
- The container dump ramp and surrounding area.
- Before compaction of soils in the disposal cell.
- Cell expansion excavation activities.
- Haul and access roads with in the Contamination Area boundary.

Activities that generate high levels of fugitive dust are:
- Driving on haul roads.
- Spreading and compacting tailings.
- Placing interim cover.
- Disposal cell expansion excavation activities.

3.3 Moderate-potential Source Areas and Activities

Moderate-potential source areas characterized by more stable, consolidated soil conditions, a greater percentage of vegetative cover, or lower levels of activity are considered moderate-potential source areas.

Areas of moderate-potential sources are:
- All designated site dirt roads.
- Rail load-out area.
- Stockpiled soil excavated from the disposal cell.
- The wedge with newly placed soils
- Cover layers other than rock layer area.
- Excavated portions of the cell not being used for tailings placement.

Activities that generate moderate levels of fugitive dust are:
- Driving on designated site dirt roads.
- Driving on the rail load-out area.

Even though the haul road and rail load area is paved, there is the potential for non-contaminated dirt and mud to be tracked out of the Radiological Buffer Area by haul trucks. When the material dries on the haul road and is disturbed throughout the day, it has the potential to create moderate to high levels of dust when not watered down or if excess dirt/mud is not removed.

3.4 Low-potential Source Areas and Activities

Due to the limited disturbance and higher percentage of vegetative, rock, asphalt, or concrete cover, low-potential areas include:
- Vegetated rangeland along the site perimeter.
- Sediment basins.
- Rock-covered portions of the disposal cell and its embankments.
- Asphalt-paved areas including the site access road.
- Employee parking lot.
- Support areas.

Activities that generate low levels of fugitive dust include:
- Driving in the employee parking lot.

4.0 Fugitive Dust Emission Controls

DOE is responsible for monitoring and controlling fugitive dust emissions from the Crescent Junction site until all contaminated soils are placed in the disposal cell, and all disturbed areas have been stabilized. The actions described below help minimize and control dust emissions to the most practical extent possible.

4.1 Watering Stabilization

Application of fresh water by water trucks is the main dust-control measure used throughout the Crescent Junction site. Water from the construction pond has been successfully used as the primary dust-control agent. The use of water as the main dust-control measure has the added benefit of forming a crust on the soil to help reduce fugitive dust when not disturbed.

4.2 Vegetative or Synthetic Covers

Native seed mixes and erosion-control matting have been placed in disturbed areas as necessary to help stabilize the soil. Native plants are especially important for vegetative covers, because the plants are better suited for keeping soils stabilized. Invasive species are less desirable due to their poor capability of holding soils together. The site access road, rail load-out area, employee parking lot, and haul roads to the disposal cell have been paved with asphalt to reduce dust.

4.3 Traffic Speed

Traffic speed is restricted to an appropriate level on all designated roads. This helps limit the generation of fugitive dust. Travel off road is prohibited.

4.4 Dump Ramp Height and Dump Speed

The height of the dump ramp limits fugitive dust generation. The material has less potential to become airborne since it has a lower travel time to reach the ground. The haul trucks have a low dump speed, which helps reduce the velocity of the material, thus minimizing fugitive dust generation.

4.5 Dust Suppression Meetings

Dust suppression meetings are held to review current dust-suppression efforts and adequacy while trying to improve methods of reducing fugitive dust.

4.6 Off-Hours Dust Control

This Plan is in effect during all hours of operation at the Crescent Junction site. During non-business hours, there are no dust-generating activities. However, if high winds are observed at the on-site meteorological station, site personnel evaluate vulnerable areas and implement controls as appropriate to reduce off-hours emissions.

5.0 Opacity

The Crescent Junction site preforms opacity observations to maintain compliance with UAC R307-205. Due to the site's intermittent emissions, UAC R307-201-3(9) is applicable; therefore, the site has adopted a method to monitor opacity that is site-specific using EPA Method 9 and Method 22 techniques. Only EPA Method 9-trained personnel conduct opacity observation. Observations are made at the site boundary and are recorded on the Project's Fugitive Dust and Opacity Observation Form 1109. All completed forms are sent to records.

6.0 References

40 CFR 60 (Code of Federal Regulations) "Protection of Environment," Appendix A-4, "EPA Reference Method 9, Visual determination of the opacity of emissions from stationary sources."

40 CFR 81.345-Utah (Code of Federal Regulations), "Protection of Environment, Designation of Areas for Air Quality Purposes.

UAC R307-201 (Utah Administrative Code), "Emission Standards: General Emissions Standards

UAC R307-201-3 (Utah Administrative Code), "Emission Standards: General Emission Standards: Visible Emissions Standard

UAC R307-205 (Utah Administrative Code), "Emission Standards: Fugitive Emissions and Fugitive Dust"

UAC R307-205-8 (Utah Administrative Code), "Emission Standards; Fugitive Emissions and Fugitive Dust; Tailings Piles and Ponds."