



Department of Energy
200 Grand Avenue, Suite 500
Grand Junction, Colorado 81501

August 29, 2024

MOAB-00107-24

Mr. Douglas Mandeville
Program Manager
U.S. Nuclear Regulatory Commission
Division of Decommissioning, Uranium Recovery, and Waste Programs
Office of Nuclear Material Safety and Safeguards
11545 Rockville Pike
Mail Stop T-5A10
Rockville, MD 20852-2738

SUBJECT: Variance Request for Disposal of Steel Rail, Wooden Railroad Ties and Construction Equipment as Demolition Debris at the Crescent Junction Disposal Cell, Moab Uranium Mill Tailings Remedial Action (UMTRA) Project

Dear Mr. Mandeville:

The Department of Energy (DOE) requests a variance to approved construction specifications for placement of debris in the Crescent Junction Disposal Cell. In 2006, DOE decided to repurpose material from the closing Fernald National Laboratory (FNL) facility to the Moab UMTRA facility. As a result, Moab received a large amount of main line rail, railroad ties and associated materials. These legacy materials are currently stored in a designated Radioactive Materials Area (RMA) near the disposal cell. Moab UMTRA conducted due diligence to ensure that the material is compatible with definitions and regulatory guidance pertaining to disposal of residual radioactive material (RRM) (Enclosure 1).

Moab UMTRA received concurrence from DOE that, based on the radiological characterization of the rail equipment and association with its long-standing presence and partial use at the Moab UMTRA Project, this equipment is considered RRM based on regulatory and economical considerations. Therefore, it can be disposed at the Crescent Junction Disposal Site upon concurrence by the Nuclear Regulatory Commission (NRC) (Enclosure 2).

Additional material consists of contaminated construction equipment that is currently used to complete the Moab remediation mission. This equipment was not part of the

original Moab mill site, but it is required to complete the site remediation process. The proposed plan is to place contaminated equipment in the Crescent Junction Disposal Cell prior to final closure.

The requested variance pertains to the following specifications: *Division 31 – Earthwork, Section 31 00 20, Placement and Compaction of Residual Radioactive Material (RRM) and Interim Cover, Section 3.2.5 Placement of Demolition Debris*, and the currently approved Remedial Action Plan, *Addendum E, Remedial Action Inspection Plan (RAIP), Revision 7, December 2021, Section 5.4.4 Demolition Debris*.

The objective of material placement in the disposal cell is to minimize settlement by compacting compressible materials and filling void spaces within and around incompressible materials (e.g., debris). This request is consistent with variance requests approved by the US Nuclear Regulatory Commission (NRC) for debris disposal at the Crescent Junction Cell dated November 15, 2010 (letter dated November 15, 2010 from Lydia Chang, US NRC to Donald Metzler, US DOE) and October 6, 2023 (letter dated October 6, 2023 from Doug Mandeville, US NRC to Matt Udovitsch, US DOE).

The relevant sections of the specification (Specification Section 31 00 20, Section 3.2.5) and the Remedial Action Inspection Plan (RAIP) regarding disposal of debris are as follows:

- Demolition debris will be placed in the waste cell along with RRM material. Debris shall not contain free liquids.
- Debris shall be sized to minimize voids. Pipes and ducts that are 6 inches or greater in diameter shall be crushed or, if crushing is impractical, shall be cut in half longitudinally or filled. Rubber tires shall be cut and placed to minimize void space. Debris shall be spread and/or oriented in a manner that results in minimal void space.
- Debris may be placed as a sacrificial lift at the bottom of the disposal cell in a 2- foot lift. Debris in sacrificial lifts shall contain no free liquids and be oriented in a manner that minimizes voids and is contained within the 2-foot lift profile. Sacrificial debris lifts are not subject to moisture and compaction criteria.

The request includes the following items:

- 31 sets of rails with attached wooden ties, averaging 34 feet in length (with a total length of 1054 ft).
- 37 unattached rails with lengths varying from 6 to 34 feet; assume all are 34 feet in length (with a total length of 1258 ft).

- 620 railroad ties.
- Moab UMTRA project remediation requires the use of approximately 150 pieces of equipment of various sizes, many of which will have no residual value and will be contaminated at the end of the project.
- Approximately 420 intermodal containers used for the remediation effort.

Regarding the placement of debris and construction of RRM near the debris:

- All rail lines and railroad ties shall be positioned parallel to the base of the disposal cell or the previous RRM lift.
- All fluids must be removed from the equipment, and all tires must be removed and cut according to approved specifications. The equipment and containers will be reduced in size to fit within a 2-foot lift.
- The reduced size debris from the construction equipment shall be positioned in a way that allows for soil placement in and around all the pieces.
- Before placing this debris, consultation with the design authority is necessary to determine the direction on where and how to place it within the RRM to minimize potential differential settlement.
- The debris will be evenly dispersed within the RRM and not stacked vertically, to avoid overlapping with previously placed debris.
- Any gaps or voids in the debris must be filled before surrounding RRM or fill soil is placed.
- Standard compaction equipment shall be used to compact all materials within each lift. Hand tamping compaction equipment may be used as necessary to compact the area around the placed debris before compacting the entire lift.
- If portions of the debris associated with the equipment cannot be reduced in size to meet the specification, an additional variance will be developed to request NRC approval, prior to disposing of those specific items.

The location(s) of all debris placed within the impoundment will be documented and included in Annual Interim Completion Reports.

If you have any questions, please feel free to contact me at (970) 623-5578 or the Moab DOE Project Engineer, Christopher Pulskamp, at (719) 369-2246.

Sincerely,

8/29/2024

X Matthew Udovitsch

Matthew Udovitsch
Acting Federal Cleanup Director
Signed by: Department of Energy

Via Email

Enclosures:

1. Moab Issue Briefing Memo
2. DOE Fernald Rail Approval Letter

cc:

J. Zimmerman, EMCBC
M. Bell, EMCBC
A. Deckard, EMCBC
C. Pulskamp, MOAB
L. Moran, MOAB
K. Schaffer, MOAB
G. Church RAC
Project File (S. Hooper)