

ISSUE BRIEFING MEMO

Disposition of Rail Materials from Fernald

BLUF: In 2006, the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project accepted railroad equipment from the closing Fernald National Laboratory (FNL) facility to support the Project's cleanup mission. Equipment received included rails, wooden railroad ties, and ancillary rail equipment including railroad spikes. A portion of the Fernald rail material has been used for various projects, but the majority has been staged in a Radioactive Material Area (RMA) at the Crescent Junction Disposal Site (CJ). EM Moab is requesting guidance regarding disposal of Fernald equipment.

The purpose of this document is to provide information to support decision making regarding the final disposition of the Fernald rail equipment. Specifically, whether Moab UMTRA's regulatory framework allows for disposal at CJ or if off-site disposal is required.

REGULATORY FRAMEWORK:

The Moab UMTRA Project is a remedial action being performed by the DOE to relocate uranium mill tailings and other contaminated materials, residual radioactive material (RRM) from its present location approximately three miles northwest of the city of Moab, Utah, to CJ. The RRM was generated through operations of a uranium processing facility. Atlas Minerals Corporation (Atlas) operated the mill from 1962 until 1984. Atlas declared bankruptcy in 1998, and the property was subsequently designated a Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I site through legislation and DOE was given cleanup responsibility.

The Final Environmental Impact Statement (2005) established that the preferred alternative for long-term disposal of the uranium mill tailings and associated contaminated materials was relocation to CJ. Subsequently, a Record of Decision (ROD) was issued in September of that same year. The remedial action consists of the removal and subsequent relocation of all RRM from the Moab Site to CJ. Disposal consists of constructing an approximately 230-acre engineered cell partially below grade. The cleanup must comply with U.S. Environmental Protection Agency (EPA) Title 40 Code of Federal Regulations Part 192 [40 CFR 192], "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings" and obtain the concurrence of the U.S. Nuclear Regulatory Commission (NRC).

40 CFR 192 applies to "the control of residual radioactive material at designated processing or depository sites under section 108 of the Uranium Mill Tailings Radiation Control Act of 1978 (henceforth designated "the Act"), and to restoration of such sites following any use of subsurface minerals under section 104(h) of the Act.

(2) Other wastes (which the Secretary determines to be radioactive) at a processing site which relate to such processing, including any residual stock of unprocessed ores or low-grade materials".

40 CFR 192.01, defines Residual Radioactive Material as “Waste (which the Secretary determines to be radioactive) in the form of tailings resulting from the processing of ores for the extraction of uranium and other valuable constituents of the ores; and activities.”

The *Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Residual Radioactive Material at the Crescent Junction, Utah, Disposal Site Remedial Action Selection Report (RAP)*, approved by the DOE and NRC in 2008, documents the remedial activities necessary to relocate the contaminated materials from the Moab Processing Site for stabilization at CJ. The RAP states: “RRM to be placed in the disposal cell include mill tailings, interim cover soils, starter embankment soils, contaminated subsoils beneath the tailings, vicinity property materials, and mill debris. All these materials are from the Moab uranium mill.” UMTRA precedence has included placement of contaminated equipment, used in support of site remediation, in UMTRA disposal cells.

Characterization of Rail Material:

Fernald was a uranium processing facility that produced uranium metal products such as Uranium Trioxide, Uranium Tetrafluoride, and Thorium. The Moab UMTRA Project utilizes U-Nat, U-235, U-238 and their associated decay products to determine cleanup levels. Uranium and Thorium are the main source of FNL radioisotopes.

Based on the minimal amount of detectable radiological activity, limited waste characterization for both Resource Conservation and Recovery Act (RCRA) and radioactive contamination has been performed.

- 1) GEL Laboratories ran TCLP (Toxicity Characteristic Leaching Procedure) test for metals, volatiles, semi-volatiles, herbicides, and pesticides to characterize a composite sample of the wood from the ties and on a rail metal spike. Based on sampling, hazardous constituents are below applicable RCRA limits (GEL analytical report available on request).
- 2) Remedial Action Contractor (RAC) performed radiological surveys on metal rail and wooden ties. Detectable total activity ranged from 162-582 dpm/100cm² Alpha and 344-2706 dpm/100cm² Beta. There was no loose contamination detected (surveys available on request).
- 3) RAC performed a gamma-spec analysis on material collected from the highest radiological survey point on ties. 57 pCi/g Ra-226 was result (gamma-spec analysis available on request).

Based on the characterization of the rail equipment and long-standing presence and partial use at the Moab UMTRA Project, EM Moab has reached the preliminary conclusion that this could be considered RRM, subject to EHSS review and guidance.

Disposal Alternatives:

- 1) Disposal off-site at a licensed Low-Level Waste disposal facility.
 - a. Initial cost estimates for this option have varied from ~\$300,000 to \$3M depending on disposal facility, transportation, actual tonnage of rail equipment, and any additional characterization that may be required to comply with Waste Acceptance Criteria.

- 2) Disposal at the Crescent Junction Disposal Cell.
 - a. This option eliminates potential transportation hazards and associated risks to include the potential need for sizing of rail materials.
 - b. Significantly reduces disposal and transportation costs.
 - c. The Project anticipates considerable cost savings versus non-Federal disposal that could total over \$3 million.
 - d. Supported by the 2005 FEIS and 40 CFR 192 that the proper disposal location of Moab UMTRA RRM is CJ.

NEXT STEPS:

1. Request EHSS review of Moab regulatory framework to support decision making on rail disposition.
2. Brief EMCBC and HQ Leadership on results of review.
3. Utilize results of the review and leadership briefing in determining final disposition of Fernald rail materials.
4. Notify regulatory agencies (i.e. NRC, State of Utah) and gain concurrence on the selected alternative.
5. As applicable, notify stakeholders.