

Office of Environmental Management – Grand Junction



Moab UMTRA Project
Transportation Plan

Revision 9

October 2015



U.S. Department
of Energy

Office of Environmental Management

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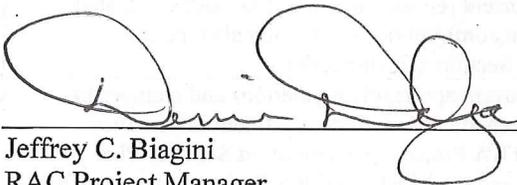
Revision 9

Review and Approval



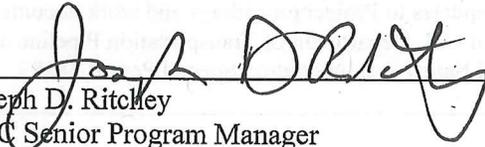
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Revision History

Revision Number	Date	Reason for Revision
0	August 2008	Initial issue.
1	October 2008	Updated to include truck transportation plans and requirements and a contacts list.
2	November 2008	Updated to reflect changes in contacts list, modifications to ERP references, and preparation of MOUs with local response organizations.
3	January 2009	Incorporated comments received from external stakeholders.
4	October 2009	Updated to reflect current operations.
5	May 2010	Updated to reflect current operations, emergency contacts, and Department of Transportation Special Permit Authorization DOT-SP 14283 (Appendix A). Update also includes minor revisions in Sections 1.3, 2.3, 2.4, 3.1, 3.2.2, and 3.3.4.
6	November 2010	Revision updates include content changes to Section 4.1.
7	August 2012	Updated to reflect current regulations, new RAC and associated titles, and current site configurations. Revision also includes expanded content in Section 2.2, Inspections.
8	May 2013	Updated to reflect current applicable regulations and changes to document names. Revision also includes pertinent information from the Moab UMTRA Project Transportation Security Plan (DOE-EM-GJ1768) and the Moab UMTRA Project Emergency Response Telephone Monitoring Procedure for Transportation Incidents Involving Residual Radioactive Material (DOE-EM-GJRAC1903), which have both been retired.
9	October 2015	Revision includes updates to Project procedures and work documents and includes revised U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration Special Permit 14283 (Third Revision).

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Attachment 1. U.S. DOT-Special Permit #14283

Acronyms and Abbreviations

BOL	bill of lading
CA	contamination area
CDL	commercial driver's license
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE M	DOE Manual
DOE O	DOE Order
DOT	U.S. Department of Transportation
EIS	Environmental Impact Statement
EM	Environmental Management
ERP	Emergency/Incident Response Plan
ERG	Emergency Response Guide
FCL	Federal Clearance Level
FPD	Federal Project Director
FRA	Federal Regulatory Agency
GVWR	gross vehicle weight rating
HASP	Health and Safety Plan
Hazmat	hazardous material
IATA	International Air Transport Association
ISC	Interagency Security Committee
IWP/JSA	Integrated Work Plan/Job Safety Analysis
LSA-II	Low Specific Activity II
LTL	less-than-truckload
MCEP	Motor Carrier Evaluation Program
MOU	memorandum of understanding
mrem	millirem
OCM	On-call Manager
OTR	over-the-road
Potash	Intrepid Potash – Moab, LLC
QA	Quality Assurance
RAC	Remedial Action Contract/Contractor
RCM	Radiological Control Manager
RCT	Radiological Control Technician
RRM	residual radioactive material
SNM	special nuclear material
SDS	Safety Data Sheets
SP	Special Permit
SR	State Route
TAC	Technical Assistance Contract/Contractor
TSD	Transportation Safety Document
TSM	Transportation/Security Manager
UDOT	Utah Department of Transportation
UMTRA	Uranium Mill Tailings Remedial Action
UPRR	Union Pacific Railroad
VP	vicinity property

1.0 Introduction

1.1 Purpose

This Plan describes operations that will ensure safe and successful staging and transportation of on-site and off-site shipments, including radioactive, non-radioactive, and hazardous and non-hazardous materials on the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project for the U.S. Department of Energy (DOE).

This Plan was developed to ensure operations are conducted in compliance with applicable DOE regulations, federal, state, and local requirements governing materials transportation with any approved exemptions or alternatives. The Plan will be reviewed periodically, but no less than annually, and modified as needed.

1.2 Scope

This Plan applies to rail and vehicular transportation, both on site and off site, of hazardous and non-hazardous materials, substances, and wastes. Hazardous materials include chemical, biological, and radiological materials, substances, or wastes. Transportation shall be performed in a manner that minimizes risk to the health and safety of employees, the public, and the environment.

This Plan establishes the process by which the Moab UMTRA Project complies with DOE and the U.S. Department of Transportation (DOT) requirements. The following are included in this document:

- Organizational and personnel roles, responsibilities, and training
- Off-site transportation of hazardous materials
- Shipping and receiving practices
- Transportation safety document, addressing on-site hazardous materials transfers
- Health and Safety involvement
- Transportation security standards and practices
- Transportation incidents and emergency telephone monitoring
- Public communications and record keeping

1.3 Background

The Moab site (formerly known as the Atlas millsite) is a former uranium ore-processing facility located about 3 miles northwest of the city of Moab in Grand County, Utah, and lies on the western bank of the Colorado River at the confluence with the Moab Wash (see Figure 1).

The Moab site encompasses 480 acres; the 130-acre remaining portion of the 16-million-ton uranium mill tailings pile occupies much of the western portion. Shipments relocating the tailings to the disposal cell in Crescent Junction, Utah, began in 2009.

The Crescent Junction disposal site is located northeast of the junction of Interstate 70 and U.S. Highway 191, approximately 30 miles north of the Moab site. It was, in part, selected as the permanent disposal site for the Moab uranium mill tailings because of the proximity to rail and truck service.

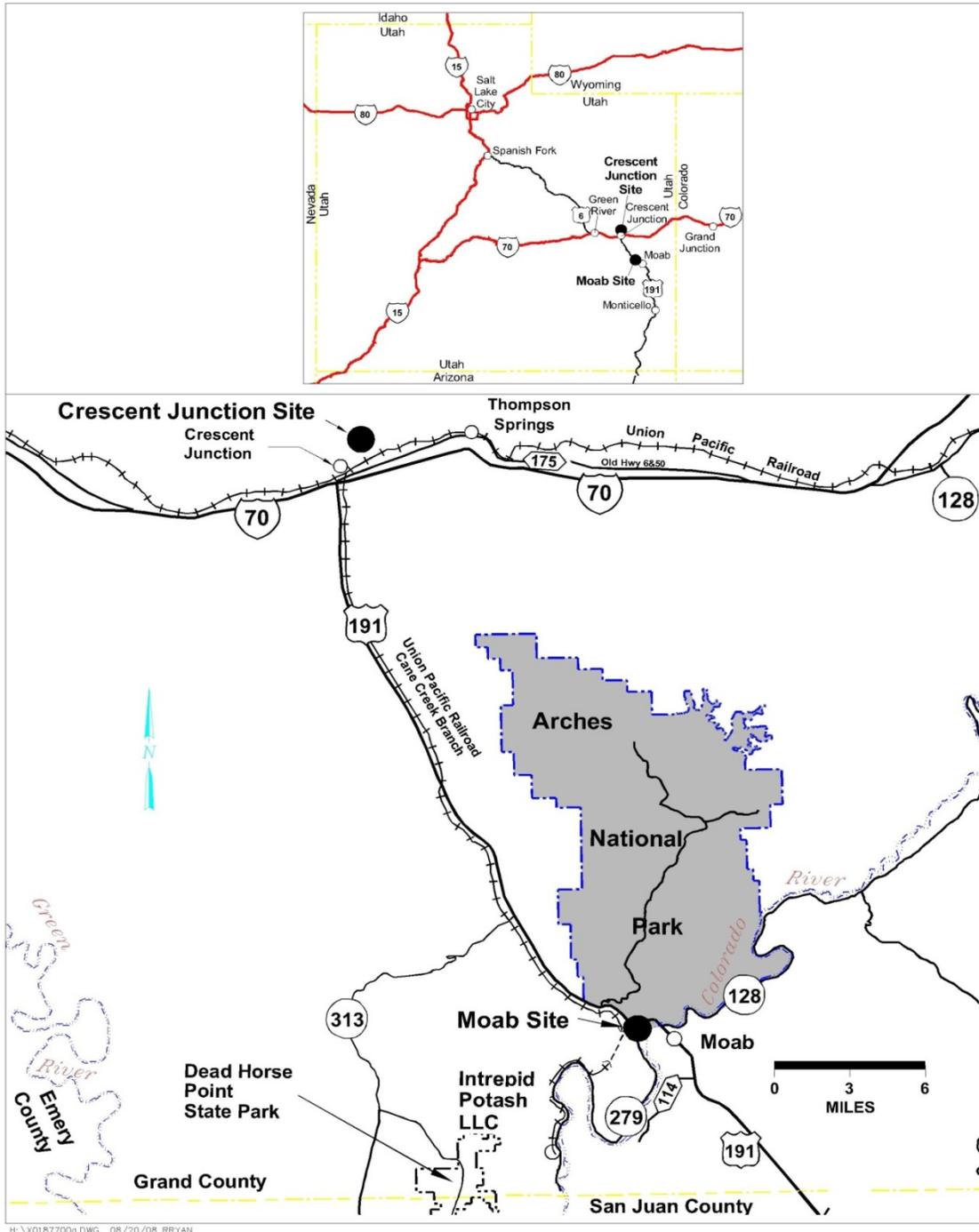


Figure 1. Location of Moab and Crescent Junction Sites

1.4 Organizational Responsibilities

Project DOE staff roles and responsibilities are under the direction of the Federal Project Director (FPD). The FPD provides administrative direction and guidance to the contractor for the safe, efficient, high-quality, and cost-effective execution of the Project, including transportation of radioactive and non-radioactive hazardous materials.

The Project has two prime contractors: the Remedial Action Contractor (RAC), and the Technical Assistance Contractor (TAC). The RAC scope of work includes packaging and transporting radioactive and non-radioactive hazardous materials, including residual radioactive material (RRM) and handling day-to-day maintenance and operations at the Moab and Crescent Junction sites. The TAC provides quality assurance, technical, safety, public affairs, records, and oversight support services to the Project.

After receipt of proper shipping documents from the RAC, Union Pacific Railroad (UPRR) assumes responsibility for the rail shipment in compliance with federal and state regulations and Association of American Railroads standards. UPRR relinquishes responsibility for the shipment back to the RAC on completion of the requested train movement.

Rail, motor carriers, or drivers, whether subcontracted or Project personnel, are responsible for off-site transportation of hazardous material and for coordination of recovery of any material resulting from a transportation incident.

Subcontractors delivering hazardous materials to or from the Project are responsible for following all applicable state and federal regulations. Deliveries may include compressed gas, diesel fuel, and gasoline. Items transported from the Project may include used oil, antifreeze, solvents, or mercury-containing items (e.g., fluorescent bulbs).

CHEMTREC is the Project hazardous material resource call center subcontractor for transportation incidents. Their phone number is on the RRM containers and shipping papers. CHEMTREC is responsible for:

- Monitoring the emergency contact telephone number for the Moab UTMRA Project while shipments are in transit or incidental to transit.
- Receiving incoming calls and relaying pertinent emergency information as requested.
- Immediately contacting the Transportation/Security Manager (TSM), On-call Manager (OCM), and/or assigned contacts as directed.

1.5 Personnel Responsibilities

1.5.1 DOE FPD

The DOE FPD is responsible for:

- Providing direction and guidance to the RAC for the transportation of hazardous materials.
- Ensuring DOE representatives are notified of any transportation incident involving loss of content or a containment failure that occurs outside the radiologically controlled areas.
- If appropriate, officially requesting and coordinating the DOE Region 6 Radiological Assistance Program team for transportation incidents involving radioactive material.

1.5.2 RAC Project and TAC Senior Program Managers

The RAC Project and TAC Senior Program Managers are responsible for:

- Ensuring the DOE FPD (and/or representative) is notified of any transportation incident involving loss of content or a containment failure that occurs outside the radiologically controlled areas.

- Making the formal notifications and submitting any required telephonic or written reports in accordance with 49 Code of Federal Regulations Part 171.15 (49 CFR 171.15), “Transportation: General Information, Regulations, and Definitions; Immediate Notice of Certain Hazardous Materials Incidents,” and 49 CFR 171.16, “Detailed Hazardous Materials Incident Reports.”

1.5.3 RAC OCMs, Operations/Site Managers, and Operations Supervisors

The RAC OCMs, Operations/Site Managers, and Operations Supervisors are responsible for:

- Receiving incoming calls from CHEMTREC for notification of transportation incidents, as assigned.
- Ensuring RAC Project Manager is notified of any transportation incident involving loss of content, or a containment failure that occurs outside the radiologically controlled areas.
- Ensuring all goods shipped and received follow proper receiving protocol by definition in the DOE “Financial Management Handbook” (also known as the “Accounting Handbook”).

1.5.4 RAC Radiological Control Manager

The RAC Radiological Control Manager (RCM) is responsible for:

- Ensuring Project radiological surveys are complete and within regulatory compliance or that meet the specifications of DOT-Special Permit (SP) 14283 (see Attachment 1).
- Implementing and overseeing sample radiological testing before release from the Contamination Area (CA) and shipment.
- Delivering appropriate radiological surveys before transfer or shipment.
- Coordinating and/or assisting with the recovery of radioactive material due to a transportation incident involving loss of content or a containment failure that occurs outside the radiologically controlled areas (depending on the incident).

1.5.5 RAC TSM

The RAC TSM is responsible for:

- Ensuring regulations and DOT-SP 14283 parameters are followed for packaging and transporting on-site transfers and off-site shipments of radioactive and non-radioactive hazardous materials, including proper shipping papers.
- Approving requests for estimated future shipments.
- Providing data call requests for information to DOE Headquarters.
- Overseeing site principal place of business compliance, including vehicle maintenance data, driver files, commercial motor vehicle files, shipping papers, railcar inspections, track and switch inspections, and rail and road shipment documentation.
- Making proper initial notifications for a transportation incident to the RAC Project Manager and submitting any required telephonic or written reports in accordance with 49 CFR 171.15 and 171.16.
- Coordinating response actions to assist and support with available personnel, equipment, and supplies necessary to help with the recovery during a transportation incident.
- Keeping a record of any spills, including date, time, mode of transportation, and estimate of the volume and activity released, and ensuring they are completed, centrally stored, and transferred in accordance with the *Moab UMTRA Project Records Management Plan* (DOE-EM/GJ1545).

- Ensuring the emergency phone monitoring system (CHEMTREC) for a transportation incident is verified current and tested a minimum of once per calendar year.
- Managing on-site transfers and off-site shipments of samples (e.g. soil, oil) and equipment (e.g., nuclear density gauge).

1.5.6 RAC Administrative Support Personnel and Contracting

RAC administrative support and contracting personnel and are responsible for:

- Receiving deliveries and alerting appropriate individual of deliveries.
- Following the DOE “Accounting Handbook” for overages, damaged goods, and less-than-truckload (LTL) freight shipping charges.

1.5.7 RAC Motor Carrier Drivers

The RAC Truck Drivers are responsible for notifying the TSM via two-way radio or cell phone of any incidents, accidents, or delays in transport while in commerce. In 49 CFR 171, commerce is defined as trade or transportation in the jurisdiction of the United States within a single state, between a place in a state and a place outside of the state, or that affects trade or transportation between a place in a state and a place outside of the state.

1.5.8 RAC, TAC, DOE, and Subcontracting Personnel

The RAC, TAC, DOE, and subcontracting personnel are responsible for complying with all state and federal regulations during off-site transport and on-site transfer of any radioactive or non-radioactive hazardous materials.

1.6 Training and Licensing

1.6.1 Hazardous Material Training

The Project requires DOT training for personnel performing transportation activities, including initial and recurring training. Staff members from Site Operations, Radiological Control, Environmental Compliance, and Transportation Management who are responsible for off-site shipments shall receive DOT and International Air Transport Association (IAT training as dictated by their job assignments. Additionally, Project employees and subcontractors receive training in waste generation, hazard communication, and radiation safety with periodic refreshers. A list of this required training is maintained in the Training Information System Knowledge (TISK) database.

The Project requires DOT training for personnel performing transportation activities, including initial and recurring training. Staff members from Site Operations, Radiological Controls, Environmental Compliance, and Transportation Management who are responsible for off-site DOT-regulated shipments shall receive DOT and IATA training as dictated by their job assignments.

The Operations/Site Managers determine which personnel are required to receive DOT hazardous material (Hazmat) training. The TAC Training Manager is responsible for tracking completed training and ensuring all aspects of the training meets regulatory requirements.

NOTE: UPRR and its transportation subcontractor receive UPRR Hazmat direction and training and are not required to participate in Project DOT and Hazmat training.

1.6.2 Commercial Driver's License

RAC Operations/Site Managers will determine which personnel are required to have a commercial driver's license (CDL) or a CDL with a Hazmat endorsement. Specifically, drivers transporting water in commercial vehicles on public roads must have a CDL. Drivers who transfer or carry any hazardous materials in commerce must have a state-issued CDL with a Hazmat endorsement. Any drivers who transfer or carry hazardous materials on site in any other area (e.g., the CA) are not required to have a CDL.

1.6.3 Additional Training

Adhering to 49 CFR 172, Subpart H, "Transportation, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Energy Response Information, Training Requirements, and Security Plans, Training," the RAC Project Manager will ensure the TSM and backup will receive, at a minimum, the following training;

- Basic Hazardous Material, Hazardous Waste, and Radioactive Material Transportation training that must be renewed every 3 years. A more advanced shipper certification class can qualify as retraining. The TSM must also complete the following:
 - Advanced Radioactive Shipper Certification Training or equivalent every 3 years. A more advanced shipper certification will qualify as recertification.
 - IATA "Transportation of Dangerous Goods by Air Shipper Certification Training" every 2 years.
 - Advanced Hazardous Waste or Advanced Mixed Waste Certification training every 3 years.

2.0 Shipping and Receiving

All goods shipped and received from commercial freight companies and subcontractors must follow proper receiving protocol as defined in the DOE "Accounting Handbook."

NOTE: This section does not apply to the RRM that is shipped by UPRR or motor carrier or Project-transported hazardous material (e.g., soil, oil samples, nuclear density gauge) by Project personnel.

2.1 Shipping and Freight/LTL Practices

Other than RRM, the RAC generally sends very few small shipments in support of the work scope. The requirements for shipping small packages are as follows:

- The RAC has shipping accounts established with commercial shippers, such as FedEx and UPS, to ensure the best possible rates are utilized. If another carrier is used, the RAC contracts department will request and ensure the best rate is obtained. Only authorized and trained RAC personnel are allowed to send shipments via commercial carriers.
- The originator of the shipping documents (e.g., administrative assistant) should use his or her name on the documents and, when applicable, reference the person responsible for the items being shipped.
- The proper charge code must also be included in the reference field.

2.2 Receipt of Materials (Non-Quality Assurance)

The DOE “Accounting Handbook” provides direction for bill payment, cost comparisons, non-Quality Assurance (QA) receipt inspections, and claims submittal.

Many Project personnel receive shipments of supplies and materials. The requirements for receiving supplies and materials are as follows.

- Daily deliveries (e.g., FedEx, UPS, Desert West) will be signed for when delivered. The person signing will notify the person named on the delivery that the package has arrived.
- For larger deliveries, such as fuel shipment or pallet-loaded materials, the driver of the vehicle will be instructed to wait in a staging area until a Project employee is available to escort or off-load the delivery.
- The person who receives the shipment will inspect the shipment for damages and verify the quantity and description match the packaging list.
- If all is deemed acceptable, verify by noting name, date, and “accepted” or “OK” on the packing list. Then forward the validated packing list to the administrative assistant who coordinates site accounts payable for proper documentation control. If there is a problem noted with the package or its contents, document the issues. This can be done on the packing list or on a separate attachment forwarded to the appropriate administrative assistant.
- If no packing slip is included, the person receiving the shipment must provide written confirmation (e.g., email) of the shipment contents to the appropriate administrative assistant.
- A scanned copy of the validated packing list will be attached to the invoice during the accounts payable review. Supervisors and managers shall brief personnel involved in the day-to-day receipts of supplies and materials on this information.

NOTE: All QA-related procurements will be handled in accordance with the requirements of the *Moab UMTRA Project Quality Assurance Program for the Remedial Action Contractor* (DOE-EM/GJRAC1766).

Transport of off-site shipments of non-hazardous material (e.g., potable water), follow all applicable state and federal regulations.

3.0 Hazardous Material Shipment and Transfer

3.1 General Approach

There is a minimal amount of on-site transfers and off-site shipments of non-radioactive hazardous materials at the Project. When applicable, DOE Order (O) 460.1C “Packaging and Transportation Safety,” and 49 CFR, “Transportation,” regulations are referenced to ensure compliance. Section 4.0 addresses on-site transfers.

The Uranium Mill Tailings Radiation Control Act of 1978, codified at Title 42 United States Code Section 7901 (42 USC 7901) and 40 CFR 192, “Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings,” define RRM as “(1) waste (which the Secretary [of Energy] determines to be radioactive) in the form of tailings resulting from the processing of ores for extraction of uranium and other valuable constituents of the ores; and (2) other wastes (which the Secretary [of Energy] determines to be radioactive) at a processing site which relate to such processing, including any residual stock of unprocessed ores or low-grade materials.”

The majority of off-site radioactive shipments is classified as RRM and shipped under DOT-SP 14283. All waste generated within the boundary of the CA is considered RRM unless determined otherwise by radiological surveys or other information and designated as non-RRM by DOE. Waste generated outside the CA may be deemed RRM if it exceeds the standards provided in 40 CFR 192.

Occasional on-site transfers and off-site shipments of radioactive materials or equipment (e.g. soil and oil samples, nuclear density gauge) outside of the CA are under the guidance of the RCM until released for transfer and then become the responsibility of the TSM to ensure transportation compliance. On-site transfers will be addressed in more detail in Section 4.0; Off-site shipments will be addressed in Section 5.0.

4.0 Transportation Safety Document

4.1 Introduction

DOE O 460.1C mandates on-site transfers of hazardous materials are performed in accordance with either 49 CFR 171-180 or a site-specific Transportation Safety Document (TSD) which describes the methodology for achieving equivalent safety. This section establishes the process by which the Project complies with DOE requirements as outlined in DOE O 460.1C, relative to the safe transportation of hazardous materials on site.

4.2 Scope

This document applies to the vehicular transportation of Project-related hazardous materials, substances, and wastes, which, if transported in commerce or on a public road, would be subject to the requirements of 49 CFR 171-180 and DOE O 460.1C. Hazardous materials include chemical, biological, and radiological materials, substances, or wastes. Transportation shall be performed in a manner that minimizes risk to the health and safety of employees, the public, and the environment.

Transfer of hazardous materials may include compressed gas in a secure holder, aerosol cans in original shipping box or 5-gallon container, and diesel fuel/gasoline in approved petroleum cans. Occasionally, the Grand Junction Project office may ship air filter and soil samples; all of which are below DOT-regulated material amounts and follow all IATA regulations for shipment. The scope of the TSD is, in part, based on the *Moab UMTRA Project Hazards Survey* (DOE-EM/GJ2055), which clearly defines the hazards and risks of materials present at the Project sites.

4.3 Site Descriptions

For the purposes of this document, on-site refers to all property within the contiguous fenced areas accessed through the entrance gates at the Moab and Crescent Junction locations. The Grand Junction location is within the limits of a publicly accessible building and does not transfer DOT-regulated hazardous materials.

Figures 2 and 3 show property boundaries and associated roadways for the Moab site and the Crescent Junction site, respectively.

4.4 Summary

The Project prohibits the transport of hazardous materials in personal vehicles and requires all loads of otherwise DOT-regulated hazardous materials to be properly identified, properly packaged, marked, labeled, segregated according to compatibility, and secured to prevent sliding or shifting during transport, in accordance with Project procedures. Additionally, personnel are directed and trained to use equipment only as intended and not to exceed the rated capacity of containers, vehicles, or other equipment.

4.5 Compliance Method

4.5.1 General

The transportation of hazardous materials within the Project sites requires special attention and controls to ensure safe transportation of such materials, to ensure contents are not spilled and packaging is not damaged during transportation, and personnel are properly trained to generate, transport, and receive such materials.

This document supplements and reiterates requirements contained in other Moab UMTRA Project documents including the *Moab UMTRA Project Spill Prevention, Control, and Countermeasure Plan* (DOE-EM/GJRAC1477) and applicable Integrated Work Plan/Job Safety Analyses (IWP/JSAs).

The Project requires on-site drivers to possess a valid driver's license and are trained to all appropriate plans, procedures, and IWP/JSAs before driving or working on site. The maximum speed limit is 20 mph, and both drivers and passengers are required to wear safety belts. Drivers who transport or carry hazardous materials on site are required to have a CDL only as defined in this Plan.

The Project has a Memorandum of Understanding (MOU) with Grand County Emergency Medical Services to respond to on-site emergencies, as stated in the *Moab UMTRA Project Emergency/Incident Response Plan* (ERP) (DOE-EM/GJ1520) This information is available at the Project and presented to staff members through training.

4.5.2 Incoming Hazardous Materials

Products delivered to the Project are expected to arrive in full compliance with DOT requirements as they have been in commerce. These items are delivered directly to the point of use in their original packaging as required by contract with the vendor.

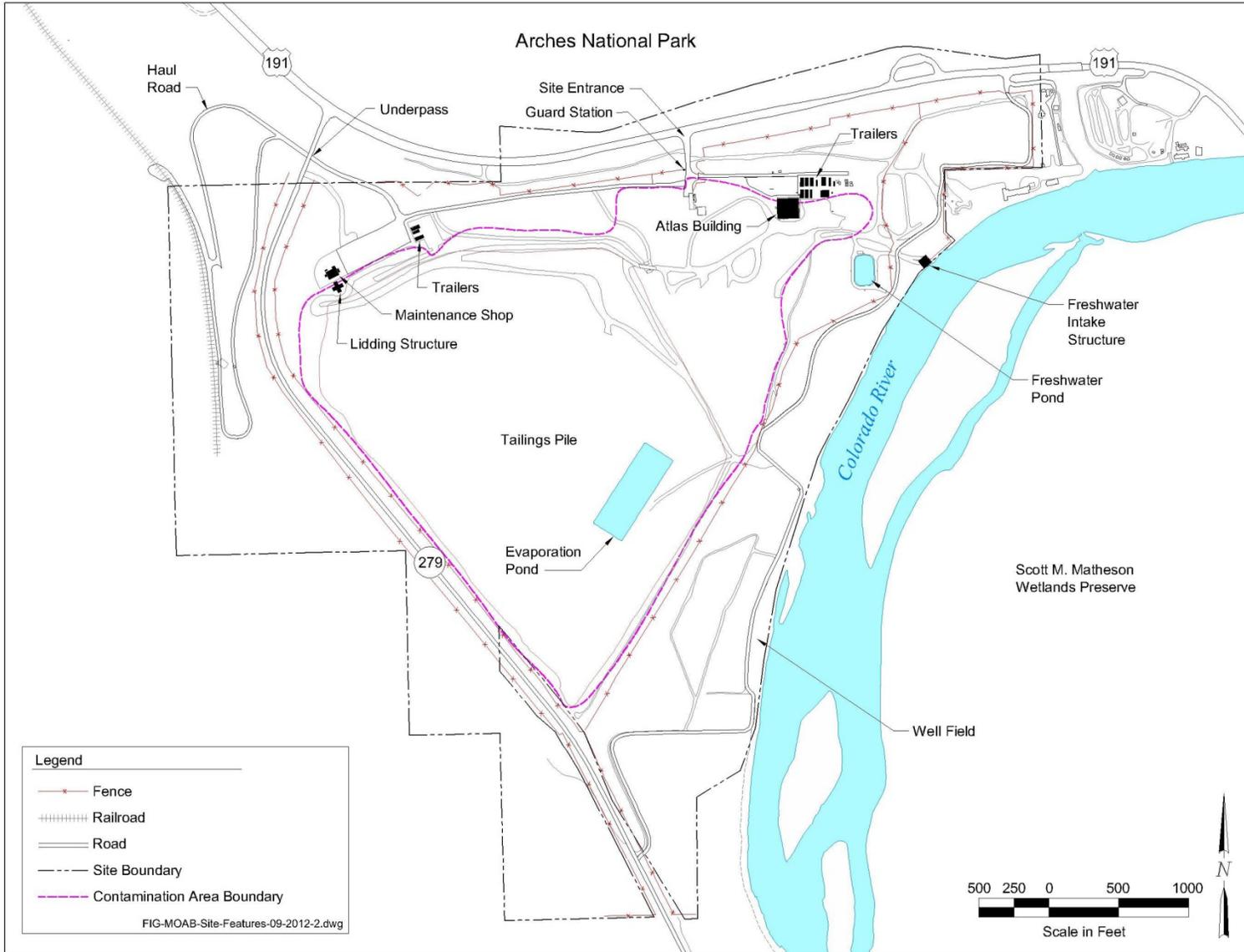


Figure 2. Moab Site Features

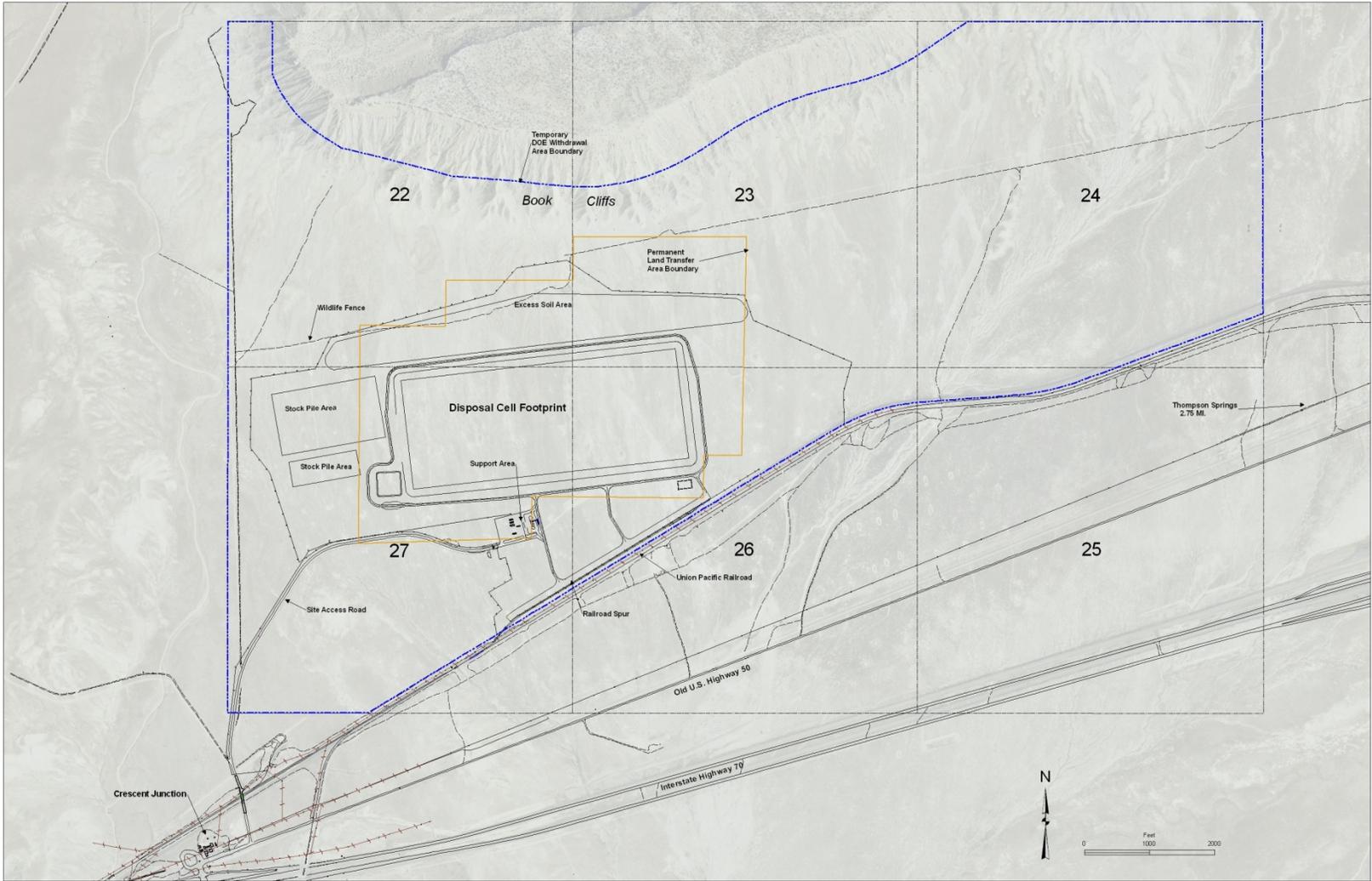


Figure 3. Crescent Junction Site Features

4.5.3 On-site Hazardous Materials Transfers

For on-site transfers, compliance will be maintained with 49 CFR requirements, or safety and regulation equivalencies to DOE, the U.S. Environmental Protection Agency, state, and federal regulations, using an appropriate graded approach. All practices will follow the *Moab UMTRA Project General Site Hazards IWP/JSA* (MB-IWP/JSA-001). Disciplinary actions and civil or criminal penalties may be imposed for improper handling or shipment of hazardous materials, substances, and waste. The Project establishes appropriate identification, packaging, and labeling systems for hazardous materials containers, maintains Material Safety Data Sheets (MSDSs) for the hazardous materials stored at work sites and mandates personnel training in the identification and control of these hazards through the *Hazard Communication Program*.

Whenever possible, materials are kept in their original containers with identifying labels and markings attached. When containers are moved on site, they are inspected to ensure integrity. Incompatible materials or chemicals are transported separately, and all containers are secured to prevent shifting. As necessary, hazardous materials chemicals may be transferred to new DOT-approved containers.

Controls for Transferring Hazardous Materials and Waste

The controls the Project employs for transfer of hazardous materials and waste are as follows:

- Use only properly inspected Project equipment for transporting hazardous materials.
- Properly identify the material to be transferred.
- If the hazardous material is in an Occupational Safety and Health Administration-compliant container, is not an explosive, and does not exceed 66 pounds or 8 gallons, the material may be transferred without documentation. For example, the Project mechanics can remove, transport, and use products from the flammable cabinet on a daily basis, replacing these products back in the flammable cabinet at the end of each use. Only a container appropriate for transport will be used.
- Personnel transporting hazardous materials shall be trained to the appropriate level and wear appropriate personal protective equipment.
- If the transport vehicle is greater than or equal to 26,001-pound gross vehicle weight rating (GVWR) and is interacting with the public, the driver is required to have a current Class A CDL. If the trailer GVWR is greater than 10,001 pounds, a Class A CDL is required.
- Permission must be received from supervision to move the hazardous material.
- Contain the material in compatible and properly sealed and labeled containers.
- For radioactive materials, personnel shall review labels or available information regarding exposure rates and contamination levels.
- The movement of all radioactive materials within the Project requires radiological surveys are performed by qualified radiological personnel before movement.
- Always secure hazardous materials containers with proper support (e.g., pallets) and proper tie-downs (e.g., straps), and always use proper equipment for securing drums on forklifts.
- Use carrying cases, racks, and trays, where appropriate, for smaller containers (to keep them upright and prevent them from shifting during transport).

4.5.4 Documentation of Transfers

For vehicles transporting DOT-regulated amounts of hazardous materials within site boundaries, a packet of shipping papers will be kept within the vehicle, including a bill of lading (BOL) showing pertinent transport information, the appropriate Emergency Response Guide (ERG) information, and SDSs as appropriate.

5.0 Off-site Radioactive Hazardous Material Shipments

5.1 Federal and Utah DOT Requirements

This Plan is consistent with DOE Manual (M) 460.2-1A, “Radioactive Material Transportation Practices Manual,” and the Environmental Management (EM)-11 guidance memorandum, dated July 13, 2005, for preparation of transportation plans and notification requirements issued by EM-3 on April 24, 2008. In accordance with the guidance memorandum, this Plan provides a graded approach to describing transportation and disposal of the RRM at the Project, including on-site staging, logistics, and the material packaging configuration. As described in Section 11e (2) of 42 USC 2011, Atomic Energy Act of 1954, as amended, RRM is not considered low-level radioactive waste.

This Plan addresses the applicable topics recommended in the guidance memorandum and meets the intent of DOE O 460.1C and DOE O 460.2A, “Departmental Materials Transportation and Packaging Management.” Emergency response and associated notifications in the event of an incident are presented in the ERP. Interaction with the community and other stakeholders is presented in the *Moab UMTRA Project Public Participation Plan* (DOE-EM/GJ1542).

DOT regulations for transportation of radioactive material are found in 49 CFR 100-185, “Transportation: Pipelines and Hazardous Materials Safety Administration, Department of Transportation.” DOE received a DOT SP Authorization, DOT-SP 14283, Third Revision, issued on June 20, 2014 (see Attachment 1), for transport of the Project RRM.

The permit applies to transport of RRM in commerce via rail or trucks and establishes alternative requirements for hazard communication and packaging of the RRM. The second revision to the permit was issued to approve the use of generic shipping papers and exclusive use instructions. The third revision to the permit was issued to approve an increase in content weight in an intermodal container to 43 tons per container and a corresponding increase in radioactivity.

The majority of off-site radioactive material shipments are classified as RRM and are shipped under DOT-SP 14283. All waste generated within the boundary of the CA is considered RRM, unless determined otherwise by radiological surveys or other information and is designated non-RRM by DOE. Waste generated outside the CA may be deemed RRM if it exceeds the standards provided in 40 CFR 192.

DOT-SP 14283 specifies the shipping name for the material is Radioactive Material, Low Specific Activity II (LSA-II), non-fissile or fissile-excepted, with Hazard Class/Division 7, and United Nations Identification Number UN3321. The SP also requires uranium mill tailings to be shipped have an activity concentration of radium-226 no greater than 100 becquerels per gram (2,700 picocuries per gram). Sampling of the contents of individual packages is not required; activity concentrations is instead determined by DOE-approved site sampling procedures as outlined in the *Moab UMTRA Project Radiological Decontamination, Survey, and Statistical Release Plan for Residual Radioactive Material Transport Containers* (DOE-EM/GJRAC1873). Further, there must be no leakage of radioactive material from the conveyance. There must be no loose tailings or other contaminated materials on the exterior surface of the covering at any time during transport under normal, non-accident conditions.

5.2 RRM Description and Management

The primary material to be transported is uranium mill tailings, which are the result of uranium extraction during the milling process. At the Moab site, the tailings were slurried to an unlined impoundment that accumulated over time, forming a pile. The tailings pile material is in a soil matrix varying in consistency from very dry and sand-like on the periphery to wet, muddy slimes inside the pile. Material is excavated and transported to drying beds located on top of the tailings pile for conditioning, which may include blending with drier material to reduce the moisture content to a range optimal for compaction in the disposal cell. The optimal moisture content easily meets the classification as a solid as defined by American Society for Testing and Materials D4359-90, “Standard Test Method for Determining Whether a Material is a Liquid or a Solid,” which is a regulatory requirement of the DOT.

5.3 General Project Approach for Transporting RRM

The Project approach is to excavate RRM at the Moab site and condition it to the desired soil moisture content or size for placement in the disposal cell. The conditioned RRM is top-loaded into containers (see Figure 4), transported by trucks to the on-site Queue Support Area, where the container receives a solid metal lid. At that point, the container can either go through the container rinse system or move directly to a rack, during which a radiological survey and integrity inspection of the container exterior is performed.



Figure 4. RRM Container Lifted by Reach Stacker

A radiological boundary line separates the Queue Support Area into two parts: a CA and an uncontaminated (i.e., clean or outside) area. Once the container is radiologically released for transfer from the CA to the uncontaminated area, it is staged for later placement or immediately placed on an outside truck, hauled up a dedicated private road to the rail load-out area at a siding, and transferred to a railcar.

To transport containers from the Queue Support Area to the rail load-out area, the trucks use a State Route (SR)-279 underpass of that was constructed in the winter of 2009 as an added safety measure to avoid truck crossings on SR-279.

Once the designated number of containers is placed on railcars, UPRR engines pull the cars 30 miles to a DOE siding near the Crescent Junction disposal cell, approximately 1/2 mile east of the existing Brendel siding, near Thompson Springs, Utah.

Each container is removed from the railcar, placed on a truck, and driven to the disposal cell. The containers are emptied via the rear dump gate, decontaminated or rinsed as necessary, radiologically surveyed, and released for the return trip to the Moab site.

Radiological surveys of the empty containers are not required by the SP, but they have been deemed a best management practice by the Project. A radiological survey consists of taking a smear or a large area swipe of the exterior of the container and obtaining an activity count using an appropriate meter to determine the level of removable contamination, if any.

RRM that cannot be sized to fit in a container will be transported via over-the-road trucks using DOE Motor Carrier Evaluation Program (MCEP)-approved motor carriers or Project-approved drivers with CDL and Hazmat endorsements. RRM excavated from off-site properties in the Moab area, known as vicinity properties (VPs), may also be transported by truck directly to the Moab site or from their origin to the Crescent Junction disposal site. Temporary shipment of containers by truck on U.S. Highway 191 may be performed in the event rail shipments are suspended for an extended period. Trucks departing the Moab site will enter U.S. Highway 191 from SR-279 or from the main site access road. Before any shipment of containers by truck on the highway, the Project will coordinate with Grand County officials and the Utah Department of Transportation (UDOT).

5.3.1 Managing Structure Demolition and Debris

Debris associated with structure demolition is also buried within the tailings pile. The debris includes concrete, metal sheeting, pipe, insulation, and other materials. When encountered, debris is sorted and staged for future sizing and transport. Smaller items that fit in containers will be hauled to one of the on-site stockpile areas until sufficient quantities are available to enable efficient filling of containers.

Operators follow *Moab UMTRA Project Debris Removal Processing IWP/JSA* (MB-IWP-JSA-017) and will meet or exceed (based on economic review) with Addendum E of the *Moab UMTRA Project Remedial Action Plan, Remedial Action Inspection Plan* (RAIP) (DOE-EM/GJ1547), which identifies the means by which the remedial action activities associated with the DOE Project disposal cell at Crescent Junction, Utah, are controlled, verified, and documented.

This Plan has been developed within the scope of the *Quality Assurance Plan for the Remedial Action Contractor*.

5.3.2 Managing Anomalies

Anomalies (drums, gas cylinders, and other non-specification materials) are also buried within the tailings pile. CA Operators follow *Moab UMTRA Project Hazardous Residual Radioactive Material Processing IWP/JSA* (MB-IWP-JSA-023).

Depending on the nature of the anomaly, it may require additional characterization and planning before it may be removed and disposed of. Anomalies are managed per the *Moab UMTRA Project Waste Management Plan* (DOE-EM/GJ1633) and the *Moab UMTRA Project Health and Safety Suspected Hazardous Residual Radioactive Material Response Procedure* (DOE-EM/GJRAC2160).

5.4 Preparation of RRM for Transportation

5.4.1 Container Weighing

Containers are weighed in accordance with the *Moab UMTRA Project Residual Radioactive Material Weight Determination Procedure* (DOE-EM/GJRAC2098). A representative percentage of containers shipped are weighed at the UMTRA site scale. If the weight of the truck and loaded container is between established minimum and maximum weight thresholds, the container is prepared for shipment.

If the weight of the truck and loaded container is outside of the established weight thresholds, material is added to or removed from the container with the load-out excavator. A loadrite system may also be used on the excavator in the load-out area to assist the operator with controlling the amount of material placed in each container during the load-out process.

5.4.2 Packaging

Authorized packagings are listed in DOT-SP 14283 and its supportive documentation, which is considered equivalent to the packagings authorized in 49 CFR 173.467, “Transportation, Shippers, General Requirements for Shipments and Packagings, Tests for demonstrating the ability of Type B and fissile materials packagings to withstand accident conditions in transportation,” for LSA-II radioactive material.

The packaging designs for RRM for rail transport are based on an existing 32-cubic-yard container (6.42-yard length by 2.63-yard depth by 2.0-yard height) and a 42-cubic-yard container (6.42-yard length by 2.63-yard depth by 2.7-yard height) (see Figure 4). The smaller container is loaded with about 33 tons of RRM, and the larger container is loaded with about 43 tons.

The RRM containers are constructed of metal and are in compliance with DOT standards of equivalency for IP-1 type container. The containers have removable metal lids that lock in place. The end gate dump doors have a waterproof gasket and a locking mechanism. Containers used to haul debris are modified with interior barriers of plywood and metal to help protect the container metal from damage. Modified containers are marked in three areas with white paint, visible by personnel who need to identify which contain debris.

Packaging for oversize debris, primarily from demolition of the former mill, is dump trucks and flatbeds with tarps. Trucks used to transport oversized material are loaded using an excavator, loader, flatbed, or crane, depending on the type of material. The loading occurs inside of a CA, so care is taken to limit contact between the vehicle and the RRM. Following loading, a sturdy tarp is placed over the RRM, and the truck proceeds to a decontamination area for an exterior survey.

5.4.3 Inspections

General container maintenance and repairs follow the *Moab UMTRA Project Container Inspection and Maintenance Procedure* (DOE-EM/GJRAC2110).

The exterior of each container is also inspected for integrity at several points during the production process. These include before and after placement on a railcar, placement on a haul truck by a gantry crane or reach stacker, during the lidding or dumping process, and before and during radiological scanning. The interior of the container is visually inspected during the lidding process. The *Moab UMTRA Project Transportation Procedure* (DOE-EM/GJRAC2099) is followed for incoming and outgoing railcar and container inspections (see Figure 5).



Figure 5. RRM Containers on Railcars

Each container is identified with a unique number and is placarded on all four sides with radioactive yellow signs (see Figure 6) in accordance with the SP. The placards remain visible during transport to and from Crescent Junction. In addition, each container is permanently marked on two opposite sides, in accordance with the SP. The gross weight marking on the small containers is 87,800 pounds and on the larger containers is 95,450 pounds (see Figure 7).



Figure 6. Container Placard Example

<p>For Radioactive Materials Use Only RQ, RADIOACTIVE-LSA UN3321 DOT-SP 14283</p> <p>Gross Weight: _____</p> <p>Emergency Contact: _____</p> <p>Emergency Phone: _____</p>
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Figure 7. Container Marking Example

5.4.4 Radiological Surveys

The exterior of the filled containers is radiologically surveyed in accordance with the *Radiological Decontamination, Survey, and Statistical Release Plan for Residual Radioactive Material Transport Containers*. Data from the radiological surveys becomes part of the shipment documentation maintained by the Radiological Control staff, and then sent to Project Records in accordance with the *Records Management Manual*.

5.4.5 Documentation for Rail Transport

Documentation that accompanies each rail shipment, both to Brendel (Crescent Junction site) and back to Emkay (Moab site), includes a Train List (i.e., railcar numbers and number of containers), UPRR electronic shipping papers (i.e., BOL), ERG for materials being shipped, DOT-SP 14283, and exclusive use instructions.

5.4.6 Documentation for Motor Carrier Transport

Documentation that accompanies each shipment by motor carrier includes its origin and destination locations and all other information required by regulation. The carrier possesses a BOL, a copy of DOT-SP 14283, exclusive use instructions, and a copy of the ERG for the material being hauled during each shipment.

Pre-operational daily inspections of motorized equipment, along with preventive maintenance and repairs follow 29 CFR 1926 Subpart O, "Safety and Health Regulations for Construction, Motor Vehicles, Mechanized Equipment, and Marine Operations." These requirements, along with owners' manuals, are the basis for the daily inspections, maintenance, and repair of such equipment. Drivers and Operators of Project equipment follow *Moab UMTRA Project Motorized Equipment Inspection and Preventive Maintenance Program* (DOE-EM/GJRAC1726).

5.5 Container Movements

5.5.1 Moab Site

The container-filling process consists of the steps detailed below. Figure 8 shows the Moab Queue Support Area layout; some of the areas described are also illustrated in Figure 10.

1. A truck is driven along the contaminated side of the CA boundary in the Support Area.
2. A reach stacker lifts an empty container with a lid from the uncontaminated side over the CA boundary and loads it onto the truck.
3. The truck proceeds into the lidding structure, where a hoist removes the lid from the container. The truck travels up to the tailings pile to a stockpile of blended and prepared RRM, where the container is filled.
4. At the start of each shift, 15 container weights are documented at the scale to verify the load is within acceptable limits. An additional 15 containers are weighed and documented in the afternoon. In the event the scale is not functioning, alternative methods of weight estimation are used. Alternatively, additional containers are weighed as necessary.
5. The truck returns to the lidding structure, where a hoist places a lid on the container and locks it in place.
6. The truck proceeds out of the lidding structure along the CA boundary to a location where the container can either go through the container rinse system or move directly through the radiological survey area, during which a reach stacker will remove the container and place it on one of the eight racks that are located in the CA for final inspection.
7. After a container is radiologically released, a reach stacker located outside the CA places the container in the Support area or placed directly on a haul truck to be delivered to the rail bench area to be placed on a railcar by the gantry crane.

5.6 Rail Siding Movements

5.6.1 Moab Site Siding – Emkay

At the beginning of each work shift, unless otherwise determined by supervision, three outside trucks leave the Support Area, using the SR-279 underpass, and drive up the haul road to the hillside load-out area (see Figure 10). A gantry crane places an empty container on each of the trucks from one of the railcars. The trucks return to the Support Area, where the containers are transferred by a reach stacker to trucks on the contaminated side to begin the container-filling process. Subsequent trucks go to the hillside load-out area carrying full containers and return with empty containers.

Through the course of the shift, the gantry crane(s) traverses from one end of the rail siding to the other, removing empty containers from the railcars and replacing them with full containers. Four containers are placed end-to-end on each railcar. At the end of the shift, when the train is loaded with full containers, it is released to UPRR to be moved to the Crescent Junction site and is positioned on the open rail siding. If the next day is a production day, UPRR will swap the engines to the train with empty containers and return it to the Moab site that evening.

UPRR employees follow DOT FRA regulations for pre-trip inspections and air tests before train movement. The RAC subcontractor inspects and maintains the railcars in good working order in compliance with DOT FRA regulations and following Association of American Railroads Interchange Rules.

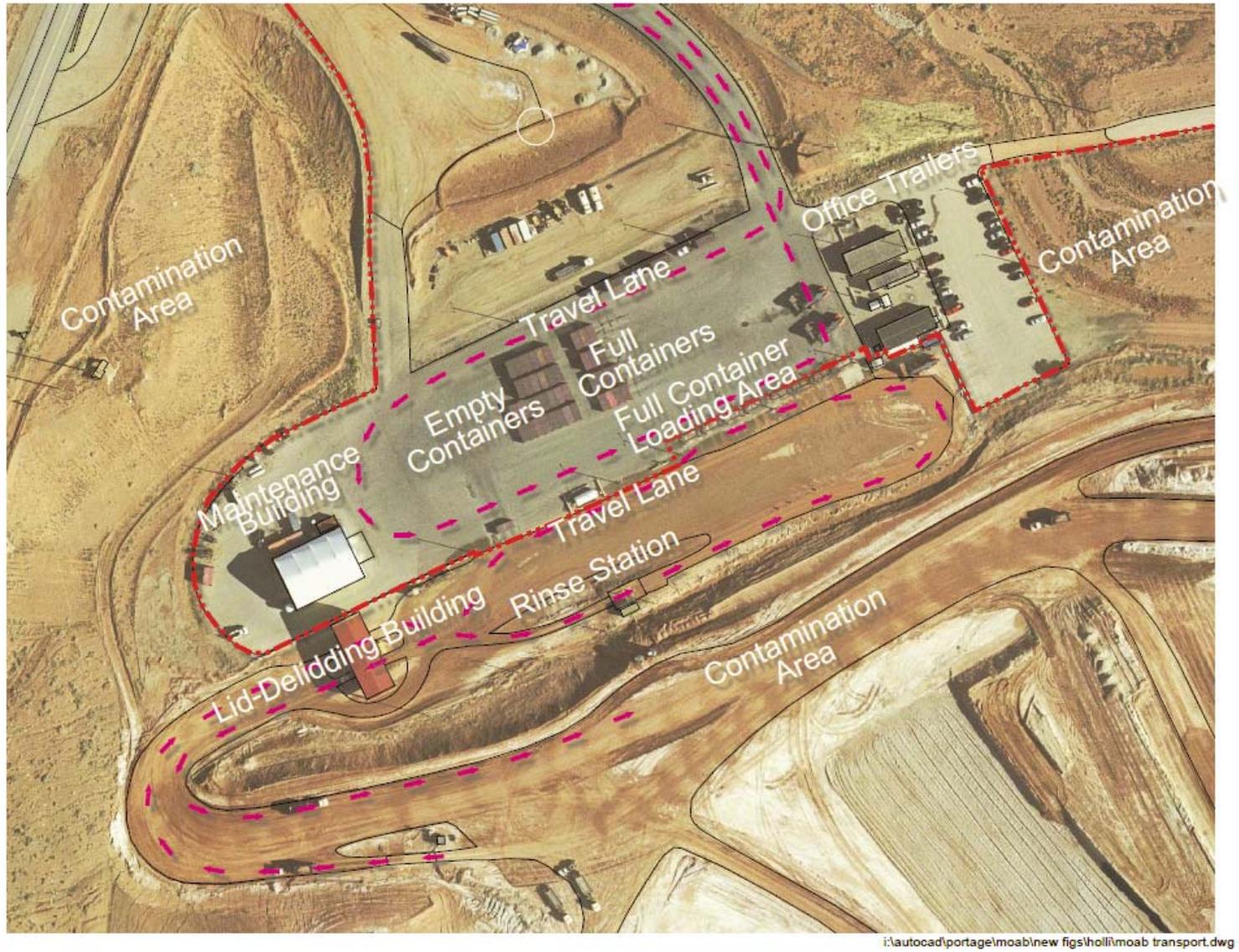


Figure 8. Moab Queue Support Area Layout

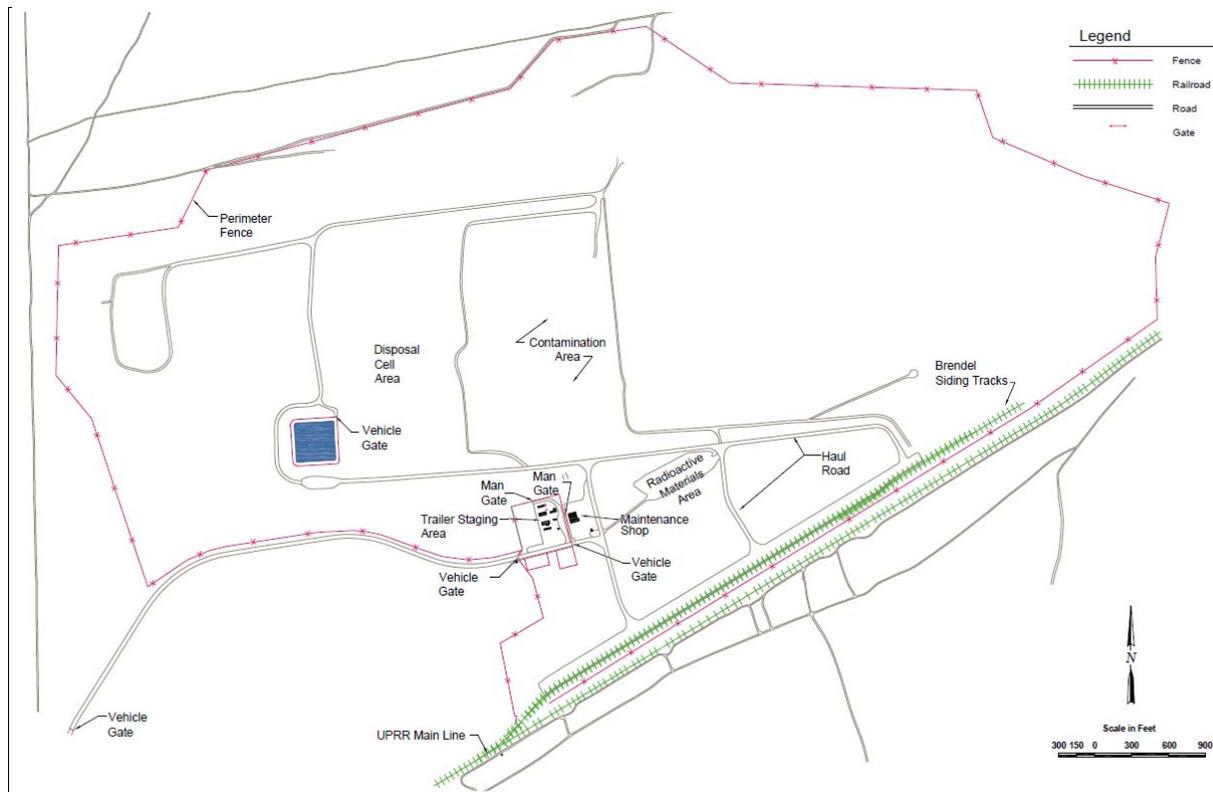


Figure 9. Crescent Junction/Brendel Rail Siding

Rail Route

Off-site rail transport is from the hillside load-out area known as the Emkay siding and follows the existing UPRR Cane Creek Subdivision line 28.5 miles to the Green River Subdivision line (Subdivision line mile post 0 and Green River Subdivision line mile post 533).

Rail transport continues east on the Green River Subdivision line for approximately 2,000 feet, where the Crescent Junction rail area (Brendel siding) branches to the north. The total distance from the Emkay siding to the Brendel siding is approximately 30 miles.

Rail Schedule

Typically, one train runs daily Monday through Thursday with up to 144 containers. Railcars and containers may be added or reduced to achieve an optimal shipping schedule. Additional trains are run as coordinated between the Project and UPRR.

The Cane Creek Subdivision line is also used by UPRR to service Intrepid Potash – Moab, LLC (Potash) located at mile post 36 (see Figure 11). Potash typically uses the line for one shipment per week. The rail carrier coordinates with representatives of Potash to accommodate efficient rail shipments by both parties.



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Figure 10. Moab Queue Support and Emkay Rail Siding

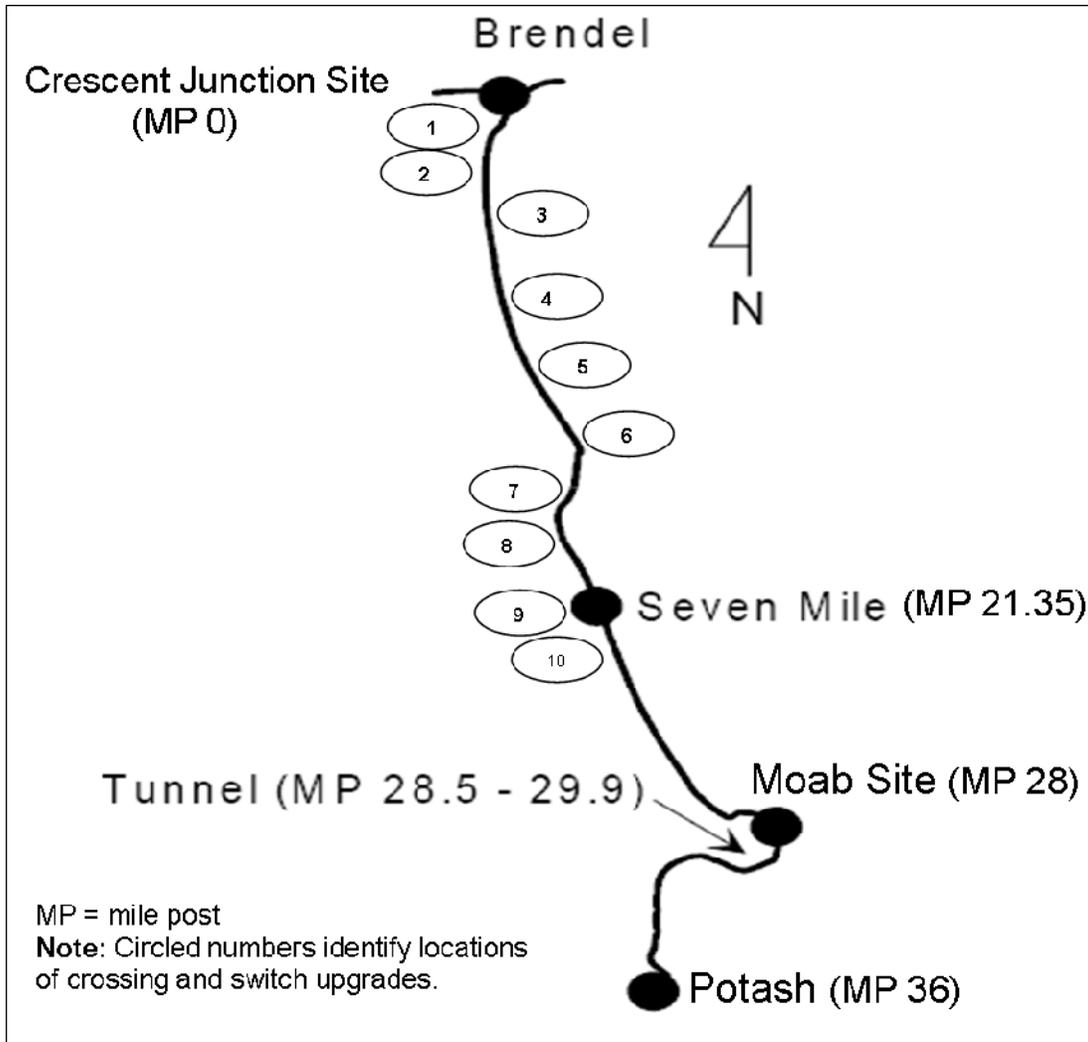


Figure 11. UPRR Rail Crossings

5.6.2 Crescent Junction Site Siding – Brendel

At the Crescent Junction site, the full containers are removed from the railcars using a reach stacker and placed on off-road trucks that haul the containers to the dump area of the disposal cell. While on the trucks, the containers are emptied through an end gate, decontaminated as necessary, radiologically released, and driven back to the rail siding where reach stackers place them on railcars to be transported back to the Moab site. Flatbed or dump trucks could also bring debris from Moab to Crescent Junction and directly dump the material into the disposal cell.

The engines from the train arriving from the Moab site are rearranged and connected to the railcars holding empty containers. The train then returns the empty containers to the Moab site load-out area. Figure 9 shows the layout of the Crescent Junction site.

5.7 Off-site RRM Transport

5.7.1 Rail Transport

Rail transport to the Crescent Junction site involves crossing several public roads that are under the jurisdiction of the UDOT and regulated per DOT as well as under 49 CFR 200-299, “Federal Railroad Administration Regulations.” DOT requirements for rail transport apply to maintaining proper rail crossings and signage of the roadways. A description of each crossing is provided in Table 1 (locations are shown in Figure 11).

Table 1. Rail Switch and Crossing Description

No.	Description
1.	171G Brendel Road; flashing lights with gates
2.	Brendel Switch at Green River Subdivision Line; electronic switch
3.	170A Old Highway 6 & 50 MP 0.3; flashing lights
4.	172N Valley City Road MP 5.04; stop signs on both sides
5.	173V Rock Corral Road MP 9.03; stop signs on both sides
6.	329S Blue Hills Road MP 14.99; stop signs on both sides
7.	330L Mill Canyon crossing; flashing lights with gates
8.	331T Thornburg Mine Road MP 20.30; flashing lights with gates
9.	332A SR313 MP 21.35; flashing lights with gates
10.	334N Gemini Bridges Road MP 22.5; stop signs on both sides

Truck transport to the Crescent Junction site may involve utilizing SR-279, U.S. Highway 191, old U.S. Highway 6 & 50 (Grand County Road 175), and County Road 223. UDOT requirements apply for highway operations, as specified in 49 CFR 300-399, “Federal Motor Carrier Safety Administration Regulations.”

Motor Carrier Route

Trucks will follow a direct route from their origin to shipment delivery at either the Moab or Crescent Junction sites. Trucks will be directed through an established CA boundary to a dump area. Following dumping of RRM, the trucks will move to a survey/decontamination area before exiting the CA.

Motor Carrier Schedule

Truck shipments of RRM have been very limited since shipping began at the Project. As needed, coordination of scheduling is communicated between Moab and Crescent Junction site managers as well as through notifications to UDOT.

Oversized materials in the tailings pile are currently segregated according to size within the CA boundary. Shipments of material from VPs will be performed, as appropriate; however, the limited quantity anticipated does not necessitate a schedule.

Motor Carrier Shipment Risk

The risk analysis conducted as part of the EIS showed that the risks associated with truck transport were acceptable for both off-site workers and the public. Truck transport represents a low risk of public exposure to contaminated materials.

Motor Carrier Shipping Weight Limit

The maximum weight of RRM in containers hauled on trucks is 43 tons, 20 tons in a haul truck without a container or 33 tons in a haul truck with a pup. These weights meet the standard DOT shipping weight limit for OTR trucks and DOT-SP 14283 requirements.

5.7.2 Motor Carrier Transport

Over-the-road (OTR) truck transport is planned for materials that cannot be effectively sized to fit in the containers and for materials removed from VPs, as coordinated with the TAC. OTR truck transport will be conducted by a DOE MCEP-approved motor carrier or appropriate Project driver, and in compliance with the UDOT and DOT regulations and DOT-SP 14283.

5.8 Hazardous Materials Shipments (Non-RRM)

5.8.1 Non-radioactive Hazardous Material

There is a minimal amount of DOT-regulated off-site shipments of non-radioactive hazardous material at the Project (e.g., compressed gas cylinders). When applicable, DOE O 460.1C and 49 CFR regulations are used to ensure compliance.

5.8.2 Off-site Shipment of Hazardous Material

The TSM must be provided with a detailed technical description of the material sufficient to support its classification per 49 CFR.

To complete a shipment, the TSM must ensure the proper steps are followed as shown below.

1. Assemble technical information that identifies the material using:
 - Analytical results.
 - Radioactive screening if applicable.
 - MSDSs or other manufacturer information.
 - Packaging marking/labeling.
 - Characterization.
 - Disposal information.
 - Process knowledge.
2. Properly identify the material to be shipped, assemble the material facility/organization procedures, and determine mode of transport (carrier, highway, or rail).
3. Prepare the shipping paperwork, package, label, mark the authorized packaging, and prepare for shipment.

Vehicles, including vehicle and trailer combinations, greater than 10,001 pounds GVWR, must be operated by a DOT driver. A DOT driver with a CDL is required if the vehicle (or vehicle and trailer) equals 26,001 pounds GVWR or greater, or its reading is greater than 1 millirem (mrem) at 1 meter or greater than 50 mrem on the surface of the package.

5.8.3 Radioactive Hazardous Material

Occasionally, the Project will need to ship or transport various radioactive materials, including equipment (e.g., nuclear density gauge), sources, various types of samples, and equipment off site or between the Moab and Crescent Junction sites.

All radioactive materials will be managed under the direction of the RCM until released for transfer or shipment. At this point, the TSM will determine the appropriate transfer or shipment method strictly relying on requirements presented in 49 CFR and DOT Hazardous Material Regulations.

5.8.4 Transport of RRM Soil and CA Equipment Oil Samples by Radiological Control

Based on process knowledge, the RRM soil and CA equipment oil samples are well below DOT limits as stated in 49 CFR 173.437, “Shippers, General Requirements for Shipments and Packagings,” for the isotopes of concern.

At both Moab and Crescent Junction sites, RRM soil and CA equipment oil samples are under the control of radiological control personnel in a manner to prevent the possible spread of contamination and then only transferred out the CA after determined to be under the DOT limits for shipment.

After CA equipment oil samples are surveilled and cleared for release, they are delivered by radiological control personnel to the Administrative Assistant, along with a copy of the Radiological Survey Form that verifies the sample has been appropriately processed and cleared. The Administrative Assistance then prepares the samples to be mailed. The survey form copy is retained with the Administrative Assistant until the shipment is received and is then given to the TSM. All original Radiological Survey Forms are sent to records by the Radiological Control Department.

5.8.5 Packaging Selection

The TSM will oversee and authorize appropriate packaging for the off-site shipping or site transfer of hazardous materials. The TSM is to select the packaging by determining the characterization of the material or waste to be shipped or transferred. The TSM will then determine the type of packaging needed based on 49 CFR requirements.

6.0 Health and Safety

On-site transport work will be performed in compliance with the *Moab UMTRA Project Health and Safety Plan* (HASP) (DOE-EM/GJ1038). On-site workers will be trained to the requirements of the HASP and the applicable related site plans and procedures, such as the *Waste Management Plan* and the *Moab UMTRA Project Universal Waste Management Plan* (DOE-EM/GJRAC1920). Off-site transport work will be performed by the Project or carrier in accordance with their respective plans and procedures.

Each Hazmat employee associated with on-site or off-site transport employed by the RAC or by a carrier will be trained to meet the requirements of DOT-SP 14283.

Radiation protection will be provided by the RAC Radiation Control Technicians (RCTs). All work will comply with the requirements of the *Moab UMTRA Project Radiation Protection Program* (DOE-EM/GJ610) and will be conducted under an approved Radiation Work Permit. Radiological support, including any personnel monitoring, boundary monitoring, entry and exit surveying, and radiological postings will be provided by RCTs.

7.0 Security

Transport of all site hazardous materials will comply with all appropriate DOT requirements. The *Moab UMTRA Project Site Security Plan* (DOE-EM/GJ1532) is available to employees responsible for carrying out the Plan. All RAC, TAC, and carrier employees subject to the *Site Security Plan* will be trained to it; TISK is utilized to track training.

Development and implementation of the *Site Security Plan* are required by DOE O 470.4B, "Safeguards and Security Program." The *Site Security Plan* is applicable to all sites, facilities, and office locations on the Project for which the contractors have operational responsibility, as specified in the TAC and RAC contracts.

DOE O 470.4B states that "all U.S. Government owned or leased properties that do not have security assets (e.g., classified information or matter, special nuclear material [SNM], or other assets requiring a Federal Clearance Level (FCL) in accordance with the Facility Clearance section of this directive), but to which DOE federal employees are assigned, the standards set forth by the Interagency Security Committee (ISC) under Executive Order 12977, "Interagency Security Committee," must be used as the baseline for developing the security plan."

The Project does not have classified information, SNM, or require a FCL, but it does have federal employees on the sites. Therefore, ISC standards were used as the basis for the *Site Security Plan*. The ISC "Facility Security Committees, An Interagency Security Committee Standard," dated January 1, 2012, states that in single tenant facilities, the federal department or agency with funding authority is the decision maker for the facility's security and "has the option to use these standards or other internal procedures to make security decisions." Using a graded approach, the Project incorporated many of the requirements outlined in the applicable ISC documents.

7.1 Personnel Security

Project employees are under a comprehensive security program that conforms to requirements promulgated by the Atomic Energy Act (42 USC 2011) and is in place at DOE facilities. With regard to personnel security, compliance with the *Site Security Plan* satisfies the requirements of 49 CFR 172.804, "Transportation, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Energy Response Information, Training Requirements, and Security Plans, Relationship to other Federal requirements."

7.2 Motor Carrier and Rail Shipment Security Instructions

Security measures that Project personnel are expected to follow are as listed.

- Identify carrier employees with a Project badge or other approved photo identification or verify the motor carrier driver has a federal or state government-issued CDL with applicable endorsements.

NOTE: UPRR will carry its own proper identification.

- Ensure all transporters of materials subject to this section are briefed and sign the Exclusive Use Instructions contained in the *Transportation Procedure*.

7.3 Facility Security

The DOE has implemented a safeguards and security plan as described in DOE O 470.4B. This Plan is designed to ensure appropriate levels of protection against unauthorized access, theft, diversion, loss of custody, destruction, espionage, and other hostile acts that may cause unacceptable adverse impacts on RRM or on the health and safety of DOE, contractors, the public, or the environment.

DOE's safeguards and security programs (e.g., DOE O 470.4B) cover all DOE sites. With regard to site security and safeguarding access to hazardous materials, this DOE program satisfies the requirements of 49 CFR 172.804.

7.4 RRM Container Transportation Security

This section describes the staging and transport of RRM for the Project and applies to the RAC and its subcontractors who transport RRM in commerce, including line managers, supervisors, drivers, shipping and receiving personnel, operators, mechanics, and security personnel.

This section also applies to the TAC, which provides infrastructure and support services to the DOE. For the purposes of this section, shipping refers to the preparation and documentation, and transportation refers to the acts of loading, shipping, and off-loading containers.

7.4.1 RRM Container Storage

Containers with RRM or last residue RRM are prepared for transport and loaded onto railcars on the DOE project siding at Emkay or Brendel or placed in a secure storage in the Moab Queue Support Area or the Crescent Junction rail bench area.

7.4.2 Security Incidents

Incidents involving a violation of security policies or procedures are investigated by the RAC, the TAC Security Officer, and DOE. Incidents in which criminal activity is indicated are forwarded to the Grand County, Utah, Sheriff's Office for investigation.

7.5 Security Breaches

All significant security breaches that pose an apparent imminent danger to the Project, its employees, the environment, equipment, facilities, or cargo will be reported to the appropriate Operations/Site Manager (Moab or Crescent Junction) immediately and to the TSM.

Significant security breaches include the following:

- Any apparent or actual attack on shipments.
- Any incident involving actual or attempted hijacking of shipments.
- Any deliberate act aimed at stopping the transportation conveyance or to cause an accident.
- Any incident involving the use or threatened use of weapons of any kind.
- Any discovery of sabotage or attempted sabotage of any shipment, equipment, or security system.
- Unauthorized non-company personnel found in or attempting to enter areas involving RRM operations.
- Any loss, theft, or compromise of RRM.
- Observations of apparent or suspected terrorist acts.

The appropriate Operations/Site Manager and the TAC Security Officer will notify security, local responders, and DOE as appropriate.

8.0 Incidents Involving RRM and Notification

This section outlines Project emergency telephone monitoring specific to transportation incidents, as required by DOT regulations. This section applies to all Project personnel involved in the transportation of RRM under DOT regulations, as modified by DOT-SP 14283. In the case of a spill of RRM, petroleum, or hazardous materials, the *Spill Prevention, Control, and Countermeasure Plan* will be consulted for response action and notifications.

8.1 Emergency Response Phone Monitoring for RRM Transportation Incidents

8.1.1 CHEMTREC

The Project has registered to use CHEMTREC, a hazardous materials resource call center. This service is available 24 hours a day, 7 days a week to answer any incoming transportation incident calls involving RRM.

The emergency call number for the Project is 1-800-424-9300. The emergency response telephone is monitored at all times while Project DOT-regulated materials are being transported by truck or train or stored incidental to transportation.

The emergency response telephone is monitored by a person with immediate access to comprehensive emergency response information and incident mitigation information for the material being transported.

When any person calls the emergency phone number to report an incident, CHEMTREC will:

1. Obtain and document any incident information provided.
2. Receive incoming calls from any state, federal, or local agency involved in the response to a transportation incident.

3. Provide the following information to a caller, if necessary:
 - All the available information on the hazards of the materials
 - All the available emergency response information
 - All the known information about the physical properties of the material
 - Use Guide #162, “Radioactive Materials (Low to Moderate Level Radiation),” in the DOT “2012 Emergency Response Guidebook” that applies to materials shipped to and from the Project.
4. Immediately following the phone call, CHEMTREC will contact the TSM or OCM (or designee), who will make appropriate notifications. The CHEMTREC contact call list will be updated as needed and managed by the TSM.

The TSM will follow the requirements stated in the March 11, 2015, Memorandum from James Hutton, “Updated Environmental Management Headquarters Notification and Oversight Procedure,” and the September 3, 2015, Memorandum from Ralph Holland, “Updated Environmental Management Headquarters Notification and Oversight Procedure, dated March 3, 2015,)” for off-site transportation event notification and reporting and DOE M 460.2-1A as appropriate.

8.1.2 Annual Procedure Testing

Testing of the CHEMTREC emergency call system will be conducted annually. Records of the testing shall be retained in accordance with the *Records Management Manual*.

9.0 Emergency Preparedness and Response

Response to emergencies involving transportation of RRM will be handled according to the ERP and to the requirements of DOT-SP 14283. The *Spill Prevention Control and Countermeasure Plan* and the HASP address spill response.

9.1 Emergency Preparedness

The Moab Fire Department has trained first responders who are prepared to mobilize for emergencies. Additionally, the RAC has trained personnel, supplies, and equipment available at the Moab and Crescent Junction sites to aid in an emergency. Drills are conducted periodically to test preparedness.

9.2 Emergency Response

The following details the roles and responsibilities of the emergency response resources supporting this Plan.

9.2.1 Carriers

Carrier operators/drivers, if able, will make initial emergency notification, initiate incident scene control, provide assistance to first responders, and undertake other emergency actions in accordance with their policies or instructions. UPRR is the primary carrier.

9.2.2 First Responders

First responders to the incident scene will initiate response actions in accordance with local plans and procedures. First responders will likely be representatives from the Moab Fire Department or the Grand County Sheriff's Office.

9.2.3 State and County Resources

Emergency notification procedures make state and county resources available. State and county teams are activated by the Incident Commander or other appropriate state or local authority. A representative from the Moab Fire Department or the Grand County Sheriff's Office would likely be the Incident Commander.

MOUs have been executed with the Grand County Emergency Medical Services and Moab Regional Hospital to establish roles and responsibilities for coordination of personnel and operations should an emergency or other incident occur.

9.2.4 DOE and Contractor Resources

The RAC TSM has access to all site resources (e.g., personnel, equipment, supplies) to mitigate an emergency situation. If deemed necessary, the FPD may call for additional resources available from the DOE Region 6 Radiological Assistance Program team.

9.3 Recovery

The carrier has responsibility for recovery operations, including RRM cleanup. Recovery will not begin until the emergency situation has been stabilized. The RAC will assist the carrier or its designated recovery contractor with recovery operations where appropriate and in accordance with DOT-SP 14283.

10.0 Public Communications

Communication with the public regarding transportation of RRM will be conducted in accordance with the *Public Participation Plan*. In the event of an emergency or incident involving RRM transportation, public notifications will be made as specified in the ERP.

11.0 Records

All documentation created as a result of compliance with this Plan is considered a Project record and will be managed in accordance with the *Records Management Manual*, which follows DOE orders, policies, and regulations for retention and maintenance of records.

12.0 References

40 CFR 192 (Code of Federal Regulations), "Health and Environmental Standards for Uranium and Thorium Mill Tailings."

29 CFR 1926 (Code of federal Regulations), Subpart O, "Safety and Health Regulations for Construction, Motor Vehicles, Mechanized Equipment, and Marine Operations."

49 CFR (Code of Federal Regulations), “Transportation.”

49 CFR 100-185 (Code of Federal Regulations), “Transportation, Pipelines and Hazardous Materials Safety Administration, Department of Transportation.”

49 CFR 171.15 (Code of Federal Regulations), “Transportation, General Information, Regulations, and Definitions, Immediate Notice of Certain Hazardous Materials Incidents,”

49 CFR 171.16, “Transportation, General Information, Regulations, and Definitions, Detailed Hazardous Materials Incident Reports.”

49 CFR 172 (Code of Federal Regulations), Subpart H, “Transportation, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Energy Response Information, Training Requirements, and Security Plans, Training.”

49 CFR 172.804 (Code of Federal Regulations), “Transportation, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Energy Response Information, Training Requirements, and Security Plans, Relationship to other Federal requirements.”

49 CFR 173.467 (Code of Federal Regulations), “Transportation, Shippers, General Requirements for Shipments and Packagings, Tests for demonstrating the ability of Type B and fissile materials packagings to withstand accident conditions in transportation.”

49 CFR 200-299 (Code of Federal Regulations), “Federal Railroad Administration Regulations.”

49 CFR 300-399 (Code of Federal Regulations), “Federal Motor Carrier Safety Administration Regulations.”

42 USC 2011 et seq. (United States Code), Atomic Energy Act of 1989.

42 USC 7901 (United States Code), The Uranium Mill Tailings Radiation Control Act of 1978.

ASTM D4359-90 (American Society for Testing and Materials), “Standard Test Method for Determining Whether a Material is a Liquid or a Solid.”

DOE (U.S. Department of Energy,) March 11, 2015, Memorandum from James Hutton, “Updated Environmental Management Headquarters Notification and Oversight Procedure.”

DOE (U.S. Department of Energy) September 3, 2015, Memorandum from Ralph Holland , “Updated Environmental Management Headquarters Notification and Oversight Procedure, dated March 3, 2015.”

DOE (U.S. Department of Energy) Environmental Management (EM-3) Memorandum, “Offsite Transportation Event Notification and Reporting,” J.M. Owendoff, April 24, 2008.

DOE (U.S. Department of Energy), “Financial Management Handbook.”

DOE (U.S. Department of Energy) *Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project* (DOE/EIS-0198).

DOE (U.S. Department of Energy), Manual 460.2-1A, “Radioactive Material Transportation Practices Manual.”

DOE (U.S. Department of Energy), *Moab UMTRA Project Container Inspection and Maintenance Procedure* (DOE-EM/GJRAC2110).

DOE (U.S. Department of Energy), *Moab UMTRA Project Debris Removal Processing IWP/JSA* (MB-IWP-JSA-017).

DOE (U.S. Department of Energy), *Moab UMTRA Project Emergency/Incident Response Plan*

(DOE-EM/GJ1520).

DOE (U.S. Department of Energy), *Moab UMTRA Project General Site Hazards IWP/JSA* (MB-IWP-JSA-001).

DOE (U.S. Department of Energy), *Moab UMTRA Project Hazard Communication Program* (DOE-EM/GJ1605).

DOE (U.S. Department of Energy), *Moab UMTRA Project Hazardous Residual Radioactive Material Processing IWP/JSA* (MB-IWP-JSA-023).

DOE (U.S. Department of Energy), *Moab UMTRA Project Hazards Survey* (DOE-EM/GJ2055).

DOE (U.S. Department of Energy), *Moab UMTRA Project Health and Safety Plan* (DOE-EM/GJ1038).

DOE (U.S. Department of Energy), *Moab UMTRA Project Health and Safety Suspected Hazardous Residual Radioactive Material Response Procedure* (DOE-EM/GJRAC 2160).

DOE (U.S. Department of Energy), *Moab UMTRA Project Motorized Equipment Inspection and Preventive Maintenance Program* (DOE-EM/GJRAC1726).

DOE (U.S. Department of Energy), *Moab UMTRA Project Public Participation Plan* (DOE-EM/GJ1542).

DOE (U.S. Department of Energy), *Moab UMTRA Project Quality Assurance Plan for the Remedial Action Contractor (RAC)* (DOE-EM/GJRAC1766).

DOE (U.S. Department of Energy), *Moab UMTRA Project Radiation Protection Program* (DOE-EM/GJ610).

DOE (U.S. Department of Energy), *Moab UMTRA Project Radiological Decontamination, Survey, and Statistical Release Plan for Residual Radioactive Material Transport Containers* (DOE-EM/GJRAC1873).

DOE (U.S. Department of Energy), *Moab UMTRA Project Records Management Manual* (DOE-EM/GJ1545).

DOE (U.S. Department of Energy), *Moab UMTRA Project Remedial Action Plan Addendum E, Remedial Action Inspection Plan* (DOE-EM/GJ1547).

DOE (U.S. Department of Energy), *Moab UMTRA Project Residual Radioactive Material Weight Determination Procedure* (DOE-EM/GJRAC2098).

DOE (U.S. Department of Energy), *Moab UMTRA Project Site Security Plan* (DOE-EM/GJ1532).

DOE (U.S. Department of Energy) *Moab UMTRA Project Spill Prevention, Control, and Countermeasure Plan* (DOE-EM/GJRAC1477).

DOE (U.S. Department of Energy), *Moab UMTRA Project Transportation Procedure* (DOE-EM/GJRAC2099).

DOE (U.S. Department of Energy), *Moab UMTRA Project Universal Waste Management Plan* (DOE-EM/GJRAC1920).

DOE (U.S. Department of Energy), *Moab UMTRA Project Waste Management Plan* (DOE-EM/GJ1633).

DOE (U.S. Department of Energy) Order 460.1C, "Packaging and Transportation Safety."

DOE (U.S. Department of Energy) Order 460.2A, “Departmental Materials Transportation and Packaging Management.”

DOE (U.S. Department of Energy) Order 470.4B, “Safeguards and Security Program.”

DOT (U.S. Department of Transportation), “2012 Emergency Response Guidebook.”

DOT (U.S. Department of Transportation), Special Permit DOT-SP 14283.

Executive Order 12977, “Interagency Security Committee.”

IATA (International Air Transport Association), “Transporting of Dangerous Goods by Air Shipper Certification Training.”

ISC (Interagency Security Committee), “Facility Security Committees, An Interagency Security Committee Standard.”

Attachment 1.
U.S. DOT Special Permit 14283

Attachment 1. U.S. DOT-Special Permit 14283

June 20, 2014



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

Pipeline and Hazardous Materials Safety Administration

DOT-SP 14283
(THIRD REVISION)

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of non-DOT specification bulk packages containing uranium mill tailings and debris with low levels of radioactivity from the former Atlas uranium processing facility in Moab, Utah and vicinity locations to a DOE owned disposal facility near Crescent Junction, Utah. This special permit authorizes alternative requirements for hazard communication and packaging. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with transportation in commerce.
 - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 172.203(g)(1) in that the reporting marks are waived, 172.302(a), 172.331, 172.332, and 174.59, in that the UN identification number is marked on two sides of each conveyance and intermodal container in the manner described in this special permit; §§ 172.310(b) and (c) in that packages must be transported without the package type and international vehicle registration code markings; § 172.403 in that a Radioactive

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label is not required; § 173.427(b) in that alternative packaging is authorized; §§ 173.443(c) and (d), 174.715(a), and 177.843(a) and (b) in that railcars, trucks, or trucks and pups may continue to be used under this special permit to pick up another load without the indicated radiation surveys after unloading; and § 174.26(a) in that the rail carriers generic train list format may be used in that the material being transported is all the same type of Class 7 material being moved in a dedicated train consist.

5. BASIS: This special permit is based on the application of the U.S. Department of Energy December 5, 2013, submitted in accordance with § 107.105, and the public proceeding thereon.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Radioactive material, low specific activity (LSA-II), non fissile or fissile-excepted	7	UN3321	N/A

7. SAFETY CONTROL MEASURES:

- a. PACKAGING - Authorized packagings are the rail car, intermodal container, haul truck, or pup-trailer, as described in the DOE application on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). These packagings are considered equivalent to the packagings authorized in § 173.427(b) for LSA-II radioactive material.

- b. OPERATIONAL CONTROLS -

- (1) Loaded rail cars, intermodal containers, haul trucks, and pup-trailers must be covered by a securely fastened hard cover or tarpaulin during transport. The covering used must ensure that there is no inadvertent release of the radioactive contents during transport under normal, non-accident conditions.

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- (2) All shipments under this special permit must be consigned as exclusive use. Exclusive use provisions in §§ 173.427(a)(6)(i) through (v) apply.
- (3) Uranium mill tailings to be shipped by rail car, haul truck, haul truck with pup-trailer, or intermodal container under this special permit must have an activity concentration of radium-226 no greater than 100 Bq/g (2700 pCi/g). Sampling of the contents of individual packages is not required; activity concentrations may instead be determined by DOE-approved site sampling procedures. All material is to be shipped as "Radioactive material, low specific activity, LSA-II, UN3321."
- (4) There must be no leakage of radioactive material from the conveyance. There must be no loose tailings or other contaminated materials on the surface of the covering at any time during transport under normal, non-accident conditions.
- (5) Shipping paper descriptions of package contents shipped under this special permit must assume the presence of LSA-II radioactive material, and must use conservative (maximum) values for the total activity and Transport Index (TI) for the container used, based on full containers and a worst case total activity concentration of 10,530 pCi/g, as described in the application. Example conservative total activities and TIs are:
- (i) Gondola rail car, content weight of 100 tons: total activity per rail car 0.035 TBq (0.956 Ci), TI 1.6.
 - (ii) Intermodal container, content weight of 43 tons: total activity per container 0.014 TBq (0.382 Ci), TI 1.4.
 - (iii) Haul truck, content weight of 20 tons: total activity per haul truck 0.007 TBq (0.191 Ci), TI 1.3.
 - (iv) Haul truck and pup, content weight of 33 tons: total activity per conveyance 0.012 TBq (0.318 Ci), TI 1.3.

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(v) Flatbed rail car carrying up to four intermodal containers, average content weight of 40 or less tons (two with 34 tons and two with 43 tons): total activity per rail car 0.056 TBq (1.528 Ci), TI per container 1.4.

(6) Each rail car, intermodal container, truck, and pup-trailer must be plainly and durably marked on at least two opposite sides as follows:

For Radioactive Materials Use Only
RQ, RADIOACTIVE-LSA
UN3321
DOE-SP 14283
Gross Weight¹: _____
Emergency Contact²: _____
Emergency Phone²: _____

¹ The gross weight must be either the actual gross weight or the maximum possible for each type of container.

² The emergency contact and phone number are to be determined by the special permit grantee.

The size of the markings must be as specified in § 172.302(b).

(7) The markings must not be removed or covered until the conveyance, including any intermodal container, is radiologically released in accordance with the conveyance release requirements in §§ 174.715(a) or 177.843(a).

(8) Emergency Response:

(a) In the case of an event resulting in the release of radioactive material, the DOE must ensure that procedures are in place so that:

(i) Spills are immediately reported to the DOE contractor responsible for the overall management of the specific clean up project;

(ii) The spill area is isolated to protect the public; and

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Continuation of DOT-SP 14283 (3rd Rev.)

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(iii) The spill is cleaned up in an expeditious manner.

(b) The DOE must ensure that a record is kept in a central location of all incidents during use of this special permit which resulted in a spill, including date, time, mode of transport, an estimate of the volume and activity released, and any other details deemed pertinent. This information must be made available to the AAHMS upon request. A summary of this data must be submitted to DOT whenever renewal of this special permit is requested, and upon termination of the shipping campaign.

(c) Reporting requirements of §§ 171.15 and 171.16 apply.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.

b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and rail freight.

10. MODAL REQUIREMENTS:

a. When transporting material under the conditions of this special permit by motor vehicle, the shipper must ensure that the truck driver has in their possession during transport a current copy of this special permit, the appropriate generic shipping paper, exclusive use instructions, and emergency response instructions.

b. When transporting material under the conditions of this special permit by rail freight, the shipper must ensure that the rail carrier has in their possession a current copy of this special permit, the appropriate generic shipping paper, the exclusive use and emergency response instructions. The

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rail carrier shall ensure that the train crew is provided with a complete and accurate generic train list document for each train movement and instruct each affected train crew member on the applicable provisions of this special permit, the exclusive use and emergency response instructions.

c. For shipments by rail car, the rail carrier transporting the rail cars containing the material addressed in this special permit must ensure compliance with all applicable regulations in 49 CFR Chapter II, Parts 200 - 299 - Federal Railroad Administration, Department of Transportation, and in 49 CFR Part 174, except for those citations specifically exempted.

d. For shipments by truck, the carrier must ensure compliance with applicable regulations in 49 CFR Chapter III, Parts 300 - 399 - Federal Motor Carrier Safety Administration, Department of Transportation, and in 49 CFR Part 177, except for those citations specifically exempted.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

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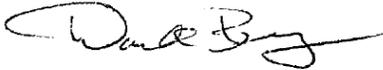
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Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: As specified in paragraph 7.b.(8)(b) and (c) of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: Boyle/TG