

THE REGULATORY FRAMEWORK FOR THE CLEANUP OF URANIUM MILL TAILINGS AT RIVERTON, WYOMING

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ABSTRACT

Permits and regulatory compliance measures for the cleanup of uranium mill tailings at the Riverton, Wyoming, UMTRA Project site will be required by Federal, state, and tribal governments. The proposed remedial action calls for stabilization of the tailings in place, with decontamination of adjacent lands, and construction of a low-permeability earth and rock cover. DOE's UMTRA Project poses questions for regulatory agencies as to how tailings cleanup will fit into existing permitting programs that are aimed at regulating proposed new industrial facilities. Major construction permits relate to control of surface water and ground water, mining of borrow materials, and access to Federal and Indian lands. Surveillance and maintenance of the site following remedial action will be licensed by the Nuclear Regulatory Commission. The review and summation of permits and government approvals in the Riverton Remedial Action Plan is part of DOE's technical assistance contract within the UMTRA Project.

INTRODUCTION

Obtaining permits for the Uranium Mill Tailings Remedial Action (UMTRA) Project requires coordination beginning with the preparation of concept designs and National Environmental Policy Act (NEPA) documents through the development of the final design and construction and licensing of long-term care of the disposal sites. Early interaction with regulatory agencies during the preparation of the concept design has laid valuable groundwork for the issuance of permits prior to construction. The major elements for the UMTRA Project permit strategy are outlined in the following pages.

BACKGROUND

Located approximately three miles southwest of Riverton, Wyoming, the Susquehanna-Western uranium mill was built in 1958 and processed ores from Gas Hills and Jeffrey City. After operations ceased, the 900,000 tons of tailings were covered with approximately 18 inches of gravelly soil as a stabilization measure. However, residual contamination remained surrounding the pile and at some properties away from the site. The tailings and processing site were selected for remedial action under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). Cleanup of the site and vicinity properties and further stabilization of the tailings will be required in order to meet the EPA standards¹ for inactive uranium tailings sites.

EPA STANDARDS

Pursuant to the requirements of the UMTRCA, EPA has identified the potential environmental and health problems posed by inactive uranium mill tailings sites and has promulgated standards to be met by remedial actions¹. The promulgated standards establish requirements for long-term stability and radiation protection and provide procedures for ensuring the protection of ground-water quality.

In developing the standards, EPA determined "that the primary objective for control of tailings should be isolation and stabilization to prevent their misuse by man and dispersal by natural forces such as wind, rain, and flood waters" and that "a secondary objective should be to reduce radon emissions from

tailings piles." A third objective should be "the elimination of significant exposure to gamma radiation from tailings piles." (Preamble to 40 CFR 192)¹. These conclusions were based on a determination that the most significant public health risks associated with inactive tailings were posed by exposure to people living and working in structures contaminated by relocated tailings. EPA further concluded that the inactive tailings did not pose a widespread threat to water quality and that the potential for contamination of ground water and surface water should be evaluated on a site-specific basis¹.

Complying with the EPA standards has become the focal point for the construction designs and specifications for the Riverton remedial action. Following completion of the construction, DOE will conduct a certification audit to demonstrate that remedial action is consistent with the remedial action plan, and thus complies with the EPA standards.

REMEDIAL ACTION

The concept design for remedial action at the Riverton site consists of the following major elements:

1. Excavating contaminated soils on and adjacent to the site and combining them with the tailings.
2. Covering the tailings and contaminated material with an earthen radon barrier that will also reduce infiltration of rainfall and snowmelt runoff.
3. Placing a rock erosion protection layer on top of the radon barrier layer.

As illustrated in Fig. 1, the major phases of planning and construction are directed by the U.S. Department of Energy (DOE) UMTRA Project Office with support from the Jacobs-Weston Team, the Technical Assistance Contractor (TAC); Morrison-Knudsen, the Remedial Action Contractor (RAC); and the State of Wyoming. Under the direction of DOE, the TAC has developed a concept design which has become part of the Remedial Action Plan. The TAC also has prepared a regulatory compliance appendix to the Remedial Action Plan, which presents an overview of the

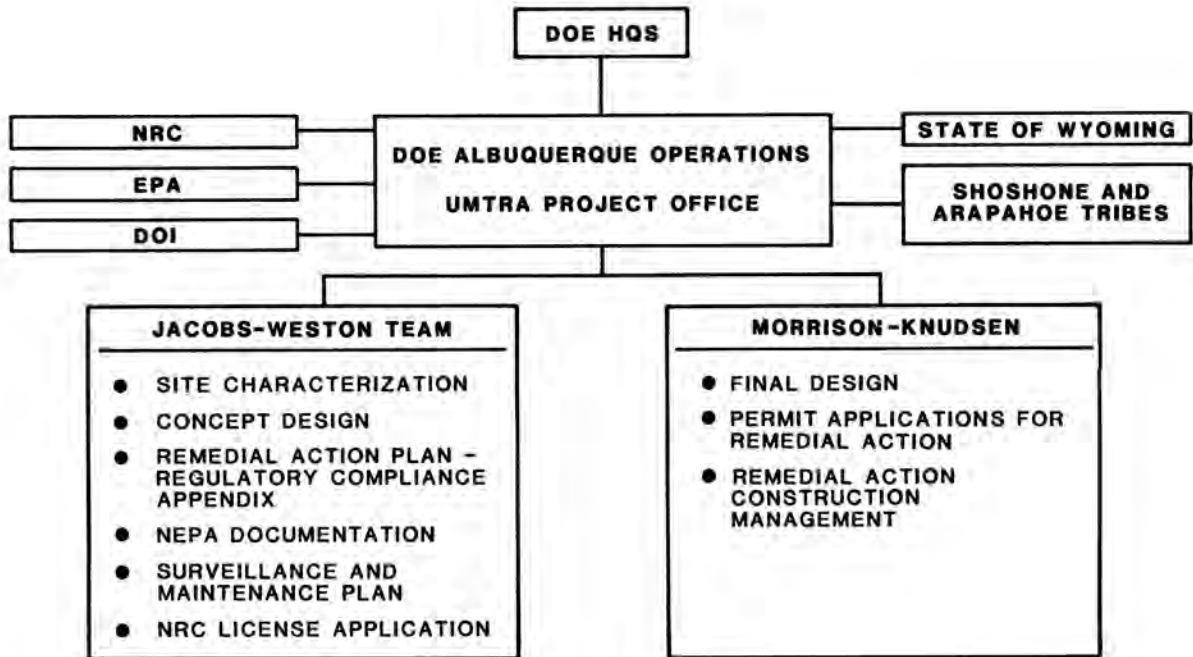


Fig. 1. Contractor Responsibilities-UMTRA Project Permits.

permits, licenses, and other government approvals for the remedial action. During the preparation of the final design, the RAC will utilize the regulatory compliance appendix as a guide in preparing permit applications.

FEDERAL, STATE, AND TRIBAL PERMITS

Amplifying on DOE's commitment to conduct the UMTRA Project in an open manner, the TAC endeavored to involve government agencies early in the planning process. After the first draft of the regulatory compliance appendix was prepared, a series of meetings were organized with Federal, state, and Indian tribal leaders to discuss permits and receive comments. A meeting with state officials was held in Cheyenne, Wyoming, prior to discussions with Federal and tribal representatives in Billings, Montana, and Fort Washakie and Lander, Wyoming. Representatives from both the TAC and RAC attended the meetings to assure communication with both design organizations. The series of meetings has proven to be effective in the following areas:

1. Introducing regulatory agencies to the UMTRA Project.
2. Developing rapport with regulatory personnel.
3. Identifying design specifications and permit requirements.
4. Familiarizing UMTRA Project staff with regulatory agency policy and procedures.

Comments from the agencies were addressed in preparing the final regulatory compliance appendix.

The location of the privately owned Riverton site within the external boundary of the Wind River Indian Reservation has complicated the permit jurisdiction issue. Recognizing the authority of the Shoshone and Arapahoe Indian tribes, Fremont County agencies and the State of Wyoming do not generally require permits for activities on tribal trust lands or Indian allotted lands. The Shoshone and Arapahoe Tribes maintain authority for land use planning on the above-mentioned lands and for privately owned lands within the reservation boundary. Activities on trust lands are also within the jurisdiction of the Bureau of Indian Affairs of the U.S. Department of Interior.

The required permits have been determined by comparing the land ownership and the location of the lands to be affected (within or outside the Reservation) with the permit jurisdictions described above. Table I lists the permits and agencies that will be involved with the planned remedial action. Of the 19 permits which have been identified, five are granted by Federal/tribal agencies while the remaining 14 are handled by state agencies. Additionally, an Environmental Assessment is being prepared to evaluate remedial action alternatives as required by the National Environmental Policy Act.

Some of the more complicated permits are 1) the permit to mine, 2) the permit to construct a waste-water treatment facility, and 3) the authorization for construction of a solid waste disposal facility. Extraction of soil and rock borrow material for the tailings pile cover will be subject to the Wyoming Department of Environmental Quality (DEQ), Land Quality Division regulations requiring a permit to mine. A detailed mine and

TABLE I

Permits, Licenses, and Approvals for Remedial Action at the Riverton, Wyoming UMTRA Project Site³

Permit, license, or approval	Granting or approving agency	Statute or regulation	Activity
NRC License	U.S. Nuclear Regulatory Commission	Public Law 95-604, Section 104(f)	Maintenance and surveillance at the facility after completion of the remedial action.
Free Use Permit	Bureau of Land Management	43 CFR 3611	Extraction of common minerals (clay, rock, etc.) on BLM administered lands.
Revokable Use Permit	Bureau of Indian Affairs, Shoshone and Arapahoe Indian Tribes	25 CFR 169	Decontamination of Indian lands.
Cultural Resource Clearance	Bureau of Land Management, Wyoming Recreation Commission, Bureau of Indian Affairs	National Historic Preservation Act; Archaeological Resources Protection Act	Any action which might impact cultural or historic resources.
Approval of Cleanup on BIA Road Right-of-Way	Bureau of Indian Affairs	-----	Decontamination along roads.
Air Quality Construction Permit	Wyoming Department of Environmental Quality (WDEQ), Air Quality Division	Wyoming Air Quality Standards and Regulations	Construction or modification of a new source of air pollution.
Approval of Borrow Site Soil Sampling Pits	WDEQ, Land Quality Division	Land Quality Division Regulations	Backhoe excavation of soil sampling pits.
Permit to Mine	WDEQ, Land Quality Division	Land Quality Division Regulations	Extraction of rock, clay, or earth borrow materials.
Petition of Voluntary Abandonment	Wyoming State Engineer's Office	State Engineer's Office Rules and Regulations, Part I, Surface Water	Abandonment of irrigation ditches.
Permit to Appropriate Ground Water	Wyoming State Engineer's Office	State Engineer's Office Rules and Regulations, Part II, Ground Water	Drilling water wells and dewatering of tailings.
Monitor Well Abandonment	WDEQ, Water Quality Division, Land Quality Division, and Wyoming State Engineer's Office	Water Quality Division Rules and Regulations; State Engineer's Office Rules and Regulations, Part II, Ground Water	Sealing of wells and drill holes.
Drill Hole Abandonment	WDEQ, Land Quality Division	Land Quality Division Rules and Regulations	Sealing of drill holes.
Waste-Water Discharge Permit	WDEQ, Water Quality Division	Water Quality Rules and Regulations	Controlled surface discharge of waste water.
Permit to Construct a Waste-Water Treatment Facility	WDEQ, Water Quality Division	Water Quality Rules and Regulations	Construction of sedimentation ponds or evaporation reservoirs.
Permit for Land Application of Waste Water	WDEQ, Water Quality Division	Water Quality Rules and Regulations	Use of waste water for dust control during construction.
Authorization for Construction of a Solid Waste Disposal Facility	WDEQ, Solid Waste Management Program	Wyoming Solid Waste Management Rules and Regulations	Disposal of building demolition debris.

TABLE I (cont)

Permits, Licenses, and Approvals for Remedial Action at the Riverton, Wyoming UMTRA Project Site³

Permit, license, or approval	Granting or approving agency	Statute or regulation	Activity
Permit to Construct a Reservoir	Wyoming State Engineer's Office	Wyoming State Engineer's Office Rules and Regulations, Part I, Surface Water	Construction of reservoirs or ponds for the retention of surface runoff water and use of water.
License to Encroach on Highway Right-of-Way	Wyoming Highway Department	Wyoming Statutes 24 through 64	Decontamination of highway right-of-way.
Wildlife Consultation	Wyoming Game and Fish Department	Wyoming Statutes 23-1-103 through 23-4-101	Consultation is required on projects which may affect wildlife.

reclamation plan and a reclamation performance bond are the main components of the permit. A waste-water treatment facility will treat and evaporate water from surface runoff and tailings dewatering during construction. The detailed design drawings and construction specifications for waste-water treatment are reviewed by the DEQ Water Quality Division prior to permit issuance. Demolition rubble from the mill building and other structures will be placed and compacted in the tailings as part of the remedial action. Disposal of the rubble will trigger the need for authorization of a solid waste disposal facility, governed by regulations of the DEQ Solid Waste Management Program.

In addition to requiring permits, the State of Wyoming requires that the remedial action comply with the environmental standards such as those protecting ground-water resources.

Permit applications for the remedial action will be prepared by the RAC during the final design phase. Generally, the RAC will also be the permit applicant except where agency regulations require the government sponsor, DOE, to apply directly for the permit (e.g., free use permit for borrow materials on BLM lands). DOE will be assisted by the TAC in preparing the NRC license application for the surveillance and maintenance of the final disposal site prior to completion of the remedial action.

NRC LICENSING

When the remedial action is nearing completion, the NRC licensing process for tailings surveillance and maintenance will begin. Title I of the UMTRCA defines the statutory authority and roles of the Department of Energy (DOE), the Nuclear Regulatory Commission (NRC), the Environmental Protection Agency (EPA), and the intent of licensing regarding inactive tailings sites. In part, Section 104(f)(2) of the UMTRCA, reads:

"...upon completion of the remedial action program...(the site) shall be maintained pursuant to a license issued by the Commission (NRC) in such manner as will protect the public health, safety, and the environment. The Commission (NRC) may, pursuant to such license or by rule or order, require the Secretary (DOE) or other federal agency having custody of such property and minerals to undertake such monitoring,

maintenance, and emergency measures necessary to protect public health and safety and other actions as the Commission (NRC) deems necessary to comply with the (EPA) standards..."

Accordingly, the remedial action must demonstrate compliance with the EPA standards (40 CFR 192), and thus, the prime objective of licensing is to ensure that a disposal site continues to comply with the EPA standards after remedial action.

The draft license application prepared by the TAC for submittal by the DOE to NRC will include the following items:

1. Legal description and site ownership.
2. Site surveillance and maintenance plan.
3. Reporting and recordkeeping requirements.

After technical review by NRC and completion of the site certification report, the NRC will approve the final license.

CONCLUSION

As the planning of the remedial action moves into the final design phase, the effectiveness of the UMTRA permitting strategy will become evident. So far, all of the government agencies have been supportive in efforts to incorporate permit requirements into remedial action planning. The fruit of our labors will be harvested when the final design is completed without the need for major changes or delays due to unforeseen permit requirements.

ACKNOWLEDGEMENT

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1. U.S. Environmental Protection Agency, "Standards for Remedial Actions at Inactive Uranium Processing Sites," Federal Register, Vol. 48, No. 3, January 5, 1983, 40 CFR Part 192 (1983).

2. U.S. Department of Energy, "Project Licensing Plan for UMTRA Sites," UMTRA-DOE/AL-150524.0000, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico (1984).
3. U.S. Department of Energy, "Draft Remedial Action Plan for Stabilization of the Inactive Uranium Mill Tailings Site at Riverton, Wyoming," UMTRA-DOE/AL-050507.0000, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico (1984).