2.0 Regulatory Framework

Ground water compliance strategies are being proposed for the Durango site to achieve compliance with EPA ground water standards applicable to Title I UMTRA Project sites. This section identifies the requirements of the Uranium Mill Tailings Radiation Control Act (UMTRCA), the EPA ground water protection standards promulgated in 40 CFR 192 Subpart B, NEPA, and other regulations that are applicable to the UMTRA Ground Water Project.

2.1 Federal Regulations

2.1.1 Uranium Mill Tailings Radiation Control Act

The U.S. Congress passed UMTRCA (42 U.S.C. 7901 *et seq.*) in 1978 in response to public concerns about the potential health hazards from long-term exposure to uranium mill tailings. UMTRCA authorized DOE to control, stabilize, and dispose of mill tailings and other contaminated materials at former uranium-ore processing sites.

UMTRCA has three titles that apply to uranium-ore processing sites. Title I designates 24 inactive processing sites to undergo remediation. It directs EPA to promulgate standards and mandates remedial action in accordance with those standards. Title I also directs remedial action to be selected and performed with the concurrence of the NRC in consultation with states and Indian tribes, authorizes DOE to enter into cooperative agreements with the affected states and Indian tribes, and directs NRC to license the disposal sites for long-term care. Title II applies to active uranium mills, and Title III applies to specific uranium mills in New Mexico. The UMTRA Ground Water Project has responsibility for administering only Title I of UMTRCA.

In 1988, Congress passed the Uranium Mill Tailings Remedial Action Amendments Act (42 U.S.C. 7922 *et seq.*) authorizing DOE to extend, without limitation, the time needed to complete ground water remediation at the processing sites.

2.1.2 EPA Ground Water Standards

UMTRCA requires that EPA promulgate standards for protecting public health and the environment from hazardous constituents associated with processing uranium ore and the resulting RRM. On January 5, 1983, EPA published standards in 40 CFR 192 for the cleanup and disposal of RRM. The standards for ground water compliance were revised, and a final rule was published on January 11, 1995, and codified in 40 CFR 192.

The standards in 40 CFR 192.02 (c)(1) require the Secretary of Energy to determine which constituents listed in Appendix I are present in, or reasonably derived from, RRM. Those standards also require the Secretary to determine the areal extent of ground water contamination by listed constituent. Sections 4.6.2 and 4.6.3 of this document, ("Ground Water Quality at the Mill Tailings Area," and "Ground Water Quality at the Raffinate Ponds Area," respectively), comply with these requirements and identify the constituents of potential concern (COPCs) at the Durango site.

The standards for cleanup address two ground water contamination scenarios. The first scenario addresses ground water contaminated as a result of RRM associated with disposal cells. Future protection of ground water at the disposal site is being monitored as part of the Long-Term Surveillance and Maintenance Program. The second scenario addresses ground water

contaminated as a result of RRM in the uppermost aquifer at the former processing site. The UMTRA Ground Water Project addresses this ground water contamination and is regulated by Subparts B and C of 40 CFR 192.

2.1.2.1 Subpart B: Cleanup Standards

The regulations allow the option of complying with four general standards. Three are numerical standards and are set forth in 40 CFR 192.02 (c)(3) as follows:

Background level—Concentrations of constituents in the uppermost aquifer in an area that were not affected by ore-processing activities.

Maximum Concentration Limit (MCL)—EPA-defined maximum concentrations for certain hazardous constituents in ground water; these are specific to the UMTRA Project. The MCLs for inorganic constituents that apply to UMTRA Project sites are given in Table 1 to Subpart A of 40 CFR 192.

Alternate Concentration Limit (ACL)—An ACL may be applied to a hazardous constituent if it does not pose a substantial present or future risk to human health or the environment, as long as the limit is not exceeded. An ACL may be applied after considering options to achieve background levels and MCLs.

Natural Flushing Standards

Subpart B also allows natural flushing to meet EPA standards. Natural flushing occurs when the naturally occurring ground water processes reduce the contamination to background levels, MCLs, or ACLs over time. Natural flushing must meet the ground water standards within 100 years. In addition, institutional controls (ICs) and an adequate monitoring program must be established and maintained to protect human health and the environment during the period of natural flushing.

2.1.2.2 Subpart C: Implementation

Subpart C provides guidance for implementing methods and procedures to reasonably ensure that standards of Subpart B are met. Subpart C requires that the standards are met on a site-specific basis using information gathered during characterization and monitoring. The plan for implementation must be stated in a site-specific GCAP and must contain a continued monitoring program, if necessary.

Supplemental Standards

DOE may, with NRC concurrence, apply a fourth option to contaminated ground water. Supplemental standards may be applied if any one of the following conditions is met as set forth in 40 CFR 192.21:

(a) Remedial action necessary to implement Subpart A or B would pose a significant risk to workers or members of the public.

(b) Remedial action to meet the standards would directly produce harm to human health and the environment that is clearly excessive when compared to the health and environmental benefits, now or in the future.

(c) The estimated cost of remedial action is unreasonably high relative to long-term benefits, and the RRM does not pose a clear present or future hazard.

(d) The cost of remedial action for cleanup of a building is clearly unreasonably high relative to the benefits.

(e) There is no known remedial action.

(f) The restoration of ground water quality is technically impracticable from an engineering perspective.

(g) The ground water is considered limited use ground water and is not a current or potential source of drinking water because:

—Concentrations of total dissolved solids (TDS) exceed 10,000 milligrams per liter (mg/L).

—Widespread ambient contamination is present that cannot be cleaned up using treatment methods reasonably employed in public water systems.

—The quantity of water available for sustained continuous use at a well is less than 150 gallons per day.

When the criteria for limited use ground water apply, "supplemental standards shall ensure that current and reasonably projected uses of the affected ground water are preserved" (40 CFR 192.22 [d]).

(h) Radiation from radionuclides other than radium-226 and its decay products is present in sufficient quantity and concentration to constitute a significant hazard from RRM.

If supplemental standards are applied, the regulations in 40 CFR 192.22 (c) also require DOE to inform anyone affected by the hazardous constituents and to solicit their comments.

One of the four cleanup standards (i.e., background, MCLs, ACLs, or supplemental standards) is selected on the basis of risk to human health and the environment. The methods available to achieve compliance include active remediation, natural flushing, no remediation, or any combination of the methods. Section 4.0, "Summary of Recent Field Investigations," presents a summary of the geology and ground water quality of the site; Section 5.0, "Conceptual Site Model," presents a summary of the hydrology and geochemistry of the site; and Section 6.0, "Summary of Human Health and Ecological Risk," evaluates potential risks at the site. This information provides the basis to select the compliance strategies to be applied to the COPCs. Section 7.0. "Ground Water Compliance Strategy," presents a discussion of the proposed compliance strategy that is specific to the two areas and includes a justification for selecting natural flushing for the mill tailings area and supplemental standards for the raffinate ponds area. Ground water at the raffinate ponds area can be designated limited use due to widespread ambient selenium contamination.

2.1.3 Cooperative Agreements

UMTRCA requires that compliance with ground water standards be accomplished with the full participation of the states and Indian tribes on whose lands uranium mill tailings are located.

Section 103 (a) of UMTRCA directs DOE to enter into cooperative agreements for remedial actions with the states and tribes. A cooperative agreement is currently in place with the State of Colorado.

2.1.4 National Environmental Policy Act

UMTRA is a major federal project that is subject to the requirements of NEPA. DOE NEPA regulations are codified in 10 CFR 1021, "National Environmental Policy Act Implementing Procedures." Pursuant to NEPA, DOE finalized a PEIS for the UMTRA Ground Water Project to analyze potential effects of implementing proposed alternatives for conducting ground water compliance at the UMTRA Project processing sites.

A Record of Decision (ROD) was published in April 1997 in which DOE's preferred alternative was selected on the information available at the time. This ROD gave DOE the option of implementing one or a combination of the following compliance strategies:

- Active ground water remediation
- Natural flushing (passive remediation)
- No ground water remediation

A Durango site-specific EA will be prepared to recommend the preferred remediation alternative and to address all environmental issues associated with the proposed alternative.

2.1.5 Other Federal Regulations

In addition to EPA ground water standards and requirements of NEPA, DOE must comply with presidential executive orders, such as those related to pollution prevention and environmental justice that may be relevant to the work being performed. Other federal regulations include those that require protection of wetlands and floodplains, threatened and endangered species, and cultural resources.

2.2 DOE Orders

A number of environmental, health and safety, and administrative DOE orders apply to the work being conducted under the UMTRA Ground Water Project. DOE orders prescribe the manner in which DOE will comply with federal and state laws, regulations, and guidance and the manner in which DOE will conduct operations that are not prescribed by law. DOE guidance for complying with federal, state, and tribal environmental regulations is given in the DOE Order 5400.1 series, which is partially superseded by DOE Order 231.1. DOE Order 5400.5 requires public protection from radiation hazards. DOE guidance for NEPA compliance is given in DOE Order 451.1, and specific guidance pertaining to environmental assessments is provided in *Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements* (DOE 1993b).

2.3 State Regulations

DOE must comply with state regulations where federal authority has been delegated to the state. These include compliance with state permits required for drilling, completing, and decommissioning monitor wells; water discharge; and waste management.