U. S. Department of Energy (DOE) Status and Planned Actions at the Riverton, Wyoming, Uranium Mill Tailing Radiation Control Act (UMTRCA) Title I Site

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Status and Action Summary

- Surface Remediation
- Groundwater Remediation
- Institutional Controls
- Environmental Monitoring
- Planned Actions
Surface Remediation

- Surface remediation completed in 1989
  - Cleanup of the mill site was a joint effort between DOE and the State of Wyoming
  - 1.8 million cubic yards of contaminated materials removed and transported to the Gas Hills East UMTRCA Title II disposal site
  - 42 vicinity properties cleaned up
  - Cost of $49,000,000
  - Cleanup approved by the U.S. Nuclear Regulatory Commission (NRC)
Surface Remediation (continued)

Mill Site Prior to Remediation 1976
Surface Remediation (continued)

Mill Site During Surface Remediation (1988)
Surface Remediation (continued)

Mill Site After Surface Remediation (1990)
Groundwater Remediation

- Site characterization, groundwater modeling, environmental and risk assessments, 1990 through 1998
- Ground Water Compliance Action Plan approved by NRC in 1998
  - Authorizes the natural flushing compliance strategy for groundwater remediation
  - Computer modeling indicates natural flushing will be complete within 100 years
  - Requires an ongoing monitoring program to assess progress and verify protection of public health
  - Requires institutional controls to protect the public and environment during the flushing period
Institutional Controls

Protection of the public and the environment

- Contaminated groundwater can pose a hazard if used for drinking water
- Goal of institutional controls is to eliminate access to contaminated groundwater
- Institutional controls require many layers to be effective
Institutional Controls (continued)

Alternate water supply system

- Installed in 1998
- Provides potable water to residents living near the former mill site
- DOE funding of $850,000 for system construction
  - System upgraded with 1,000,000-gallon storage tank
  - Over 9 miles of distribution pipe installed
- Five-year Cooperative Agreement with the Northern Arapaho Tribe finalized in 2011
  - $804,000 to address ongoing flushing, maintenance, and capital improvements
Institutional Controls (continued)

Alternate Water Supply System and Institutional Controls Boundary
Institutional Controls (continued)

Northern Arapaho Utility Organization
Hydrant Flushing
Other Institutional Controls

Completed and in place

- Institutional control boundary finalized
- Warning signs installed around Oxbow Lake
- Tribal ordinance restricts well installation and surface water impoundments
- Notification of existing groundwater contamination to area drilling contractors
- State of Wyoming alerts DOE if an application for a well permit or gravel permit is made
- Easement and covenant restricting land use on former mill site property owned by Chemtrade
Environmental Monitoring

- Cooperative Agreement with the Joint Business Council from 2005 to 2011
  - $739,000 to tribes for oversight, monitoring, reporting, document review, and interagency coordination
- Semiannual monitoring of groundwater, surface water, and domestic wells in the vicinity of the site
- Routine reporting of monitoring results
- Historic flooding of the Little Wind River in 2010 caused a spike in contaminant concentrations in flooded areas
Environmental Monitoring (continued)

Uranium Concentrations and River Stage

- **Uranium in Well 0707**
- **Little Wind River Gage Height**
- **National Weather Service Flood Stage**
Environmental Monitoring (continued)

Mean Concentrations in the Uranium Plume

![Graph showing mean plume concentrations over time with MCL markers.](image-url)
Aquifer Characterization

Proposed Sample Locations
Planned Actions

- Commitment to continue working with the Northern Arapaho and Eastern Shoshone tribes through long-term cooperative agreements
  - Finalize cooperative agreement with the Joint Business Council

- Additional site characterization and groundwater modeling planned in 2012

- Conduct supplemental risk assessment to quantify health and environmental risk

- Adjustment of monitoring programs as new information is obtained
Monitoring Data Availability

  - View data with dynamic mapping capability

  - Site information
  - Reports
    - Data validation
    - Verification monitoring
DOE Site Manager
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