

US EPA ARCHIVE DOCUMENT

U.S. Department of Energy (DOE)  
Uranium Mill Tailings Radiation Control Act  
(UMTRCA) Disposal Sites  
Licensing/Permitting Requirements

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Uranium Contamination  
Stakeholder Workshop  
Farmington, New Mexico  
November 2011



Mexican Hat, Utah



Monument Valley, Arizona



Shiprock, New Mexico



Tuba City, Arizona



# Presentation Outline

- ◆ UMTRCA-Enabling Legislation
- ◆ UMTRCA Sites on Navajo Reservation
- ◆ UMTRCA Standards for Cleanup
- ◆ U.S. Nuclear Regulatory Commission (NRC) General License for Long-Term Care of UMTRCA Sites
- ◆ Protocol for Transferring Sites

# Uranium Mill Tailings Radiation Control Act

- ◆ Congress passed UMTRCA in 1978; amended multiple times
- ◆ Title I of UMTRCA provided DOE with funding authorization to clean up 22 inactive uranium milling sites
- ◆ Title II of UMTRCA amended Atomic Energy Act of 1954 to give NRC regulatory authority over post-operational activities at currently licensed uranium milling sites
- ◆ UMTRCA requires government ownership of uranium mill tailings disposal sites (Title I and Title II) for long-term custody; DOE currently manages 21 Title I and 6 Title II disposal cells
- ◆ Title I of UMTRCA required cooperative agreements with states and tribes to participate in remediation activities
- ◆ UMTRCA authorized the U.S. Environmental Protection Agency (EPA) to develop cleanup standards in 40 *Code of Federal Regulations* (CFR) 192, "Protection of Environment"; surface cleanup standards were established in 1983, groundwater standards in 1995
- ◆ UMTRCA authorized NRC to review DOE's work and concur that DOE met the standards for Title I sites

# Uranium Mill Tailings Radiation Control Act (continued)

## Congressional actions to extend UMTRCA

- ◆ Congress extended UMTRCA three times to allow completion of Title I surface program in September 1998
- ◆ Congress extended DOE's authority, without a time limit, to remediate groundwater at Title I mill sites
- ◆ Congress directed DOE to keep the Grand Junction, Colorado, UMTRCA Title I Disposal Site open to receive uranium mill-related materials from other communities, such as Tuba City; this option is available to the Navajo Nation, assuming these materials meet the definition of UMTRCA materials and the disposal cell waste-acceptance criteria
- ◆ In 2009, Congress appropriated \$5 million for the cleanup of the Highway 160 site; remediation was completed by the Navajo Nation in August 2011 (material was sent to Grand Junction Disposal Site)



# UMTRCA Cooperative Agreements for Title I Sites

- ◆ Funding through the cooperative agreement
  - ❖ Allows tribal members to actively monitor and participate in ongoing site activities, attend meetings, and review documents
  - ❖ Establishes responsibilities between DOE and tribes
  - ❖ Provides regular communications between DOE and tribes
  - ❖ Allows tribes to provide an independent set of professional opinions on DOE decisions
- ◆ U.S. paid for 100 percent of remediation on tribal lands (only 90 percent on state sites)
- ◆ Allows permanent DOE right of access to sites through custodial access agreements
- ◆ Release of U.S. of any liability concerning remedial action



# UMTRCA Sites on Navajo Reservation



- ◆ DOE monitors and maintains three UMTRCA Title I disposal cells (Mexican Hat, Utah; Shiprock, New Mexico; and Tuba City, Arizona) and the cleanup of groundwater at the Monument Valley, Arizona, processing site
- ◆ Sites were cleaned up to EPA surface standards established in 40 CFR 192
- ◆ Remediation documented in Remedial Action Plan and Completion Report
- ◆ DOE will eventually take over the Church Rock, New Mexico, (Title II) site after NRC agrees that remediation meets standards

# UMTRCA Standards — Surface Cleanup

- ◆ Follows EPA standards at 40 CFR 192
  - ❖ Radium-226 concentration in soil, based on depth
  - ❖ Radon limits through the disposal cell cover
  - ❖ Longevity – 1,000 years or at least 200 minimum
- ◆ Disposal cell siting (seismic, geologic, hydrologic, etc., conditions)
- ◆ Erosion protection



# UMTRCA Standards — Groundwater

- ◆ Groundwater cleanup must meet EPA standards set forth in 40 CFR 192
- ◆ Strategies for Title I sites are outlined in Programmatic Environmental Impact Statement
- ◆ Three basic overall strategies include:
  - ❖ No remediation (meet standards, alternate concentration limits, supplemental standards, technical impracticability)
  - ❖ Active remediation (pump and treat, phytoremediation)
  - ❖ Natural flushing (meet standards in 100 years)
- ◆ Three Navajo sites have some form of active remediation
  - ❖ Pump and treat – evaporation (Shiprock)
  - ❖ Pump and treat – mechanical treatment (Tuba City)
  - ❖ Phytoremediation – land farming (Monument Valley)
  - ❖ Nutrient enhancements for biological remediation (possibly at Monument Valley)



# NRC General License for Long-Term Care of UMTRCA Sites

- ❖ After NRC concurs that the mill site was remediated and disposal cell was built to standards, the site transfers to the Office of Legacy Management, managed by DOE
- ❖ DOE has general licenses issued by NRC as described in 10 CFR 40.27, “General license for custody and long-term care of residual radioactive material disposal sites,” for Title I sites and 10 CFR 40.28, “General license for custody and long-term care of uranium and thorium byproduct materials disposal sites,” for Title II sites; the general license requirements are:
  - ❖ Long-term care, including surveillance, monitoring, maintenance, and the commitment to take emergency measures necessary to protect public health and safety
  - ❖ No termination of the license (last forever)
  - ❖ Site-specific long-term surveillance plan (LTSP)
  - ❖ Licensing is a two-step process for Title I sites, if groundwater restoration is not complete
    - **Only the disposal cell and related groundwater monitoring associated with the cell will fall under LTSP**
    - **LTSP will be modified at a later date after NRC concurs groundwater restoration meets applicable standards**

# NRC General License for Long-Term Care of UMTRCA Sites (continued)

- ◆ LTSP is required to contain (detailed conditions of the license):
  - ❖ Legal description of site; final (as-built) site conditions
  - ❖ Contingency actions and emergency responses
  - ❖ Responsibilities of long-term custodians
  - ❖ Required surveillance of site surface conditions
  - ❖ Required groundwater monitoring, including frequency of sampling, analytes to be sampled, concentration limits
  - ❖ Institutional controls, such as
    - **Deed restrictions**
    - **Environmental covenants**

# NRC General License for Long-Term Care of UMTRCA Sites (continued)

- ◆ Site management activities, including annual inspection and maintenance, followed by annual report
  - ❖ DOE, with tribal representatives, will inspect disposal cell for changes, damage, erosion
  - ❖ Perform cell maintenance, erosion control, weed control, fence repair, property management
  - ❖ Reports can be viewed by public at [www.lm.doe.gov](http://www.lm.doe.gov); in addition, all groundwater monitoring information is available for each site under “Mapping and Monitoring (GEMS)”
- ◆ Management of remedies involving groundwater and surface water
  - ❖ Sampling and analysis according to
    - **Groundwater Compliance Action Plan (Title I Sites)**
  - ❖ Verification that protection of human health and the environment is maintained



# DOE Long-Term Surveillance and Maintenance

- ◆ Mission is to ensure protectiveness of remediated UMTRCA sites
- ◆ Annual inspection and report
- ◆ Environmental monitoring as required in the LTSP
- ◆ Coordinate inspection and monitoring with the Navajo Nation
- ◆ Maintenance and repairs, as needed
  - ❖ Storm water damage at Shiprock
  - ❖ Remove unneeded ponds at Tuba City
  - ❖ Tumbleweed removal at Shiprock
- ◆ DOE uses local contractors to perform work
  - ❖ Internships for Diné College students
  - ❖ Approved construction companies

# Protocol to Transfer Sites to DOE

- ❖ NRC reviews reclamation plans to confirm standards have been met; prior to transfer to DOE, NRC ensures:
  - ❖ Site-specific LTSP is complete
  - ❖ Records that document site reclamation are transferred
  - ❖ Monitoring wells that are no longer required will be abandoned
  - ❖ Transfer of land and subsurface rights, site access is guaranteed
  - ❖ Unnecessary buildings, equipment, and trash are removed
  - ❖ Title II site licensees pay a fee into the U.S. Department of the Treasury for long-term care

# Conclusion

## Questions?

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