



# **Institutional Controls at Uranium Mill Tailing Radiation Control Act Sites**

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# Presentation Overview

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# UMTRCA Title I Sites: Program Requirements

- NRC issues a general license to DOE.
  - DOE assumes long-term custody; license does not expire.
  - License requires monitoring, maintenance, and emergency measures to protect public health and safety.
- US EPA regulatory standards for cell performance and groundwater.
- DOE develops and submits a long-term surveillance plan (LTSP) for NRC concurrence.
  - Disposal cell covers are generally required to last up to 1,000 years, and no less than 200.
  - DOE proposes ICs as a component of the LTSP submission.
  - LTSP requires annual inspections, including ICs verification and modification.
- If contaminated groundwater remains, DOE also develops and submits a groundwater compliance action plan (GCAP) for NRC concurrence.
  - GCAP may also include IC requirements.



# UMTRCA Title I Sites: Legacy Management (LM) ICs

- LM ICs strategy is based on DOE Policy 454.1 and DOE-HDBK-1240-2021.
- Some DOE IC categories modified to provide LM flexibility to fulfill mission.

LM IC Type	Description	Examples
<b>Administrative Controls</b>	Legal control	<ul style="list-style-type: none"> <li>• Proprietary controls (state statutory and common law such as easements and deed restrictions)</li> <li>• Government controls (e.g., land withdrawals)</li> <li>• Regulatory enforcement mechanisms (NRC-approved LTSP, GCAP)</li> </ul>
<b>Informational Controls</b>	Methods of preserving risk information for current and future generations	<ul style="list-style-type: none"> <li>• Informational devices (e.g., health advisories)</li> <li>• Protective measures (e.g., fact sheets)</li> </ul>
<b>Physical Controls</b>	Physical barriers and engineering or structural features	<ul style="list-style-type: none"> <li>• Disposal cells</li> <li>• Fences and signs</li> <li>• Survey and boundary monuments</li> <li>• Wellhead security</li> </ul>



# UMTRCA Title I Sites: Tribal Considerations

- Tribal lands held in trust by the federal government; tribes hold title to land through trust.
- Tribes determine land use.
  - No private land ownership in Navajo Nation; home-sites are leased.
- Tribes enforce ICs.
- LM works in cooperation with tribal agencies to prevent access to and use of disposal sites.



Personnel inspecting the Mexican Hat, UT disposal site in Navajo Nation



## Shiprock, NM Disposal Site

# Site Background

- Disposal site located in Navajo Nation, leased homesites nearby.
- Uranium tailings interred at processing site on a terrace trisected by drainages.
- Past milling operations left contaminants in groundwater system.
- Groundwater compliance strategies include:
  - 1) Active remediation in the eastern portion of the terrace;
  - 2) Supplemental standards in the western portion of the terrace; and
  - 3) Natural flushing in conjunction with active remediation in floodplain.
- LM fulfills custodial long-term care requirements under a DOE-Navajo Nation site access agreement.



As required by the LTSP, the permanent site monument informs the public of site closure and disposal cell content.



## Shiprock, NM Disposal Site

# Examples of Site ICs

LM IC Type	DOE IC Category	Description	Objective
<b>Administrative Controls</b>	Entry and Access Restrictions	DOE-NN site access agreement	Restrict public access to site and contaminated media. LTSP requires IC.
	Resource-and-Land-Use Management	Water-use restriction	Preliminary control restricts public access to contaminated groundwater. Tribe enforces IC.
		NN Grazing Committee Resolution	Restricts sheep grazing activities to protect the environment and public health. Tribe enforces IC.
<b>Informational Controls</b>	Site Information Systems	LM website, fact sheet	Educates stakeholders and public about nature of contamination and extent of controls. LM maintains IC.
<b>Physical Controls</b>	Entry and Access Restrictions	Disposal cell features	Protective measure to contain and mitigate risks to public and site workers. LM maintains IC.
		Fencing and gates	Protective measure to limit public access to site. LM maintains IC.
		Wellhead security	Protective measure to restrict public access to contaminated groundwater. LM maintains IC.



## **Collaborating to Develop Durable and Enforceable ICs**

- LM proposed a restricted water-use area to Navajo Nation over a period of several years; formalized our request in 2016.
  - Tribal residences, fairgrounds, and business in areas neighboring the site.
  - Water is scarce, truly a resource to the community.
- Navajo Nation site personnel and the LM site manager collaborated to explain groundwater issues, as well as concerns for public health, to the Navajo Water Code Office.
  - Knowledge of Navajo government structure is essential to reach the right decision-makers.
- The Navajo Water Code Office responded to LM's request in April 2017 and agreed to implement and enforce a preliminary water-use restriction IC.





## Gunnison, CO Disposal/Processing Site

# Site Background

- Site in two separate locations
  - Remedial action removed tailings from the processing site and relocated them to public land.
- Disposal site
  - Tailings encapsulated in disposal cell 6 miles east of the City of Gunnison.
  - Land transferred to DOE from Bureau of Land Management.
- Former Processing site
  - Site located one-half mile southwest of Gunnison.
  - Adjacent to an airport; close to a residential community.
  - State acquired ownership in 1990; transferred ownership to Gunnison County after cleanup.
  - Residual radioactive material remains in place.



DOE maintains signage and wildlife-friendly fencing around the disposal site to restrict public access while allowing for wildlife passage.



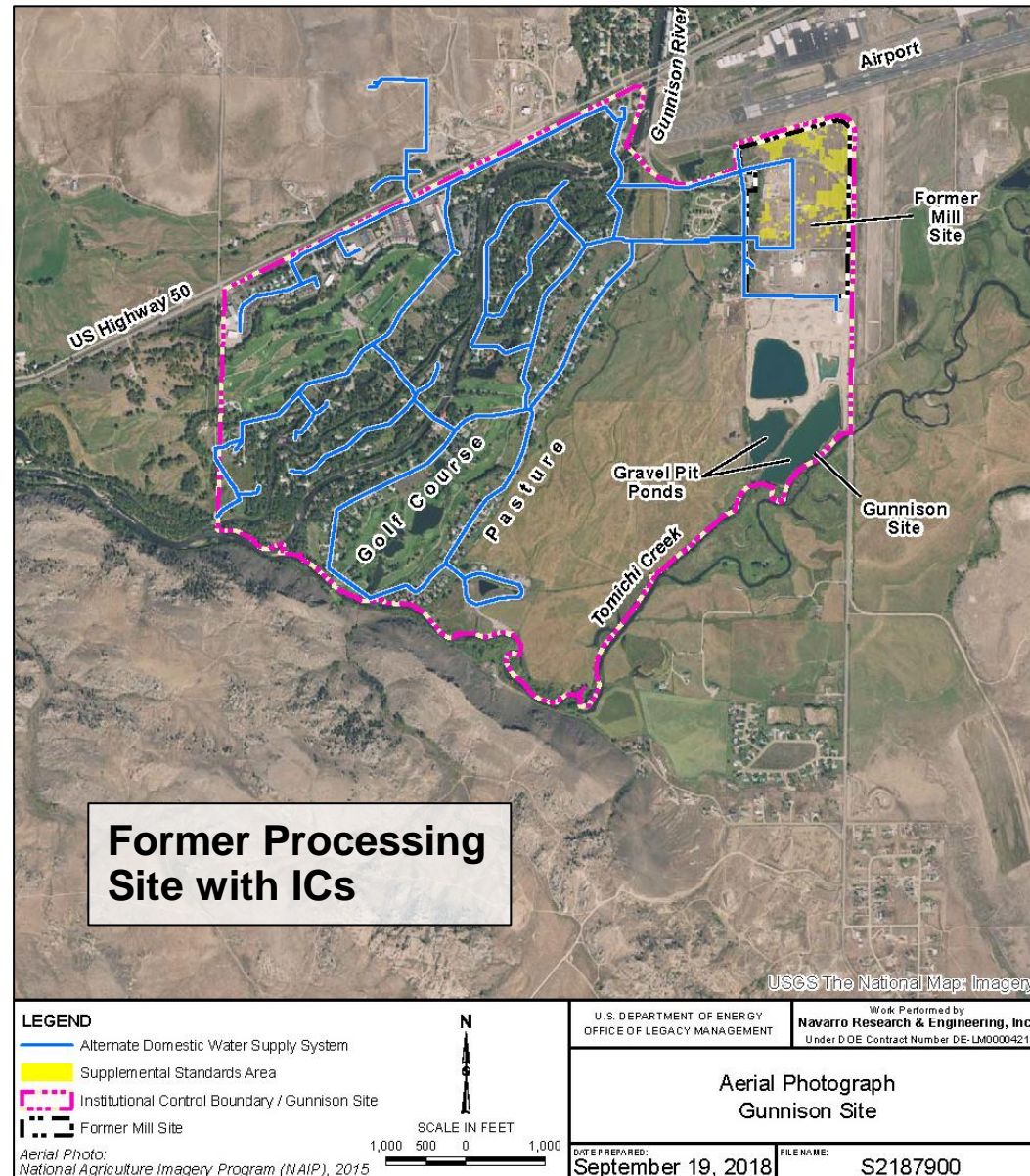
## Gunnison, CO Disposal/Processing Site

# Examples of Site ICs

LM IC Type	DOE IC Category	Description	Objective
<b>Disposal Site</b>			
<b>Administrative Controls</b>	Resource-and-Land-Use Management	Federal ownership	Control land access to protect the cell per the requirements of Public Land Order 6931.
		Government control through an environmental/statutory mechanism.	Preserve natural habitat; perform site inspections outside of Gunnison sage-grouse's breeding season to minimize impact to the endangered species. IC required per the ESA.
<b>Physical Controls</b>	Entry and Access Restrictions	Fencing	Limit access to protect the public as well as the integrity of the disposal cell. LTSP requires IC.
		Disposal cell features	Protective measure to contain and mitigate risks to public and site workers. LM maintains IC.
	Warning Notices	44 signs; site monument	Inform the public of hazard area. LTSP requires IC.
<b>Processing Site</b>			
<b>Administrative Controls</b>	Resource-and-Land-Use Management	Quit claim deed	Restricts access to groundwater and RRM; controls land use; ensures protection from radon gas; ensures continuity of ICs. State enforces IC.
		County water-use restriction resolution	Resolution restricts access to groundwater (e.g., designates a new domestic well constraint area). Gunnison County enforces IC.
<b>Informational Controls</b>	Site Information Systems	LM website, fact sheet	Educates stakeholders and public about nature of contamination and extent of controls. LM maintains IC.



# Gunnison, CO Disposal/Processing Site



## Land Redevelopment at Processing Site



Supplemental Standards area  
at the former processing site.

- Former processing site is now reused as a light industrial park.
- After remedial action was completed, State of Colorado donated processing site land parcel to Gunnison County via a quit claim deed.
- Quit claim deed also serves as an enforceable IC by the State
  - For example, Gunnison County may not construct a facility without written approval of construction plans (e.g., facilities type and location) by the State and DOE.
  - Ensures residual radioactive material within the *Supplemental Standards* areas is avoided during excavation activities, or appropriately handled when detected by a scintillometer or equivalent.

