



## Cathy Haney

U.S Nuclear Regulatory Commission

Deputy Executive Director for  
Materials, Waste, Research, State,  
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and Human Capital Programs

*NRC's Role in the Ten-Year Plan to Address  
Uranium Contamination on the Navajo Nation*

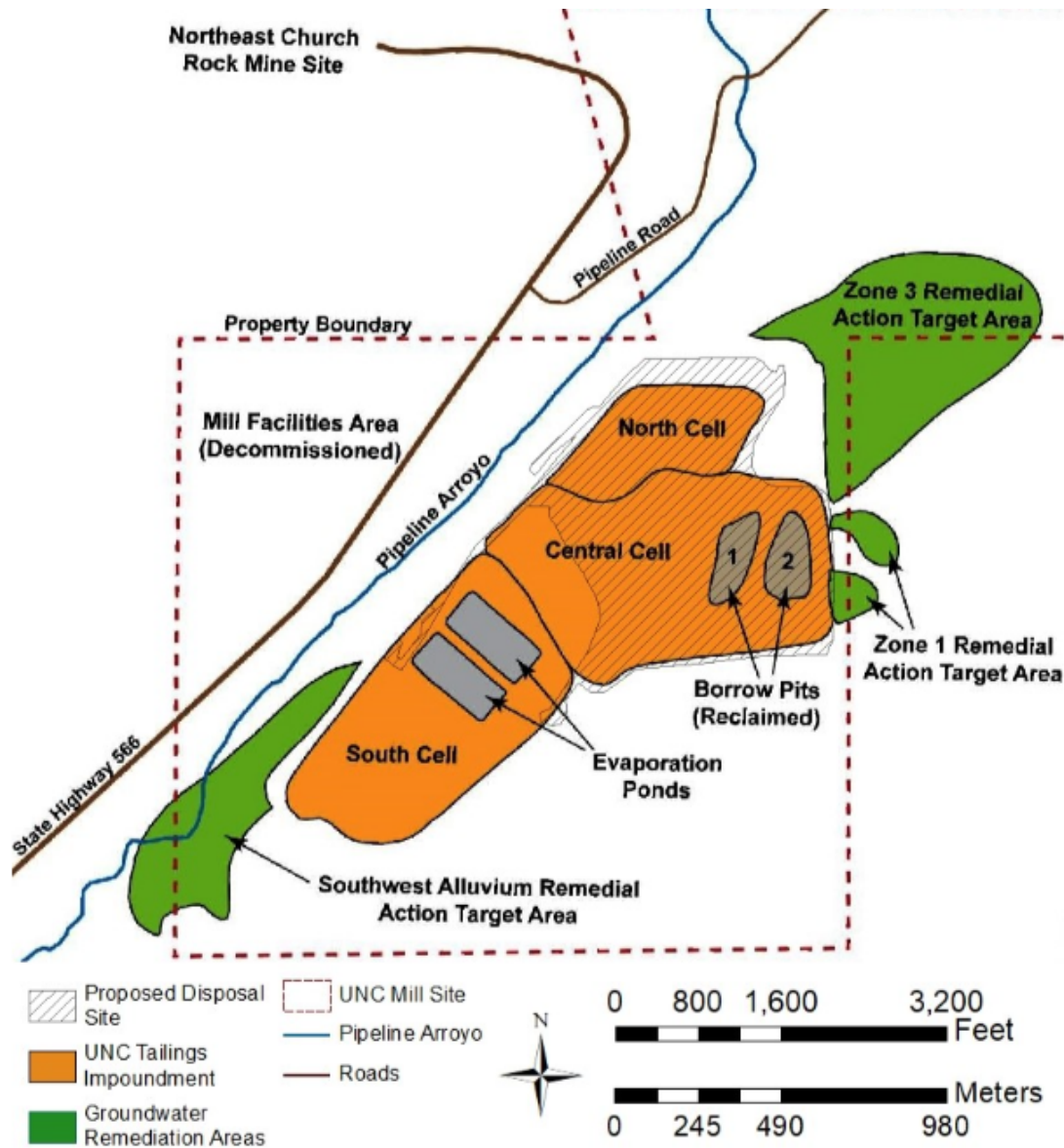
# Historic Tailings Dam Failure at the Church Rock Mill Site

- July 16, 1979: tailings dam failed, and tailings liquid and solids were released
- Mill was repaired and is in a safe configuration today
- Today: more stringent requirements to prevent future spills and accidents



Breach in Tailings Dam  
*Pasternak, 2010*





**UNC is  
decommissioning  
the former  
mill site**

Figure taken from NRC EIS

## NRC actively participates in the Ten-Year Plan

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- Regulates DOE's management of 4 former mill sites within the Navajo Nation
- Regulates the UNC Church Rock Mill site near the Navajo Nation
- Engaged with Navajo Nation on the Church Rock review to bring mine waste to the mill site





# NRC regulates uranium mill sites

Calco Mine Photo from Ten-Year Plan



Uranium Mines



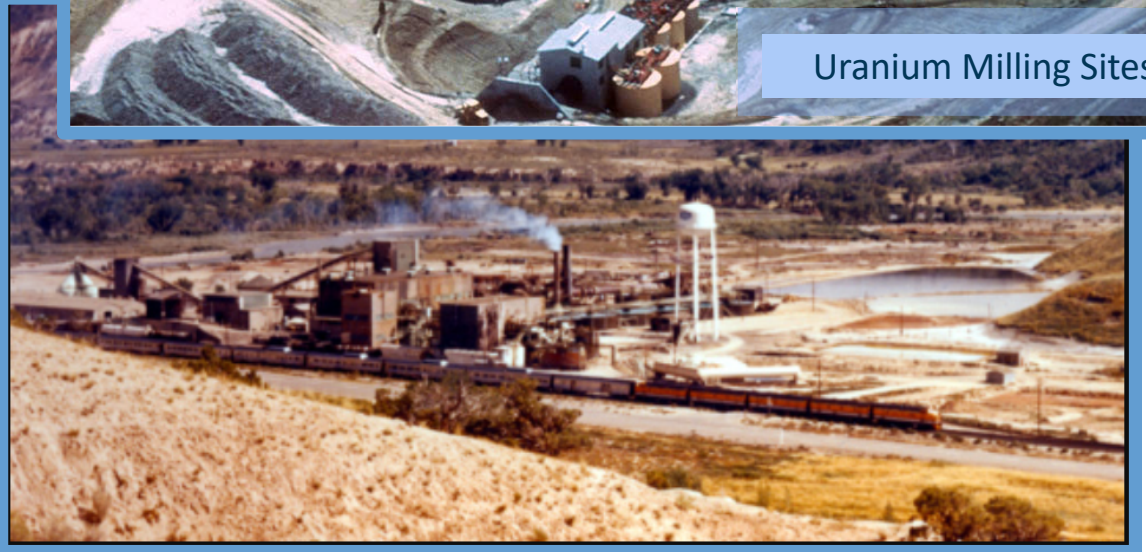
Northeast Church Rock Mine Site Cleanup Photo from EPA.gov

- NRC does **not** have role in permitting uranium mining.
- NRC oversees DOE's long-term care of the uranium mill sites.

L-Bar mill site Photo from Fluor.com



Uranium Milling Sites



Old Rifle mill site Photo from energy.gov



## Jessie M. Quintero

U.S. Nuclear Regulatory Commission  
Office Of Nuclear Material Safety and Safeguards  
Chief of the Environmental Review Materials Branch

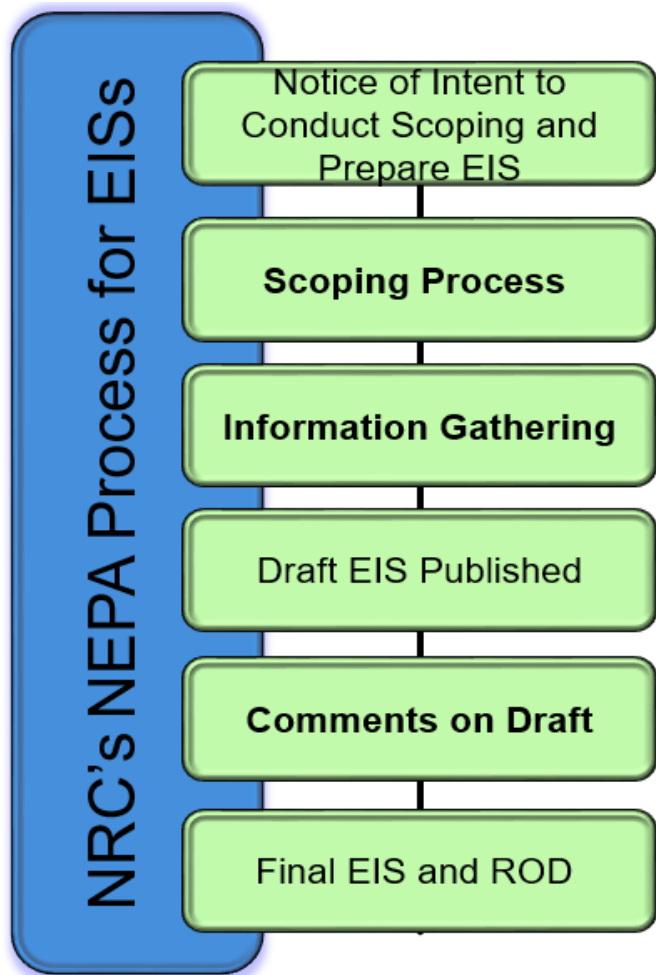
### *NRC's Review of Church Rock License Amendment Request*



## NRC ensures amendment request meets safety requirements

- UNC submitted a request to amend their NRC license so they could place Northeast Church Rock mine waste on their NRC-licensed Mill Site
- NRC is conducting a safety and environmental review
  - Expect to issue the Final EIS and Safety Evaluation Report in May
  - Final NRC licensing decision to be made in June



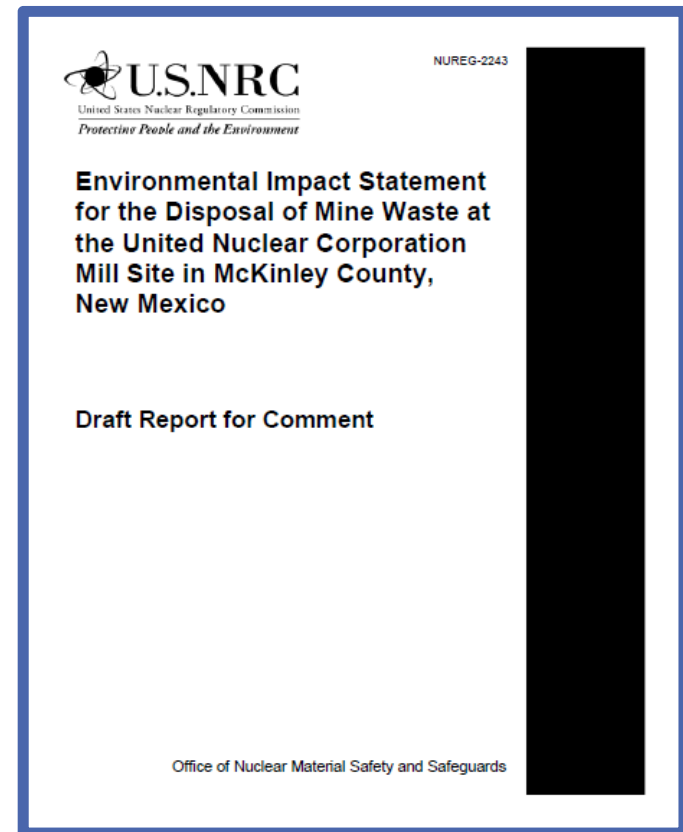


**NRC's NEPA process involves multiple opportunities for public input and engagement**

NRC's preliminary recommendation in the Draft EIS is the environmental impacts do not preclude the approval of the license amendment.

# NRC conducting thorough NEPA review

- The EIS includes evaluation of proposed action and no action and two iterations
- The EIS includes mitigation measures
- Changes between Draft and Final EIS will include:
  - Highlighting Navajo Nation perspectives
  - Inclusion of Programmatic Agreement (NHPA Section 6 Consultation)
  - Updated impact determinations
- Final EIS expected to be published in May
  - Will include NRC responses to comments on Draft EIS





## **NRC conducted consultation on cultural resources under NHPA Section 106**

- Resolving the Section 106 Consultation through Programmatic Agreement with multiple signatories
- U.S. EPA will be lead agency for overseeing the implementation of the Programmatic Agreement

**NRC coordinated and engaged with Navajo Nation and other stakeholders throughout its review**

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## John Lubinski

U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety and Safeguards  
Office Director

*Lessons Learned from Remediation  
Activities at Former Uranium Mill Sites*



# Typical Uranium Mill Lifespan

Site  
Characterization

Construction

Decommissioning

Long-Term Care

Licensing

Operation

License Termination

# Before and After Decommissioning and Reclamation



**Rio Algom – Ambrosia Lake  
Former Mill Site in Grants, NM**





Kennecott Sweetwater Site in Wyoming



Liner system during construction

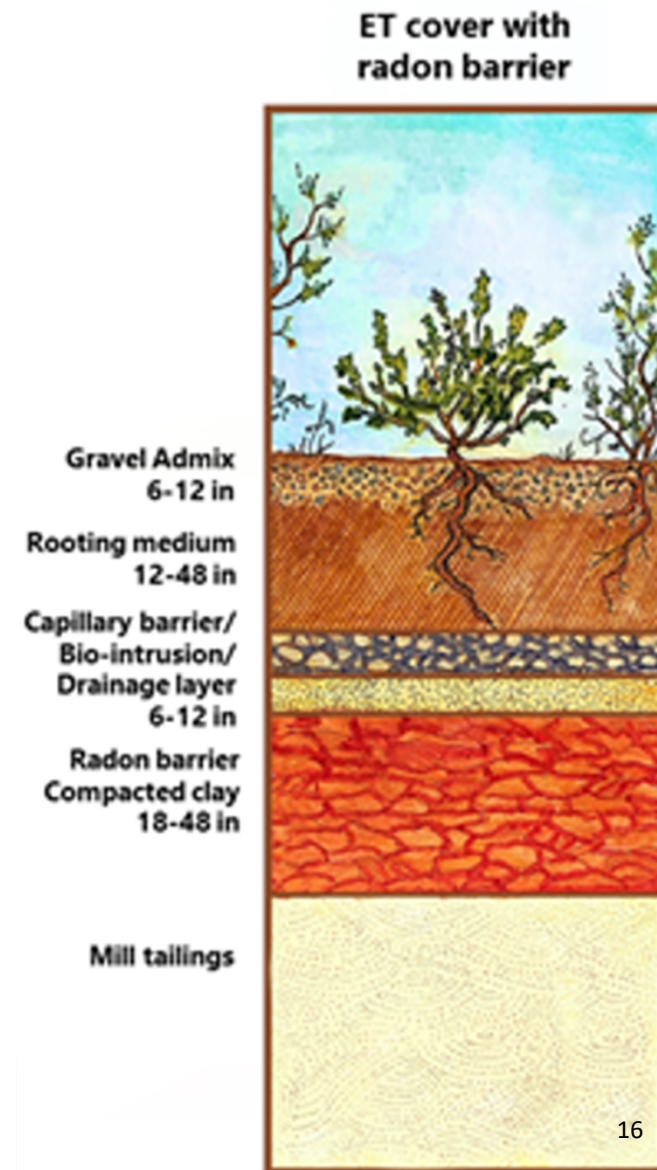
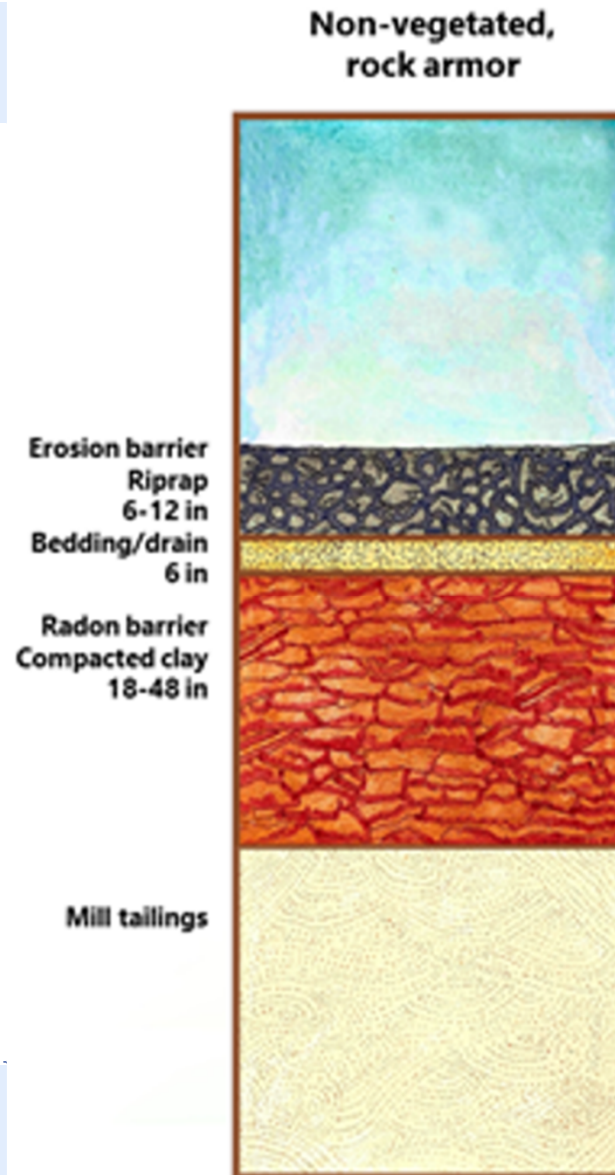
## Lessons Learned

- Liners to prevent seepage and monitoring to detect potential seepage
- Collaboration with DOE for efficiency in license termination process
- Future licenses to include modern safety features



# Lessons Learned

- Cover design innovation



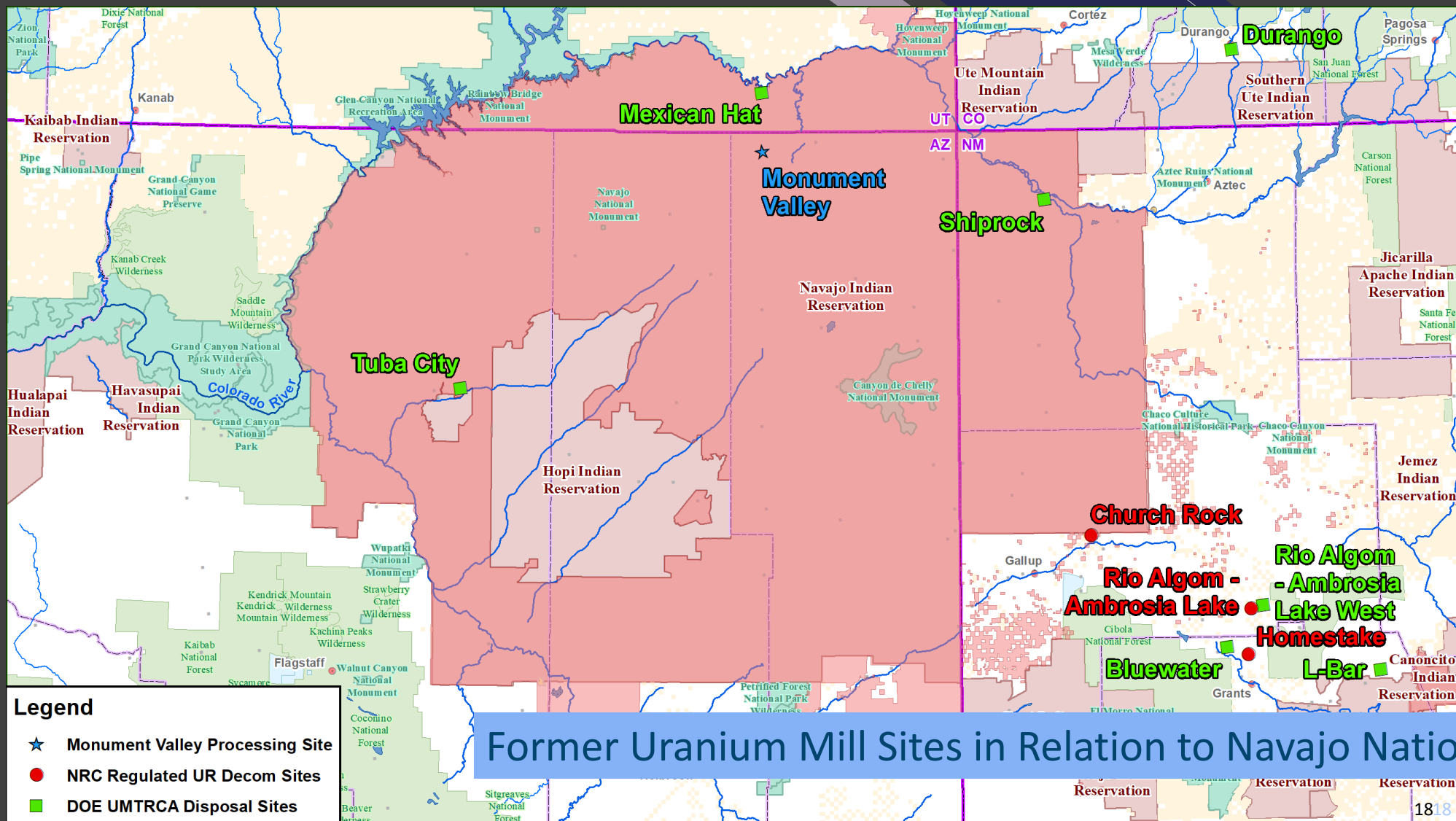


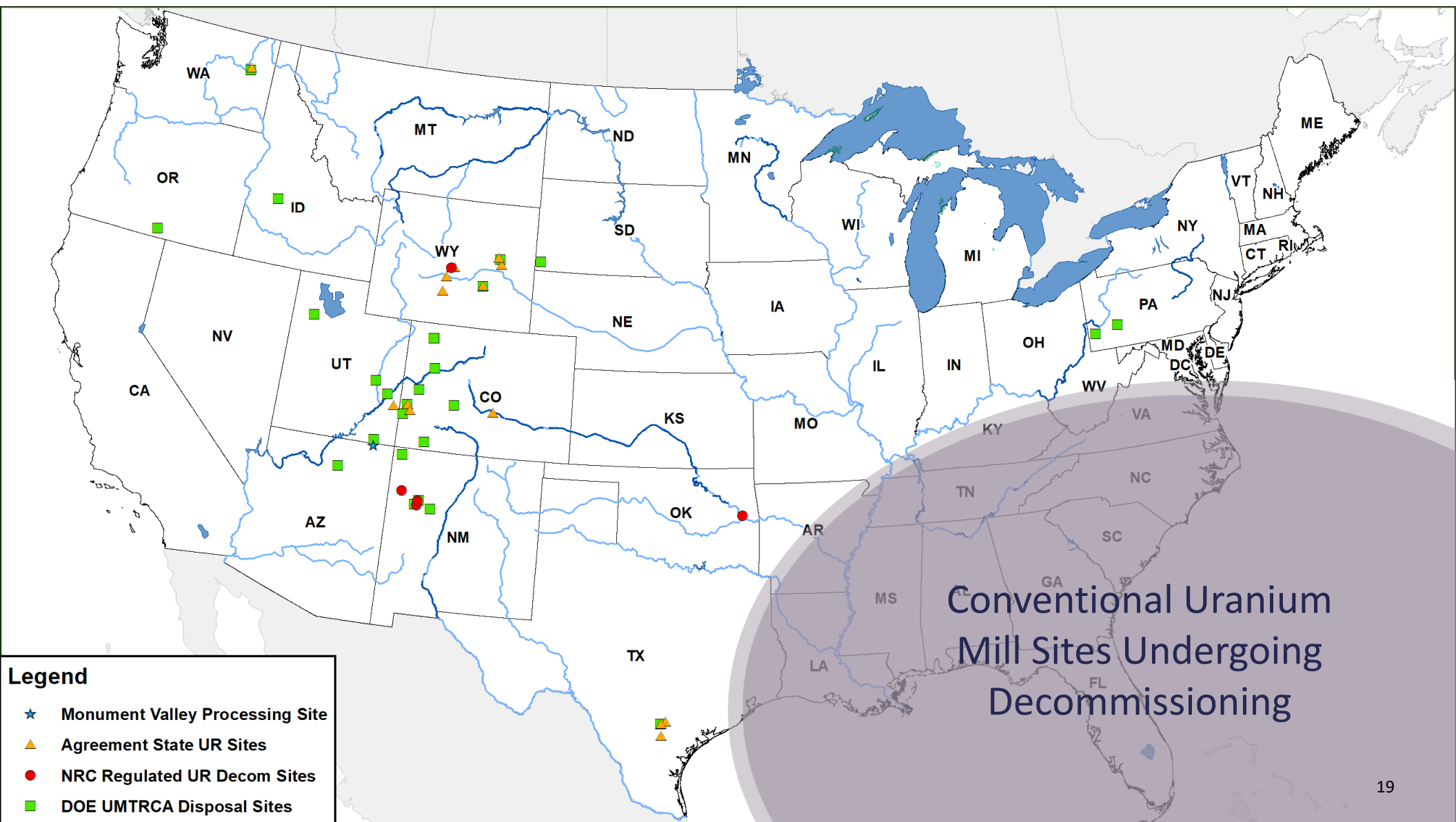
## Bill Von Till

U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety and Safeguards  
Chief of the Uranium Recovery and  
Decommissioning Branch

### *Current Status of Remediation of Former Uranium Mill Sites*







# UMTRCA Title I Sites on Navajo Nation

- Shiprock Disposal Site near Shiprock, New Mexico
- Tuba City Disposal Site near Tuba City, Arizona
- Mexican Hat Disposal Site near Mexican Hat, Utah
- Monument Valley Former Processing Site near Mexican Hat, Utah



Aerial Photo of Shiprock Site





Seminar at Salish Kootenai College in Montana



Seminar at the Navajo Technical University in Crownpoint, NM

## Tribal Outreach

- Collaboration on Ten-Year Plan
- Meetings for potential new uranium mill tailings site applications
- Seminars at Tribal Colleges on Radiation Effects, Uranium Recovery, & NRC's Regulations pertaining to NEPA



## Tribal Outreach Contd.

- NRC participates in the Community Outreach Network and other intergovernmental and Tribal outreach activities
- Uranium 101 courses
- Collaboration with the Navajo Technical University to develop STEM course materials



Milan, New Mexico

Interstate 40

# Ongoing Remediation at Former Mill Sites

- Homestake Mining Company of California, Grants Reclamation Project
- Grants, New Mexico
- Active groundwater remediation

Reverse Osmosis Building

Small Tailings Pile

Evaporation Ponds

Historic Mill Location

Large Tailings Pile

Evaporation Ponds

Aerial Photo of Homestake Site

Google Earth

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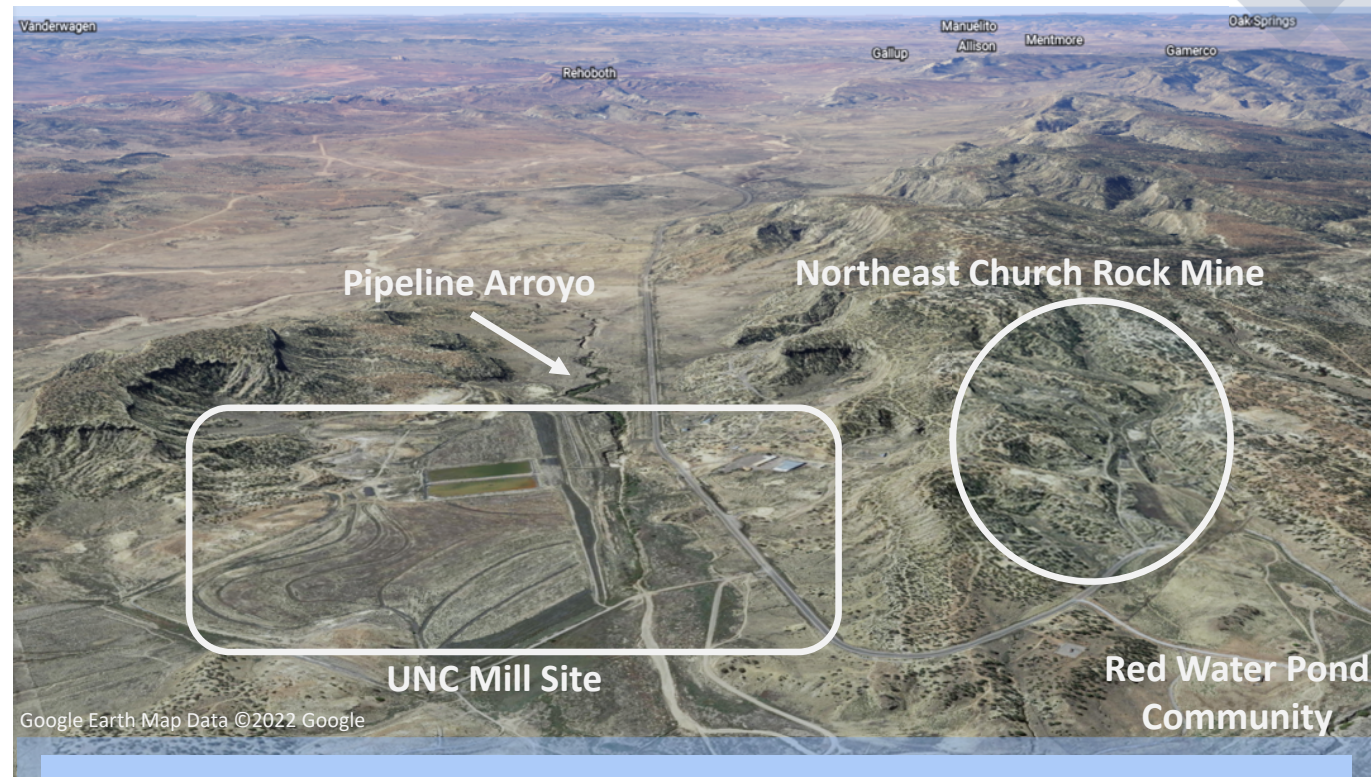
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# Ongoing Remediation at Former Mill Sites Contd.

- UNC Church Rock mill tailings site
- Gallup, New Mexico
- Groundwater remediation
- License amendment in progress
  - Mine waste relocation
  - Improved surface water hydrology in the Pipeline Arroyo
- Goal to make final licensing decision by June 2022



Aerial Photo of UNC Church Rock Site



# Ongoing Remediation at Former Mill Sites Contd.

## Sequoyah Fuels (pictured right)

- Gore, Oklahoma
- Final stages of remediation

## American Nuclear Corporation

- Fremont County, Wyoming
- Unfunded but stabilized
- NRC is working on options for funding

## Rio Algom – Ambrosia Lake

- Milan, New Mexico
- Final stages of remediation

Aerial Photo of Sequoyah Fuels

Google Earth Map Data ©2022 Google



# Acronyms

- DOE – U.S. Department of Energy
- EIS – Environmental Impact Statement
- EPA – U.S. Environmental Protection Agency
- NEPA – National Environmental Policy Act
- NPHA – National Historic Preservation Act
- NRC – U.S. Nuclear Regulatory Commission
- ROD – Record of Decision
- STEM – Science, Technology, Engineering and Mathematics
- UMTRCA - Uranium Mill Tailings Radiation Control Act
- UNC – United Nuclear Corporation
- UR – Uranium Recovery