



# Northeast Church Rock Mine Design Update

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • January 2020

## Design Overview

### Background

The United Nuclear Corporation (UNC) Mill Site and the Northeast Church Rock (NECR) Mine Site are located at the end of Route 566, about 17 miles northeast of Gallup, N.M. The U.S. Environmental Protection Agency (USEPA) has decided to clean up the NECR Mine Site by placing the mine waste in a repository at the nearby UNC Mill Site. USEPA is currently overseeing a design for this repository and this fact sheet describes the main activities included in the design.



United Nuclear Corporation Mill Site.  
(Photo courtesy of UNC.)

### What is a repository?

A repository is a place for holding waste. The UNC Mill Site repository for the NECR mine waste will consist of an engineered cell with a top (cover) and bottom (liner) to keep contamination from further polluting the environment.

### What is the repository design process?

The design is developed in two main phases. The first phase is to provide a general overview of how the repository will be constructed. The second phase is to provide a final design that includes detailed construction and technical specifications. USEPA approved the completed design for submission to the Nuclear Regulatory Commission (NRC) for a license amendment in 2018. This fact sheet provides an overview of this EPA approved design submitted to the NRC.

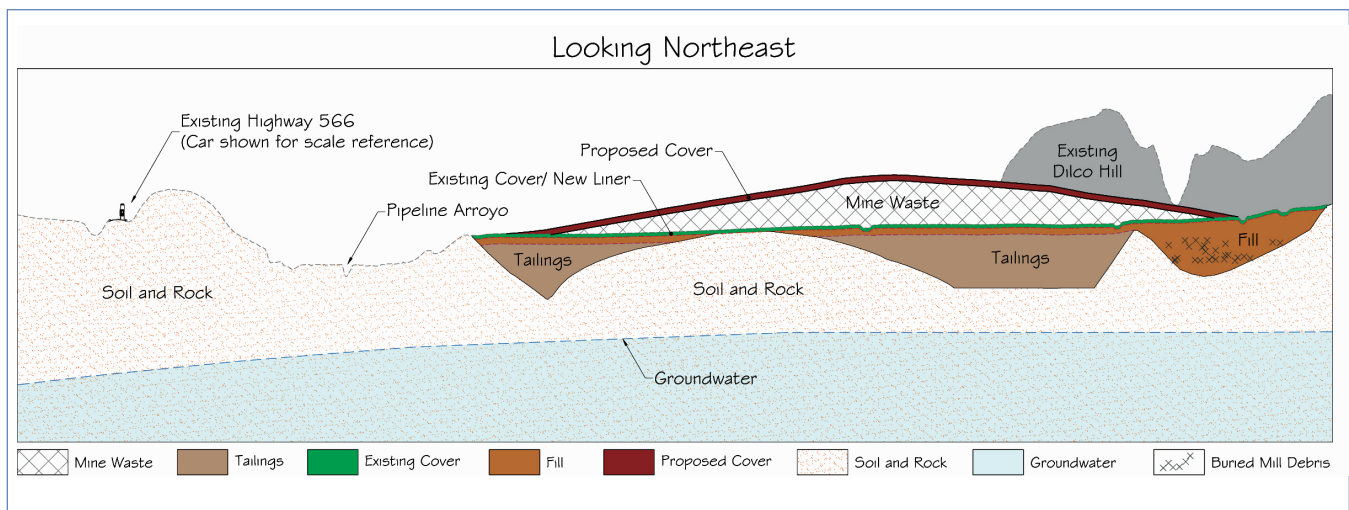


Figure 1: Overview of UNC Mill Site repository



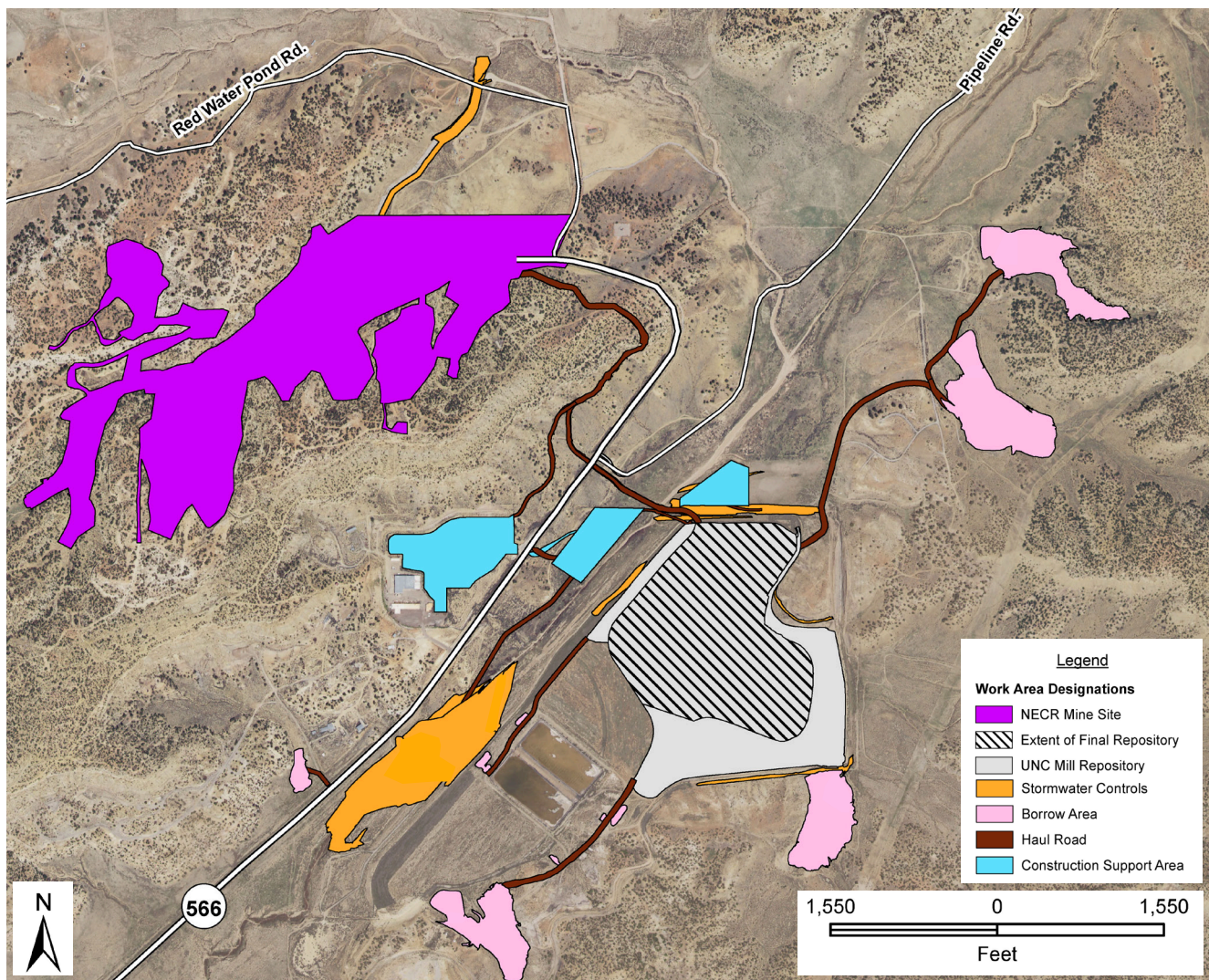


Figure 2: Work Areas at the NECR Mine Site and UNC Mill Site.

## Work Summary

### Step 1: Digging and Hauling

NECR mine waste would be dug up from the purple work areas shown in Figure 2 (labeled as "NECR Mine Site" in legend). Covered trucks would haul the waste to the UNC Mill Site. The trucks would use new roads to stay off public roads as much as possible. The trucks would cross Route 566 at a stoplight just south of the Pipeline Road turnoff (see Figure 2). Each truck carries 30 cubic yards (about 42 tons) of waste.



The mine waste would be transported in haul trucks similar to the one shown.

### Step 2: Placing Mine Waste and Covering

The mine waste would go in the repository, shown with black diagonal lines in Figure 2 (labeled as "Extent of Final Repository" in legend). The clay cover layer for the existing mill tailings cells (labeled as "Existing Cover/New Liner") would stay in place and serve as a liner for the mine waste. After placement of the mine waste on the liner, soil from the borrow areas would be mixed with rock to create an evapotranspiration cover (known as an "ET cover") that would cover the mine waste and prevent exposure to people and the environment. The cover also prevents wind and water erosion, and keeps rainwater and snow melt out of the mine waste. Figure 3 shows how an ET cover works. While most water runs off the cover, water that goes into the cover comes back out by evaporation or by plant roots taking up the water from the clean cover (transpiration). The rock in the cover minimizes erosion from wind or water. The cover is designed to last at least 1,000 years.



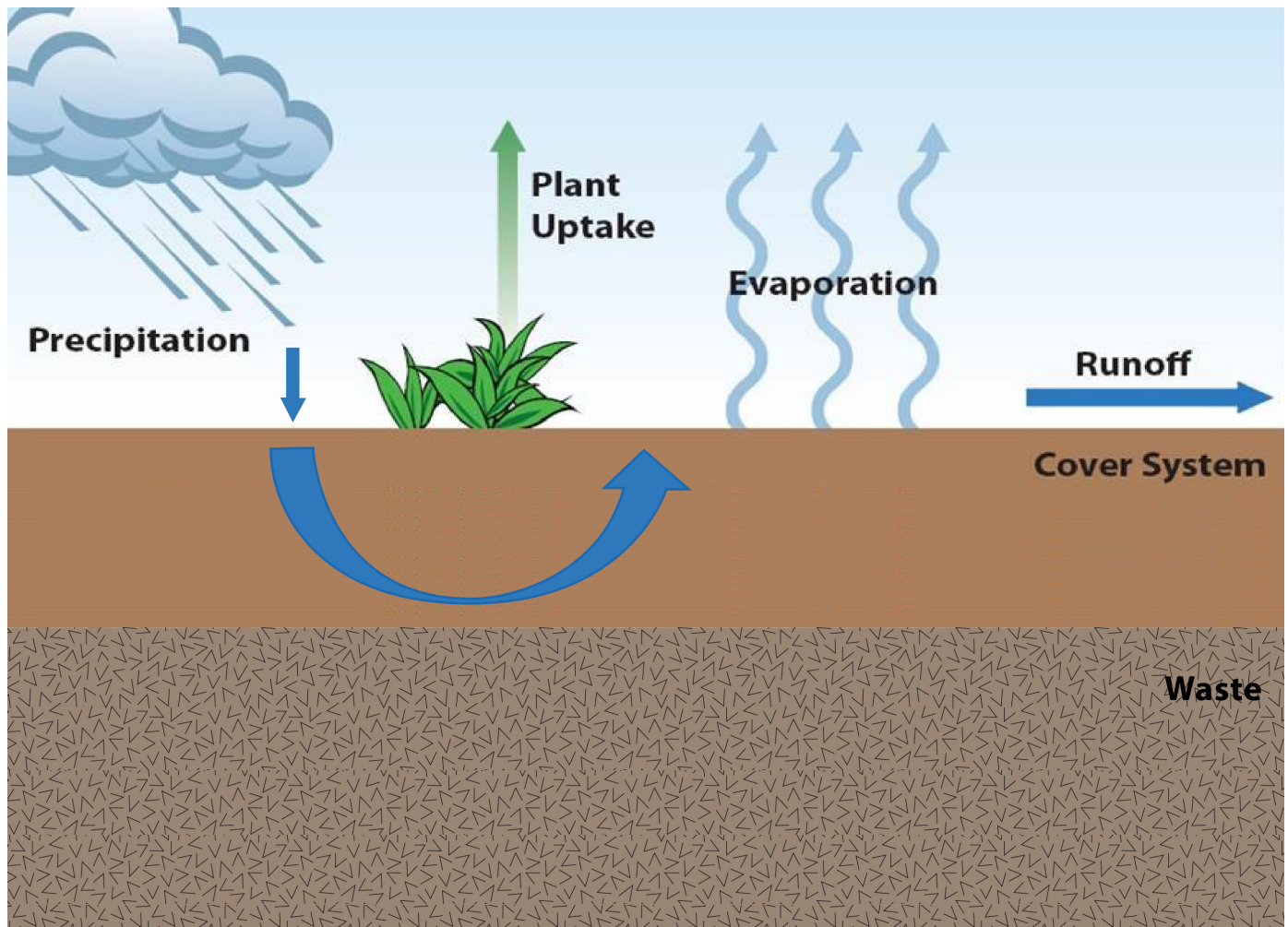


Figure 3: Conceptual Drawing of an ET Cover

### Step 3: Installing Stormwater Controls

Stormwater management, or "stormwater controls," is an important part of designing the waste repository. Stormwater controls keep soil from running off the work areas and stop water from eroding the repository or nearby areas. Figure 2 shows stormwater controls at the site in orange (labeled as "Stormwater Controls" in legend). The Pipeline Arroyo, that runs along the West side of the repository, would have major stormwater controls. A large engineered structure, would direct water flow away from the repository, preventing erosion.

### Step 4: Restoration at the NECR Mine Site

After removal of contaminated soil from the NECR Mine Site, USEPA would then conduct "verification surveys" to ensure all mine waste has been properly removed and the area is safe. Once the area has been certified as safe, the site would be regraded and revegetated.



Examples of previous revegetation on the NECR mine site at six and eighteen months after reseeding.

## Additional Information

### *Timeline*

In September of 2018, the company responsible for cleaning up the mine, UNC, which is owned by General Electric (GE), submitted a request for a license amendment (which includes the completed design) to the U.S. Nuclear Regulatory Commission (NRC) for construction. The NRC must approve the license amendment before construction can begin. The NRC estimates that the license amendment process will be complete in January of 2020. If NRC approves the request, USEPA would then negotiate a legal agreement with UNC/GE to construct the repository. Construction will take about four years.

### *Involved Parties*

UNC will conduct the NECR cleanup under the oversight of USEPA and a design review team.

The design review team includes staff from USEPA, Navajo Nation EPA, the New Mexico Environmental Department, the NRC and the U.S. Department of Energy. A local resident appointed by the Red Water Pond Road Community Association (whose members live close to the mine) is also part of the team. The resident receives technical assistance services through USEPA's Technical Assistance Services for Communities program.

### *More Resources*

For more information on the NECR repository design and construction plan, visit the technical document section of the NECR website found at: <https://www.epa.gov/navajo-nation-uranium-cleanup/eastern-region-abandoned-uranium-mines>

## Contacts

### **Sara Jacobs**

*USEPA Remedial Project Manager*  
(415) 972 – 3564  
*jacobs sara@epa.gov*

### **Priscilla Tom**

*USEPA Community Involvement Coordinator*  
(505) 240 – 0093  
*tom priscilla@epa.gov*

### **Dariel Yazzie**

*Navajo Nation EPA*  
(928)871-7601  
*darielyazzie@navajo-nsn.gov*