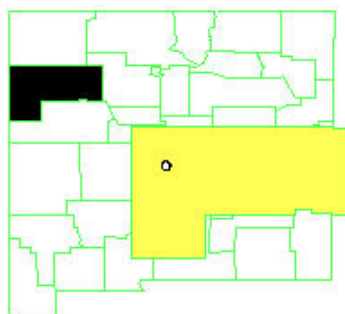


**UNITED NUCLEAR
CORPORATION
(MCKINLEY COUNT
NEW MEXICO**

**EPA ID# NMD030443303
Site ID: 0600819**



**EPA REGION 6
CONGRESSIONAL DISTRICT 03**

**Contact:
Mark Purcell 214.665.6707**

**Other Names:
UNC Mining and Milling
Church Rock Mill**

Updated: September 2009

Current Status

Remedial activities are being conducted by the United Nuclear Corporation (UNC) in accordance with an EPA Unilateral Administrative Order under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to mitigate tailings seepage in three shallow ground-water zones at the UNC Church Rock Superfund site (Site); the alluvium (referred to as the Southwest Alluvium) and Zones 1 and 3 of the Upper Gallup Sandstone Formation. The remedy consists of extraction wells to pump contaminated ground water and evaporation ponds for water disposal.

Currently, groundwater migration is not under control. The only ground-water extraction system being operated is for Zone 3. The extraction systems for Zone 1 and the Southwest Alluvium are shut off. The Zone 1 extraction system was shut down in 1999 because it had reached its limit of effectiveness in achieving the cleanup levels established by EPA in its 1988 EPA Record of Decision (ROD). Operational results for Zone 1 demonstrated significant declines in pumping rates over time due to insufficient natural recharge of the aquifers. The loss in saturation reached levels that did not support pumping and the systems were shut down. For the Southwest Alluvium, the extraction system provided partial hydraulic containment to tailing-seepage migration, but there was little progress in achieving some Site cleanup standards over time and the system was temporarily shutoff to perform a natural attenuation test.

The Zone 3 system was also shut down in 2000 for the same reason as Zone 1 and because it was accelerating the movement of the contaminated water, rather than containing it. However, over the last few years, UNC conducted other tests to enhance the performance of the extraction system for Zone 3 and stop the migration of the tailing seepage-impacted ground water. Those tests were unsuccessful, but operation of extraction wells at the leading edge of the seepage-impacted front was found to slow its advancement. Hence, UNC has continued to operate those wells and, in 2008, drilled new wells further down-gradient to continue to slow the seepage-impacted ground water, to the extent possible.

UNC continues to monitor ground-water chemistry in all three zones. UNC has evaluated the technical impracticability (TI) of achieving cleanup standards for sulfate, total dissolved solids (TDS) and manganese and recommended that EPA invoke a TI waiver for these constituents. UNC has also recommended the establishment of institutional controls to prevent the use of contaminated ground water in specific areas located off the UNC property on Navajo Tribal Trust and Indian Allotment lands.

EPA directed UNC to perform a Site-wide Supplemental Feasibility Study (SFS) in order to investigate and evaluate possible remedial alternatives and to support a possible ROD Amendment or Explanation of Significant Differences, as appropriate. As part of the SFS, EPA will examine the feasibility of establishing institutional controls to restrict the use of contaminated ground water. The SFS will also examine the technical impracticability of achieving some cleanup standards. EPA commented on UNC's first part (Part 1) of the SFS on an update of existing Site cleanup standards on January 25, 2008. The second part of the SFS was submitted in June 2009 and is under review.

On January 23, 2008 EPA initiated a third Five-Year Review. The review was completed and a 5-Year

Review Report was signed on September 17, 2008. The U.S. Army Corps of Engineers' Sacramento Office assisted EPA in performing the review. A Site inspection was performed on March 19, 2008. A community meeting was held on May 5, 2009 at the Pinedale Chapter House to provide a status update and summary of the 5-Year Review.

Benefits

The surface reclamation actions performed by UNC under the direction and oversight of the U.S. Nuclear Regulatory Commission (NRC) at the Site between 1988 and 1996 have stabilized the mill tailings and have protected the Rio Puerco from contamination spills like the one that occurred in 1979.

National Priorities Listing (NPL) History

NPL Proposed Date: 12/30/82

NPL Final Date: 9/08/83

Location: The Site is located 17 miles northeast of Gallup, New Mexico and on the southern border of the Navajo Indian Reservation.

Population: The surrounding area is sparsely populated, with the nearest residence located 1.5 miles north of the Site.

Setting: The Site includes a former uranium ore processing mill and tailings disposal area, which covers about 25 and 100 acres, respectively. The tailings disposal area is subdivided into three cells by dikes. The cells are identified as the South Cell, Central Cell, and North Cell. The tailings cells have been capped with an interim radon barrier cover as part of the reclamation activities directed by the NRC. Two evaporation ponds have been constructed on top of the cells as part of the EPA's ground-water remedy.

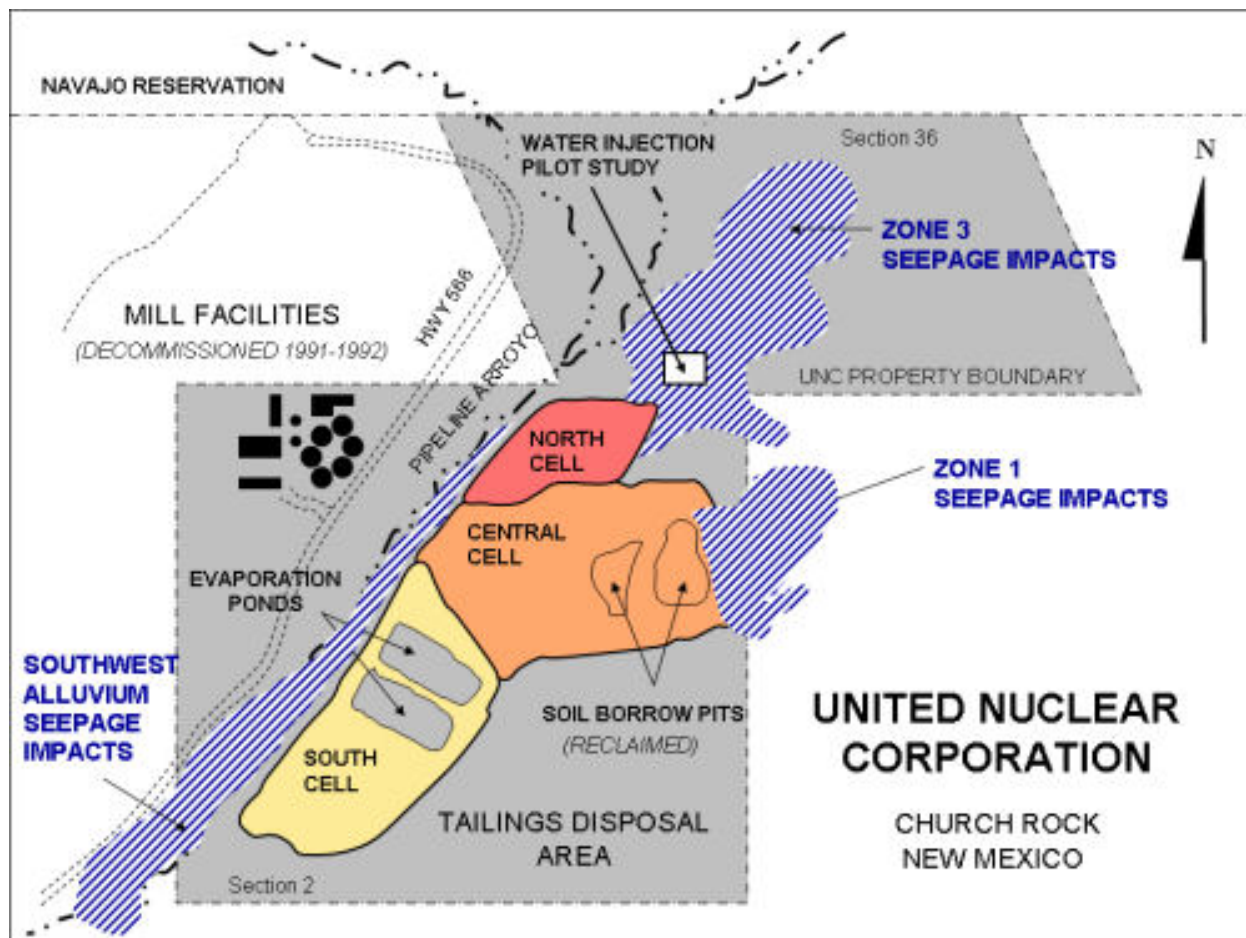
The surrounding lands include Indian Tribal Land, Indian Allotment Land and UNC-owned property. The land use near the Site is primarily grazing for sheep, cattle and horses. It is noted that the Ft. Defiance Housing Corporation, in conjunction with the U.S. Department of Housing and Urban Development and the Navajo Housing Authority, is planning to develop a 1000-unit housing complex, called the Springstead Estates Project, in the vicinity of Springstead (seven miles to the southwest of the Site).

Four water wells are within a 4-mile radius, the nearest being 1.7 miles northeast of the Site; however, nearby residents generally have used bottled water for drinking since the well water has a bad taste.

Hydrogeology: Three shallow water-bearing units beneath the Site were significantly recharged by mine water that was discharged into a local arroyo prior to and during Site milling operations. They are Zone 1 and Zone 3 of the Upper Gallup Sandstone Formations and the shallow alluvium (referred to as the Southwest Alluvium). These recharged units were then contaminated by tailings seepage from the Site. Underlying the Upper Gallup Sandstone Formation is the Mancos Shale. The Mancos Shale acts as an aquitard to prevent or retard the downward migration of contamination.

Principal pollutants: Acidic mill tailings, total dissolved solids, sulfate, thorium, radium, aluminum, ammonia, and iron

Site Map



Record of Decision

EPA signed the ROD on September 30, 1988.

The selected remedy included:

1. Containment and removal of contaminated ground water in the Southwest Alluvium and Zones 1 and 3 of the Upper Gallup Sandstone utilizing existing and additional wells.
2. Evaporation of ground water removed from aquifers using evaporation ponds supplemented with mist or spray systems to enhance the rate of evaporation.
3. Implementation of a monitoring program to detect any increases in the areal extent, or concentration of ground water contamination at, and outside of, the boundary of the tailings disposal area.
4. Implementation of a performance monitoring and evaluation program to determine water levels

and contaminant reductions in each aquifer, and the extent and duration of pumping actually required outside the tailings disposal area.

Ready-for-Reuse Determination

A Ready-for-Reuse Determination has not been made. The Site will be turned over to the Department of Energy for long-term care and monitoring of the tailings cells following closure.

Contacts

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Prime Contractor:	None	