Kennecott–Sweetwater Uranium Recovery Facility

Site Location and Facility Description

The Sweetwater Project facility is a conventional uranium recovery facility located about 42 miles northwest of Rawlins in Sweetwater County, Wyoming (Figure 1). The approximately 1,432-acre site includes an ore pad, an overburden pile, the mill area (comprising an administrative building, a uranium mill building, a solvent extraction building, and a maintenance shop), and a 60-acre tailings impoundment containing approximately 2.5 million tons of tailings material (Figure 2). The facility is currently in standby status.

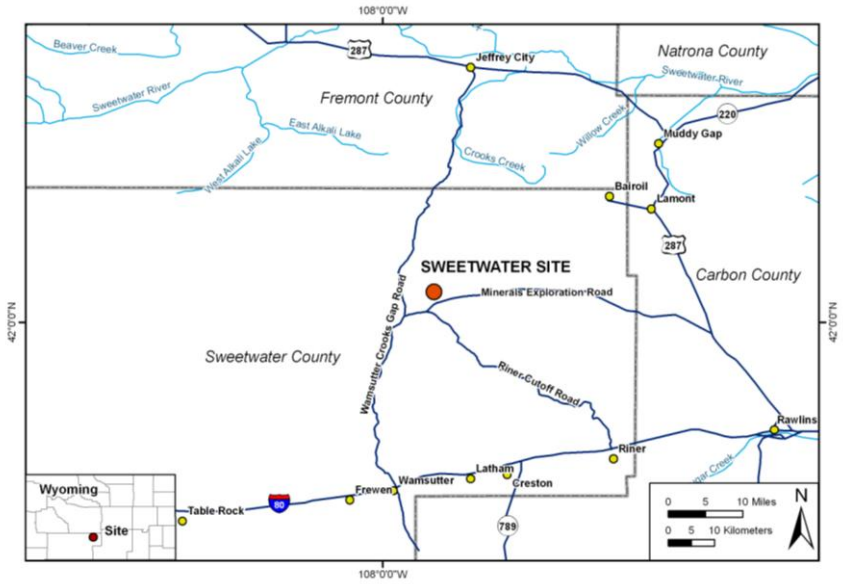

Figure 1. Sweetwater Project Site Location Map

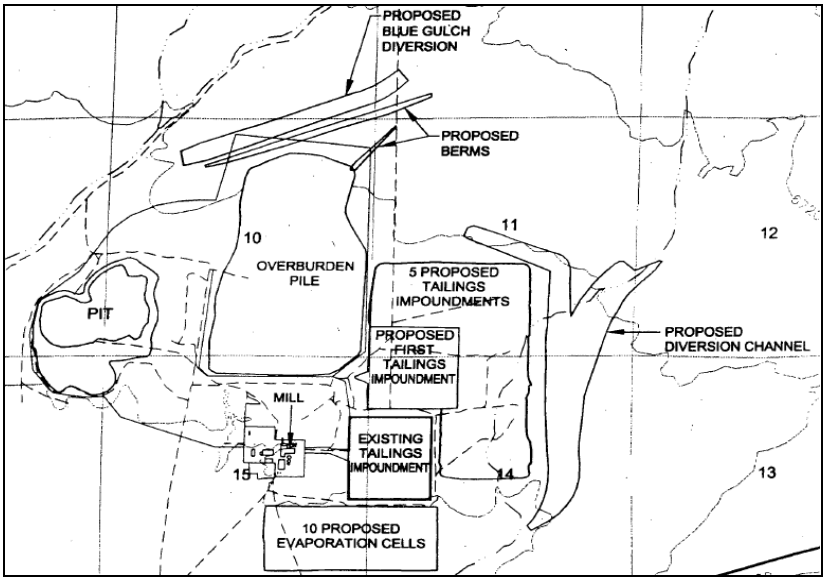

Figure 2. Sweetwater Project Site Layout[1]

[1]Source: U.S. Nuclear Regulatory Commission. "Environmental Assessment for Source Material License SUA–1350, Renewal for Operations and Amendment for the Reclamation Plan (Revision 1). Washington, DC: U.S. Nuclear Regulatory Commission. 1999.

Facility Licensing and Operating History

The U.S. Nuclear Regulatory Commission (NRC) issued Source Materials License SUA-1350 to Kennecott Uranium Company (Kennecott) in February 1979. The Sweetwater Project facility was constructed in 1980, operated from 1981 to 1983, and has been in standby status since 1983. During operations, a catchment basin was used to contain overflow fluids from the mill. Because the bottom of this basin was not lined, overflow fluids leaked into the ground over time. Kennecott conducted reclamation of the basin from 2005 to 2007, during which time approximately 233,000 cubic yards of contaminated soil were removed and placed into the tailings impoundment. Kennecott has regraded the material within the tailings impoundment to maximize the area of standing surface water, thereby promoting evaporation of liquid waste from the ongoing groundwater corrective action program (CAP), controlling the generation of dust, and reducing potential radon emissions from the tailings impoundment material.

Tailings Management and Disposal

The hydrogeologic units beneath the site and vicinity include recent alluvial, windblown, and lake deposits; the Eocene Battle Spring Formation; the Paleocene Fort Union Formation; and the Cretaceous Lance Formation. Depending on their hydrologic characteristics, these units (or aquifers) yield groundwater to wells and springs. Because of the closed nature of the Great Divide Basin, groundwater moves toward the center of the basin, located south and southwest of the site, discharges into playa lakes, and is lost mostly by evaporation.

Groundwater underlying the facility site has been contaminated because process fluids leaked beneath the catchment basin that was used to contain overflow fluids from the mill. To address contamination, a groundwater CAP is being implemented at the Sweetwater facility. This program includes groundwater monitoring at more than 60 tailings monitoring wells, point-of-compliance wells, and groundwater recovery wells. Samples from these wells are analyzed for chemical and radiological constituents. Also, the CAP uses nine pumpback wells to extract contaminated groundwater for discharge into the tailings impoundment, which contains an enhanced evaporation system to expedite disposal of the groundwater through evaporation. Kennecott operated the pumps and associated evaporation system during 2007–2008 as the license required.

Additional Information

For more information about the Sweetwater Project facility, visit the U.S. Nuclear Regulatory Commission (NRC) uranium recovery website at http://www.nrc.gov/info-finder/materials/uranium/ or contact the NRC facility project manager, James Webb, at (301) 415-6252 or james.webb@nrc.gov.