

# Sequoyah Uranium Recovery Facility

## Site Location and Facility Description

The former Sequoyah Fuels Corporation (SFC) facility is located in Sequoyah County in mideastern Oklahoma about 150 miles east of Oklahoma City, Oklahoma; 40 miles west of Fort Smith, Arkansas; 25 miles southeast of Muskogee, Oklahoma; and 2.5 miles southeast of Gore, Oklahoma (Figure 1). The 600-acre facility site is situated above the east bank of the Illinois River at its confluence with the Arkansas River. This area is owned by the Federal Government and managed by the U.S. Army Corps of Engineers.

The SFC site (within the institutional control boundary; Figure 2) includes an 85-acre Process Area where high-purity uranium hexafluoride (UF<sub>6</sub>) was produced from yellowcake; the remaining portion was used to manage storm water and store byproduct materials. Most of the land outside of the institutional control boundary is used either for grazing cattle or producing forage. In addition to the main processing facilities, the site also included (i) a yellowcake storage area, (ii) a yellowcake sampling facility, (iii) a bulk chemicals storage area, (iv) a fluorine production facility, (v) treatment systems and storage ponds for liquid effluent streams, and (vi) an ammonium nitrate recovery facility. Other facilities within the site included a

yellowcake drum storage area, electrical substation, UF<sub>6</sub> cylinder storage area, tank farm for liquid chemicals and fuel oil, cooling tower, sanitary sewage facilities, retention ponds for sludge and fertilizer processing, and an emergency water supply reservoir.

## Facility Licensing and Operating History

The facility was constructed in 1969 and operated as a uranium conversion facility providing purification and conversion of yellowcake to UF<sub>6</sub> for private nuclear utilities from 1970 to 1992. SFC ceased operating the facility in 1993. In December 2002, the U.S. Nuclear Regulatory Commission (NRC) issued a license amendment to allow possession of byproduct material. The facility is now in decommissioning status, and the estimated closure date is December 1, 2012. Site decommissioning will include dismantlement and removal of systems and equipment, demolition of structures, removal and treatment of sludges and sediments, remediation of contaminated soils, and treatment of wastewater. In November 2009, SFC began construction of the 8.3-million-cubic-foot onsite disposal cell in which most of the residual waste material will be placed for permanent disposal (Figures 2 and 3).

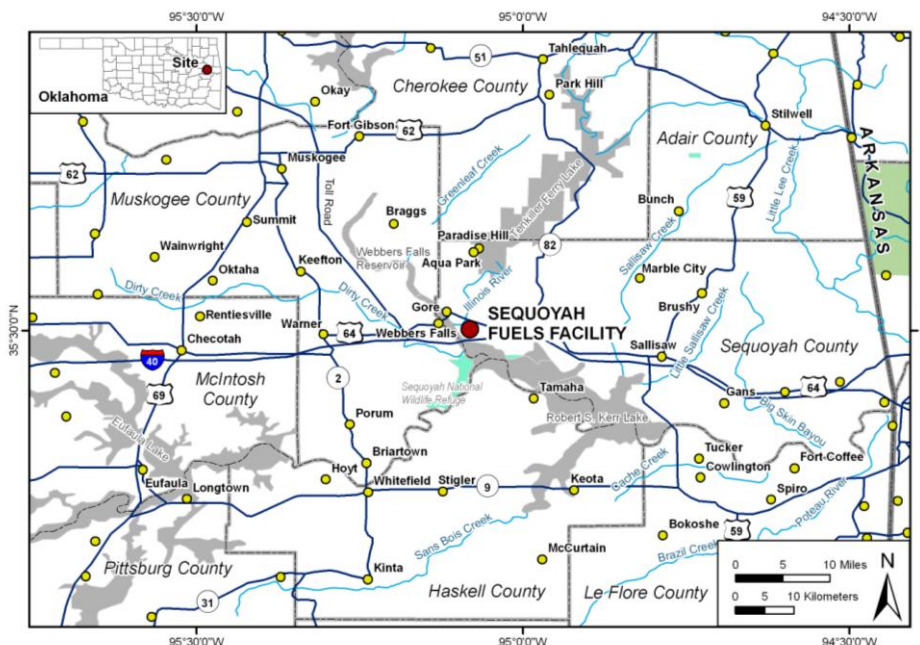
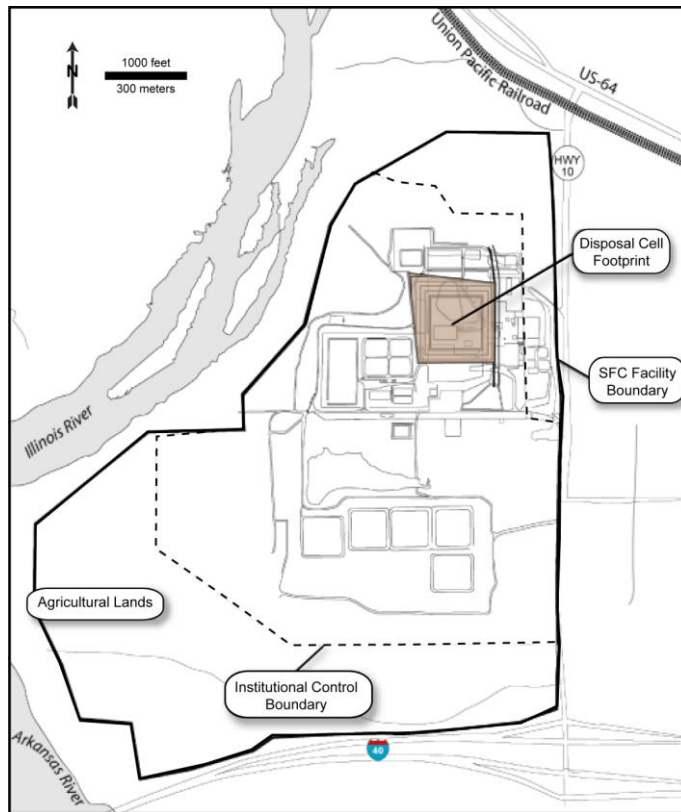
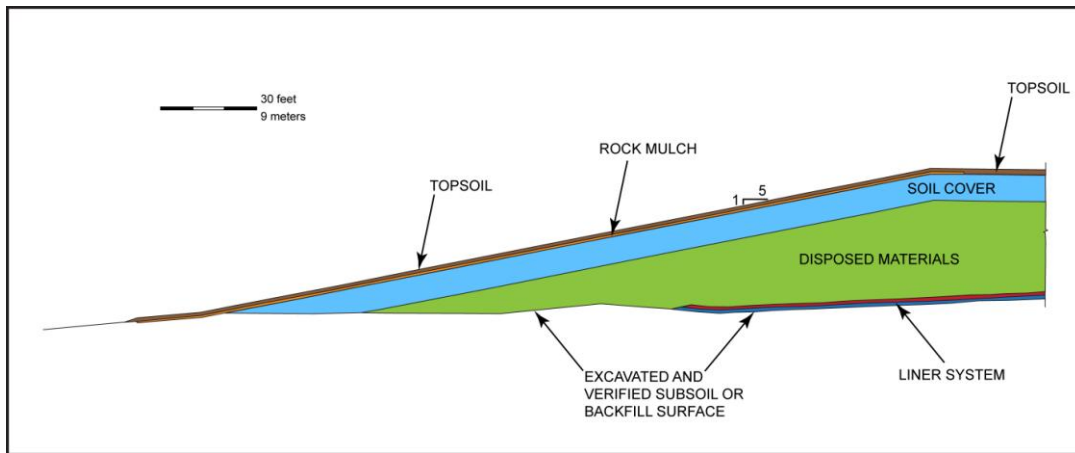


Figure 1. Sequoyah Fuels Facility Site Location Map



**Figure 2. Sequoyah Fuels Facility Site Layout<sup>1</sup>**



**Figure 3. Schematic Cross Section of the Onsite Disposal Cell<sup>2</sup>**

<sup>1</sup>Source: U.S. Nuclear Regulatory Commission. "Final Safety Evaluation Report for the Proposed Reclamation Plan for the Sequoyah Fuels Corporation Site in Gore, Oklahoma; Materials License No. SUB-1010." Washington, DC: U.S. Nuclear Regulatory Commission. 2009.

<sup>2</sup>Source: MFG, Inc. "Preliminary Design Report for the Disposal Cell at the Sequoyah Fuels Corporation Facility." Fort Collins, Colorado: MFG, Inc. 2002.

## **Tailings Management and Disposal**

The site is on gently rolling to level land with several steep slopes to the northwest and wooded lands to the north and south. Slopes over most of the upland areas of the site are less than 7 percent. Steeper slopes in creek ravines and on hillsides average roughly 28 percent. Slopes are very steep near the Robert S. Kerr Reservoir southeast of the site. Site hydrogeologic units are classified into four regimes: terrace, alluvial, shallow, and deep bedrock groundwater systems. The terrace groundwater system is the uppermost regime and contains the terrace deposits and the Unit 1 Shale. Depth to groundwater varies from 8 to 11 feet; however, a few unsaturated zones exist in this system near the Solvent Extraction Building, Pond 2 area, and southwest and west of the Fluoride Holding Basin No. 2. Groundwater appears to flow

radially northwest to southwest from the area beneath the Main Processing Building. Recharge to this system occurs as infiltrating precipitation. However, artificial recharge from leaks in the fire suppression system and unlined ponds has occurred in the past. Groundwater underlying the onsite disposal cell area has been contaminated. Approval of SFC's corrective action plan is pending resolution of several open issues.

### **Additional Information**

For more information about the former SFC facility, visit the NRC uranium recovery website at <http://www.nrc.gov/info-finder/materials/uranium/> or contact the NRC facility project manager, Kenneth Kalman, at (301) 415-6664 or [kenneth.kalman@nrc.gov](mailto:kenneth.kalman@nrc.gov).