

# Western Nuclear–Split Rock Uranium Recovery Facility

## Site Location and Facility Description

The former Split Rock uranium recovery facility is located just south of the Sweetwater River in Fremont County, Wyoming, about 2 miles northeast of Jeffrey City (Figure 1). The original site features included the mill complex, main office, three tailings impoundments, sewage lagoon, waste trench, and the Northwest Valley seepage pond. The site presently consists of three reclaimed tailings impoundments occupying approximately 180 acres, two reclaimed evaporation ponds, and other reclaimed disposal areas.

## Facility Licensing and Operating History

Western Nuclear, Inc. (WNI) began construction of the Split Rock facility in 1956. Between 1957 and 1981, WNI used acid leach, ion exchange, and solvent extraction methods to process

approximately 8 million tons of uranium ore from ore bodies north and south of the site. The mill was originally designed to process 400 tons of ore per day, but a series of expansions in the 1970s increased daily production to 1,700 tons. Three tailings disposal areas (the old, alternate, and new tailings impoundments) were used during mill operation (Figure 2). In June 1981, the mill was placed on standby due to declining uranium demand and prices. The mill remained on standby until 1986 when the U.S. Nuclear Regulatory Commission (NRC) amended the license to terminate the use of the tailings impoundments for disposal and WNI was required to submit a tailings reclamation plan. WNI completed decontamination and decommissioning of the mill in September 1988. Mill components were dismantled and buried beneath the former mill location. Surface reclamation for the tailings impoundments and the two evaporation ponds has been completed.

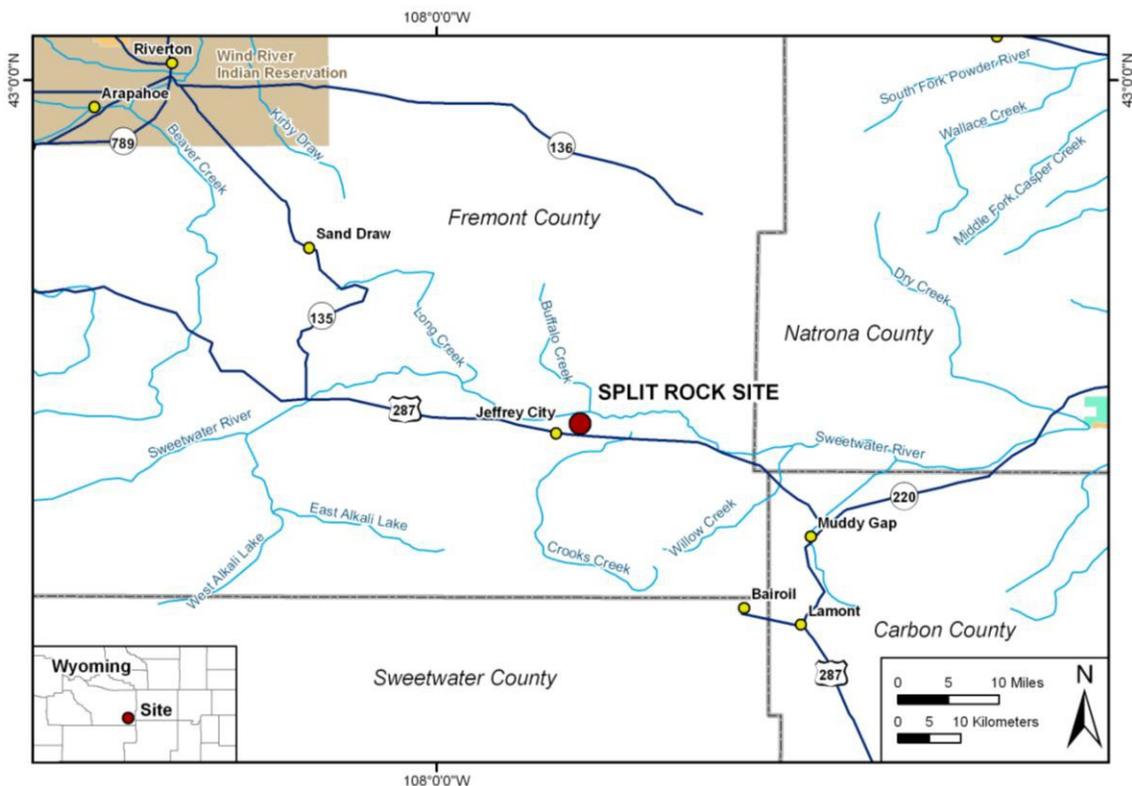
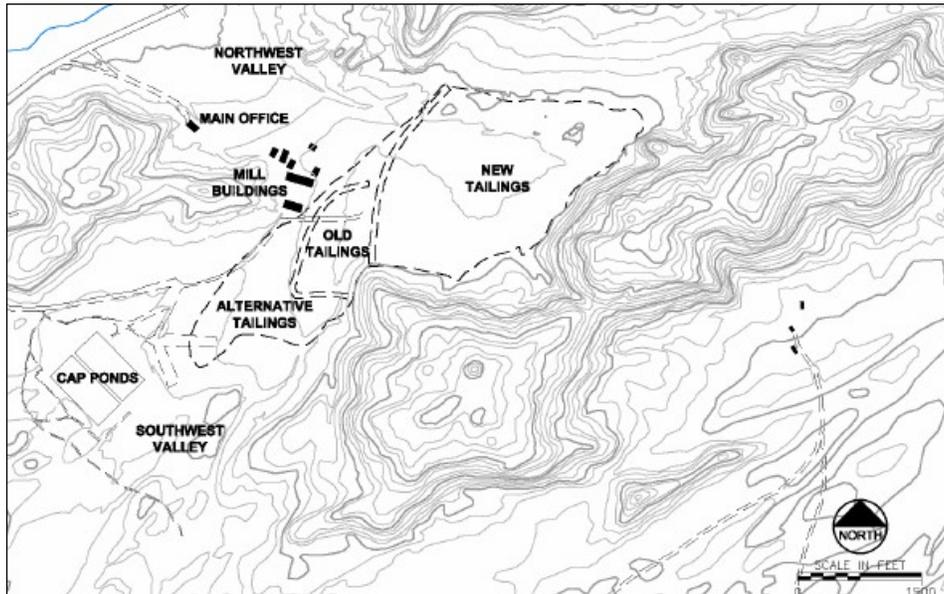


Figure 1. Split Rock Uranium Mill Site Location Map



**Figure 2. Split Rock Site Layout<sup>1</sup>**

### **Tailings Management and Disposal**

The hydrogeological system beneath the former tailings impoundments comprises the Sweetwater River alluvium aquifer (also called the flood-plain aquifer) and the Split Rock aquifer. The 15- to 30-ft-thick flood-plain aquifer consists of river sediments that were formed where the Sweetwater River cut and meandered across the underlying Split Rock Formation. Both aquifers are hydraulically connected. The Split Rock Formation outcrops in a wedge-shaped pattern that begins approximately 20 miles west of the site and extends approximately 40 miles east of the site to the North Platte River. The formation covers approximately 1,500 square miles with a saturated thickness ranging from 500 to 3,000 feet south of the Sweetwater River and from 200 to 600 feet north of the river.

During operation of the Split Rock facility, WNI discharged process wastes into unlined tailings impoundments. Infiltration and seepage from these impoundments led to contamination of groundwater in the underlying aquifers and several corrective

actions. WNI began a formal corrective action program (CAP) in 1990, which involved pumping contaminated groundwater from the Northwest Valley and Southwest Valley areas to two lined CAP ponds for evaporation (Figure 2). In 2006, WNI obtained long-term institutional controls that included purchasing land or establishing durable and enforceable restrictions on domestic groundwater use within the long-term surveillance boundary. Also, NRC approved alternate concentration limits (ACLs) for ammonia, manganese, nitrate, molybdenum, radium-226, radium-228, and natural uranium. The CAP was discontinued after WNI obtained the institutional controls and ACLs.

<sup>1</sup>Source: U.S. Nuclear Regulatory Commission. "Draft Environmental Assessment for Amendment to Source Materials License SUA-56 for Ground Water Alternate Concentration Limits." Washington, DC: U.S. Nuclear Regulatory Commission. 2006.