

Pathfinder–Lucky Mc Uranium Recovery Facility

Site Location and Facility Description

The former Lucky Mc Uranium Mill site is located in the Gas Hills Mining District in Fremont County, Wyoming, about 45 miles southeast of Riverton, Wyoming (Figure 1). Reclamation of the Lucky Mc site has been completed. The licensee, Pathfinder Mines Corporation, has continued to conduct a groundwater monitoring program.

Facility Licensing and Operating History

Uranium milling at the Lucky Mc site began in 1958 and continued through 1988, with a total of 12 million tons of ore processed. The facility area included approximately 56 acres for the mill, 241 acres for the postreclamation tailings piles, 1,276 acres for the disposal site, and 6 tailings ponds (Figure 2). The mill used a conventional acid leach process to extract uranium from the ore. The mill was demolished and placed in the outslope of the No. 2 Tailings Dam, with a clay-radon barrier placed over the material. Groundwater pumping operations at the site began in 1980. The

corrective action involved groundwater pumping to evaporation ponds and injection of fresh water to remove contamination and impede the flow of contaminated ground water in the aquifer. During the remedial effort, approximately 197 million gallons of contaminated water was collected, 193 million gallons of fresh water was injected, and 217 million gallons of water was pumped from the tailings. Reclamation of the mill tailings site was completed in December 2004, and the U.S. Nuclear Regulatory Commission (NRC) approved the Construction Completion Report in October 2006. NRC issued a license amendment in June 2008 to remove two offsite wells (AL-8 and AL-9; not shown in Figure 2) from the approved groundwater monitoring network. In February 2009, NRC staff received for review the U.S. Department of Energy (DOE) Long-Term Surveillance Plan (LTSP) for the site. This LTSP explains how DOE will fulfill requirements as the long-term custodian of the site including inspecting, monitoring, conducting maintenance, fulfilling annual and other reporting requirements, and maintaining records pertaining to the site.

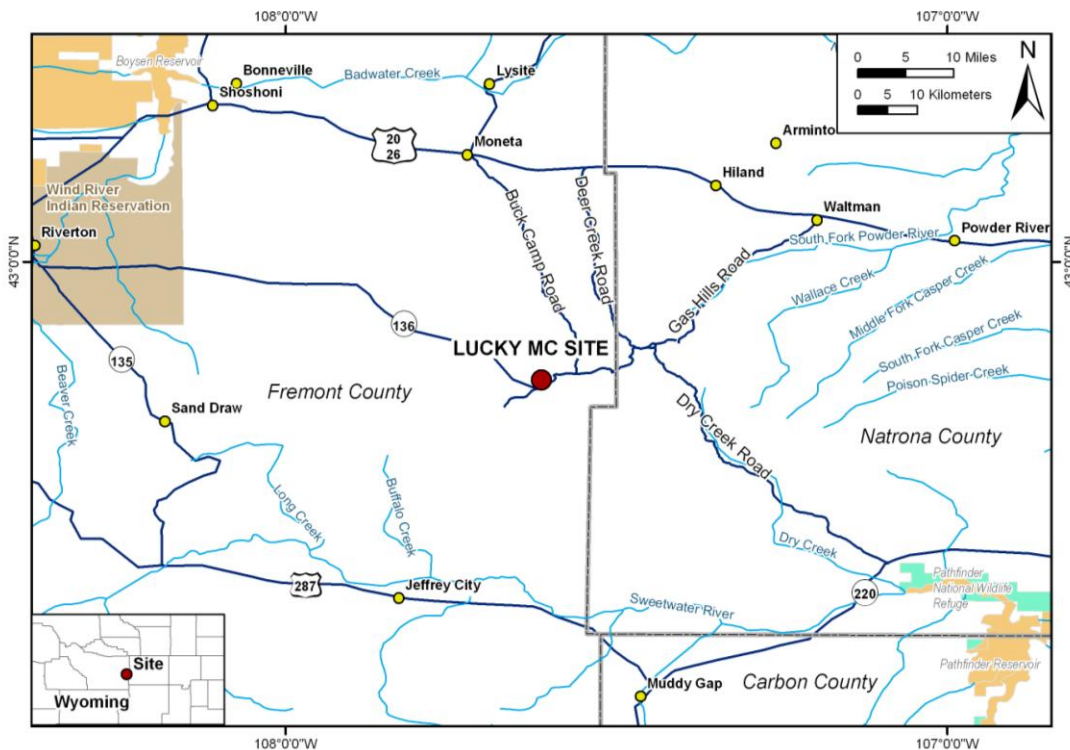


Figure 1. Lucky Mc Uranium Mill Site Location Map

Tailings Management and Disposal

The former tailings system consisted of a series of earthen embankments across Reid Draw, extending over 2 miles down the draw (Figure 2). The upper portion of the tailings system included Tailings Ponds 1, 2, and 2A, which were located immediately north of the former mill and contained all of the solid tailings generated at the site. Further downgradient and north of the solid tailings pond were three solution ponds (Tailings Ponds 3, 3A, and 4) that held the barren solution (recoverable uranium had been removed) that was generally not recycled through the mill. This solution had low pH (2.0–3.0) and contained high concentrations of dissolved solids (including various heavy metals) and radionuclides such as thorium-230 and radium-226. In addition, a temporary pond was used as a pump back

treatment system for receiving solutions from excursion well cleanup and groundwater sweep, surface water runoff, and solution water for construction and dust control within the cells. On December 20, 2002, alternate concentration limits were approved for the Lucky Mc site, and all mill tailings reclamation was completed on December 14, 2004.

Additional Information

For more information about the Lucky Mc uranium recovery facility, visit the NRC uranium recovery website at <http://www.nrc.gov/info-finder/materials/uranium/> or contact the NRC facility project manager, Ted Carter, at (301) 415-5543 or ted.carter@nrc.gov.

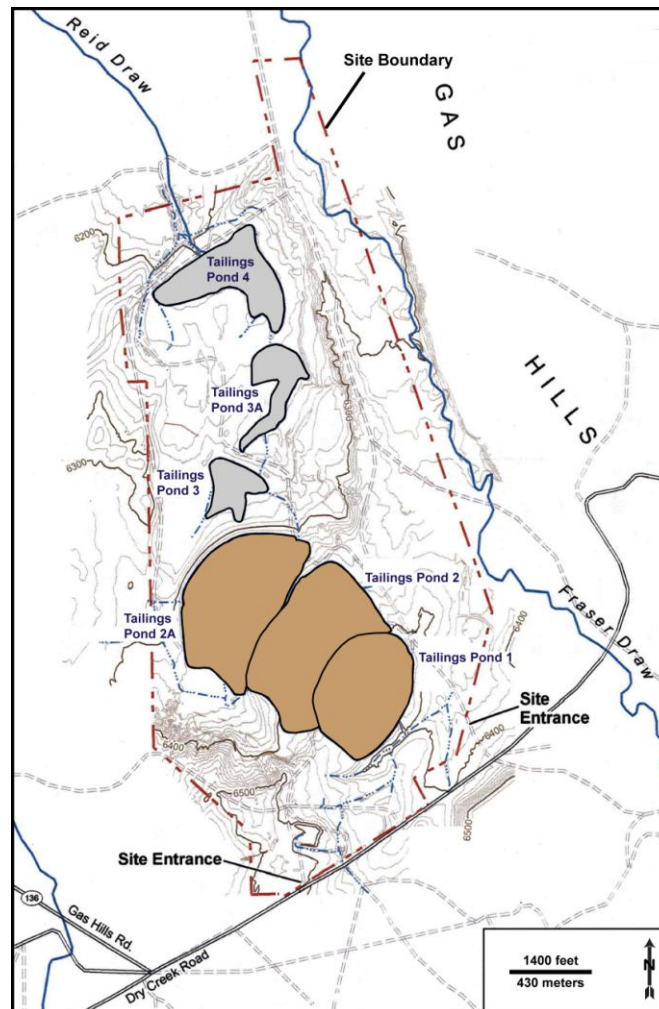


Figure 2. Lucky Mc Site Layout¹

¹U.S. Department of Energy. "Long-Term Surveillance Plan for the Gas Hills North UMTRCA Title II Disposal Site, Fremont County, Wyoming." Grand Junction, Colorado: U.S. Department of Energy. 2009.