



Riverton, Wyoming, Processing Site

Enhanced Characterization of the Surficial Aquifer

This fact sheet provides information about enhanced characterization work conducted at the Uranium Mill Tailings Radiation Control Act Title I processing site at Riverton, Wyoming. This site is managed by the U.S. Department of Energy Office of Legacy Management.

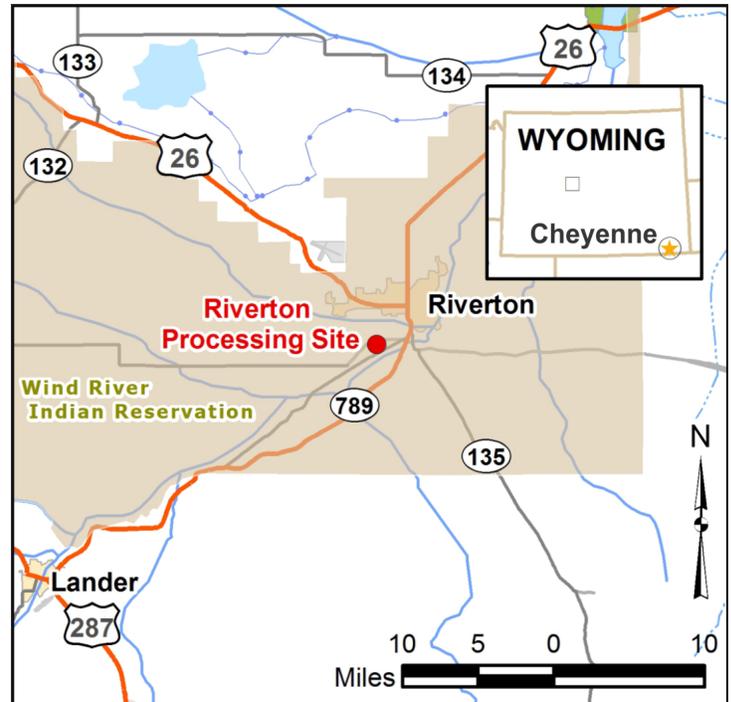
Site Description and History

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) manages the Riverton, Wyoming, Processing Site in Fremont County, 2 miles southwest of the town of Riverton and within the boundaries of the Wind River Indian Reservation (Northern Arapaho and Eastern Shoshone) on land now owned by Chemtrade Refinery Services. The site is the location of a former uranium- and vanadium-ore-processing mill that operated from 1958 to 1963. Milling operations created radioactive mill tailings. The tailings were removed from the site in 1988 and relocated to the Gas Hills East disposal site 45 miles away. DOE completed surface remediation of the Riverton site in 1989.

Groundwater Compliance Strategy

Milling operations at the site resulted in contamination of the shallow groundwater at the Riverton site. DOE conducted groundwater characterization studies and computer modeling at the site in the 1990s and recommended a natural flushing compliance strategy, which was approved by the U.S. Nuclear Regulatory Commission. Natural flushing refers to the removal of contaminants from groundwater by natural processes as groundwater flows through the aquifer and transports, distributes, and dilutes contaminants. To be used as a compliance strategy, natural flushing must be complete within a 100-year regulatory time frame. DOE has conducted verification monitoring to document site conditions and assess the progress of natural flushing since 1998. Data collected during verification monitoring are reported annually in Verification Monitoring Reports. In addition, the Northern Arapaho Environmental Office has conducted studies and provided verification monitoring support during the verification monitoring period.

Results of the verification monitoring indicated that natural flushing was generally progressing as expected until June 2010, when a record flood caused the Little Wind River to overflow and flood a large area downgradient of the former mill site. Groundwater sampling conducted 2 weeks after the flood showed significant increases in contaminant concentrations in monitoring wells where the



Location of the Riverton, Wyoming, Processing Site

flooding occurred. The spikes in contaminant concentrations are attributed to the flood waters mobilizing residual contamination in soil.

Enhanced Characterization

DOE conducted additional characterization work at the site in 2012, including extensive groundwater and soil sampling. Analysis of groundwater samples resulted in a better understanding of how the site remediation is working. Results also indicate that although the 2010 flood of the Little Wind River caused significant spikes in contaminant concentrations in the surficial aquifer, contaminant concentrations continue to decline and are generally approaching pre-flood levels. A better understanding of the Riverton site, including aquifer properties, geochemistry, and potential additional contaminant sources, will be needed to evaluate the natural flushing compliance strategy.

Contacts

Documents related to the Riverton site are available on the LM website at: <http://www.lm.doe.gov/riverton/Sites.aspx>.

Refining the site conceptual model at a former uranium mill site in Riverton, Wyoming, USA (Environmental Earth Sciences journal) is available on the LM website at <http://www.lm.doe.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=11125>.

Enhanced Characterization of the Surficial Aquifer, Riverton, Wyoming, Processing Site, Data Summary Report is available on the LM website at http://www.lm.doe.gov/Riverton/S09545_EnhancedChar.pdf.

2012 Enhanced Characterization and Monitoring Report, Riverton, Wyoming, Processing Site is available on the LM website at http://www.lm.doe.gov/Riverton/S09799/S09799_Riverton.pdf.

For more information about LM activities at the Riverton site, contact:

U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way, Grand Junction, CO 81503

Email: UMTRCAinfo@lm.doe.gov

(970) 248-6070 (monitored continuously), or
(877) 695-5322 (toll-free)