Fact Sheet

U.S. DEPARTMENT OF ENERGY | Legacy Management

Riverton, Wyoming, Processing Site

An UMTRCA Title I site

This fact sheet provides information about the **Riverton site**. This site is managed by the **U.S. Department of Energy Office of Legacy Management under Title I** of the **Uranium Mill Tailings Radiation Control Act of 1978**.

Site Information and History

The Riverton, Wyoming, Processing Site is 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.

Past milling operations created radioactive mill tailings — a predominantly sandy material — and uranium, radium, and thorium contamination in soils and construction debris. A tailings pile covered about 72 acres of the 140-acre site to an average depth of 4 feet. In 1988, about 1.8 million cubic yards of the contaminated materials were removed from the site and relocated to the Gas Hills East disposal site 45 miles away. The U.S. Department of Energy (DOE) completed surface remediation of the Riverton site in 1989.

Milling operations at the site also caused surface and groundwater contamination. Three aquifers underlie the site; an unconfined surficial aquifer, an underlying semiconfined sandstone aquifer, and a deeper confined sandstone aquifer. Only groundwater in the surficial aquifer has been contaminated by ore processing operations at the site.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604), and DOE remediated 22 inactive uranium ore processing sites under the Uranium Mill Tailings Remedial Action Project in accordance with standards promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR), Part 192. Subpart B of 40 CFR 192 regulated cleanup of contaminated groundwater at the processing sites. The radioactive materials from the Riverton site were encapsulated in a U.S. Nuclear Regulatory Commission (NRC)-approved disposal cell at the nearby Gas Hills East site, which is regulated under Title II of UMTRCA. The NRC general license for UMTRCA Title II sites is established in 10 CFR 40.28.

Processing Site

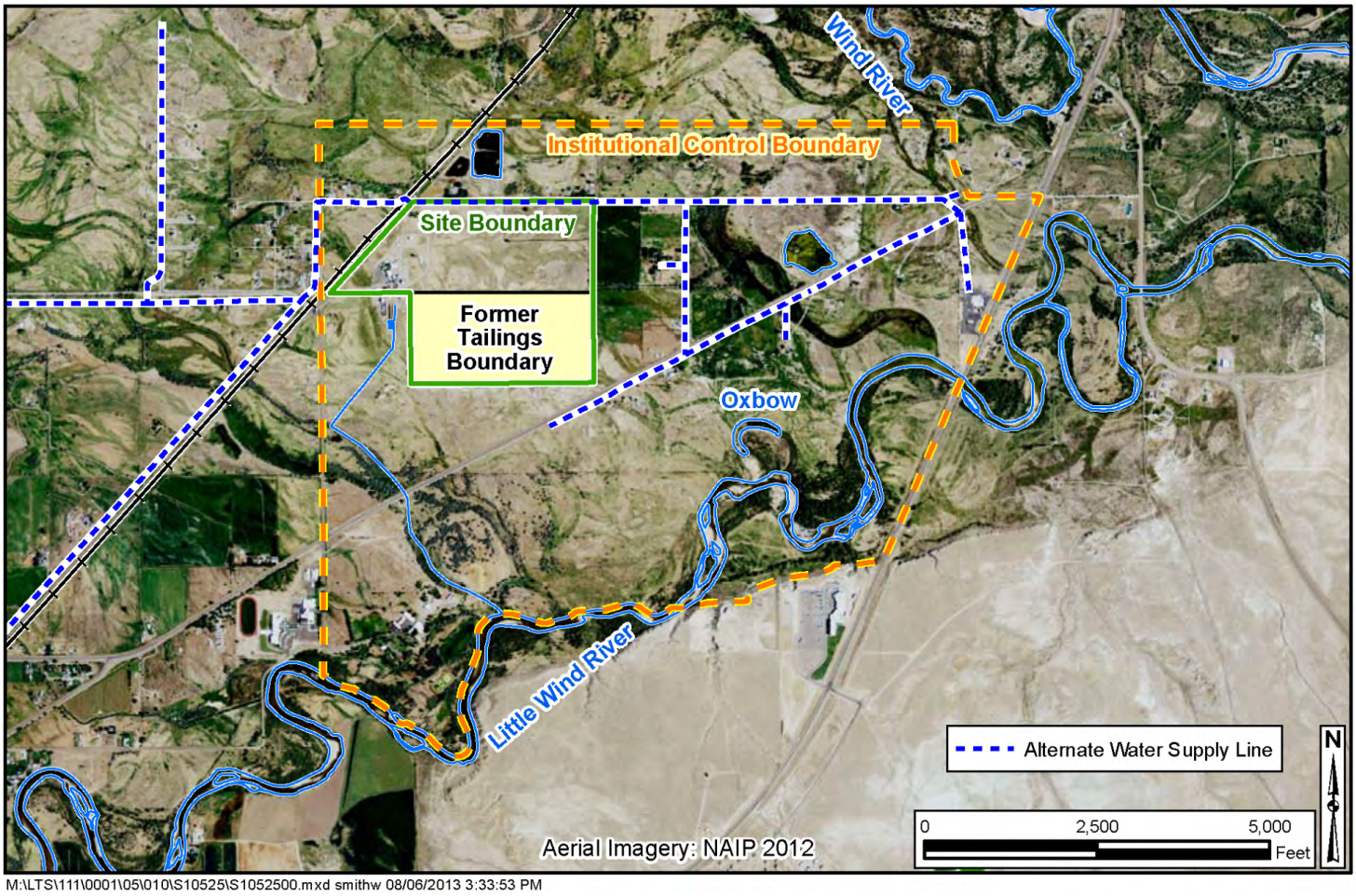
The site is on alluvial deposits between the Wind River, 1 mile north, and the Little Wind River, about 3,200 feet south.

The surficial aquifer consists of 15 to 20 feet of alluvial sand and gravel; depth to groundwater typically ranges from 3 to 6 feet below ground surface. Groundwater flow is generally to the southeast toward the Little Wind River. Samples from the surficial aquifer have shown concentrations of milling-related molybdenum and uranium measuring 15 to 130 times greater than their respective maximum concentration limits under 40 CFR 192.

The semiconfined aquifer consists of sandstone 15 to 30 feet thick and is continuous throughout the Riverton site. A layer of shale 5 to 10 feet thick partially separates the surficial and semiconfined aquifers. Concentrations of molybdenum and uranium in the semiconfined aquifer typically have been low and within the range of background concentrations.

Compliance Strategies

The groundwater compliance strategy for the Riverton site is natural flushing in conjunction with institutional controls and monitoring. Groundwater modeling conducted in the 1990s predicted that site-related molybdenum and uranium in the surficial aquifer would flush naturally to levels below their



Institutional Control Boundary, Site Boundary, Former Tailings Boundary, and Alternate Water Supply Lines at the Riverton Processing Site

maximum concentration limits within the 100-year time frame allowed in 40 CFR 192. Recent monitoring results indicate natural flushing of the surficial aquifer is occurring at the Riverton site, but the rate at which it is occurring will not meet the 100-year regulatory time frame.

DOE will continue to collect samples at groundwater and surface water monitoring locations to assess the viability of natural flushing and to evaluate alternate compliance strategies.

Institutional Controls

Institutional controls at the Riverton site consist of three components:

1. An alternate drinking water supply system.
2. Restrictions on new wells and land use.
3. A deed restriction on state-owned property at the site.

DOE funded an alternate drinking water supply system in 1998 to provide potable water to residents within the institutional controls boundary. A unidirectional flushing program is conducted to control naturally occurring radionuclide build-up within the system.

Requirements on new wells and land use within the institutional controls boundary include:

- Tribal ordinance that places restrictions on well installation, prohibits surface impoundments, and authorizes access to inspect and sample new wells.
- State of Wyoming Department of Environmental Quality notification of existing groundwater contamination to persons on privately owned land who apply for a gravel pit.
- Wyoming State Engineer's Office notification to DOE when permit applications are received for wells or surface impoundments.

A perpetual deed restriction for the former mill site property restricts well drilling and restricts land development.

Legacy Management Activities

The DOE Office of Legacy Management (LM) will manage the Riverton processing site according to a site-specific Long-Term Management Plan that specifies environmental and institutional control monitoring requirements. Monitoring during the natural flushing period is referred to as verification monitoring because its purpose is to verify that the strategy is progressing as predicted, and that institutional controls

are in place and functioning as intended. LM will collect annual groundwater and surface water samples in August, when surface water concentrations are typically highest. Data from the annual sampling events will be used to assess contaminant concentrations over time.

A comprehensive, independent risk assessment will be conducted to verify that human health and the environment are not being adversely affected by site contamination. A condition assessment of the alternate water supply system was conducted by an independent engineering firm to assess the current configuration and condition of the alternate water supply system and to address issues encountered in the alternate water supply system flushing program.

CONTACT INFORMATION

IN CASE OF AN EMERGENCY AT THE SITE, CONTACT 911.

Site-specific documents related to the **Riverton, Wyoming, Processing Site** are available on the LM website at **www.energy.gov/lm/riverton-wyoming-processing-site.**

For more information about LM activities at the **Riverton, Wyoming, Processing Site** contact:

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