



Green River, Utah, Disposal Site

FACT SHEET

This fact sheet provides information about the Uranium Mill Tailings Radiation Control Act of 1978 Title I disposal site near Green River, Utah. This site is managed by the U.S. Department of Energy Office of Legacy Management.

Site Description and History

The Green River Disposal Site is about 0.5 mile east of the Green River and 1.5 miles southeast of the city of Green River, Utah. The site consists of an engineered disposal cell and surrounding property where a former uranium mill and tailings pile were located.

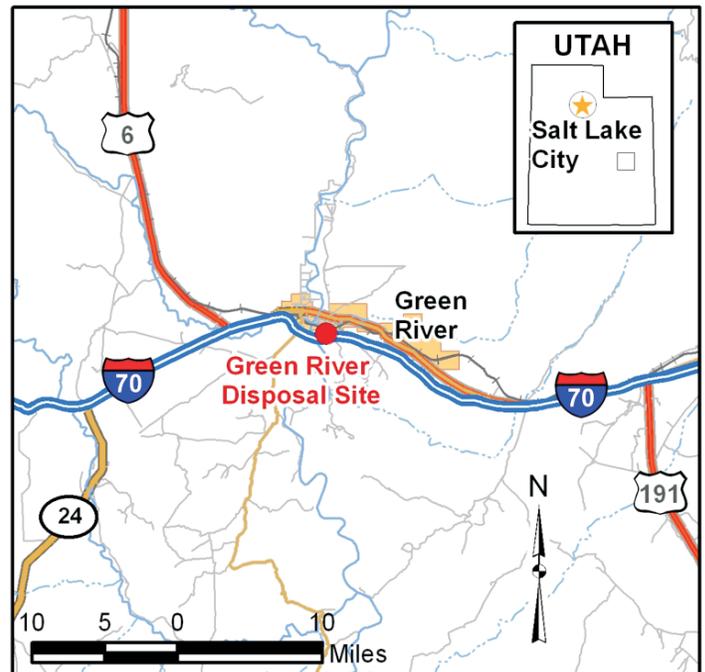
Union Carbide Corporation constructed the uranium mill in 1957 and operated the facility from March 1958 through January 1961. Union Carbide owned the millsite property until the State of Utah acquired ownership in 1988. The U.S. Department of Energy (DOE) owns the disposal site, and the State of Utah owns the rest of the processing site property.

The mill operated as an upgrading facility for uranium ore. During its 3 years of operation, the mill processed 183,000 tons of ore and generated an estimated 114,000 cubic yards of radioactive tailings, a predominantly sandy material, that covered about 9 acres to an average depth of 7 feet.

The processing site was remediated from November 1988 through September 1989, and all mill tailings and other contaminated materials were stabilized in a disposal cell on site. The cell also received contaminated material from 17 vicinity properties. The area of the former tailings pile and all areas disturbed at the site during remedial action were backfilled, graded to promote surface drainage, and revegetated. The former processing site area has no current use. Several of the mill buildings were cleaned up and remain on the site. These buildings are currently abandoned and in a state of disrepair.

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 ground water at the processing sites. The radioactive

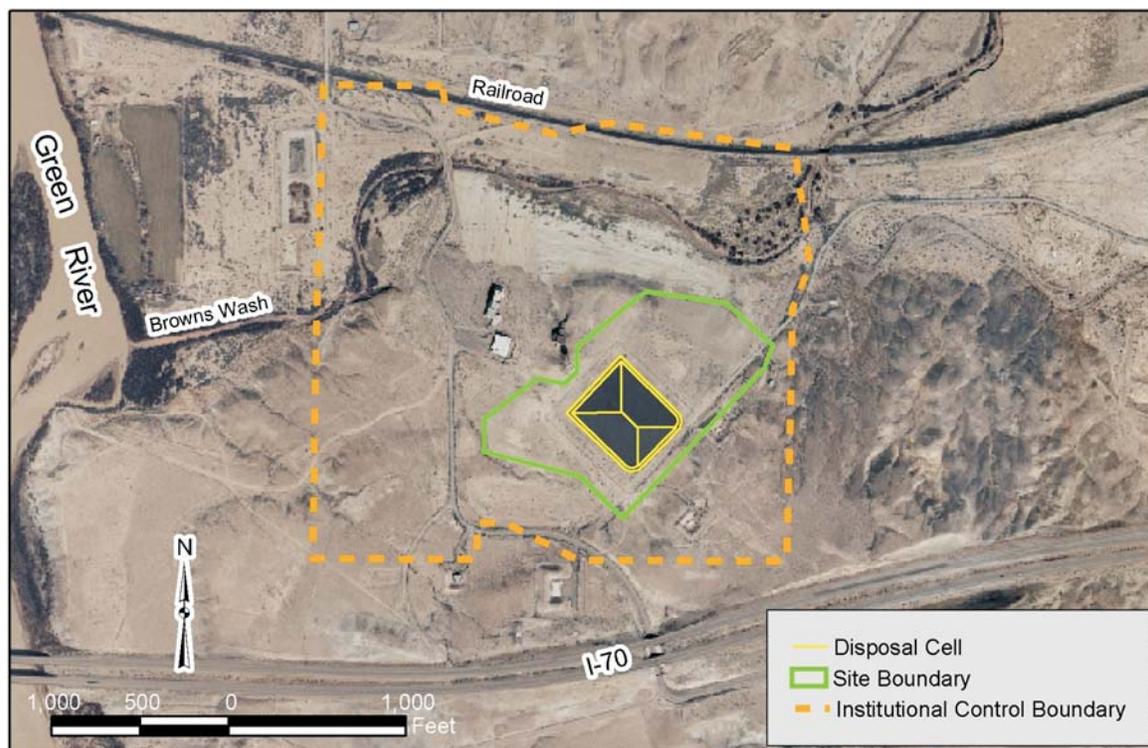


Location of the Green River Disposal Site

materials were encapsulated in U.S. Nuclear Regulatory Commission-approved disposal cells. The U.S. Nuclear Regulatory Commission general license for UMTRCA Title I sites is established in 10 CFR 40.27. The Green River Disposal Site was included under the general license in 1998.

Disposal Site

Ground water in the Browns Wash alluvium and middle sandstone unit of the Cedar Mountain Formation beneath the former processing site has been contaminated by past ore-processing activities. Constituents with concentrations above standards or relevant benchmarks in the Browns Wash alluvium are ammonia, manganese, nitrate, selenium, sodium, sulfate, and uranium. With the exception of ammonia and manganese, these constituents have elevated concentrations in ground water of the middle sandstone unit of the Cedar Mountain Formation. Arsenic levels are also elevated in the Cedar Mountain ground water.



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Institutional Control Boundary, Site Boundary, and Disposal Cell Location at the Green River Site

Compliance Strategy

DOE has proposed separate compliance strategies for the two ground water zones that were affected by past ore-processing operations at the Green River Site. When approved, the strategies will be implemented in conjunction with ground water and surface water monitoring and institutional controls.

Browns Wash Alluvium. The compliance strategy for ground water in the Browns Wash alluvium is no further remediation and application of supplemental standards. The strategy of supplemental standards is an alternative to maximum concentration limits established in 40 CFR 192 and may be applied at locations where ground water is classified as limited use because it meets any of several criteria. Ground water in the Browns Wash alluvium meets the criterion of low yield, that is, the quantity of water reasonably available for sustained continuous use is less than 150 gallons per day (40 CFR 192.11[e]).

Cedar Mountain Formation. The compliance strategy for ground water in the middle sandstone unit of the Cedar Mountain Formation is no further remediation and application of alternate concentration limits. Alternate concentration limits may be adopted within specified areas when established maximum concentration limits are unattainable or when no applicable standards exist. However, the alternate concentration limits must not pose a present or potential future hazard to human health or the environment.

Contaminants for which DOE has proposed alternate concentration limits in the middle sandstone unit of the

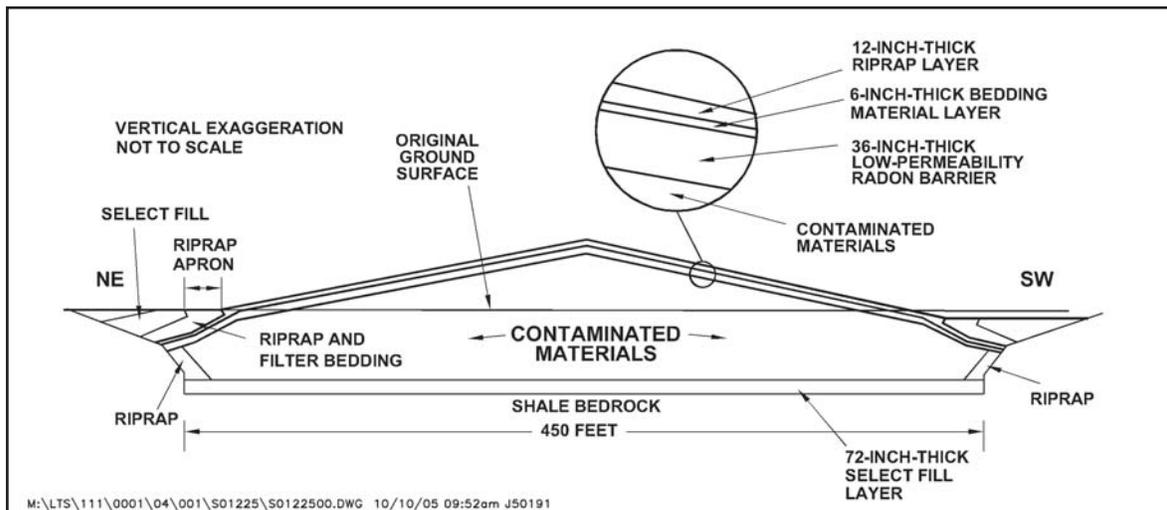
Cedar Mountain Formation are arsenic, nitrate, selenium, and uranium. These constituents have concentrations that exceed maximum concentration limits in 40 CFR 192 or exceed applicable benchmark values.

Monitoring Program. DOE has been monitoring ground water and surface water at the site since completion of the disposal cell. Upon approval of the compliance strategy, DOE will continue to collect ground water and surface water samples annually. The effectiveness of the strategy and monitoring frequency will be reevaluated at the end of 5 years. Ground water samples will be collected from monitor wells screened in the Browns Wash alluvium and in the Cedar Mountain Formation; surface water samples will be collected from locations in Browns Wash and the Green River.

Institutional Controls

Institutional controls are restrictions that effectively protect human health and the environment by limiting or prohibiting access to contaminated ground water in Browns Wash and the middle sandstone unit of the Cedar Mountain Formation.

DOE, the State of Utah, and Umetco Minerals Corporation own property affected by ground water contamination at the site. An environmental covenant will be implemented to prohibit use of ground water within the institutional controls boundary for any purpose without the permission of both DOE and the State of Utah.



Northeast-Southwest Cross-Section of the Green River Disposal Cell

Disposal Cell Design

The disposal cell measures 450 feet by 530 feet at the base, rises 41 feet above the surrounding land, and occupies 6 acres on the 21.5-acre site. The cell contains about 382,000 cubic yards of contaminated material with a total activity of 30 curies of radium-226. A posted security fence surrounds the disposal cell.

The cell was excavated to bedrock and lined with 6 feet of low-permeability soil. Most of the contaminated materials are below grade. The cell cover is a multi-component system designed to encapsulate and isolate the contaminated materials. The cover consists of (1) a low-permeability radon barrier (first layer placed over compacted tailings), (2) a granular bedding material layer, and (3) a layer of rock (riprap) placed on granular bedding material above grade. The cell design promotes rapid runoff of precipitation to minimize leachate. The excavated walls around the edge of the disposal cell are lined with riprap and bedding material. A large riprap apron extends outward from the edge of the disposal cell for about 20 feet. Precipitation flows down the 20-percent side slopes into the surrounding rock apron.

The disposal cell was located and designed to prevent or minimize erosion from storm water. The cell is located 75 feet above the Browns Wash floodplain. Existing gullies were filled and regraded during cell construction, and all disturbed areas surrounding the disposal cell were reseeded with native vegetation.

Legacy Management Activities

DOE is responsible for ensuring that the selected ground water compliance strategy at the Green River Disposal Site continues to be protective of human health and the environment. DOE will also monitor the effectiveness of institutional controls.

DOE manages the disposal site according to a site-specific Long-Term Surveillance Plan to ensure that the disposal cell systems continue to prevent release of contaminants to the environment. Under provisions of this plan, DOE conducts annual inspections of the site to evaluate the condition of surface features, performs site maintenance as necessary, and monitors ground water to ensure the continued integrity of the disposal cell. The encapsulated materials will remain potentially hazardous for thousands of years.

In accordance with 40 CFR 192.32, the disposal cell is designed to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. However, the general license has no expiration date, and DOE's responsibility for the safety and integrity of the Green River Disposal Site will last indefinitely.

Contacts

Documents related to the Green River Disposal Site are available on the DOE Office of Legacy Management website at <http://www.LM.doe.gov/land/sites/ut/green/grnriv.htm>.

For more information about DOE Office of Legacy Management activities at the Green River Disposal Site, contact

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