Fact Sheet

U.S. DEPARTMENT OF ENERGY | Legacy Management

Canonsburg, Pennsylvania, Disposal Site

An UMTRCA Title I site

This fact sheet provides information about the **Canonsburg disposal 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 Canonsburg disposal site is a former uranium ore processing site located in the Borough of Canonsburg, Washington County, in southwestern Pennsylvania, approximately 20 miles southwest of downtown Pittsburgh. The site lies between Chartiers Creek and the Pittsburgh and Ohio Central Railroad tracks. The surrounding land is primarily residential and commercial.

The former mill processed uranium and other ores at the site between 1911 and 1957 and provided uranium for the U.S. government national defense programs. Standard Chemical operated the site as a radium extraction plant from 1911 to 1922. Later, Vitro Corporation of America acquired the property and processed ore to extract radium and uranium salts. From 1942 until 1957, Vitro was under contract to the federal government to recover uranium from ore and scrap. Processing operations at the site ceased in 1957. For the next 9 years, the site was used only for storage under a U.S. Atomic Energy Commission contract. In 1967, the property was purchased by the Canon Development Company and was leased to tenant companies for light industrial use.

Historical milling operations at the site generated radioactive mill tailings, a predominantly sandy material. Some of the tailings were shipped to Burrell Township 50 miles away to be used as additional fill in a railroad landfill. Surface remediation consisted of consolidating and encapsulating all contaminated material from the Canonsburg site and local contaminated vicinity properties into an on-site engineered disposal cell.

The disposal cell occupies approximately 6 acres of the 37-acre tract of land.

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 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 Canonsburg disposal site was included under the general license in 1996.

Disposal Site

The disposal cell was closed in 1985 after consolidation of tailings and other contaminated materials from the site and vicinity properties and completion of the cell cover. The cell contains 226,000 dry tons (about 161,000 cubic yards) of contaminated material, with a total activity of 100 curies of radium-226.

The site is underlain by as much as 30 feet of unconsolidated fill and alluvium that overlie claystones and shales of the Pennsylvanian-age Casselman Formation. Groundwater beneath the Canonsburg site is unconfined in the unconsolidated materials and semiconfined in the underlying bedrock. The water table is 3 to 14 feet below land surface. Groundwater in the unconsolidated materials is recharged by direct infiltration of precipitation and from northward groundwater flow beneath the site.

Boundaries of the Canonsburg Site and Area C.

Processing of radioactive materials at the Canonsburg site since the early 1900s resulted in contamination of groundwater in the uppermost aquifer beneath the main site and beneath a 3-acre area known as Area C east of the main site. Constituents of concern in groundwater are manganese, molybdenum, and uranium. A number of other constituents in groundwater samples have at times been identified in concentrations above maximum concentration limits in 40 CFR 192 or other benchmark concentrations since monitoring activities began. Distribution of contaminants in the unconsolidated materials is sporadic, and no well-defined contaminant plumes are apparent. Manganese concentrations are elevated in background groundwater samples because of regional activities not associated with processing of radioactive materials at the Canonsburg site. Uranium is the only constituent that is present at concentrations in groundwater samples above the 40 CFR 192 standard and that can clearly be attributed to site activities. In recent years, uranium concentrations in groundwater samples collected beneath Area C are less than the standard.

Compliance Strategy

The groundwater compliance strategy for the Canonsburg site is no remediation and the application of an alternate concentration limit for uranium. The strategy includes groundwater monitoring and institutional control. A site-specific alternate concentration limit for a constituent may be established if the proposed value is as low as reasonably achievable and if the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the limit is not exceeded. Although groundwater at the site flows into Chartiers Creek, which flows past the site on the west, north, and east, no milling-related constituents have been detected in samples of creek water. Results of groundwater modeling predict that concentrations of uranium in groundwater will decrease over time and will be below the standard within the 100-year time frame allowed in 40 CFR 192.

Land Transfer or Reuse

Ownership by the federal government constitutes institutional control at the main site. Access to the site is restricted, and there is no complete exposure pathway to contaminated groundwater.

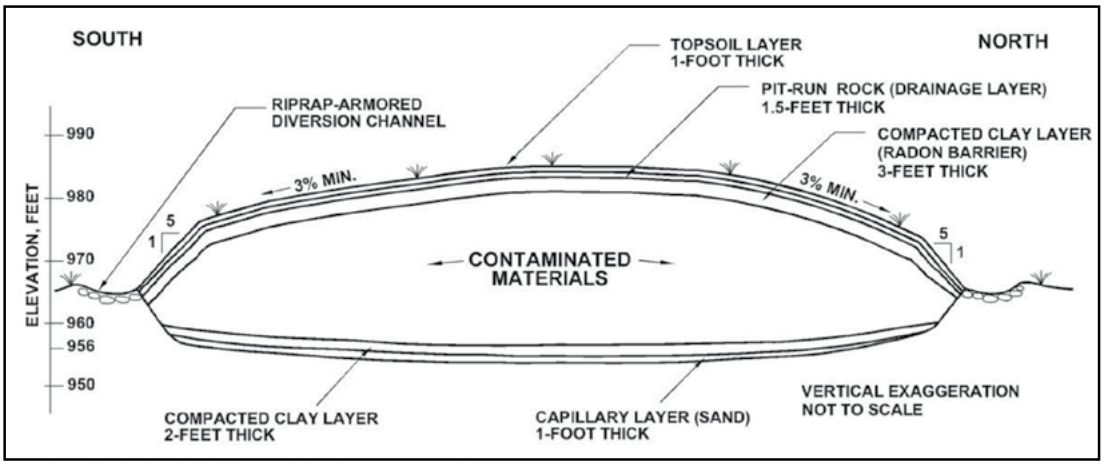
The Commonwealth of Pennsylvania sold Area C to a private party. As stipulated in UMTRCA and the Cooperative Agreement between DOE and Pennsylvania, the transfer of property carries restrictions to limit excavation in the area, prohibits disturbance of the bank of Chartiers Creek, maintains access for monitoring, and prohibits residential use.

Disposal Cell Design

The pentagonal disposal cell is lined with compacted clay to protect groundwater from contamination by radioactive materials. Tailings were placed on top of the liner. The cover of the Canonsburg disposal cell is a multicomponent system designed to isolate the contaminated materials. The disposal cell cover comprises (1) a low-permeability radon barrier (first layer placed over compacted tailings) of clay-and-soil mixture, (2) a layer of pit-run rock, and (3) a layer of topsoil seeded with grass. The cell was designed to promote rapid runoff of precipitation to minimize infiltration. A posted security fence surrounds most of the site.

Legacy Management Activities

The DOE Office of Legacy Management (LM) 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



South-North Cross Section of Canonsburg Disposal Cell.

environment. Under provisions of this plan, LM conducts annual inspections of the site to evaluate the condition of surface features, mows the grass and controls other vegetation, performs other site maintenance as necessary, maintains a riparian forest buffer along Chartiers creek (north of the engineered disposal cell) that includes a native grass prairie as a pollinator reuse initiative, and monitors creek and groundwater to verify the continued integrity of the disposal cell and protection of public health and the environment.

LM monitors groundwater and surface water at the Canonsburg site to comply with requirements in the Long-Term Surveillance Plan and the subsequent Ground Water Compliance Action Plan. The purpose of the monitoring is to evaluate contaminant trends within the unconsolidated materials underlying the disposal site and to document that site contaminants do not contaminate Chartiers Creek.

The compliance strategy for groundwater cleanup at the Canonsburg site is no further remediation in conjunction with the applicable alternate concentration limits (ACLs) for uranium, the only remaining contaminant of concern for this site. The ACL for uranium in groundwater is 1.0 mg/L, and the ACL for uranium in surface water is 0.01 mg/L. The most recent groundwater sampling results (2013) indicate that groundwater and surface water uranium concentrations remain well below site ACLs resulting in no adverse impact to the point of exposures (POE) in Chartiers Creek. Although groundwater uranium concentrations are below the site ACL, they remain above the EPA maximum concentration limit of 0.044 mg/L in two on-property monitoring wells.

In accordance with 40 CFR 192.02(a), 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 LM's responsibility for the safety and integrity of the Canonsburg disposal site will last indefinitely.

Area C, a portion of the former processing site acquired by the Commonwealth of Pennsylvania, and Tract 117E were not incorporated into the final disposal site. The properties were sold to a private owner.

CONTACT INFORMATION

IN CASE OF AN EMERGENCY AT THE SITE, CONTACT 911

LM TOLL-FREE EMERGENCY HOTLINE: (877) 695-5322

Site-specific documents related to the **Canonsburg, Pennsylvania, Disposal Site** are available on the LM website at **www.energy.gov/lm/canonsburg-pennsylvania-disposal-site**

For more information about LM activities at the **Canonsburg, Pennsylvania, Disposal Site**, contact:
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