

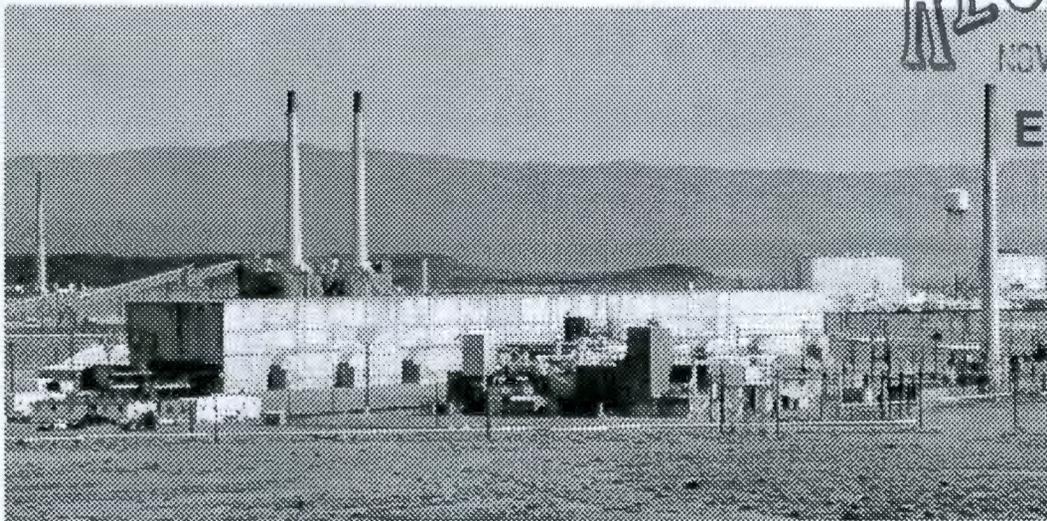
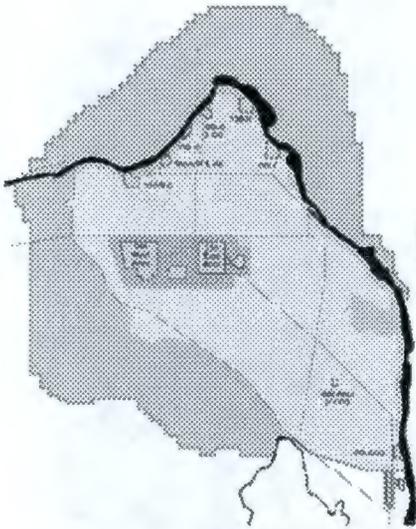
Fact Sheet

221-U Facility

(Canyon Disposition Initiative)

RECORD OF DECISION

U.S. Department of Energy - Washington State Department of Ecology - U.S. Environmental Protection Agency



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221-U Facility

Record of Decision Summary

The Tri-Party agencies signed the Final Record of Decision (ROD) for the 221-U Facility. The preferred alternative in the Proposed Plan, Close in Place – Partially Demolished Structure with an engineered barrier, is the selected remedy. The ROD presents the final selected remedial action for the 221-U Facility in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan).

The 221-U Facility is the first canyon building to be addressed under the Canyon Disposition Initiative (CDI). The CDI resulted from a 1996 Agreement in Principle among the Tri-Party agencies to determine the final disposition for Hanford's five canyon buildings. The CDI evaluated disposition paths for the canyon buildings using

CERCLA processes and explored the potential for using the canyon buildings as disposal sites for Hanford cleanup waste, instead of demolishing structures and sending the resulting waste/debris to an approved disposal facility.

The process to disposition this facility is viewed as a pilot project to assist in the disposition of the remaining four canyon buildings as well as similar process buildings at Idaho and Savannah River. However, given the varying amounts, types, and locations of radiological contamination within the five canyon buildings, the complexity, cost and regulatory approach associated with the implementation could vary significantly for each building. In addition, the cleanup and regulatory alternatives, and the remedy selected for this facility may be different from those selected for the other canyon buildings. Any lessons learned from the disposition of the 221-U Facility will be captured and applied to the remaining four canyon buildings, as well as large process facilities at both Idaho and Savannah River.



Tri-Party Agreement

U.S. Department of Energy
U.S. Environmental Protection Agency
Washington State Department of Ecology

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Community Participation

During the nine years of development, the Tri-Party agencies have engaged with the Tribal Nations, and have had extensive public involvement discussions with interested stakeholders and the general public. These discussions evaluated potential cleanup remedies and identified preferred alternatives for the final end state for the 221-U Facility. Numerous interactions, presentations, workshops and public comment periods were held. The preferred alternative is based on the input from these interactions. A more detailed description of community participation can be found in the Final Record of Decision.

Background

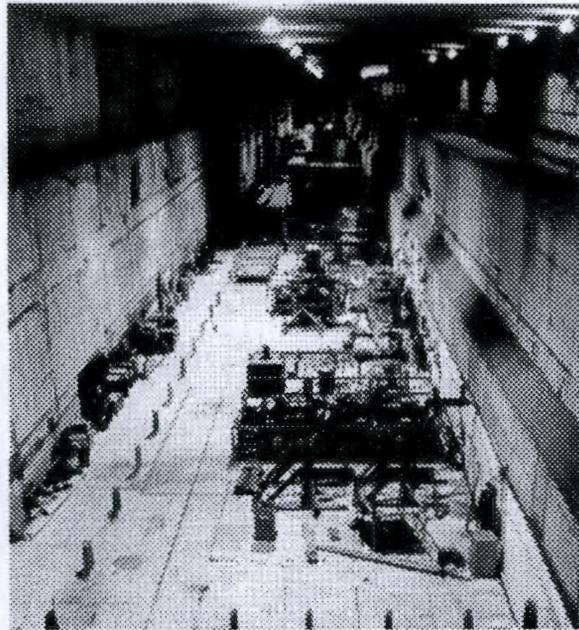
The 221-U Facility, located within the U Plant Area, is one of three nearly identical Hanford Site chemical separations plants. The other two are B Plant and T Plant. The plants were constructed from 1944 through 1945 to support World War II plutonium production. Two more plants were constructed after World War II to support Cold War efforts. These facilities are referred to as "canyon buildings" because of the expansive main room stretching the entire 800-plus-foot length of each building.

The 221-U Facility was built to extract plutonium from fuel rods irradiated in the Hanford Site production reactors. However, the 221-U Facility was never used for this purpose because canyon buildings constructed earlier met the Hanford Site's production goals. Instead, the 221-U Facility was used to train B and T Plant operators until 1952. At that time, it was converted to include a uranium recovery process for waste from other canyon facilities. Process equipment was transferred from other canyon facilities and included remote-handled materials and materials contaminated with transuranic (TRU) isotopes.

Description of Selected Remedy

The Final Feasibility Study evaluated five alternatives, two additional alternatives were previously excluded as a result of analysis provided in the Phase I Feasibility Study. The Proposed Plan described the analysis for the five cleanup alternatives: No Action; Full Removal and Disposal (of the building structure down to a Brownfield or industrial soil cleanup level); Entombment with Internal Waste Disposal; Entombment with Internal/External Waste Disposal; and Close in Place – Partially Demolished Structure with an engineered surface barrier. The Final ROD includes the following components:

- Removal of waste from vessels and equipment in the facility that, if stabilized in place, would contain levels of transuranic waste, in accordance with an approved Remedial Design/Remedial Action (RD/RA) work plan, and eventual disposal of that waste at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico;



221-U Facility Canyon

- Removal of liquids from the facility or treatment to remove liquids;
- Partial removal of contaminated equipment and piping from the gallery side of the facility, as needed to facilitate demolition activities, and disposal of this waste at the Environmental Restoration Disposal Facility (ERDF) located on Hanford's central plateau between the 200 West and 200 East Areas or other disposal facilities approved in advance by the U.S. Environmental Protection Agency (EPA);
- Treatment, as necessary, to meet waste acceptance criteria at an acceptable disposal facility;
- Consolidation of contaminated equipment on the deck into the below-grade cells for disposal;
- Grouting of internal vessel spaces, as well as cell, gallery, pipe trench, drain header, and other spaces within the facility;
- Demolition of the railroad tunnel, 271-U, 276-U, 291-U, and 292-U structures and the 291-U-1 and 296-U-10 stacks, and disposal of the resulting waste at the ERDF or

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other disposal facilities approved in advance by the EPA, followed by stabilization of the former locations of these structures to support construction of the engineered barrier;

- Removal of roof and wall sections of the 221-U Facility down to the deck level and placement on or near the deck;
- Construction of an engineered barrier over the remnants of the canyon building (with the possible inclusion of inert rubble from the demolition of ancillary facilities as fill material); Planting of semiarid-adapted vegetation on the barrier to enhance evapotranspirative design of the barrier;
- Institutional controls to ensure that the remedy remains protective and that changes in land use do not occur that could result in unacceptable exposures to residual contamination;
- Post-closure care, including barrier inspection and maintenance; and
- Ongoing barrier performance and groundwater monitoring to ensure effectiveness of the remedial action and to support five-year remedy reviews.

The reasonably anticipated future land use for the 200 Area is industrial, and the 221-U Facility remedy will result in protection of human health and the environment based on the exposure assumptions contained in the 200 Area industrial use scenario.

Document Availability

The Final Record of Decision, Final Feasibility Study for the Canyon Disposition Initiative (221-U Facility) and the Proposed Plan, along with other supporting documents are available to the public in both Administrative Record and the USDOE Public Reading Room in Richland, Washington. The ROD can be found on line at <http://www.hanford.gov/> under the *Special Announcements* Section. For a hard copy of the document contact the Hanford Cleanup Line (1-800-321-2008).

September 2005

