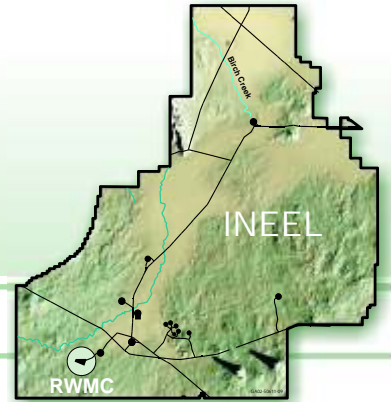


Radioactive Waste Management Complex

Idaho Completion Project



The Radioactive Waste Management Complex (RWMC) is located in the southwest corner of the Idaho National Engineering and Environmental Laboratory (INEEL). Bechtel BWXT Idaho (BBWI) manages and operates the INEEL for the U.S. Department of Energy (DOE).

Current Missions

The RWMC is a 177-acre area used to manage solid transuranic waste and solid low-level radioactive waste generated in national defense and research programs. The facility also supports research and development projects to characterize landfills, technology to achieve stored waste retrieval and processing, and temporary storage and treatment of transuranic waste destined for the Waste Isolation Pilot Plant (WIPP) in New Mexico. Waste shipments to WIPP from the INEEL began in 1999 and will continue until DOE meets its commitment for the safe, permanent, cost-effective disposal of retrievable legacy waste remaining from the United States' nuclear weapons production during the Cold War. Waste

shipments out of Idaho also are a key component in the 1995 Settlement Agreement between the DOE, U.S. Navy, and the state of Idaho.

The main focus of the RWMC is to help DOE and the INEEL fulfill the environmental cleanup mission by safely managing and disposing of retrievable radioactive waste stemming from 50 years of national nuclear operations. The RWMC supports the DOE

environmental mission by developing, demonstrating, and deploying subsurface soil characterization and recovery technologies that are safe and cost effective. One such technology, vacuum vapor extraction, draws volatile organic solvent vapors from the ground and destroys them. Since its deployment in 1996, this process has removed more than 170,000 pounds of organic solvents from beneath the RWMC.

Radioactive Waste Management Complex storage and disposal facilities.



Idaho Completion Project

Waste Types at the INEEL

Transuranic waste – waste that emits alpha particles from isotopes having an atomic weight greater than uranium, a half-life greater than 20 years, and a concentration exceeding 100 nanocuries per gram.

Remote-handled transuranic waste – transuranic waste with an exposure rate that exceeds 200 millirem per hour.

Contact-handled transuranic waste – transuranic waste with an exposure rate less than 200 millirem per hour.

Mixed transuranic waste – transuranic waste that also contains hazardous contaminants.

Low-level waste – radioactive waste that does not meet all definitions for high-level or transuranic waste, spent nuclear fuel, or by-product material.

Mixed low-level waste – low-level waste that also contains hazardous contaminants.



Vapor vacuum extraction units located in the Subsurface Disposal Area destroy harmful organic solvent vapors from the ground beneath the Radioactive Waste Management Complex.

Between 1952 and 1970, radioactive and chemically hazardous waste was buried in the RWMC's Subsurface Disposal Area (SDA). This site is being evaluated under the Comprehensive Environmental Response, Compensation, and Liability Act, otherwise known as CERCLA or Superfund. The SDA consists of 21 pits, 58 trenches, and 21 soil vault rows. The DOE and BBWI are studying potential risks of the buried waste and identifying what future remedial actions may be feasible. DOE, the state of Idaho, the U.S. Environmental Protection Agency, and the public will consider the results learned before making a final decision on cleanup of the SDA.

Facilities

The RWMC includes the following areas and facilities:

- The SDA is a 97-acre area in the western section of the RWMC. It contains an active shallow-land-burial area for the permanent disposal of solid, low-level waste. The area also contains pits and trenches where mixed transuranic and other radioactive waste was buried between 1952 and 1970. Much of the transuranic waste buried at the RWMC was shipped to the INEEL from the Rocky Flats Plant near Golden, Colo., and was the product of nuclear weapons production during the Cold War.

- The Transuranic Storage Area (TSA) at the RWMC is a 58-acre area in the eastern section of the RWMC and is operated by BNFL, Inc. This area is dedicated to storage of contact- and remote-handled solid transuranic waste that was received at the RWMC from the Rocky Flats Plant after 1970.

Transuranic waste received after 1970 was placed in retrievable storage on asphalt pads and covered with earth. More recently, waste in drums and boxes was stored in metal buildings called storage modules. Currently, the INEEL ships transuranic waste to WIPP, which serves as the nation's permanent deep-geologic repository for transuranic

waste. Facilities within the TSA are used in managing the transuranic waste:

- The TRUPACT Loading Station is used to load transuranic waste into TRUPACT-II containers for shipment to the WIPP repository.
- The Advanced Mixed Waste Treatment Project is a facility owned by BNFL, Inc., under contract with DOE. This facility will ultimately process approximately 65,000 cubic meters of mixed transuranic waste in storage at the TSA to prepare the waste for shipment to WIPP.

How much is 65,000 cubic meters? Stacked the length and width of a football field, the material would reach a height of about 48 feet. A treatment process, called supercompaction, will reduce the volume of waste by crushing 55-gallon drums into smaller, 11-gallon bundles.

History

The SDA was established in 1952 as a 13-acre location for disposal of radioactive waste. In 1954, Rocky Flats began shipping transuranic waste from nuclear weapons production. By 1957, the original 13 acres were nearly filled. The SDA was expanded to 88 acres in 1958 and remained that size until the perimeter berm was constructed in 1988,



A portion of the transuranic waste buried in the Subsurface Disposal Area will be excavated inside a retrieval structure (above).

and now encompasses 97 acres.

Between 1960 and 1963, the SDA accepted low-level waste from private sources such as universities, hospitals, and research institutes. This service stopped when commercial burial sites for contaminated waste from private industry became available.

In 1970, the federal government adopted a more restrictive policy for managing transuranic waste. All waste received at the RWMC after 1970 that was contaminated with transuranic elements in concentrations greater than 100 nanocuries per gram was placed in interim aboveground storage on asphalt pads until a federal repository would be

available for permanent disposal.

From 1975 to 1996, air-support buildings were used to protect recently received waste containers. These were emptied in 1996 and decommissioned in 1998. In 1996, the INEEL completed construction on eight Resource Conservation and Recovery Act permitted-waste storage facilities in



INEEL employees monitor the subsurface at the Radioactive Waste Management Complex.

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In 2004, buried waste was retrieved from a portion of Pit 9. The U.S. Department of Energy, the state of Idaho, and the U.S. Environmental Protection Agency will use information obtained during this project to support future cleanup decisions.

the TSA. To meet Resource Conservation and Recovery Act permit requirements, the new facilities provide interim storage for the waste until it can be shipped to WIPP.

In 1996, DOE awarded a privatized contract to BNFL, Inc., to begin permitting and design work on the Advanced Mixed Waste Treatment Project facility. As part of this project, BNFL, Inc., retrieves, sorts and compacts waste stored at the RWMC and prepares it for final disposal at WIPP.

In April of 1999, the INEEL made its first shipment of transuranic waste to WIPP. In 2002, the INEEL achieved the milestone to ship 3,100 cubic meters of

transuranic waste to WIPP. The remainder of the 65,000 cubic meter volume will be processed and removed from Idaho by 2018 under the terms of the 1995 Settlement Agreement.



Workers at the Radioactive Waste Management Complex use gloveboxes to sort and repackage waste for disposal at the Waste Isolation Pilot Plant.

Distances

Distances to nearby cities:

51 miles (82 kilometers)
west of Idaho Falls

32 miles (51 kilometers)
southwest of Mud Lake

15.5 miles (25 kilometers)
east of Arco

124 miles (200 kilometers)
northeast of Twin Falls

