IDAHO

Idaho National Laboratory

Background

The Idaho National Laboratory, located in southeastern Idaho and with additional research and support facilities in Idaho Falls, was established in 1949 as the National Reactor Testing Station.[39] For many years, Idaho National Laboratory housed the largest concentration of nuclear reactors in the world.[40] In total, 52 reactors were built at Idaho National Laboratory, including the U.S. Navy's first prototype nuclear propulsion plant.[41] Four agreements form the regulatory framework at the Idaho National Laboratory: the Federal Facilities Agreement Consent Order, which mandates milestones for cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act; the Site Treatment Plan; the Notice of Noncompliance Consent Order, which governs certain waste management activities; and the 1995 Settlement Agreement, which settled a lawsuit between the state of Idaho, the Navy and the U.S. Department of Energy (DOE) and requires that certain waste be removed from Idaho by specific dates.[42]

FIGURE 8: Demolition of CPP 601-602 at the Idaho site. Photo courtesy of U.S. Department of Energy.

Major Accomplishments

DOE EM has worked with Idaho to achieve the following outcomes:

- The Advanced Mixed Waste Treatment Project (AMWTP) continues to successfully treat transuranic (TRU) waste from Idaho and other states.
- DOE EM completed transuranic waste retrieval activities at the Advanced Mixed Waste Treatment Project's Transuranic Storage Area-Retrieval Enclosure (TSA RE). The waste was received at the Idaho National Laboratory site after 1970 in drums, boxes and cargo containers; placed on asphalt pads; and then covered with an earthen berm. In the 1990s, a large building was constructed over the seven-acre berm. Beginning in 2003, the function of the enclosure has been to retrieve the approximately 50,000 cubic meters (m^3) of waste in the TSA RE and to characterize, sort, treat and ship the waste to its final disposal sites, primarily to New Mexico's Waste Isolation Pilot Plant (WIPP). The last waste container was retrieved in 2017. Recently retrieved waste now awaits treatment at the Advanced Mixed Waste Treatment Project.[43]

[39] U.S. Department of Energy. (n.d.). Brief history of the Idaho National Laboratory (INL). Retrieved from https://www.id.energy.gov/insideNEID/BriefHistory.htm.
[40] Public tours offer insight into Idaho National Laboratory. (2011, June 10). Idaho State Journal. Retrieved from https://www.idahostatejournal.com/news/online/public-tours-offer-insight-into-idaho-national-laboratory/article_960e3196-9332-11e0-a7d0-001cc4c03286.html.
[41] U.S. Department of Energy. (n.d.). Brief history of the Idaho National Laboratory (INL). Retrieved from https://www.id.energy.gov/insideNEID/BriefHistory.htm.
[42] U.S. Department of Energy. (n.d.). Commitments and agreements. Retrieved from https://www.id.energy.gov/insideneid/commitme.htm.
[43] U.S. Department of Energy. (2017, March 15). Transuranic waste retrieval at Idaho's AMWTP now complete. Retrieved from https://www.energy.gov/em/articles/transuranic-waste-retrieval-idaho-s-amwtp-now-complete.

- DOE EM excavated and repackaged solvent, transuranic waste, contaminated graphite and filter media waste for eventual shipment to WIPP in New Mexico from approximately 85 percent of the required acres at the Subsurface Disposal Area.[44]
- DOE EM treated and repackaged approximately 10,494 sludge drums for disposal at WIPP.
- DOE EM treated and shipped 124 m^3 of remotely handled transuranic waste for disposal at WIPP.
- DOE EM transferred more than 104 metric tons of heavy metal from spent nuclear fuel (SNF) from wet storage facilities to dry storage.

Site-Specific Issues

Leading challenges at Idaho National Laboratory include meeting the obligations of the 1995 Settlement Agreement and other legal agreements between DOE and the state. Among other things, the agreements require disposal of transuranic waste outside of Idaho, retrieval from the bin sets and treatment of high-level waste (HLW) calcine generated from SNF reprocessing conducted decades ago, and treatment of liquid HLW (including sodium-bearing waste) stored in tanks above the Snake River Plain Aquifer, a critical drinking water and agricultural resource for much of southern Idaho. DOE EM has completed construction of the Integrated Waste Treatment Unit to treat the liquid HLW, but delays during testing have prevented DOE EM from meeting deadlines to achieve full facility operation.[45]

Relationship to Other Sites in the Complex

Idaho National Laboratory's relationships with other DOE sites are critical to completing the requirements of the 1995 Settlement Agreement, including WIPP for disposal of TRU waste. In addition to HLW and SNF stored and generated on-site, Idaho National Laboratory stores the damaged reactor from Three Mile Island and SNF from Navy vessels and foreign research reactors. Disposal of HLW and SNF from Idaho National Laboratory depends on future decisions about permanent geologic disposal. The Idaho National Laboratory plays a key role in treating mixed low-level waste (LLW) and TRU waste from around the complex.

LLW and mixed LLW cleanup at Idaho National Laboratory depends heavily on both the Nevada National Security Site (NNSS) and commercial sites around the country providing an avenue for the ultimate disposal of legacy waste. According to DOE EM estimates, more than 35,000 m^3 of LLW and 3,500 m^3 of mixed LLW will be sent from Idaho to the NNSS for disposal between 2018 and 2050.[46]

---

[44] U.S. Department of Energy. (2018, August 12). *Third buried waste retrieval project underway at DOE Idaho site* [Press release]. Retrieved from https://www.id.energy.gov/news/PressReleases/PR081218.htm.

[45] Exchange Monitor. (2018, August 29). Idaho waste treatment unit startup unlikely in 2018, DNFSB suggests. Retrieved from https://www.exchangemonitor.com/idaho-waste-treatment-unit-startup-seems-unlikely-2018-dnfsb-suggests/.

[46] Applied Research Center, Florida International University. (n.d.). Welcome to WIMS: Waste Information Management System. Retrieved from http://www.emwims.org.