



The Nevada National Security Site (NNSS)

For decades, the NNSS has served as an important resource for ongoing national security and other research/development missions. In addition, it provides vital waste disposal capabilities for the nationwide cleanup of former nuclear research and testing facilities. State-of-the-art waste management sites at the NNSS offer a safe, permanent disposal option for U.S. Department of Energy (DOE)/U.S. Department of Defense facilities generating cleanup-related classified and radioactive waste.

Types of Waste Disposed

Waste management operations at the NNSS focus on the disposal of low-level radioactive waste (LLW), mixed low-level radioactive waste (MLLW), and classified waste that may or may not contain hazardous and/or radioactive constituents. These wastes typically consist of containerized debris, trash, soil, equipment, tools, and discarded personal protective clothing. The containers can generally be handled safely without any special equipment or clothing, as the level of radioactivity is relatively low and the packaging provides the necessary protection. If the waste contains any hazardous constituents it is disposed separately in a cell constructed with a multi-layered lining and a special leachate collection system, as required under a Resource Conservation and Recovery Act permit.

Disposal Location

A combination of favorable conditions, such as an arid environment, deep groundwater, and site remoteness, contribute to the suitability of the NNSS for LLW, MLLW, and classified waste disposal. These waste types are permanently disposed at the Area 5 Radioactive Waste Management Complex, a 740-acre area that includes excavated disposal cells and permitted storage locations. In addition, the Area 3 Radioactive Waste Management Site was used for LLW and MLLW disposal until 2006. This 128-acre disposal area is now maintained in a “cold standby” mode.



Definitions

Classified Waste: Waste containing classified material, that may or may not have radioactive and/or hazardous constituents, for which permanent disposal must be protected in the interest of national security.

Low-Level Waste: Radioactive waste that cannot be characterized as high-level, transuranic, spent nuclear fuel, or by-product materials, such as uranium mill tailings.

Mixed Low-Level Waste: Waste that contains both hazardous and radioactive constituents. Hazardous constituents are toxic, corrosive, reactive, ignitable, or specifically identified by the U.S. Environmental Protection Agency as “hazardous.”

Radioactive Waste: Materials with no future use that have been contaminated by a nuclear process, thereby containing unstable elements (such as tritium, plutonium, or uranium) which emit radiation.

Waste Generator: DOE and U.S. Department of Defense sites or projects that generate classified, low-level or mixed low-level radioactive waste.

Waste Disposal at the NNSS

Waste Approval

As part of the commitment to safety and for the protection of the public, workers and environment, the DOE Environmental Management (EM) Nevada Program must review and approve waste before any shipments are sent to the NNSS. Approval is granted only after waste generators undergo a rigorous certification process and demonstrate compliance with the NNSS Waste Acceptance Criteria, a formal document that outlines specific requirements for waste acceptance, including waste treatment, packaging, documentation, transportation, and training. The document also outlines separate criteria for MLLW or classified waste which contains hazardous components governed by the Resource Conservation and Recovery Act. The State of Nevada Division of Environmental Protection, with authority delegated by the U.S. Environmental Protection Agency, has issued permits to the NNSS for activities involving hazardous waste.

Shipment Acceptance

Before waste shipments are accepted at the NNSS, generators and their contracted shipping carriers must provide documentation consistent with the information submitted during the waste approval process. Once documentation has been verified, NNSS waste personnel conduct surveys of all trucks, trailers and containers entering the Area 5 disposal facility to make sure security seals are in place and packages are intact and appropriately labeled. Waste packages may also be inspected using onsite x-ray technology. Any waste found to be out of compliance will be rejected pending corrective action.

Disposal Method

Once incoming waste passes final inspection, waste trucks are allowed access to one of several excavated disposal cells. Following off-loading, radiological surveys are conducted on individual waste packages, bar codes are scanned, and the waste is placed in its permanent disposal position. Waste cells are organized using a 20' x 20' grid system, in which letters and numbers designate the location of waste packages. This tracking system helps waste personnel monitor the accumulation of radionuclide levels, and, if need be, locate specific waste packages once they are covered with soil.

Monitoring

Federal contractors supporting Area 5 disposal activities use special equipment to perform ongoing air, groundwater, and soil monitoring. Such monitoring activities provide early detection in the unlikely event contamination migrates from the immediate disposal area. Monitoring results to date have shown no radiological releases above regulatory limits. Regular performance assessments of the disposal facilities serve as an additional safety measure. Experts use computer modeling software to perform these assessments, which evaluate the potential short-term and long-term risks associated with disposal.

