Disposal of Low-Level Waste (LLW) at the Nevada National Security Site (NNSS)

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History of NNSS

- NNSS has a long history of supporting national security
- President Truman officially established the Nevada Proving Grounds, now the Nevada National Security Site, on December 18, 1950
- 100 atmospheric tests conducted from January 1951 through July 1962 to study weapons-related effects, as safety experiments, and to study peaceful effects of nuclear explosions
- Atmospheric testing ended in October 1963 when U.S. agreed to observe Limited Test Ban Treaty
- 828 underground tests conducted until moratorium went into effect after the last test on September 23, 1992
NNSS Site Security and Missions

• Secured 24/7 by a professional security force protecting all national security assets, facilities and land
• Supports DOE, National Nuclear Security Administration, Department of Defense, Homeland Security, and other federal agencies to meet national security missions and requirements
• Ongoing Environmental Management activities to address the effects of historic nuclear testing (www.nv.energy.gov/envmgt)
  • Radioactive waste disposal ongoing since 1961
• NNSS will remain secured and withdrawn from public use for the foreseeable future

Environmental Management

• Identifying, characterizing, and completing work at sites contaminated by historic nuclear activities
  • Groundwater affected by underground nuclear testing
  • Land and facilities used in support of nuclear testing
  • Surface soils contamination from atmospheric nuclear tests and other experiments and tests
  • Nearly 70% of sites closed in accordance with legal agreement with State of Nevada
Environmental Management (continued)

• Disposing LLW/mixed LLW generated by national security missions and cleanup of legacy nuclear contamination

• Geologic and hydrologic conditions at NNSS provide protective disposal capacity for wastes from the NNSS and other DOE sites

• Safety of operations confirmed through comprehensive ongoing monitoring and adherence to strict nuclear operations procedures

LLW Disposal Facility

• Located in Frenchman Flat, near the first atmospheric nuclear test in Nevada

• Arid and isolated disposal facility with no groundwater pathway and deep groundwater

• Annually, NNSS receives approximately 5% of the waste produced by the DOE complex Supports ongoing cleanup activities at NNSS

• Can safely dispose of classified waste that requires additional security
• 21.1M cubic feet of LLW disposed throughout the DOE complex in fiscal year 2013

91% of waste disposed on-site at the location where it was generated

4% of waste disposed at a commercial facility

5% of waste disposed at NNSS

• Approximately 1.1M cubic feet of waste disposed in fiscal year 2013

Types include:

- Soils and debris (i.e. concrete and building)
- Equipment, clothing and tools
- Solidified liquids and sludges
- Laboratory waste
- Irradiated metal and research targets
- Amalgamated mercury
- Depleted uranium
- Sealed sources (radioisotopes used in equipment for power and medical)
- Surplus nuclear materials deemed excess to national security missions
- Uranium wastes
- Piping used for refining uranium and nuclear propulsion research

• LLW with a hazardous (toxic, ignitable, corrosive, etc.) component are mixed wastes and also disposed under a state permit

• Classified components and parts also disposed
NNSS Waste Acceptance Process

- Structured process with stringent requirements that must be met by all on-site and off-site waste generators before shipping waste for disposal
  - Rigorous reviews, inspections and certification processes conducted for waste characterization, packaging and transportation
  - Proposed waste streams detail radionuclide action levels to ensure there is no compromise to the safety of the disposal facility
  - Auditors conduct reviews at generator sites to confirm all policies and procedures meet or exceed NNSS waste disposal requirements
  - Disposal operations and monitoring activities are factored into the review process
- Waste streams are approved for disposal at NNSS only after successfully demonstrating compliance with waste acceptance requirements
- At NNSS, State of Nevada participates directly in the waste acceptance review process

LLW/Mixed LLW General Transportation Routes to/from NNSS
Transporting Waste to NNSS

• In accordance with U.S. Department of Transportation (DOT) regulations
• Routing within Nevada region includes preferences established for travel during summer and winter months, and blackout dates during specific holiday events
  • All highway, no rail access – surrounded by U.S. Air Force land
• All LLW/mixed LLW shipments to/from NNSS are reported quarterly
  • Available on the Nevada Field Office website at www.nv.energy.gov/radwastetrans
  • Includes maps depicting routes taken

LLW Receipt at the NNSS

• All LLW received for disposal at the NNSS undergoes the following prior to acceptance:
  • Verification of shipping documentation against previously approved and transmitted paperwork
  • Radiological surveys of each truck and trailer
In Summary...

- Waste acceptance, transportation and disposal at the NNSS is conducted responsibly and safely to protect workers, the public and environment.

- NNSS infrastructure provides long-term protection of disposed waste.

- DOE is committed to providing stakeholders as much unclassified information about the disposal of waste at the NNSS.
  - Active volunteer advisory board comprised of community members who meet regularly (open to public) and provide recommendations to the U.S. Department of Energy (www.nv.energy.gov/nssab).

Information Links/Contact

- Find out more information on-line at www.nv.energy.gov.


- Learn more about the Nevada Site Specific Advisory Board by visiting www.nv.energy.gov/nssab.

- Read/download transportation reports at www.nv.energy.gov/radwastetrans.

- E-mail envmgt@nnsa.doe.gov.

- Call 702-295-3521.