

Environmental Restoration

safety ❖ performance ❖ cleanup ❖ closure

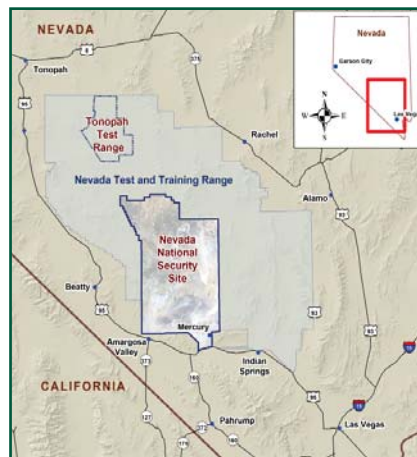


The Environmental Management (EM) Program was created to address the environmental legacy of contamination resulting from decades of nuclear weapons research, production, and testing at the Nevada National Security Site (NNSS) and other federal facilities across the United States. The U.S. Department of Energy (DOE), National Nuclear Security Administration Nevada Field Office (NNSA/NFO) is responsible for remediation efforts at the NNSS and at some locations on the surrounding Nevada Test and Training Range, to include the Tonopah Test Range.

Tackling this legacy, are experts in the fields of geology, engineering, hydrology, and computer modeling. This team is working together to develop effective strategies to address contaminated soils, industrial facilities, and groundwater sites.

These strategies, and completion of this environmental restoration mission are governed by the Federal Facility Agreement and Consent Order, a legally-binding agreement among the DOE, the State of Nevada, and the U.S. Department of Defense. This Consent Order establishes a framework for identifying, prioritizing, investigating, remediating, and monitoring the contaminated sites covered by the agreement.

In accordance with this agreement, once the extent of contamination (*if any*) is determined, an appropriate closure approach is selected to complete the corrective action. Closure approaches may entail the removal and disposal of debris (such as old batteries and paint containers), complete excavation and clean closure of the site, decontamination and decommissioning activities, closure in place, and/or subsequent monitoring.



Map showing the location of the Nevada National Security Site and the Nevada Test and Training Range (including the Tonopah Test Range).



Hydrologists conduct water sampling at Well ER-6-2



Radiation Control Technicians (RCTs) survey old radium dials in Area 5

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Industrial Sites

Industrial Sites are facilities and land that may have become contaminated as a result of activities conducted in support of nuclear testing. The facilities and land include disposal wells, inactive tanks, contaminated waste sites, inactive ponds, muck piles, spill sites, drains and sumps, and ordnance sites. As of September 2014, Industrial Sites closures are 99% complete.

Building demolition at the Engine Maintenance, Assembly and Disassembly Facility.



Groundwater

Scientists study the effects of historical underground nuclear testing on the groundwater at the NNSS and locations contiguous with the underground testing areas. Investigations focus on the geology and hydrology of the NNSS to determine how contaminants are transported by groundwater flow. A regional three-dimensional computer groundwater model has been developed to aid in identifying any risk to the public, the workers, and the environment. Results to date indicate contaminated groundwater is not expected to reach publicly accessible locations due to the relative slow movement of groundwater combined with the ongoing process of radioactive decay, which reduces contamination levels. To ensure public health and safety, groundwater monitoring is expected to continue in perpetuity.

Soils Sites

Surface and shallow subsurface soils were contaminated by historical atmospheric nuclear tests, weapon storage/transportation tests and support activities on the NNSS and adjacent U.S. Air Force land. Soils site closures are 70% complete as of September 2014.

Definitions

Computer Groundwater Model: A computer program that can integrate various geologic and water samples to produce three-dimensional representations of the subsurface environment.

Contaminant: Substance found at a location or concentration not occurring naturally. Examples include radioactive materials, oils, solvents, gasoline, heavy metals (such as lead), and unexploded ordnance.

Corrective Actions: Actions taken to characterize, remediate, and/or isolate sites. Examples include investigation, excavation and removal, demolition, dismantlement, entombment, fencing and posting, or a combination of these techniques.

Decontamination and Decommissioning: A closure process used for facilities with no current or future mission. The process involves collecting information to determine possible contamination (characterization), choosing the appropriate cleanup method (e.g., decontamination and reuse or demolition and disposal) and site closure (completion of closure method).

Remediate: The process of cleaning, removing and/or isolating contaminants that may present a risk to human health and/or the environment.



Wells are drilled to collect groundwater samples, aiding scientists in determining contaminant boundaries and movement.

For more information, please contact:

U.S. Department of Energy,
National Nuclear Security Administration
Nevada Field Office
Office of Public Affairs
P.O. Box 98518
Las Vegas, NV 89193-8518
(702) 295-3521
envmgt@nnsa.doe.gov
www.nnss.gov

For information on all Nevada Field Office Environmental Management activities
visit: www.nnss.gov/pages/programs/em/Environmental.html

