

# Environmental Restoration

safety ❖ performance ❖ cleanup ❖ closure



An ambitious Environmental Restoration Project is under way at the Nevada National Security Site (formerly known as the Nevada Test Site) to address the impacts of atmospheric and underground nuclear testing that spanned from 1951 to 1992.

Experts in the fields of geology, engineering, hydrology, and computer modeling are working together on the project to develop effective strategies to assess and/or restore nearly 3,000 contaminated soil, industrial facility, and groundwater sites at the Nevada National Security Site and the Nevada Test and Training Range to the north.

In order to manage these sites most efficiently, the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office has grouped environmental restoration sites according to the nature and type of contaminated media. The following are brief descriptions of what make up the *Industrial Sites, Soils, and Underground Test Area* Sub-Projects.



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



Demolition of the Reactor Maintenance, Assembly, and Disassembly decontamination building at the Nevada National Security Site.



## 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 Boundary:** A perimeter that outlines an area of contamination.

**Contaminant:** Substance that is found at a location or concentration that is not naturally occurring. 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 that have no current or future mission. The process involves collecting information about the site to learn about possible contamination (characterization), choosing the appropriate cleanup method (design), and site cleanup (remediation).

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## Industrial Sites

Industrial Sites are facilities and land on the Nevada National Security Site and Nevada Test and Training Range 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. 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.

## Soils

Surface soils at various sites on the Nevada National Security Site and the Nevada Test and Training Range were radioactively contaminated due to historical nuclear testing. Corrective actions at these sites range from removal of soil to closure in place with restricted access controls.



Collecting groundwater samples from Well ER-20-4

## Underground Test Area

Scientists with the Underground Test Area Sub-Project study the effects of historical underground nuclear testing on the groundwater at the Nevada National Security Site and surrounding areas. Investigations focus on the geology and hydrology of the Nevada National Security Site 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 and to provide a formulation for developing individualized models. These site-specific groundwater models will be used

to identify contaminant boundaries based on the maximum extent of contaminant migration over a 1,000-year time period. Results of the site-specific groundwater models will be used to develop a monitoring network, which augments current monitoring both on and off the Nevada National Security Site. To ensure public health and safety, groundwater monitoring is expected to continue in perpetuity.

## Laws and Regulations

Activities under the Environmental Restoration Project are subject to applicable regulatory guidelines and requirements. The following are the *primary* laws and regulations that apply to Nevada Site Office Environmental Restoration Project activities:

- *The Federal Facility Agreement and Consent Order* is an agreement among the Nevada Site Office, the State of Nevada, and the U.S. Department of Defense. It is the dominant regulatory driver for Nevada Site Office Environmental Restoration Project activities and establishes a framework for identifying, prioritizing, investigating, remediating, and monitoring the contaminated sites covered by the agreement.
- *The Resource Conservation and Recovery Act* is a comprehensive program for regulating and managing hazardous wastes, non-hazardous solid wastes, underground storage tanks; and for promoting the use of recycled and recovered materials.
- *The National Environmental Policy Act* requires federal agencies to integrate environmental values into the decision-making process by considering environmental impacts of proposed actions and reasonable alternatives for implementing those actions.

### For more information, please contact:

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