Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

In 1950, President Truman established what is now known as the Nevada National Security Site (NNSS), to perform nuclear weapons testing activities. In support of national defense initiatives, a total of 928 atmospheric and underground nuclear weapons tests were conducted at the NNSS between 1951 and 1992, when a moratorium on nuclear testing began.

Environmental Management

The U.S. Department of Energy's Environmental Management (EM) Program was established in 1989 to identify and address areas impacted by historical nuclear research, development, and testing across the United Sites. In Nevada, EM activities focus on:

- Groundwater, soil, and on-site facilities;
- Radioactive, hazardous, and sanitary waste management and disposal; and
- Environmental planning, compliance, and monitoring.

Workers take a water sample from a well drilled in the northwest portion of Yucca Flat - an area on the NNSS where hundreds of underground nuclear tests were conducted.

Groundwater Characterization

As a result of historic underground nuclear testing, some of the groundwater beneath the NNSS is contaminated. At this time, there is no proven, cost-effective technology that removes deep, extensive contamination from complex geology. Therefore, the NNSS is forecasting the location, potential direction and flow of contaminants. This is accomplished through strategically-placed well drilling and extensive sampling which provides data for computer models. All this information is used to enhance and expand the monitoring network which ensures the protection of the public and environment.

Radioactive Waste Disposal

The low-level radioactive waste disposed at the NNSS is generated by cleanup activities at the NNSS and other U.S. Department of Energy and U.S. Department of Defense sites across the country. Examples of this waste include contaminated construction debris, scrap metal, soil, and equipment. Some of this waste includes hazardous constituents. Waste is disposed in engineered cells

Workers place a metal box containing mixed low-level radioactive waste in a disposal cell at the Area 5 Radioactive Waste Management Complex located in the southeast portion of the NNSS.

excavated to various depths. Continuous monitoring of air, groundwater, and soil serves as an early detection system in the unlikely event that contamination migrates from the immediate disposal area.

Definitions

Remediate: Corrective actions taken to clean, remove and/or isolate materials contaminated by historic nuclear testing activities. Examples include excavation and removal, demolition, dismantlement, entombment, fencing and posting, or a combination of these techniques.

Closure in Place: Occurs when contaminants of concern (i.e. radioactive or hazardous constituents) are left in place at the site. This method is used when exposing and moving the contaminants has the potential for greater safety risks than leaving the materials in place. Access to these sites is controlled through administrative actions such as land use restrictions and physical barriers (i.e., fencing).

Monitoring: System established to collect and analyze sampling information to track the quality of air, water, geologic material, plants, animals, etc.

Environmental Management

Protecting People and the Environment

NNSS activities are conducted in a manner which adheres to all environmental protection standards and regulations in order to safeguard the public and environment from any existing or potential contamination. These activities include environmental planning, compliance and monitoring.

Infrastructure Remediation

Hazardous and radioactive contamination found in the historic NNSS infrastructure must be characterized and cleaned up in accordance with the Federal Facility Agreement and Consent Order. Sometimes the contaminants can be easily removed and, in some cases, portions of entire facilities must be demolished and properly disposed.

Surface Soil Remediation

Contamination has been identified in portions of the surface soil near historic atmospheric tests. The EM Program evaluates the extent of soil contamination resulting from atmospheric nuclear tests, safety experiments, and earth-cratering experiments. After the evaluation is complete, a remediation process is implemented upon approval by the State of Nevada.

Outreach Activities

EM has a dedicated public outreach program which includes the development and distribution of fact sheets, publications, news releases and exhibits. EM not only keeps the public informed, but also offers the opportunity to participate through the Nevada Site Specific Advisory Board (NSSAB) and considers recommendations from the NSSAB. The NSSAB is comprised of volunteers from southern Nevada who review EM activities and provide stakeholder feedback and recommendations. More information on the NSSAB, including meeting details, is located at www.nnss.gov/NSSAB.

Workers close-up a container of low-level radioactive waste debris from the demolition of the Reactor Maintenance, Assembly, and Disassembly Facility used for nuclear rocket development at the NNSS in the 1960s.

For further information about the Environmental Management program contact:

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Scan with your smart phone and take the Nevada National Security Site mobile.

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

DOE/NV--1058 REV 3 • March 2012