



From Testing to Cleanup

From 1951 through 1992, the Nevada National Security Site (NNSS) and surrounding federal land served as official nuclear testing grounds for the U.S. Departments of Energy (DOE) and Defense. In 1989, what is now known as the DOE's National Nuclear Security Administration Nevada Site Office began formally addressing the environmental impacts of testing-related contamination at specific locations on the NNSS and the Nevada Test and Training Range, which includes the Tonopah Test Range. A major part of this effort involved exploring surface contamination resulting from historic atmospheric tests.

Safe and Secure

The Environmental Management team developed a plan to characterize, manage and, where necessary, clean up surface and shallow subsurface soil and debris at these former test locations. Contaminants range from radioactive material to oil, solvents, and heavy metals such as lead. Surface debris often consists of contaminated instruments and test structures used during testing activities.

Successful

The EM Nevada Program remediation mission is now **complete** for sites with soil contamination from atmospheric nuclear testing and similar activities.

- In 2020, the closure of 4 Soils Sites on the Tonopah Test Range (TTR) allowed for the transfer of all 70 closed sites on and around the TTR to the DOE Office of Legacy Management (OLM)— the first EM-to-LM transfer in more than a decade.
- In 2019, soils sites corrective actions were completed six years ahead of schedule, saving an estimated **\$66 million** in federal funding.

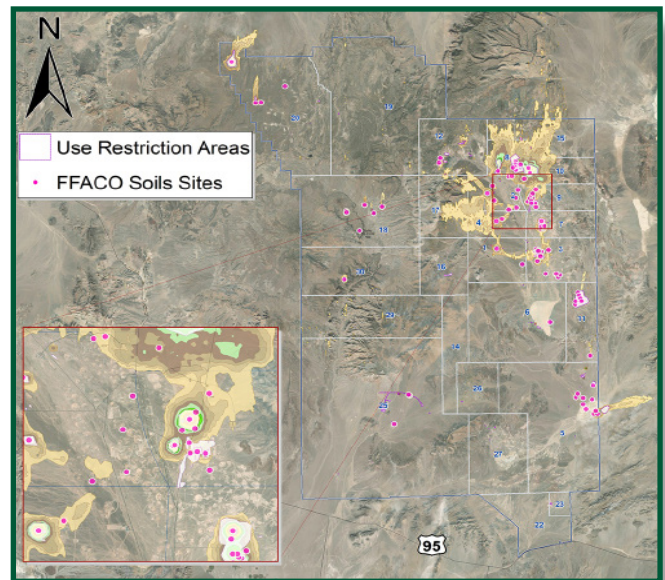
Did you know?

The NNSS stretches over 1,355 square miles. That's larger than the state of Rhode Island.

Fast Facts

- **Characterize:** to identify the nature and extent of contamination present.
- **Remediate:** to clean, remove, and/or isolate contaminated materials.
- Environmental corrective actions performed under the *Federal Facility Agreement and Consent Order (FFACO)* were completed at **all 148** soils sites.
- More than **3,000** environmental samples were collected to support the investigation, remediation, and closure of the soils sites.

Soils Sites on the NNSS



**Plumes depict radioactivity detected above background levels during 1994 flyovers*

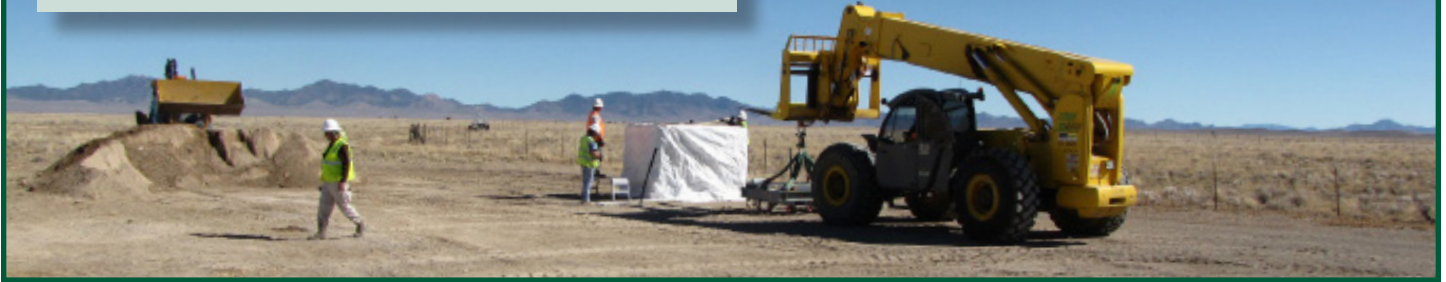


Soil sampling activities being conducted.

Soils Sites

By the Numbers

More than **700,000** cubic feet of contaminated soil removed under the FFACO Corrective Action Strategy.



The Process: Characterization to Remediation

Data collection helps experts identify the nature and extent of contamination as well as the potential risk to human health and the environment. To accomplish this, cleanup experts used a systematic approach. Crew members first conducted historical reviews at each site— identifying tests performed and evaluating existing records. Next, field crews utilized radiological surveys, using aerial flyover data to estimate the extent of contamination and ground surveys for more precise observations. This was part of the onsite characterization process, which typically includes radiological surveys and a rigorous soil sampling campaign.

The information was then used to formulate a cleanup, or remediation, strategy for each location. This remediation approach (required under the FFACO) weighs the risks and benefits of removing and disposing contaminated media as opposed to closing a site in place with use restrictions.

Legacy

Today, *less than 1%* of surface soils at the NNSS are posted as radiologically contaminated.

Long-term Monitoring

Some sites under the FFACO were closed in place; at these sites, where contamination remains, post-closure monitoring and/or use restrictions are necessary. Post-closure requirements include a variety of inspection, monitoring, maintenance, and reporting commitments. Requirements and site controls vary depending on site location, accessibility, land use scenario, and nature of contaminants. All incorporated remediation strategies are based on the safety of the public, the environment, and site workers.



Sampling



Cleanup



Waste Removal

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