Nevada National Security Site

Overview

The Nevada National Security Site (NNSS) was used from 1951 to 1992 to conduct a total of 100 atmospheric and 828 underground nuclear weapons tests. As a result, some groundwater, surface soils, and industrial-type facilities were contaminated on the NNSS and the surrounding Nevada Test and Training Range (NTTR). The Department of Energy's Environmental Management (EM) Nevada Program is responsible for completing cleanup actions at these historic nuclear testing locations, as well as waste disposal for both on site and off site generators.

In accordance with the Federal Facility Agreement and Consent Order (FFACO), the EM Nevada Program is responsible for environmental corrective actions at 148 surface soil locations, 1,013 industrial site locations, and groundwater contaminated by historical nuclear testing.

Cleanup has been completed at all surface soil sites covered in the FFACO, an accomplishment reached six years ahead of schedule in 2019, with cost savings of approximately \$67 million in federal funding. Cleanup has also been completed at 99 percent of all industrial sites to date, which includes legacy facilities, infrastructure, and waste disposal locations, among others.

For groundwater contamination, the EM Nevada program is working to identify contaminant boundaries, restrict access to contaminated groundwater, and implement a long-term monitoring program. Because of the vast and complex geology of the NNSS, groundwater contamination is grouped into characterization areas based on location and similar geology. Three of the four groundwater characterizations areas at the NNSS have transitioned into long-term monitoring.

The EM Nevada Program welcomes stakeholder feedback through a variety of means, including regular meetings with intergovernmental stakeholders and the Nevada Site Specific Advisory Board (NSSAB).



Calendar Year 2021 Accomplishments

- Initiated characterization and hazard reduction activities to prepare for demolition and closure of two legacy facilities at the Nevada National Security Site (NNSS)
- Obtained regulatory approval of data completeness for the Pahute Mesa groundwater region – the last active groundwater corrective action area at the NNSS
- Safely and securely disposed ~550,000 cubic feet of classified and low-level (LLW)/mixed low-level (MLLW) radioactive waste in support of cleanup and activities at federal sites across the U.S. involved in nuclear research, development, and testing, and ongoing national security and science missions

Planned Cleanup Scope 2022–2032

Over the coming decade, the EM Nevada program expects to complete its current scope of cleanup activities safely, securely, and successfully at the NNSS. EM Nevada will continue to closely collaborate with local stakeholders, including the Nevada Site Specific Advisory Board (NSSAB), Intergovernmental Liaisons group, Low Level Waste Stakeholders Forum, and others, to to complete it's cleanup in a manner that prioritizes the protection of people, communities, and the environment.

In 2020, EM Nevada transitioned the second and third of four groundwater corrective action areas at the NNSS into long-term monitoring, bringing the Program's overall groundwater mission to 75 percent completion.



The last active groundwater corrective action area at the NNSS is Pahute Mesa, where the investigation phase (including completion of the flow and transport model, external peer review, and regulatory approval of the corrective action plan) is anticipated to be completed by the end of 2023. By the end of 2027, EM anticipates completing the model evaluation phase for Pahute Mesa, including the drilling of two model evaluation wells. By the end of 2028, EM anticipates transitioning the Pahute Mesa groundwater corrective action area into long-term monitoring. This action will complete EM Nevada's groundwater mission at the NNSS. It is anticipated that long-term stewardship responsibilities for closed groundwater corrective action areas will thereafter be transferred to the landlord of the NNSS, the NNSA.

In 2021, the EM Nevada Program initiated characterization and hazard reduction activities in preparation for the demolition and closure of two large, unique, and complex legacy nuclear facilities on the NNSS. The facilities are the Engine Maintenance, Assembly, and Disassembly (EMAD) and Test Cell C (TCC) complexes, which supported historical nuclear propulsion rocket development and testing programs. EMAD and TCC represent the last major demolition and closure efforts currently identified in EM Nevada's environmental remediation mission. In 2022, the EM Nevada Program will begin demolition work at EMAD and TCC, including site preparation, staging, and grading activities, as well as the removal of asbestos and perlite.

Long-term monitoring of industrial sites will remain the responsibility of EM Nevada until the Program completes its environmental restoration mission at the NNSS. It is currently anticipated that, at that time, longterm stewardship responsibilities for closed industrial sites will be transferred to the landlord of the NNSS, the NNSA.

The EM Nevada Program will continue to support cleanup and activities at federal sites across the U.S. involved in nuclear research, development, and testing, and ongoing national security and science missions, by disposing of up to 1.2 million cubic feet annually of LLW, MLLW, and classified waste through at least 2030.



Key Regulatory Milestones 2022–2032

EM Nevada environmental restoration activities are primarily regulated by the Federal Facility Agreement and Consent Order (FFACO), an agreement between the State of Nevada and the Department of Energy governing environmental corrective actions at sites impacted by historical nuclear activities. A supplemental Agreement in Principle between the Department and the State exists to provide a role for the Nevada Division of Environmental Protection in oversight of NNSS Low-Level Waste disposal operations. The federal Resource Conservation and Recovery Act, which regulates hazardous waste management, also governs certain aspects of Mixed Low-Level Waste disposal at the NNSS.

- Submit the TCC closure report to the regulator 2023
- Submit the EMAD closure report to the regulator 2024

- Transition post-closure monitoring for most sites to NNSA – 2027
- Transition post-closure monitoring of Pahute Mesa to NNSA – 2028

Post-2032 Cleanup Scope

The EM Nevada Program is scheduled to reach end-state for its cleanup mission by 2028, which will ultimately involve the completion of all active remediation activities and the conveyance of remediated sites for long-term stewardship. It is currently anticipated that there will be a need within the DOE complex for NNSS waste disposal beyond 2030.