



Gate 100 in 1964.

Nevada National Security Site Overview

A Premier National Laboratory

The Nevada National Security Sites (NNSS) protects the United States and its allies by: supporting the stewardship of the nation's nuclear stockpile, providing nuclear and radiological emergency response capabilities and training, contributing to key nuclear nonproliferation and arms control initiatives, executing national-level experiments in support of the National Laboratories, working with customers and other federal agencies on important national security activities, and providing long-term environmental stewardship of the NNSS' Cold War legacy.

The Nevada National Security Site itself (the Site) is a premier outdoor, indoor, and underground national laboratory located on 1,355-square-miles of remote, highly secure land in Southern Nevada. It is a preferred location for experiments supporting the National Nuclear Security Administration (NNSA)'s nuclear weapons Stockpile Stewardship Program, national defense programs, and national security research, development and training programs, as well as vital programs conducted by other federal agencies.

Then and Now

The Site, formerly known as the Nevada Test Site, was the location of 100 atmospheric and 828 underground nuclear weapons tests before full-scale testing ended in 1992. Following the moratorium, subcritical experiments were initiated at the NNSS in order for the U.S. to maintain the safety and reliability of its nuclear weapons stockpile.

Subcritical Experiments

Physics experiments are used to obtain technical information about the U.S. nuclear weapons stockpile. These subcritical experiments are conducted in tunnels constructed nearly 1,000 feet underground. What makes the experiments subcritical is that no critical mass is formed and no self-sustaining nuclear reaction occurs. Critical mass is the minimum amount of nuclear-fusion capable atoms or elements required for a nuclear chain reaction. Subcritical experiments do not yield self-sustaining nuclear chain reactions like atmospheric and underground testing of the past. Today's science-based subcritical experiments are essential to the Stockpile Stewardship Program, which assesses and maintains the safety, reliability and performance of the U.S. nuclear weapons stockpile.

Stewarding the Nation's Nuclear Weapons Through Science

Scientists can predict changes in the nation's nuclear stockpile in the absence of full-scale nuclear testing through careful measurement of nuclear materials and studying how those materials interact and age.

By replicating the extreme temperatures and pressures of a nuclear reaction, scientists can measure important dynamic properties of plutonium and other materials. The NNSS conducts experiments using multiple diagnostic tools and computer simulations to detect and predict the unique changes that occur in the aging stockpile.

The Joint Actinide Shock Physics Experimental Research (JASPER) Facility gas gun plays an integral role in nuclear material property studies. JASPER provides a method to generate

data pertaining to the properties of plutonium at high shock pressures, temperatures and strain rates. Experiment results are used to refine nuclear weapons code and to enhance the program's predictive capability.

The Device Assembly Facility (DAF) is a state-of-the-art facility that consolidates all nuclear explosive and high explosive assembly functions and operations in a safe and secure environment. Under the continuing nuclear testing moratorium, the DAF provides support to Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the Department of Defense, the Department of Homeland Security and other entities.

The Principal Underground Laboratory for Subcritical Experimentation (PULSE) is an underground laboratory where scientists conduct subcritical physics experiments to obtain technical information about the U.S. nuclear weapons stockpile. These experiments are executed in tunnels more than 960 feet below the surface by scientists and researchers with the NNSS, Lawrence Livermore National Laboratory, Los Alamos National Laboratory and Sandia National Laboratories.

The Big Explosives Experimental Facility (BEEF) provides data through conventional or high-explosive experiments to support the science-based Stockpile Stewardship Program. BEEF also engages in a variety of other programs that expand the nation's experiment capabilities. Scientists study and investigate impacted materials merged together by explosions.

Global Security

The NNSS Global Security team is home to the nation's experts in detecting and locating "dirty bombs," "loose nukes" and



other radiological threats. Global Security characterizes the threat environment, produces specialized radiological/nuclear detection equipment and tests and evaluates it. They train personnel to use specialized equipment and develop new tools to defeat terrorists.

The Nonproliferation Test and Evaluation Complex (NPTEC) is the only facility of its kind for both large- and small-scale hazardous and toxic materials testing under controlled conditions. It is ideally suited to simulate realistic industrial release and accident scenarios for live hazardous materials training and field verification of dispersion models.

The Radiological/Nuclear Countermeasures Test and Evaluation Complex (RNCTEC) is a multi-use test and evaluation venue that serves the U.S. Department of Homeland Security mission. The department's Domestic Nuclear Detection Office established the complex to support all federal agencies in developing, acquiring and supporting deployment of domestic nuclear detection systems.

The Counterterrorism Operations Support Program provides valuable hands-on training to emergency personnel who respond to terrorist acts involving chemical, biological, radiological and high-explosive weapons. Individuals with local, state and federal agencies interact with emergency personnel to establish standard operating procedures and develop decontamination procedures.

The Unmanned Aerial Systems Outdoor Testbed provides an expansive platform for the rapid validation of prototype sensors to respond to the ever-evolving threat of drone technology. The facility equips the NNSS and its partners to develop, characterize and demonstrate counter Unmanned Aerial System response in a safe and secure environment.

The Applied Technologies (AT) Division develops and creates tailor-made instruments and produces standard-setting technologies in remote sensing. AT proudly partners with its



current customers to address pressing national security needs, offering partners access to the science, people and infrastructure of the NNSS.

Environmental Management

Radioactive Waste Management Sites have been operating since 1961, safely disposing of low-level and mixed low-level radioactive waste from the U.S. Department of Energy and the Department of Defense. The waste is generated by the environmental cleanup of the nation's nuclear weapons complex and includes materials such as soil, construction debris and used laboratory equipment.

The Environmental Restoration Project executes corrective actions at sites on the NNSS and the U.S. Air Force's Nevada Test and Training Range, including the Tonopah Test Range. Contaminants at these sites include radioactive materials, oils, solvents, gasoline, heavy metals and unexploded ordnance.

Environmental protection, compliance and monitoring of the air, water, plants, animals and cultural resources are also conducted at the NNSS.

In addition to its contribution to the nation's defense, the NNSS also partners with educational institutions to provide an outdoor library for research and experiments related to the site's unique environment.

Visit NNSS.gov for more information about the Nevada National Security Sites.



For more information, contact:

www.nnss.gov

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