NEVADA NATIONAL NNSS SECURITY SITE

Stockpile Stewardship

Device Assembly Facility

A National Resource

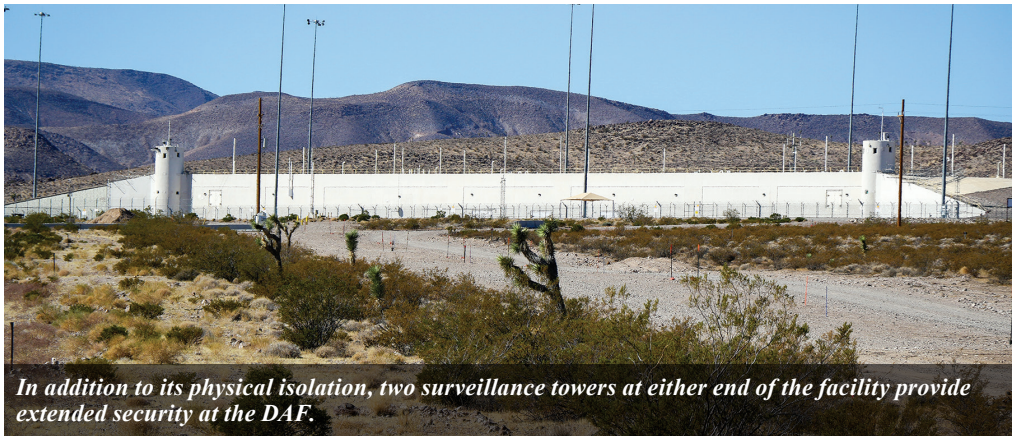
The Device Assembly Facility (DAF), like other assets across the Nevada National Security Site (NNSS) including the U1a Complex and the Joint Actinide Shock Physics Experimental Research (JASPER) Facility, supports the U.S. Department of Energy, National Nuclear Security Administration's (NNSA) Stockpile Stewardship Program. Prior to the nuclear weapons testing moratorium in 1992, the DAF was designed and built to consolidate all nuclear explosive assembly functions, to provide safe structures for high explosive and nuclear explosive assembly operations, and to provide a state-of-the-art safeguards and security environment.

The facility was designed for assembly, disassembly, modification, staging, transportation, maintenance, repair, retrofit and testing of nuclear devices. Today, the DAF plays an integral part in supporting NNSA subcritical experiments, nuclear material management, stockpile surveillance and the National Criticality Experiments Research Center (NCERC). Although the U.S. is not currently conducting nuclear tests, the NNSS is charged with maintaining an underground test readiness program in the event that nuclear testing resumes. The DAF plays a crucial role in achieving test readiness capability. Additionally, the DAF is used to prepare target chambers for JASPER experiments.

Safe and Secure

The design of the facility and its safety features make the DAF well suited to address new and evolving national security challenges.

The DAF is located in the interior of the NNSS. Its remoteness provides a substantial safety zone for the general public and adds to the security of the facility. The facility is a collection of individual steel-reinforced concrete buildings connected by a rectangular common corridor. And the entire complex, covered by compacted earth, spans an area of 100,000 square feet.



In addition to its physical isolation, two surveillance towers at either end of the facility provide extended security at the DAF.

Safety systems include fire detection and suppression, electrical grounding, independent heating, ventilation and air conditioning systems with high efficiency particulate air filters, alarm systems and warning lights. In operational areas, pairs of blast doors – designed to mitigate the effects of an explosion – are interlocked so that only one door may open at a time.

Operational buildings in the DAF include assembly cells, high bays, assembly bays and radiography bays. In the assembly bays, glove boxes restrict airborne debris to a single area, and a down draft table includes vacuums that dispose of particles into a controlled area, which keeps debris from floating in the air. Staging bunkers provide space for staging nuclear components and high explosives. All materials packages arrive or depart the DAF through one of two shipping and receiving bays.

The support buildings include vaults for staging explosives or special nuclear material, decontamination areas and an administration area. In addition, two buildings provide laboratory space – one for conducting instrumentation and environmental testing and the other for observing operations in an adjacent assembly cell.

Home of National Criticality Experiments Research Center

NCERC conducts research in the design, development, construction, and application of experiments on nuclear criticality. Located at the DAF and operated by the Los Alamos National Laboratory (LANL), NCERC contains the largest collection of nuclear critical mass assembly machines in the western hemisphere. A critical mass is the smallest amount of fissile material – such as plutonium or enriched uranium – needed for a sustained nuclear chain reaction.

Highly trained NCERC scientists conduct experiments using a variety of nuclear materials ranging from small neutron-emitting sources for radiation detection equipment to larger quantities of uranium and plutonium for criticality experiments. Since its move from LANL to the NNSS in 2011, the research center has hosted more than 50 experiments using its one-of-a-kind critical assemblies.

Part of the NCERC mission is to provide the technology to enable the U.S. to respond to the threat of nuclear proliferation. These technologies are able to verify declarations made by other nations concerning their nuclear material stewardship. NCERC also helps to counter the proliferation of nuclear weapons and terrorism by developing and evaluating equipment for and training law enforcement and first responder teams. Training objectives often require the use of a range of actual nuclear materials all in one location.

NCERC operations enable personnel to gain knowledge and expertise in advanced nuclear technologies that support the following areas:

- Nuclear criticality safety and nuclear material management
- Nuclear emergency response
- Nuclear nonproliferation, safeguards, and arms control
- Support to the Department of Homeland Security and other government agencies
- Stockpile stewardship

National Nuclear Security Administration

For more information, visit:

www.nnss.gov

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