

Stockpile Stewardship

Device Assembly Facility (DAF)



Background

The Device Assembly Facility (DAF) supports the U.S. Department of Energy, National Nuclear Security Administration's (NNSA) Stockpile Stewardship Program, created to maintain the safety and reliability of the U.S. nuclear weapons stockpile.

For 41 years, nuclear weapons testing was the primary mission at the Nevada National Security Site (NNSS), during which nuclear testing operations occurred in a safe, remote and secure environment. These operations included assembly, disassembly, modification, staging, transportation, maintenance, repair, retrofit and testing of nuclear devices. The mission of the DAF continues to evolve due to the nuclear weapons testing moratorium, which began in October 1992. Current missions are an integral part of the NNSA Stockpile Stewardship Program, which includes work to support NNSA subcritical experiments, nuclear material management, stockpile surveillance and the National Criticality Experiments Research Center. Additionally, the DAF is used to prepare target chambers for the Joint Actinide Shock Physics Experimental Research (JASPER) Facility experiments.

A National Resource

The DAF is a national asset. The design of the facility and its safety features make the DAF well-suited to address new national challenges – such as the addition of the National Criticality Experiments Research Center to the NNSS – in support of maintaining the nation's nuclear stockpile. Even though the United States is not currently conducting nuclear tests, the President pledged to maintain an underground test readiness program in the event that nuclear testing resumes. The DAF plays a crucial role in achieving test readiness capability.

Location

The DAF is located in the interior of the NNSS, its remoteness providing a substantial safety zone for the general public and adding to the security of the facility. In addition to its remoteness, all activities at the DAF comply with the National Environmental Policy Act and all applicable federal, state and local regulations.

Design

The DAF is a collection of individual steel-reinforced concrete buildings connected by a rectangular common corridor. The entire complex, covered by compacted earth, spans an area of 100,000 square feet.

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 (one of which houses a glove box and another which houses a down draft table) and radiography bays. 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



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



The DAF includes assembly bays for activities involving uncased conventional high explosives and special nuclear material.

special nuclear material, decontamination areas and an administration area with office space, a conference area, and personnel changing and shower rooms. 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.

Assembly Cells (Gravel Gerties)

The assembly cells were named Gravel Gerties after a 1950s Dick Tracy comic-strip character. Modeled after the Pantex Plant near Amarillo, Texas, the DAF cells are where hands – on assembly and disassembly of U.S. nuclear weapons and devices could take place. They provide the maximum environmental and personnel protection in the event of an inadvertent high-explosive detonation. If a detonation would occur, the Gravel Gertie would minimize release of nuclear material and its spread to other areas of the facility and to outside areas.

Home of National Criticality Experiments Research Center

The National Criticality Experiments Research Center (NCERC), operated by the Los Alamos National Laboratory, is located at the DAF. Their primary operation is to conduct research in the design, development, construction, and application of experiments on nuclear criticality. In doing so, the experiments ran by NCERC use 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.

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
- Stockpile Stewardship
- Support to other government agencies



For more information, contact:
U.S. Department of Energy
National Nuclear Security Administration
Nevada Field Office
Office of Public Affairs

P.O. Box 98518
Las Vegas, NV 89193-8518

Phone: 702.295.3521
Fax: 702.295.0154
Email: nevada@nnsa.doe.gov

www.nnss.gov

NNSS-DAF-U-0008-Rev01
February 2021