

Nevada
Test
Site ★

Device Assembly Facility (DAF)

Introduction

Construction began on the Device Assembly Facility (DAF) in the mid-1980s to support underground nuclear testing. DAF's original purpose was 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. Now that the U.S. is under a continuing nuclear testing moratorium, the DAF now serves as the Criticality Experiments Facility.



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

History

Nuclear weapons testing was the primary mission at the Nevada Test Site for 41 years, during which nuclear testing operations occurred in a safe, remote, secure environment. These operations included assembly, disassembly or modification, staging, transportation, maintenance, repair, retrofit, and testing of nuclear devices. The DAF was designed and built for the purpose of assembling

Los Alamos and Lawrence Livermore National Laboratory nuclear test devices prior to placing them underground for testing. The mission of the DAF evolved since the nuclear weapons testing moratorium began in October, 1992. Its primary mission consists of test readiness. Such projects are an integral part of the U.S. Department of Energy National Nuclear Security Administration's Stockpile Stewardship Program, which includes assembly work to support subcritical experiments being conducted at the Nevada Test Site.

Facility Design

The DAF is a collection of more than 30 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, loud speaker and 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.

The operational buildings in the DAF include five assembly cells; four high bays; three assembly bays; one of which houses a glove box, and one of which houses a down draft table; and two radiography bays. Five staging bunkers provide space for staging nuclear components and high explosives.



All materials packages arrive or depart the DAF through either of two shipping or receiving bays. The support buildings include three small vaults for staging small quantities of high explosives, or special nuclear material; two decontamination areas; and an administration area containing office space, a conference area, personnel changing and shower rooms, and a machine shop. 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 structure at Pantex Plant, where hands-on assembly and disassembly of U.S. nuclear weapons takes place, they provide the maximum environmental and personnel protection in the event of an inadvertent high-explosive detonation. The cells are designed to absorb the blast pressure from a detonation of up to 192 kilograms (423 pounds) of plastic-based explosives equivalent to 250 kilograms or 550 pounds of TNT. Should a detonation occur, the Gravel Gertie would minimize release of nuclear material and its spread to other areas of the facility and to outside areas.



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

A National Resource

The DAF is a national asset. The design of the facility and its safety features makes the DAF well-suited to address new national challenges - such as the addition of the Criticality Experiments Facility to the Nevada Test Site - in support of maintaining the nation's nuclear stockpile. Additionally, the DAF is used to prepare sub-critical experiments and target chambers for the Joint Actinide Shock Physics Experimental Research facility experiments.

Currently the United States is not conducting nuclear tests. However, 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 - located in the interior of the Nevada Test Site - provides a substantial safety zone for the general public and adds to the security of the facility. In addition, activities at the DAF comply with the National Environmental Policy Act, and all applicable federal, state, and local regulations.

For more information, contact:
U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Office of Public Affairs
P.O. Box 98518
Las Vegas, NV 89193-8518
phone: 702-295-3521
fax: 702-295-0154
email: nevada@nv.doe.gov
<http://www.nv.doe.gov>

Stockpile Stewardship

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