

# Fact Sheet

## Defense Threat Reduction Agency



### Operation DOMINIC II

**Note:** For information related to claims, call the Department of Veterans Affairs (VA) at 800-827-1000 or the Department of Justice (DOJ) at 800-729-7327. For all other information, call the Nuclear Test Personnel Review (NTPR) Program at 800-462-3683.

Operation DOMINIC II was an atmospheric nuclear test series conducted by the Atomic Energy Commission (AEC) at the Nevada Test Site (NTS) from July 7 to 17, 1962. The operation consisted of four low-yield shots, three of which were near-surface detonations and one a tower shot. One of the near-surface shots was fired from a DAVY CROCKETT rocket launcher as part of Exercise IVY FLATS, the only military training exercise conducted at DOMINIC II. An estimated 3,900 Department of Defense (DOD) personnel participated in Exercise IVY FLATS, scientific and diagnostic tests, and support activities. The series was intended to provide information on weapons effects and to test the effectiveness of the DAVY CROCKETT weapon system under simulated tactical conditions. Also known by the DOD code name of Operation SUNBEAM, DOMINIC II was the continental phase of DOMINIC I, the atmospheric nuclear test series conducted at the Pacific Proving Ground from April to November 1962.

#### Historical Background

Approximately 1,000 Sixth Army military personnel at DOMINIC II participated in Exercise IVY FLATS, which was sponsored by the Department of the Army and conducted at Shot LITTLE FELLER I. The remaining DOD personnel took part in scientific tests, air support activities, or administrative support activities for DOMINIC II.

Among the Sixth Army participants in Exercise IVY FLATS were approximately 550 maneuver troops drawn primarily from the 4th Infantry Division and approximately 210 Sixth Army personnel who provided support services. Also present were about 400 military and civilian observers. Other military participants included approximately 80 members of the Control, Safety, and Evaluation Group. Some of these personnel accompanied the task force on its maneuver, while others monitored the maneuver from the command post.

The scientific tests at DOMINIC II were supervised by the Defense Atomic Support Agency (DASA) Weapons Effects Test Group. These tests were designed to collect information on weapons effects, such as the electromagnetic pulse, prompt and residual radiation, and thermal radiation. The experiments also tested the effects of low-yield detonations on structures and on aircraft in flight. Personnel from the following organizations participated in these tests:

- Air Force Special Weapons Center
- Army Engineer Research and Development Laboratories
- Army Engineer Waterways Experiment Station
- Army Nuclear Defense Laboratory
- Army Signal Research and Development Laboratories
- Ballistic Research Laboratories (Army)

- David Taylor Model Basin (Navy)
- Harry Diamond Laboratories
- Naval Missile Center.

Air support activities at DOMINIC II included cloud sampling, courier missions, aerial surveys of terrain, and cloud tracking. The Air Force Special Weapons Center (AFSWC) provided most of these air support services. Specific AFSWC units participating were the AFSWC Nuclear Test Directorate, the Special Projects Division, and the 4900th Air Base Group. The following other Air Force units provided support to AFSWC:

- The 1211th Test Squadron (Sampling), Military Air Transport Service, performed cloud sampling.
- The 4520th Combat Crew Training Wing, Tactical Air Command, provided support services at Indian Springs Air Force Base (AFB) and Nellis Air Force Base, Nevada.
- The 55th Weather Reconnaissance Squadron supplied an aircraft and crew for high-altitude cloud tracking.
- The Aeronautical Systems Division, Air Force Systems Command, provided air support for technical projects.

Most of the air support activities were staged from Indian Springs Air Force Base, 30 kilometers east of Camp Mercury (the NTS base camp). DOD personnel also assisted the AEC Test Manager in planning, coordinating, and executing the DOMINIC II tests. These personnel were responsible for overseeing DOD technical and military planning objectives in the operation.

The test involving the largest number of DOD participants was Shot LITTLE FELLER I, the fourth DOMINIC II test. LITTLE FELLER I was a stockpile DAVY CROCKETT tactical weapon, fired as part of Exercise IVY FLATS. This training exercise consisted of an observer program and a troop maneuver. Observers in bleachers about 3.5 kilometers southwest of ground zero wore protective goggles while they watched the detonation. Maneuver troops forward of the observation site were in trenches during the detonation. Five personnel from the IVY FLATS maneuver task force launched the weapon from a rocket launcher mounted on an armored personnel carrier. LITTLE FELLER I detonated on target, 2,853 meters from the firing position. After the initial radiation surveys were completed, the IVY FLATS troops entered their vehicles and moved into the shot area, where they spent about 50 minutes conducting maneuvers.

Military personnel at Shot LITTLE FELLER I also participated in weapons effects tests, collecting data on blast, shock, and fallout effects and in air support activities, including cloud sampling and cloud tracking.

The DOMINIC II test involving the largest number of DOD projects was Shot SMALL BOY. Originally scheduled for 31 DOD projects, the shot ultimately included 63 DOD projects, as well as 4 Civil Effects and 31 AEC projects. Shot SMALL BOY had initially been planned as the one detonation of Operation DOMINIC II. The primary purpose of the detonation was to provide information on electromagnetic pulse effects. Headquarters, DASA, consequently assigned Harry Diamond Laboratories, which had collected electromagnetic pulse data at Operation PLUMBBOB (1957), to provide overall technical direction for DOD programs. Program 6, Electromagnetic Effects, was given priority over the other programs, which were conducted according to strict guidelines designed to assure noninterference with Program 6 objectives.

Besides participating in the 63 DOD projects, military personnel took part in air-support activities. As at the other DOMINIC II shots, these activities included cloud-sampling and cloud-tracking missions.

## Summary of Operation DOMINIC II Nuclear Weapons Tests

The four DOMINIC II tests are summarized in the following table. The figure shows the ground zeros of the four shots.

**Summary of Operation DOMINIC II Nuclear Weapons Tests (1962)<sup>a</sup>**

Shot	LITTLE FELLER II	JOHNE BOY	SMALL BOY	LETTER FELLER I
Sponsor	DOD	DOD	DOD	DOD
Date	Jul 7	Jul 11	Jul 14	Jul 17
Local Time	noon	9:45 a.m.	11:30 a.m.	10 a.m.
NTS Location	Area 18	Area 18	Area 5	Area 18
Type of Detonation	Near Surface	Near Surface	Surface (Tower)	Near Surface
Height of Burst (Feet) <sup>b</sup>	3	-2	10	3
Yield (kilotons) <sup>c</sup>	Low	0.5	Low	Low

<sup>a</sup> Source: *United States Nuclear Tests, July 1945 through September 1992*, DOE/NV-209 (Rev. 15), Dec 2000.

<sup>b</sup> Altitudes are measured from mean sea level, while heights are measured from the ground. All vertical distances are in feet.

<sup>c</sup> One kiloton equals the approximate energy release of one thousand tons of TNT.

## Radiation Protection Standards

The AEC was responsible for onsite and offsite radiological safety during DOMINIC II. The AEC recommended a gamma exposure limit of 3 rem\* per 13-week period for most participants but authorized the pilots conducting cloud sampling missions to receive up to 3.9 rem per 13-week period because their mission required them to penetrate the clouds.

The Test Manager was responsible for implementing the radiological safety procedures for the test organization, which included the Weapons Effects Test Group, AFSWC, and, at Shot LITTLE FELLER I, the IVY FLATS organization. Personnel from the Reynolds Electrical and Engineering Company (REECo) performed the radiological safety activities onsite and at Indian Springs AFB. These activities included:

- Monitoring radiation areas and controlling access into these areas
- Plotting isointensity maps of the shot areas
- Issuing radiation detection instruments, anti-contamination clothing, and equipment to personnel entering radiation areas
- Providing film badges and maintaining exposure records for all personnel
- Decontaminating personnel, vehicles, and equipment.

At Shot LITTLE FELLER I, personnel from the IVY FLATS Radiological Safety Control Section, working within the REECo radiological safety program, conducted similar activities for Exercise IVY FLATS participants.

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\* A rem is a radiation protection unit of measure that quantifies the risk of biological effects resulting from exposure to ionizing radiation. Ionizing radiation is any radiation (gamma, x-ray, beta, neutron, or alpha) capable of displacing electrons from atoms or molecules, thereby producing ions. According to the National Council on Radiation Protection and Measurements (NCRP, Report No. 160, Table 1.1), the general U.S. population receives about 0.62 rem per year from natural background radiation sources (radon, cosmic rays, and rocks) and man-made radiation sources (medical diagnostic x-rays and consumer products). As a basis of comparison, a standard diagnostic chest x-ray delivers a radiation dose of about 0.02 rem.

U.S. Public Health Service (USPHS) personnel performed offsite monitoring under the supervision of the Offsite Radiological Control Officer. Their activities included:

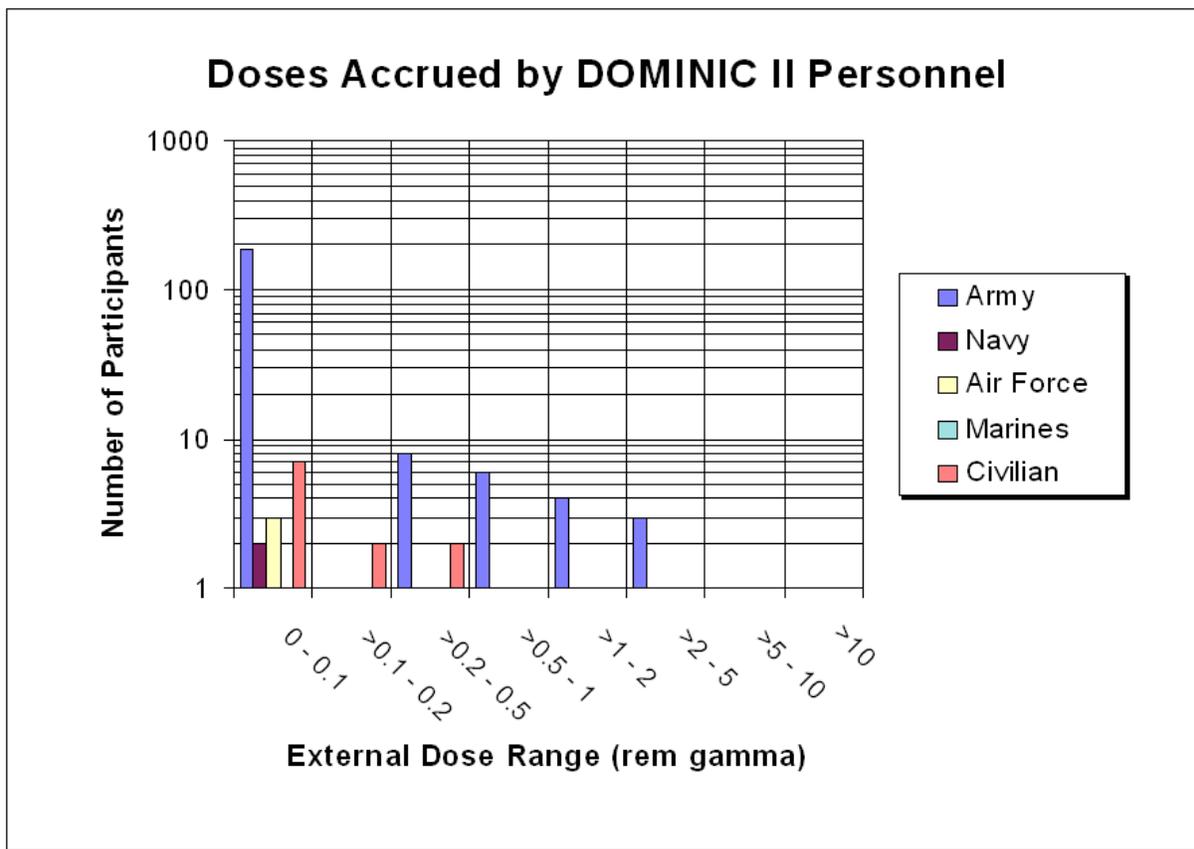
- Assessing offsite radiation
- Collecting data on fallout patterns
- Monitoring air, water, and milk
- Preparing reports, maps, and records that described the results of the monitoring and data collection.

In addition to these ground monitoring activities, the USPHS conducted aerial surveys of offsite areas.

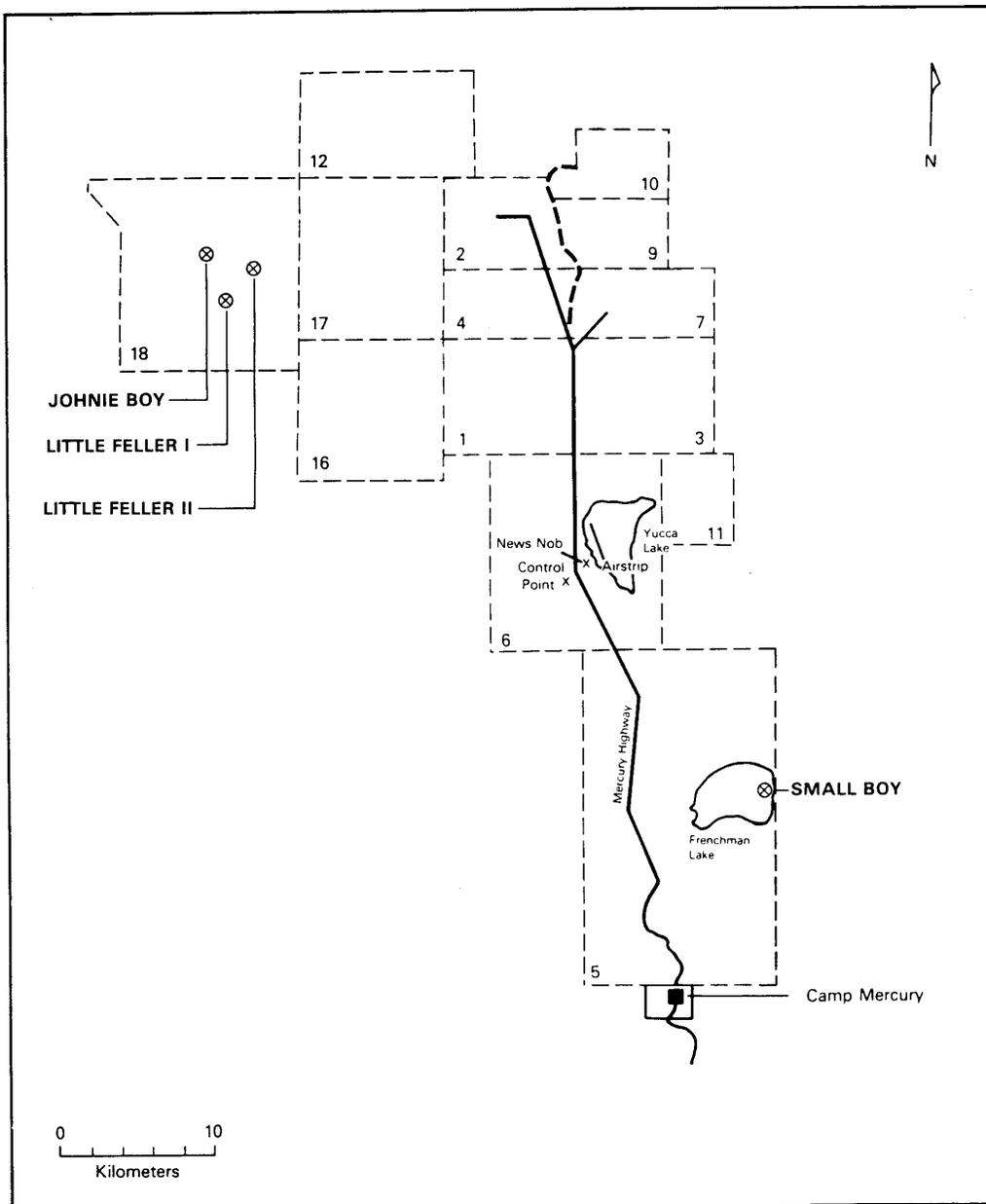
Air Force personnel from the 1211th Test Squadron (Sampling) assisted REECo in monitoring and, as necessary, decontaminating aircrews and aircraft participating in cloud-sampling missions at DOMINIC II. These activities took place at Indian Springs AFB.

### Radiation Doses at Operation DOMINIC II

All of the DOD participants received less than 5 rem during DOMINIC II. Of those who received more than 2 rem, most (about 40) were Army personnel. Available film badge data are shown below.



For more information, see the report "Operation DOMINIC II," (DNA 6027F), available online at <https://www.dtra.mil/DTRA-Mission/Reference-Documents/NTPR-Info/>.



LOCATIONS OF DOMINIC II NUCLEAR TEST EVENTS  
AT THE NEVADA TEST SITE