

Fact Sheet



Defense Nuclear Agency
Public Affairs Office
Washington, D.C. 20305

14 June 1982

Subject: Operation TUMBLER-SNAPPER

Operation TUMBLER-SNAPPER, a series of atmospheric nuclear weapons tests, was conducted by the Atomic Energy Commission (AEC) at the Nevada Proving Ground (NPG) from 1 April to 5 June 1952. The operation consisted of eight nuclear detonations in two phases. The TUMBLER phase, of primary concern to the Department of Defense (DOD), consisted of four weapons effects tests, Shots ABLE, BAKER, CHARLIE, and DOG. These airdropped devices were detonated to collect information on the effect of the height of burst on overpressure. Shots CHARLIE and DOG were also part of the SNAPPER phase, of primary concern to the AEC and the Los Alamos Scientific Laboratory. The other weapons development tests in the SNAPPER phase were Shots EASY, FOX, GEORGE, and HOW. The primary purpose of these four tower shots was to gather information on nuclear phenomena to improve the design of nuclear weapons.

Department of Defense Involvement

About 7,350 of the estimated 10,600 DOD participants in Operation TUMBLER-SNAPPER took part in Exercise Desert Rock IV. The remaining DOD personnel assisted in scientific experiments, air support activities, or administration and support activities at the NPG.

Exercise Desert Rock IV, an Army training program involving personnel from the armed services, included observer programs and tactical maneuvers. Observer programs, conducted at Shots CHARLIE, DOG, FOX, and GEORGE, generally involved briefings on the effects of nuclear weapons, observation of a nuclear detonation, and a subsequent tour of a display of military equipment exposed to the detonation. Tactical maneuvers, conducted after Shots CHARLIE, DOG, and GEORGE, were designed both to train troops and to test military tactics. Psychological tests were conducted at Shots CHARLIE, FOX, and GEORGE to determine the troops' reactions to witnessing a nuclear detonation.

Soldiers from various Sixth Army units provided support for the Exercise Desert Rock IV programs. They maintained and operated Camp Desert Rock, a Sixth Army installation located three kilometers south of the NPG. These soldiers provided essential services such as food, housing, transportation, communications, construction, and security. Some of the Desert Rock support troops worked in the forward areas of the NPG to construct observer trenches, lay communication lines, provide transportation, and assist with other preparations for Desert Rock IV activities. Many of the Camp Desert Rock support personnel observed at least one detonation during Operation TUMBLER-SNAPPER, and some were called upon to perform support or staff duties in the test areas during nuclear detonations.

DOD personnel also participated in scientific experiments conducted by two test groups at Operation TUMBLER-SNAPPER: the Military Effects Test Group and the Weapons Development Test Group. The Military Effects Test Group was sponsored by Test Command, Armed Forces Special Weapons Project (AFSWP), and involved more DOD participants than did the AEC Weapons Development Test

Group. The Los Alamos Scientific Laboratory conducted most of the Weapons Development Test Group activities, but DOD personnel were sometimes involved. Test group participants placed instruments and equipment around ground zero in the days and weeks before the scheduled nuclear test. At shot-time, these personnel were generally positioned at designated observer locations or were working at substantial distances from ground zero. After each detonation, when it was determined that the area was radiologically safe for limited access, these participants returned to the test area to recover equipment and gather data.

DOD personnel also provided air support to Operation TUMBLER-SNAPPER. The Air Force Special Weapons Center (AFSWC), from Kirtland Air Force Base, had primary responsibility for cloud sampling, courier missions, cloud tracking, aerial surveys of the terrain, and other air support as requested. AFSWC consisted of units of the 4925th Test Group and 4901st Support Wing, which staged out of Indian Springs Air Force Base.

Although the AEC Test Manager was responsible for planning, coordinating, and executing Operation TUMBLER-SNAPPER programs and activities, DOD personnel assisted in these duties. They were responsible for overseeing the DOD technical and military operations at the tests.

Summaries of TUMBLER-SNAPPER Nuclear Events

The eight TUMBLER-SNAPPER events are summarized in the accompanying table. The accompanying map shows the ground zeros of these shots.

Shot ABLE, an airdropped nuclear device, was detonated at 0900 hours on 1 April 1952, 793 feet over Area 5 of Frenchman Flat. ABLE had a yield of one kiloton. The event was a weapons effects test and involved DOD personnel from the Military Effects Test Group and the Weapons Development Test Group in about 30 scientific and diagnostic experiments. AFSWC activities included the airdrop, cloud sampling, courier service, cloud tracking, and aerial surveys. In addition, over 150 personnel from the Strategic Air Command observed the detonation from B-50 aircraft flying over the test area. No formal military training exercises were conducted at this shot, although 15 members of the Camp Desert Rock support staff witnessed the shot. Onsite radiation intensities were characterized by small areas of low-level radioactivity surrounding ground zero. Six hours after the shot, the 0.01 R/h* radiation intensity line was at a radius of about 600 meters from ground zero.

Shot BAKER, an airdropped nuclear device, was detonated at 0930 hours on 15 April 1952, 1,109 feet over Area 7 of Yucca Flat. The BAKER device had a yield of one kiloton. BAKER was also a weapons effects test and involved DOD personnel from the test groups in 45 experiments. AFSWC activities included the airdrop, cloud sampling, courier service, cloud tracking, and aerial surveys. About 170 Strategic Air Command observers flying in B-50 aircraft witnessed the detonation. No formal military training exercises were conducted, but ten members of the Camp Desert Rock staff did witness the shot. Onsite radioactivity was characterized by small areas of radiation around ground zero. About one hour after the shot, the initial radiological survey team found a radiation intensity of 1.2 R/h at ground zero, decreasing to 0.01 R/h 750 meters south of ground zero.

Shot CHARLIE, an airdropped nuclear device, was detonated with a yield of 31 kilotons at 0930 hours on 22 April 1952 about 3,500 feet over Area 7 of Yucca Flat. About one hour after the shot, the initial survey showed that

*Roentgens per hour

SUMMARY OF OPERATION TUMBLER-SNAPPER EVENTS (1952)

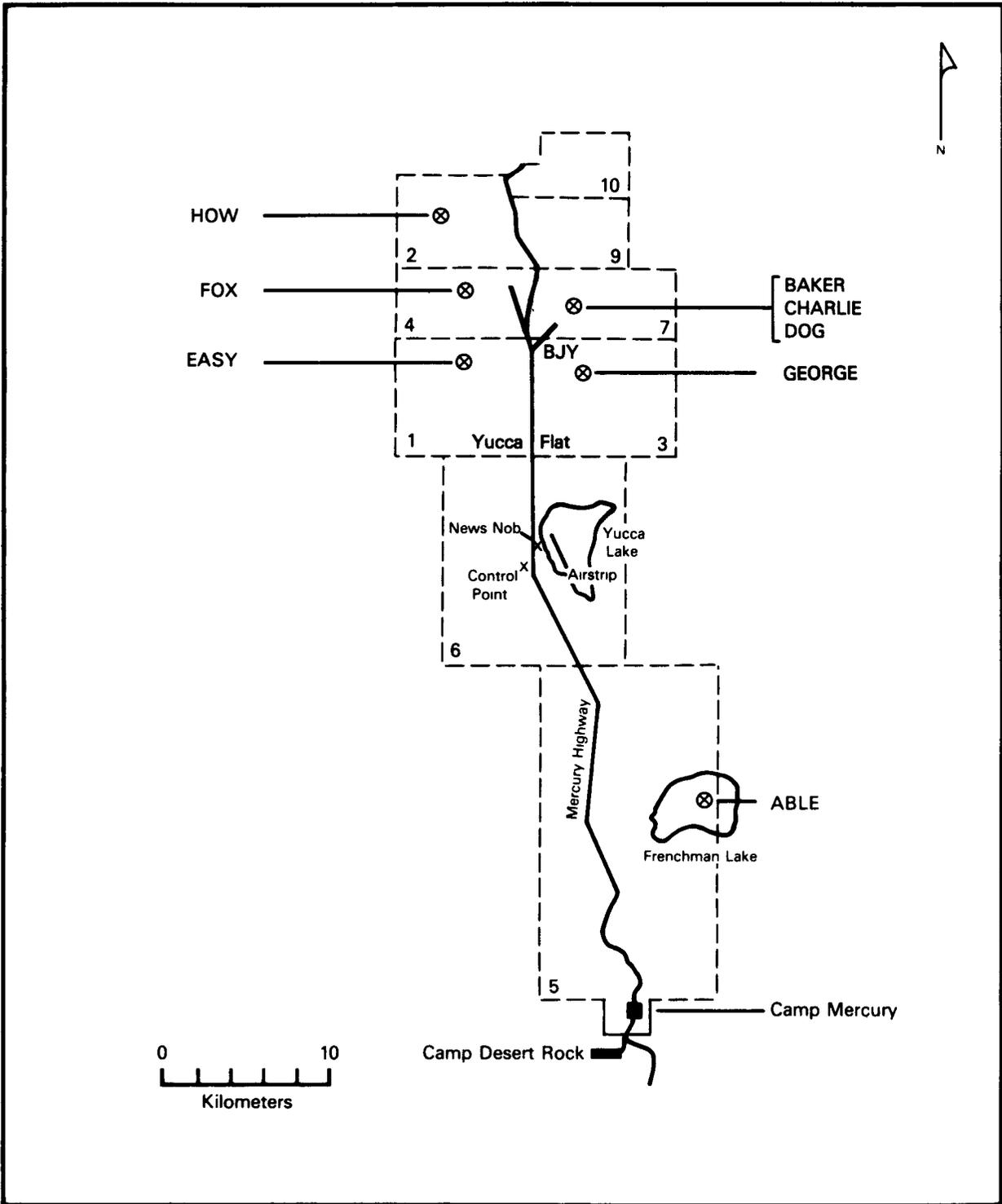
Shot	ABLE	BAKER	CHARLIE	DOG	EASY	FOX	GEORGE	HOW
Sponsor	DOD-LASL	DOD-LASL	DOD-LASL	DOD-LASL	LASL	LASL	LASL	LASL
Planned Date	1 April	15 April	22 April	29 April	6 May	13 May	20 May	27 May
Actual Date	1 April	15 April	22 April	1 May	7 May	25 May	1 June	5 June
Time*	0900	0930	0930	0830	0415	0400	0355	0355
NPG Location	Frenchman Lake (Area 5)	Area 7	Area 7	Area 7	Area 1	Area 4	Area 3	Area 2
Type of Detonation	Airdrop	Airdrop	Airdrop	Airdrop	Tower	Tower	Tower	Tower
Height of Burst (Feet)	793	1,109	3,447	1,040	300	300	300	300
Yield (Kilotons)	1	1	31	19	12	11	15	14

* Pacific Standard Time

SUMMARY OF DOSIMETRY FOR OPERATION TUMBLER-SNAPPER AS OF JUNE 1982

Service	Personnel Identified by Name	Personnel Identified by Name and by Film Badge	Gamma Exposure (Roentgens)					Number of Personnel with Zero Gamma Exposure*	Average Gamma Exposure (Roentgens)	Maximum Gamma Exposure (Roentgens)
			<.1	.1-1.0	1.0-3.0	3.0-5.0	5.0+			
Army	1786	843	295	463	61	17	7	216	.396	10.8
Navy	493	130	51	51	26	2	0	13	.594	4.2
Marine Corps	1980	25	22	2	1	0	0	21	.070	1.5
Air Force	416	416	177	184	36	17	2	59	.497	7.6
Scientific Personnel, Contractors, and Affiliates	389	389	206	98	72	12	1	118	.575	6.1
TOTAL	5064	1803	751	798	196	48	10	427	.468	

* The number of personnel in this column is also represented in the <.1 Gamma Exposure column.



**GROUND ZEROS FOR OPERATION TUMBLER-SNAPPER
AT THE NEVADA PROVING GROUND**