Los Alamos
NATIONAL LABORATORY
EST. 1943

LA-UR-21-31326
Approved for public release; distribution is unlimited.

Title: Buster-Jangle

Author(s): Meade, Roger Allen

Intended for: NSRC ATMOSPHERIC TEST HISTORY Report

Issued: 2021-11-15

Disclaimer:
Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by Triad National Security, LLC for the National Nuclear Security Administration of U.S. Department of Energy under contract 89233218CNA000001. By approving this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Buster-Jangle

R.A. Meade

Codename[1]	Date	Venue	HOB (ft.)	Purpose	Yield (kt.)
Buster Able	10/22/1951	Tower	100	Development	<0.1
Buster Baker	10/28/1951	Airdrop	1118	Development	3.5
Buster Charlie	10/30/1951	Airdrop	1132	Development	14.0
Buster Dog	11/01/1951	Airdrop	1417	Development	21.0
Buster Easy	11/05/1951	Airdrop	1314	Development	31.0
Jangle Sugar	11/19/1951	Surface	0	Effects	1.2
Jangle Uncle	11/29/1951	Underground	-20	Effects	1.2

Jack Clark faced a terrifying situation. A nuclear device, codenamed Able, had just failed to detonate. Someone, meaning Clark, the Deputy Test Director for Operation Buster-Jangle, had to climb the shot tower, disarm the device, and diagnose the problem. Clark, along with Walter Treible and Joe Dawson of Sandia, and Barney O'Keefe of EG&G made the exhausting climb necessitated by the earlier removal of the tower elevator.[2] Clark and his team were successful, fixing a misaligned control circuit. Three days later, on October 22, 1951, Able exploded, but with a very low yield of less than one kiloton.[3]

Buster, a planned series of five weapon development tests, became Buster-Jangle with the addition of two Department of Defense effects tests to evaluate "the physical effects of blast, radiation, and heat" and to simulate nuclear battlefield conditions.[4] The DoD, increasingly interested in the tactical use of nuclear weapons, originally planned a series of effects tests, roughly analogous to the Crossroads Baker event, on Alaska's Amchitka Island. When the island's rocky terrain proved unsuitable, the DoD attached the tests to the Buster series.

Aside from the drama of Able, the remaining four tests of Buster, all flown from Kirtland Air Force Base in Albuquerque, exploded as planned a little over 1000 feet above the test site's desert floor. As part of its effort to evaluate the tactical implications of an atomic battlefield,

[1] Table derived from DOE/NV-209 – Rev 15, December 2000.

[2] In May 1952, under similar circumstances, Clark climbed a 300-foot tower during Operation Tumbler-Snapper to fix the Fox device, which also had failed to detonate.

[3] Furman, Necah Grant. *Sandia National Laboratories: The Postwar Decade*, Albuquerque: The University of New Mexico Press, 602; Shelton, Frank H. *Reflections of a Nuclear Weaponeer,* Colorado Springs: Shelton Enterprises, 5-13; Richard G. Hewlett and Francis Duncan. *Atomic Shield: A History of the United States Atomic Energy Commission, Volume II, 1947-1952,* Berkeley: The University of California Press, 562-570; Roger A. Meade. "Backward Glance, A-Bomb Trigger Man", *Nuclear Weapons Journal, November-December, 2003*, 21; and Hopkins, John C. and Barbara Killian, *Weapons Testing at The Nevada Test Site: The First Decade*, Washington: The Defense Threat Reduction Agency, 139-142.

[4] Hewlett and Duncan, 563.

military troops observed the Dog airdrop and later viewed the blast effects on mock military fortifications. This exercise, known at Desert Rock I, exposed troops to conditions they might face during actual combat.[5] Easy, the final Buster test, was the first live nuclear device dropped from a jet propelled bomber. [6] As such, it was a harbinger of the changes coming to nuclear weapon delivery systems.

Sugar, the first of the two Jangle tests, was conducted to determine the effects of a surface nuclear detonation on equipment and techniques developed for battlefield operations. Uncle was conducted to determine any militarily useful effects, such as cratering, resulting from an underground nuclear detonation. Uncle also was the first underground test conducted by the United States. Troops observed the effects of Sugar, under the codename Desert Rock II, and Uncle, under the codename Desert Rock III, but from a distance because radioactivity prevented close-in access to both ground zero sites.[7] Like Crossroads Baker, Uncle and Sugar demonstrated that the radioactive contamination created by a tactical nuclear device was a major concern.

Buster-Jangle changed the working relationship between the AEC and the DoD. Beginning with Trinity and continuing through Greenhouse, the military was the logistical hub of nuclear testing, supplying men and material to carry out the myriad of mostly non-technical tasks. With the inclusion of the two Jangle tests and the Desert Rock exercises, that relationship became more symbiotic driven by the growing requirements for tactical weapons and their possible battlefield use. At Buster-Jangle, as well, the first use of a jet bomber was evidence that the military technology was evolving, requiring closer cooperation between the two agencies to match weapons and delivery systems.

[5] Hopkins and Kilian, 146-147.

[6] Hopkins and Killian, 142 and Shelton, 5-14.

[7] Shelton, 5-14.