



FACT SHEET

Office of the
Assistant Secretary of Defense (Health Affairs)
Deployment Health Support Directorate

For more information
(703) 578 - 8500
(800) 497 - 6261

Version 10-31-2002

Deseret Test Center

Yellow Leaf

Shortly after President Kennedy's inauguration in 1961, the Secretary of Defense, Robert McNamara, directed that a total review of the U.S. military be undertaken. The study consisted of 150 separate projects. The chemical and biological warfare review was known as Project 112. As part of the Project 112 review, the Joint Chiefs of Staff convened a working committee that recommended a research, testing, and development program for chemical and biological weapons. To oversee this program, the Deseret Test Center was established at Fort Douglas, Utah, in 1962. Both land-based and ship-based tests were conducted during the period 1962 – 1973. The Deseret Test Center closed in 1973.

The first objective of the Yellow Leaf test was to determine the effectiveness of the M143 bomblet when employed against targets in a jungle environment. The second objective was to determine mathematically, and based on data obtained from the Yellow Leaf test, the area coverage to be expected from the detonation of a US Navy MISTEYE I weapons system or a US Army SERGEANT M211 biological warhead over a jungle canopy. An additional objective was to gather information relative to the effects of precipitation on a biological aerosol moving under a jungle canopy.

Yellow Leaf, Phase A was conducted to measure height of burst characteristics for the M143 bomblet. Bomblets filled with tiara, a gelatinous simulant that fluoresces, were individually fired into jungle canopy. There were 185 Phase A trials conducted on the Fort Sherman Military Reservation, Panama Canal Zone and an additional 100 Phase A trials conducted on the Island of Hawaii. Phase B, conducted on the Island of Hawaii, consisted of 20 trials to measure cloud diffusion characteristics under a jungle canopy. The biological simulant *Bacillus globigii* was used as fill in the M143 bomblets detonated during the Phase B trials.

The Department of Defense (DoD) is providing this information, at the request of the Department of Veterans Affairs (VA), to assist the VA in providing healthcare services to qualified veterans and to assist veterans in establishing service connection for disability claims. The Deployment Health Support Directorate (DHSD) collected this information from multiple sources and requested that the military services declassify it to allow its public distribution. The VA accepts this information provided on location, dates, units and/or ships, and substances involved in this exercise, which DHSD extracted from classified DoD records, and will provide it to individual veterans as necessary, but the VA cannot verify its accuracy.

Initial testing was conducted in February 1964 at the Fort Sherman Military Reservation, Panama Canal Zone. However, before Yellow Leaf trials could be completed, international considerations forced the Deseret Test Center to terminate the testing program at that location. To complete the program, a substitute jungle site was chosen on the Island of Hawaii. The remaining trials were conducted on the Island of Hawaii in the Olaa Forest, southwest of Hilo during April and May 1966.

The Department of Defense (DoD) is providing this information, at the request of the Department of Veterans Affairs (VA), to assist the VA in providing healthcare services to qualified veterans and to assist veterans in establishing service connection for disability claims. The Deployment Health Support Directorate (DHSD) collected this information from multiple sources and requested that the military services declassify it to allow its public distribution. The VA accepts this information provided on location, dates, units and/or ships, and substances involved in this exercise, which DHSD extracted from classified DoD records, and will provide it to individual veterans as necessary, but the VA cannot verify its accuracy.

Test Name	Yellow Leaf (DTC Test 64-6)
Testing Organization	US Army Deseret Test Center
Test Dates	February 1964 (Panama Canal Zone) April – May 1966 (Hawaii)
Test Location	Fort Sherman Military Reservation, Panama Canal Zone (February 1964) Island of Hawaii (April – May 1966)
Test Operations	To measure burst height and cloud diffusion characteristics of the M143 bomblet when released into a jungle canopy.
Participating Services	Deseret Test Center personnel
Units and Ships Involved	Not identified
Dissemination Procedures	M143 bomblets statically detonated above jungle canopy.
Agents	Not used
Simulants and Tracers	<i>Bacillus globigii</i> (Hawaii) Tiara (Panama Canal Zone and Hawaii)
Ancillary Testing	Not identified
Decontamination	Not identified
Potential Health Risks Associated with Agents, Simulants, Tracers	<i>Bacillus globigii</i> (BG) Now considered to be <i>Bacillus subtilis var. niger</i> , a close relative of <i>Bacillus subtilis</i> , this bacterial species was used as a simulant and considered harmless to healthy individuals. <i>Bacillus subtilis</i> and similar <i>Bacillus</i> species are common in the environment, and are uncommon causes of disease. They have been associated with acute infections of the ear, meninges (brain lining), urinary tract, lung, heart valve, bloodstream, and other body sites, but

The Department of Defense (DoD) is providing this information, at the request of the Department of Veterans Affairs (VA), to assist the VA in providing healthcare services to qualified veterans and to assist veterans in establishing service connection for disability claims. The Deployment Health Support Directorate (DHSD) collected this information from multiple sources and requested that the military services declassify it to allow its public distribution. The VA accepts this information provided on location, dates, units and/or ships, and substances involved in this exercise, which DHSD extracted from classified DoD records, and will provide it to individual veterans as necessary, but the VA cannot verify its accuracy.

always or nearly always in individuals whose health has already been compromised. Long-term or late-developing health effects would be very unlikely (except perhaps as a complication of the acute infection).

(Sources: Tuazon CU, *Other Bacillus Species* (chap. 197), in *Principles and Practice of Infectious Diseases*, 5th edition (vol. 2), ed., Mandell GL, Bennett JE, Dolin R, Churchill Livingstone, Philadelphia, 2000, p. 2220-6; US Environmental Protection Agency, *Bacillus subtilis* Final Risk Assessment, February 1997, available at <http://www.epa.gov> as of October 4, 2002.)

Tiara is a luminescent gelatinous material. No further information is available on this substance.

The Department of Defense (DoD) is providing this information, at the request of the Department of Veterans Affairs (VA), to assist the VA in providing healthcare services to qualified veterans and to assist veterans in establishing service connection for disability claims. The Deployment Health Support Directorate (DHSD) collected this information from multiple sources and requested that the military services declassify it to allow its public distribution. The VA accepts this information provided on location, dates, units and/or ships, and substances involved in this exercise, which DHSD extracted from classified DoD records, and will provide it to individual veterans as necessary, but the VA cannot verify its accuracy.