# 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 10-09-2002

## Deseret Test Center

## Red Cloud

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 main purpose of Red Cloud was to obtain biological decay rate and animal infectivity data on aerosols of *Francisella tularensis* (wet and dry forms) disseminated in a frigid field environment. Measurements of the infectivity to monkeys were made at extremely low ambient temperatures; determinations were also made for biological decay rates of *Francisella tularensis* (wet and dry), *Serratia marcesens* and *Escherichia coli.*

M143 bomblets were projected from a tower-mounted gun into a wintertime spruce forest simulating an operational drop. E26 and M32 dissemination devices were also used to disseminate aerosols for biological decay rate measurements. The liquid biologicals *Francisella tularensis*, *Serratia marcescens*, and *Escherichia coli* were released from E26 disseminators as an intermix with *Bacillus globigii*. Sampling crews were stationed in pressurized safety citadels at predetermined intervals, downwind of the agent release line to facilitate immediate assay of samples in an area free of background contamination.

Prior to conducting Red Cloud in the Tanana Valley, the Deseret Test Center had conducted a Special Study, Alaska, which was a preliminary field effort with vegetative, nonpathogenic bacteria to prepare for future tests with pathogenic vegetative bacteria at the Alaskan site. A DTC advisory committee concurred in the proposed method of pathogen testing, subject to certain restrictions on agent dissemination. These restrictions limited the amount of agent dissemination for each field trial to preclude possible travel of agent pathogens over inhabited areas of the valley.

Testing began in late November 1966 and was completed in mid-February 1967. All of the field trials were conducted in the Tanana Valley of central Alaska, near Fort Greely.

| | |
|---|---|
| **Test Name** | Red Cloud (DTC Test 67-7) |
| **Testing Organization** | US Army Deseret Test Center |
| **Test Dates** | November 1966 – February 1967 |
| **Test Location** | Tanana Valley of central Alaska, near Fort Greely |
| **Test Operations** | To obtain biological decay rates on *Francisella tularensis* (wet and dry form), *Escherichia coli,* and *Serratia marcesens* in a sub-zero overland environment. |
| **Participating Services** | US Army, Deseret Test Center personnel |
| **Units and Ships Involved** | Not identified |
| **Dissemination Procedures** | M143 bomblets were projected from a tower-mounted gun into a wintertime spruce forest simulating an operational drop. E26 and M32 dissemination devices were also used to disseminate aerosols for biological decay rate measurements. |
| **Agents, Simulants, Tracers** | *Bacillus globigii*<br>*Serratia marcescens*<br>*Escherichia coli*<br>*Francisella tularensis* (wet) (TT)<br>*Francisella tularensis* (dry) (ZZ) |
| **Ancillary Testing** | Not identified |
| **Decontamination** | Not identified |
| **Potential Health Risks Associated with Agents, Simulants, Tracers** | *Bacillus globigii (BG)*<br>Now considered to be *Bacillus subtilis var. niger*, a close relative of *Bacillus subtilis*, this bacterial species was used as a simulant and considered harmless to healthy individuals. *Bacillus subtilis* and similar *Bacillus* 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 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).<br><br>(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.)<br><br>*Serratia marcescens* (SM)<br>This bacterial species can cause acute infections of the urinary tract, lung, bloodstream, and other body sites. These infections commonly occur in individuals whose health has already been compromised, and often in patients who are already hospitalized. Long-term or late-developing health effects would be very unlikely.<br><br>(Source: Eisenstein, Barry I., Zaleznik, Dori F., Enterobacteriaceae (chap. 206), in Principles and Practice of Infectious Diseases, 5th edition (vol. 2), ed., Mandell GL, Bennett JE, Dolin R, Churchill Livingstone, Philadelphia, 2000, p. 2303.)<br><br>*Escherichia coli*, or *E. Coli* (EC)<br>This bacterial species is a common inhabitant of the digestive tract but can also cause acute infection, especially when it gains access to other body sites, like the urinary tract, lung, and bloodstream. Long- |

| | |
|---|---|
| | term or late-developing health effects of *E. coli* infection would be unlikely.<br><br>(Source: Eisenstein, Barry I., Zaleznik, Dori F., Enterobacteriaceae (chap. 206), in Principles and Practice of Infectious Diseases, 5th edition (vol. 2), ed., Mandell GL, Bennett JE, Dolin R, Churchill Livingstone, Philadelphia, 2000, p. 2299-301.)<br><br>*Francisella tularensis* (TT and ZZ)<br>Formerly identified as *Pasteurella tularensis*, this bacterial species can cause acute infection of the lung, bloodstream, and other body sites (tularemia), and is considered a potential biological warfare agent. While complications of the acute infection may be serious, even life threatening, long-term or late-developing health effects would be very unlikely.<br><br>(Sources: Cross, J. Thomas Jr., Penn, Robert L., Francisella tularensis (Tularemia) (chap. 216), in Principles and Practice of Infectious Diseases, 5th edition (vol. 2), ed., Mandell GL, Bennett JE, Dolin R, Churchill Livingstone, Philadelphia, 2000, p. 2393-2402; and Dennis DT, Inglesby TV, Henderson DA, et al. Tularemia as a biological weapon; medical and public health management. JAMA 2001;285(21):2763-73.) |