



# ***FACT SHEET***

Special Assistant to the Under Secretary of  
Defense (Personnel and Readiness) for Gulf War Illnesses,  
Medical Readiness and Military Deployments

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## **Project Shipboard Hazard and Defense (SHAD)**

### **DTC Test 68-50**

Project Shipboard Hazard and Defense (SHAD) was part of the joint service chemical and biological warfare test program conducted during the 1960s. Project SHAD encompassed tests designed to identify US warships' vulnerabilities to attacks with chemical or biological warfare agents and to develop procedures to respond to such attacks while maintaining a war-fighting capability.

The purpose of Deseret Test Center (DTC) Test 68-50 was to determine the potential casualty area and associated casualty levels for the F-4/AB45Y-4/PG2 weapon system. The weapon system disseminated an aerosol over a 40-50 kilometer downwind grid, encompassing a segment of the Eniwetok Atoll and an array of five Army light tugs.

The agent employed in this test was staphylococcal enterotoxin, Type B, a toxin produced by certain strains of the common bacterium known as *Staphylococcus aureus*. A two percent concentration of uranine dye (sodium fluorescein) was incorporated into the staphylococcal enterotoxin, during the drying cycle at the production plant. The dye served as a tracer for the agent. *Bacillus subtilis var. niger* (BG) was also used as a tracer of the agent aerosols.

The USS *Granville S. Hall* (YAG-40) was assigned to DTC Test 68-50, along with five Army light tugs. Aircraft assigned to the 4533<sup>rd</sup> Tactical Test Squadron, 33<sup>rd</sup> Tactical Fighter Wing, disseminated agent and tracers during the test.

DTC Test 68-50 was conducted at Eniwetok Atoll, Marshall Islands during September and October 1968.

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 Special Assistant to the Under Secretary of Defense (Personnel and Readiness) for Gulf War Illnesses, Medical Readiness and Military Deployments 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 the Special Assistant extracted from classified DoD records, and will provide it to individual veterans as necessary, but the VA cannot verify its accuracy.

<b>Test Name</b>	DTC Test 68-50
<b>Testing Organization</b>	US Army Deseret Test Center
<b>Test Dates</b>	September and October 1968
<b>Test Location</b>	Testing was conducted at Eniwetok Atoll, Marshall Islands.
<b>Test Operations</b>	The F-4/AB45Y-4/PG2 weapon system disseminated an aerosol over a 40-50 kilometer downwind grid, encompassing a segment of the Eniwetok Atoll and an array of five light tugs.
<b>Participating Services</b>	US Army, US Navy, US Air Force, and Deseret Test Center personnel
<b>Units and Ships Involved</b>	USS <i>Granville S. Hall</i> (YAG-40) Five Army light tugs 4533 <sup>rd</sup> Tactical Test Squadron, 33 <sup>rd</sup> Tactical Fighter Wing (F-4E aircraft)
<b>Dissemination Procedures</b>	Aerial-delivered aerosolized agent and agent tracers
<b>Agents, Simulants, Tracers</b>	Staphylococcal enterotoxin, Type B Bacillus subtilis var. niger (BG) Uranine dye (sodium fluorescein)
<b>Ancillary Testing</b>	Not identified
<b>Decontamination</b>	Not identified
<b>Potential Health Risks Associated with Agents, Simulants, Tracers</b>	<u>Bacillus subtilis var. niger (Bacillus globigii [BG])</u> The American Type Culture Center characterizes Bacillus subtilis var. niger as a BioSafety Level-1 (BSL-1) bacterium. The Centers for Disease Control and Prevention define BSL-1 as suitable for work involving well-characterized agents not known to consistently cause disease in healthy adult humans. (Sources: American Type Culture Collection data sheet, <a href="http://www.atcc.org/">http://www.atcc.org/</a> [as of January 11, 2002]. <i>Biosafety in Microbiological and Biomedical Laboratories</i> , U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention and National Institutes of Health, 4 <sup>th</sup> ed., p. 17, April 1999, U.S. Government Printing Office, Washington).

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	<p><u>Staphylococcal enterotoxin, Type B (PG2)</u> Produced by <i>Staphylococcus aureus</i> strains. It may be aerosolized or used to sabotage food supplies causing food poisoning. Symptoms are present within three to twelve hours after aerosol exposure and are characterized by fever, chills, headache, myalgia and nonproductive cough. Some may develop shortness of breath and retrosternal chest pain. Fever may last two to five days, and cough may persist for up to four weeks. Swallowing staphylococcal enterotoxin may also cause nausea, vomiting, and diarrhea. staphylococcal enterotoxin is not generally thought of as a lethal agent; however, it may incapacitate soldiers for one to two weeks. Military protective masks are effective against exposure. Treatment is limited to supportive care through ventilation and fluid management. The incapacitating dose is 30 mg/person by inhalation. (Source: Medical NBC Website, <a href="http://www.nbc-med.org/others/Default.html">http://www.nbc-med.org/others/Default.html</a> [as of April 2, 2002.]</p> <p><u>Uranine dye (sodium fluorescein)</u> used as a tracer can cause a mild reaction in about one in ten people exposed. Exposure to dye dust through breathing or skin contact can result in adverse health effects such as asthma, eczema, and severe allergic reactions. <a href="http://www.cdc.gov/niosh/hc13.html">http://www.cdc.gov/niosh/hc13.html</a></p>
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