



# ***FACT SHEET***

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

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(703) 578-8500

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

### **Shady Grove**

Project Shipboard Hazard and Defense (SHAD) was a program encompassing several tests undertaken in the 1960s to learn the vulnerabilities of US warships to an attack with chemical or biological warfare agents and develop procedures to respond to such an attack while maintaining a war-fighting capability.

Shady Grove testing, conducted in the Pacific Ocean in 1965, was an extension of the Autumn Gold test series. The primary difference between Autumn Gold and Shady Grove is that in the latter tests actual agents were used in addition to simulants.

The crews who participated in Shady Grove were not test subjects, but test conductors. Participants should have been fully informed of the details of each test. Before testing began, all persons involved in Shady Grove should have received comprehensive biological and chemical agent training. Trial tests conducted before the actual test should have reinforced the training already received and ensured everyone involved knew their role in the test. The training program should have included training in these areas: using protective masks and clothing, medical training and immunizations, knowledge of chemical and biological agents and simulants, and knowledge of test procedures and processes. Under actual test conditions, test conductors should have worn appropriate nuclear, biological, and chemical (NBC) protective equipment and should have taken extensive safety precautions to prevent any adverse health effects from the testing.

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 Office of the Special Assistant to the Under Secretary of Defense (Personnel and Readiness) for Gulf War Illnesses, Medical Readiness and Military Deployments (OSA) collected this information from multiple sources and requested that the military services declassify it to allow its public distribution. The VA accepts the information provided on location, dates, units and/or ships, and substances involved in this exercise, which the OSA 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>	Shady Grove (Test 64-4)
<b>Testing Organization</b>	US Army Deseret Test Center
<b>Test Dates</b>	January 22 through April 9, 1965
<b>Test Location</b>	Various open water locations of the Pacific Ocean
<b>Test Operations</b>	Target ship operated under three different readiness conditions: <ol style="list-style-type: none"> <li>1. Normal steaming conditions—full ventilation</li> <li>2. Battle or near-battle condition</li> <li>3. Chemical or biological attack expected</li> </ol>
<b>Participating Services</b>	Navy, Marines, plus Deseret personnel
<b>Units and Ships Involved</b>	A. USS <i>Granville S. Hall</i> (YAG-40) B. Army light tugs 2080, 2081, 2085, 2086, and 2087, all staffed by USN personnel C. Marine Air Group 13, First Marine Brigade
<b>Dissemination Procedures</b>	Sprayed from A4B aircraft
<b>Agents, Simulants, Tracers</b>	Bacillus globigii (BG). Harmless to humans, BG is ubiquitous and easily found in samplings of wind-borne dust. BG is safely used in biological studies as a stand-in for pathogenic bacteria. BG is used as a biological tracer for anthrax because its particle size and dispersal characteristics are similar to those of anthrax. A household bleach and water solution easily kills BG.  Coxiella burnetii (OU). Until the stockpile was destroyed in 1972, OU was part of the US biological weapons stockpile. OU causes Q fever in humans. Domestic animals (cattle, sheep, and goats), cats, wild animals, and ticks usually host OU. Humans become infected after contact with contaminated materials (feces, blood, placenta, etc.); inhaling contaminated dust or droplets; or ingesting contaminated food or raw (unpasteurized) milk. Symptoms of the disease include fever, headache, muscle pains, joint pain (arthralgia), and a dry, non-productive cough. Hepatitis or pneumonia also may develop during the early stages of the disease. In rare occurrences, Q fever can cause severe complications in the aortic heart valve (and subsequent endocarditis). Generally, victims recover even without treatment. However, complications, if they ensue, can be very serious and sometimes even life-threatening. (Sources: Mitretek Systems web site <a href="http://www.mitretek.org/mission/envene/biological/agents/rickettsia.html">www.mitretek.org/mission/envene/biological/agents/rickettsia.html</a> and Dr. Koop's web site <a href="http://www.drkoop.com/conditions/ency/">http://www.drkoop.com/conditions/ency/</a> )

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Pasteurella tularensis (UL).	UL causes the infectious disease tularemia (rabbit fever, deer fly fever, Ohara's disease), most commonly in people who handle infected wild rabbits. Other infected animals, ticks, or contaminated food or water also transmit tularemia. The symptoms, high fever and severe constitutional distress, appear suddenly within 10 days of exposure. One (or more) ulcerating lesion develops at the site of infection, such as the arm, eye, or mouth. The regional lymph nodes enlarge, suppurate, and drain. Pneumonia, meningitis, or peritonitis may complicate the infection, whose mortality rate is about 6 percent. (Sources: Colorado State University, Environmental Health Services web site <a href="http://www.ehs.colostate.edu/biosafety/LARmanual/tular.htm">http://www.ehs.colostate.edu/biosafety/LARmanual/tular.htm</a> and The Columbia Encyclopedia, 6th ed., New York: Columbia University Press, 2001, web site <a href="http://www.bartleby.com/65/tu/tularemi.html/">http://www.bartleby.com/65/tu/tularemi.html/</a> ).
<b>Ancillary Testing</b>	Aero 14-B spray tank
<b>Decontamination</b>	Not identified

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