FACT SHEET

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Deseret Test Center

Devil Hole, Phase I

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.

Devil Hole, Phase I was conducted in temperate aspen and spruce forests to determine area-time-dosage information for Sarin nerve agent-filled artillery munitions (M121A1 155mm shells) and Sarin nerve agent –filled rocket warheads (M55 115 mm warheads.) Particulate simulants were used to study airflow patterns at the intersection of a spruce forest with open terrain. During the preliminary diffusion trials of the test, zinc cadmium sulfide (FP) was used as a particulate substitute for Sarin nerve agent. The fluorescent particles used in this test were of two colors, green and yellow.

Single static and single and multiple dynamic detonations were conducted with the M121A1 artillery shells. Testing of the M55 115mm rocket warhead was limited to single static detonations.

Safety equipment – such as protective clothing, protective masks, barriers, etc. – was used during the test as conditions dictated.

All Devil Hole, Phase I trials were conducted in forested terrain at the Gerstle River test site in the vicinity of Fort Greely, Alaska during the summer of 1965.

Test Name	Devil Hole, Phase I (DTC Test 65-12)
Testing Organization	US Army Deseret Test Center
Test Dates	Summer 1965
Test Location	Gerstle River test site, near Fort Greely, Alaska
Test Operations	To determine area-time-dosage information for Sarin nerve agent-filled artillery munitions and rocket warheads detonated in a temperate forested terrain.
Participating Services	US Army, Deseret Test Center personnel
Units and Ships Involved	Not identified
Dissemination Procedures	Single static and single and multiple-round detonations of Sarin-filled M121A1 artillery shells and single static detonations of Sarin-filled M55 rocket warheads.
Agents, Simulants, Tracers	Sarin Nerve Agent Zinc Cadmium Sulfide (FP)
Ancillary Testing	Not identified
Decontamination	Not identified
Potential Health Risks Associated with Agents, Simulants, Tracers	Sarin Nerve Agent (GB) Sarin gas is a volatile and lethal nerve agent. It can enter the body by inhalation, ingestion, through the eyes, and to a lesser extent through the skin. After exposure to a sufficient dose, human symptoms may occur within minutes and include runny nose, watery eyes, difficulty breathing, dimness of vision, confusion, drowsiness, coma, and death. Very little information is available regarding long-term health effects following exposures to low levels that do not cause acute symptoms. No information is available regarding potential carcinogenicity. An

	Institute of Medicine committee concluded that there was insufficient evidence for or against an association between low-level sarin exposure and long-term health effects. (Sources: http://www.bt.cdc.gov/Agent/Nerve/Sarin/Sarin.asp [as of February 13, 2002]Institute of Medicine (National Academies), Gulf War and Health (vol.1): Depleted Uranium, Pyridostigmine Bromide, Sarin, Vaccines. National Academy Press, Washington DC, 2000.) Zinc cadmium sulfide (ZCdS) This compound was aerosolized as a tracer material for the dispersion of biological warfare agents because it had similar properties. There has been little scientific study on the toxicity of this compound when inhaled. A National Research Council (NRC) committee focused on the cadmium component as potentially most toxic. While higher concentrations and more prolonged exposures to cadmium are associated with the development of lung cancer, the concentrations and durations of exposure in the Army's tests were substantially lower. The NRC committee concluded that the risk of adverse health effects to populations in the area was low. (Sources: National Research Council (National Academies), Toxicologic Assessment of the Army's Zinc Cadmium Sulfide Dispersion Tests, and Toxicologic Assessment of the Army's Zinc Cadmium Sulfide Dispersion Tests: Answers to Commonly Asked Questions, National Academy Press, Washington DC, 1997, both available at http://www.nap.edu as of October 1, 2002.)