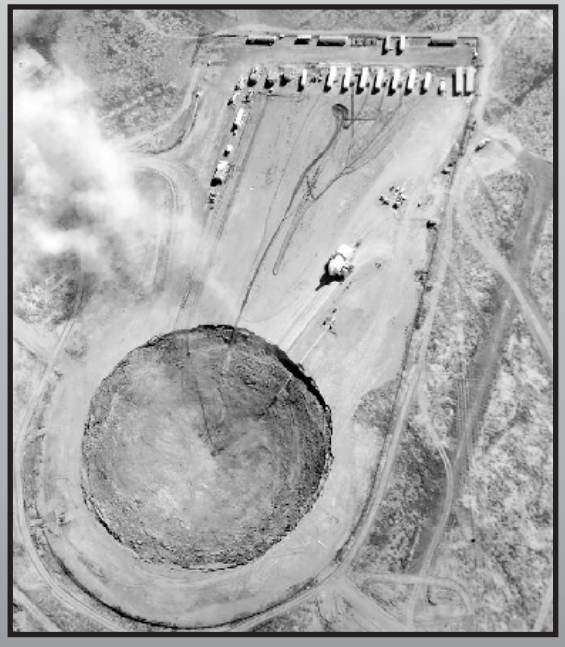
Huron King

Introduction

On rare occasions, vertical drill holes have been used for effects tests at the Nevada Test Site, now known at the Nevada National Security Site (NNSS). Huron King was a Vertical Line of Site (VLOS) underground test conducted at the Nevada Test Site on June 24, 1980 by the Defense Nuclear Agency, now the Defense Threat Reduction Agency (DTRA), U.S. Department of Defense.

An aerial view of the Huron King test chamber (right) moments before the test in 1980.



A subsidence crater forms near the Huron King test chamber after detonation.

Background

DTRA, in cooperation with the U.S. Department of Energy, and its predecessor, the Atomic Energy Commission, began conducting Horizontal Line of Site tests in the tunnels at Rainier Mesa on August 10, 1957. Since then, Horizontal Line of Site tests have been conducted in 16 different tunnels in Rainier Mesa. DTRA evaluates the effects of nuclear weapons explosions, thermal radiation, blast, shock, x-rays and gamma rays, on military hardware, such as communication equipment, rocket nosecones, and satellites.

Huron King was unique in that it was a VLOS underground nuclear test, as opposed to the more common Horizontal Line of Site test, with a yield of less than 20 kilotons. It tested the effects of a system generated electromagnetic pulse on a full-scale operating military Defense Satellite Communications System.

Rare type of test

The VLOS design placed the nuclear device at the bottom of the shaft with the communications satellite and other space experiments in an above-ground test chamber that simulated a space environment. The test chamber was connected to the surface end of the shaft.

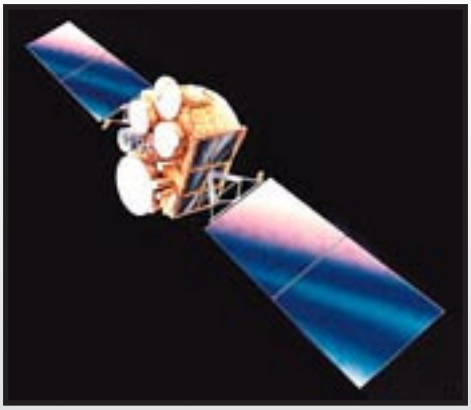
When the device was detonated, a series of fast-acting mechanical closures allowed the radiation to reach the equipment in the test chamber. The radiation from the device traveled up the vertical pipe to the surface test chamber and directly to the satellite. After the initial burst of radiation, the mechanical closures intercepted and sealed the pipe, preventing the accompanying shock wave from damaging the targets.

The chamber was disconnected from the cables at the surface using an explosive guillotine cutter at the time of detonation. The track-mounted test chamber was moved back from ground zero beyond the subsidence area along the track using remotely controlled winches and cables. Test personnel had to act quickly - they had only seconds to move the 50-ton test chamber before a subsidence crater would form.

The purpose of the test was to determine how satellites might be affected by radiation produced during a nuclear explosion. This test was instrumental in improving the database on nuclear hardening design techniques for satellites.

Today

The Huron King test chamber still resides at the Nevada National Security Site in Area 3; not too far from its original test location.



This military Defense Satellite Communications System is similar to the satellite tested during Huron King.

The Huron King test chamber is still located in Area 3 of the Nevada National Security Site.

Nevada National Security Site History

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NNSA
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