

Nevada Test Site

Civil Defense Effects Tests

March 2001

Introduction

This fact sheet details the **Annie** and **Apple 2** Civil Defense Tests conducted at Yucca Flat. The information was compiled from historical archives.

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These two houses were exposed to the effects of the Annie atmospheric test in 1953.

Annie was conducted for the Federal Civil Defense Administration (FCDA) on March 17, 1953. It was also named

Shamrock by those in attendance as it was detonated on St. Patrick's Day.

The test was also called *Operation Doorstep* by some of the more than 600 Civil defense observers and media that witnessed the explosion, a name that was later used in a FCDA report on the test.

Two colonial two-story homes were erected in Area 3 of the Nevada Test Site and placed 3,500 and 7,500 feet from a 300 foot tower that held a 16 kiloton device.

NOTE: Ground zero is located a few feet north of Road 3.08, halfway between Mercury Highway and Orange Blossom Road.

The test had three main objectives. First, to determine what would happen to a typical American home exposed to an atomic blast. Second, to study the protection provided by the use of eight different outdoor underground home-type shelters, and third to determine the amount of protection afforded to passengers in cars, and the effect a nuclear blast would have on the operation of these vehicles.

The passenger cars (1936 to 1953 models) were donated through the Automobile Manufacturers' Association -- General Motors, Ford, Chrysler and American Motors. In addition, three U.S. Post Office vehicles were used. Gas and oil for the cars was donated by Standard Oil Company. Mannequins were donated by L.A. Darling Co, Bronson, Michigan and clothing for the mannequins was obtained from J.C. Penny Co. Non-government furniture for the houses came from North American Van Lines.

Because of limited funds, the houses were furnished mostly with government furniture, contained no utilities such as electrical wiring, plumbing, heating, or gas piping. The interiors were plastered but not painted. The wood trim, doors, and floors were also left unfinished.

To help in the prevention of fire, both houses were given white exterior finishes, and windows facing the explosion were equipped with aluminum Venetian blinds. This was

done to help reflect as much of the thermal energy generated from the explosion.

Each basement included one lean-to type shelter and one corner room shelter. The building materials used to erect the shelters cost \$40 and \$95 each.

The house 3,500 feet from the blast was 90 to 95 percent destroyed. Its destruction was recorded by an automatic camera, the results of which have since been widely publicized on film in a set of eight photos that captured the implosion of the house. The house at 7,500 feet was badly damaged. Both houses were later demolished and the site cleaned up.

In addition to the two houses, eight underground shelters were tested at various distances from the houses to determine resistance to blast pressures and the amount of protection a shelter would provide from radiation exposure.

Two single shelters were located 1,250 and 1,450 feet from the blast. Five shelters were located 1,800 feet from the tower, and the last shelter was positioned at 3,500 feet from the detonation. All of the shelters contained mannequins.

Two weeks after the Annie test, J.C. Penney Co. displayed the mannequins in its store then located on Fremont Street. Before and after photographs appeared in the April 3, 1953 edition of the Las Vegas Review Journal, with the following statement:

“ . . .These mannequins could have been real people, in fact, they could have been you. Volunteer now for the Civil Defense. J.C. Penney was happy to donate the clothing to the Federal Civil Defense Administration for the test. L.A. Darling Co. is to be complimented for donating the fifty mannequins which are now on display for your inspection.”

On May 5, 1955, a more elaborate Civil Defense effects test named *Apple 2* was conducted in Area 1. A 29-kiloton nuclear device was placed on top of a 500-foot tower for this particular test.

The Federal Civil Defense Administration (FCDA) completed 40 separate projects, all of which were designed to evaluate the effects of the nuclear detonations on civilian communities and to test the emergency response capabilities of Civil Defense organizations.

The FCDA constructed a typical American community complete with two double-story and three single-story houses, an electrical transformer station, a radio station, a propane tank filling station, a weigh station, and other small buildings. The houses were furnished, and clothed mannequins were placed inside the houses to simulate people who might have lived in the town. Other dressed mannequins were placed at various distances from the houses. In addition several American-made automobiles and trailer homes with mannequins were positioned at various distances and angles from ground zero to measure the effects of the nuclear test.

The houses were constructed of different building materials with varied exteriors and were heavily instrumented to measure the blast and over pressures from the nuclear

detonation. Finally, canned food products were placed in the homes and in outside trenches. The day before the test, frozen food was flown in from Chicago and placed in the kitchens.

Today, only the two-story and three single-story houses remain. The two-story homes were subjected to a pressure of about 1.7 pounds per square inch during the blast. The wooden frame house is approximately 6,600 feet from ground zero. The brick house is about 8,000 feet from ground zero. Remnants of the steel anchors that held the 500 foot steel tower can still be seen at the ground zero site, located to the west alongside Pahute Mesa Road. Invited spectators viewed the test from Mine Mountain, located about three miles west of ground zero.

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**DOE/NV- 714
MARCH 2001**