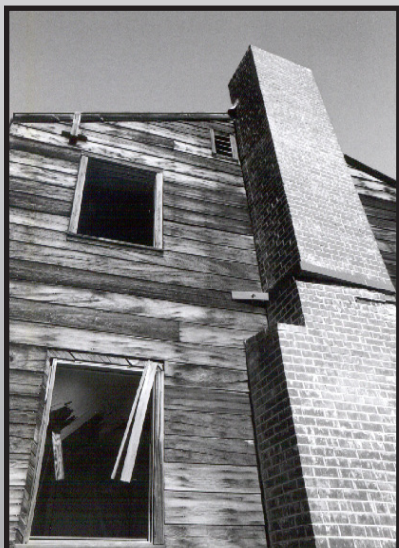


## Civil Effects Tests



*"Annie" a 16-kiloton atmospheric test fired from a tower on March 17, 1953, destroyed this house in less than three seconds.*



*The remains of this Apple 2 two-story wooden house may be viewed on a public tour of the Nevada National Security Site.*

### Introduction

The first nationally televised nuclear shot, "Annie" was conducted on March 17, 1953. Annie was also part of a civil effects test named Operation Cue, conducted by the Federal Civil Defense Administration (FCDA). On May 5, 1955 a 29-kiloton device named Apple 2 was detonated from a 500-foot tower on Yucca Flat at the Nevada Test Site, now known at the Nevada National Security Site (NNSS), approximately 65 miles northwest of Las Vegas. It was the second nationally televised nuclear test associated with an extensive civil effects program.

The FCDA completed 40 separate projects in Operation Cue. All were designed to evaluate the effects of nuclear detonations on civilian communities and to test the emergency response capabilities of Civil Defense organizations.

### Annie

Operation Upshot-Knothole was unique in that the first test, Annie, was conducted for the Federal Civil Defense Administration (FCDA) in 1953. In preparation for the test, the FCDA constructed "a typical American community" complete with houses, utility stations, automobiles, furniture, appliances, food, and even mannequins simulating the people who might live in the town. It was witnessed by more than 600 Civil defense observers and media. Two colonial two-story homes were erected in Area 3 of the Nevada Test Site, located 3,500 and 7,500 feet from a 300 foot tower which held the 16 kiloton device. The houses were constructed of different materials with varied exteriors, and were heavily instrumented. Fresh food was flown in from San Francisco and Chicago and placed with mannequins in kitchens and dining rooms throughout the test area.

The test had three main objectives:

To determine what would happen to a typical American home exposed to an atomic blast.

- To study the protection provided by the use of eight different outdoor underground home-type shelters.
- To determine the level of protection provided to passengers in cars, and the effect a nuclear blast would have on the operation of these vehicles.
- Because of limited funds, the houses were furnished with government furniture, and contained no 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 under the assumption that it would help to deflect much of the thermal energy generated from the explosion.

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

## Apple 2

Apple 2 was a 29-kiloton nuclear device placed on top of a 500-foot tower. It was conducted on May 5, 1955, in Area 1 of the Nevada Test Site.

This time, 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 again furnished with clothed mannequins placed inside. Several American-made automobiles and trailer homes, also 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.

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.

Today, houses that remain after the Apple 2 blast are a highpoint of the public tours that explore the Nevada National Security Site.



*A mannequin poses in one of the houses built in Yucca Flat for the 29-kiloton Apple 2 test on May 5, 1955.*

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