

## **Project Faultless: Central Nevada's Near Miss as an Atomic Proving Ground**

**By Michon Mackedon**

The whole notion of testing nuclear bombs is startling, like testing tornadoes or simulating the "Big Bang." Nevertheless, the United States has been engaged in testing nuclear weapons since July 16, 1945, when the atomic test code-named Trinity was conducted in Alamogordo, New Mexico. On that day, in the predawn hours, the nucleus of an atom was split to create a weapon of such overwhelming power that all those witnessing the event were forever affected by what they had seen there.

It has been said that the Trinity test let the nuclear genie out of the bottle, but it learned to dance on the deserts of Nevada. In 1951, the Nevada Test Site (NTS), located 90 miles north of Las Vegas was selected to serve as the nation's continental atomic proving ground. Earlier, in 1946 and 1948, atomic bombs had been tested in the Marshall Islands, but weapons designers living in New Mexico wanted a proving ground closer to their laboratories, and the Korean War increased the pressure to improve atomic weapons designs.

Over the next four decades, The Nevada Test Site became home to 928 nuclear tests. (A testing moratorium halted nuclear testing in 1992). One hundred of the tests conducted there were atmospheric tests--dropped by aircraft or exploded from towers, balloons, or cannons--producing the signature mushroom cloud and dangerous radioactive fallout. In 1963, under the terms of a Limited Test Ban Treaty signed by President Kennedy and Russia's Krushchev, all the tests were moved underground. The remaining 828 NTS nuclear tests were conducted in shafts and tunnels.

After nuclear testing was moved underground, a series of problems at NTS drew the eyes of nuclear planners to a section of land in Nye County's Hot Creek Valley, approximately midway between Eureka and Tonopah, where plans were quietly laid to develop a supplemental nuclear proving ground.

One of the problems faced by test administrators was the growing tourist economy in Las Vegas. In the early years of atomic testing, the Las Vegas community was quite small, and most of the residents and tourists who visited there accommodated atomic testing as part of the overall Las Vegas experience. Visitors even scheduled special trips to the area during "bomb season" to drink "atomic cocktails" while they awaited the dramatic spectacle of an exploding atomic bomb.

The move to underground testing, while reducing fallout danger, produced ground motion which could be felt in Las Vegas. The larger the test the greater the ground motion: the swaying earth and occasional shattered glass window were making tourists, residents, and casino operators quite nervous. At the same time, in the mid 1960s, the military was developing a Spartan anti-ballistic missile, capable of carrying and delivering a multiple megaton warhead, and they planned to test the effectiveness of even larger nuclear weapons than had been tested before.

So, with some urgency, the search for a supplemental test site was launched. By 1965, the potential sites had been narrowed to Amchitka, Alaska and Central Nevada . However, before

the Central Nevada site could be granted full status as a Proving Ground, the Atomic Energy Commission (AEC) wanted to determine how the geology of the area would respond to multi-megaton underground explosions. As a result, the first test scheduled there, and, as it happened, the only test to take place there, was categorized as a calibration test (as opposed to a weapons effect test, where the effects of the bomb on animals, homes, military equipment and bomb shelters were measured). The test was planned to yield just under one megaton, qualifying it as a very large test, yet the projected size of the event was never announced to the public.

In 1967, the AEC public relations teams headed to Eureka and Tonopah to prepare the residents for the calibration test, which was assigned the code-name Project Faultless and tentatively scheduled for early 1968. The AEC faced a larger than usual challenge in trying to convince residents of Central Nevada that the test would be beneficial to their communities, as the area slated for the calibration study lay in the fallout path of over half of the atmospheric tests of the 1950s. In particular, people there still felt the loss of eight year old Butch Bardoli, who had succumbed to leukemia in 1957, a disease which his family felt was directly related to atomic fallout over their Nye County ranch.

The AEC at first proposed to deal "openly" with the test, so as to head off the accusations of "secrecy" so often leveled at nuclear testing. From past experience they knew that closing off the test area would leave the whole endeavor vulnerable to wild speculation. The military, however, wanted to keep observers away from seeing the predicted 14-16 foot ground swell, which might alert them to size of the Faultless device. The compromise between the positions is, in retrospect, quite funny and serves as an indication of how the public relations arm of nuclear testing manipulated language to get the job done.

An AEC internal memo proposed closing "the line of sight" to the test but setting up cameras to televise images of the shot back to the base camp. The memo states, "observe does not mean 'see,' but rather be on hand at a selected area. ...the 'observer' site might be established with no line of sight to ground zero. The 'observer' area will be at the AEC base camp, about 30 miles from the base camp."

Another memo which seems retrospectively humorous discusses the sticky dilemma of keeping the public "informed" about the test without really giving out information which might lead to uncomfortable questioning or even protest. It reads, " Statements as to 'how soon' nuclear detonations can be arranged should be couched only in general terms. No readiness dates should be given...and it should be clearly explained that a readiness date is not a schedule...."

The public relations procedures for selling Project Faultless to the people of central Nevada are of interest to those who listen to the current debate over using Yucca Mountain as a high level nuclear waste dump. Among the techniques used to sell nuclear projects, then and now, are emphasizing necessity, stressing local benefits and downplaying risk.

A transcript of a Tonopah town meeting, called by the AEC three months in advance of the January 1968 test, discloses efforts made by the AEC's advance team to convince central Nevada residents to open their arms to nuclear tests. Necessity was emphasized by invoking the Cold War: "First, the United States [Atomic] Energy Commission [and] the Department of Defense has been able to maintain reasonable parity with the Soviet Union by conducting an aggressive and certainly expensive underground nuclear test program...."

The Local Benefits were emphasized by alluding to the economic gains netted in Fallon, Nevada, where a relatively small (12 kiloton) device had been detonated underground in 1963 in a test code-named Project Shoal: "We think we have interfered as little as possible with their way of life, and we sincerely hope that we have contributed something to their economy..... We need places for our engineers; we need places for our technicians; we need fuel for our vehicles.... A large amount of money and effort will be expended in studying the water area systems of the area..."

As for the risk, those in attendance were told, "The worst it can do to the public is inconvenience [them]."

The extent to which the potential economic boon to the area became a selling point for the project is underscored by a letter sent by a central Nevada rancher to Nevada Senator Alan Bible in late 1967. He wrote:

"A lot has been said by the AEC spokesmen and representatives of the Government about the economic benefits to the local communities, when the AEC moves in men and equipment. Indeed I understand that different states exerted all effort and influence to get the test sites located in them, because of the tremendous amount of money this program would bring in.

This kind of temporary prosperity is hollow and false and is promoted by people who can see no farther than their cash register. It is prosperity for a few local merchants and gamblers, at the expense of the state's lands and water resources, land and water, that if they are not damaged, will produce far more real prosperity than this testing program."

As the preparations for Project Faultless proceeded, the legendary Howard Hughes stepped into the picture to add more pressure on the AEC to move megaton testing away from Las Vegas to central Nevada. Mr. Hughes was a walking paradox--a mysterious hermit and well-known casino mogul, whose odd habits and immense bank account made him a force to reckon with in Las Vegas politics and atomic planning. Hughes became convinced that the increasingly large underground tests at NTS would ruin the Vegas gaming industry. He became quite vocal in his opposition to megaton testing at NTS, and his organization even tried to delay one of the larger NTS tests. He began to pressure AEC to move all underground testing away from Las Vegas to the proposed site in central Nevada or to the supplemental site being studied in Amchitka, Alaska.

A personal memo kept by Test Site manager J.T. Reeves reveals what the situation was in early 1968. He noted that Howard Hughes had called him "approaching hysteria" over the Boxcar test planned at NTS for the spring of 1968. Hughes was "under the impression" that the AEC had informed its people that they were going to discontinue tests at NTS and move future testing to central Nevada and Alaska. Hughes told Reeves that he was not about to "invest money in the development of a new airport in Clark County with the AEC continually permanently damaging buildings in the area and contaminating the atmosphere and ground water...."

Much was riding on the success of the Faultless Test. Three deep emplacement holes were drilled on the Central Nevada site, one for Faultless and the other two in anticipation of tests which would immediately follow a successful calibration of the site. A second test was even

assigned the code-name, Adagio. The size of the Adagio drillhole suggests that it was planned to be a test in the multi-megaton range, three or perhaps 4 megatons. (The largest underground test ever conducted by the U.S. was 5 megaton Cannikin, in 1971, at Amchitka, Alaska.)

On January 19, 1968, the Faultless Test commenced, with observers from the public stationed, as planned, out of the line of sight. What they would have witnessed was a dramatic fifteen foot upheaval of the earth above ground zero. Then, the earth collapsed north and south of ground zero, leaving massive fault blocks extending for thousands of feet. In some places the drops measured 10 feet. Eighty-seven miles away from the explosion, windows broke at White Pine High School in Ely.

The surface damage was dramatic proof that the experiment to calibrate the site had overreached itself. The Central Nevada Test Area was eventually declared unsuitable for further underground nuclear tests. Adagio was cancelled, and Hughes was distraught.

There are two epilogues to the Faultless story. One is the resolution of the Hughes dilemma. In about May of 1969, a year following the Faultless failure, Hughes began to withdraw his objections to testing at NTS. John Meier of the Hughes Organization visited Robert Miller of the AEC Nevada Operations Office saying that there had been confusion and "division of opinion" within the Hughes Tool Company regarding nuclear testing. Meier "admitted the paradox that it was clearly in their interests from a financial point of view to support the administration's [nuclear anti-ballistic missile] position." The Hughes Company was ready to do business again with NTS. The last note in the Howard Hughes file, now held in DOE archives in Las Vegas, is a letter sent to AEC's Miller from the Hughes Tool Company on January 31, 1972: "We wish to take this opportunity in starting another year to thank you for your business and support. All of us at Hughes are grateful for the privilege of serving you."

Marketplace economics had apparently resolved the issues.

The second epilogue is of more contemporary interest and concerns the future of the Central Nevada Test Area. When an underground nuclear test takes place, a huge subterranean cavern is formed, trapping within it intensely radioactive particles. The surface then collapses into the cavity creating what is called a rubble chimney, a funnel of debris linking the surface and the cavity. Over time, ground water will seep into the chimney and cavity, allowing the radioactive particles to migrate away from ground zero toward populations. Many of the radionuclides remaining from an underground nuclear test are extremely dangerous and very long-lived. Plutonium, the most dangerous residue, has a half-life of 24,500 years.

The Faultless site is now marked by a bronze tablet attached to a steel pipe protruding from the ground above the cavity. The marker posts restrictions on drilling, but does not provide reasons for the restrictions, nor does it notify the public that it will be thousands of years before the radioactive materials decay. Who will carry the story forward through eons of time and warn others of the atomic danger beneath the ground?

If there are lessons to be learned from past mistakes, then the legacy left by Project Faultless and other nuclear experiments should serve as warning to those committed to emplacing high level radioactive waste in Yucca Mountain. Buried radionuclides, whether the result of a nuclear explosion or a nuclear repository, will remain dangerous through dozens of millennia, posing a threat to water supplies essentially forever.

Another lesson from the past is the uncertainty involved in predicting the performance of Mother Earth. The code-name assigned to Faultless reflects the "scientifically-based" prediction made by the planners of the test that the site would prove geologically stable, literally fault-less, under the pressure of a megaton blast. The failure of that prediction colors the code-name with unintended irony and suggests that prediction is risky business, especially when the stakes are as high as they are when we deal with dangerous radionuclides. Yet Yucca Mountain planners continue to predict that the repository will not be disturbed by earthquakes, miners or curiosity seekers, upwelling or downpouring water, or anything else, for at least 10,000 years.

*Michon Mackedon teaches English and Humanities at Western Nevada Community College in Fallon, Nevada. She has served as Vice Chairman of the Nevada Commission on Nuclear Projects since 1986 and is writing a book about nuclear projects in Nevada.*