

AEC Claims No Blast Danger from Cannikin Experiment . . .

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cooling forms a seal around the most dangerous radioactive materials automatically.

The TUNDRA TIMES asked Dr. Mel Merritt of AEC's Sandia Laboratories whether any tests had been made after the last Amchitka shot to determine that such a sealed "bowl" had indeed formed.

He said, "it's not a point in question," implying that experience in Nevada had demonstrated the reliability of such formations. Yet if this last test, Project Milrow, was, in Dr. Merritt's own published words in an AEC report, "a 'calibration' event... from which the effects of a larger shot at this site could be predicted so that the safety of such a proposal could be judged," why couldn't this crucial assumption have been tested?

The geology of the Nevada deserts and the Aleutian Islands are substantially different. Also, the reference to "Nevada experience" only really means that the Nevada tests that were checked for such a "seal" actually sealed in the expected manner.

How many of the Nevada underground tests were actually checked?

EARTHQUAKES. In mid-July, Walter Sullivan of the NEW YORK TIMES reported in a copyrighted article that two Nevada underground nuclear explosions had released more than 10 times the energy of the blasts themselves as seismic events (earthquakes).

Sullivan's article was based on technical information in an article by Toksoz and Kehler in the July 16 issue of SCIENCE magazine.

The TUNDRA TIMES asked Dr. Merritt of the AEC about this article during the short press conference on Amchitka yesterday. He said the Science article had only dealt with energy released at a particular frequency, and that the total seismic energy compared with the total blast energy was much lower.

In a later interview he implied that the NEW YORK TIMES article may have been in error, but that he did not disagree with the technical article.

The Tundra Times has studied that article. The scientists' exact language in discussing their

conclusion is: "an explosion can release accumulated strain energy considerably greater than its own (more than ten times greater in the cases of [the Nevada test blasts named] Pile Driver and Hardhat) in the vicinity of the shot point," and later:

[N]uclear testing in regions of high ambient stresses might have serious consequences. Since the medium properties, and not the shot yield, control the proportion of energy release, a large explosion could release large amounts of tectonic strain energy. . . [H]ard media should be avoided unless the ambient stress levels are known to be low.

This means that there is a danger of triggering earthquake energy in large amounts when detonating underground nuclear explosions in "hard media"—essentially hard rock.

The geology of Amchitka is volcanic, quite hard, and the Cannikin blast is to be detonated 6,000 feet below the surface: that is, the hard rock at the point of blast will have the weight of more than a mile of surface and subsurface bedrock on it.

Admittedly, available Amchitka data suggest that earthquake-causing strains there are relatively low.

However, the SCIENCE article includes neither previous Amchitka blast in its discussions because, in the authors' words, "we could not find sufficient surface wave data because of poor station coverage."

Miss Olympics . .

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of the top events of its kind in California.

Lancaster, for those who have never heard of it, is on the edge of the Mojave desert, an area of alfalfa farms, hay loading contests and other popular rural events. Mary will be the guest of Lancaster's Chamber of Commerce and will stay with the Dave Johnson family on their alfalfa ranch. Their daughter Lori is a community queen in the Miss Antelope Valley contest.

At the Antelope Valley Fair, Mary will judge the new "ice melting competition" sponsored by a local newspaper—the DAILY LEDGER GAZETTE.

Mary will return to Alaska on September 7 to return to school but will be back in Fairbanks in October for the Tundra Times Banquet.

Then, during the winter, she just might be in for a trip to Australia. That, however, isn't definite yet so stay in touch for further details.

Apparently, Project Milrow, which was supposed to be a safety check for the larger Cannikin, had such poor and unreliable data that it could not even be included in most of their discussion.

TSUNAMIS. Tidal waves, so-called, really have nothing to do with tides, but are caused by ocean floor displacements associated with earthquakes: scientists use the Japanese word "tsunami" to describe the phenomenon. Tsunamis can travel vast distances over the sea and remain unnoticed (since in deep water the height from trough to crest will be at most a few feet), but when they enter coastal shallows they become massive flooding waves.

History of AEC Atomic Testing . . .

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for future high-yield thermonuclear weapons testing, they reportedly considered several sites.

Their existing Nevada Test Site was limited because of "possible resultant effects on offsite buildings, particularly multi-story buildings in Las Vegas." An additional test site in Central Nevada faced the same problem.

"Rather than risk the accusation that a test had tilted Howard Hughes' roulette wheels out of true," as Anchorage Daily News writer Dennis Hughes put it in 1969, "the AEC shifted its explorations to the North Slope and Amchitka."

Cape Beaufort was the suggested location on the North Slope—an area accessible only by air, too close to caribou and soon rejected. Both the Arctic Slope and Amchitka, however, had histories of AEC and Department of Defense interest.

Northern readers may remember back to the late 1950s when the AEC's 'Atoms for Peace Program' coined the idea of creating an atom-dredged harbor in Arctic Alaska. The 1962 Project Chariot, as it was called, would use atomic blasts to dredge a harbor at Cape Thompson, 30 miles southeast of Point Hope.

Despite the problem that most harbors in this part of Alaska were only usable for three months of the year due to heavy pack ice, AEC thought it was a fine project.

The plans for Project Chariot (originally set for combined blasts totaling 2.4 megatons but later revised downward) included extensive environmental and biological investigations in the test area, funded by the AEC and partially administered by the University of Alaska.

Dr. William O. Pruitt, a University of Alaska biologist opposed the blasts when he found that fallout from atmospheric testing was being concentrated in the lichens on the Arctic Slope, Caribou, the main land animal in that area, eat lichens. Eskimos eat caribou.

Eskimos also have one of the highest body radiation counts of any people in the world without a local atom project. After an internal muddle (people fired, arguments tossed about, some resignations), the late Senator Bob Bartlett raised the issue in Congress. Project Chariot foundered and died.

Amchitka, a barren, uninhabited island 1,340 miles WSW of Anchorage also had a nuclear

history. Inhabited by sea lions, bald eagles, sea otters and more than 100 varieties of birds, it had been a fighter and bomber base during World War II.

In 1965, it was the site of Project Longshot, an 80 kiloton

blast fired as part of the Department of Defense' program on nuclear test detection.

Amchitka was desolate, reachable via sea, far from high buildings and had the added benefit of plenty of World War II relic harbors, buildings, roads, airstrip, etc. suitable for use by AEC crews. So, President Johnson approved Amchitka as the site of two or more future multimegaton blasts.

When AEC crews began preparations for Project Milrow, a 1.3 megaton "calibration experiment" (Nobody in AEC parlance uses the term bomb) in 1967, Alaskans still had vivid memories of the disastrous 1964 Good Friday earthquake and tidal waves.

Opposition began with the blast's planning and built up towards the summer of 1969—with the early October Milrow blast date only a few short months away.

A citizen's committee called Save Our State mounted a furious summer's opposition, aided by hundreds of Alaskans who signed petitions and contributed money. The group funded scientists such as Dr. Michael Friedlander, physics professor at St. Louis' Washington University on speaking trips to urge the blast's postponement.

In a last ditch opposition effort, the Senate Foreign Relations Committee, chaired by Arkansas Senator J.W. Fulbright held late September hearings to determine the effect of the blast on U.S. relations with Pacific rim nations. Senator Mike Gravel (D-Alaska) who asked for the hearings, had been in the forefront of opposition to the nuclear testing since long before 1969.

Highlight of the last ditch Fulbright hearings was testimony by Dr. Kenneth Pitzer, then President of Stanford University and before that head of research at the AEC.

The report, the results of a high level scientific panel, headed by Pitzer, which held hearings on the problems of underground tests, was not released till the eve of the blast. It was forwarded to President Johnson's science advisor, and relayed to President Nixon's staff ten months before the hearings which made the report public.

According to Dr. Pitzer's testimony to the Senate group "The panel is seriously concerned with the problem of earthquakes from large yield-nuclear tests."

Amidst charges of "suppression" of the report, Senator Fulbright's committee asked President Nixon to halt the Milrow blast. A week later it exploded on schedule—October 2, 1969.

The effects, according to an AEC wrap-up report, were minimal on the islands wildlife and

eastern Aleutians, so they therefore expect a Cannikin-caused tsunami to be unlikely.

Still, if the SCIENCE magazine authors are right, Cannikin could release energies greater in excess of its own, and the magnitude of the blast itself has been estimated as greater than 7.0 on the Richter scale. Destructive tsunamis are associated historically with earthquakes of more than 7.4 on the same scale. The last major Aleutian-caused tsunami (in the more active zone eastward of Amchitka) was in 1957, when an earthquake of magnitude 8 to 8.5 caused an ocean event that brought waves of nearly 14 feet to Hilo, Hawaii.

environment. No surface or ocean radiation leaks could be detected. No major earthquakes occurred. No tidal waves resulted.

With these results, the AEC continued plans for its higher megaton blast—Project Cannikin. Cannikin, scheduled for October of this year could be up to a 5 megaton blast and is, if possible, surrounded by even more controversy than its predecessor.

Of course, not all are opposed to the blasts. For one thing, the atomic testing program has pumped almost 100 million dollars of federal funds into Alaska. The Amchitka site provides jobs for upwards of 200 men and a large contract for Alaska's construction industry. Also, it has been called necessary for the national defense by a score of DOD experts and many Alaskans believe the small effects of Project Milrow do not justify opposition.

In the spring of 1971, Amchitka again hit the front pages when the AEC announced the Cannikin blast. Governor William Egan, in the midst of oil pipeline impact hearings, petitioned for hearings on the Cannikin blast.

In May of 1971, the AEC, not the Environmental Protection Agency as petitioned, held hearings in Juneau and Anchorage. While scores of AEC officials preached the safety of the blasts, scores of Alaskans registered their protests, along with Canadians from such colorfully named protest groups as 'Amchitka 2,' 'Action Against Amchitka,' and the 'Don't Make a Wave Committee.' One Canadian witness proclaimed the Canadians "unwilling guinea pigs" to the experiments and told the U.S. to hold its atomic tests at the geographic center of its country—not near Canada.

At the same time, in May 1971, speculation arose that President Nixon might cancel Cannikin due to the political risks involved. A blast-caused earthquake could prove disastrous in light of agreements to negotiate with the Soviet Union to limit defensive anti-ballistic missile systems.

The Cannikin explosion, expected to be part of an ABM system, might prove unnecessary if Strategic Arms Limitation Talks proved successful. An accident might sabotage these talks.

Thus, in Alaska this week as a Federal Court judge turned down a conservation group suit to stop the test, Alaskan Senator Mike Gravel speculated that the entire situation will be resolved within 60 to 90 days.

Of course, with the blast scheduled for early October, it will be resolved in approximately six weeks—one way or another.

Answer to Puzzle No. 10

