

AEC CLAIMS NO BLAST DANGER

Science Reporter Cites Possible Radiation, Quake, Tsunami Threats

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AMCHITKA ISLAND—August 27—Yesterday, nearly 70 reporters and representatives of Alaska government, industry, labor, and Alaska Native and civic-interest groups were junketed to Amchitka Island for information and briefings on the upcoming Cannikin underground nuclear blast (See accompanying story, p. 4).

The trip was apparently an attempt by the sponsoring agency, the Atomic Energy Commission, to assure Alaska and the Nation that the explosion, equivalent to about 5 million tons of TNT, will not cause any major radiation, earthquake, or "tidal-wave" damage to the peoples of The Pacific-basin. The TUNDRA TIMES participated in the trip and the briefings.

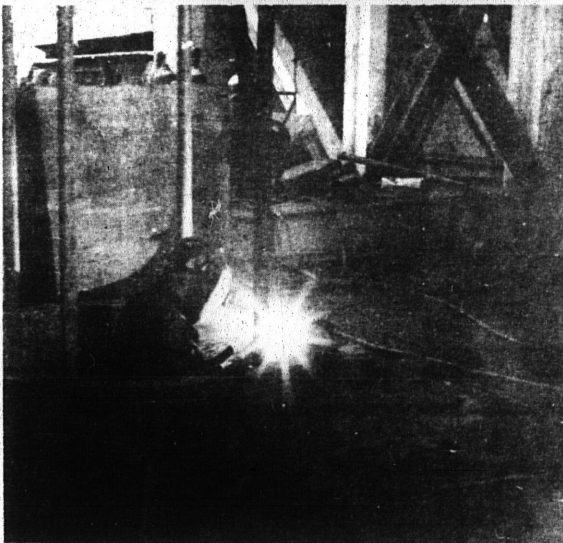
RADIATION. Indications are that the Cannikin device is a "dirty" bomb: that is, it is designed to have an excessive amount of radiation effects, since it is intended to test the warhead of the Spartan interceptor missile of the Safeguard ABM (the Safeguard operates by disabling incoming missiles through radiation effects, rather than direct explosive destruction).

The U.S. have previously shot two smaller underground devices on Amchitka. One had slight surface radiation effects; the other has not yielded any yet.

The AEC has developed tech-

nology for sealing the chimneys left after such tests, and insists that the rock-glass formed from the vaporized rock after

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PREPARING FOR AMCHITKA BLAST—In the bottom photo, a workman welds casing at ground zero of Project Cannikin, about 6,000 feet above the eventual detonation point of the underground nuclear explosion, now set for early October on Amchitka Island in the Aleutians. Above him looms the tower from which the five-megaton bomb will be lowered.

—Photos by FRED BROWN

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 undergrounds 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 Kehrner 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."

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 mas-

sive flooding waves.

Since 1900, about ten measurable tsunami events have been caused by earthquakes in Alaska and Siberia, and nearly half of these originated in the Aleutian Islands. Usually if any such event is triggered it is at least measurable and may cause major damage or even loss of life as at Hilo, Hawaii. Islands in Japan have been affected, but usually to a lesser extent than at Hilo.

Although they admit little understanding of earthquakes and tsunamis, AEC scientists argue that earthquakes on Amchitka and the islands to the westward have caused fewer tsunamis than quakes in the

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.