

# Amchitka

## Tomorrow — Nixon gambles on earthquakes

From Survival Magazine

U.S. president Richard Nixon announced last week that the United States would go ahead tomorrow with its mightiest underground nuclear test.

The five megaton blast will be detonated at the bottom of a 6,200 foot hole on Amchitka Island in the Aleutians and it will create a shock wave equal to a 7.0 earthquake-reading on the Richter scale. (The Feb. 9 Los Angeles earthquake registered only 5.6.)

The Atomic Energy Commission was required to produce a detailed Environmental Impact Statement for Cannikin, under the provisions of the Environmental Policy Act. Unfortunately, they produced a document which reads more like a sales pitch than a catalogue of possible environmental effects. It was so unsatisfactory that Governor Eagan of Alaska requested public hearings on the matter — supported by 17 U.S. senators and a number of conservation groups. A parade of witnesses testified against the test at these hearings (held in May at Anchorage and Juneau). In fact, the only ones who supported the test were employed by the AEC.

The explosion will produce a cavity about the length of two football fields, which (according to the Environmental Impact Statement) will contain the radioactivity produced by the bomb for 1000 years. At Anchorage, Dr. Jerold M. Lowenstein testified as follows:

"We are told that nearly all the fission and fusion products from this proposed 5-megaton 'event' will be contained far underground. Admittedly some tritium and other long-lived isotopes will be dissolved in the groundwater and find their way to sea, but thanks to the magic of dilution in an infinite ocean, these concentrations will immediately drop to negligible levels." Never mind that some aquatic organisms can concentrate radioactive zinc or cobalt by factors of 100,000 or a million. Never mind that the findings of Polikarpov, who has shown that very low concentrations of strontium-90 cause abnormalities — especially in the spinal cords — of developing fish eggs.

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The Environmental Impact Statement includes what the AEC terms "an unlikely possibility": that the water within the cavity created by the blast may flow through a system of interconnecting rock fractures, reaching the surface within two or three years. This process would introduce into the ocean concentrations of radioactivity 1200 times the level considered safe. The process would continue for an estimated 130 years. The AEC downgrades this possibility, and downgrades the effects if it should occur.

Wallace H. Noerenberg, commissioner of Fish and Game for the State of Alaska, testified as follows:

"Amchitka Island lies in an ocean zone used extensively by important segments of the North Pacific anadromous salmon fisheries. Chum salmon from Honshu and Hokkaido Island of Japan, and pink, chum, and sockeye salmon from eastern Kamchatka Peninsula pass through the surrounding water of the island during both mature and immature stages of their life

history. Aleutian and Bering Sea stocks of U.S. pink, sockeye, coho, and king salmon also are known to be present in waters near the island at maturing and immature stages.

"The 'ownership' of salmon passing by Amchitka is thus international in scope, and the consequences of any contamination of these animals would be worldwide in regard to marketing and human consumption problems."

"One may accept without question the AEC's assurances that all will go well. But all too often, such forecasts have not been borne out by circumstances."

"Last Dec. 18, Project Baneberry was detonated at the Nevada Test Site. The earth at that location had an unexpectedly high water content. The explosion ruptured the ground and sent radioactivity spewing over many states.

"No environmental impact statement issued prior to that test would have concluded such a mistake was possible. Yet the geology of Nevada certainly is far better known than the geology of the Aleutians.

"Project Longshot, the 60 kiloton test conducted at Amchitka in 1965, was not expected to leak radioactivity for centuries. But only a few months after the test, radioactivity had surfaced in at least two small fresh-water ponds.

"The AEC did not expect its 1964 test in Mississippi to cause \$600,000 in property damage.

"The AEC did not expect its 800 kiloton test in January, 1968, in central Nevada, to rock as wide an area as from Salt Lake City in the east to San Francisco in the west — but it did!"

"To go ahead with this test is courting a risk of a magnitude we cannot determine. Alaskans and the people who live along the Pacific Rim should not be asked to accept such a risk for so questionable a purpose."

In addition to these instances cited by Gravel, it is worth pointing out that 67 out of 230 underground tests at the Nevada Test Site have leaked at least small amounts of radioactivity.

In 1964, the AEC categorically claimed that underground nuclear tests would not trigger natural earthquakes except under extremely unusual circumstances. After the experience of six 1 megaton bombs at the Nevada Test Site, that assurance was completely reversed: now the AEC says that large explosions invariably trigger natural earthquakes.

In November, 1968, a panel of eminent scientists met under the auspices of the President's Office of Science and Technology to review questions of safety related to underground testing. That committee, headed by Kenneth Pitzer, concluded:

"The Panel is seriously concerned with the problem of earthquakes resulting from large-yield nuclear tests. Small earthquakes do actually occur both immediately after a large-yield test explosion and in the following weeks. The largest of the observed associated aftershocks have been between one and two magnitudes less than the explosion itself. However, there does not appear to be any basis for eliminating the possibility that a large test explosion might induce, either immediately or after a period of time, a severe earthquake of sufficiently large

magnitude to cause serious damage well beyond the limits of the test site."

Nor is this the only danger. Large subterranean earthquakes often give rise to huge, destructive "tidal waves" known as "tsunamis". Tsunamis resulting from natural earthquakes in the Aleutians have caused extensive damage as far away as California and Hawaii. Most of the deaths resulting from the terrible Alaska earthquake of March 17 1964 were caused by sea waves generated by the earthquake, rather than the earthquake itself. Quoting again from Gravel's testimony:

"A vast body of scientific opinion views the earthquake itself as a triggering mechanism. The great Alaska earthquake of 1964 began with a shock of about 6.5 and triggered itself to a peak of 8.4. The Aleutian Islands earthquake of Sept. 11 1969 began with a shock measured at 5.2 and peaked at 6.6.

"Cannikin may provide a trigger of between 6.8 and 7.2. What type of energy can be released with that kind of trigger? No one knows.

"We may discover that the

ABM missile system has been a subject of heated debate for several years. Originally intended as a defense against a heavy nuclear attack, the ABM was assigned a much more limited role in 1969 — to provide protection for the Minuteman missile system, which, once safely protected, can only take lives, not save them.

The Cannikin test has been planned ever since 1966 or 1967. To date, the AEC has spent 160 million dollars in preparations, including the cost of a 1-megaton "calibration shot" (code name: Milrow) detonated at Amchitka on Oct. 16 1969.

Because of the changed rationale for the ABM system, however, the 5-megaton warhead to be tested this fall is of dubious value even from the military viewpoint. According to an article by R. Bazell in Science (June 18 '71), there is no consensus either for or against the test in top administration circles. Bazell quotes one administration official as saying:

"This whole thing is wrapped up in the sordid history of the ABM. The people who are defending the test are in a dif-

The first sentence reads, 'Cannikin is an underground nuclear test which is a vital part of the weapons development program of the United States.' No justification whatever is given for this statement."

The people of the north have already suffered as a result of the atmospheric testing conducted by the AEC in the '50s and early '60s. The fallout from these tests seriously affected the delicate food chain of the north in ways which were totally unexpected and unpredicted. Even today, body burdens of radioactivity carried by some Eskimos and Indians of the north are far beyond the average amounts in more temperate regions.

Lowenstein concluded his testimony with these words:

"As I sat for three hours this morning and listened to all that scientific testimony, I realized that the AEC really doesn't understand why people are so upset about this test despite all their careful factual reassurances. So perhaps I should spell it out:

"People are upset because this test is a hostile act against the environment in a time of rising environmental concern.

"It is a massive military gesture at a time when the people of the U.S. are hungry for peace and searching for alternatives to nuclear war.

"It is an insult to native island peoples resentful of having their interests considered as secondary to those of the testing powers."

Add to this the fact that Cannikin is toying with titanic forces which are still only poorly understood — no one knows with assurance the geologic substructure of Amchitka, or the mechanism that creates, earthquakes, or the effects of manmade explosions on seismically volatile regions.

Before the Milrow test, Frank Press — one of the most respected seismologists in the field — testified before the senate Committee on Foreign Relations. He said:

"The very small possibility of very large damage must be balanced against national security needs. In my opinion, the need to test at these large yields must be very compelling to justify the risk."

Remember that Milrow was only one fifth as large as Cannikin. Remember too that Milrow produced an enormous amount of radioactive waste which could still be brought to the surface through an unsuspected fault opened by a natural earthquake or by the Cannikin test itself. In fact, although the Environmental Impact Statement never mentions it, there is a possibility that the Cannikin, Milrow, and Longshot cavities on Amchitka could all start leaking radioactivity concurrently.

The fate of Cannikin now rests squarely on Nixon's shoulders. When the AEC authorizations bill came before the senate in July calling for an additional \$20 million for the Amchitka test, an amendment to delete those funds was supported by several senators, notably senators Gravel and Humphrey. Although the amendment was defeated, the senate did rephrase the authorization to stipulate that no funds shall be obligated or expended for Cannikin "unless the president gives his direct approval for such a test."



"Those old Northern Lights ain't what they used to be."

predictions of the AEC will be borne out. I would say, in all fairness, that the odds are on that side. The possibility of an accident is only that — a possibility, not a probability. But the risk is there because the test is a gamble with the unknown.

"And suppose there is an accident, a mistake. Would Cannikin's 7 point Richter scale reading, combined with a 7 point natural earthquake, remain a 'harmless' 7 point event?"

"At 7 points on the Richter scale we are already courting the birth of a tsunami wave. If 7 and 7 add up to 7.5, such a wave is a certainty; the AEC's own literature lists 7.5 as the level of shock at which a dangerous tsunami is certain to occur!"

"And, keep in mind, the Alaska test site was developed only because the planned explosions were found to be too big and too dangerous for Nevada."

What compelling national necessity dictates that this test must take place? According to Herbert F. York, chairman of the Federation of American Scientists, Cannikin is "a pointless experiment in search of an unnecessary weapon." The entire

difficult position, because the changing justification for the ABM forces them to keep changing the justification for the warhead."

Rather than being an integral part of the ABM system, the basic Spartan missile is of only marginal importance, for use only under certain conditions and in certain specific contingencies. Even if the huge warhead were "needed", there would be little reason to conduct the test, according to Jeremy J. Stone, director of the Federation of American Scientists, since "there is little doubt that the Spartan warhead will detonate; and much can be known about the warhead's effectiveness through paper-and-pencil calculations."

As Dr. Lowenstein pointed out in his testimony at Anchorage, commenting on the AEC Environmental Impact Statement: "I do not question most of the scientific facts set forth in this report. I do dispute the conclusion — that the test should be held! Whitehead said that in most works of philosophy the erroneous assumptions will be found on the first page, and all the rest follows very logically.