



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

July 16, 1970

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US FISH & WILDLIFE SERVICE--ALASKA
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Mr. John A. Erlewine
Assistant General Manager for Operations
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Erlewine:

As requested in your letter of June 17, we have reviewed the draft environmental impact statement for the CANNIKIN nuclear test, Amchitka Island, Alaska, and offer the following comments:

- (1) The statement estimates that tritium will be discharged into the ocean at a level close to the maximum permissible concentration for water, beginning 145 years after the CANNIKIN event, and that this discharge will be diluted by 10^5 by the longshore currents (page 13 of the draft). Does this dilution factor account for the accumulation of tritium in the longshore currents that may result from groundwater discharges from the MILROW and LONGSHOT events? If it does not, we believe it should and the potential CANNIKIN discharge evaluated in this light.
- (2) Because tritium from the LONGSHOT event was found in surface ponds, we believe that water samples should be collected, following the CANNIKIN event, from water geysers that may occur over or near the "ground zero" sites of the MILROW and LONGSHOT events. Analyses should be made to determine whether such geysers are allowing the movement of radionuclides from these previous events from the subsurface to the surface environment. Analyses should be made for fission and fusion-activation by-products in addition to tritium and the noble gases. We do not find in the draft statement that such sampling and analyses are planned.

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- (3) Careful and continued monitoring of the radioactivity in the marine environment and especially in fishes of the Amchitka area should be maintained in cooperation with the Department of the Interior, in order to insure that there is no contamination of commercial fishery products. In the unlikely event that contamination did occur, we must be aware of it and prepared to reassure the American public of the safety of fishery products moving into the market.
- (4) We do not believe that the anticipated possible loss of up to 20 sea otters from the native population of 2,500 would be of any lasting significance. It may be possible to minimize the possibility of these small losses; however, by having harvest or transplant stock collected from near the test site if any animals are taken for those purposes within a few months prior to the tests. Also, the contemplated sea otter research program may provide us with techniques for luring or driving the animals from the test area at shot time.
- (5) The draft statement refers to man-made containment structures, such as sewage treatment facilities, drilling mud pits and fuel oil tanks on the Island. Although the statement makes little reference to these facilities, we assume that proper precautions have or will be taken to prevent possible failure due to the seismic shock from the CANNIKIN test.
- (6) Although the conclusion that CANNIKIN is unlikely to trigger a seismic event as large as or larger than the nuclear event is valid, some of the statements leading to that conclusion are not entirely correct and may be misleading. It should be pointed out, however, that additional background studies on regional tectonics and marine geology are underway and final evaluations of the feasibility of the CANNIKIN event should not be made until the results of these studies have been assessed.

Cooperation between this Department and the Atomic Energy Commission with regard to the past nuclear tests on Amchitka Island and in preparation for the CANNIKIN test has been effective toward balancing our various interests. We look forward to continuing cooperation in this regard.

We appreciate the opportunity to review this statement.

Sincerely yours,



John R. Quarles, Jr.
Assistant to the Secretary for Policy
Planning and Research

CC: Secretary's Files
FWQA SF&W
BIA MGS
FWL CF
MBM BLM
Regional Coordinator-Alaska
A/S: FWP, WQR PLM MR

RLWilliams:mjb (S)
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UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
WASHINGTON, D.C. 20240

JUL 10 1970

Memorandum

To: Assistant to the Secretary for Program Planning and
Coordination
Through: Commissioner of Fish and Wildlife
Assistant Secretary for Fish and Wildlife
and Parks

*J. R. Fielding
for A/S FW +
Commis Fish
7-10*

From: ^{Acting} Director

Subject: Review of draft environmental impact statement submitted
by AEC for the CANNIKIN test, Alaska

Your memorandum of June 22 requested our comments on a Section 102
(2)(C) statement submitted under the Environmental Policy Act of
1969 for the above project.

The Bureau of Sport Fisheries and Wildlife has been involved with
the Atomic Energy Commission in the current series of underground
nuclear tests since late 1966. Amchitka is one of the many islands
in the Aleutian Islands National Wildlife Refuge. It was chosen as
a test site because of its isolation, geological structure, and
availability of transportation system, i.e., a harbor and a 10,000-
foot concrete runway.

The Bureau provided AEC with a statement of research and management
needs in April 1967. We identified two potential types of damage from
the AEC program. One was from human occupancy, construction, and
vehicular activity. The second was potential damage from the under-
ground nuclear tests. At our request, AEC provided the Bureau with
funds to hire two refuge management biologists. These men have been
rotating the duty since mid-1967 at monthly intervals. Their function
has been day to day coordination with AEC employees and contractors
engaged in construction of camps, roads, communication facilities, and
underground test sites. These men have been highly effective in
reducing the amount of damage to the environment. Otherwise there would
have been more unregulated use of motor vehicles, careless or poorly conducted
construction activity, and improper disposal of trash, debris, and other
waste.

There has been some damage to the fragile tundra from construction activity,
most of which occurred prior to the arrival of our people on the island in
mid-1967. There has also been damage from leaky mud sumps at the drilling
sites which have damaged some streams and ponds. On June 22, the Bureau

submitted an environmental damage repair plan to AEC. This identified the areas of environmental damage or remaining physical debris (i.e., firing cables, oil drums, abandoned vehicles) which should be repaired or removed by the AEC prior to departure from the island. In some areas we feel that effective repair techniques are not available and we agree that repairs should not be attempted. In other areas we recommend leveling and restoration of ground contours. Where possible this should be coupled with appropriate revegetation techniques which would stabilize the soil and restore the native vegetation at the earliest possible time. We have recommended against introduction of any exotic plants to the island which might alter its native vegetation. Our employees report that the AEC has already accomplished some of the minor repair measures. The proposed restoration plan is under review by AEC at this time. We expect an early response and anticipate full cooperation from them. The cleanup program may include the incidental removal of some of the enormous amounts of junk and debris of every description which was left on the island by our military forces at the end of World War II.

The AEC has mounted an effective environmental research program at Amchitka to determine the possible effects which the underground nuclear tests might have upon the environment, including fish and wildlife resources. The research proposals are based, at least partially, upon the original research recommendations made by the Bureau of Sport Fisheries and Wildlife. Since August 1968, the AEC has provided funds for the employment of two research biologists who coordinate for the Fish and Wildlife Service with the research program. Their primary responsibility is to insure the adequacy of the investigations as they relate to the Fish and Wildlife Service. One employee is a Bureau of Sport Fisheries and Wildlife employee and the other is in the Bureau of Commercial Fisheries. The Bureau of Sport Fisheries and Wildlife has generally taken the lead in coordinating this program because of its administration of the refuge and greater involvement with the resources.

The bioenvironmental research program has been handled by the Battelle Memorial Institute of Columbus, Ohio, under contract with the AEC. The principle field investigations have been conducted largely under subcontract from Battelle to various university personnel. Two marine environment investigations have been conducted by the Bureau of Commercial Fisheries under a contract from AEC. These involved a brief oceanographic survey performed by a BCF vessel which was in the Amchitka area. The second is an inshore marine ecology study initiated for the MILROW event and to be continued for CANNIKIN. This involves a scuba diving team for investigating inshore populations.

The two research biologists have recently reviewed the fiscal year 1971 bioenvironmental research proposals under review by the AEC and Battelle. We have been advised by AEC that certain research efforts which we felt should be strengthened or increased will be covered. These include an increase in an exploratory fishing effort by one week's additional vessel time. A food habit study of seagulls is to be continued during the 1971 program. There has been a photogrammetry project designed to record environmental changes on the island and also as a means of censusing the

otter population around the island. We are advised that new and more sophisticated equipment will be used by the Battelle contractor this year. AEC is considering expanding the photographic program with even more sophisticated equipment and more frequent photographic coverage.

The Bureau has urged a review of the sea otter research program with an idea of reorienting the study towards behavior more than physiology of the otter. The revision of the study plan is underway by AEC and Battelle. We are in complete agreement with this change and will cooperate in developing the new research plans.

We are in agreement with the AEC estimates of physical damage to the environment and fish and wildlife resources as a result of the MILROW test in October 1969. Several fish and wildlife personnel were present at the time of the test and assisted in the assessment of the effects. We have no basis for disagreement at this time with the present projections of probable effects of the CANNIKIN test on fish and wildlife resources. As final estimates of potential ground movement, pressure, waves, soil slippage, and rock falls are developed, we will be better able to confirm these easements. We do not believe that the anticipated possible loss of up to 20 sea otters from the native population of 2,500 would be of any lasting significance. It may be possible to minimize the possibility of these small losses by having harvest or transplant stock collected from near the test site if any animals are taken for those purposes within a few months prior to the tests. The contemplated sea otter research program may provide us with techniques for luring or driving the animals from the test area at shot time.

Should we lose cliff sites used for nesting by falcons or bald eagles, there may be little, if any detectable effect. New precipices formed when cliffs drop, whether from natural causes such as earthquakes or undermining by the sea or by nuclear tests, may prove as acceptable to the birds as the old sites. The loss of seastacks may be of greater effect since collapse of a stack may not leave a potential new site. However, the contemplated loss of some of the stacks along a part of the island coast may not be of major significance if a large number of stacks remain.

The losses of some sticklebacks, Dolly Varden, or salmon in the freshwater environment should not be critical and undoubtedly these will be replaced by natural restocking if the stream and pond environment suffers no permanent damage. The losses of some ponds or streams may reduce at least temporarily the freshwater environment available to these fish and to waterfowl. New ponds which might be created may eventually prove suitable for these species. The streams and ponds lost or damaged hopefully would be only a small portion of those on the island.

One of the greatest concerns has been the potential venting or leakage of radionuclides to the surface environment. At every opportunity we have insisted upon thorough monitoring of the test sites and surrounding

environment before, during, and after these events. We are concerned by the predicted leakage of tritium to the ocean, as listed on pages 13 and 16 of the statement. Page 13 indicates that starting at 145 years after the explosion, tritium would leak at a concentration level near the maximum permissible concentration for drinking water. The discharge would be contaminated groundwater at a volume of about $15 \text{ m}^3/\text{hr}$. This discharge would occur over an area of about 300 m^2 , but the depth is not indicated. The discharge would continue for a period of 43 years. AEC indicates that one-half knot longshore current would change ocean water over the discharge zone three times an hour. This results in a dilution rate in the order of 10^5 .

If these predictions are correct, then there may not be significant impact on the biological environment, assuming that "biological magnification" does not occur. Presumably the estimate assumes that there will be no additional radioactivity from other subsequent nuclear tests at this or other sites. However, the whole Aleutian Islands chain is in a zone of major seismic activity. We believe there should be an assessment of the potential impact of predicted leakage which could result if a major seismic event made it possible for the contaminated groundwater to reach the ocean at some earlier time than the 145-year interval. We are not implying here any seismic result from the test itself. We recommend that AEC be asked to assess the probability of a natural leakage which would take place. We further believe that there should be careful periodic monitoring of the biological populations in the area in which the ultimate radioactive discharge would take place.

We have in the past urged AEC to insure that there is significant, careful, continuing monitoring of the radioactivity in the marine environment and especially in fishes of the Amchitka area in order to insure that there is no contamination of commercial fishery products. In the unlikely event that contamination did occur, we must be aware of it and prepared to reassure the American public of the safety of fishery products moving into the market.

The Bureau of Sport Fisheries and Wildlife will continue to cooperate with the AEC in the various phases of the test program at Amchitka. If deficiencies in the program are detected they will be brought to the attention of the AEC. During later stages before the CANNIKIN test we will participate in preparation of experimental measures to determine the effects on certain fish and wildlife species.

We appreciate the opportunity to review and to comment on this statement.

(Sgd) A. V. Tunison

Ecological Study For Amchitka?

JUNEAU (AP) — Four Democrats introduced a resolution in the House Tuesday asking the Atomic Energy Commission be directed to comply with the National Environmental Policy Act before continuing underground nuclear tests on Alaska's Amchitka Island.

The resolution's prime sponsor is Rep. Helen Fischer of Anchorage. Cosponsors are Reps. Mike Bradner and John Huber, both of Fairbanks, and Dick McVeigh of Anchorage.

The resolution contends that prior to an Aleutian Island test last year, "there was little, if any, information produced by the Atomic Energy Commission which would indicate ... that adequate measures had been taken to protect man in his personal and physical environment."

The AEC tentatively has scheduled a second test for later this year.

Mrs. Fischer, who pointed out conditions of the act are delaying issuance of a permit for the Trans-Alaska pipeline, declared that "comparing the two projects would be like comparing Mt. McKinley to a molehill as far as danger to the environment." She said the underground testing was more dangerous.

Mrs. Fischer added, "I would think such ecology-minded groups as the Sierra Club, Friends of the Earth, etc., should be more concerned about the atomic tests at Amchitka and that they would insist that the Atomic Energy Commission be guided by the same or even higher regulations, rules and safeguards that are being imposed on the North Slope pipeline."

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support from the adults in the community for next year's Anchorage spruce-up.

"I hope to get more groups committed to the main roads next year," she said.

Tom Cox, chairman of the Chamber of Commerce Beautification Committee, said, "The turnout represents double the participation for 1970."

He said 18,000 cans of free Pepsi and Coca Cola were given to the clean-upers.

John Asplund, borough chairman, awarded the Chairman's trophy to Romig Junior High for the school with the most bags of trash returned.

He said that both the borough and city will offer free dump privileges to residents until May 22, exclusive of Sundays.

AEC releases environment statement on Amchitka test

By ALLAN FRANK
Daily News Staff Writer

The Atomic Energy Commission (AEC) Thursday released an Environmental Impact Statement outlining probable effects on Amchitka of the most powerful underground nuclear blast ever scheduled by the United States.

Under the 1969 National Environmental Policy Act, the AEC is required to file an impact statement, including possible alternatives to the five-megaton test code-named Cannikan, with the Council on Environmental Quality.

IMPACT hearings on the Amchitka underground bomb will be conducted in Juneau on May 26 and Anchorage on May 28. The AEC, which already has filed this draft, then will submit a final statement to the Council.

The 40 page draft, written in somewhat technical language, concludes that the test scheduled for this October must be conducted despite some killing of wildlife and disruption of the environment.

Earthquakes, tsunamis (tidal waves) and possible leakage of radioactive

materials are discounted by the AEC statement.

Amchitka, westernmost island of the Aleutian Chain, is 42 miles long and two to four miles wide. The blast site is centered on a three mile wide south-central portion of the island, more than 20 miles from the blast control headquarters.

THE AEC said the test blast would release energy equivalent to five million tons of dynamite or about a 7.0 Richter scale earthquake.

The statement devoted four short paragraphs to dismissal of "acceptable alternatives" to the blast.

The AEC argues that it must conduct the test or "severely hamper the development of nuclear weapons technology of prime significance to our national security requirements."

A SMALLER megaton yield test would not be "acceptable because it would not be possible to obtain the needed information from such a test," the AEC said.

The report does not elaborate what the "needed information" would prove.

The AEC does, however, project

the impact of the biggest U.S. underground blast ever on the basis of past tests in Nevada and two tests on Amchitka.

ANOTHER AEC objection to alternatives for Cannikan is that Amchitka is the only place where the blast could be safely detonated.

A five megaton blast at the AEC's Central Nevada testing grounds would shake buildings 175 miles away in downtown Las Vegas.

The other alternative, a site in the Brooks Range, would pose hazards to the Beaufort Sea and would be too costly to develop, the AEC said.

So far, the AEC has sunk more than \$190 million into developing Amchitka. The five-megaton blast, scheduled in a 6,000-foot-deep hole, takes its code name Cannikan from a word meaning a small drinking vessel or wooden bucket.

THE AEC BELIEVES that the blast will contain radioactivity inside the underground bubble created by the explosion.

According to the impact statement, radiation will pose no significant threat to men or animals on the island, located about 1,400 miles from Anchorage. Adak and Shemya, both about 200 miles from Amchitka, are the closest inhabited islands.

Shock waves generated by the blast could kill a sixth of Amchitka's American eagle and peregrine falcon populations, a 10th of the island's fish (mostly

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ANCHORAGE TIMES

THE U.S. Atomic Energy Commission will conduct informal public hearings on the possible environmental effects of the Cannikin underground nuclear weapons test at Amchitka Island, Alaska. A hearing will be conducted in the superior court room, State Capitol Building, Juneau, beginning at 9 a.m. Wednesday, May 26, 1971. A second hearing will be conducted in Superior Court Room A, Room 205, State Courts Building, Anchorage, beginning at 9 a.m. Friday, May 28, 1971.

Prior to the hearings, members of the public may inspect a draft environmental statement on project Cannikin at the governor's offices in Juneau and Anchorage, or at the AEC information office in Room 606, Royal Inn, Anchorage.

Members of the public may submit written comments and may make oral statements limited to 15 minutes each at the hearings. Written and oral questions also will be answered. Discussions will be limited to the proposed test, and its possible environmental effects.