

REPOSITORY NARA/College Park
 COLLECTION AEC Minutes (NN3-326-
92-006)
 BOX No. 9
 FOLDER Vol 18 (3 of 3)

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ATOMIC ENERGY COMMISSION

MEETING NO. 1255

2:30 p.m., Tuesday, December 18, 1956

* * * * *

Present

Lewis L. Strauss
 Thomas E. Murray
 W. F. Libby
 Harold S. Vance

R. W. Cook
 William Mitchell

W. B. McCool

Also Present

Lt. Col. Eugene A. Blue
 Don S. Burrows
 Comdr. John W. Crawford
 Dr. Charles L. Dunham
 Gordon N. Dunning
 Manuel Dupkin II
 Dr. Raymond R. Edwards
 Emil Eugene Fowler
 Edward R. Gardner
 Lawrence P. Gise
 Everett R. Holles
 T. H. Johnson
 George M. Kavanagh
 Robert Lowenstein
 John L. McGruder

George Mercer
 Capt. Kenneth F. Musick
 Curtis A. Nelson
 William L. Oakley
 Calvin Potts
 Harold L. Price
 Frank B. Quackenboss
 Morse Salisbury
 Bernard B. Smyth
 Brig. Gen. Alfred D. Starbird
 Shelby Thompson
 John R. Totter
 Clark C. Vogel
 John A. Waters
 Richard V. Willit

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Meeting with Pacific Gas and Electric Company

Mr. Strauss said that representatives of the Pacific Gas and Electric Company were meeting with Mr. Tammaro and Mr. Fields to discuss the possible construction of a reactor in the 100 megawatt range.

10th Anniversary Statement

Mr. Strauss said that on December 31, 1956, the AEC will have completed its 10th year of operation and that it would be appropriate to issue a public statement reviewing the achievements of AEC during the past decade. The other Commissioners agreed that this would be desirable and requested the Director of Information Services and the Secretary to prepare such a statement.

Letter from MURA President

Mr. Vance reported that he had received a letter from Mr. John Williams, President of MURA, indicating that the MURA Board of Directors favors a cooperative arrangement with the Argonne National Laboratory and hopes to achieve as soon as possible a mutually satisfactory plan for the development of a large research accelerator. (See AEC 827/30.) He added that Mr. Williams will be on sabbatical leave from January to April 1957 and that during his absence Professor H. R. Crane of the University of Michigan, Department of Physics, will act as chairman of the MURA Executive Committee.

Director for ANL

Mr. Libby reported that during the previous week he had met with Mr. Frederick Seitz of the University of Illinois regarding a possible appointment as Director of ANL. Mr. Libby said that Mr. Seitz had seemed moderately interested in the position, but that he had not yet indicated whether he would accept it.

5. AEC 777/27 - Proposed Third Round Power Demonstration Reactor Program

Mr. Cook pointed out that AEC 777/27 was being revised to state that \$ 3,000,000 would be provided for the third round of the Power Demonstration Reactor Program during FY 1957

6. AEC 152/74 - Proposals for Nuclear Power Program

Mr. Strauss presented to the other Commissioners for their consideration an eight point program for accelerating the development of atomic power in the U.S., and recommended that the Commission approve these recommendations in principle. Mr. Strauss had originally outlined this program in a speech before the American Nuclear Society on December 11, 1956.

Mr. Libby discussed with Mr. Strauss several suggestions concerning his recommendations. Mr. Libby pointed out, first, that it would be desirable to integrate the foreign nuclear power development program with the U.S. nuclear power program. He suggested that the staff be instructed to develop a policy which would make it possible for the U.S. to offer comprehensive arrangements for all assistance foreign countries need to design, construct and operate power reactors.

Second, he suggested that greater emphasis be placed on pressurized water reactors in the over-all power reactor development program.

Third, he questioned whether there would be sufficient funds available to carry out the program proposed by Mr. Strauss.

Fourth, he said he believed that prior BOB concurrence would be necessary before AEC could authorize a waiver or reduction in use charges for leasing nuclear fuel for commercial reactors, as Mr. Strauss had suggested. Mr. Strauss replied that it would be advisable to have BOB concurrence, but that he did not believe it to be a legal requirement. Mr. Mitchell confirmed that BOB concurrence was not legally required.

Mr. Libby also said that further encouragement needed to be given to private industry to enter the chemical processing field.

Mr. Strauss and Mr. Libby agreed that the development of a plutonium-burning reactor should be an important part of the reactor development program and that, in developing a natural uranium reactor, companies should not be restricted to using heavy water as the moderator.

Mr. Vance referred to the \$130,000,000 which the President had said AEC might request for reactor projects which private industry does not undertake, and inquired whether it would be possible to use a part of the \$130,000,000 for research and development purposes rather than for the actual construction of reactors. Mr. Strauss said he believed that this probably would be possible. Mr. Vance also recommended that the building of additional pressurized water reactors be encouraged. He added that he believed such action is the surest method of achieving economic nuclear power in the shortest time.

Mr. Murray indicated that he concurred with Mr. Strauss' proposals insofar as they contribute to a broader program of atomic power development. He said, however, that he believed an even more extensive program should be undertaken. Mr. Murray also said he would not wish to restrict the number of types of reactors which may be built or prevent several reactors of the same type being constructed. Mr. Strauss said he had not intended to prevent approval of proposals which were similar to reactors already approved. He suggested that in considering the staff paper concerning the third round of the power demonstration reactor program, the Commission ensure that no such restrictions are included.

Mr. Murray then said he believed that the completion date for reactors proposed under a third round of the Power Demonstration Reactor Program should be 1960 rather than 1962 as suggested by Mr. Strauss. Mr. Strauss said he believed such a date would be unrealistic and, therefore, might create

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some doubt about the Commission's sincerity in promoting construction of reactors by industry. Mr. Murray referred to the probable completion of the Shippingport reactor in 1957-three years after construction began-and said he would like the staff to consider the feasibility of establishing 1960 as completion date for third round reactors.

Mr. Vance suggested that it might be more desirable to consider establishing a deadline for commencing the construction of reactors under the third round rather than a completion date. He pointed out that some reactors can be constructed in three years while others will take five years to construct. The Commissioners requested that the staff consider establishing both a deadline for commencing construction of reactors and a deadline for their completion as well as the earliest feasible dates for these deadlines.

Mr. Murray then said he believed it would be advisable to include in third round contracts an option under which AEC may purchase the plant if it were not proceeding satisfactorily. Mr. Strauss requested that the staff include consideration of this suggestion in their study.

The Commissioners then approved in principle and as revised by the above discussion, the proposals set forth in AEC 152/74 for the nuclear power program.

7. AEC 944/4 - Proposed Test Plans for Calendar Year 1957

Under consideration by the Commission was a draft letter to the President requesting his approval of Operation PILGRIM and a press release on the test series. (See AEC 944/4.)

Mr. Strauss referred to the proposed underground shot scheduled for Operation PILGRIM and said that in a conversation with Mr. Bradbury earlier in the day, Mr. Bradbury had expressed concern about this shot. Mr. Bradbury had indicated that if an earthquake occurred within 24 hours after the underground shot were detonated, it would be impossible to correct the impression on the part of many people that the earthquake had been caused

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by the underground shot. Mr. Libby said he strongly suggested that the underground shot not be eliminated from the test series and said he was convinced there is no real danger that the shot would cause an earthquake. The knowledge gained from this shot alone, Mr. Libby said, would be of greater future importance than that gained from all other shots in the series. He said he did not believe this particular shot could be successfully carried out in the Pacific, because the coral structure of the atolls differs greatly from the soil structure in the U.S. Mr. Libby added that he believed seismologists should continue to be consulted about the possible effects of an underground shot, but that the letter to the President should not indicate any uncertainty about this shot being carried out. The Commissioners agreed to delete from the letter the word "tentative" as it refers to the underground shot.

The Commissioners then discussed and agreed upon several revisions to the press release on Operation PILGRIM. Mr. Strauss requested that a statement be included to the effect that high yield weapons of the type tested at Eniwetok Proving Grounds are not tested in Nevada. They also agreed that the reference to the use of captured balloons during the test operation should be deleted from the press release. The Commissioners also discussed the amount of press coverage which should be permitted for Operation PILGRIM and agreed that the press release should indicate that there will be limited on-site press coverage. They requested that recommendations on this subject be submitted later. Mr. Murray said he believed arrangements should be made for press attendance at as many shots as possible.

The Commissioners next discussed the problem of fallout as it relates to Operation PILGRIM and the radiological safety criteria for the Nevada Test Site. Mr. Murray suggested that rather than state in the public announcement that "Every effort will be made to limit fallout on populated areas around the test site so that radiation exposure to the public will not exceed 3.9 reentgens in any one year."; that the announcement state simply that fallout will be limited so that radiation exposure

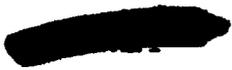
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will not exceed 3.9 roentgens. General Starbird pointed out that unforeseen weather changes make it impossible to guarantee that fallout will not result in an exposure level exceeding 3.9 roentgens. Mr. Murray said he believed that this level need not be passed since testing could be halted before the 3.9 level is reached. In answer to a question by Mr. Strauss, Dr. Dunning said it would be possible to exceed the 3.9 roentgens exposure level with fallout from a single shot. Mr. Strauss said he would oppose making any public statement on the fallout level for Operation PILGRIM which the Commission could not guarantee.

Mr. Murray then suggested that his proposed language not be included in the press release, but rather that it be inserted in the staff paper on Operation PILGRIM (See AEC 944/2). General Starbird pointed out that the staff paper concerning radiological criteria for Operation PILGRIM is AEC 141/33 - Radiological Criteria for the Nevada Test Site. Mr. McCool said that at meeting 1246 on November 14, 1956, the Commission had approved the radiological safety criteria for gamma radiation set forth in paragraph 3 of AEC 141/33 with the understanding that Mr. Libby might establish the ten year limit at a lower level than the 10 roentgens referred to in paragraph 3b of AEC 141/33. Mr. Libby then stated that the ten year limit for radiation exposure should be 10 roentgens.

Mr. Murray suggested that sub-paragraph 3a of AEC 141/33, which states as the exposure limitation "... 3.9 roentgens for any one year;" be revised to read "... 3.9 roentgens for the anticipated test series." The Commissioners agreed to this revision of their previous decision on AEC 141/33.

The Commissioners also agreed to delete from the press release the reference to limiting fallout from Operation PILGRIM so that exposures will not exceed 3.9 roentgens. The staff was requested to prepare a draft response to any inquiries received concerning the consistency of AEC exposure criteria for Operation PILGRIM with the exposure criteria recommended by the National Academy of Sciences for the total population of the U.S.



After further discussion, the Commission:

a. Approved, as revised, a letter to the President as set forth in AEC 944/4, regarding Operation PILGRIM;

b. Approved, as revised, a press release as contained in AEC 944/4 regarding Operation PILGRIM;

c. Noted that draft letters to the JCAE and the Nevada Congressmen similar to those in Appendices "I" and "J", respectively, of AEC 944, as revised, will be prepared.

8. AEC 781/52 - Release of Operations Evaluations Group Study 561 to the U.K. and Canada

Mr. Strauss referred to a letter to the President from the Chairman of the JCAE concerning the transfer of classified, military information to the U.K. and Canada, and suggested that AEC 781/52 be deferred until the questions raised by this letter have been resolved. Mr. Strauss said he hoped this would be accomplished within the next two weeks. Mr. Murray questioned the need for transmitting information on the size, weight and yield of certain weapons as proposed in AEC 781/52 and suggested that this matter be discussed when the paper is reconsidered. The Commissioners then agreed to defer further discussion of AEC 781/52.

9. AEC 127/13 - Acquisition of Florida Manufacturing Plant

After discussion, the Commission:

a. Adopted the following resolution:

"After consideration of a report by the Division of Military Application and discussion with the staff, it is resolved:

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"That in the opinion of the Commission it is necessary and advantageous to direct the Sandia Corporation to exercise the 'Option to Purchase' contained in the Letter of Intent of October 24, 1956, issued by Sandia Corporation to General Electric Company, X-Ray Department, to acquire the approximately 90 acres and improvements, including buildings, of the Manufacturing Plant under construction by GE near St. Petersburg, Pinellas County, Florida, as depicted on the plate designated Appendix "F" to this paper and on file in the Office of the Secretary; that the price to be paid will be determined by audit as prescribed in the above-mentioned Letter of Intent; that the title to the property will be obtained in the name of the United States Government; that the General Manager may approve necessary or desirable minor changes and revisions in the boundary of the property to be acquired; and that the General Manager may authorize the acquisition of title to the land to be subject to outstanding rights and reservations, if any provided, however, that such rights shall not interfere with the use of the land by the Atomic Energy Commission."

b. Noted that the Joint Committee on Atomic Energy will be advised of this action by letter such as Appendix "B" to AEC 127/13, and the Military Liaison Committee by letter such as Appendix "C" to AEC 127/13; and

c. Noted that Senator Holland, Senator Smathers and Representative Crammer, members of the Congressional Delegation from the State of Florida, will be advised of this action by unclassified letter such as Appendix "D" to AEC 127/13.

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10. ICA Funding of the Foreign Power Program

Mr. Strauss reported that in a telephone conversation earlier in the day with the Director of the BOB, he and Mr. Brundage had clarified their understanding of ICA's role in the foreign power program and how foreign operations funds were to be handled. Mr. Strauss said that ICA would be responsible only for funding and disbursement and that AEC would be responsible for all operational activities of the foreign power program. He added that he had dispatched a memorandum to Mr. Brundage confirming this understanding. (See AEC 854/16.)

11. AEC 460/32 - Proposal for Inter-American Symposium on the Peaceful Uses of Atomic Energy

The Commissioners considered preliminary plans and recommendations for the covering of an Inter-American Scientific Symposium on the Peaceful Uses of Atomic Energy to take place during 1957.

After discussion, the Commission:

a. Approved the plans as outlined in AEC 460/32 for conducting a five-day Inter-American Symposium on the Peaceful Uses of Atomic Energy during May 1957 at Brookhaven National Laboratory, followed by tours of various Government, industry, and university facilities;

b. Approved the expenditure of \$ 50,000 to cover AEC's share of the costs for conducting the Symposium and printing and reproduction of abstracts and Symposium papers, contingent upon the provision by or through the Department of State of funds to cover the balance of costs (items b and c in paragraph 9 of summary of AEC 460/32);

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c. Noted that the International Cooperation Administration has been requested to defray the costs of foreign and domestic transportation and living expenses for foreign participants;

d. Noted that the Division of Information Services in cooperation with the Department of State, U.S. Information Agency, and International Cooperation Administration will prepare an information plan for the Symposium;

e. Noted that the Joint Committee has been informed of the proposal to convene an Inter-American Symposium by letter dated September 14, 1956; and

f. Noted that AEC 460/32 is unclassified.

12. AEC 947/1 - Proposed Agreement for Cooperation with Norway

The Commissioners discussed a proposed Agreement for Cooperation with the Government of Norway, and also a recommendation for the sale of 12 tons of heavy water to Norway. Mr. Libby observed that this proposed Agreement is similar to the French Agreement in that it provides for the exchange of unclassified information only. He said he believed that in the future this type of agreement will probably be preferred by foreign countries. Mr. Strauss observed that the safeguard provisions under both classified and unclassified agreements are the same. Mr. Mitchell pointed out that this is the first instance in which a bilateral agreement refers to assistance in the construction of nuclear powered merchant ships.

After further discussion, the Commission:

a. Approved the draft Agreement for Cooperation with the Government of Norway, attached as the Appendix to AEC 947/1;

b. Approved the sale of 12 tons of heavy water to Norway within the context of the bilateral power agreement;

c. Agreed to recommend to the President of the United States that he approve the proposed Agreement for Cooperation, determining that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution;

d. Noted that the Chairman, or the Acting Chairman will sign the attached Agreement for Cooperation for the Commission;

e. Noted that the Agreement for Cooperation with the Government of Norway attached as the Appendix to AEC 947/1 will be submitted to the Joint Committee on Atomic Energy in accordance with statutory requirements, and that the JCAE will be advised at the same time of the proposed sale of heavy water within the context of the Agreement; and

f. Noted that AEC 947/1 is unclassified.

13. AEC 949 - Proposed Sale of Heavy Water to Sweden

Mr. Vogel reviewed a recommendation that 26 metric tons of heavy water be sold to Sweden for use in a district heating reactor. He pointed out that in negotiations during the spring of 1956, the staff had indicated to Swedish representatives that this sale could be concluded without a bilateral agreement. Later it had been decided that safeguard provisions should be applied to reactors for which the U.S. provided moderator materials and, therefore, the staff had attempted to induce Sweden to conclude a bilateral agreement with safeguard provisions before AEC would approve the sale of heavy water. Since this matter became a question of good faith on the part



of AEC, the staff later withdrew its insistence that the sale of heavy water depends upon the conclusion of an agreement with safeguard provisions. In answer to a question by Mr. Murray, Mr. Vogel said that a power reactor-type bilateral agreement with Sweden is now in preparation.

After further discussion, the Commission:

a. Determined that the sale of 26 metric tons of heavy water to Sweden is in the interest of the national security, and approved the sale of this quantity to Sweden subject to contract of sale which will be in the form of Appendix "A" to AEC 949;

b. Noted that prior to the execution of the contract of sale an assurance will be obtained from the Government of Sweden that the heavy water shall be for use only in Sweden by Atomenergi in connection with civilian reactors and shall be retained by Atomenergi and not resold or otherwise distributed;

c. Noted that the Government of Sweden will be advised that the Commission expects that all future sales of this kind (i.e., sale of heavy water for use in a power reactor) will be executed pursuant to the terms and conditions of the power agreement which is now under negotiation between the United States and Sweden, and that the Staff will discuss with Swedish representatives inclusion in the contract of sale a provision that the terms and conditions of any agreement for cooperation relating to power reactors subsequently entered into between Sweden and the U.S. will apply to this sale;

d. Noted that the Staff currently is preparing a study on the general policies that should govern the distribution of heavy water to foreign countries in the future;

e. Noted that a press release such as Appendix "C" to AEC 949, as revised, will be issued following the negotiation of the above contract of sale with Sweden;

f. Noted that the JCAE will be notified of the sale of heavy water to Sweden, upon completion of negotiations by letter such as Appendix "B" to AEC 949, as revised;

g. Noted that AEC 949 is unclassified.

The Commissioners then indicated that no heavy water should actually be shipped to Sweden until the bilateral agreement is signed or until it is clearly evident that the agreement will be signed. The Commissioners agreed, however, that arrangements for providing the heavy water may proceed.

Mr. Strauss suggested that the letter to the JCAE and the press release indicate that the Swedish company which is purchasing the heavy water is a government-owned company.

W. B. McCool

Secretary

Approved by the Commission: Meeting 1293, June 27, 1957