INTERNATIONAL AGREEMENTS FOR COOPERATION

HEARINGS

BEFORE THE

SUBCOMMITTEE ON AGREEMENTS FOR COOPERATION

OF THE

JOINT COMMITTEE ON ATOMIC ENERGY

CONGRESS OF THE UNITED STATES

EIGHTY-EIGHTH CONGRESS

FIRST AND SECOND SESSIONS

ON

INTERNATIONAL AGREEMENTS FOR COOPERATION

SEPTEMBER 5, 1963, APRIL 22 AND JUNE 30, 1964

Printed for the use of the
Joint Committee on Atomic Energy

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Note.—This hearing is printed in two parts. The first part, which covers the September 5, 1963, session, starts on page 1 and is followed by its own appendixes. The second part, which starts on page 69, covers the April 22 and June 30, 1964, sessions.

CONTENTS

(A short subject index will be found on p. 193)

(Thursday, September 5, 1963)

STATEMENTS OF WITNESSES

ADDITIONAL MATERIAL INSERTED IN THE RECORD

CORRESPONDENCE INSERTED IN THE RECORD

APPENDIXES

(For September 5, 1963)

(Wednesday, April 22, 1964, p. 69)

(Tuesday, June 30, 1964, p. 97)

STATEMENTS OF WITNESSES

ADDITIONAL MATERIAL INSERTED IN THE RECORD

CORRESPONDENCE INSERTED IN THE RECORD

APPENDIXES

INTERNATIONAL AGREEMENTS FOR COOPERATION

THURSDAY, SEPTEMBER 5, 1963

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON AGREEMENTS FOR COOPERATION,
JOINT COMMITTEE ON ATOMIC ENERGY.
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to call, in room AE–1, the Capitol, Senator Albert Gore (chairman of the subcommittee) presiding.

Present: Senators Pastore and Gore; Representatives Holifield, Price, Hosmer, and Anderson.

Also present: John T. Conway, executive director; Edward J. Bauser, assistant director; and Jack R. Newman, staff counsel.

Senator GORE. The subcommittee will be in order. The Subcommittee on Agreements for Cooperation of the Joint Committee on Atomic Energy holds hearings this morning on an Agreement for Cooperation with the Government of India and an amendment to the Additional Agreement for Cooperation with the European Atomic Energy Community (Euratom).

These proposed agreements were submitted to the Joint Committee in accordance with section 123 c. of the Atomic Energy Act of 1954, which requires that such agreements must lay before the committee for a period of 30 days before they become effective.

In accordance with normal committee practice, on August 15, 1963, I inserted copies of each agreement with supporting correspondence in the Congressional Record in order to inform the Congress of the pendency of these matters.

Without objection, I will insert in the appendix to this hearing record a copy of each agreement with supporting correspondence. We will also include in the appendix to this hearing record, proposed amendments to the agreements with Belgium, Ireland, Japan and the Philippines, with supporting data. (See app. 1, p. 35.)

On August 29, 1963, hearings on these agreements were announced by the Joint Committee on Atomic Energy.

(The press release referred to follows:)

[From the office of the Joint Committee on Atomic Energy]

AUGUST 29, 1963.

JOINT COMMITTEE ANNOUNCES HEARINGS ON AGREEMENTS WITH INDIA AND EURATOM

Public hearings on a proposed Agreement for Cooperation with the Government of India and an amendment to the Additional Agreement for Cooperation with the European Atomic Energy Community (Euratom) were announced today by Senator Albert Gore, chairman of the Subcommittee on Agreements for Cooperation. Both agreements concern the peaceful uses of atomic energy.

The hearings will be held on Thursday, September 5, 1963 at 10 a.m. in the public hearing room of the Joint Committee on Atomic Energy, U.S. Capitol Building, Washington, D.C.

The proposed Agreement for Cooperation with the Government of India provides the legal framework for a cooperative effort under which India would construct the 380-megawatt Tarapur nuclear power station, consisting of two power reactors of American design and manufacture. Financing of up to $80 million will be provided by a loan from the U.S. Agency for International Development. An important element of the negotiations with the Government of India concerned an agreement to provide safeguards in order to assure the use of the station and its fuel for peaceful purposes.

The amendment to the Additional Agreement for Cooperation with Euratom will facilitate the transfer of additional quantities of U^{235} to Euratom for use in the peaceful atomic energy activities of the six member states of the Euratom group. Legislation providing authority to sell an additional quantity of U^{235} to Euratom is now pending before the Joint Committee on Atomic Energy. Hearings were held on this legislative proposal on July 17, 1963.

Representatives of the Atomic Energy Commission and the Department of State are expected to testify at the hearings.

Senator GORE. The agreement with the Government of India concerns the proposed Tarapur atomic power station to be built by the Government of India with U.S. financing. The Joint Committee has followed the negotiations for this agreement very closely, especially those negotiations concerning safeguards against the diversion of nuclear materials for weapons purposes.

The mater of safeguards is of vital concern to all those who have been associated with the creation and development of IAEA, particularly the United States, which has been a principal supporter of the Agency. In this connection, I believe that this committee would wholeheartedly endorse the statement in last year's Smyth report on IAEA, that—

* * * the United States should continue to take the lead in establishing a uniform worldwide, effective system of safeguards. * * *

The amendment to the Euratom Agreement will facilitate the transfer of additional quantities of U^{235} for use in the peaceful atomic energy activities of the Euratom member states. We will also wish to examine safeguards procedures under the Euratom arrangements.

Our first witness this morning is Commissioner Ramey of the Atomic Energy Commission. Will you proceed, please?

STATEMENT OF JAMES T. RAMEY, COMMISSIONER, ATOMIC ENERGY COMMISSION

Mr. RAMEY. Mr. Chairman, we are pleased to be here today to testify about our proposed Agreement for Cooperation with India on the Tarapur project, the amendment to the Euratom agreement and the amendment to the agreements for cooperation with Belgium, Ireland, Japan, and the Philippines. Ambassador Henry D. Smyth, the U.S. representative to the International Atomic Energy Agency, and Mr. Charles W. Thomas are prepared to make a statement on behalf of the Department of State. We will be able to provide detailed comments on the provisions of each of the agreements and amendments.

The Agreement for Cooperation with India will permit India to construct and operate a large-scale, 380-megawatt, nuclear power station to be located at Tarapur near Bombay. As the committee is aware, the decision that the United States should assist the Indians

in the construction of the Tarapur station was arrived at after intensive study by all interested agencies in the executive branch.

India's demand for electric power is rising as a result of advances in industry and agriculture. The demand is such that the lack of power is an important factor impeding the expansion of the Indian economy.

The Tarapur Station will be located in one of the most highly industrialized regions of the country, and one which is expanding rapidly. This region has limited hydro sources and is far from the Indian coalfields. In addition, India is a net importer of oil, and we estimate that the foreign exchange costs of a nuclear plant will be less than those of an oil fired station. The Tarapur station thus should make an important contribution to the growth of the Indian economy and it also should forcefully demonstrate the important contribution that nuclear power, in general, and U.S. technology, in particular, can make to the development of the Indian economy.

The Agreement for Cooperation now before this committee is similar in many respects to comprehensive power-type bilateral agreements which the United States has entered into with other countries. The agreement with India, however, contains features which reflect the latest U.S. policies, although it relates only to cooperation on the Tarapur project.

Under the terms of the arrangement, the United States agrees to exchange information with India in fields related to the construction and operation of the Tarapur station. This would be the first agreement which would give effect to the Commission's new policy of assuring foreign operators of enriched uranium reactors of an adequate long-term supply of fuel.

Thus, the United States would commit itself to sell, and India would commit itself to buy, within a specified ceiling, the enriched uranium India will require for the station over a 25-year period. This policy, of course, is important to other nations in their being able to develop nuclear power programs using enriched uranium reactors on a sound and reliable basis.

The agreement includes a number of other standard provisions including bilateral safeguards provisions (art. VI) which are to be applicable pending the time the International Atomic Energy Agency is requested to assume the safeguard responsibility. These safeguards are substantively the same as, although somewhat different in form than, the comprehensive safeguards incorporated in our other power-type agreements. The slight difference in form is principally accounted for by the fact that the agreement is limited in scope and is tailored to one nuclear power project.

As the committee is aware, one of the major issues that was encountered during the negotiation of the agreement was related to the principle of application of safeguards by the International Atomic Energy Agency.

As a basic point, the Department of State and AEC representatives were guided in the negotiations by the policy reported to this committee by the State Department last January 22, which contemplates that the United States will make a strenuous effort to have its bilateral partners agree to have the IAEA assume safeguards responsibilities for materials and equipment transferred bilaterally. The arrange-

ment in the Agreement for Cooperation with India represents a significant achievement in our efforts to strengthen international controls.

Specifically, in article VII, the United States and India have agreed in principle that the Agency will be requested to enter into a trilateral agreement for the implementation of the safeguard provision of the bilateral agreement at a suitable time after the Agency adopts an expanded system which is generally consistent with the safeguard provisions of this agreement.

Thus, there is a positive requirement to negotiate an agreement with the Agency for the transfer of safeguards to the Agency when it adopts a consistent system. If a mutually satisfactory agreement on the terms of the turnover arrangements is not achieved, either party may terminate the bilateral agreement.

As the situation now stands, we are heartened by the Indian Government's agreement to this formulation, particularly in view of the progress that the Agency has made to date in developing an expanded safeguard system.

Specifically, as you know, on June 19, the Board of Governors of the IAEA provisionally approved the proposed expansion of the Agency safeguard system to cover reactors of 100 thermal megawatts and over, for consideration by the forthcoming general conference in its meeting in Vienna this September.

The U.S. Government will, of course, strongly support the adoption of this safeguards system by the general conference. We foresee that the system will be approved by the general conference. If this system is adopted without substantive changes, it will in fact be consistent with the safeguards provided for in this agreement, and we have every expectation, therefore, that it will be only a matter of time until the Tarapur project is brought under IAEA safeguards.

As reflected in our correspondence with the committee, we also have had extensive discussions with the Indians on the nature of the role that the IAEA should assume once a transfer of safeguard responsibility is arranged with the Agency. Throughout the negotiations, the United States has taken the position that the Agency should assume the primary responsibility for administering the safeguards, whereas India has been of the opinion that the parties should not rule out the posssibility that the United States might have a continuing association with the implementation of safeguards during an initial trial period, while the Agency's expanded system is going through a shakedown period.

The Indian officials recognize that the Agency must preserve its normal responsibilities in any arrangement that we enter into. We believe the language that has been drafted for the agreement, the provisions of the Agency statute and the precedent that is being established in other turnover arrangements should all help assure that the Agency will be given the primary responsibility which we believe is its appropriate role.

Lastly, article VIII also includes a statement that the United States is prepared, in principle, on its part, to include appropriate provisions in the turnover arrangements with the Agency which would enable the Agency to apply its safeguards system to any special nuclear materials produced in the Tarapur project and returned to the United States. This is, of course, consistent with our position

of strong support for the principle of IAEA safeguards and is one which we have always considered as a necessary consequence of the application of Agency safeguards to U.S. supplied material.

Any arrangement providing for Agency inspections in the United States will be conducted so as to assure that there is no access by Agency inspectors to restricted data, and is otherwise in accord with U.S. law. We have met these problems satisfactorily in connection with Agency inspections of four small reactors in the United States.

In my view, the formulation which has been developed regarding the transfer of safeguards to the IAEA represents the most desirable and practicable approach that can be adopted at the present time. When you take into account the provisions in our other agreements, the importance and size of the Tarapur station, and India's traditional policy of safeguards, I am confident that the language that has been developed will be interpreted as a most important step in the strengthening of multilateral controls.

I believe this is all we wanted to say in the way of an opening statement regarding Tarapur.

Senator GORE. Before going further, Commissioner, I wonder if the Commission has given any consideration to the possible bearing upon the application of these safeguards by India of the pending treaty on nuclear weapon tests.

Mr. RAMEY. We have borne in mind, I believe, throughout the negotiations of the treaty on the test ban that we thought that the development of an international system of inspections on the peaceful uses and prevention of diversion of material was consistent with the U.S. overall position about inspection, with regard to a comprehensive test ban.

When it comes to the matter of the particular treaty which does not require inspection within a country, it is not as directly related as such, I would say.

Senator GORE. India stands, on the one hand, in the shadow of an aggressive danger from China, and on the other is a signatory, I believe, already of the treaty. As an adherent to the treaty, would we have additional safeguards thereby that such fissionable materials as may be obtained as a byproduct of these reactors would not be used in weapons development?

Mr. RAMEY. Yes. Under this agreement we are talking about, there would be a legal and moral obligation not to divert it for the development of weapons, and then under the test ban treaty it would be a further obligation that any materials—not only materials from any peaceful reactors that we are talking about—should not go into testing in the prohibited media.

Senator GORE. The fact that they have agreed by treaty not to engage in testing——

Mr. RAMEY. In the atmosphere or underwater, or in space.

Senator GORE. Yes. That at least would serve to minimize the temptation to utilize the material if it should by some means become available.

Mr. RAMEY. Yes, sir.

Senator GORE. Are there any other questions along this line?

Chairman PASTORE. Yes; I would like to ask a question. It has always been the traditional position of the United States in dealing with

the Soviet Union with regard to test ban, especially an underground test ban, that we have always followed the principle of on-site inspection by an international team.

Is there anything in this bilateral agreement with India which would be inimical to that position taken by the United States in the past, or inconsistent with it?

Mr. RAMEY. No, sir. I think the provision for the IAEA to take over the administration of the safeguards system under this bilateral agreement is consistent with this policy. It would provide for an international team to make the inspections and to actually have an international system of accounting for the material and measuring the material, as well as inspecting it. It does provide, like our other bilateral agreements that initially the United States would do the inspecting until such time as this international system is put into effect and we agree it is consistent with our bilateral method.

Chairman PASTORE. When the system is put into effect you understand it to be the policy of this Government to insist upon international inspection?

Mr. RAMEY. Yes, sir.

Senator GORE. Congressman Price.

Representative PRICE. When you talk about exchange of information on the construction and operation of this reactor, what do we expect to get out of that? What will be novel about this reactor that we don't already know?

Mr. RAMEY. The reactors in the station will be 190 megawatt reactors. They will be boiling water reactors and will represent the latest technology in the boiling water field.

One kind of information, I think, we will get that I personally would like to see is how a tandem reactor station operates. Instead of having one, 400-megawatt reactor in operation, we will have two almost 200-megawatt reactors in operation and we will see what the savings are in terms of downtime in how they will operate these reactors in tandem.

Representative PRICE. The British have a different type of reactor, but they also operate on the basis of tandem reactors?

Mr. RAMEY. Yes, sir.

Representative PRICE. Do we have some knowledge from that?

Mr. RAMEY. We are getting some under our agreements with the British. The reactors in the Tarapur project are the same kind that we are using in the United States. We will also get information on fuel element development. Undoubtedly, they will make a few mistakes as we have done, and we will profit from them too.

Representative PRICE. What would the significant difference be between these boiling water reactors and the ones that we already have in operation? (See p. 161.)

Mr. RAMEY. There won't be any significant difference, Mr. Price. It will be just another, what we would call, generation. Each time we build a larger reactor we are building on the basis of our prior experience and trying to put in improvements. Each one does make some improvements.

Representative PRICE. If we only go to 180,000-kilowatt reactors, we are not building bigger ones.

Mr. RAMEY. No, sir; it would be improvements in technology. It would not be an improvement in the size factor as such. This will be quite a large reactor. It will be certainly the largest reactor in Asia.

Representative PRICE. That would be significant just because it is the largest in Asia while we have larger ones in this country.

Mr. RAMEY. In terms of our international development.

Representative PRICE. I am speaking only in terms of technology and not what it means on the international scene politically or prestige-wise.

Mr. RAMEY. No, sir; I don't think in that sense it represents a jump in size. In order to improve our technology, there we would have to go beyond 600 megawatts.

Senator GORE. The Chair suggests that, if the Commissioner has concluded his testimony with respect to the India agreement, and since the Chair interrupted the flow of his testimony, we proceed with questioning on the India agreement and then let the Commissioner conclude with his testimony with respect to other items.

Congressman Holifield.

Representative HOLIFIELD. I don't believe I have any questions.

Senator GORE. Congressman Hosmer.

Representative HOSMER. I have been bothered in this agreement by the practice of the Indian Government in conserving its foreign exchange and to very severely restrict imports. In the past, there have been instances where American companies have arranged with the Indian Government to install facilities such as a fish cannery and other manufacturing and processing facilities of that nature, but in the actual building and operation, the companies have found that it has been very difficult, if not impossible, to get all the parts and pieces needed for the operation that they intend to carry on.

In some instances, vehicles, in other instances, pumps, and other small but important items that have to be there in order to operate well. This reactor, being a very large-scale operation, having some amount of U.S. prestige and so forth connected with it, seems particularly critical in this respect. It would seem particularly provident to make all the necessary arrangements before and to make certain that anything that is necessary for not only the construction of this reactor but for its efficient and effective operation over a period of time be concluded well ahead of time. Can you comment and discuss that problem?

Mr. RAMEY. Yes, sir. This matter, as you will recall, was brought up by the committee earlier, I believe by you, Mr. Hosmer. We discussed this with the representatives of the General Electric Co., who have advised us that this has been a very real problem on projects of any magnitude.

As a consequence, the General Electric Co., in its agreement for the construction of the Tarapur reactor has requested an exception from these traditional import restrictions. This proposal by General Electric has the strong support of the Indian Atomic Energy Commission and Dr. Bhabha, and is now being negotiated and being considered by the Indian Government. The U.S. State Department and the AID are also supporting this exception very strongly.

Representative HOSMER. But it has not been granted yet?

Mr. RAMEY. No, sir.

Representative HOSMER. The commitment has not yet been made?

Mr. RAMEY. No, sir.

Representative HOSMER. And there is no definite certainty that, if this arrangement is approved here and carried out, that at some point there won't be an interruption if the Indian Government does not make such a definite, certain, firm, and positive commitment. There is not such an assurance at this point, is there?

Mr. RAMEY. No, sir.

Representative HOSMER. Can you give us an assurance on behalf of the Commission that the actual expenditures under this arrangement will not be initiated unless and until the Indian Government gives a commitment positively to such an assurance?

Mr. RAMEY. I think this is not exactly the Commission's responsibility as far as the AID agreement is concerned.

Representative HOSMER. Whose responsibility is it?

Mr. RAMEY. That would be the AID and the State Department. As I have indicated, we have strongly supported such an exception.

Representative HOSMER. I understand, Mr. Ramey, and I know there are always these assurances and these hopes. But when you get down to nailing it down in black and white, sometimes, the other party slips away. We can't afford to let that happen in this instance, I am certain.

Senator GORE. Congressman, would you like to interrogate the representatives of the State Department on this point?

Representative HOSMER. Yes, I would.

Mr. RAMEY. We also have a representative of the AID here.

Representative HOSMER. Let us get him up here, too. Mr. Thomas, are you representing the State Department?

STATEMENT OF CHARLES THOMAS, OFFICE OF SCIENTIFIC AFFAIRS, STATE DEPARTMENT; ACCOMPANIED BY J. PATTERSON DREW AND RAYMOND C. MALLEY OF THE AID

Mr. THOMAS. Yes, sir.

Representative HOSMER. What is your name, sir?

Mr. DREW. Drew.

Representative HOSMER. What is your first name?

Mr. DREW. Patterson.

Representative HOSMER. I wonder if you and Mr. Thomas would comment on this point and give us whatever assurance you can at the present time and also whatever doubts or insecurities exist with respect to this matter at the present time.

Mr. THOMAS. I would like to make a very general statement. This is a more technical question for AID. The Indian Government does have these very strict import regulations.

Representative HOSMER. Yes, we understand. That is what we are talking about.

Mr. THOMAS. Given the foreign exchange problems that country has, we feel that those regulations are quite proper.

Representative HOSMER. Let us stipulate to all that and get down to the business of this particular arrangement.

Mr. THOMAS. Yes, sir. I believe that Mr. Drew is better qualified to discuss that aspect, Mr. Congressman, because it is a part of the AID agreement with India.

Representative HOSMER. Very well.

Mr. DREW. The AID loan agreement with the Indians has not yet been concluded. Our representatives have already been out in India discussing this matter in great detail with the Indians. We would hope to be able to put a specific provision in the loan agreement that the Indians will make such an undertaking and will give us a commitment that there will be no problems in that respect.

Representative HOSMER. Mr. Drew, as far as I am concerned, until such time as this is based on something more than the hopes of your Agency, I am certainly not in favor of this agreement for cooperation. I think it would be improvident. I think we should not approve this agreement without such an assurance from that Government—a definite and broad one that is comprehensive enough to insure that this reactor can be built and can be operated in the future—so far as I am concerned, this committee should delay its action.

Mr. DREW. We continue to have the loan agreement itself which has not yet been executed, as we pointed out. So I think we continue to have this means as well as others with which to approach the Indian Government.

Representative HOSMER. Yes, but you have not come to the point of telling this committee and assuring us that there won't be a nickel's worth of money going out of the U.S. Treasury until such kind of arrangement is concluded.

Mr. DREW. As I say, since we have not signed the agreement we do hope to put that specific provision within the loan agreement itself.

Representative HOSMER. It would be a very poor bargaining position to go over there with hopes rather than a firm stipulation that "this is it, boys, or the game is off." Could your Agency summon itself enough courage to go about the negotiations in that manner?

Mr. DREW. I think I will be going out myself in a very short period and I would hope to discuss this matter in great detail with our Mission and with the Indians.

Representative HOSMER. I don't like that word "hope" but I will have to use it. I would hope that you would drop the use of that word.

Chairman PASTORE. Would the Congressman yield on that point?

Representative HOSMER. Yes.

Senator PASTORE. Why is this not basically a part of the bilateral? Why are we trifling with the AID idea? If this involves a commitment on the part of the United States and this is a very important element of our negotiations with the Indian Government, what is so wrong with basically making it a part of the bilateral agreement which is before this committee? Why would that harm anything? If you say that the Indian Government is perfectly willing to make this exception but that we haven't gotten down to the basic discussions of writing it into some document, what is essentially wrong with placing that provision in the bilateral?

Mr. RAMEY. I think, Senator——

Chairman PASTORE. I want to say at this juncture I didn't want to make this a cumbersome document and put anything in there that does not belong in there, but this strikes me as being quite important; we

should protect our investment abroad. If the Indian Government is amenable to it, what is wrong with writing it into the bilateral?

Mr. RAMEY. I believe this is the type of thing we have not put into bilaterals in the past. This kind of provision is more appropriate to the loan arrangements that have been negotiated under various other arrangements. That is why it was not negotiated here. There are always items that come up that are quite important but sort of collateral to our agreements for cooperation.

I think for us now to go back and try to renegotiate this or add this provision to the arrangement would take a considerable amount of time and might just slow up the whole endeavor. Whereas it could certainly be accomplished by means of negotiation under this AID arrangement.

Chairman PASTORE. I should like to say to the distinguished chairman of this subcommittee, if it meets with his approval, that this committee signify its position by letter to the AID so that it will be a matter of record.

I think it is a very important point. I think the AID is intent on doing something about it. They have expressed a hope. That is about as far as they can go today. But I would hope there won't be developments where we would retreat from that position. I think we ought to signify at least to the Agency, the firm position of this Committee in support of these guarantees.

Senator GORE. The Chair will take this into consideration.

Representative HOSMER. Mr. Chairman, further than that, it is my feeling that this should not be an assurance or language in the agreement in general terms. It should be spelled out specifically and comprehensively because this will have to be the working arrangement during the period in which on our side of the ocean and theirs, new people will be working on this in future years. It cannot be left to future interpretation.

It must be nailed down in black and white, very tightly, and very comprehensively.

Mr. THOMAS. Mr. Congressman, I would like to say that we would welcome the letter that Senator Pastore has suggested and that certainly the Department of State will strongly support that kind of a stand with AID which I am sure they will welcome, too.

Senator GORE. The Chair instructs the staff to prepare in draft form such a letter to be considered in executive session by the subcommittee.

Representative HOSMER. Thank you, Mr. Chairman, I have no further questions.

Representative HOLIFIELD. Mr. Chairman, I point out that this is before us on a 30-day basis. It was presented to us on August 9. We have only a few days left on the 30-day provision. Is this committee going to be in the position of supplicant for something that we think is important, or are we going to take some kind of action to insure that we get the kind of action that we think is important?

Senator GORE. The Chair does not think the committee is in the attitude of being a supplicant. I would consider Senator Pastore's suggestion as being a very constructive one which the State Department has now said it would welcome. I am sure that the administration would give to the suggestions of this committee the consideration which they merited.

Mr. RAMEY. Perhaps, you could have a brief session today and I think it will be possible for the administration to have a letter to you tomorrow giving you the assurance you want.

Chairman PASTORE. We don't have jurisdiction over the AID and we don't presume to at this point. We feel the responsibility of calling it to your attention in strong terms. If the administration disregards it that is the responsibility of the administration. We have gone about as far as we can go.

Senator GORE. We are the legislative branch, we must always remember.

Chairman PASTORE. That is right. I think once we have done that, I think it would be very unwise on the part of the Agency to disregard it. However, if we were overruled in that regard because the foreign policy of this country is up to the President of the United States we can't do much more than that. But we should state our position.

Senator GORE. The Chair suggests that we proceed with the examination of the witnesses and prior to the adjournment there be a brief executive session.

(The letters referred to above follow:)

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C., September 5, 1963.

Mr. DAVID E. BELL,
Administrator, Agency for International Development,
Department of State, Washington, D.C.

DEAR MR. BELL: During executive hearings before the Joint Committee on Atomic Energy concerning the proposed Tarapur atomic power station project, on June 25, a question was raised concerning the effect of laws or regulations by the Government of India which might restrict the import of necessary equipment or spare parts for the proposed project.

On July 5, the Atomic Energy Commission, in a letter to the Joint Committee, indicated that the General Electric Co. had requested an exemption from these import restrictions. The Atomic Energy Commission also stated that it would support efforts to obtain an exemption. Representatives of the AEC and the State Department were orally informed by the Joint Committee staff on receipt of this letter, that the Joint Committee desired more detailed assurances and information.

On September 4, the State Department, in a letter to the Joint Committee, stated its belief that India's import and currency restrictions would not impede the project. The Department of State stated: "The Department and AID intend to keep this matter under close review as the Tarapur project proceeds."

Although the foregoing letters demonstrate the awareness of the executive branch to these matters, it is clear that no firm assurances in this regard have been received from the Government of India.

This question again arose at the public hearings of the Joint Committee on the Tarapur agreement on September 5, 1963. Although representatives of the AEC, State, and AID again expressed their "hope" that this problem could be resolved satisfactorily, it was once more apparent that no agreement on this matter had been reached with the Government of India.

We believe that this is a matter of grave importance. The imposition of strict currency or import regulations by the Government of India could seriously hamper the construction and operation of the Tarapur project. The resulting deleterious effect on U.S. prestige and our investment in Tarapur is obvious.

It is therefore our desire that before the loan agreement in connection with the Tarapur project is concluded, this matter will be solved satisfactorily through firm assurances from the Government of India.

I would appreciate an expression of your views on this matter.

Sincerely yours,

ALBERT GORE,
Chairman, Subcommittee on Agreements for Cooperation.

DEPARTMENT OF STATE,
AGENCY FOR INTERNATIONAL DEVELOPMENT,
Washington, D.C., September 16, 1963.

Hon. ALBERT GORE,
Chairman, Subcommittee on Agreements for Cooperation,
Joint Committee on Atomic Energy,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for your kind letter of September 5, 1963, indicating the subcommittee's concern over the matter of Indian import and currency regulations that might affect implementation of the important Tarapur nuclear power project, for which the AID recently authorized a loan.

The potential problem, as you are aware, is that the sometimes excessive time consumed in import customs clearance procedures in India will hinder prompt and rapid delivery of equipment and supplies necessary to prosecution of the project. No problem should be assumed with regard to licenses for the imports as such or to the availability of foreign exchange, since these are assured by the very existence of the loan.

The AID is of course, well aware of the potential problem raised by the subcommittee. As one of the terms and conditions of the Tarapur loan, the AID is requiring that the Government of India assure us to our full satisfaction that it has made, is making, and will continue to make adequate provisions to meet all essential requirements of the project that are not the responsibility of the prime contractor. Among the many matters we had in mind in setting down this condition is the matter of import customs clearances, as we noted both in attachment B and in item 9 on page 2 of attachment A of our letter to you of September 7, 1963.

This important matter among many others was discussed with appropriate Indian officials by our negotiating team which recently visited India. Our people also have reviewed this and other points in depth with officers of the General Electric Co. We have told the Indians that the AID is insistent that customs clearance be handled in such a way as not to impede prosecution of the project. Procedures for customs clearance must be and continue to be effective, satisfactory, reasonable, and workable from the points of view of the Government of India, the General Electric Co., and the AID. The AID will, during implementation of the project, including construction and initial operation of the station, keep continuous watch over this and many other matters through the various forms of project monitoring which already have been reported to you.

It is not our current intention to insist that the matter be handled in any specific way; rather, we are letting the two parties independently work out a method that later will be reviewed by us. As you know, officials of the General Electric Co. and the Government of India are at this very moment in the midst of further discussions in India. The AID is awaiting the early conclusion of these discussions so that it will be in position to review and take a position on the arrangements that have been negotiated, of which the customs clearance matter is one.

I hope that the above is helpful to the subcommittee, and ask that you please contact us again if there is other information or clarifications that you desire.

Sincerely yours,

CRAIG RAUPE,
Director, Congressional Liaison.

DEPARTMENT OF STATE,
AGENCY FOR INTERNATIONAL DEVELOPMENT,
Washington, D.C., September 7, 1963.

Hon. ALBERT GORE,
Chairman, Subcommittee on Agreements for Cooperation, Joint Committee on Atomic Energy, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I respectfully refer to the hearings held by the Subcommittee on Agreements for Cooperation of the Joint Committee on Atomic Energy on September 5, 1963, regarding the proposed Agreement for Cooperation with the Government of India and the Tarapur nuclear power project.

In line with the discussions that took place, I herewith forward to you the following four statements:

(A) Major terms and conditions of the AID loan to the Government of India for the Tarapur nuclear power project;

(B) Import of materials into India for implementation of the Tarapur nuclear power project;

(C) Warranties to be provided by the General Electric Co. for the Tarapur nuclear power station; and

(D) Monitoring of the Tarapur nuclear power project by the AID.

I and other officials of the Agency for International Development are available to discuss these statements or other aspects of the Tarapur project if the subcommittee desires. Officials of the Department of State and the Atomic Energy Commission also, of course, are available for further discussions.

We would be pleased to receive any comments or observations that the subcommittee might wish to make regarding these statements or other aspects of the Tarapur project.

Sincerely yours,

(S) RAYMOND C. MALLEY,

Loan Officer, Office of Capital Development and Finance, Bureau for Near East and South Asia.

ATTACHMENT A

MAJOR TERMS AND CONDITIONS OF THE AID LOAN TO THE GOVERNMENT OF INDIA FOR THE TARAPUR NUCLEAR POWER PROJECT

The Administrator of the AID authorized a loan of not to exceed $80 million to the Government of India for the Tarapur nuclear power project on June 28, 1963. The Government of India was so advised by letter on July 1, 1963. This loan was authorized with a series of terms and conditions, terms and conditions which have to be satisfied by the Government of India before the AID makes any of the loan funds available for the project.

There are a series of specific conditions deliberately tailored for the Tarapur project that the Government of India has to meet to the satisfaction of the AID. These include:

1. That before the AID executes a loan agreement with the Government of India for the project, an agreement for cooperation between the Government of India and the United States, as required by the United States Atomic Energy Act of 1954, be executed. Furthermore, the AID must be assured by both the U.S. Atomic Energy Commission and the Government of India that arrangements are proceeding in satisfactory manner for the conclusion of a nuclear fuel sales contract between the Government of India and the United States.

2. That the specific financial arrangements with regard to use of the loan proceeds by the Government of India for the purpose of carrying out the project be in accordance with terms and conditions satisfactory to the AID. A detailed presentation on this matter will be made by the Government of India to the AID shortly;

3. That nuclear risk liability and other insurance arrangements satisfactory to the United States be obtained by the Government of India for the project;

4. That provisions satisfactory to the United States be made with regard to safety and hazard aspects of the project;

5. That the Indian Department of Atomic Energy, and other agencies of the Government of India as necessary, make arrangements satisfactory to the AID for independent consulting engineering services on the Tarapur project to the extent needed to implement adequately the project. This will include services regarding construction and putting into operation of the nuclear power station, electrical integration of the grid system of which the station will be a part, and management of the power grid system. It will also include services to assure compliance with the contractual warranties given by the prime contractor for the station. Detailed discussions on this very important condition have been held in India recently, and a draft scope of consulting engineering services now is being developed;

6. That the AID be fully satisfied that the process by which the General Electric Co. was selected as prime contractor for the Tarapur project was reasonable. This matter has been discussed in depth with the Indians, and material given to the AID now is being examined;

7. That the AID review and approve the prime contract for this project between the Government of India and the General Electric Co., which contract now

is in the final stages of negotiation. The AID has been and is closely following the progress of these negotiations, and has had continuous opportunity to review with both parties key aspects of the proposed contractual arrangement;

8. That the AID review and approve other contracts concerning the project that it desires, especially that for consulting engineering services mentioned in point 5 above. The AID also will approve the consulting firm selected by the Indians;

9. That the Indian Department of Atomic Energy and other agencies of the Government of India assure the AID to the full satisfaction of the AID that it has made, is making, and continues to make adequate provisions to meet all essential requirements of the project that are not the direct responsibility of the prime contractor. This includes a host of matters, such as importation and customs clearance for imports necessary to the project, the priorities on controlled materials to be provided from Indian sources, project administration by the Indians, provision and maintenance of access roads, railroad sidings, switchyard facilities, and the like, provision of nuclear fuel from the U.S. Atomic Energy Commission, and others. Meetings and site checks already have taken place on many of these points, and are expected to continue during the implementation phase of the project;

10. That the Indian States of Maharashtra and Gujaret effectively and properly connect the Tarapur nuclear power station into the electric grid systems of these two States. The Government of India, including its central water and power commission, has agreed to assist the States in this connection to the extent necessary. Provision also has to be made to the satisfaction of the AID for the proper and adequate management of this integrated power system; and

11. That the Government of India undertake immediate studies to develop the feasibility of electrically linking the Sharavathi hydroelectric development in the State of Mysore with the western grid system of the State of Maharashtra. Such a link, if feasible, would benefit Mysore State and the integrated system.

Finally, there is a general clause providing that the loan is subject to such other terms and conditions as the AID may deem advisable. This clause has the great advantage of giving the AID a good amount of flexibility, and permits the AID to bring up matters that might be of concern before and during implementation of the project that might not be covered by the other terms and conditions of the loan.

In addition to the above, there are four important terms and conditions of a more general and standard nature generally applicable to all loans of the AID. These are:

1. That all the equipment, materials, and services financed under the loan be procured from the United States. In other words, none of the loan funds for the Tarapur nuclear power project will be expended outside the United States;

2. That the principal plus the credit fee on the loan be repaid to the United States in U.S. dollars;

3. That this particular loan be repaid by the Government of India to the United States within 40 years from the date of the first disbursement, including a grace period of not to exceed 10 years; and

4. That a credit fee of three-fourths of 1 percent per annum be paid on the disbursed balance of the loan.

All of the above conditions, their full meaning, and the manner and form in which they must be satisfied by the Indian Department of Atomic Energy and other agencies of the Government of India, already have been discussed in detail by the AID with appropriate Indian officials, especially by an AID negotiating team which recently visited New Delhi, Bombay, Trombay, and the site of the Tarapur station. The Indian Department of Atomic Energy and other agencies of the Government of India now are in process of preparing further papers and gathering documents concerning these terms and conditions for presentation to the AID.

It should be noted that the negotiating team mentioned above also has had extended discussions with officials of the General Electric Co. concerning this project in Washington, San Jose, and Vallecitos. The AID has received full cooperation from officials of both the General Electric Co. and the U.S. Atomic Energy Commission, in addition to full cooperation from officers of the Indian Department of Atomic Energy, other agencies of the Government of India in Delhi, and Indian state governments involved in the electric power network of which the Tarapur station will become a part. Such cooperation is expected

to continue amongst all parties, and should permit effective implemenation of this important project in an orderly and efficient manner.

The legal obligation between the AID and the Government of India concerning this loan will be in the form of a loan agreement. This loan agreement now is in the final stages of drafting by the AID and will be sent to the Indians shortly for their consideration. An implementation letter explaining certain aspects of the loan in some detail also will be sent to the Indians at the same time. The main points to be contained in these documents have of course also been discussed with the Indians verbally in some detail. These documents will include the terms and conditions stated above.

Needless to say, no loan funds have yet been expended by the United States for the Tarapur nuclear power project. No such funds will be expended until the loan agreement between the AID and the Government of India is executed and all of the terms and conditions of the loan are met in a manner fully satisfactory to the AID.

ATTACHMENT B

IMPORT OF MATERIALS INTO INDIA FOR IMPLEMENTATION OF THE TARAPUR NUCLEAR POWER PROJECT

India has a tight import and customs control system. It is recognized by the AID that it is important to the prompt and efficient implementation of the Tarapur nuclear power project that materials necessary to carry out the project not be faced with any unnecessary time-consuming barrier to entry into India. This is particularly true with respect to the materials needed by the General Electric Co. and its subcontractors.

It is emphasized that the arrangement finally adopted with regard to such imports must be satisfactory to the AID before the AID makes loan funds available for the project. Although the exact form of the arrangement is not yet worked out, the AID will assure itself that the final arrangement is satisfactory, reasonable, and workable from the points of view of both the General Electric Co. and the Government of India. The AID will, during implementation of the project, including construction and initial operation of the station, keep continuous watch over this matter.

Negotiations now are in progress between officials of the General Electric Co. and the Government of India in India on this point. There has been thought that the Government of India might issue a single comprehensive import license covering all equipment which must be imported for the station and the housing colony. There further has been thought that other methods of simplified customs clearance procedures might be adopted, and that prior agreement might be reached regarding which customs classifications certain equipment being imported into India for the first time would fall into. We expect that these negotiations will be concluded shortly, and that the AID then will be in position to consider in detail and take a position on the arrangements that have been negotiated.

ATTACHMENT C

WARRANTIES TO BE PROVIDED BY THE GENERAL ELECTRIC CO. FOR THE TARAPUR NUCLEAR POWER STATION

In the contract for the Tarapur nuclear power station the General Electric Co. will guarantee—

The performance of the station, both for net electrical output and for net heat rate. These performances will be demonstrated by appropriate tests, tests in which the independent consulting engineer to be employed by the Indians as a condition of the loan will participate. Other interested parties also will, of course, participate in these tests;

Material and workmanship; and

Exposure level, which will provide that fuel assemblies furnished by the General Electric Co. will be capable of attaining a given average exposure level without failure or depletion of reactivity.

The exact scope and the language with which these warranties will be worked into the final contract is at this moment a matter of negotiation between the General Electric Co. and the Government of India, including the Indian Department of Atomic Energy.

The final form of these warranties (as well as the remainder of the contract between the General Electric Co. and the Indians) is subject to the approval of the AID. AID satisfaction with the warranties is a condition both of the loan and to the disbursement of funds from the loan. The AID expects to seek at the appropriate time the advice of the U.S. Atomic Energy Commission and/or other appropriate bodies or individuals regarding the scope and acceptability of these warranties.

The General Electric Co. has given the Indians a firm fixed price for the station, divided into dollar and rupee components. Loan funds of the AID will finance only dollar costs of the contract. The station base price can be adjusted for changes in the indexes of labor and materials costs, and a formula that must be approved by the AID will be set down for doing this.

The General Electric Co. also guarantees to turn over the completed and satisfactory station within a mutually agreeable period of time (which probably will be 52 months) after the date of signing of the contract. There will be contractual provisions providing for both penalty payments and bonus in the event turnover occurs late or prior to the scheduled time. These arrangements too are subject to approval of the AID as a condition to making loan funds available for the project.

Monitoring of the Tarapur Nuclear Power Project by the AID

The major terms and conditions of the AID loan to the Government of India for the Tarapur nuclear power project are listed in attachment A. These terms and conditions must be met in a manner fully satisfactory to the AID before any loan funds are made available for the project. This procedure represents a detailed check on aspects of the project prior to the commitment of loan funds.

In addition, it is expected that the following procedures will be utilized in monitoring this important loan:

1. Officials of the AID itself will of course be checking that the project is being effectively implemented by means of periodic discussions, trips, visits, and the like. This will be done both by the members of the AID staff in Washington and officers of the U.S. country team in New Delhi.

2. The AID will be seeking the advice and assistance of the U.S. Atomic Energy Commission concerning effective implementation of certain aspects of the project which the Commission is well equipped to consider. The AID also will seek the advice of other U.S. Government agencies at any time that it is felt that such advice might be beneficial.

3. A condition of the loan is that the Indian Department of Atomic Energy make arrangements for independent consulting engineering services and assistance on the project. The scope of such advice will be mutually agreed upon by the Indians and the AID as a condition of the loan. Such consulting engineering services will provide for the Indians a beneficial source of independent monitoring in the fields in which the consulting engineer or engineers are given responsibilities. This is a matter which still has to be worked out in detail as a condition precedent to the initial disbursement of loan funds.

It should be noted that such consulting services will be provided not only for key aspects of the power station as such, but also will include assistance on certain aspects of the integration of the electrical grid systems and management of the power system into which theTarapur plant will be integrated.

4. Prior to authorization of the loan for the Tarapur project, the AID attained the services of an independent consulting firm (Burns & Roe, Inc., New York, N.Y.) to study and report on certain aspects of the project. The AID is prepared to employ this or another firm, or selected individuals, to give expert assistance to the AID if such services are needed to assure orderly implementation of the project.

5. The AID will in the normal course be receiving shipping documents, vouchers, statements, and the like, concerning materials and shipments for the project. These papers will continually be audited, and field audits will take place, thus providing another close check on implementation of the project.

6. As in other loans, the AID will require that the Government of India provide periodic reports regarding implementation of all aspects of the project. These reports, which must be satisfactory to the AID in both form and substantive content, provide another means by which the project will be monitored.

7. AID's contractual relationships regarding this loan will be of course with the Government of India. However, the AID expects to continue its informal contacts with officials of the General Electric Co. responsible for carrying out

the project. This will provide another source of information regarding implementation of the project.

The Indian Department of Atomic Energy, as the agency of the Government of India responsible for the project, will be using resources at its command to insure that the project is being effectively implemented. The seven points listed above for monitoring the project will be an addition to these direct steps taken by the Indians.

The AID believes that the above procedures will provide a satisfactory and diversified framework for effectively monitoring the Tarapur nuclear power project. If perchance it is found in the future that other additional monitoring arrangements might be desirable, the AID will of course not hesitate to consider these.

Representative ANDERSON. Mr. Chairman, I would just be interested in a very brief expression of opinion by the AID representative here as to what they regard as the fundamental justification for the project. There are some suggestions by the committee staff that a former distinguished ambassador said that there were other more pressing needs for the economy. What is the situation with respect to fossil fuels in India. Is there a shortage? If so, is that the prime justification or is this in the nature of a showcase project? What would be the expression of opinion from the Agency in that regard?

Mr. DREW. The Agency and some consultants that we hired looked into this project in some detail. We considered all of the alternatives and it was found that this alternative, the atomic plant, was both economically and technically sound.

Representative ANDERSON. From the standpoint of meeting a growing power shortage or developing shortage of power?

Mr. DREW. That is right, sir.

Mr. RAMEY. The coal deposits in India, the main ones, are about 800 miles from the Tarapur-Bombay area. An atomic powerplant would be cheaper. An oil-fired plant would be a very large plant for them and would involve fuel entirely being financed by foreign exchange and would be certainly no cheaper than an atomic powerplant.

Senator GORE. Senator Pastore.

Chairman PASTORE. What is the size of the loan that is contemplated by AID?

Mr. DREW. It is up to and not to exceed $80 million.

Chairman PASTORE. These two reactors that we are building in Tarapur, are they like the Dresden reactor?

Mr. RAMEY. They would be of that technology, sir. There would be improvements on the Dresden technology. About the same size as Dresden, actually, each. (See p. 161.)

Chairman PASTORE. Have we been facing some trouble with the fuel elements on the Dresden?

Mr. RAMEY. I don't think we have had any trouble with the regular fuel elements in Dresden. They have tried some experimental elements for the very purpose of seeing how they work and I think they have had some difficulties with those. They have had control rod trouble initially on the Dresden project a little bit, and they did have a little bit of trouble right at the start on looking at whether or not there were cracks in the cladding of the fuel elements but they decided there were not any.

Chairman PASTORE. Inasmuch as this Tarapur reactor is very much like the Dresden reactor, are we going to transfer these problems over to India?

Mr. RAMEY. We believe that the problems in the Dresden project have been solved. It has been operating quite well in the last year or more.

Representative PRICE. On an average better than 180,000 kilowatts?

Mr. RAMEY. Yes. It is up to 200,000 kilowatts. We have additional projects of the boiling water principle that we are learning from. We believe the Indians are qualified to run a plant. This plant is being constructed by the international company of GE that has been responsible for constructing these boiling water plants here in the United States, including the Dresden project.

Chairman PASTORE. Isn't GE suggesting, at least, that we appropriate more research money or use more research money for these new elements that they are experimenting with at the Dresden plant?

Mr. RAMEY. I think it is a continuing kind of a problem of seeing what improvements we can get in terms of the longer life of the fuel elements. You may recall in our discussions on the pressurized water reactor that the Los Angeles people wanted to have a little thicker fuel element clad than the Connecticut people. It is this kind of a problem that I think they are looking at in connection with the boiling water reactors of how long a life can you get out of these fuel elements, and whether or not we should do some more research on being able to use thinner clad elements and get longer life out of them.

Chairman PASTORE. You remember when you were connected with this committee or associated with this committee, you used to create some of these suspicions and you made me a little bit of what I am today.

Mr. RAMEY. I am glad to hear that, sir.

Chairman PASTORE. I am glad you are testifying for the Commission today.

Senator GORE. Is this an example of a man's past rising to haunt him?

Chairman PASTORE. I am wondering here how much of this experimentation that has gone on at the Dresden plant is connected with the Indian reactor and how much our commitment is going to be on this research with relation to both of these establishments. (See p. 161.) That is my suspicion. I can put it a little more simply if you want me to but I don't think I have to with you. I think you know what I mean.

Mr. RAMEY. Of course, the experimentation—they were using Dresden for sort of testing out some fuel elements—the place where they do their experimentation is the Vallecitos reactor in California. The Commission has been, contrary to earlier prognostications, supporting more than 50 percent of that research and development.

I guess what you are saying is that perhaps that in the case of Dresden, which was a fixed price job, they may have lost a little money and they are, maybe, trying to recover this on their other projects.

Chairman PASTORE. You said it. I didn't say it. You said it.

Mr. RAMEY. I don't think any of our reactor manufacturers are making a lot of money yet in atomic energy. I hope they are making a profit on this Tarapur project. If they are, I don't think it would be an exorbitant one. I don't think they intend to use the Tarapur project—I haven't heard at least—to test fuel elements or anything like that.

Senator PASTORE. The only thought I would want to leave and I would hope you would watch this on behalf of the taxpayers of America—and I know you are competent to do it—I would only hope that we are on safe and sure grounds with relation to the Indian Government, because after all, we are getting into a new experiment. As you have said, this is the largest reactor in Asia. The money is being borrowed from the United States and to be paid back by the Indian Government.

There will be no inclination to pay back on a debt if what we are selling is not the best quality of merchandise. We have to make pretty sure what we are selling to the Indian Government is of first quality in the hope that whatever money they borrow from us they will pay back because what they bought was good.

Representative HOSMER. Along on this quality control line of questioning, what, if any, control do we have over the turbines and generators of the plant so that we know that they are top quality and will not break down and give the whole plant a bad name?

Mr. RAMEY. I presume, Mr. Hosmer—I don't know specifically on this—that they would set up specifications on your turbines and generators that if they are not the same manufacturer that is making the reactor that they will meet his specifications.

Representative HOSMER. We just had some trouble in Italy in the matter of the turbines, didn't we?

Mr. RAMEY. Yes, sir.

Representative HOSMER. That is the kind of thing I would like to see guarded against. You don't know anything about it? Maybe Mr. Drew has some thoughts on it.

Mr. DREW. Mr. Hosmer, AID in Washington will have a chance to review all of the specifications in connection with the equipment and material on this project.

Representative HOSMER. You don't have anybody down there, really, that is familiar with building a 380-megawatt plant. How do you go about it?

Mr. DREW. There are people very familar in the power field and people who have had some nuclear experience. We also hope to have people in the field. Right now, we are in the process of trying to get an engineer to go out to the mission who also has some nuclear experience.

Representative HOSMER. You are not going to have anybody that is really comprehensively qualified to get into the evaluation of this plant. Don't you go out someplace and get yourself some experts or go back to the AEC and have them look it over, or do you do it all down there with your own employees?

Mr. DREW. We will do some of it down there. Also under consideration is the possibility of having some outside experts do some of the work in connection with this.

Representative HOSMER. It seems to me a rather shaky proposition if you have not thought it through any further than that at this point. Mr. Ramey, do you have a comment?

Mr. RAMEY. Mr. Hosmer, the specs on the generators and so on will be covered in the GE contract with the Indian Government.

Representative HOSMER. Is GE supplying that equipment or is the Indian Government supplying it?

Mr. RAMEY. I think GE would take the responsibility. In some places like in Italy and in Europe there is an effort by the country to try to supply some of the equipment themselves. But they have to meet specifications. It is my understanding in this project that the whole business is going to be supplied by the United States.

Representative HOSMER. Perhaps we ought to have a statement sent up for the record on this point, together with some assurances that this is not going to be a problem that plagues us in the future.

Senator GORE. In this connection if Senator Pastore will yield, the Chair suggests that this statement also include the warranties given by the contractor or manufacturer, as to installation, as to cost, as to completion date, and the waranties given to AID for repayment. (See p. 15.)

Mr. RAMEY. Just one last thing, Mr. Hosmer. With this being the International General Electric Co. that has an active promotional effort to sell reactors abroad, I think we can have some confidence that from the standpoint of quality control that they will pay a great deal of attention.

Representative HOSMER. That is exactly what I am afraid of. All of these manufacturing outfits, as you know, are real hungry now. They are liable to be a little more anxious than they should be to conclude a contract and forget about some of the fine print that is going to plague them later.

That is what I am trying to get at now. We have a responsibility, we are trustees for $80 million of the taxpayer's money, and I think we have an obligation to see that AID, particularly, goes about this in an expert manner. I haven't got that feeling yet from what Mr. Drew said this morning that they are doing it in that manner.

Mr. MALLEY. My name is Raymond C. Malley. I happen to be AID's loan officer on this particular project. I headed a negotiating team that went to India some weeks ago to negotiate various aspects of this particular loan.

I would like to make a statement on the matter just brought up. We are requiring as one of the strong conditions of this loan, and there are many strong conditions of the loan, that the Indians secure responsible consulting engineering services to assist and advise them on the performance of the job by GE and GE subcontractors. These consulting people also will be involved in advising the Indians on integration of the plant into the power system and management of the system.

In other words, we require the Indians to hire U.S. consultants, expert in the nuclear and power fields, to assist the Indians in looking at the work that GE is performing and in integration of the plant into the system. The exact details of this, the selection of the firm, or organizations, or individuals still of course has to be worked out.[1]

Until these things are worked out to our satisfaction however, there will be no expenditure of AID loan funds for the project.

Representative HOSMER. Does the stipulation require the Indians to pay any attention to the advice they get?

Mr. MALLEY. Of course, we in AID will have continuous access to our borrower. We also expect to be in constant touch with these consulting people informally and independently. We will be aware of the views of both the consultants and the Indians on pieces of advice

[1] See app. 9, p. 191, for announcement of selection of contractors.

given by the consultants to the Indians regarding performance of the job by GE and other aspects of the project.

Representative HOSMER. What kind of firm is it that is going to have two clients, one which is the Indian Government and the other the United States Government?

It seems to me there is a little conflict of interest there.

Chairman PASTORE. He didn't say that.

Mr. MALLEY. I didn't say that, sir.

Representative HOSMER. You said you will be in touch with them. They are working for the Indian Government and feeding you information on the side.

Mr. MALLEY. We informally do get information of this sort on many of our projects and find it very beneficial. The Indians in this particular case without doubt will not be averse to us talking to their consultants.

I might add another point here. AID has under consideration hiring with AID funds independent and qualified consultants to advise us and to periodically look and check on the progress of the project. We will do this if we feel it necessary to assure orderly and effective implementation of the project.

Mr. CONWAY. Wouldn't that be more within the purview of the AEC's responsibility?

Mr. MALLEY. What you mention would represent a third check, since we also expect to be in constant touch with the AEC on aspects of the project.

Mr. CONWAY. Are you having a redundancy here of both doing the same or who has the responsibility?

Mr. MALLEY. There will be no redundancy, sir, when the thing is worked out in detail. You must remember that from AID's point of view the project involves not only construction of a nuclear power station, but also effective integration of this station into a power grid which itself is growing and being tied in with other grids, plus management of the whole grid network. We have to be concerned with all of these things.

Chairman PASTORE. In other words, what you are saying, Mr. Malley, is that you are the lender of the money and you are going to make sure that you are lending the money on a good project so that your investment will be guaranteed and that your money will be paid back.

In order to insure this you are requiring the Indian Government to have a third party supervise this construction. At the same time you are going to have experts of your own to make sure that the project is going along according to specifications, and that you will always be in a position of shutting off the money in the event that this is not done.

Mr. MALLEY. I think that would be a fair statement, yes, sir, adding the point of AEC assistance also. It should be remembered that consultants would by no means be concerned only with the station as such, but also with the grid system and systems management. We are still in process of working all of this out.

Chairman PASTORE. I guess any bank would do that. I don't see what else you can do.

Representative HOSMER. The thing I am worrying about is should they get about $50 million of the loan, and things then went sour, would we still have to put out the other $30 million?

Chairman PASTORE. They would be stupid to put out the $50 million until they had the basics.

Mr. MALLEY. The committee might desire a note outlining the rather lengthy set of terms and conditions that the AID has attached to this loan. We are only talking about two or three. There are many more. We are taking a strong position on all of these many terms and conditions.

Chairman PASTORE. If there is no objection to giving it, I think it might be a wise thing to submit it for the record. (See p. 13.)

Mr. MALLEY. I would say on the matter of import of materials for the project, one reason that Mr. Drew was not able to definitively answer your question is that it is desirable that we wait to see how GE and the Indians conclude their current round of negotiations. The two parties are talking about this and many other matters in India at this very moment, and the AID is awaiting the outcome of these discussions before considering what steps are necessary next.

I agree, though, that one very important point is the import of materials for the project.

Chairman PASTORE. Mr. Malley, I think you and your Agency should know that the reason that this matter is being emphasized this morning, is because, as has already been stated here, this reactor in Tarapur or these reactors in Tarapur are basically like the Dresden reactor where we have experienced some trouble.

We have had the assurance today from Mr. Ramey that much of that has been taken care of and that he has, at least so far as he is concerned, the assurance that everything is all right. What are we trying to avoid, and I think you ought to know this, is similar trouble with these reactors in Tarapur.

It would not only embarrass the Government politically, but I think it would jeopardize the loan investment. That is the reason why we are bringing this out. As we say, the man that is half advised is half saved.

Senator GORE. Congressman Holifield?

Representative HOLIFIELD. Mr. Chairman, I am somewhat concerned with this balance-of-payments problem. What relation does this loan have to the balance-of-payments problem?

Senator GORE. You mean our own foreign exchange?

Representative HOLIFIELD. I think the gentleman in charge of the loan should answer that.

Mr. MALLEY. This loan, like all AID loans these days, requires that the loan funds be used only for the procurement of materials and services in the United States.

Representative HOLIFIELD. In other words, this is an international company. But they are not planning to build the generators and other things they need in Europe, is that right?

Mr. MALLEY. No, sir.

Representative HOLIFIELD. The $80 million will be spent substantially in the United States?

Mr. MALLEY. Not substantially, sir, completely. Actually the project costs somewhat more than $80 million, and certain things will be purchased in India, but not with AID loan funds.

Representative HOLIFIELD. I know it does. I am not interested in what the Indians are going to pay into it, although originally I

understand that difference was to be made up in counterpart funds. I understand now it is to be made up in Indian funds directly. Their contribution toward the project?

Mr. MALLEY. That is correct, sir.

Representative HOLIFIELD. I am not interested in that part. What I am interested in is the $80 million we are furnishing. How much of that is going to be spent in the United States? How much will be spent in either Europe or India?

Mr. MALLEY. None of it will be spent outside of this country, sir.

Representative HOLIFIELD. None of it?

Mr. MALLEY. None of it. Each dollar of this $80 million loan that is expended for this project will be spent for the supply of equipment and/or services in the United States.

Representative HOLIFIELD. Then there is no substantial outflow of dollars in this at all?

Mr. MALLEY. There is none, sir. On the balance of payments this would be recorded, I believe, as an increase in U.S. exports, and would be reflected in our trade balance. It would have an equivalent result of the outflow of the value of the exports, in other words capital outflow on the capital account. Thus there would be a plus and a negative and a resultant neutral effect on the balance of payments. In balance-of-payments accounting there are more sophistications than this, of course, but what I have said is generally accurate.

Representative HOLIFIELD. You have answered my question. In other words, if the money is going to be spent in the United States it would not contribute to the outflow of dollars. It would contribute to more employment in the United States. It would give us for whatever it is worth the indebtedness of another nation to us.

Mr. MALLEY. That is correct, sir. Another point is that it will also provide a facility that presumably over the years will have to be supplied with certain spare parts and materials, most of which would probably have to be purchased here until they are manufactured in India.

Chairman PASTORE. Including the fuel?

Mr. MALLEY. That is right.

Representative HOLIFIELD. I just want to say one thing. I believe that a lot of these points which are embodied in the hopes that you have expressed should have been cleared up before this committee was called upon to act on an international agreement.

We should know about these particular points in view of the fact that there is AEC research money involved. I have one other comment. The improvement on the reactor that Mr. Ramey spoke about is embodied principally, as I understand it, in the utilization of a different kind of a fuel which has not proven to be satisfactory—a thinner clad fuel rod which has not proven to be satisfactory—in the tests of the Dresden reactor. (See p. 161.)

Therefore, someone must do an amount of additional research. Has there been any request of the AEC by the General Electric Co. for additional research funds in this area?

Mr. RAMEY. We have informally discussed the question of additional research on fuel element cladding; yes, sir.

Representative HOLIFIELD. Has there been any sum involved that you could tell us about that is particularly applicable to this project?

Mr. RAMEY. No, sir. The discussions have not been identified with any particular project, but different types of cladding, whether it be stainless steel or zirconium alloys.

Representative HOLIFIELD. The improvements in the reactor that you speak of, would they be substantially in the field of a different type of fuel element or are there other improvements that you can delineate?

Mr. RAMEY. I think they would hope to get a longer lived fuel element than the Dresden one. They have been going ahead with this KRB reactor under the Euratom program where there would be an advancement in their technology, which would be in the same size range.

Hopefully I would say there would be improvement in their control rod arrangements on these reactors. I think the control rods have been the principal difficulty they have had on these boiling water reactors, Mr. Holifield. This is something that is a kind of mechanical problem that certainly is solvable engineeringwise.

I think we would expect to see improvements there. As you know, on all of these projects you are working in parallel. You are putting in, when the project is authorized finally, all of the improvements you have made along the line that you can get in.

I would think that the control rods would be something that would be an improvement. I believe also that they intend to include equipment for internal steam separation, which is a new development.

Senator GORE. If there are no more questions, the Chair has some questions with respect to our safeguards. Mr. Commissioner, you say on page 3 of your statement that the Agency will be requested to enter into a trilateral agreement for the implementation of the safeguard provisions of the bilateral agreement at a suitable time after the international agency adopts an expanded system.

What do you mean by this expanded system, and what is the time element involved here?

Mr. RAMEY. The present system is a system that applies to reactors under 100 megawatts thermal. The expanded system would apply to reactors over that amount. This system has been developed over the last year and was considered more intensively this spring and then brought up before the Board of Governors meeting of the IAEA in Vienna this June.

As a result of the discussions there, it was provisionally adopted by the Board of Governors. It then goes to the general conference of the IAEA this September. If it is adopted by the 80-nation general conference, the way the procedure works it would then be adopted formally by the Board of Governors at its next meeting, which I believe is in January.

Senator GORE. In January?

Mr. RAMEY. February of next year. Then, under our agreement, we would proceed with consultations with the Indians to see whether this safeguards system as formally adopted is consistent with our bilateral arrangements.

If we agree that it is, then we would proceed to put it into effect. The time period or the delay in this won't affect the actual importance and timing of putting in the safeguards because the reactor will not have been constructed for some time yet.

Even then under the agreement we would go through a period of start up and get to the equilibrium operation when we would actually put in the IAEA system. We would have the U.S. inspectors there under the bilateral arrangements. (See p. 161.)

Senator GORE. Does the Commission consider this agreement for cooperation to be a mature document, or are there too many hypotheses involved?

Mr. RAMEY. I think we consider it a mature document under the circumstances. The circumstances of its development and approval were that when we first started negotiating this agreement we didn't know exactly when the expanded system would be adopted.

We started these negotiations about a year ago, I believe. So we wanted to put in provisions so that we could get going with the project and get our international safeguards put into it, when developed and adopted, but that we would have to go on a sort of step-by-step basis.

Actually we went a little faster perhaps than we expected.

Senator GORE. Would it have been better in the Commission's opinion to have concluded an agreement and presented it to the Congress after the accomplishment of more of these individual steps?

Mr. RAMEY. Then there would have been a substantial delay in the project, Senator Gore. It is our view that it was in our national interest to proceed with encouraging the project and encouraging also the policy on international controls. It also, I believe, sort of had the effect of educating the Indians to our views on the IAEA and educating us to some of the problems that the Indians had while we were going through this process.

Senator GORE. In determining the view that it was in the national interest to proceed, did the Commission itself reach this conclusion, or was this point of view urged upon it by others in the executive branch of Government?

Mr. RAMEY. I think the Commission had this point of view all the way through.

Senator GORE. Is this a proper province of the Commission?

Mr. RAMEY. Yes, sir, so far as the development of atomic power is concerned. We do believe we have some responsibility for encouraging the development both internationally and domestically under the Atomic Energy Act.

Senator GORE. From where does your authority or responsibility in the international field spring?

Mr. RAMEY. Under the Atomic Energy Act, it certainly doesn't confine the Commission to just a domestic atomic power program. There are provisions specifically authorizing arrangements for agreements for cooperation in section 123, as I recall.

Senator GORE. In this regard the counsel of the committee has called to my attention the specific provision which reads as follows:

It is the purpose of this act to effectuate the policies set forth by providing for—

A, B, C, D, and E—which I read—

a program of international cooperation to promote the common defense and security and to make available to cooperating nations the benefits of peaceful applications of Atomic Energy as widely as expanding technology and considerations of common defense and security will permit.

This is certainly an authorization, but you still leave me in a quandry as to the degree to which the Commission, the Department of State, and the President have cooperated in this particular field.

Mr. RAMEY. Yes, sir. I said the Commission had been interested in this and had supported it all the way along. I believe also—and Dr. Smyth can speak for the Department of State, and Mr. Thomas—the State Department has favored this project.

I believe the White House has also.

Senator GORE. Mr. Thomas, would you like to add to that?

Mr. THOMAS. Yes, Mr. Chairman. From the inception of this project there has been constant consultation between the Department of State, the AID people, and the AEC. On at least two occasions, our then Ambassador to India, Mr. Galbraith, came to Washington and meetings were held, including representatives of the International Organizations Bureau in the Department, the Near East and Asia Bureau, the Scientific Bureau, Commissioners from the AEC, and on one occasion, Dr. Wiesner from the White House, for discussions of this project.

It was a unanimous conclusion that, provided that the project turned out to be generally competitive with conventional power projects in the same location, it would be in the U.S. national interest.

Representative PRICE. Mr. Thomas, you raised a question when you mentioned from the inception of this project. What was the inception of the project?

Mr. THOMAS. The inception or the first meeting to which I referred occurred in the spring of 1961 when a proposal had been made to the U.S. Government.

Senator GORE. By whom?

Mr. THOMAS. By the Indian Government. Actually I guess I should say the Indian Government had decided to take bids on this project from companies in a group of nations around the world.

Representative PRICE. Did this proposal come from the Indian Government or did it come as the result of an invitation from our Government to make a proposal?

Mr. THOMAS. It initiated in the Indian Government. In fact, initially, the project as conceived excluded enriched uranium technology. One of the American companies asked the Indian Government if they would include in their request for bids the possibility that some of the U.S. companies who had enriched uranium technology could submit bids.

As a courtesy to them the Indian Government did include that and as it happened two of the American companies that bid submitted the lowest two bids.

Representative PRICE. The suggestion therefore was made by an American company to the Indian Government.

Mr. RAMEY. To be included in the proposals.

Mr. THOMAS. The project was conceived by the Indian Government without reference to American companies, and, in fact, designed for natural uranium reactors. At the request of one American company the American companies were permitted to bid. But this was all within the context of the Indian Government asking for bids.

Senator GORE. Which American company made the suggestion?

Mr. THOMAS. I think it was Westinghouse. I am not sure. It was one of the two, GE or Westinghouse. My impression is that it was Westinghouse.

Mr. RAMEY. They got proposals from the French, as I recall. The French were about the next nearest.

Mr. THOMAS. That is correct. They got bids from two groups in the United Kingdom, one French group, a proposal from the Canadians, and three bids, although the third one was really a general proposal rather than a specific bid, from American companies.

Senator GORE. Thank you, Mr. Thomas. Ambassador Smyth, will you give to the committee the views which you entertain with respect to the international agency relationship to this project and to the loan agreement.

STATEMENT OF HENRY D. SMYTH, U.S. REPRESENTATIVE, INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

Mr. SMYTH. Mr. Chairman, I have a short prepared statement that doesn't cover all of these points but if I may I would read it and then try to answer any questions which you may have.

As you are aware, I am the U.S. representative to the International Atomic Energy Agency at Vienna. In my testimony today, however, I am representing the Department of State as a whole, primarily because I was one of the principal negotiators of the Tarapur agreement which is now before us. (See p. 37.)

This agreement resembles closely other power bilateral agreements that we have negotiated, but is different from them in that it relates only to one power project and not to the entire future joint power projects that India and the United States might engage in. Such other agreements would, of course, require new arrangements.

We regard this as a major advance, both because it is the first major foreign nuclear power project outside the Euratom complex in which the U.S. Government will be a major participant and because the agreement is with India, a Government which has not always been friendly to safeguards and a Government which has such a major world position as a leader of the developing countries, particularly in Asia.

As you will have noted, the agreement provides that the two Governments will exchange unclassified information with respect to the development, design, construction, and operation of the nuclear power station at Tarapur. The agreement provides further that the United States will provide the necessary enriched fuel for the operation of this power station over a 25-year period.

An important feature of this agreement is contained in article VI, which includes a guarantee from both parties that any material, equipment, or device provided to the Government of India by the United States Government under the terms of this agreement shall be used solely for peaceful purposes.

It then provides for design review by the United States to assure that safeguards can be effectively applied. It also provides that a system of records and reports be established to assure complete accountability for any special nuclear material which may be made available to the Government of India or which is produced at the Tarapur power station.

The agreement also provides that personnel designated by the Government of the United States shall have full access to the atomic power station, as well as to any other facilities in India to which any of the Tarapur special nuclear material may be transferred.

In article VIII of this agreement both Governments express their recognition of the desirability of making use of the facilities and services of the International Atomic Energy Agency and agree in principle that the Agency will be requested to enter into a trilateral agreement for the implementation of the safeguards provisions of article VI at a suitable time.

As this committee is aware, the International Atomic Energy Agency does not now have a system of safeguards designed for nuclear reactors of the size which will be built at Tarapur. However, as Mr. Ramey has already pointed out, the IAEA Board of Governors, at its June meeting, provisionally approved such an expanded system and we hope that this system will be formally approved by the IAEA Seventh General Conference in Vienna at the end of this month.

It is anticipated that the promulgation of this extended system would be authorized by the IAEA Board of Governors at its regular meeting in February, 1964. Neither the United States Government nor the Indian Government wanted to commit itself irrevocably to this new system until we had determined what would emerge from the present Agency deliberations.

For this reason the agreement contains language that the proposed transfer to the International Atomic Energy Agency will not take place unless the expanded system adopted by the IAEA is "generally consistent" with the safeguards to the Agency until it was certain that the system adopted by the IAEA met the requirements which the Department of State and the Atomic Energy Commission believe are imperative for proper controls over nuclear equipment, materials, and devices.

In this connection I should like to say that the system provisionally adopted in June meets this requirement and we anticipate that we will have no trouble with that system after it has been formally promulgated by the Agency.

A further feature of this agreement is the provision that either party can unilaterally terminate the agreement if it is found impossible to work out a satisfactory trilateral agreement for the transfer of safeguards to the Agency.

The Indian Government feels strongly that they should not be the only Government subject to Agency safeguards. For this reason they requested that the agreement include a provision that the United States would not terminate unilaterally unless the IAEA safeguards system had been widely accepted by other U.S. bilateral partners by the time the United States and India were prepared to negotiate the trilateral agreement with the Agency.

Recognizing the justice of the Indian position and being aware that many other bilateral partners of the United States will be prepared to accept IAEA safeguards on U.S.-supplied materials during the coming years, we felt it was quite proper to include this "wide acceptance" provision in the agreement. In the meantime we are initiating negotiations with a number of our bilateral partners to effect the transfer of safeguards to the IAEA.

I am pleased to have testified on this agreement because I have long been a believer in the importance of international safeguards. This was evidenced as you will recall in the conclusions of a report on the IAEA prepared by an advisory committee of which I was chairman in May, 1962.

With this belief in mind, which was shared by the principal officials in both the Department of State and the Atomic Energy Commission, we endeavored to achieve in the Indian agreement a maximum assurance that IAEA safeguards will be applied to this large nuclear power project.

We believe that we have succeeded in this effort and that this success will help us in our forthcoming negotiations with other bilateral partners to insure widespread transfers of safeguards on nuclear materials, equipment, and devices to the IAEA as soon as possible.

Senator GORE. Thank you, Ambassador. Are there any questions?

Chairman PASTORE. I have only one question. Is it meant, Dr. Smyth, on the bottom of page 3 that this wide acceptance that we are talking about, is it contemplated that would include Euratom as well?

Mr. SMYTH. No, I think it was made quite clear to the Indians that Euratom is excluded from this. This was a difficult point, I might say.

Chairman PASTORE. I am very happy to hear you say that because that would be a tremendous stumbling block and I would hope that would not be a condition. While Euratom does occupy a very unique position it can be said that they do inspect one another. That is, the six countries do have more or less an international inspection insofar as the six are concerned.

Mr. SMYTH. Yes.

Senator GORE. If there are no other questions, I have one, Doctor. I am puzzled by your statement on page 1 in your reference to India—

> A government which has not always been friendly to safeguards.

Will you elucidate upon that?

Mr. SMYTH. Yes, Senator Gore. Part of this I have to give you by hearsay because it occurred before I was associated or before I had my present position as U.S. representative to the Agency. Part of it also emerged in our discussions and negotiations with the Indians during the past year. The Indians felt that the application of safeguards to equipment supplied through the Agency, or supplied from outside, was unfair to the developing countries because they would have difficulty in manufacturing their own equipment.

Whereas the developed countries could manufacture their own equipment and by supplying it could avoid accepting safeguards. To make this more clear, if indeed I can make it clear——

Mr. RAMEY. And getting their uranium from their own country.

Mr. SMYTH. Yes. There are two ways in which Agency safeguards can be applied. One is if the country building the reactor gets the material actually through the Agency, this initially was expected to be a very important activity of the Agency.

Because of the great change in the supply problem of uranium fuel it has not worked out to be very important. The other way in which the Agency can be involved in administering safeguards is the one that we will be using in this particular case, where the two countries invite the Agency to apply safeguards.

This has not always been clearly understood. This is the procedure involved in this agreement between India and the United States. The Agency is not involved in the supply of materials. But the two countries will invite the Agency to administer the safeguards when we negotiate this trilateral agreement.

Now going back to your basic question as to the Indian reluctance to accept safeguards, it is my impression that though this equipment argument was the specific thing they talked about, there was a general concern about accepting inspectors from another country, a concern about possible invasion of sovereignty and so forth.

It has been made clear in the discussions that the Indians are retaining their specific position about equipment, although they are accepting safeguards on all the equipment in this specific arrangement.

I believe it is fair to say that in the course of these negotiations, and possibly over a longer time, the Indians have begun to recognize that the desirability of safeguards in general, and in particular of safeguards by an international agency outweighs these psychological hesitations that they had in the past.

Chairman PASTORE. If the Senator would yield at that point, I agree with you wholeheartedly, Doctor. As a matter of fact I was a member of the U.S. delegation to the 10th United Nations General Assembly in 1955 when the IAEA was proposed before the first policy committee.

I had the distinction of presenting it at the time. I remember quite vividly that as the traditional position of the Indian Government. They were sensitive on the invasion of sovereignty rights.

They considered themselves as a matter of pride as worthy as anybody else and they didn't see why they should be inspected while other countries were not being inspected.

That is their feeling. I know that you have had a hard row to hoe. I know that Mr. Wells has had a hard task to bringing them around. It has not been easy, I realize.

Mr. RAMEY. I think we had a little help from the Joint Committee.

Chairman PASTORE. I raised the question at the time because it has been our traditional position to insist upon international inspection. We could not retreat from that position without causing ourselves tremendous embarassment in the future when we are dealing with the question of weapons.

If we give on the question of the peaceful atom where would we be on weapons?

Senator GORE. If there are no more questions on this, will you proceed with the completion of your statement, Commissioner?

Mr. RAMEY. Yes, sir. The proposed amendment to the U.S.-Euratom Agreement for Cooperation of June 1960, as amended in May 1962, makes two substantive changes. First the amendment would permit additional quantities of enriched uranium to be made available to Euratom for defined research and power applications once those additional quantities, above amounts currently provided, had been authorized by Congress as required by section 54 of the Atomic Energy Act, as amended.

Upon such authorization the United States and Euratom would agree, following periodic reviews of Euratom's potential requirements, on the amounts to be made available to the community within the

authorized ceiling. If this enriched uranium were not placed under firm commitment by Euratom on a timely basis, it could be withdrawn for other uses at the discretion of the United States.

In order to give immediate force to this provision, the Commission has requested, as a part of its omnibus bill (H.R. 7300),[2] an amendment to the Euratom Cooperation Act of 1958, as amended, to increase the quantity of enriched uranium which may be transferred to Euratom from 30,000 kilograms U^{235} to 70,000 kilograms.

This increase was discussed by the Commission during hearings on the proposed legislation before this committee in July. As indicated at that time, the special nuclear material transfered to Euratom will be subject to Euratom's multinational safeguards and inspection system to insure that the material will be used only for civil uses.

Euratom has made many safeguards inspections during the past 3 years using a system developed in conjunction with the United States. Its safeguards system is comparable to those of the United States and the IAEA, and we, therefore, consider it to be adequate in every way. The United States will, of course, keep the Euratom safeguards system and practices under examination to insure that the system continues to be effective.

With the exception of small quantities for research and development uses, the enriched uranium available under this amendment would be sold to Euratom, rather than made available on a lease or deferred payment basis.

The second substantive change extends the agreement from December 31, 1985, to December 31, 1995. This 10-year extension would permit the execution of long-term fuel supply contracts for those reactor projects in the community which can reasonably be expected to develop during the next several years.

The committee now has before it amendments to our agreements with Belgium, Ireland, Japan, and the Philippines. These amendments are relatively minor in nature, and bring the agreements in line with other agreements dealing with the same subject matter.

The amendment to our agreement with Belgium will permit Belgium to receive special nuclear materials for conversion or fabrication purposes for use in reactor projects in third countries or a group of nations such as Euratom, having an appropriate Agreement for Cooperation with the United States.

The committee will recall that our Agreements for Cooperation with France, Germany, Canada, Sweden, the United Kingdom, and Euratom have been amended to include similar provisions. The amendment also eliminates references to the Belgian Congo and Ruanda-Urundi, in view of the accession of these countries to independence, as well as references to the sale by Belgium of uranium and thorium ores and concentrates to the Combined Development Agency, since the contracts for the purchase of these materials have now terminated.

The amendment to our agreement with Ireland provides for a new 5-year term for this agreement which recently expired.

The amendment to the protocol amending the agreement with Japan removes the specific ceiling limitations on research quantities of material, including special nuclear material, available for defined research projects and provides for the transfer of such materials to Japan on an as-may-be-agreed basis.

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[2] See AEC omnibus bills for 1963 and 1964, hearings before the Subcommittee on Legislation, Joint Committee on Atomic Energy, 1964.

Japan has requested this flexibility since it requires additional quantities of special nuclear material, beyond those currently authorized under the existing agreement for various research projects related to the peaceful uses of atomic energy.

The amendment will bring the Japaneses agreement into line in this respect with other similar comprehensive bilateral agreements.

The amendment to the Philippine agreement provides a new 5-year period for this agreement which expired a few weeks ago.

In furtherance of the policy of the United States of encouraging the widespread acceptance of IAEA safeguards by other nations, the amendment also provides that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities transferred to the Philippines.

The necessary arrangements would be effected, without modification of the agreement, through a trilateral agreement to be negotiated between the United States, the Philippines, and the Agency.

Senator GORE. Congressman Hosmer?

Representative HOSMER. Mr. Ramey, on this transfer of U^{235}, that doesn't go in bulk, does it? I will put the question in another way. It does not go in bulk but it is shipped as Euratom has a use for it.

Mr. RAMEY. Yes, as needed to fuel specific reactors including, of course, a reasonable working inventory for each project. The material may be shipped either as fabricated fuel elements or in the form of uranium as its compounds for further processing and fabrication in Euratom.

Representative HOSMER. Assume that we enact some sort of a toll processing provision for foreign users, would that have an adverse effect or favorable effect or any effect on this particular arrangement?

Mr. RAMEY. I don't think it would have an adverse effect. I think we haven't negotiated this particular arrangement with toll processing in mind, as such.

Representative HOSMER. As a matter of fact, there is not too much real relationship except that a member state of Euratom, if we had toll processing, might choose that route to obtain its enriched uranium rather than through Euratom because possibly of reduced costs.

Mr. RAMEY. Or it might be done through Euratom toll processing if it were authorized.

Representative HOSMER. This amendment wouldn't apply to toll processing, if we had it, would it? This would apply to stacks of U^{235} that the United States actually owns.

Mr. RAMEY. Yes. On the other hand, I think it would depend partly on how we construe it. Perhaps if it were construed as a kind of barter arrangement, or as a payment in terms of raw material that it might come under in an analogous way to some of the questioning that you made in some of our discussions on toll processing.

Our counsel is looking at this question, I believe.

Representative HOSMER. I think we ought to have something definitive on it.

Representative HOLIFIELD. Would the gentleman yield?

Representative HOSMER. Yes. Except to the extent that what you say may imply that we are actually getting into a toll processing arrangement with Euratom under this amendment to the act. You didn't mean that, did you?

Mr. RAMEY. No, sir; I didn't mean that. Our counsel has interpreted this to mean that if we are authorized and go into toll processing this would apply to it.

Representative HOSMER. I yield to the gentleman from California.

Senator GORE. I believe there is a very pertinent point right here in line with what you may have in mind. What is the dollar value of this doubling of U^{235}?

Mr. RAMEY. It would be about $400 million. It would be an additional 40,000 kilograms.

Senator GORE. Is this to be bought from the United States?

Mr. RAMEY. Yes, sir.

Senator GORE. This is, as Congressman Hosmer says, the first step or could be interpreted as a precedent for the first step in the processing of fuel for an expanded atomic energy plant in Western Europe.

Mr. RAMEY. Yes, sir; for additional plants. The question of whether or not, using this technical term of toll processing, of sort of trading their raw material and paying a service charge for putting it through our diffusion plants is something we have discussed under this private ownership legislation proposed.

Whether that would be applicable is something, as I say, we didn't consider specifically in connection with this amendment.

Representative HOSMER. I wouldn't think it would be applicable but could you furnish us some considered opinion on it? Mr. Chairman, I think it might be well so we know what we are discussing when we come to other features of the omnibus bill.

Representative HOLIFIELD. I am glad my colleague brought this matter up because I want to go on the record right here to say that this has no precedent or no relation to toll processing. This is a straight authorization for the furnishing of this material.

It is not a precedent. It is a followup on previous authorizations. It is doubling it from 35 to 70. It is done under existing law and it is done on the same terms, and the terms of the existing law do not provide for barter arrangement.[3]

It provides for payment, as I understand, on a nonprofit basis. So we have no particular interest in this from the standpoint of profit or loss under the present law. It is supposed to give us adequate compensation for the cost of furnishing this material, but not necessarily is it being done as a profitable arrangement.

That is my understanding. Is that right?

Mr. RAMEY. I believe that is correct. Mr. Holifield, Mr. Wells would be in a better position to give a little more of a statement in connection with the toll-processing picture. We have done some looking at this.

Representative HOLIFIELD. You have no authority under existing law for toll processing?

Mr. RAMEY. I believe, Mr. Holifield, it was interpreted, even before we submitted this legislation, that we did have a sort of year-to-year kind of authority on toll processing of material coming from abroad, but no authority for long-term commitments for this purpose.

Representative HOLIFIELD. That is the essential part of it, the long-term authority which you don't have.

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[3] See Joint Committee hearings on "Private Ownership of Special Nuclear Materials, 1964."

Mr. RAMEY. That is right. But it is my understanding that quite recently our counsel has taken another look at this aspect of it and Mr. Wells might want to comment on it.

Representative HOSMER. I have to leave but I would like to say this before leaving, if you should interpret it to include some toll processing, it means we are not only getting into toll processing sidewise or through the back door but we are getting into it on a discriminatory basis with just a few nations.

Representative HOLIFIELD. That is right. I would like to have this matter looked at by the committee very carefully before there is any kind of commitment made along that line.

Mr. WELLS. Mr. Chairman, I believe I can make one or two observations that might be helpful on this point. This agreement in no way obligates the United States to do any toll processing. This agreement does not increase the authority to do toll processing.

As Mr. Ramey has indicated apparently there has been some difference of opinion as to whether or not presently authority exists for toll processing. I don't know what the answer to that is and I don't think it is germane to this particular discussion because this agreement doesn't either expand the authority or diminish it.

Representative HOLIFIELD. That is the point I wanted to establish. We are acting under previous precedent and authority in increasing the amount. This does not constitute any new authority or new obligations on the part of us to proceed in any way other than what we have proceeded in the past.

Mr. WELLS. That is right. There is one other observation I ought to make to round it out. Let us assume that sometime it is the policy of the U.S. Government, developing as we do in consultation with you or by authorization, to do toll processing, then toll processing could be done under this agreement.

Representative HOLIFIELD. The future is completely in the hands of the future. Anything can be arranged in the future. I just wanted to be sure that the record didn't indicate that this was an expansion of authority or authority to start on a new program of any kind.

Senator GORE. Without respect to the legalities involved, the bare fact stands that Euratom is beginning to move. They need more enriched fuel. You are proposing by this agreement to increase the amount from 35 kilograms to 70?

Mr. RAMEY. Yes, sir.

Senator GORE. So you are making additional enriched uranium fuel available to Euratom for its powerplant. Whether that will lead to further agreements such as this, or whether it leads to toll processing is for the future to determine.

But it is a step in the direction of supply from the United States of the enriched fuel necessary for an expanded atomic power operation in Western Europe.

Mr. RAMEY. Yes, sir.

Senator GORE. Unless there are further questions, we thank you and the committee will go briefly into executive session.

(Whereupon, at 12:10 p.m., Thursday, September 5, 1963, the committee proceeded in executive session.)

(NOTE.—See p. 69 for continuation of these hearings, held on Apr. 22, 1964.)

APPENDIXES

(Appendixes 1–4 apply to the hearings held on Sept. 5, 1963. For appendixes for Apr. 22 and June 30, 1964, see appendixes 1–9, starting on p. 143.)

APPENDIX 1

PROPOSED AGREEMENTS FOR COOPERATION WITH SUPPORTING CORRESPONDENCE

A. GOVERNMENT OF INDIA

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 8, 1963.

Senator JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there is submitted with this letter:

(*a*) An executed agreement for cooperation between the Government of the United States of America and the Government of India concerning the civil uses of atomic energy;

(*b*) A letter from the Commission to the President recommending approval of the proposed agreement; and

(*c*) A letter from the President to the Commission approving the proposed agreement, containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorizing its execution.

The agreement for cooperation, which has been negotiated by the Atomic Energy Commission and the Department of State, pursuant to the Atomic Energy Act of 1954, as amended, provides the legal framework for a cooperative effort under which India will construct a 380 megawatts electrical nuclear power station comprising two boiling water power reactors of American design and manufacture at Tarapur, a site north of Bombay. Through this cooperation, India will be enabled to secure an economical source of power to help meet its rapidly growing electric power requirements. The project will also contribute to the further development of close economic and technical ties between the United States and India, and to the strengthening of our friendly relations. The construction of these reactors, which are the first power reactors to be built in a developing country, will significantly advance interest in the uses of atomic energy for electric power generation in the developing countries, and particularly the use of reactors of American design and manufacture.

Through the inclusion of comprehensive and effective safeguards in the agreement for cooperation, the United States will have ample assurance that the materials and equipment supplied by it will not be used for any military purpose. Further, through the inclusion of provisions relating to the transfer of these safeguards to the International Atomic Energy Agency, the cooperation will contribute significantly to the advancement of the U.S. policy of fostering the development of internationally administered safeguards over the peaceful applications of atomic energy.

The agreement for cooperation is largely patterned after existing U.S. agreements providing for cooperation in nuclear power, but differs in detail since it is designed to accommodate only a single project; that is, the Tarapur station. A résumé of the principal features of the agreement follows:

Article I provides that unclassified information with respect to development, design, construction, operation, and use of the Tarapur station, including research and development related thereto and problems of health and safety connected therewith, shall be exchanged between the parties.

Article II would give effect to the Commission's new policy of assuring foreign operators of enriched uranium reactors of an adequate long-term supply of fuel. Under this article the Commission would sell, and India would purchase, all of the enriched uranium fuel requirements for the Tarapur station during the

term of the agreement, subject to an overall ceiling of 14,500 kilograms of uranium 235 contained in uranium enriched up to 20 percent. The United States would not be required to sell enriched uranium to India for fueling of the Tarapur station if construction of the station is not begun by June 30, 1965, thus avoiding any possibility of an unused commitment for the supply of fuel if the Tarapur station is for any reason not undertaken.

Since the Indian Government plans to build its own reprocessing facilities, article II would permit reprocessing of the fuel in India subject, of course, to the safeguards provisions set forth in this agreement and which are discussed below.

Article II also provides that the United States shall have a first option to purchase special nuclear material produced in the Tarapur station which is in excess of the needs of the Government of India for such material in its peaceful uses program. Such purchases would be at the fuel value price of the Commission which may be in effect domestically at such time as the option to purchase is exercised. If the Commission does not exercise its option to purchase, India may, with the approval of the Government of the United States, transfer such materials to another nation or group of nations or international organization. Such a transfer, of course, could be approved only when there existed an appropriate agreement for cooperation with the prospective recipient as stipulated in article VII.

Article V would permit persons under the jurisdiction of the Government of the United States to transfer materials, equipment, and devices and to perform services for the Government of India and persons under its jurisdiction so authorized by the Government of India, subject to the applicable laws, regulations and license requirements of the Governments of the United States and India.

Article VI of the agreement, and an annexure, contain a series of safeguard provisions which, while tailored to a single project, are the same in substance as those contained in a number of existing comprehensive power agreements. While noting India's usual position relating to the principle of attaching safeguards to the supply of equipment, the article specifically provides for safeguards on equipment supplied pursuant to this agreement. In addition, the article provides that the Government of India shall have the right, upon prior notice to the United States, to remove from the scope of the agreement including the safeguard provisions) quantities of special nuclear material, provided India has, pursuant to mutually acceptable measurement arrangements, placed agreed equivalent quantities of the special nuclear material under the scope of the agreement for cooperation. This opportunity for equivalent substitution reflects a principle that is incorporated in the safeguard procedures of the International Atomic Energy Agency.

Under article VII the Government of India guarantees that any material, equipment, or device transferred to India under the agreement will not be used for any military purpose and that they will not be transferred beyond the jurisdiction of India without U.S. approval, which could be given only when the transfer was within the scope of another agreement for cooperation. The United States, for its part, consistent with its announced policy, guarantees that it would not use for any military purpose any special nuclear material produced in the Tarapur station which the United States acquires.

The agreement provides in article VIII that the parties agree in principle that, at a reasonable time after the Agency adopts a system which is generally consistent with the safeguard provisions of the bilateral agreement, the parties will request the Agency to enter into a trilateral arrangement for the implementation of safeguards.

When the negotiations with the Indians were begun more than 12 months ago, the IAEA safeguard system did not cover large reactors, of the size of the Tarapur nuclear power station. On June 19, 1963, the Board of Governors of the IAEA approved, with U.S. support a proposed expansion of the Agency's safeguard system for consideration by the forthcoming general conference. We, thus, have every expectation that the condition called for by the agreement for cooperation will be fulfilled, enabling the United States and India to request the Agency to implement the safeguards.

While the parties recognize that the trilateral agreement with the Agency should be implemented as soon as practicable, it is agreed in article VIII in order to avoid any dislocation or uncertainty during the period of early operation of the Tarapur nuclear power station, that the Government of India may specify that the agreement with the Agency shall not be implemented until the Tarapur station has reached reliable full-power operation.

Article VIII also provides that the Government of the United States is prepared, in principle, to include appropriate provisions in the trilateral agreement with the Agency which would enable the Agency to apply its safeguards to any special nuclear materials produced in the Tarapur project and returned to the United States. The inclusion of this principle is compatible with the strong support the United States has given to the evolution of safeguards administered by the International Atomic Energy Agency and to the concept that Agency controls should effectively follow special nuclear materials produced in Agency-safeguarded facilities.

This article finally provides, in case the United States and India should for some unforeseen reason not reach a mutually satisfactory agreement on the terms of the turnover agreement with the IAEA, that either party may terminate the bilateral agreement.

The agreement was designed to assure the Indians of a long-term supply of fuel over a 25-year period and since it is anticipated that construction of the station will require from 4 to 4½ years, article X provides that the agreement shall remain in force for a period of 30 years.

As you know, in December 1962 the Commission approved an extension of its existing deferred payment plan for fuel inventories of power reactors, to encompass a total of 1,000 megawatts electrical installed capacity of power reactors constructed in developing countries. The Commission has extended the benefits of this plan to the Government of India to make the enriched uranium in the initial fuel inventory for the Tarapur reactors available on a deferred payment basis. Under this arrangement, India will make interest payments identical to the use charge rates (currently 4¾ percent) paid by U.S. reactor operators on the value of the material during the first 10 years, with repayment of the capital costs plus interest on the unpaid balance during the second 10-year period. Replacement fuel to compensate for burnup will be paid for on a current basis as it is delivered.

The Agency for International Development (AID) has approved an Indian loan request in the amount not to exceed $80 million to cover the foreign exchange costs of the reactors. The loan will fall within the aid commitments already made to India by a consortium of the United States and other lending institutions.

The agreement will enter into force when the two Governments have exchanged written notification that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF INDIA CONCERNING THE CIVIL USES OF ATOMIC ENERGY

Whereas the peaceful uses of atomic energy hold great promise for all mankind;

Whereas the Government of India has decided to construct and operate a civil atomic power station near Tarapur in Maharashtra State as hereinafter specified;

Whereas the Government of the United States of America and the Government of India desire to cooperate with respect to the construction and operation of the aforesaid civil atomic power station;

Now, therefore the parties hereto agree as follows:

ARTICLE I

Unclassified information shall be exchanged between the parties hereto with respect to the development, design, construction, operation, and use of the Tarapur atomic power station, including research and development related thereto and problems of health and safety connected therewith.

ARTICLE II

(a) During the period of this agreement the U.S. Commission will sell to the Government of India and the Government of India will purchase from the U.S. Commission, as needed, all requirements of the Government of India for enriched uranium for use as fuel at the Tarapur atomic power station, it being

understood that the Tarapur atomic power station shall be operated on no other special nuclear material than that made available by the U.S. Commission and special nuclear material produced therefrom. The enriched uranium, which shall contain no more than 20 percent U^{235}, will be made available in accordance with the terms, conditions, and delivery schedules set forth in a contract to be made between the parties; provided, however, that the net amount of U^{235} contained in the enriched uranium sold hereunder shall not exceed 14,500 kilograms. The net amount of U^{235} shall be the gross quantity of U^{235} contained in the enriched uranium sold to the Government of India hereunder less the quantity of U^{235} contained in recoverable uranium resold or otherwise returned to the Government of the United States of America or transferred to any other nation or group of nations or international organization with the approval of the Government of the United States of America.

(b) The net amount of U^{235} contained in the enriched uranium to be sold pursuant to paragraph (a) of this article has been agreed upon by the parties on the basis of estimated requirements for fueling the Tarapur atomic power station. If the construction of the Tarapur atomic power station is not begun by June 30, 1965, the United States shall not be required, unless it is otherwise agreed, to sell enriched uranium for fueling the Tarapur station under this agreement.

(c) Within the limitations contained in paragraph (a) of this article the quantity of enriched uranium sold by the U.S. Commission under this article and held by the Government of India pursuant to this agreement shall not at any time be in excess of the quantity necessary for the full loading of the Tarapur atomic power station, plus such additional quantity as, in the opinion of the parties, is necessary to permit the efficient and continuous operation of the station.

(d) The Government of India will retain title to any enriched uranium purchased from the U.S. Commission.

(e) It is agreed that when any special nuclear material utilized in the Tarapur atomic power station requires reprocessing, and recourse is not taken by the Government of India to the provisions of article VI(c) of this agreement, such reprocessing may be performed in Indian facilities upon a joint determination of the parties that the provision of article VI of this agreement may be effectively applied, or in such other facilities as may be mutually agreed. It is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel elements removed from the reactors shall not be altered before delivery to any such reprocessing facility.

(f) With respect to any special nuclear material produced in the Tarapur Atomic Power Station which is in excess of the need of the Government of India for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have the first option to purchase such special nuclear material at the fuel value price of the U.S. Commission which may be in effect domestically at such time as it may exercise its option. If such option is not exercised, the Government of India may with the approval of the Government of the United States of America transfer such excess special nuclear material to any other nation or group of nations or international organization.

(g) Some atomic energy materials which the Government of India may request the U.S. Commission to provide in accordance with this agreement are harmful to persons and property unless handled and used carefully. After delivery of such materials to the Government of India, the Government of India shall bear all responsibility, insofar as the Government of the United States of America is concerned, for the safe handling and use of such materials.

ARTICLE III

Materials needed for use at or in connection with the Tarapur Atomic Power Station, other than source materials or the special nuclear materials required for fueling the reactors, will, when such materials are not available commercially, be transferred by the Government of the United States of America to the Government of India on such terms and conditions and in such amounts as may be mutually agreed; provided, however, that special nuclear material transfers will be confined to limited quantities.

ARTICLE IV

The application or use of any information (including design drawings and specifications) and any material, equipment and devices, exchanged or transferred under this agreement, shall be the responsibility of the party receiving it, and the other party does not warrant the accuracy or completeness of such information and does not warrant the suitability of such information, materials, equipment and devices for any particular use or application.

ARTICLE V

It is agreed that the Government of the United States of America will permit persons under its jurisdiction to transfer and export materials, equipment and devices, other than source or special nuclear materials, to, and perform services for, the Government of India and such persons under its jurisdiction as are authorized by the Government of India to receive and possess such materials, equipment and devices, and utilize such services for the Tarapur Atomic Power Station, subject to applicable laws, regulations and license requirements of the Government of the United States of America and the Government of India.

ARTICLE VI

(a) The parties to this agreement emphasize their common interest in assuring that any material, equipment, or device made available to the Government of India for use in the Tarapur Atomic Power Station, or in connection therewith, pursuant to this agreement shall be used solely for peaceful purposes. The Government of India emphasizes, in contrast to the position of the United States, that its agreement to the provisions of this article in relation to equipment or devices transferred pursuant to this agreement has been accorded in consideration of the fact that, as provided in this agreement, the Tarapur Atomic Power Station will be operated on no other special nuclear material than that furnished by the Government of the United States of America and special nuclear material produced therefrom, in consequence of which the provisions of this article in relation to equipment or devices in any case ensue from the safeguards on fuel.

(b) The following arrangements shall be applicable between the parties:

(1) The parties have reviewed the design of the Tarapur Atomic Power Station and may review any significant modification in this design for the sole purpose of determining that the arrangements provided in this article can be effectively applied. For the same purpose, the parties may review the design of other facilities which will use, fabricate or process any special nuclear material made available pursuant to this agreement or produced in the Tarapur Atomic Power Station. Such a review of the design of these other facilities will not be required if the Government of India, pursuant to mutually acceptable measurement arrangements, has placed an agreed equivalent amount of the same type of special nuclear material under the scope of this agreement.

(2) The parties have agreed that a system of records and reports shall be established to assure the complete accountability of any special nuclear material which is made available to the Government of India pursuant to this agreement or which is produced in the Tarapur Atomic Power Station. This system of records and reports shall be as described in the schedule annexed hereto and marked annexure "A."

(3) Any special nuclear material made available pursuant to this agreement or produced in the Tarapur Atomic Power Station, which is surplus to the current needs of the fuel cycle for the Tarapur Atomic Power Station and which is not transferred by the Government of India pursuant to this agreement, shall, unless otherwise mutually agreed, be stored at the Tarapur Atomic Power Station.

(4) There will be consultations and periodic exchanges of visits between the parties to give assurance that the objectives set forth in paragraph (a) of this article and the provisions of this agreement concerning transfers are being observed. To the extent relevant to the accomplishment thereof, personnel designated by the Government of the United States of America, following consultation with the Government of India, upon request of the Government of the United States of America, and personnel designated by the Government of India shall have full access to the Tarapur Atomic Power Station and to conversion, fabrication, and chemical, processing facilities in India at such time as special nuclear material transferred to the Government of India for, or received from,

the Tarapur Atomic Power Station is located at such facilities, and at such other times as may be relevant to the accomplishment of the above-noted objectives. Personnel so designated shall also be afforded access to other places and data, and to persons, to the extent relevant to the accomplishment of those objectives. The personnel designated by either party, accompanied by personnel of the other party if the latter so requests, may make such independent measurements as either party considers necessary; and nothing in this agreement is intended to impede the ability of either party to have prompt access to data, places, and persons to the extent relevant to accomplish the above-noted objectives. The Government of the United States of America will keep such access to a minimum consistent with the need for effective verification that those objectives are being observed.

(c) Notwithstanding anything contained in this agreement the Government of India shall have the right, upon prior notice to the Government of the United States, to remove from the scope of this agreement quantities of special nuclear material provided it has, pursuant to mutually acceptable measurement arrangements, placed agreed equivalent quantities of the same type of special nuclear material under the scope of this agreement.

(d) In the event of noncompliance with the guarantees or with the provisions of this article, and the subsequent failure of the Government of India to fulfill such guarantees and provisions within a resonable time, the Government of the United States of America shall have the right to suspend or terminate this agreement, and require the return of any equipment and devices transferred under this agreement and any special nuclear material safeguards pursuant to this article.

ARTICLE VII

(a) The Government of India guarantees that the safeguards in article VI shall be maintained and that:

(1) No material, equipment, or device transferred to the Government of India or authorized persons under its jurisdiction pursuant to this agreement, by sale, lease or otherwise, will be used for atomic weapons or for research on or development of atomic weapons or for any other military purpose, and

(2) That no such material, equipment or device will be transferred to unauthorized persons or beyond the jurisdiction of the Government of India except as may be agreed to by the Government of the United States of America and the Government of India, and then only if in the opinion of the U.S. Commission such transfer falls within the scope of an agreement for cooperation between the Government of the United States of America and the other nation or group of nations or international organziation.

(b) The Government of the United States of America guarantees that no special nuclear material produced at the Tarapur Atomic Power Station and acquired by it, or an equivalent amount of the same type substituted therefor, shall be used for atomic weapons or for research on or development of atomic weapons or for any other military purpose.

ARTICLE VIII

(a) Recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, the parties agree in principle that, at a suitable time, the agency will be requested to enter into a trilateral agreement for the implementation of the safeguards provisions of article VI, in accordance with the following paragraphs. In addition, in accordance with the objectives set forth in the Statute of the International Atomic Energy Agency, the Government of the United States of America is prepared, in principle, to include appropriate provisions in the aforementioned trilateral agreement, for the application of agency safeguards to such special nuclear material produced in the Tarapur Atomic Power Station as may be received in the United States, or to equivalent material substituted therefor.

(b) After the agency has adopted a system of safeguards for reactors of the size of those of the Tarapur Atomic Power Station and at a reasonable time to be mutually agreed upon, the parties will consult with each other to determine whether the system so adopted is generally consistent with the safeguards provisions contained in article VI. If the system is generally consistent with these provisions, the parties will request the agency to enter into a trilateral agreement as referred to in the preceding paragraph. While the parties recognize that the trilateral agreement should be implemented as soon as practicable, it

is agreed, in order to avoid any dislocation or uncertainty during the period of early operation of the Tarapur Atomic Power Station, that the Government of India may specify that the agreement shall not be implemented until the station has reached reliable full power operation.

(c) In the event the parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in this article, paragraph (a), either party may, by notification, terminate this bilateral agreement. Before either party takes steps to terminate, the parties will carefully consider the economic effect of any such termination. Neither party will invoke ites termination rights until the other party has been given sufficient advance notice to permit arrangements by the Government of India, if it is the other party, for an alternative source of power and to permit adjustment by the Government of the United States of America, if it is the other party, of production schedules. The Government of the United States of America will not invoke its termination rights unless there has been widespread acceptance, by those nations with whom it has bilateral agreements, of the implementation of safeguards by the agency or of provisions similar to those contained in this agreement. In the event of termination by either party, the Government of India shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear materials received pursuant to this agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of India for such returned material at the current schedule of prices then in effect domestically.

ARTICLE IX

For the purposes of this agreement:

(a) "United States Commission" means the U.S. Atomic Energy Commission.

(b) "Tarapur Atomic Power Station" means an electrical generating power plant consisting of two boiling water reactors and associated equipment with a combined net output of approximately 380 megawatts electrical, to be located near Tarapur, Maharashtra State, India.

(c) "Equipment and devices" and "equipment or device" means any instrument, apparatus, or facility and includes any facility, except an atomic weapon, capable of making use of or producing special nuclear material, and component parts thereof.

(d) "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, government agency or government corporation but does not include the parties to this Agreement.

(e) "Reactor" means an apparatus, other than an atomic weapon, in which a self-supporting fission chain reaction is maintained by utilizing uranium, plutonium, or thorium.

(f) "Atomic weapon" means any device utilizing atomic energy, exclusive of the means for transporting or propelling the device (where such means is a separable and divisible part of the device), the prinicpal purpose of which is for use as, or for development of, a weapon, a weapon prototype, or a weapon test device.

(g) "Special nuclear material" means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235 and any other material which the U.S. Commission pursuant to the U.S. Atomic Energy Act determines to be special nuclear material; or (2) any material artificially enriched by any of the foregoing.

(h) "Source material" means (1) uranium, thorium or any other material which is determined by either party to be source material; or (2) ores containing one or more of the foregoing materials in such concentration as either party may determine from time to time.

(i) "Parties" means the Government of the United States of America and the Government of India, including the U.S. Commission on behalf of the Government of the United States of America. "Party" means one of the above-mentioned "parties."

(j) "Reliable full power operation" shall be deemed to have been reached 1 year after the Tarapur Atomic Power Station has first operated continuously for 100 hours at full power. In computing this 1-year period, periods during which either reactor is not in operation for more than 4 consecutive weeks will be excluded.

ARTICLE X

This agreement shall enter into force on the date on which both Governments have notified each other of compliance with all statutory and constitutional requirements for entry into force of such agreement and shall remain in force for a period of 30 years.

In witness whereof, the undersigned, duly authorized, have signed this agreement.

Done at Washington, in duplicate, this 8th day of August 1963.

For the Government of the United States of America:

PHILLIPS TALBOT.
GLENN E. SEABORG.

For the Government of India:

BRAJ KUMA NEHRU.

ANNEXURE "A"

The parties have agreed that the system of records and reports for the Tarapur Atomic Power Station will consist of the following elements:

(a) With respect to records, information covering the following will be included:

(1) receipts of all nuclear materials,[1]

(2) internal movements of all nuclear materials,

(3) any removal of nuclear materials, including shipments, known losses, and unaccounted for quantities.

(4) inventories of all nuclear materials on hand at the end of each accounting period, showing form, quantity, and location, and

(5) reactor-operating data necessary for determining and reporting on the production and consumption of any nuclear materials and the use of the Tarapur Atomic Power Station.

(b) With respect to reports, information covering the following will be included: (1) All receipts and removals of nuclear materials; (2) any production and consumption of nuclear materials; (3) any known losses and unaccounted-for nuclear materials; (4) all inventories of nuclear materials; and (5) the operation of the Tarapur Atomic Power Station, including unusual incidents; and significant modifications made or to be made in the plant or in the fueling program.

Routine reports covering the foregoing elements shall be submitted to the Government of the United States of America and the Government of India on a monthly basis. Any losses of nuclear materials, however, or any unusual incidents or major changes in the fueling program will be reported as soon as the loss has been discovered or the change has been scheduled.

The parties further agree that if any special nuclear material which is made available to India pursuant to this agreement or produced in the Tarapur Atomic Power Station is placed, in accordance with this agreement, in any facilities in India other than the Tarapur Atomic Power Station, then the principles of the agreed-upon system referred to in paragraph (b)2 of article VI of this agreement and set forth in this annexure will be applied to such a situation.

The records and reports will include such details as may be relevant to the achievement of the objectives of article VI and may be modified by mutual agreement.

In the event of unusual incidents, special reports may be requested, including such amplifications and elucidations as each party considers relevant to the achievement of the objectives of article VI.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C. July 12, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission submits for your consideration, in accordance with section 123 of the Atomic Energy Act, the enclosed "Agreement for Cooperation Between the Government of the United States of America and the Government of India Concerning the Civil Uses of Atomic Energy."

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[1] The term "nuclear material" as used in this annexure means both source materials and special nuclear materials as they are defined in article IX of this agreement.

The proposed agreement for cooperation, which has been negotiated by the Atomic Energy Commission and the Department of State, generally follows the pattern of previous agreements with a number of other countries providing for a cooperative power reactor program. The agreement with India, however, contains features which reflect the latest Commission policies and it has been designed specifically to deal only with the proposed Tarapur Atomic Power Station which India plans to construct at a site north of Bombay.

The Tarapur Nuclear Power Station is to consist of two nuclear reactors of U.S. design and manufacture. Financing to cover the dollar costs of the reactors will be provided by the U.S. Agency for International Development.

The more significant features of this particular agreement are discussed below.

This would be the first "fuel requirements" agreement and would give effect to the Commission's new policy assuring foreign operators of enriched uranium reactors of an adequate long-term supply of fuel. Thus, under article II, the Commission would agree to supply, and the Indian authorities would agree to purchase, all of the enriched uranium fuel requirements for this plant, during the term of the agreement, subject to an overall ceiling of 14,500 kilograms of U^{235} contained in uranium enriched up to 20 percent, provided construction of the station is begun by June 30, 1965.

Since the Indian Government plans to build its own reprocessing facility, article II would permit reprocessing of the fuel in India subject, of course, to the safeguard provisions set forth in this agreement.

Article VI of the proposed agreement, and an annexure, contain a series of safeguard provisions which, while tailored to a single project, are the same in substance as those contained in a number of existing comprehensive power agreements. In addition, the article provides that the Government of India shall have the right, upon prior notice to the United States, to remove from the scope of the agreement (including the safeguard provisions) quantities of special nuclear material, provided India has, pursuant to mutually acceptable measurement arrangements, placed agreed equivalent quantities of the special nuclear material under the scope of the agreement for cooperation. This opportunity for equivalent substitution reflects a principle that is incorporated in the safeguard procedures of the International Atomic Energy Agency.

Article VII contains the required guarantees on the part of India that materials, equipment or devices transferred to India will not be used for any military purpose and will not, without U.S. approval, be transferred beyond the jurisdiction of India. This article also contains a guarantee by the United States that, consistent with its announced policy, the United States would not use for any military purposes any plutonium produced in the Tarapur reactor which it might acquire from India. Provisions with a comparable effect, in whole or in part, have been included in some of our other agreements, including our agreement with the IAEA.

The proposed agreement would go further than any of our other nuclear power agreements in establishing the principle of application of safeguards by the International Atomic Energy Agency. Specifically, article VIII includes an agreement in principle, by the parties that, at a suitable time, the International Atomic Energy Agency will be requested to enter into a trilateral agreement for the implementation of the safeguard provisions in article VI as follows: After the Agency has adopted a system of safeguards for large scale reactors of the size of the Tarapur Nuclear Power Station, and at a reasonable time to be mutually agreed upon, the United States and India will consult with each other to determine whether the Agency's system so adopted is generally consistent with the safeguard provisions contained in article VI. If the system is generally consistent with these provisions, the parties will request the Agency to enter into a trilateral agreement regarding the implementation of safeguard responsibilities. While the parties recognize that the trilateral agreement with the Agency should be implemented as soon as practicable, it is agreed, in order to avoid any dislocation or uncertainty during the period of early operation of the Tarapur Nuclear Power Station, that the Government of India may specify that the agreement with the Agency shall not be implemented until the Tarapur Station has reached reliable full-power operation.

Article VIII also provides that the Government of the United States is prepared, in principle, to include appropriate provisions in the trilateral agreement with the Agency which would enable the Agency to apply its safeguards to any special nuclear materials produced in the Tarapur project and returned to the

United States. The inclusion of this principle is compatible with the strong support the United States has given to the evolution of safeguards administered by the International Atomic Energy Agency and to the concept that Agency controls should effectively follow special nuclear materials produced in Agency-safeguarded facilities.

The agreement was designed to assure the Indians of a long-term supply of fuel over a 25-year period and since it is anticipated that construction of the station will require from 4 to 4½ years, article X provides that the agreement shall remain in force for a period of 30 years.

The other provisions of this agreement are similar in content to those contained in comprehensive power-type agreements for cooperation which we have with a number of countries.

The Commission, having considered the proposed agreement, recommends that in accordance with the Atomic Energy Act you determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security; that you approve it and authorize its execution. The Department of State supports the Commission's recommendations.

Following your approval and authorization, the agreement will be formally executed on behalf of the Government of the United States of America, by appropriate representatives of the Atomic Energy Commission and the Department of State. In compliance with section 123(c) of the Atomic Energy Act of 1954, as amended, the agreement will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours

GLENN T. SEABORG, *Chairman.*

THE WHITE HOUSE,
Washington, D.C., July 31, 1963.

Hon. GLENN T. SEABORG,
Atomic Energy Commission,
Washington, D.C.

DEAR DR. SEABORG: In accordance with section 123 of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me a proposed "Agreement for Cooperation Between the Government of the United States of America and the Government of India Concerning the Civil Uses of Atomic Energy," and recommended that I determine that the performance of the proposed agreement will promote and will not constitute an unreasonable risk to the common defense and security; that I approve the agreement and authorize its execution.

The proposed agreement generally follows the pattern of previous agreements providing for a cooperative power program with a number of other countries, although it contains some new features and was specifically designed to deal only with the Tarapur atomic power station which India plans to construct at a site north of Bombay.

The agreement provides that the Commission will sell, and India will purchase, as needed, all of India's requirements for enriched uranium for use as fuel at the Tarapur station, subject to an overall ceiling of 14,500 kilograms of U^{235} contained in uranium enriched up to 20 percent, provided construction of the station is begun by June 30, 1965.

The agreement contains safeguards provisions designed to provide the same assurance as afforded by other power reactor agreements for cooperation that any material, equipment or device made available to India for use in the Tarapur project under this agreement, or special nuclear material produced therefrom, shall be used solely for peaceful purposes.

Under this agreement India shall have the right, upon prior notice to the United States, to remove from the scope of the agreement, including safeguard provisions, quantities of special nuclear material, provided India has placed agreed upon equivalent quantities of special nuclear material under the scope of the agreement.

In article VIII the parties agree, in principle, that, at a suitable time, the International Atomic Energy Agency will be requested to enter into a trilateral agreement for the implementation of the safeguard provisions of article VI, subject to certain specified conditions. The Government of India, however, may specify that the agreement with the Agency shall not be implemented until the Tarapur station has reached reliable full-power operation.

The agreement also provides that the Government of the United States is prepared, in principle, to include appropriate provisions in the trilateral agreement with the Agency which would enable the Agency to apply its safeguards to any special nuclear materials produced in the Tarapur project and returned to the United States.

The term of the agreement is for 30 years. The other provisions of the agreement are similar in content to those contained in comprehensive power-type agreements which the United States has with a number of countries.

Pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(a) Determine that the performance of the proposed agreement, enclosed with your letter submitting the proposed agreement, will promote and will not constitute an unreasonable risk to the common defense and security of the United States.

(b) Approve the proposed agreement for cooperation between the Government of the United States of America and the Government of India.

(c) Authorize the execution of the proposed agreement for the Government of the United States of America by appropriate authorities of the U.S. Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

B. EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 27, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c. of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Additional Agreement for Cooperation, of June 11, 1960, as amended, between the United States of America and the European Atomic Energy Community (Euratom);

(*b*) A letter from the Commission to the President recommending approval of the proposed amendment; and

(*c*) A letter from the President to the Commission approving the proposed amendment, containing the determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and containing his authorization to execute the amendment.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise in certain respects the Additional Agreement for Cooperation signed on June 11, 1960, as amended by the agreement signed May 21 and 22, 1962.

Specifically, the proposed amendment would revise article I of the additional agreement to provide that quantities of uranium 235 as may be authorized pursuant to United States law and agreed to by the parties, above the present ceiling of 30,000 kilograms, may be made available to Euratom for defined research and power applications. Although the proposed amendment contains no numerical ceiling, except by reference to the quantity authorized for transfer, on the amount of uranium 235 that may be supplied to Euratom, the U.S. Congress will continue to review and authorize changes in the ceiling through the legislative action required when distributing special nuclear material to groups of nations under section 54 of the Atomic Energy Act, as amended.

In this connection, a request for congressional legislation to amend the Euratom Cooperation Act to increase the quantity of U^{235} authorized for transfer to Euratom from 30,000 to 70,000 kilograms is currently pending. This legislative request was discussed with the committee during its recent hearings on the omnibus bill. It should be noted that most of the 40,000 kilograms of uranium 235 which may be distributed to Euratom under this amendment and the currently pending amendment to the Euratom Cooperation Act will be sold, which could be of significant long-term benefit to the U.S. balance-of-payments position. Should Congress later authorize toll enrichment, however, a portion of this

material might be transferred as toll enriched material if mutually agreed. While revenues in the form of enrichment charges would not be as great as those from sales, they would nevertheless be significant.

The proposed amendment would also revise article VI of the additional agreement by changing the termination date of the agreement from December 31, 1985 to December 31, 1995. This 10 year extension would permit the execution of long-term fuel supply contracts which can be reasonably expected to develop for community power reactor projects during the next several years.

The proposed amendment will enter into force on the day on which each party to the agreement shall have received from the other party written notification that it has complied with all statutory and constitutional requirements for the entry into force of this amendment.

Sincerely yours,

(S) GLENN T. SEABORG, *Chairman.*

AMENDMENT TO THE ADDITIONAL AGREEMENT FOR COOPERATION OF JUNE 11, 1960, AS AMENDED BETWEEN THE UNITED STATES OF AMERICA AND THE EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM)

Whereas the Government of the United States of America and the European Atomic Energy Community (Euratom) signed an Agreement for Cooperation on November 8, 1958, concerning peaceful uses of atomic energy, as a basis for cooperation in programs for the advancement of peaceful applications of atomic energy;

Whereas such agreement contemplates that from time to time the parties may enter into further agreements for cooperation in the peaceful aspects of atomic energy;

Whereas said parties signed an additional agreement, hereinafter referred to as the additional agreement, on June 11, 1960, to provide for further cooperation, which was amended by the agreement signed on May 21 and 22, 1962, to provide supplementary requirements for special nuclear materials;

Whereas programs within the community require additional quantities of uranium 235 that are not provided for by existing agreements for cooperation; and

Whereas the Government of the United States of America has indicated its readiness to supply supplementary quantities of uranium 235:

The parties agree to amend the additional agreement as follows:

1. Paragraph A. of article I is amended to read as follows:

A.1. The United States will sell or lease, as the parties may agree, to the community for use in—

(*a*) defined research applications in the community, including experimental plants for the chemical processing or fabrication of special nuclear materials, and research and materials testing reactors and

(*b*) defined power (including propulsion) applications in the community, including experimental and demonstration projects—

up to a net amount of uranium 235 contained in uranium which when added to the net amount of uranium 235 required for the execution of the joint program as established by the Agreement for Cooperation signed on November 8, 1958, between the parties will not exceed 30,000 kilograms of uranium 235. Additional quantities of uranium 235 for the same purposes will be made available as may be authorized pursuant to U.S. law and agreed by the parties.

2. Up to a net amount of 3,000 kilograms of uranium 235 will be made available for use in defined projects pursuant to paragraph A.1.(a) of this article. Additional quantities of uranium 235 for the same purposes may be made available in excess of the quantity of 3,000 kilograms as may be agreed.

3. The supply of uranium 235 for defined power applications pursuant to paragraph A.1.(b) will take place pursuant to specific contracts entered into within 5 years of the date each particular amount is agreed upon pursuant to paragraph A.1. Any such amount of uranium 235 not already sold or leased within that period for power applications may be allocated by mutual agreement to uses in the community within the scope of this agreement or will cease to be available for the community unless otherwise agreed.

4. The net amount of special nuclear material shall be its gross quantity, sold or leased to the community, less the recoverable quantity thereof which has been resold or otherwise returned to the Government of the United States of America or transferred to any other nation or group of nations with the approval of the Government of the United States of America.

2. Paragraph A. of article VI is amended to read as follows:

A. This agreement shall enter into force on the first day on which each party shall have received from the other party written notification that it has complied with all statutory and constitutional requirements for the entry into force of such agreement and shall remain in force until December 31, 1995.

3. This amendment, which shall be regarded as an integral part of the additional agreement, shall enter into force on the day on which each party shall have received from the other party written notification that it has complied with all statutory and constitutional requirements for the entry into force of this amendment.

In witness whereof, the undersigned representatives duly authorized thereto have signed this amendment.

Done at Brussels and Washington this 22d and 27th day of August 1963, in duplicate, in the English, French, German, Italian, and Dutch languages, each language being equally authentic.

For the Government of the United States of America:

RUSSELL FESSENDEN

GLENN SEABORG

For the European Atomic Emergency Community (Euratom):

HEINZ KREKELER

Certified to be a true copy:

/s/ ——— ———.

August 27, 1963.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 23, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to the Additional Agreement for Cooperation, of June 11, 1960, As Amended, Between the United States of America and the European Atomic Energy Community (Euratom)," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise in certain respects the provisions of the Additional Agreement for Cooperation between the United States of America and the European Atomic Energy Community (Euratom) concerning peaceful uses of atomic energy signed June 11, 1960, as amended by the agreement signed May 21 and 22, 1962.

Specifically, the proposed amendment would revise paragraph A of article I of the additional agreement by providing that quantities of uranium 235 as may be authorized pursuant to U.S. law and agreed to by the parties, above the present ceiling of 30,000 kilograms may be made available to Euratom for defined research and power applications. Although the proposed amendment contains no numerical ceiling, except by reference to the quantity authorized for transfer, on the amount of uranium 235 that may be supplied to Euratom, the U.S. Congress will continue to review and authorize changes in the ceiling through the legislative action required when distributing special nuclear material to groups of nations under section 54 of the Atomic Energy Act, as amended.

In this connection, a request to Congress for legislation to amend the Euratom Cooperation Act to increase the quantity of uranium 235 authorized for transfer to Euratom from 30,000 to 70,000 kilograms is currently pending. It is contemplated that an exchange of letters allocating this additional 40,000 kilograms will take place immediately following entry into force of the proposed amendment, provided, of course, that the necessary congressional action to amend the Euratom Cooperation Act has taken place. The provisions of the proposed amendment contemplate periodic review, at least every 5 years, of the community's uranium 235 requirements and the establishment of mutually satisfactory allocations within the amount authorized by Congress for distribution to Euratom. The actual supply of uranium 235 for defined power applications would be made pursuant to specific contracts, between the USAEC and Euratom, entered into within 5 years of the date each particular amount is agreed upon by the parties. Any such amount of uranium 235 agreed upon for this purpose which is not already under contract within this 5-year period would have to be

allocated by mutual agreement to other uses within the community within the scope of the additional agreement, or it would cease to be available to the community, unless otherwise agreed. It should be noted that most of the 40,000 kilograms of uranium 235 (which has an approximate current value of $350 million) which may be distributed to Euratom under this amendment and the currently pending amendment to the Euratom Cooperation Act will be sold, which sales could be of significant long-term benefit to the U.S. "balance-of-payments" position.

The proposed amendment would also revise paragraph A of article VI of the additional agreement by changing the termination date of the additional agreement from December 31, 1985, to December 31, 1995. This 10-year extension would permit the execution of long-term fuel supply contracts which can reasonably be expected to develop for community power reactor projects during the period ending in 1970.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by the appropriate authorities of the Government of the United States of America and the European Atomic Energy Community. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

(Signed) GLENN T. SEABORG, *Chairman.*

THE WHITE HOUSE,
Washington, August 16, 1963.

HON. GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

DEAR DR. SEABORG: In accordance with section 123 of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submited to me a proposed amendment to the Additional Agreement for Cooperation of June 11, 1960, as amended, between the United States of America and the European Atomic Energy Community (Euratom), and recommended that I approve the proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security and authorize its execution. The proposed amendment would modify the Additional Agreement for Cooperation between the United States and Euratom signed on June 11, 1960, as amended by the agreement signed on May 21 and 22, 1962.

Articles I and VI of the Additional Agreement for Cooperation, as amended, would be further amended to extend the term of the agreement 10 years, until 1995, and to provide that additional quantities of uranium 235, in excess of the 30,000 kilograms presently available, may be made available to Euratom for defined research and power applications as may be authorized pursuant to U.S. law and agreed to by the parties. In this latter connection, the proposed amendment retains provision for reallocating or reducing the quantity of U^{235} which may be made available for defined power applications, but which has not been put under contract within 5 years from the time it was made available.

Pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby—

(*a*) Determine that the performance of the proposed amendment will promote and will not constitute an unreasonable risk to the common defense and security of the United States;

(*b*) Approve the proposed amendment to the Additional Agreement for Cooperation of June 11, 1960, as amended, between the United States of America and the European Atomic Energy Community (Euratom), enclosed with your letter submitting the proposed amendment; and

(*c*) Authorize the execution of the proposed amendment for the Government of the United States of America by appropriate authorities of the U.S. Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

C. GOVERNMENT OF IRELAND

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 12, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Agreement for the Cooperation Between the Government of the United States of America and the Government of Ireland Concerning Civil Uses of Atomic Energy, as amended;

(*b*) A letter from the Commission to the President recommending approval the proposed amendment; and

(*c*) A letter from the President to the Commission approving the proposed amendment, containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and his authorization to execute the amendment.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the agreement for cooperation signed March 16, 1956, as amended by the agreement signed on February 13, 1961, by providing for an extension of the agreement for a 5-year period beyond its expiration date of July 8, 1963.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely yours,

G. F. TAPE, *Acting Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF IRELAND CONCERNING CIVIL USES OF ATOMIC ENERGY

The Govermnent of the United States of America and the Government of Ireland,

Desiring to amend the Agreement for Cooperation Between the Government of the United States of America and the Government of Ireland Concerning Civil Uses of Atomic Energy, signed at Washington on March 16, 1956 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreement signed at Washington on February 13, 1961,

Agree as follows:

ARTICLE I

The first sentence of Article XI of the Agreement for Cooperation, as amended, is amended by deleting the phrase "five years" and substituting in lieu thereof the phrase "ten years".

ARTICLE II

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this 7th day of August 1963.

For the Government of the United States of America:

WILLIAM R. TYLER,
GLENN T. SEABORG.

For the Government of Ireland:

T. J. KIERNAN.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 25, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of Ireland Concerning Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commisison's recommendation.

The amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the agreement for cooperation signed by the Government of the United States of America and the Government of Ireland on March 16, 1956, as amended by the agreement signed on February 13, 1961, by providing for an extension of the agreement for a 5-year period beyond its current expiration date of July 8, 1963.

Although the Government of Ireland was encouraged to join the International Atomic Energy Agency and seek its future requirements through the Agency, that Government replied that it had no current interest in joining the Agency and preferred to extend the existing agreement.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by the appropriate authorities of the Government of the United States of America and the Government of Ireland. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

THE WHITE HOUSE,
Washington, July 29, 1963.

HON. GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

DEAR DR. SEABORG: In accordance with section 123c of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me a proposed "Amendment to the Agreement of the United States of America and the Government of Ireland Concerning Civil Uses of Atomic Energy," and recommended that I approve the amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would amend the agreement for cooperation signed by the Government of the United States of America and the Government of Ireland on March 16, 1956, as amended by the agreement signed on February 13, 1961, by providing for an extension of the agreement for a 5-year period beyond its current expiration date of July 8, 1963.

Pursuant to the provisions of section 123c of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) Determine that the performance of this proposed amendment will promote and will not constitute an unreasonable risk to the common defense and security of the United States.

(*b*) Approve the proposed amendment between the Government of the United States of America and the Government of Ireland enclosed with your letter submitting the proposed amendment.

(*c*) Authorize the execution of the proposed amendment for the Government of the United States of America by appropriate authorities of the United States Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

D. GOVERNMENT OF JAPAN

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 12, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there is submitted with this letter:

(*a*) An executed protocol amending the Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Civil Uses of Atomic Energy, as amended;

(*b*) A letter from the Commission to the President recommending approval of the proposed protocol; and

(*c*) A letter from the President to the Commission approving the proposed protocol, containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security and authorizing its execution.

The protocol, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the agreement for cooperation between the Government of the United States of America and the Government of Japan signed on June 16, 1958, as amended by the protocol signed on October 9, 1958, by removing the specific ceiling limitation on research quantities of materials, including special nuclear material available for defined research projects (other than for fueling reactors or reactor experiments), in view of additional Japanese requirements for material for research projects. The protocol provides that such materials may be transferred to Japan on an "as may be agreed" basis. This will bring the agreement into line with other similar comprehensive bilateral agreements.

The protocol will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

G. F. TAPE, *Acting Chairman.*

PROTOCOL AMENDING THE AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF JAPAN CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of Japan,

Desiring to amend the Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Civil Uses of Atomic Energy signed at Washington on June 16, 1958, as amended by the Protocol signed at Washington on October 9, 1958, hereinafter referred to as the "Agreement for Cooperation";

Have agreed as follows:

ARTICLE I

Article V, paragraph A, of the Agreement for Cooperation is amended to read:

"*A. Research materials*

"Materials of interest in connection with defined research projects related to the peaceful uses of atomic energy as provided by Article III and under the limitations set forth in Article II, including source material, special nuclear materials, by-product material, other radioisotopes, and stable isotopes, will be exchanged for research purposes, other than for fueling reactors and reactor experiments, in such quantities and under such terms and conditions as may be agreed when such materials are not available commercially."

ARTICLE II

This Protocol shall enter into force on the day on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of this Protocol and shall remain in force for the period of the Agreement for Cooperation.

In witness whereof, the undersigned, duly authorized, have signed this Protocol.

Done at Washington, in duplicate in the English and Japanese languages, both texts being equally authentic, this 7th day of August 1963.

For the Government of the United States of America:

ROGER HILSMAN.
GLENN T. SEABORG.

For the Government of Japan:

RYUJI TAKEVCHI.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 25, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Protocol Amending the Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed protocol, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the Agreement for Cooperation between the Government of the United States of America and the Government of Japan, signed on June 16, 1958, as amended by the protocol signed on October 9, 1958, by removing the specific ceiling limitation on research quantities of materials, including special nuclear material, available for defined research projects (other than for fueling reactors or reactor experiments), in view of additional Japanese requirements for material for research projects. Article I of the proposed protocol will amend article V A of the Agreement to provide for the transfer of such materials to Japan on an "as may be agreed" basis. This will bring the agreement into line with other similar comprehensive bilateral agreements.

In accordance with current U.S. policy the Government of Japan was encouraged to satisfy its future requirements for materials through the International Atomic Energy Agency (IAEA). The Japanese, however, indicated their preference to amend the Agreement for Cooperation.

Following your determination, approval and authorization, the proposed protocol will be formally executed by the appropriate authorities of the Government of the United States of America and the Government of Japan. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the protocol will then be placed before the Joint Committee on Atomic Energy.

Respectively yours,

GLENN T. SEABORG,
Chairman.

THE WHITE HOUSE,
Washington, July 29, 1963.

HON. GLENN T. SEABORG,
Atomic Energy Commission,
Washington, D.C.

DEAR MR. SEABORG: In accordance with section 123 of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me a proposed "Protocol Amending the Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Civil Uses of Atomic Energy," and recommended that I approve the proposed protocol, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution.

The proposed protocol, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would amend the agreement for cooperation between the Government of the United States of America and the Government of Japan signed on June 16, 1958, as amended by the protocol signed on October 9, 1958, by removing the specific ceiling limitation on research quantities of materials, including special

nuclear material, available for defined research projects (other than for fueling reactors or reactor experiments) and making such materials available to Japan on an "as may be agreed" basis.

Pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(a) Determine that the performance of this proposed protocol will promote and will not constitute an unreasonable risk to the common defense and security of the United States.

(b) Approve the proposed protocol between the Government of the United States of America and the Government of Japan enclosed with your letter submitting the proposed protocol.

(c) Authorize the execution of the proposed protocol for the Government of the United States of America by appropriate authorities of the U.S. Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

E. GOVERNMENT OF BELGIUM

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 12, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of Belgium.

(*b*) A letter from the Commission to the President recommending approval of the proposed amendment.

(*c*) A letter from the President to the Commission approving the proposed amendment, containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security and his authorization to execute the amendment.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise in certain respects the agreement for cooperation signed on June 15, 1955, as amended by the agreements signed on July 12, 1956, and July 22, 1959.

Articles I, II, and III of the proposed amendment would eliminate from the agreement for cooperation, as amended, (1) references to the Belgian Congo and Ruanda-Urundi as a result of their accession to independence; and (2) references to the sale by Belgium of uranium and thorium ores and concentrates to the Combined Development Agency, since contracts and agreement provisions for the purchase of these materials have now terminated.

In addition, article II of the amendment adds a new provision to the agreement (art. VII B.2) which would permit transfers of special nuclear materials for performance in Belgium of conversion or fabrication services, or both, and subsequent transfer to another nation or international organization with which the Government of the United States of America has an agreement for cooperation within the scope of which such subsequent transfer falls. The Belgians have the industrial capability to convert special nuclear materials and fabricate such material into fuel element form, and are interested in performing these services for reactor projects in other countries . In 1962, Agreements for Cooperation Between the United States and France, Germany, Canada, Sweden, and Euratom were similarly amended. In addition, the recent amendment to the agreement for cooperation with the United Kingdom, which was submitted to the Joint Committee on June 5, 1963, also would permit the United Kingdom to perform these services.

Article IV of the amendment amends paragraph B(3) of article VIII of the agreement for cooperation in order to site the appropriate paragraph of article VII in view of the renumbering of paragraphs within the amendment of that article.

Article V of the amendment would modify the agreement for cooperation to permit the Government of Belgium to transfer materials, including equipment and devices, or any restricted data received from the United States pursuant to the agreement, as amended, to an international organization, such as Euratom, in addition to such transfers to a single nation and under the same conditions as presently provided for in the agreement for cooperation. This proposed revision is necessary to permit full implementation of the new proposed article VII B.2 of the agreement (art. II of the amendment).

The proposed amendment will enter into force on the day on which each government shall have received from the other government written notification that it has complied with all statutory and constitutional requirements for the entry into force of this amendment.

Sincerely yours,

G. F. TAPE, *Acting Chairman.*

Enclosures: (1) Amendment to Agreement for Cooperation with Belgium; (2) letter from the Commission to the President; (3) letter from the President to the Commission.

AMENDMENTS TO THE AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF BELGIUM CONCERNING THE CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of Belgium,

Desiring to amend further the Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of Belgium, signed at Washington on June 15, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreement signed at Washington on July 12, 1956 and the Agreement signed at Washington on July 22, 1959.

Have agreed as follows:

ARTICLE I

Paragraph B.1(b) of Article III of the Agreement for Cooperation, as amended, is further amended by deleting the words ", Belgian Congo, or Ruanda-Urundi,".

ARTICLE II

Article VII of the Agreement for Cooperation, as amended, is deleted and the following is substituted in lieu thereof:

"A. The Commission will sell to Belgium under such terms and conditions as may be agreed such quantities of uranium of normal isotopic composition as Belgium may require, and to the extent practical in such form as Belgium may request, during the period of this Agreement for use in research and power reactors located in Belgium, subject to the availability of supply and the needs of the United States program.

"B.1 The Commission will sell or lease to the Government of Belgium under such terms and conditions as may be agreed such quantities of uranium enriched up to twenty per cent (20%) in the isotope U–235 as Belgium may require during the period of this Agreement for fueling defined research, experimental power, demonstration power and power reactors, materials testing reactors, and reactor experiments located in Belgium which the Government of Belgium, in consultation with the Commission, decides to construct or authorize private users to construct in Belgium and as required in experiments related thereto, subject to any limitations in connection with quantities of such material available for such distribution by the Commission during any year. The Commission may upon request and in its discretion make a portion of the material sold or leased under this paragraph available as material enriched up to ninety per cent (90%) for use in research reactors, materials testing reactors, and reactor experiments each capable of operating with a fuel load not to exceed eight (8) kilograms of contained U–235 in uranium.

"2. In addition to transfers for the purposes provided under paragraph A of Article IV and paragraph B.1 of this Article, the Commission may transfer to the Government of Belgium under such terms and conditions as may be agreed by the Parties, and subject to the limitations contained in paragraph B.1 of this

Article, special nuclear material for the performance in Belgium of conversion or fabrication services, or both, and subsequent transfer to a nation or international organization with which the Government of the United States of America has an Agreement for Cooperation within the scope of which such subsequent transfer falls.

"3. It is understood and agreed that although Belgium may distribute uranium enriched in the isotope U^{235} to authorized users in Belgium, the Government of Belgium will retain title to any uranium enriched in the isotope U^{235} which is purchased from the Commission at least until such time as private users in the United States are permitted to acquire title to uranium enriched in the isotope U^{235}.

"4. It is agreed that when any source or special nuclear materials received from the United States of America require reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may otherwise be agreed, that the form and content of any irradiated fuel elements shall not be altered after removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing.

"5. With respect to any special nuclear material not owned by the Government of the United States of America produced in reactors fueled with materials obtained from the United States of America which is in excess of the need of the Government of Belgium for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an Agreement for Cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or international organization in the event the option to purchase is not exercised. Belgium agrees not to transfer to any country other than the United States or the United Kingdom any special nuclear materials produced in Belgium unless the Government of Belgium is given assurance that the material will not be used for military purposes, and the Government of Belgium agrees to consult with the United States on the international significance of any proposed transfer of any uranium and thorium ores or special nuclear materials to any country other than the United Kingdom.

"6. Special nuclear material produced in any part of fuel leased hereunder as a result of irradiation processes shall be for the account of the Government of Belgium and after reprocessing as provided in subparagraph 4 hereof shall be returned to the Government of Belgium, at which time title to such material shall be transferred to that Government, unless the Government of the United States of America shall exercise the option which is hereby accorded, to retain, with appropriate credit to the Government of Belgium any such special nuclear material which is in excess of the needs of the Government of Belgium for such material in its program for the peaceful uses of atomic energy.

"7. Some atomic energy materials which the Government of Belgium may request the Commission to provide in accordance with this Agreement are harmful to persons and property unless handled and used carefully. After delivery of such material to the Government of Belgium, the Government of Belgium shall bear all responsibility, insofar as the Government of the United States of America is concerned, for the safe handling and use of such materials. With respect to any special nuclear materials or fuel elements which the United States Commission may, pursuant to this Agreement, lease to the Government of Belgium or to any private individual or private organization under its jurisdiction, the Government of Belgium shall indemnify and save harmless the Government of the United States of America against any and all liability (including third party liability) from any cause whatsoever arising out of the production or fabrication, the ownership, the lease, and the possession and use of such special nuclear materials or fuel elements after delivery by the United States Commission to the Government of Belgium or to any authorized private individual or private organization under its jurisdiction.

"C. The Commission will sell to Belgium, under such terms and conditions as may be agreed, such quantities of heavy water as Belgium may require, during the period of this Agreement, for use in research and power reactors located in Belgium, subject to the availability of supply and the needs of the United States program.

"D. As may be necessary and as mutually agreed in connection with the subjects of agreed exchange of information as provided in Article III, and under the limitations set forth therein, specific arrangements may be made from time to time between the Parties for lease, or sale and purchase, of quantities of materials, other than special nuclear materials, greater than those required for research, under such terms and conditions as may be mutually agreed, except as provided in Article VIII."

ARTICLE III

Paragraph A.2 of Article VIIb is deleted and the following is substituted in lieu thereof:

"2. In the event the Parties do not reach a mutually satisfactory agreement following the consultation provided in paragraph A.1 of this Article, either Party may by notification terminate this Agreement. In the event this Agreement is so terminated, the Government of Belgium shall return to the Commission all source and special nuclear materials received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction."

ARTICLE IV

Paragraph B(3) of Article VIII(b) is of the Agreement for Cooperation, as amended, is amended by deleting the words "Article VII paragraph C" and substituting in lieu thereof the words "Article VII paragraph B.5".

ARTICLE V

Paragraph C of Article XI of the Agreement for Cooperation, as amended, is amended as follows:

1. The comma is deleted after the word "nation" as said word first appears and the words "or international organization," are inserted directly thereafter.
2. The period is deleted at the end of the paragraph and the words "or international organization." are added directly thereafter.

ARTICLE VI

This Amendment, which shall be regarded as an integral part of the Agreement for Cooperation, as amended, shall enter into force on the day on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of this Amendment.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this 7th day of August 1963.

For the Government of the United States of America:

WILLIAM R. TYLER.
GLENN T. SEABORG.

For the Government of Belgium:

LOUIS SCHEYVEN.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 25, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "amendment to Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of Belgium," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the Agreement for Cooperation Between the United States of America and Belgium signed on June 15, 1955, as amended by the agreements signed on July 12, 1956, and July 22, 1959.

Articles I, II, and III of the proposed amendment would eliminate from the agreement for cooperation, as amended, (1) references to the Belgian Congo and Ruanda-Urundi as a result of their accession to independence, and (2) references to the sale by Belgium of uranium and thorium ores and concentrates to the Combined Development Agency, since contracts and agreement provisions for the purchase of these materials have now terminated.

In addition, article II of the proposed amendment adds a new provision to the agreement (art. VII B.2) which would permit transfers of special nuclear materials for performance in Belgium or conversion or fabrication services, or both, and subsequent transfer to another nation or international organization with which the Government of the United States of America has an agreement for cooperation within the scope of which such subsequent transfer falls. The Belgians have the industrial capability to convert special nuclear materials and fabricate such material into fuel element form, and are interested in performing these services for reactor projects in other countries. In 1962, Agreements for Cooperation Between the United States and France, Germany, Canada, Sweden, and Euratom were similarly amended.

Article IV of the proposed amendment amends paragraph B(3) of article VIII(b) is of the agreement for cooperation in order to cite the appropriate paragraph of article VII in view of the renumbering of paragraphs within the proposed amendment of that article.

Article V of the proposed amendment would modify the agreement for cooperation to permit the Government of Belgium to transfer materials, including equipment and devices, or any restricted data received from the United States, pursuant to the agreement, as amended, to an international organization, such as Euratom, in addition to such transfers to a single nation and under the same conditions as presently provided for in the agreement for cooperation. This proposed revision is necessary to permit full implementation of the new proposed article VII B.2. of the agreement (art. II of the amendment).

Following your approval and subject to the authorization requested, the amendment will be formally executed by the appropriate authorities of the Government of the United States of America and the Government of Belgium and placed before the Joint Committee on Atomic Energy in compliance with section 123c of the Atomic Energy Act of 1954, as amended.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

(Enclosure: Proposed amendment to the Agreement for Cooperation With Belgium.)

THE WHITE HOUSE,
Washington, D.C., July 29, 1963.

HON. GLENN T. SEABORG,
Chairman,
U.S. Atomic Energy Commission.

DEAR DR. SEABORG: In accordance with section 123 of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me a proposed "amendment to the Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of Belgium," as amended, and recommended that I approve the proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendment would modify the Agreement for Cooperation Between the United States and Belgium signed on June 15, 1955, as amended by the agreements signed on July 12, 1956, and July 22, 1959.

Articles I, II, and III of the proposed amendment would eliminate from the agreement for cooperation, as amended, (1) references to the Belgian Congo and Ruanda-Urundi as a result of their accession to independence; and (2) references to the sale by Belgium of uranium and thorium ores and concentrates to the Combined Development Agency, since contracts and agreement provisions for the purchase of these materials have now terminated.

Article II of the amendment adds a new provision to the agreement for cooperation which would permit transfer under terms and conditions as may be agreed of special nuclear material for performance in Belgium of conversion or fabrication services, or both, and subsequent transfer to another nation or interna-

tional organization with which the United States has an agreement for cooperation within the scope of which such subsequent transfer falls.

Article IV of the amendment amends paragraph B(3) of article VIII bis of the agreement for cooperation in order to cite the appropriate paragraph of article VII in view of the renumbering of paragraphs within the proposed amendment of that article.

Article V of the amendment would modify the agreement for cooperation to permit the Government of Belgium to transfer to an international organization materials, including equipment and devices, or any restricted data received from the United States pursuant to the agreement, in addition to such transfers to a single nation and under the same conditions as presently provided for in the agreement for cooperation.

Pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) Determine that the performance of the proposed amendment will promote and will not constitute an unreasonable risk to the common defense and security of the United States.

(*b*) Approve the proposed amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of Belgium enclosed with your leter submitting the proposed amendment.

(*c*) Authorize the execution of the proposed amendment for the Government of the United States of America by appropriate authorities of the U.S. Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

F. GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 12, 1963.

The Honorable JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there is submitted with this letter:

(*a*) An executed amendment to the agreement for cooperation between the Government of the United States of America and the Government of the Republic of the Philippines concerning civil uses of atomic energy, as amended;

(*b*) A letter from the Commission to the President recommending approval of the proposed amendment; and

(*c*) A letter from the President to the Commission approving the proposed amendment, containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the agreement for cooperation between the Government of the United States of America and the Government of the Republic of the Philippines signed on July 27, 1955, as amended by the agreement signed on June 11, 1960, by providing that the International Atomic Energy Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities transferred to the Government of the Republic of the Philippines. The necessary arrangements will be effected, without modification to the agreement, through a trilateral agreement to be negotiated by the parties and the Agency which may include provisions for the suspension of the safeguard rights accorded the Commission under the agreement during the time and to the extent that the Agency's safeguards apply to said materials and facilities.

The amendment also would provide for a new 5-year term for the agreement which expired July 26, 1963. The special nuclear materials and reactor previously obtained by the Philippine Government under the agreement would, during

this interim period, remain subject to the safeguards and guarantees set forth in that agreement in view of their continuing effect, which the Philippine Government has acknowledged, and in view of the Philippine Government's assurance that it will hold that material and equipment subject to the various provisions of the agreement pending the entry into force of the amended agreement.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

G. F. TAPE, *Acting Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Republic of the Philippines, desiring to amend the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of the Philippines Concerning Civil Uses of Atomic Energy, signed at Washington on July 27, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the agreement signed at Washington on June 11, 1960, agree as follows:

ARTICLE I

Article VII(A) of the Agreement for Cooperation is amended to read as follows:

"The Government of the United States of America and the Government of the Republic of the Philippines, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities transferred to the Republic of the Philippines under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this agreement, through an agreement to be negotiated between the parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by article VI, paragraph C, of this agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities."

ARTICLE II

Article VIII of the Agreement for Cooperation is amended by deleting the date "July 26, 1963" and substituting in lieu thereof the date "July 26, 1968."

ARTICLE III

This amendment shall enter into force on the day on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such amendment and shall remain in force for the period of the Agreement for Cooperation.

In witness whereof, the undersigned, duly authorized, have signed this amendment.

Done at Washington, in duplicate, this 7th day of August 1963.

For the Government of the United States of America:

ROGER HILSMAN.
GLENN T. SEABORG.

For the Government of the Republic of the Philippines:

AMELITO R. MUTUC.

Certified to be a true copy.

ALLAN T. DALTON,
Chief, Asian-African-Latin American Branch, Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 25, 1963.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of the Philippines Concerning Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, will amend the agreement for cooperation between the Government of the United States of America and the Government of the Republic of the Philippines signed on July 27, 1955, as amended by the agreement signed on June 11, 1960, by providing that the International Atomic Energy Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities transferred to the Government of the Republic of the Philippines. The necessary arrangements would be effected, without modification to the agreement, through a trilateral agreement to be negotiated between the parties and the Agency which may include provisions for the suspension of the safeguard rights accorded the Commission under the agreement during the time and to the extent that the Agency safeguards apply to such materials and facilities.

The proposed amendment would also provide for the extension of the agreement for a 5-year period beyond its current expiration date of July 26, 1963.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by the appropriate authorities of the Government of the United States of America and the Government of the Republic of the Philippines. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

THE WHITE HOUSE,
Washington, D.C., July 29, 1963.

Hon. GLENN T. SEABORG,
Atomic Energy Commission,
Washington, D.C.

DEAR DR. SEABORG: In accordance with section 123 of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me a proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of the Philippines Concerning Civil Uses of Atomic Energy," and recommended that I approve the proposed amendment, determine that its performance will promote and will not constitute and unreasonable risk to the common defense and security, and authorize its execution.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would amend the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of the Philippines, signed on July 27, 1955, as amended by the agreement signed on June 11, 1960, by providing that the International Atomic Energy Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities transferred to the Government of the Republic of the Philippines. The necessary arrangements will be effected, without modification to the agreement, through a trilateral agreement to be negotiated by the parties and the agency which may include provisions for the suspension of the safeguards rights accorded the Commission under the agreement during the time and to the extent that the agency's safeguards apply to said materials and facilities.

The proposed amendment also would provide for the extension of the agreement for a 5-year period beyond the current expiration date of July 26, 1963.

Pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended, and upon the recommendations of the Atomic Energy Commission, I hereby:

(*a*) Determine that the performance of this proposed amendment will promote and will not constitute an unreasonable risk to the common defense and security of the United States.

(*b*) Approve the proposed amendment between the Government of the United States of America and the Government of the Republic of the Philippines enclosed with your letter submitting the proposed amendment.

(*c*) Authorize the execution of the proposed amendment for the Government of the United States of America by appropriate authorities of the U.S. Atomic Energy Commission and the Department of State.

Sincerely,

JOHN F. KENNEDY.

APPENDIX 2

CORRESPONDENCE RELATING TO THE TARAPUR ATOMIC POWER PROJECT

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C., February 19, 1963.

Hon. GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

DEAR MR. SEABORG: I have your letter of February 8, 1963, with regard to the U.S. policy toward the International Atomic Energy Agency. As I understand from your letter, and from the Department of State letter of January 22, which you referenced, it is the policy of the United States to make a determined effort to transfer safeguard arrangements as soon as possible to the International Atomic Energy Agency and get all new bilateral partners to accept Agency safeguards.

In view of this policy, I cannot understand why the United States is not more forceful in negotiating with the Indian Government on the Tarapur reactor case. It would seem to me that any proposed agreement for cooperation with India should contain a provision requiring the Indians to permit inspection by the IAEA once such a system has been set up. I do not believe that a provision calling for "sympathetic consideration to the application of Agency safeguards" or similar pussyfooting on our part will further the stated U.S. policy.

I am at a loss to understand how we can expect other nations to come around to our policy when we fail to adhere to it in our negotiations with the Indians for a new bilateral agreement. Now is the time to set a precedent when we are being asked to finance, through AID and other arrangements, the Indian project amounting to over $100 million. (It is my understanding that consideration is being given to furnishing approximately $70 million through AID and approximately $30 million for civil construction through U.S. counterpart funds.)

Separate and distinct from the safeguards problem, there is another important factor which I believe should be considered in connection with the proposed Tarapur project. Despite the efforts of our very best reactor experts, construction firms, and reactor operating specialists we have experienced numerous problems in the construction and operation of our large scale power reactors. When one considers the remote area, the difficulties to be encountered in utilizing local construction personnel, and the generally less experienced nuclear reactor operators in India, it is questionable whether the construction of such a large full-scale power reactor in India should be undertaken at this time. I don't believe we should encourage a nation to become involved in a project which it may not be technically competent to support. Instead of expected gratitude, in the event of technical difficulties, the United States may find itself in the long run subject to severe criticism by this same government.

While I am in strong support of the atoms-for-peace program and for assisting foreign nations in the peaceful use of atomic energy, I believe premature and ill-advised projects can adversely affect not only our atoms-for-peace program but U.S. prestige in the eyes of the world.

I am sending a copy of this letter to the Secretary of State so that the Department may have my views in this matter.

Sincerely yours,

JOHN O. PASTORE, *Chairman.*

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., March 1, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: I wish to thank you for your letter of February 19 advising us of your views on certain aspects of the proposed Tarapur atomic power project.

With respect to the question of safeguards, we want to assure you that the negotiations have been and will continue to be conducted with the firm intention of establishing the principle of application of safeguards by the International Atomic Energy Agency. In the negotiations we have had to date, we have presented and vigorously pressed for this position. The precise language through which this principle is established must, of course, be developed through negotiations with India. Discussions of this matter will be resumed in Washington with Dr. Bhabha beginning March 4.

The question of whether India has the capability of successfully operating the proposed reactors is a most important one to which we have given careful consideration. In 1960 an AEC technical team including the Deputy Director of Oak Ridge National Laboratory, the Assistant Director for Civilian Power in the Division of Reactor Development, and other senior AEC and laboratory personnel visited India to maks an assessment of their capabilities in the field of atomic energy. The group visited numerous Indian scientific and industrial installations as well as their atomic energy facilities. One of the strongest impressions which this group received was of the competence of the top level Indian administrators and scientists. India has, with the aid of these top level people, been operating for many years industrial plants of the most advanced type in fields such as metallurgy, petrochemicals, machine tools, and electronics. India has also developed an atomic energy establishment that compares favorably with those in a number of European countries. They independently designed and built a 1-megawatt swimming pool reactor and have been operating it successfully since 1956. They participated in the construction of, produced fuel elements for, and are operating a 40-megawatt heavy water moderated test reactor of considerable complexity. On the basis of these observations, the group concluded that "India has the technical capability (with appropriate specialized training for personnel) to safely and effectively operate a nuclear plant, to provide construction labor, and all but the highest levels of construction supervision. Under present conditions, design, procurement and erection of a nuclear plant should be the responsibility of a competent U.S. firm with undivided authority."

With respect to the reactors themselves, we have the utmost confidence in the ability of U.S. industry to successfully build and put into operation reactors of the type which are contemplated in the Tarapur project. Following some initial difficulties, the Dresden reactor, to which the two Tarapur reactors will be quite similar, has operated since June 1961 without significant incident, with a reactor availability of over 95 percent except for periods of inspection and refueling. Two inspections of the control rod drives, undertaken at AEC request during this period, have disclosed no recurrence of the early problem. Continuing surveillance of control rod drive performance by Commonwealth Edison, as periodically checked by AEC, has also revealed no recurrence of the original difficulty. I feel sure that the American manufacturer will regard it as its obligation to turn the reactors over to the Indian operators only after any initial operating difficulties have been overcome and the reactors have demonstrated their ability to be operated safely. The manufacturer would also undertake thorough training and qualification testing of the initial Indian operating group.

We believe you would also be interested in knowing that the installed capacity of the grid on which the Tarapur reactors will be located will be 2,245 megawatts by 1967, including 380 megawatts from the Tarapur station. Thus, each 190 megawatt Tarapur reactor will be only approximately 8½ percent of the total capacity of the system.

There is one further factual matter on which I should like to provide some clarification. The Indian proposal has been that the United States make a dollar-repayable loan from the Agency for International Development covering the foreign exchange costs of the reactors, estimated at approximately $78 million, and make the fuel inventory available on deferred payment terms. Their proposal is under review. India would pay, on a current basis, the replacement fuel costs of about $3.2 million per year. India has not requested

any U.S. financial support for the local costs of this project. The U.S. Embassy in India has suggested that consideration be given to the use of rupee loans from surplus agricultural sales proceeds to finance the local currency costs on the basis of experience which has demonstrated that the psychological impact of development projects is considerably enhanced when there has been full funding by the United States. No conclusions have been reached, however, with respect to this possibility and no mention of it has been made to the Indian Government.

I greatly appreciate the support which you have always shown for our program of foreign cooperation. In view of the importance which the Government of India attaches to this project and their desire to proceed with it rapidly to meet the urgent need for power in the Bombay area, we would be most happy to meet with you in an effort to answer any questions which you may have after you have had an opportunity to review this letter.

Sincerely,

GLENN T. SEABORG, *Chairman.*

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 5, 1963.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: At the executive hearings on June 25 some questions were raised on which we indicated we would furnish additional information for the record.

The first question related to the amount of counterpart funds available in India and the uses to which they could be put. There are approximately $650 million worth of rupees generated by Public Law 480 commodity sales and other assistance programs in India. Of this total, over $60 million represents rupees available for so-called Cooley loans to U.S. companies or their Indian affiliates for investments in India. The bulk of the remaining rupees may be programed in the form of loans or grants to the Government of India pursuant to existing Public Law 480 commodity sales agreements. As shipments of commodities are made under these agreements, additional rupee payments are made by the Government of India. None of these so-called counterpart funds will be used by the Government of India for financing the rupee costs of Tarapur.

The second question related to the existence of any laws or regulations in India restricting the import of U.S. equipment or spare parts which might have the effect of interfering with the project. We have discussed this matter with representatives of the General Electric Co. who advised us that they have experienced difficulties on this score in the course of other company activities in India. As a consequence, the General Electric Co. has requested, as a provision of their contract with the Indian Atomic Energy Commission, a general exemption from these restrictions. This request has the strong support and endorsement of Dr. Bhabha and the Indian Atomic Energy Commission and is now under consideration within the Indian Government. The General Electric Co. has assured us that they will insist on this or some other solution of the problem satisfactory to them. We have indicated that our support in securing a satisfactory solution will be available to them if this should prove necessary or desirable.

The question was also raised whether the funds for support of this project by AID would come from fiscal year 1964 appropriations. AID has advised us that the funds for this project are available within appropriations already made to AID for development loan purposes, which are "no year funds."

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

Appendix 3

AEC-State Department Press Release on United States-Indian Negotiations on Tarapur Project

Joint press statement on United States-Indian negotiations on Tarapur project, June 29, 1963

In the last few days representatives of the Government of India and the Government of the United States have substantially completed negotiations on the text of a proposed agreement for cooperation which would provide a legal basis for the installation and operation of a 380-electrical megawatt nuclear power station, of U.S. design, at Tarapur, India. The availability of U.S. financing for the project is now being considered by the U.S. Agency for International Development.

The agreement for cooperation which has been negotiated but not signed is specifically tailored for the Tarapur project. Under the terms of the proposed arrangement, which would last for 30 years, the United States would undertake to supply India with its estimated long-term fuel requirements for the plant, and information would be exchanged on matters pertaining to the design, construction, and operation of the plant as well as problems of health and safety. Unclassified information in related fields of research and development, including developments in boiling water technology and the use of plutonium as a fuel, would also be exchanged between the parties during the period of the agreement.

In the course of the negotiations, India and the United States gave serious consideration to the nature of the safeguard arrangements that should pertain to the Tarapur station to assure its peaceful use. The agreement will contain bilateral safeguard provisions designed to assure the peaceful use of the Tarapur station. India and the United States have always agreed, in principle, that safeguards should be applied to enriched uranium fuel but there has been a difference of opinion between the governments with regard to the attachment of safeguards to equipment. In the case of the Tarapur project, it has been possible to achieve a mutually satisfactory arrangement without either government giving up its basic position regarding the attachment of safeguards to equipment, since the Tarapur station will be operated only on enriched uranium supplied by the United States or on plutonium produced therefrom; the United States would guarantee the supply of enriched uranium for the period of the agreement.

Another major subject that has been under careful review is the role that the International Atomic Energy Agency should play in the cooperative program. The United States and India have recognized that it would be desirable for both parties to avail themselves of the services of the International Atomic Energy Agency. The International Atomic Energy Agency is not yet in a position to apply safeguards to large-scale reactors of the size to be installed at Tarapur although the Agency is developing a system to cover such large reactors. Accordingly, the United States-Indian arrangement would include an agreement in principle that, at a suitable time, the Agency will be requested to enter into a trilateral agreement for the implementation of the safeguard provisions in the proposed bilateral agreement subject to the following conditions: After the Agency has adopted a system of safeguards for large reactors, and at a reasonable time to be mutually agreed, the United States and India will consult with each other to determine whether the system so adopted is generally consistent with the provisions in the bilateral agreement. If the system is generally consistent, the parties will request the Agency to enter into a trilateral arrangement covering the implementation of safeguard responsibilities. The agreement would permit deferring implementation of the arrangement with the Agency until after the Tarapur nuclear power station has achieved reliable full power operation.

It is expected that the proposed Tarapur station will make an important contribution to the development of the peaceful uses of atomic energy.

APPENDIX 4

AEC-JOINT COMMITTEE CORRESPONDENCE ON EURATOM SPECIAL NUCLEAR MATERIAL PURCHASE

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., December 12, 1963.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: During our hearings with the Joint Committee on December 5, we discussed the fact that Euratom does not have sufficient funds in its second 5-year (January 1, 1963–December 31, 1967) research program budget to purchase from the AEC on a straight sale basis the plutonium required for its fast reactor program and indicated that, as a consequence, the AEC was inclined to offer the Euratom a short delay in payment for this material.

You will recall that my letter to you of December 18, 1962, and the material supplied in support of our proposed omnibus bill legislation for this year, described the proposed plutonium supply to Euratom and the benefits which would accrue to both Euratom and the United States from the provision of this material and the concurrent conclusion of a fast reactor information exchange arrangement. Also at our hearings last summer on the proposed amendment to the U.S.-Euratom Additional Agreement, we referred to the sale of this plutonium. However, on October 31, 1963, we reported to your staff the fact that Euratom would be unable to purchase outright all of its required plutonium at the proposed AEC sale price of $43 per gram Pu^{239} plus Pu^{241}. Supplemental information on the financial aspects of Euratom's plutonium procurement for its fast reactor program also has recently been submitted to your staff.

As pointed out during the December 5 hearings, we still believe there are significant benefits to be derived by the U.S. supplying this plutonium to Euratom and we are, therefore, offering Euratom an arrangement involving a short delay in payment. It is anticipated that Euratom will decide between our offer and the offer from the United Kingdom, or possibly some combination thereof, by late this month or early in January of next year.

The AEC offer permits a short term delay of payment for plutonium, above that amount for which Euratom is able to make cash payment at the time of delivery, until June 30, 1968. Euratom's third 5-year budgetary period begins January 1, 1968. The arrangement provides for an initial interest rate in excess of our current use charge and, in no event, less than any higher AEC use charge which might prevail during the deferral period on material not paid for at the time of delivery. In addition, although title to all material would pass to Euratom upon delivery, we would obtain rights equivalent to a first lien with an express recapture provision with respect to the material for which payment in full is not made at the time of transfer, in the same manner as in the joint program fuel supply contracts, as required by the Euratom Cooperation Act. The entire offer is, of course, contingent on congressional approval of the necessary amendment to the Euratom Cooperation Act which was submitted to Congress this year. Euratom would make a cash payment in an amount to be negotiated based on the amount of money budgeted for by them for acquisition of the material on a lease basis after necessary deductions for interest payments, transportation, and fabrication.

In addition to plutonium, Euratom will also require significant amounts of enriched uranium for its fast reactor program. The latter material can be made available within amounts presently authorized for transfer under the Euratom Cooperation Act or, in some cases, under U.S. bilateral agreements with member states. While the AEC's policy generally has been to lease enriched uranium for non-power-producing applications, we now feel, in light of the present U.S. balance-of-payments situation, that it would be in our best interest if material for such uses were sold when the amounts involved will produce significant revenues. Therefore, we are proposing that Euratom purchase on a similar basis, rather than lease, the enriched uranium which it requires in the future for its fast reactor program. We would, however, if Euratom strongly urges us to do so, consider leasing a portion of this material in view of our earlier policy and Euratom's budgetary situation. A plan of this sort is

considered desirable since it establishes a principle of sale but at the same time provides a transitional scheme which should enable Euratom to make such purchases within the limits of its current 5-year budget.

We will advise you of Euratom's response to this offer. Should you desire further information on this matter, we will be pleased to provide it.

Sincerely yours,

ROBERT E. WILSON, *Acting Chairman.*

ATOMIC ENERGY COMMISSION,
Washington, D.C., December 12, 1963.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: This letter, together with its attachment, summarizes and confirms the information given to you by members of my staff on December 5, 1963, with respect to the financial aspects of Euratom's plutonium procurement for its fast reactor program.

You will note from the attachment that the present Euratom 5-year research budget (January 1, 1963, to December 31, 1967) authorizes an expenditure of $425 million. Recently, the Council of Ministers passed, over French objections, an appropriation of $94.72 million for the second year of this program. This amount not only exceeds the rate of expenditure originally projected for this period but also is over 10 percent greater than the annual average for the $425 million. It is our understanding that this situation may result in either (*a*) a supplemental authorization and appropriation for the fifth year of the program, which would require unanimous approval by the Council of Ministers, or (*b*) a temporary reduction in research activities during the fifth year. We do not believe that this action jeopardizes in any way Euratom's ability to make available the funds shown in the attachment for purchase of plutonium.

Although the attachment relates only to the question of plutonium procurement, Euratom will also require significant amounts of enriched uranium for its fast reactor program. The latter material can be made available within amounts presently authorized for transfer under the Euratom Cooperation Act or, in some cases, under U.S. bilateral agreements with member states. While the AEC's policy generally has been to lease enriched uranium for non-power-producing applications, we now feel, in light of the present U.S. balance-of-payments situation, that it would be in our best interest if material for such uses were sold when the amounts involved will produce significant revenues. Therefore, we expect to propose that Euratom purchase, rather than lease, a major portion of the enriched uranium which we anticipate it will require for its fast reactor program. However, during the remainder of Euratom's second 5-year program, we would permit a delay in payment for such purchased enriched uranium similar to that for plutonium. A plan of this sort is considered desirable since it establishes the principle of sale but at the same time provides a transitional scheme which should enable Euratom to make such purchases without exceeding its current 5-year budget.

If you have any further questions regarding this matter, we would be pleased to answer them for you.

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

SUMMARY OF EURATOM'S FINANCIAL POSITION THROUGH CALENDAR YEAR 1967 REGARDING PROCUREMENT OF PLUTONIUM FOR ITS FAST REACTOR PROGRAM

1. Euratom's second 5-year budget for the period January 1, 1963–December 31, 1967, has an approved ceiling of $425 million. Any increase in this ceiling would require unanimous approval of the Council of Ministers.

2. The second 5-year budget provides $73 million for fast reactors ($63 million for the Rapsodie project and for the Cadarache and Karlsruhe fast critical assemblies; approximately $7 million for part of the study and construction of either one or two 100 MWe fast reactors; and the remaining $3 million for the Italian "Raptus" project studies). Any increase in the $73 million at the expense of other programs would require approval by the Council of Ministers.

3. The funds available to Euratom under the present budget for obtaining

plutonium for its fast reactor facilities are summarized in Table I, in terms of currently proposed delivery schedules.

4. Euratom has received from the United Kingdom a written offer along the following lines to supply plutonium for the Community's fast reactor effort which include the following arrangements:

(*a*) Euratom would buy about 150 Kgs. of plutonium at a price of $51 per gram of Pu^{239} plus Pu^{241}, as metal, f.o.b. French port.

(*b*) United Kingdom would lease to Euratom an additional 200 Kgs. of plutonium (in the form of fabricated elements from the United Kingdom's ZEBRA fast reactor facility) through 1967. Thereafter, Euratom would have an option to purchase an equivalent amount of plutonium at the United Kingdom price in effect at the time of purchase. (The United Kingdom has indicated to Euratom that by 1967 its plutonium price might be as low as $25–$30 per gram.)

5. The Germans, principally at the initiative of the Ministry of Finance, are very actively considering a scheme whereby the Germans would purchase, through their balance of payments offset agreement with the British, about 200 Kgs. of United Kingdom plutonium for the Community fast reactor effort. The Germans are having difficulty in finding something they wish to buy from the United Kingdom and are anxious to purchase plutonium, rather than more conventional United Kingdom products which may be produced competitively in Germany, in order to meet their payments deficit, which reportedly stands at $63 million. Under this arrangement a plan is now being considered whereby the Germans initially would make this plutonium available to the Euratom Supply Agency on a lease basis; presumably Euratom would eventually purchase the material.

TABLE I

Use	Quantity (kilograms)	Delivery period	Approximate value of SNM [1] (millions)	Cash available prior to December 1967 (millions)	Percent of total fuel costs provided by Euratom	Estimated deferral period [2] (months)
Critical assemblies [3]	175	Fall 1964	$7.26	[4] $4.67	60	42 to 45.
(Cadarache and Karlsruhe)	175	Spring 1965	7.26			36 to 39.
2d half, 1st core of Rapsodie. [5]	45	Mid-1965	2.00	[6] 2.00	31	None.
2d Rapsodie core	90	Early 1967	4.00	[6] 4.00	31	None.
Total			20.52	10.67		

[1] The cost is based on an average price of $45 per gram of Pu^{239} plus Pu^{241} for both oxide and metal. This would include conversion charges from nitrate to metal or oxide plus the charge for losses suffered in conversion plus handling charges.

[2] The length of deferral period is estimated on the basis of payment being made by June 30, 1968; i.e., 6 months after Euratom's 3d 5-year period begins.

[3] It is planned that each of the 2 fast criticals will receive initially about 175 kilograms of plutonium; however, both facilities will receive portions of the material supplied in each delivery period; i.e., fall 1964 and spring 1965.

[4] About $6,670,000 is now available to Euratom through the current 2d 5-year budget; however, Euratom must provide from these funds for the fabrication of the fuel elements which is currently estimated by Euratom to be about $2,000,000. In addition, a portion, depending on the interest rate, of the remaining $4,670,000 would have to be held in reserve for interest payments until the material is paid for in full.

[5] Euratom has indicated it is interested in obtaining plutonium for the 2d half of the 1st core of the Rapsodie reactor from the AEC if terms are more favorable than those offered by the United Kingdom, as now appears to be the case.

[6] Of the original $4,500,000 of Euratom money available for the 1st and 2d cores of Rapsodie, $2,000,000 has been spent as the Euratom contribution in purchasing the 1st half of the 1st core (45 kilograms) from the United Kingdom. The remaining $2,500,000 is available for obtaining the 2d half of the 1st core and the 2d core for Rapsodie, including costs of fabrication and shipment. If any surplus remains after acquisition of the Rapsodie material, we would attempt to have it apply, insofar as possible, to early shipments of plutonium for the fast criticals.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., January 13, 1964.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy, Congress of the United States.

DEAR MR. CONWAY: The AEC's willingness to provide plutonium for Euratom's fast reactor program, subject to development of a satisfactory information exchange arrangement and to obtaining the necessary congressional authorization, has been the subject of prior discussions and correspondence with the

Joint Committee, the most recent of which was Chairman Seaborg's letter to Senator Pastore of December 12, 1963. The present letter describes the most recent developments in this matter.

One of the technical objectives of Euratom's fast reactor program, as of our own, is to determine the reactivity effects, throughout the energy spectrum, caused by differences in the capture and fission cross sections of the various isotopes of plutonium. This is done by what are often known as substitution experiments, in which plutonium of several plutonium 240 contents are used. The results of these experiments are extremely important in the design of fast breeder reactors, and thermal reactors as well. In order to carry out this experimental program, Euratom requested that the AEC supply plutonium of a second Pu^{240} assay other than the 7.7 percent Pu^{240} content of our standard assay material. While the former plutonium could be either about one-half or twice the Pu^{240} content of the standard assay material, Euratom expressed a preference for the lower assay plutonium, in the view of its lesser safety hazards and greater ease of handling. The United Kingdom, in response to a similar request from Euratom, proposed to supply plutonium containing both 5 percent and 10 percent Pu^{240} at the same unit price per gram of total plutonium.

Following a review of our production plans and costs, we have concluded that plutonium assaying 3.85 percent Pu^{240} can be produced for Euratom during calendar year 1964 at a full cost recovery surcharge of $3.85 per gram of Pu^{239} and Pu^{241}, above the price for standard assay plutonium of $43 per gram of Pu^{239} and Pu^{241} (as nitrate, f.o.b. Richland). This surcharge is considered a service charge and, thus, payable in full at the time of delivery of the plutonium. We have supplemented our earlier proposal to Euratom to include low Pu^{240} content material under these terms and conditions.

Although Euratom has not made a final decision on its source of plutonium supply, if it obtains this material from the United States (and we believe that our ability to produce the lower assay material for this surcharge increases the attractiveness of our proposal) Euratom probably will wish to procure from 100 to 200 kilograms of the 3.85-percent Pu^{240} content material. In any event, the minimum order which we would accept for such special production would be 20 kilograms.

Should you wish additional information on this subject we will be pleased to provide it for you.

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

INTERNATIONAL AGREEMENTS FOR COOPERATION

WEDNESDAY, APRIL 22, 1964

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The Joint Committee met at 2:30 p.m., pursuant to notice, in executive session, in room AE–1, the Capitol, Senator John O. Pastore (chairman of the Joint Committee) presiding.

Present: Senators Pastore and Aiken; and Representatives Holifield, Aspinall, Morris, Hosmer, Bates, Westland, and Anderson.

Also present: John T. Conway, Executive Director.

Present from Agency for International Development: Alexander Vagliano, Director, Office of Capital Development and Finance, Bureau for Near East and South Asia; Raymond C. Malley, AID senior loan officer; and James E. Stephenson of the Engineering Division of the Bureau for Near East and South Asia.

Present from Atomic Energy Commission: James T. Ramey, Commissioner; Algie A. Wells, Director, Division of International Affairs; M. B. Kratzer, Deputy Director, Division of International Affairs; A. T. Dalton, Chief, Asian-African-Latin American Branch, International Affairs; Dr. Frank K. Pittman, Director, Division of Reactor Development; W. R. Voigt, Chief, Water Reactors Branch, Office of Assistant Director for Civilian Power, Division of Reactor Development; Richard X. Donovan, special assistant for congressional relations.

Chairman PASTORE. The meeting will please come to order.

This is a meeting of the full committee to receive testimony from the Agency for International Development and from the Atomic Energy Commission with regard to the proposed Tarapur nuclear reactor project.[1]

Representatives of AID have indicated their wish to advise me of the current status of the project. I thought it best that they come and report to the entire committee.

On September 5, 1963, the Subcommittee on Agreements for Cooperation held a public hearing at which representatives of the AEC and AID testified with regard to this proposed project. At that time certain assurances were given to the committee.

On the basis of information received by the Joint Committee, we understand that the proposed project is to cost the equivalent of approximately $114 million, of which $80 million will be funded through a loan from AID. The project will consist of two reactors of a General Electric design for a total of 380 megawatts.

[1] The previous day's hearing was held before the Subcommittee on Agreements for Cooperation. This day's hearing was held before the full committee.

Subsequent to our hearing, a private utility in the United States—Jersey Central Power & Light Co.—announced that it had entered into an arrangement with GE to build a nuclear reactor of approximately 600 megawatts at a total cost of approximately $68 million. Some questions arose then as to why there was a discrepancy in the two costs for these plants, one of which the U.S. Government was helping to fund through an AID loan, and the other which was being funded solely by private industry.

I had the Joint Committee staff request an explanation from the General Electric Co. as to the reasons for the difference and on January 29, 1964, the General Electric Co., in response, submitted to the Joint Committee its justification for the difference. This response by the General Electric Co. I will put in the record at this point.

(The document referred to follows:)

CONSIDERATIONS IN COMPARING TARAPUR ATOMIC POWER STATION WITH SOME CURRENTLY PROPOSED U.S. PROJECTS

Significant differences exist between the Tarapur Atomic Power Station in India and currently proposed atomic power projects in the United States. Examples of some of the more important differences between Tarapur and, as an example, Jersey Central's Oyster Creek unit No. 1 are attached.

(1) Tarapur consists of two 190-megawatt (electrical) units; Oyster Creek consists of one 510-megawatt (electrical) unit. Unit costs are significantly lower at higher ratings.

(2) Tarapur is a dual-cycle plant; Oyster Creek is single-cycle, a design which contains less major equipment.

(3) Tarapur is on a remote site in India; Oyster Creek site is in the United States with access to a skilled labor market and transport facilities.

(4) Tarapur schedule is 7 months longer than the Oyster Creek schedule and covers five monsoon seasons.

(5) Tarapur costs include the following; Oyster Creek does not:

(*a*) Oversea freight and insurance to transport a major portion of plant equipment from the United States to India—halfway around the world.

(*b*) Port handling in the United States and India and overland transportation in India for all U.S. equipment.

(*c*) Indian customs duties payable on all U.S. equipment.

(*d*) Oversea transportation, living and salary premiums costs for U.S. project personnel and families.

(*e*) Complete U.S. colony, including utilities, commissary, and recreational facilities for U.S. personnel and families and complete construction labor camp for local labor.

(6) Tarapur station because of its remote location in India includes the following (Oyster Creek does not):

(*a*) Higher degree of spare and standby equipment.

(*b*) Fifty-cycle power requirements for turbine generator and plant equipment.

(*c*) More effective cooling control supply system because of site and monsoon weather conditions.

(*d*) More effective training program in the United State and in India for a somewhat larger staff.

(7) Equipment following and technical warranty service will be performed by U.S. personnel traveling to India.

COMPARISON OF TARAPUR COSTS WITH THOSE OF JERSEY CENTRAL'S OYSTER CREEK STATION

The Tarapur and Jersey Central stations and their respective scopes of work are vastly different. A direct comparison of costs is not meaningful without taking these differences into consideration.

Some of the major differences between Tarapur and Oyster Creek are listed along with the approximate dollar-per-kilowatt cost of each category in order to illustrate some of the major considerations in comparing related costs of these two projects.

The difference in dollar per killowatt between the Tarapur and Oyster Creek stations, approximately $104 per kilowatt, is made up of the difference in rating of the two plants, technical differences and project and operating differences, as shown below:

Major differences and approximate cost

	Per kilowatt
1. Difference in rating from 190- to 510-megawatt incremental cost	$56
2. Indian customs duties and taxes on U.S. equipment imported into India	11
3. Oversea freight insurance, port handling, and transportation costs	10
4. Housing colony and construction labor camp	4
5. Additional plant equipment due to utility requirements, remote site location, and dual-cycle design	14
6. Additional project costs due to weather and site conditions and oversea location of U.S. personnel	12

JERSEY CENTRAL

Plant rating: 510 megawatts (net) at corrected conditions similar to Tarapur.

Price: In announcing the price of $68 million for the plant, Jersey Central indicated that this price included cost of land and other utility costs. Assuming that the amount is approximately 10 percent, the plant price may be estimated at $61.2 million. The plant cost in dollar per kilowatt would then be $120 per kilowatt.

TARAPUR

Plant rating: 2×190 megawatts (net).

Price: $85,300,000, including housing facilities but excluding utility costs. The plant cost in dollar per kilowatt is $224 per kilowatt.

Chairman PASTORE. On February 6, 1964, I sent a letter to the Comptroller General, requesting the General Accounting Office to look into the reasons for the cost differences in the projects.

At this point, I would like to insert in the record my February 6, 1964, letter to the Comptroller General and his response to me dated February 27, 1964.

(The letters referred to follow:)

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C., February 6, 1964.

Hon. JOSEPH CAMPBELL,
Comptroller, General Accounting Office,
Washington, D.C.

DEAR MR. CAMPBELL: A nuclear power project has been proposed under the AID program. The nuclear plant is scheduled to be constructed in Tarapur, India, utilizing an AID loan estimated to be $80 million. An additional $30 million of the cost is to be funded by the Indian Government.

The committee is interested in determining whether the estimated costs for this nuclear plant and the entire project are reasonable. It would be appreciated if your office would look into this question from two standpoints. First, are the costs reasonable based upon a comparative evaluation with any other competitive proposals that may have been received for this project? Second, are the costs for the proposed Tarapur project reasonable compared with the costs of the recently announced Jersey Central reactor plant?

I am sending you enclosed a review of significant differences between the Tarapur reactor and currently prepared atomic power projects and the claimed justification for the differences prepared by the General Electric Co. in response to a request from the Joint Committee for such justification.

Enclosed for your assistance also is a copy of the record of the hearings before the Joint Committee on Atomic Energy on "International Agreements for Cooperation." This record includes considerable background data on the proposed Tarapur project. Also enclosed is a copy of a recent announcement on the planned Jersey Central project, including cost data for the project.

I am directing a letter to the General Electric Co. advising the company of my letter to you and requesting that full cooperation be given to the GAO in connection with the review.

The staff of the Joint Committee will be available any time to assist your office in carrying out this review. Your expeditious action on this matter will be sincerely appreciated.

Thank you for your assistance.

Sincerely yours,

JOHN O. PASTORE, *Chairman.*

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., February 27, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CHAIRMAN: Further reference is made to your letter dated February 6, 1964, regarding the proposed nuclear powerplant to be constructed at Tarapur, India. The plant is to be constructed by the International General Electric Co. and will be financed, in part, by an $80 million loan from the Agency for International Development. In your letter you expressed the interest of the Joint Committee in determining whether the estimated costs of the project are reasonable and requested that we look into this matter from the standpoint of (1) the reasonableness of the costs based on a comparative evaluation with any other competitive proposals that may have been received for the project, and (2) the reasonableness of the costs of the Tarapur project compared with the recently announced Jersey Central nuclear powerplant.

With respect to item (1) above, we were informed by representatives of the Agency for International Development that it did not make an independent evaluation of the various proposals received by the Government of India in connection with this project, that the evaluation was made by the Government of India and reviewed by the Agency, and that the Agency does not have the rejected proposals on hand. We discussed this matter with the Joint Committee staff and were advised that it was not desired that we go beyond the records available at the Agency.

According to the evaluation report given to the Agency by the Government of India, seven proposals were received in response to the invitation to bid—three from the United States, two from the United Kingdom, and one each from Canada and France. Two of the proposals, including one from the United States, were considered unresponsive and were rejected. Several of the others were considered incomplete or too costly, so the remaining five firms were given the opportunity to revise their proposals. After the revised proposals were received, the International General Electric proposal was said to be the best for an enriched uranium reactor, and the French proposal the best for a natural uranium reactor. The report states that it was concluded that the International General Electric proposal was superior although no cost data pertaining to the French proposal or the other foreign proposals was included in the report.

According to the report, after the tentative decision was made to select International General Electric as the contractor, another U.S. firm, Westinghouse Electric International, submitted a revised proposal that resulted in a reduction in its proposed price. However, the report states that the price was still higher than that of International General Electric and a letter of intent was issued to International General Electric in September 1962.

With regard to item (2) above, we are currently reviewing the cost data at General Electric's offices in San Jose, Calif.; however, our review has not progressed to the point that a reasonably firm completion date can be forecast.

Sincerely yours,

JOSEPH CAMPBELL,
Comptroller General of the United States.

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., March 30, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CHAIRMAN: Further reference is made to your letter dated February 6, 1964, regarding the proposed nuclear powerplant to be constructed at Tarapur, India. In your letter you expressed the interest of the Joint Committee in determining whether the estimated costs of the project are reasonable

and requested that we look into this matter from the standpoint of (1) the reasonableness of the costs based on a comparative evaluation with any other competitive proposals that may have been received for the project, and (2) the reasonableness of the costs of the Tarapur project compared with the recently announced Jersey Central nuclear powerplant.

Our letter to you dated February 27, 1964, dealt with item (1) above. With respect to item (2), our staff met with the Joint Committee staff on March 19, 1964, and discussed the work done to date and the work remaining to be accomplished. It is our expectation that this work can be completed and a report thereon submitted to you about May 1, 1964.

Sincerely yours,

(Signed) JOSEPH CAMPBELL,
Comptroller General of the United States.

Chairman PASTORE. We have not as yet received the report from the General Accounting Office, although I understand it is expected within the next week or so.

(Subsequent to the hearing the report was received. It appears as app. 1, p. 143.)

If the representatives from AID will first identify themselves for the record, we will then proceed.

Mr. VAGLIANO. Mr. Chairman, my name is Alexander Vagliano. I am Director of the Office of Capital Development and Finance for the Bureau for Near East and South Asia, which, in short, means more or less in charge of loan operations for the Near East and south Asia, which includes within our area India and the Tarapur project.

This project was under study for a long time by AID and for a longer time before that by the Indian Government and the Indian AEC.

About a year ago the studies of AID, assisted by the AEC and by our consultants, came up, as we do with every capital project, with what is called a loan paper, corresponding to a board paper in a private company, if you wish, in which we recommended approval of this project. The paper went to the Loan Committee, which is an internal agency committee, made up of AID, State, Export-Import Bank, and Treasury, and was approved a little less than a year ago.

When we approve a loan, a loan authorization is signed by the Administrator which means that we start negotiating a loan agreement with the borrower. The loan agreement contains a good many provisions, some of them required in all cases by regulations in our legislation and additional conditions and requirements which are tailored to the individual project. These negotiations continued during the fall and the loan agreement between AID and the Government of India was signed in December.

The agreement specified certain conditions that must be met prior to disbursement of funds by the United States. The agreement, in effect, is the same type of agreement that long-term lenders make in private financial transactions with a good many additional requirements that flow from our special regulations.

Following the execution of the loan agreement, negotiations were continued with the Indians to meet the conditions precedent. One of the conditions precedent was the negotiation of a contract with the International General Electric Co., which was acceptable to us. This, again, is standard procedure in each of our loan projects.

Subsequent to the signing of our loan agreement it came to our attention——

Chairman PASTORE. Is this exclusively a negotiation that goes on between the Indian Government and General Electric?

Mr. VAGLIANO. Prior to our approval; yes, sir.

Chairman PASTORE. You did not have any part in it?

Mr. VAGLIANO. No, sir.

If I may talk generally on this subject, we do, however, for example, get into the bids that go out. We review the specifications normally, but not always. We sometimes get into it ahead of time but normally we review the contract after the parties have negotiated as they would in any transaction.

Chairman PASTORE. In this particular instance were these negotiations exclusively between them before you got into the picture?

Mr. VAGLIANO. Yes; I think that is correct.

Mr. MALLEY. That is correct. Of course, we knew the general approach the parties were taking in their discussions regarding this contract. We knew the general substance of the contract as it was being negotiated between the parties.

Chairman PASTORE. Insofar as the cost item is concerned, this was something that was going on between the Indians and GE as to what it was going to cost.

Mr. MALLEY. That is correct, sir. Actually the cost was determined as a result of the consideration of the proposals received by the Indian Department of Atomic Energy and the judgment that the GE proposal, including price, was best. The cost actually was arrived at at that point and then incorporated into the contract they subsequently negotiated.

Mr. CONWAY. For the record to be clear—AID itself did not get into the alternative proposals that were before the Indian Government prior to acceptance of GE. You were willing to take the statement from the Indian Government that the GE proposal was best from an economic point of view, as I understand it.

Mr. MALLEY. That is generally correct, but we did consider the manner by which our borrower—in this case the Government, the Indian Department of Atomic Energy—they arrived at the selection of General Electric for the job. The Government did it's own evaluation in detail and, in this particular case, we were satisfied that the general approach the Indians took in their evaluation of the bids was reasonable and justifiable. So, to an extent, we do get into it; yes.

Chairman PASTORE. The choice and selection was that of the Indian Government.

Mr. VAGLIANO. Yes, sir; it was.

When we received this information about the other plant in Jersey, which appeared on the surface to represent a far lower capital investment per kilowatt, we, the Indians, the AEC, and our consultants again went into the whole question of price. After a review of this, by all parties, we concluded that the price was a reasonable one.

There are several differences in the two plants. I guess the biggest difference is the fact that one of them is an Indian plant and from that flows a good many additional costs. These additional costs are not limited to nuclear powerplants. Our experience has been, with American business going into India and putting up their own money as investors, that their costs run higher than they would here in the United States.

Part of that is because a lot of equipment has to be imported and, therefore, bears transportation costs, insurance costs, and custom duties. That equipment and that material that has to be purchased locally is higher priced than in the United States. Indian prices are generally high.

The other part of the picture is the fact that it is a different type of reactor—two much smaller units, bringing with them the consequences of much higher cost. Therefore, the review of this price led us to the conclusion it was not unreasonable.

I think one of the things that is quite important in this picture is that we do review these matters but we do not and, in my opinion, should not decide them unless there is a violation of AID regulations or unless there has been clear unfairness.

I think in this particular case with the Indians—at least my experience indicates—the Indians are pretty good bargainers. They know how to take care of themselves. I think when we are dealing with some countries which are far more primitive and do not have the skills the Indians have, particularly the skill in negotiation, we might be more likely to guide them, if you wish, or try to assist them. I think with the Indians we can have a good deal of confidence in their ability.

The other aspect, of course, which we considered was other plants of comparable size bid at about the same time which seemed to be in line and, indeed, according to the Indians, somewhat more expensive, for example, in Europe than this one.

So, the general conclusion—the conclusion we finally came to—was that the price was not unreasonable.

Meanwhile we were also following through on some of the other conditions to this loan which involved integration of their electric grids, hiring of certain engineering consultants, treatment of taxes, and so forth. At this time, most of those have been settled.

The contract has been reviewed on the basis of price and its other provisions, and it was required that several additional provisions be inserted in the contract to satisfy AID requirements, particularly with respect to 50–50 shipping on American bottoms and other types of AID regulations. The contract has now been found acceptable, and we are ready to so advise the parties and, once we do advise them, we assume that they will promptly sign it.

Our interest in this project is the general interest that we do have in our Indian program, which is getting power on stream, where needed, in the whole Bombay area. From the studies we have made in this project, and from the considerable assistance that we have received from the Atomic Energy Commission, we believe that this is a very sound project and something that I think we, the United States, will be proud of.

So, we are going to tell them that the contract is all right with us, to go ahead and sign it, and we wish to report this progress to you, Mr. Chairman and the committee.

Chairman PASTORE. Now, would you, Mr. Vagliano, spell out what the price is, and the terms? Can you do that, either you or your assistant?

Mr. MALLEY. There are three basic prices in the contract. One is the price of $59,300,000, which is the dollar price that General Elec-

tric will be paid by the Government of India for the construction of the nuclear power station. That is the dollar component, that price.

There is also a rupee component of the station price, amounting to approximately 120 million rupees, which, in dollar terms, is about $25 million, so that the dollar equivalent to be paid by the Indians to GE for construction of this station is 59 plus 25, or $84 million, approximately.

Now, in addition to those two prices, within the contract there is a price of $10,768,000, in dollars, which is the amount that will be paid to General Electric for fabrication of the initial charges of nuclear fuel to go into the two reactors.

In addition to these three stated prices, there are provisions in the contract for both penalty and bonus payments, and for changes in certain prices depending on changes in indexes of labor and materials costs.

Changes in the prices because of these latter points will be determined as the project proceeds, and they will be periodically calculated.

Senator AIKEN. Mr. Vagliano, you spoke of the bargaining ability of the Indians and how one had to be pretty sharp to make sure that they didn't get the best of us. What is it we are bargaining for in a deal like this?

Mr. VAGLIANO. I was referring to the bargaining not between the U.S. Government and the Indians, but the bargaining between the Indian Government as a purchaser and the supplier as a seller, sir.

Senator AIKEN. Where does the United States come in? You mean you have to watch out that the Indian Government doesn't get the best of General Electric or what were you referring to?

Mr. VAGLIANO. Yes, I was referring not so much that they can do the best but they can hold their own, at least the contacts we have with American business seems to indicate that the Indians are pretty good bargainers.

Senator AIKEN. That is what I thought you said. Who are we protecting? What are we bargaining for, and what do we have to be sharp for?

Mr. VAGLIANO. Our interest is that of a lender, and as a lender we would not wish to have a transaction which was patently unfair to either side.

Senator AIKEN. Then we want to do as much as we can for India, is that right?

Mr. VAGLIANO. We have a program to assist India, and we would like to carry out that program in the most efficient way.

Senator AIKEN. Do you think we can do more for India than the Indians can in their own bargaining?

Mr. VAGLIANO. More for them in bargaining?

Senator AIKEN. I wonder why the United States has to watch so closely. Who is going to get the best of the U.S. Government, the Indians or General Electric?

Mr. VAGLIANO. We are financing it and we are making a loan. We are interested in two things. We are interested in the development of India—that is why we are in the program—and we are interested in getting our money back.

Senator AIKEN. And we contemplate guaranteeing the loan, the expense to General Electric or making a loan of rupees to General Electric, and you lend dollars, too.

Mr. VAGLIANO. We only lend dollars.

Senator AIKEN. We don't lend rupees? General Electric does not accept rupees?

Mr. VAGLIANO. That is right, but there are rupee costs which are provided for by that Government.

Senator AIKEN. I should think that General Electric could look out for themselves pretty well.

Mr. MALLEY. Perhaps I can clarify it. We are lending dollars for the dollar portion of this project. The Government of India is providing rupees to fund the rupee portion.

Senator AIKEN. Why don't we lend the rupees? We have got plenty of them.

Mr. MALLEY. I think one reason——

Senator AIKEN. We have lots of rupees.

Mr. VAGLIANO. We have lots of rupees.

Senator AIKEN. Hundreds of millions of dollars worth of rupees.

Mr. VAGLIANO. In all of these projects we like to see the local borrowers put up some of their own money.

Senator AIKEN. We lend so many dollars, and then they spend so many rupees. Why don't we supply General Electric or lend them the rupees, because they are already there, and we wouldn't have to take them out of the country. I was wondering why we didn't make some use of those rupees.

Mr. VAGLIANO. In some situations we do lend rupees to American companies for local costs, but the rupees wouldn't do them any good for purchasing equipment in the United States. They need to have dollars for that. That is the purpose and the only purpose of our loan, to provide the dollar part of this installation.

Senator AIKEN. The way things are going in the Foreign Relations Committee right now, the dollars are going to be a little slow.

Chairman PASTORE. Will all of the dollar part be expended in the United States?

Mr. VAGLIANO. Yes, sir.

Chairman PASTORE. And the rupee part will be expended there in India?

Mr. VAGLIANO. Yes, sir.

Chairman PASTORE. I would assume that would be true.

Mr. VAGLIANO. That is right.

Chairman PASTORE. For things they have to buy and whatever labor they have to hire there?

Mr. VAGLIANO. And some equipment.

Senator AIKEN. Isn't there any way you can make use of some of those rupees, now that we own so many of them?

Mr. VAGLIANO. You are quite right. We have tried and I think with some success under the so-called Cooley loan program, we have been making very substantial loans to American affiliates for their local purposes there, and it is going very well, this program, now.

Representative HOSMER. You mentioned this matter of the business-like loans, and so forth. Is there some kind of a formula or rule as to how much down payment the country has to make or how much of their money they have to put in it in relation to the loan?

Mr. VAGLIANO. It depends, of course, on the type of project, but normally, they would put up all of the local costs of a project, and in any event, we would not put up the local costs.

Representative HOSMER. Let me ask this: Is there a rule like they have when you go to a bank, that doesn't allow you to get a 100-percent loan? You have to have a certain minimum amount of your own assets in whatever you are planning to borrow the money for?

Mr. VAGLIANO. That is correct.

Representative HOSMER. Do you have some rule on that?

Mr. VAGLIANO. We do indeed. Now, for example, we have loaned to some industrial companies in India, and have recently not only required them to put up over 50 percent of the expansion but we are requiring them to go to the market for additional share issues.

Representative HOSMER. My question was not as to any specific instance, but the banker's rule of thumb that you go by, if any, in determining what you are going to require the local borrower to put up. Do you have any or is it a matter of caprice or different in each case or what?

Mr. VAGLIANO. It is neither a matter of caprice, nor a hard and fast rule. If you are dealing with a private company, we would apply the same principle one would normally apply in this type of a case.

Representative HOSMER. The same principles you would apply in what kind of a case? What type of case? Where? In the United States? A U.S. banker rule?

Mr. VAGLIANO. The same as in the United States or Europe with some greater debt-equity ratio in an especially desirable project and if the situation is such that the local markets just don't have the money—but we like to start off as a rule of thumb with 50–50.

Representative HOSMER. How about a government, like this deal?

Mr. VAGLIANO. Of course, financing a government is somewhat different. This is also true if an American bank makes a loan to a foreign government. You have the credit of the entire government behind it. It is not just the credit of the project. So, the standard you would apply there is not so much the financial one as the nature of the costs that go into the project. In other words, the land, the labor, all of the local costs would be financed by the local government and we would finance the foreign exchange.

Representative HOSMER. This debt-equity relationship turns out neatly at the amount of money that would be spent in India versus the amount of money that would be spent in the United States.

Mr. VAGLIANO. In this particular case.

Representative HOSMER. Was it done on that basis in this particular case?

Mr. VAGLIANO. No, sir; in this particular case you are dealing not with a private company——

Representative HOSMER. I understand that, but you said even when you are dealing with governments you do it on some basis other than caprice. I am trying to find out if this one was neatly done on the domestic-foreign exchange basis, and was this the rule here?

Mr. VAGLIANO. In this case, that is the way it was done, that is right, and normally, it would be.

Representative WESTLAND. Does AID have any other loans out to the Indian Government?

Mr. VAGLIANO. Yes, sir.

Representative WESTLAND. How has their repayment been?

Mr. VAGLIANO. As to their repayment, there has been no default on repayment although because of the very generous terms they haven't had much of a test yet. But the Indian Government, of course, if you look back over the last 30 or 40 years, of course the British were there then, but the Indian Government feels very strongly about its external debt. I don't think that it takes at all an easy-going attitude toward it as some countries might.

Representative WESTLAND. You haven't actually had any, let us say, repayment experience on AID loans outstanding?

Mr. VAGLIANO. Yes, sir; we have had repayment experience and as I say, there has been no default at all. All I am saying is that putting it in proper perspective, I don't think it is fair to say that we have had a long enough one considering the large amount of loans outstanding.

Representative WESTLAND. But they are current in their repayment?

Mr. VAGLIANO. They are current, yes, sir.

Representative WESTLAND. By the terms of this loan, they are 40 years, and you give them first a grace period of 10 years?

Mr. VAGLIANO. That is right.

Representative WESTLAND. But you will charge them, do I understand, three-quarters of 1 percent on the amounts of money that are being disbursed to General Electric?

Mr. VAGLIANO. That is correct, yes, sir.

Representative WESTLAND. In other words, the first year of this program, you advance, let us say, $10 million to General Electric?

Mr. VAGLIANO. That is right.

Representative WESTLAND. And then the interest on that $10 million would be three-quarters of 1 percent payable by the Government of India?

Mr. VAGLIANO. Yes, sir. In dollars.

Representative WESTLAND. Now, this $80 million would be expected to be disbursed in 5 years?

Mr. VAGLIANO. Four or five years.

Representative WESTLAND. And there would be this three-quarters of 1 percent interest paid on that?

Mr. VAGLIANO. Yes, sir.

Representative WESTLAND. Then there would be a grace period of 10 years?

Mr. VAGLIANO. From the first disbursement.

Representative WESTLAND. A grace period of 10 years from the first disbursement?

Mr. VAGLIANO. Yes, sir.

Representative WESTLAND. So, you would expect no interest payment then you might say for really about 5 years?

Mr. VAGLIANO. We will have interest payments all along but we wouldn't have any principal payments.

Representative WESTLAND. Let us not call three-quarters of 1 percent an interest payment. It perhaps is, but it is a service charge more than anything else, isn't it?

Mr. VAGLIANO. A service charge. I have always had trouble with the distinction between the two, because a credit fee is, in effect, a service charge.

Representative WESTLAND. Three-quarters of 1 percent can hardly be termed interest.

Mr. VAGLIANO. It is certainly concessional interest.

Representative WESTLAND. Then what is the interest rate for the balance of the period?

Mr. VAGLIANO. It is three-quarters of 1 percent for the whole period; the new loans will be 2 percent, however.

Representative WESTLAND. For the whole period?

Mr. VAGLIANO. Yes, sir.

Representative WESTLAND. And it is costing our Government now about, most of our Government bonds are yielding about 4¼ percent bonds except very short term, and even they are yielding better than 4, so there is a net loss to us then of about 3¼ percent on this $80 million?

Mr. VAGLIANO. That is right.

Representative WESTLAND. Have you added that into the cost of this project at all?

Mr. VAGLIANO. No. Let me put it this way. We added it into the cost of the project, if you wish, in making an economic analysis of the project. We didn't use the three-quarters of 1 percent for that purpose. We used, as a matter of fact, 6, 8, and 10 percent. But from the actual, if you wish, cost, it would be that difference. That is correct.

Representative WESTLAND. Is that in the $80 million?

Mr. VAGLIANO. No, sir.

Representative WESTLAND. That would have to be added to it. Three and a quarter percent on $80 million for 35 years. How much does that add up to? Would it be about $7½ million?

Mr. VAGLIANO. I think it would be more than that. It would be 30 percent of the loan. There is only half outstanding, so it would be about 15 percent of the loan.

Representative WESTLAND. Isn't it fair in selling this project to show that item as a cost to the U.S. Government?

Mr. VAGLIANO. Well, I think it is more of a loss than a cost. I am not trying to quibble, sir.

Representative WESTLAND. A loss rather than a cost?

Mr. VAGLIANO. In the sense that this is a part of a decision to lend money to foreign countries who are underdeveloped on concessional terms. Now, if we are lending on concessional terms, it is going to cost some money.

Chairman PASTORE. It is an indirect grant really, isn't it?

Mr. VAGLIANO. Yes. My feeling on this thing is that—and speaking now from a financial point of view—with some other countries in the past, between the First and Second World Wars, we went in and made loans to many of these countries on regular commercial rates, and then we found we had to renegotiate them and cut off part of the principal. The final result is the same. It is more realistic, but what you are really doing is questioning the whole idea of this thing.

Representative WESTLAND. Not the whole idea, but we are really saying what it is costing, that is all. It really does cost more than the $80 million?

Mr. VAGLIANO. That is right.

Representative WESTLAND. Because they are not going to repay the interest differential.

Mr. VAGLIANO. That is right. That certainly we will lose.

Representative WESTLAND. Are the other loans to India of a similar nature, this three-quarters of 1 percent?

Mr. VAGLIANO. Yes, sir.

Representative WESTLAND. What are the mechanics? Do you go through the Export-Import Bank or would this be an AID loan, or is this one of the soft loan windows?

Mr. VAGLIANO. Well, every project we get we send it over to the Export-Import Bank, and they have the first crack at it, and if they don't want to handle it, we do. Usually the reason they don't want to handle it is because their commitments per year to each country are limited by the creditability of the country. Therefore, if they don't want it, we take it, and we consider it. Now, our consideration of these projects from an economic point of view is the same, exactly the same principle as Export-Import Bank, and the difference is in the interest terms and the interest rates, and the maturity. We are subsidizing the loan, there is no question about it.

Chairman PASTORE. The difference between the three-quarters of 1 percent, and what it actually costs the U.S. Government in interest, that we have to pay on the money that we borrow, that is a part of the foreign aid program, isn't it?

Mr. VAGLIANO. That is correct, sir.

Mr. MALLEY. It is nothing uniquely applicable to the Tarapur, we all know that.

Chairman PASTORE. We are debating here the philosophy of the whole program, and we are doing this not only in Tarapur, we are doing it every day with respect to other countries and other projects. The interest rate varies according to the ability of the country to pay, or the status of the country, or what it means to us politically. All of those things enter into it. You don't have any hard and fast rule. In this particular case, in India, it happens to be three-quarters of 1 percent, and there are other countries where it is higher and there are other countries where we just give the money.

Representative WESTLAND. All I am doing is trying to get this out on the table so that you don't have a curve thrown at you on the floor.

Chairman PASTORE. When you say it is going to be added to the cost, or it ought to be added to the cost, the cost is being paid here by the Indian Government, and the recipient of the money, of course, is GE. But we are lending this money, and where we lose on this venture is the fact that we are lending the money at a very low rate of interest. We have to go on and borrow at a higher rate of interest, this same money that we are lending, so that the difference between what we collect from them and what we pay for borrowing the same money to give to them is in a sense foreign aid.

Representative HOSMER. In that connection, I haven't heard any word on the enriched uranium that is going into the core.

Representative WESTLAND. Could I pursue this just a little bit further? I think this gets back to what Senator Aiken was saying, as to whether these rupees which we have over there—I don't know what quantity of them we have, the Senator is probably better informed on that than I am—could be used.

Mr. CONWAY. In lieu of American dollars?

Representative WESTLAND. Yes; and let General Electric worry about the transfer, or is India so short of dollars that they don't have them?

Mr. VAGLIANO. They don't have them.

Senator AIKEN. Do you recall the terms on which Russia has made loans to India?

Mr. VAGLIANO. The terms that Russia has? I believe, sir, they vary. I want to check that, but it is somewhere between 2 and 3¼ percent.

Senator AIKEN. I think that you are right.

Mr. VAGLIANO. And I think 25 to 30 years.

Senator AIKEN. There is no other country that lends for three-quarters of 1 percent?

Mr. VAGLIANO. That is right. Some of these countries say we aren't giving them a break, because our prices are higher.

Senator AIKEN. I think Russia charges full price, too, when there isn't too much competition.

Chairman PASTORE. The thing that is disturbing me—of course, you are getting back to the basic question of foreign aid relations here, and even though what we are considering here is Tarapur—but there is an article in today's paper where someone made the statement to the effect that India was beginning to feel that America was letting her down.

Representative ANDERSON. It was Gandhi's daughter.

Mr. MALLEY. She was referring, I believe, to what she believed is the U.S. attitude to the Kashmir dispute.

Chairman PASTORE. Even so, if we are doing it at all, we are doing it for public relations and to promote friendship between the Indian Government and ourselves. After all, this is a loss to the American taxpayer, any way you look at it. The American taxpayer sometimes is willing to do these things in order to stabilize these governments or so that they will be our friends. After we do these things, we put out the money, and we get rebuked for another reason. But what difference does it make? We are still spending money to be rebuked, and that is a hard thing to take. I think that is what is troubling us here.

Representative BATES. And besides the Joint Committee was not permitted to overfly India.

Chairman PASTORE. If we are losing good will, what are we buying here? This is not a business transaction in the strict sense of American business understanding. There is no question about it at all. Mr. Westland has pointed out here that we are subsidizing the deal between GE and the Indian Government and the American taxpayer is making a grant.

Representative HOLIFIELD. Let us never forget that $80 million—and I am talking about dollars now—goes into the coffers of GE. We are financing the great free enterprise system of GE. That is what we are doing. The rupees that are being spent are being spent by the Indians, by GE in India, but the dollars that we are furnishing, the $80 million, is being spent here in the United States. Now, take what comfort you can out of supporting the unsubsidized free enterprise system out of that $80 million.

Representative WESTLAND. I would have to rise to that one.

Chairman PASTORE. They could go some place else and get some other foreign country to build the plant.

Representative HOLIFIELD. That would be wonderful with me.

Chairman PASTORE. If they paid the straight price that is one thing I would like to see them buy it here in America, and there is nothing wrong with that. There is nothing wrong with the American dollars and there is nothing wrong with GE doing it from my point of view because after all, it does mean American jobs. But in the process, we do admit that there is a subsidy here which is the difference between the interest we collect from them for the same amount of money that we have to go out and borrow and pay a higher interest. That strictly is a giveaway. There is no question at all about that. It is a foreign aid. What does it come to in dollars and cents? I don't know. But the only attraction here in this deal is that they are able to borrow this money at three-quarters of 1 percent. If they had to borrow this money at the same rate that the U.S. Government or any American private firm has to pay interest on the money that they borrow for a project, I don't think that they would get anywhere.

Mr. VAGLIANO. I think they might get into it. They would get into some of this. They wouldn't be able to service as much debt so they would buy less. There is no question about that.

Representative BATES. You would probably get a conventional plant.

Chairman PASTORE. The attraction here is the 40-year term and the 10-year grace and three-quarters of 1 percent.

Senator AIKEN. Congress did that.

Chairman PASTORE. You are not going to stop that now.

Senator AIKEN. About 3 years ago we told AID to stop making so many grants and make more loans. They went to making loans at three-fourths of 1 percent interest after 10 years. I believe it costs a little more than three-fourths of 1 percent to service those loans if the truth be known.

Chairman PASTORE. I think it is appropriate for me to ask: Is there a representative of the State Department here? What essentially is the advantage to America in this contract? Let me ask you this question: What is the advantage to us in this particular transaction?

Mr. VAGLIANO. Well, I think you have to look at the whole idea of the foreign aid program in India. My personal viewpoint is not that we are in this aid program in India necessarily to be liked by the Indians. I think this would not be a particularly good investment. But I think that the hope, possibly the cautious expectation is that over a period of x years, that country will be in a state where it will be strong both economically and able to take care of itself, and that it will be on the side of the West. At that point, we will be in a situation where it will be a good market for us, too.

Chairman PASTORE. The only advantage here is the political advantage.

Mr. VAGLIANO. And perhaps in the long run the economic advantages that come from developing another market for us.

Chairman PASTORE. Well, that is true provided we go back to the standard rate of interest.

Mr. VAGLIANO. Well, they will be able to pay cash at that time.

Chairman PASTORE. Now, you have a lot of other items here. You have brought this thing up to about $80 million, and the contract is $114 million. Could you develop that, too?

Mr. MALLEY. It is not correct to say that General Electric is going to get $80 million, all 80 million of our loan dollars. Our loan will finance the dollar costs of the GE contract, the dollar costs of a separate contract that we require the Department of Atomic Energy to conclude with an independent U.S. consulting firm to assist them on the project, plus the dollar costs of certain minor items that the Indians have to import to do their portion of the total project.

Now, our estimate of those total dollar costs is $80 million. In fact, we might guess that approximately 75 million of these 80 will eventually flow to the General Electric Co.

Now, on the rupee side of the project——

Mr. CONWAY. You might make it clear you have some contingencies, about $5½ million contingency.

Mr. MALLEY. That is right. In other words, the $80 million of AID dollars will flow out for three separate things. The first and by far the most important is to fund the GE contract, the dollar portion of that contract.

The second is to fund the dollar costs of a consulting engineer. The third is to fund dollar costs of certain equipment to be imported by the Indians to do their portion of the Tarapur work, such as, for example, access roads, water reservoirs, railway sidings, and warehouses, and this manner of thing outside of the scope of the GE contract. It is being done by the Indians, and a certain small quantity of dollars the Indians need, too, to import material to do this work.

Representative HOSMER. Let me ask you this: Is that supposed to be about $5,610,000 in customs duties? Is that included in the $34 million, that portion?

Mr. MALLEY. Yes, it is, sir.

Representative HOSMER. So their net is not $34, but $28 million on their part. They are just taking money from one pocket and putting it into the other.

Mr. MALLEY. From the viewpoint of the Government of India, that is correct. From the viewpoint of the agencies of that Government, it isn't necessarily correct. The agencies are the Department of Atomic Energy and the import authorities.

Representative HOSMER. Are they separate and independent from the Government or are they a part of the Government?

Mr. MALLEY. They are a part of the Government.

Representative HOSMER. The Government is what we are dealing with.

Mr. MALLEY. Yes.

Representative HOSMER. I want to make sure that our perspective goes the same.

Mr. MALLEY. It does.

Chairman PASTORE. If there is a qualification to it, go ahead.

Mr. MALLEY. From the point of view of the agencies of the Indian Government, the Department of Atomic Energy from its own rupee accounts will pay the rupee portion of the GE contract and then a portion of these rupee receipts will be utilized by General Electric Co. to pay rupee import duties to the customs authorities. So, it is

a flow via GE of rupee funds from the Indian Department of Atomic Energy to the Indian import authorities.

Chairman PASTORE. In other words, the custom duty payments will be in rupees and not in American dollars?

Mr. MALLEY. That is true.

Representative HOSMER. What about the manner of imports and licenses? We brought that up rather extensively one day. (See p. 15.) We were told that somebody hoped that that could be worked out satisfactorily.

Mr. MALLEY. It was a hope and an expectation last fall, and it is a hope and expectation that has been consummated.

Representative HOSMER. In what respect? Have they made up a list of things that are going to come in?

Mr. MALLEY. They have, sir, and this list has been thoroughly reviewed with the Indian import authorities. These authorities have granted to General Electric Co. three so-called blanket import licenses providing that all of this material can be imported into India. Now, there is also provision made——

Representative HOSMER. What do you mean "provided it can be imported into India"? It isn't too heavy to move. That is the only restriction I can think of offhand.

Mr. VAGLIANO. Well, the license gives them authority to import this particular equipment. Now, while this might appear offensive to us, if we are financing a project and another department would have to approve the importation of goods, actually, it is as much for our own protection as theirs, because we would not wish to be financing items that could be obtained in India. The main purpose of the licensing is to figure out what could be bought in India.

Representative HOSMER. Is this $80 million a drawing account or an outright loan?

Mr. VAGLIANO. It is a drawing account.

Representative HOSMER. Now, we have a good deal of interest in seeing that this project moves along on schedule and the completion date is met. We also have knowledge that if you want to get some piston rings, or something as simple as that, imported, you have to run all over India for 6 to 12 months to make sure that somebody in some small machine shop in some valley somewhere can't supply you those things.

Where do we stand in relation to that kind of a potentiality?

Mr. VAGLIANO. On this particular project, I don't think we have any problem at all on that. As I understand it, we have that.

Representative HOSMER. These Indians are shrewd bargainers, you explained, and I want to know for sure. There may be something come up where they need another gage and you can fly it over from the United States in a day or wait 6 months for it be be manufactured locally in India.

Mr. MALLEY. I would say that the General Electric Co., which is not an unshrewd bargainer itself, incidentally, is satisfied with the arrangements it now has with the Government of India for the import of materials and for the procurement of materials within India.

Representative HOSMER. I know of some other American firms who were so satisfied, up to the point when they tried to get some of this stuff in. Then they were not only dissatisfied, they were horrified and disgusted.

Mr. RAMEY. Haven't they made arrangements, Mr. Chairman, to appoint the Indian Atomic Energy Agency as sort of the representative of the customs people, so that they can expedite the bringing in of equipment so they aren't going to two agencies?

Mr. MALLEY. Well, the Indian Department of Atomic Energy is providing all manner of assistance to General Electric with respect to handling these kinds of matters with the Indian customs authorities.

Representative HOSMER. Do you recall when we were having that trouble with the Chinese up on the border a couple of years ago, and we were sending them rifles in boxes and the Indian Government Collectors of Customs were stopping the boxes at the port of embarkation, opening everything up and putting a customs' stamp on it, after a leisurely period of time before the rifles were sent up to the men in the front lines. That is the kind of thing that is bothersome to the country boys like me.

Mr. VAGLIANO. I think that bothers everyone, but I don't think we have this problem in this particular case.

Representative HOSMER. We never think we have a problem until it is facing us.

Mr. VAGLIANO. I think in this particular case they have such an interest in getting this thing done on time and getting the power on the line that enough high-level pressure would get rid of any of those roadblocks. But I think this is an example of bureaucracy, if you wish, which we don't have a complete monopoly on and one little department won't work with another.

Representative HOSMER. What is this list of items? Is this all to build the reactor? All of these things that are so well taken care of, about getting them into India?

Mr. MALLEY. It is portions of the whole station, including the reactor, plus the construction equipment.

Representative HOSMER. After they have been in operation 6 months and something blows and they want to get another piece in there real fast, do you know anything about that situation?

Mr. MALLEY. There are two possibilities: One is that it will be available for the fair amount of spare parts actually at the station.

Representative HOSMER. You never can find the one you want.

Mr. MALLEY. And the second possibility then is import from the United States, I presume, or if it is a locally manufactured material, purchase of it from the local company.

Representative HOSMER. Then, again, we get into this business of trying to find a manufacturer, which isn't exactly easy over there, but you have to make some kind of a big federal Indian Government case out of the fact it is not available. These things bother me. I know you worry about them, but I detect an uncertainty in your answers and so maybe you don't worry enough about them.

Mr. MALLEY. It is difficult to give absolute certainty at this point. Problems will arise of many kinds that will be settled at the time that they arise. All we can say definitively now is that the arrangements set down for the import of materials for assessing their import duties, and for promptly handling their movement out of the Bombay port up to the project site—these arrangements have been set down. The General Electric Co. is satisfied with the arrangements. Problems might

arise. There is an agreement between the parties that if any problems do arise, they will be very quickly handled at the working level.

Representative HOSMER. That remains to be seen, I guess.

Chairman PASTORE. You keep saying that GE is satisfied with these arrangements. Have these matters been discussed with GE, with your agency, and with the Indian Government?

Mr. MALLEY. The answer is "Yes" to both questions, Mr. Chairman.

Chairman PASTORE. What is this thing that Mr. Ramey brought out that there is going to be more or less a discussion here of the Atomic Energy Commission of India that will supervise the importation of the equipment connected with this project. Did I understand you correctly?

Mr. RAMEY. Yes; Mr. Chakravarti, the Indian negotiation representative, indicated that to me last week that they had worked out that arrangement.

Chairman PASTORE. Which will, in your opinion, cover this area that has been discussed by Mr. Hosmer?

Mr. RAMEY. It would cover everything, including spare parts. Whether this continues through the whole 4 years afterward or not, I don't know, Senator Pastore.

Representative HOSMER. I am worried about this because all of these people who have been talking about this today, and are in such accord with each other, one by one they will be replaced by somebody else. You have a whole new crew unless you have it all down in workable systems that does not fail to function. It has, in fact, anticipated and eliminated so many of the problems that we are going to be in a mess.

Mr. VAGLIANO. I think we are fully confident on this. The problem is, and the problem we are having is that we aren't ready to say that some clerk in India 5 years from now isn't going to hold up a piece of equipment in the customs office. We are confident on this particular project that the interest of the country and the participation of the Indian Department of Atomic Energy will expedite it. To say there won't be any foulup on this is something that I don't think we can say.

Mr. CONWAY. In your letter to the committee back in September on this point, you said it has been thought that the Government of India might issue a single comprehensive import license covering all equipment which must be imported for the station and the housing colony. (See p. 12.)

Mr. VAGLIANO. That has been done.

Mr. CONWAY. Then you went on to say that there has been thought that other methods of simplifying customs clearance procedures might be adopted and that prior agreement might be reached regarding which customs classifications certain equipment being imported to India for the first time would fall into.

Mr. VAGLIANO. That has also been done. But we were talking about items that might be needed later which they will pay for out of their own money.

Senator AIKEN. Do you have any guarantee against a rise in customs duties?

Mr. MALLEY. There is no guarantee in that, Senator, but there is a provision in the contract that if there is a rise in customs duties, the rise will be funded by the Indian Department of Atomic Energy and not by GE.

Senator AIKEN. Not by GE. The Indian Department of Atomic Energy, what will they pay it with, our rupees?

Mr. MALLEY. They will pay from their own rupee budgets that are appropriated to them by the Indian Government.

Senator AIKEN. I wouldn't be so skeptical if I didn't have something to do with the wheat deal for India. When they were having famine conditions we shipped them wheat and they wouldn't let us land the wheat we were giving them until we paid customs duties on it.

Mr. MALLEY. I might give an example of a potential problem that has been anticipated. Regarding the clearance of delicate equipment for the station, it has been agreed between the parties that certain of this equipment will not be outfloated at Bombay Harbor and sit in warehouses and wait for customs clearance and assessments, but that it will either be loaded on rail cars directly or barged out from the harbor to the Tarapur site, and will be looked at by the customs authorities and assessed at the site.

Chairman PASTORE. Our staff has prepared some very penetrating and provoking questions and I think that we ought to ask them. The Burns & Roe study recommends a number of changes in the Tarapur contracts as follows:

1. Performance warranty should be based upon the performance of each reactor unit rather than the entire station.

Are you familiar with that, sir?

Mr. MALLEY. We are.

Chairman PASTORE. 2. Warranties on condenser performance should be eliminated because it does not necessarily provide improved overall performance on the basis of costs.

3. The fuel exposure warranty should be sharpened so that the method of arriving at fuel exposure would be easier to calculate.

Have you given any thought to these proposed contract modifications, and if so do you intend to incorporate them in the Tarapur contract?

Mr. MALLEY. With respect to the first question, the understanding between the parties, even though it might be a little bit unclear in the contract, is that the warranties are, in fact, based on each reactor and, in fact, that Burns & Roe's suggestion is incorrect.

With respect to the second point——

Chairman PASTORE. Well, who hired Burns & Roe?

Mr. MALLEY. We did, sir; they are our consultant.

Chairman PASTORE. And they are incorrect?

Mr. MALLEY. That is what both GE and the Government of India say.

Chairman PASTORE. And that is what you feel?

Mr. MALLEY. And we agree with them.

Chairman PASTORE. I am not being impertinent about this. You are going against your doctor's advice.

Mr. MALLEY. All of us agree that the Burns & Roe interpretation of the language is incorrect.

Representative BATES. On what basis is he exercising judgment in this technical field, to disagree with your consultant? Who is this "we"?

Mr. VAGLIANO. We, in each case, in each of these projects, we have a project committee which was made up of an engineer, an attorney, and a loan officer. Mr. Malley is the loan officer and Mr. Arthur Vieregg, the engineer, who is unfortunately in India today, or I think there or in Pakistan, and the lawyer is on his honeymoon. But these are the three that worked all of the way through this thing.

Chairman PASTORE. And that is their opinion?

Mr. VAGLIANO. That is the opinion of this group.

Chairman PASTORE. Let us pass on to No. 2.

Mr. MALLEY. On No. 2, the Government of India has taken this particular point under consideration. As I understand it, and I am not a technical man, they do not agree that a change in this warranty on condenser performance would be to their benefit. They have explained this to our engineers in some depth, verbally, and they owe us momentarily a written note on this very point.

Chairman PASTORE. And No. 3?

Mr. MALLEY. No. 3, as I understand it from both the Indian engineers and our own, as well as from the General Electric Co., is that it is difficult at this moment to determine exactly the method of calculation until there is more thought given to the exact manner in which the fuel will be fabricated.

A method of calculation will be arrived at in the proper course, and at a time in the implementation of the project when it is possible to do it definitively and in detail.

Chairman PASTORE. Now, is the AEC familiar with these two last points? They are technical in nature and how do they feel about it?

Dr. Pittman, do you have any comments?

Dr. PITTMAN. I have not read the contract. I have seen the Burns & Roe's comment, to go back to the first one, about the warranties on each reactor separately. As I understand it, the question that they are raising is that with two reactors and the warranty on the total of the two, it is possible one could operate lower and the other operate higher, and this would be a disadvantageous situation. I agree that if that is possible under the contract, it could be a disadvantageous situation.

However, again in reading the Burns & Roe report, it indicates that the probabilities of that are small, and I think what they are saying is that the language in the contract, and as I said at the opening I have not read the contract, makes it possible to come to that assumption. Therefore, we would suggest that if there is a potential ambiguity, possibly it should be removed. The two reactors ought to be operating so that both of them are essentially the same reactor. As far as the contractual language, sir, I am not competent to make a comment on that.

Chairman PASTORE. Where does it leave us then, Mr. Malley?

Mr. MALLEY. The understanding between the parties is that the warranties are based on the performance of each reactor. That is how GE interprets their commitment, and that is how the Indians understand that GE has contracted with them. The parties to the contract agree that this is desirable and in fact it is what is intended between them.

Chairman PASTORE. Is there any governmental interest in this?

Mr. MALLEY. Yes, and we have raised the point with both India and GE.

Chairman PASTORE. Or is it between India and GE?

Mr. VAGLIANO. I think it is fair to say that on the question of the language of the contract, if the parties agree to language and agree that they understand what it means, I think unless we are overwhelmingly worried about it, that we should not second guess.

Chairman PASTORE. I think for the sake of saving time, if this is acceptable to the committee, I think that your group or your staff ought to sit down with our staff. They have raised here a number of questions and I think what you ought to do is get these questions in the record and get the answers in the record and take it from there.

I think that is the better way to do it. I have pointed out here No. 3 is very important. One of the major technical recommendations of Burns & Roe report is that consideration should be given to reducing the number of control rods and drives of the Tarapur plant. That is a technical question. What has been resolved? You have never seen the Roe report, Dr. Pittman?

Dr. PITTMAN. I have a copy of the Burns & Roe report which I have just seen.

Chairman PASTORE. How about you, Mr. Ramey?

Mr. RAMEY. We just got the final report today, as I understand it. There was an earlier draft, I think, or part of it.

Chairman PASTORE. I am perfectly willing to admit that our hearing may be somewhat premature too. You say you are working in conjunction and cooperation with the AEC. You have engaged their firm and they have made certain recommendations. We have a copy of the report. And I think we have to have an understanding here as to whether or not the Roe report is correct and if it isn't correct what is correct and what is going to be done about it if they are correct.

Mr. MALLEY. We can provide an answer to every one of your questions, sir, in writing. (See p. 164.)

Mr. CONWAY. The Burns & Roe report on page 9, points out the difference between Oyster Creek and Tarapur. They indicate that at Oyster Creek, because of some new designs, it is possible to reduce the number of control rods to 129. You will find the Tarapur reactors have more rods and drives than the single Oyster Creek reactor, and each of them costs about $20,000 apiece.

So when you go 49 more than the other reactor, you have a very significant cost increase.

Dr. PITTMAN. This ought to be looked upon as a fiscal matter rather than a reactor technology or operating point. The reactor certainly is a conservative design, and it will operate perfectly capably with the number of control rods.

Now, if the Indians want to try to get this reactor at a lower price by reducing this number of control rods, it certainly can be done.

Chairman PASTORE. It is to the advantage of the U.S. Government also, because if they don't need the money, the U.S. Government does not have to make that $1 million available.

Mr. MALLEY. If it would be $1 million, but if I may read a Government of India note on this very point:

During the discussions it was suggested by AID representatives that some reductions in the station costs may be possible if the number of control rods and the drive systems were reduced.

Since the price quoted by GE is a lump-sum one for the entire scope of work and services, the reduction that may be possible by reducing the scope of supply would in all probability be based on the marginal cost rather than the actual per unit cost. In any case the inherent flexibility in the design is worth more to us than any possible savings through such reductions in the scope of supply.

Mr. CONWAY. The committee hears complaints coming in from some of the second-round reactors, for example, claiming that for certain type reactors advancements have been made in reactor designs and by the time they get to construction they are not getting the more up-to-date design that is known and has evolved through the AEC expenditures, with the net result that they are building older type reactors at higher cost than they could if some of the more modern designs were utilized.

This type of a question is raised here, particularly when your own technical consultant makes this type of a recommendation.

Chairman PASTORE. I go beyond that, Mr. Malley. I hope you can see the thing that is disturbing me here. You have engaged this firm of consultants yourself, and they have made certain recommendations which are being disputed or refuted either by the Indian Government or by GE or by yourselves, or by the AEC.

I think, for a good record, what you ought to do is take each one of these recommendations that have been made, and identify those that have been accepted, and for those that have not been accepted explain why not in consultation with the AEC, of course, after they have been given an opportunity to take a look at this.

You have hired a firm to give you a recommendation and they have done so. Then you just repudiate the recommendation because the Indian Government says, "Well, we don't agree with it." I think there ought to be something in the record to say, "Well, we agree with the Indian Government for these reasons, or we don't agree with the Burns & Roe report for these reasons." But the record ought to be complete.

Mr. MALLEY. I agree, Mr. Chairman.

Chairman PASTORE. That is the only question I am raising. I never heard of the Roe report until someone handed it to me here today. This came into being because you people went out and got it. You might have gone out and got it after we referred the matter to the General Accounting Office, and I don't know, but I think that you had a perfect right to be fortified in your decisions. But the fact of the matter is that there are certain recommendations made by the consultants that you hired, that you dispute. Am I correct in that?

Mr. MALLEY. That is correct.

Chairman PASTORE. That either you do or the Indian Government does, and I think for a good record what you ought to do is list each one of these recommendations, those where you are in disagreement, and those with which you agree, and there is no question about the latter of course. But where there is disagreement, I think there ought to be an explanation on each one. I would hope you would sit down with John Conway here and get that straightened out and then we can put them all in the record. Is that satisfactory? Is that satisfactory to the committee?

Mr. MALLEY. I might note that this report is just off the press.

Chairman PASTORE. I know, but it is going to be quite an important report after you sign this contract, someone is going to raise these questions.

Mr. MALLEY. I might note a second thing, too, Mr. Chairman, that we are requiring the Government of India to give us their written refutation or acceptance of each of these points.

Chairman PASTORE. And you are going to do that before you sign the contract or after you sign it? That is the question. I think you ought to resolve all of these things before you sign the contract. After you sign the contract what are you going to do about it?

Representative BATES. It would be a waste of time then.

Chairman PASTORE. That is the point I make, you see, and I think the Indian Government is interested to get this show on the road, and I think that they should be urged to handle this expeditiously. You have some fine experts there, and you are surrounded by Mr. Wells who is an expert, and Mr. Ramey, and Dr. Pittman, and there you are.

The point is that certain questions have been raised. I think that they should be resolved in the record.

Mr. VAGLIANO. I think that is right, sir. I think we have to keep in mind in this thing that we are not executing this project in the sense that we are financing it. While it is quite, indeed entirely, proper, and we should bring these matters to the attention of the parties, I would be very reluctant on the part of the AID to second-guess unless there was very good reason to second-guess. What concerns me, of course, is the fact that at one point if we go too far in insisting on specific technical items of this kind one way or the other, that we are taking on a responsibility for decisions which might lead to assertions that they are no longer a borrower.

We made them do this and it did not work. It is a difficult balance.

Chairman PASTORE. But you are a lawyer and you are a banker. If *A* was going to buy a house from *B*, and borrowed the money from you, and either *A* or *B* went to a consultant and they said that there were termites in the house, would you lend the money?

Mr. VAGLIANO. No, if there were termites, I would not.

Chairman PASTORE. That is the point. If there are any faulty conditions to this contract, I think that you ought to smooth them out before you begin to lend the money. That is all I am saying.

Mr. VAGLIANO. We should be fully aware that they have been fully considered.

Chairman PASTORE. I don't think that we have any problem here at all. All we are saying here is before this contract is signed that you folks sit down with your AEC partners in this thing and go over this report and get an explanation. I am not saying Roe is right and I am not saying they are wrong, but you hired them and you have made their recommendations a matter of public notice.

Now the question is, if you don't go along with them, I think the record ought to show why, and all of these details can be straightened out, so this thing won't blow up in your face later on.

You can say, yes, we considered that, and we rejected it for this reason, and we considered that, and we complied with it to this extent, but not to this extent because we were told by the AEC that it was not necessary to do it that way, and this was a matter between GE and the Indian Government, and for that reason it was of no essential concern to us.

But I think you ought to get an answer in there because, after all, it is your report. (See p. 164.)

Representative MORRIS. Has the contract between GE and the Indian Government been signed?

Mr. VAGLIANO. No, sir.

Chairman PASTORE. I think they ought to resolve these questions before they do sign it, and I don't think that they ought to hold it up unduly, and I don't think this is a serious problem, and I think that this is just a question of a mechanical operation, but I think you people ought to get together and do it and you ought to consult with the AEC and do it.

Does anyone dispute that recommendation that I have just made?

Representative MORRIS. Who would dispute the recommendation of the chairman?

Chairman PASTORE. That isn't the point. If there are any arguments to it, I would like to hear them. I don't want to keep repeating it. Here you have fundamental recommendations by your own consultants, and I think they ought to be resolved, and I think that you ought to have the answers in the record.

Mr. MALLEY. I think, Mr. Chairman, that we fully agree, and resolution of these particular points was, in fact, something that we had in mind also.

Chairman PASTORE. I think that you ought to do it before you sign that contract.

Mr. RAMEY. On this other question that you raised on the price itself, we have not discussed that in any detail at all, and I think the parties here were prepared to discuss it to the extent that you think necessary.

Chairman PASTORE. You mean the difference between the $80 million and the $114 million?

Mr. RAMEY. Not exactly.

Chairman PASTORE. I don't think that you are going to have any trouble explaining that item.

Mr. VAGLIANO. That is what we started to do.

Chairman PASTORE. All right, go ahead and you do it.

Mr. RAMEY. Mr. Chairman, I was talking in terms of the Oyster Creek price and their reasons why the Tarapur one was higher per kilowatt. That is the sort of thing that you people had been concerned about.

Mr. CONWAY. We have not yet received a report from GAO, but Burns & Roe in their report go into it to some extent.

Mr. RAMEY. Part of my inquiry was if these questions in the Burns & Roe report were answered from the standpoint of the Government, of going ahead and saying it is all right for GE and the Indian Government to sign up on the contract, perhaps before you have gotten the entire GAO report, and so on.

We did not want it to appear that we were pulling a fast one, you might say.

Chairman PASTORE. Are you prepared to do that, sir?

Mr. VAGLIANO. Excuse me?

Chairman PASTORE. To answer the question raised by Mr. Ramey?

Mr. VAGLIANO. At the beginning of the session what we said is that having received these three appraisals, that the price was reasonable——

Chairman PASTORE. But you were not specific.

Mr. VAGLIANO. That is right.

Chairman PASTORE. Can you be any more specific than you were generally?

Mr. VAGLIANO. On the question of the comparative price?

Chairman PASTORE. Yes.

Mr. VAGLIANO. Well, we have the Burns & Roe report which says that the price is reasonable. We have the letter from the Atomic Energy Commission, and then we have the question of the competitive bidding, which I went into before, and all of these combined to satisfy us that this was a fair deal, arrived at at that time, and we have no ground to upset that and, indeed, we have an obligation to go ahead with this thing.

We have to keep in mind that we have a loan agreement executed on this project and that we wish to proceed with the project as agreed by us. All of the evidence that we have points to a reasonable price.

Representative MORRIS. You have executed the loan agreement with the Indian Government?

Mr. VAGLIANO. Yes; this was last December.

Representative MORRIS. What was the price or how much did you agree to lend them?

Mr. VAGLIANO. This is standard in all of our agreements, we agreed to lend them up to a certain amount.

Representative MORRIS. Up to what in this particular agreement?

Mr. VAGLIANO. Up to $80 million.

Chairman PASTORE. We have the report here from Burns & Roe which says it is a fair price. We have submitted the matter to the GAO and I think that what we ought to do at this juncture, in view of the testimony thus far, is to recess the hearing subject to a recall after we get the GAO report. If the GAO report is similar to the Burns & Roe report, we have no question here.

Mr. CONWAY. The last I heard it would be about the end of the week. You say you have an AEC letter. Does the AEC take a position?

Mr. VAGLIANO. They stated that the capital cost compares favorably with several other foreign reactors, including the KRB plant being built in Germany, which is very similar in design to Tarapur.

Mr. CONWAY. Those are older plants, and we are talking about more up-to-date plants.

Mr. RAMEY. I think that we made that report available to the Joint Committee staff (see p. 157).

Mr. CONWAY. I think it said:

> This is strictly a commercial venture and the Commission will be involved only to the extent of providing the fuel and evaluating the safety of the operation of that site.

I presume you are referring to the Jersey Central case. But you have a stronger interest in Jersey Central than just that.

Dr. PITTMAN. But there is no contractual or legal relationship.

Mr. CONWAY. But the Commission will be involved in more than that with that plant.

Dr. PITTMAN. It depends on the definition of "involved." There will be no financial assistance to them.

Mr. RAMEY. Mr. Chairman, I think there is one question, at least; prior to the meeting, we were under the impression that it might

be a fairly long period of time before you finally got all of your information from the General Accounting Office.

Mr. CONWAY. I talked to them yesterday and asked them and they said that they were working on it and they expected to have their report by the end of this week. We have a letter that states it will be furnished to the committee by May 1. (See p. 143.)

Mr. RAMEY. I think the problem with the AID people—and you may want to ask them—is, in their relations with the Indian Government, they have been anxious to permit them to go ahead with this arrangement.

Chairman PASTORE. Let me ask you this: When do you expect to sign this contract? Is there any haste here?

Mr. VAGLIANO. I think that there is haste.

Chairman PASTORE. For the record, I would like to have these questions answered. You can answer them point-by-point. Is that satisfactory?

Mr. VAGLIANO. Yes, sir.

Chairman PASTORE. Mr. Ramey, did you have something more you wished to say?

Mr. RAMEY. I just wanted to say that you put an admonition on the Commission last fall about following this project with the AID people, and we have established an informal committee with AID and the State Department at the policy level to follow this. Mr. Macomber and I are the AID and AEC representatives on it, and AEC is also participating with the AID Working Level Committee to provide active technical advice on a more organized basis. (See p. 191.)

Chairman PASTORE. I think the Commission should follow this thing, and we are going to hold them responsible for doing so. On the other hand, the AID would be foolish if they didn't cooperate with you and you didn't cooperate with them in the interest of everyone concerned to see that this is carried forward.

After all, there have been many, many questions raised about this project. There are going to be more questions raised. The idea is that rather than have this thing all blow up in your face, we do this thing properly so that, when these questions are asked of me, we are in a position to say, "Look, we are conscious of this, and this is the report."

Thank you very much for your attendance here today.

(Whereupon, at 4:15 p.m., Wednesday, April 22, 1964, the committee adjourned.)

INTERNATIONAL AGREEMENTS FOR COOPERATION

TUESDAY, JUNE 30, 1964

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON AGREEMENTS FOR COOPERATION,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The Joint Committee met at 2 p.m. pursuant to call, in room AE–1, the Capitol, Senator Albert Gore (chairman of the subcommittee) presiding.

Present: Senators Pastore, Gore, and Bennett, and Representatives Holifield and Hosmer.

Also present: John T. Conway, executive director; Edward J. Bauser, assistant director; Jack Newman, staff counsel; George F. Murphy, Jr., professional staff member; and James B. Graham, technical adviser.

Senator GORE. The subcommittee will be in order. Before beginning the hearing I would like to recognize, and ask to stand, our new and most charming member of the Commission, Mrs. Bunting. Dr. Bunting, we look forward to working with you with a great deal of pleasure.

Dr. BUNTING. Thank you.

Senator GORE. The Subcommittee on Agreements for Cooperation of the Joint Committee on Atomic Energy meets this afternoon to consider proposed amendments to agreements for cooperation with seven nations.

Proposed amendments to agreements with six of these nations concern the assumption of responsibility by the International Atomic Energy Agency for safeguards inspection to insure that fissionable material is not diverted to military uses. Other modifications to these agreements provide for extensions of their effective periods and more flexible arrangements with respect to the transfer of material to be used in research projects. An agreement with the seventh nation, the Republic of France, concerns only the removal of the existing enrichment limitation of 90 percent in transferring uranium to France for research purposes.

The proposals to amend these agreements for cooperation were submitted to the Joint Committee pursuant to section 123c of the Atomic Energy Act of 1954, as amended, which requires that such arrangements lay before the Joint Committee for 30 days before becoming effective. The proposed amendment to the agreement with the Republic of France was received by the Joint Committee on June 24. Other modifications to existing arrangements were received on June 9.

In accordance with the custom of the committee and in order that the Congress might be aware of the pendency of these matters, on June 29 I inserted in the Congressional Record copies of the proposed modifi-

cations to these agreements and supporting correspondence. Without objection, I would like to insert into the record of these hearings the detailed proposals and related correspondence.[1]

(The documents referred to follow:)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy, Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Greece Concerning Civil Uses of Atomic Energy;

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with the Kingdom of Greece which was signed at Washington on August 4, 1955, as amended by the agreements signed on June 11, 1960, April 3, 1962, and June 22, 1962.

Under articles I and II of the amendment, the word "lease" as it appears in article II A and D of the agreement is changed to the word "transfer" and in article VI C of the agreement, the word "leased" is changed to the word "transferred" in order to permit either the lease or sale of enriched uranium for fueling defined research reactors. There is no immediate intent on the part of the Commission to change its policy of leasing fuel for research reactors. However, this change will permit the Commission flexibility to lease or sell such fuel should unforeseen circumstances require a change in that policy during the 10-year extension of the agreement.

Article I of the amendment also adds to article II of the agreement provisions with respect to the retention of title by the Government of the Kingdom of Greece to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article III of the amendment provides for the Government of the United States of America and the Government of the Kingdom of Greece to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the agency would be accomplished without further modification of the agreement by means of a trilateral agreement to be negotiated between the United States, Greece, and the agency.

Article IV of the amendment extends the agreement for a period of 10 years beyond its expiration date of August 3, 1964.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

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[1] Text resumes on p. 121.

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE KINGDOM OF GREECE CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Kingdom of Greece,

Desiring to amend the Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Greece Concerning Civil Uses of Atomic Energy, signed at Washington on August 4, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on June 11, 1960, April 3, 1962, and June 22, 1962;

Agree as follows:

ARTICLE I

Article II of the Agreement for Cooperation, as amended, is further amended as follows:

1. Substitute the word "transfer" for the word "lease" wherever said word appears in paragraph A.

2. The following new sentence is added at the end of paragraph B:

"It is understood and agreed that although the Government of the Kingdom of Greece may distribute uranium enriched in the isotope U^{235} to authorize users in Greece, the Government of the Kingdom of Greece will retain title to any uranium enriched in the isotope U^{235} which is purchased from the Commission at least until such time as private users in the United States of America are permitted to acquire title in the United States of America to uranium enriched in the isotope U^{235}."

3. Paragraph C is hereby amended to read as follows:

"C. It is agreed that when any source or special nuclear material received from the United States of America requires reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel shall not be altered after its removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing."

4. Delete the word "lease" as said word appears in paragraph D and substitute in lieu thereof the word "transfer."

5. The following new paragraphs E and F are added to Article II:

"E. Special nuclear material produced in any part of fuel leased hereunder as a result of irradiation processes shall be for the account of the Government of the Kingdom of Greece, and after reprocessing as provided in paragraph C of this Article, shall be returned to the Government of the Kingdom of Greece, at which time title to such material shall be transferred to that Government, unless the Government of the United States of America shall exercise the option, which is hereby granted, to retain, with appropriate credit to the Government of the Kingdom of Greece, any such special nuclear material which is in excess of the needs of Greece for such material in its program for the peaceful uses of atomic energy.

"F. With respect to any special nuclear material not subject to the option referred to in paragraph E of this Article and produced in reactors fueled with materials obtained from the United States of America which is in excess of the needs of Greece for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an agreement for cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or group of nations in the event the option to purchase is not exercised."

ARTICLE II

Article VI, paragraph C, of the Agreement for Cooperation is amended by deleting the word "leased" and substituting in lieu thereof the word "transferred".

ARTICLE III

Article VII (A) of the Agreement for Cooperation, as amended, is further amended to read as follows:

"A. The Government of the United States of America and the Government of the Kingdom of Greece, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VI, paragraph C, of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"B. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph A of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of the Kingdom of Greece shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of the Kingdom of Greece for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE IV

Article VIII of the Agreement for Cooperation, as amended, is further amended by deleting the date "August 3, 1964" and substituting in lieu thereof the date "August 3, 1974".

ARTICLE V

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this eighth day of June 1964.

For the Government of the United States of America:

PHILLIPS TALBOT,
Assistant Secretary, Near Eastern and South Asia Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Kingdom of Greece:

ALEXANDER A. MATSAS,
Ambassador.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., April 16, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Greece Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend the agreement between the Government of the United States of America and the Government of the Kingdom of Greece which was signed at Washington on August 4, 1955, as amended by the Agreements signed on June 11, 1960, April 3, 1962, and June 22, 1962.

The present agreement with Greece now contains a provision in article II that the Commission will lease uranium enriched in the isotope U^{235} to Greece for fueling defined research reactors. While there is no immediate intent to change Commission policy of leasing fuel for research reactors, it is believed that, in view of the proposed 10-year extension of the agreement, flexibility to lease or sell this material should be provided. Accordingly, articles I and II of the proposed amendment would substitute the word "transfer" for the word "lease" in article II A and D and the word "transferred" for the word "leased" in article VI C of the agreement.

Article I of the proposed amendment also adds to article II of the agreement provisions with respect to retention of title by the Government of the Kingdom of Greece to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the proposed amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements as to the transfer of safeguards to the International Atomic Energy Agency, provision has been made in article III of the proposed amendment that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be effected without further modification of the agreement by means of a trilateral agreement to be negotiated between the Government of the United States of America, the Government of the Kingdom of Greece, and the Agency.

Article IV of the proposed amendment provides for the extension of the agreement for a period of 10 years beyond its expiration date of August 3, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Kingdom of Greece. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

THE WHITE HOUSE,
Washington, June 2, 1964.

Hon. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington, D.C.

DEAR DR. SEABORG: In accordance with section 123a of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me certain amendments to agreements for cooperation between the Government of the United States of America and certain foreign countries concerning the civil uses of atomic energy and has recommended that I approve each such proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendments so submitted are listed herewith:

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of China Concerning the Civil Uses of Atomic Energy (transmitted by letter of Apr. 16, 1964).

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Greece Concerning the Civil Uses of Atomic Energy (transmitted by letter of Apr. 16, 1964).

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Thailand Concerning the Civil Uses of Atomic Energy (transmitted by letter of Apr. 16, 1964).

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Vietnam Concerning the Civil Uses of Atomic Energy (transmitted by letter of Apr. 16, 1964).

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Argentine Republic Concerning the Civil Uses of Atomic Energy (transmitted by letter of May 5, 1964).

Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Iran Concerning the Civil Uses of Atomic Energy (transmitted by letter of May 5, 1964).

Pursuant to the provisions of 123b of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(a) Approve each of the proposed amendments listed above, and determine that the performance of each of these agreements as amended will promote and will not constitute an unreasonable risk to the common defense and security of the United States of America;

(b) Authorize the execution of each of the proposed Amendments on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of Iran Concerning the Civil Uses of Atomic Energy";

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies in certain respects the agreement for cooperation between the United States of America and Iran which was signed on March 5, 1957, and which entered into force April 27, 1959.

Under article I of the amendment the word "lease" as it appears in paragraphs 1 and 4 of article IV of the agreement is changed to the word "transfer" in order to permit either the lease or sale of enriched uranium for fueling defined research reactors. There is no immediate intent on the part of the Commission to change its policy of leasing fuel for research reactors. However, this change will permit the Commission flexibility to lease or sell such fuel should unforeseen circumstances require a change in that policy during the 5-year extension of the agreement.

Article I of the amendment also permits the Commission to furnish material enriched to more than 20 percent in the isotope U^{235} for purposes of fueling defined research reactors.

In addition, article I of the amendment adds to article IV of the agreement provisions with respect to retention of title by Iran to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. Additionally, article I of the amendment makes provision in article IV of the agreement for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article II of the amendment removes the limitation on quantities of research materials which may be provided under article V of the agreement and makes such materials available on an "as may be agreed" basis.

Article III of the amendment provides for comprehensive safeguards to be substituted for the minimal safeguards now contained in article VIII of the agreement.

Article IV of the amendment provides for the Government of the United States of America and the Government of Iran to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the agency would be accomplished by means of a trilateral agreement to be negotiated between the United States, Iran, and the agency.

Article V of the amendment would extend the agreement for a period of 5 years to April 26, 1969.

When the agreement expired on April 26, 1964, the Department of State obtained assurances from the Embassy of Iran that during the interim period between the lapse of the agreement and the entry into force of the amendment, Iran would continue to adhere to its obligations under the agreement. The amendment will enter into force when the two governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG, *Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF IRAN CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of Iran,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of Iran Concerning Civil Uses of Atomic Energy, signed at Washington on March 5, 1957 (hereinafter referred to as the "Agreement for Cooperation");

Agree as follows:

ARTICLE I

Article IV of the Agreement for Cooperation is amended as follows:

(a) Substitute the word "transfer" for the word "lease" wherever said word appears in paragraphs 1 and 4.

(b) The following new sentence is added at the end of paragraph 2:

"It is understood and agreed that although the Government of Iran may distribute uranium enriched in the isotope U^{235} to authorized users in Iran, the Government of Iran will retain title to any uranium enriched in the isotope U^{235} which is purchased from the Commission at least until such time as private users in the United States of America are permitted to acquire title in the United States of America to uranium enriched in the isotope U^{235}."

(c) Paragraph 3 is deleted in its entirety and the following substituted therefor:

"3. The Commission may, upon request and in its discretion, make available all or a portion of the enriched uranium supplied hereunder as material enriched to more than twenty percent (20%) in the isotope U^{235} for use in research reactors capable of operating with a fuel load not to exceed six (6) kilograms of the isotope U^{235} contained in such uranium."

(d) The following new paragraphs 5, 6, 7, and 8 are added to Article IV:

"5. It is agreed that when any source or special nuclear material received from the United States of America requires reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel shall not be altered after its removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing.

"6. Special nuclear material produced in any part of fuel leased hereunder as a result of irradiation processes shall be for the account of the Government of Iran and, after reprocessing as provided in paragraph 5 of this Article, shall be returned to the Government of Iran, at which time title to such material

shall be transferred to that Government, unless the Government of the United States of America shall exercise the option, which is hereby granted, to retain, with appropriate credit to the Government of Iran, any such special nuclear material which is in excess of the needs of Iran for such material in its program for the peaceful uses of atomic energy.

"7. With respect to any special nuclear material not subject to the option referred to in paragraph 6 of this Article and produced in reactors fueled with materials obtained from the United States of America which is in excess of the needs of Iran for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an Agreement for Cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or group of nations in the event the option to purchase is not exercised.

"8. Some atomic energy materials which the Commission may provide in accordance with this Agreement are harmful to persons and property unless handled and used carefully. After delivery of such materials to the Government of Iran, the Government of Iran shall bear all responsibility, insofar as the Government of the United States of America is concerned, for the safe handling and use of such materials. With respect to any source or special nuclear material or other reactor materials which the Commission may, pursuant to this Agreement, lease to the Government of Iran or to any private individual or private organization under its jurisdiction, the Government of Iran shall indemnify and save harmless the Government of the United States of America against any and all liability (including third party liability) for any cause whatsoever arising out of the production or fabrication, the ownership, the lease, and the possession and use of such source or special nuclear material or other reactor materials after delivery by the Commission to the Government of Iran or to any authorized private individual or private organization under its jurisdiction."

ARTICLE II

Article V of the Agreement for Cooperation is amended to read as follows:

"Materials of interest in connection with defined research projects related to the peaceful uses of atomic energy undertaken by the Government of Iran, including source material, special nuclear material, byproduct material, other radioisotopes, and stable isotopes, will be exchanged for research purposes in such quantities and under such terms and conditions as may be agreed when such materials are not available commercially."

ARTICLE III

Article VIII of the Agreement for Cooperation is amended to read as follows:

"1. The Government of the United States of America and the Government of Iran emphasize their common interest in ensuring that any material, equipment, or device made available to the Government of Iran pursuant to this Agreement shall be used solely for civil purposes.

"2. Except to the extent that the safeguards provided in this Agreement are supplanted, as provided in Article IX (A), by safeguards of the International Atomic Energy Agency, the Government of the United States of America, notwithstanding any other provisions of this Agreement, shall have the following rights:

(a) With the objective of ensuring design and operation for civil purposes and permitting effective application of safeguards, to review the design of any

(i) reactor and

(ii) other equipment and devices the design of which the Commission determines to be relevant to the effective application of safeguards,

which are to be made available to the Government of Iran or persons under its jurisdiction by the Government of the United States of America or any person under its jurisdiction, or which are to use, fabricate, or process any of the following materials so made available: source material, special nuclear material, moderator material, or other material designated by the Commission;

(b) With respect to any source or special nuclear material made available to the Government of Iran or any person under its jurisdiction by the Government of the United States of America or any person under its jurisdiction and

any source or special nuclear material utilized in, recovered from, or produced as a result of the use of any of the following materials, equipment, or devices so made available:

(i) source material, special nuclear material, moderator material, or other material designated by the Commission,

(ii) reactors,

(iii) any other equipment or device designated by the Commission as an item to be made available on the condition that the provisions of this subparagraph 2(b) will apply,

(A) to require the maintenance and production of operating records and to request and receive reports for the purpose of assisting in ensuring accountability for such material; and

(B) to require that any such material in the custody of the Government of Iran or any person under its jurisdiction be subject to all of the safeguards provided for in this Article and the guaranties set forth in Article IX.

(c) To require the deposit in storage facilities designated by the Commission of any of the special nuclear material referred to in subparagraph 2(b) of this Article which is not currently utilized for civil purposes in Iran and which is not purchased or retained by the Government of the United States of America pursuant to Article IV, paragraph 6 and paragraph 7(a) of this Agreement, transferred pursuant to Article IV, paragraph 7(b) of this Agreement, or otherwise disposed of pursuant to an arrangement mutually acceptable to the Parties;

(d) To designate, after consultation with the Government of Iran, personnel who, accompanied, if either Party so requests, by personnel designated by the Government of Iran, shall have access in Iran to all places and data necessary to account for the source and special nuclear materials which are subject to subparagraph 2(b) of this Article to determine whether there is compliance with this Agreement and to make such independent measurements as may be deemed necessary;

(e) In the event of non-compliance with the provisions of this Article, or the guaranties set forth in Article IX, and the failure of the Government of Iran to carry out the provisions of this Article within a reasonable time, to suspend or terminate this Agreement and require the return of any materials, equipment, and devices referred to in subparagraph 2(b) of this Article:

(f) To consult with the Government of Iran in the matter of health and safety.

"3. The Government of Iran undertakes to facilitate the application of the safeguards provided for in this Article."

ARTICLE IV

The following new article is added directly after Article IX of the Agreement for Cooperation:

"ARTICLE IX (A)

"1. The Government of the United States of America and the Government of Iran, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VIII of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"2. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph 1 of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of Iran shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of Iran for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE V

The first sentence of paragraph 1 of Article XI of the Agreement for Cooperation is amended by deleting the phrase "five years" and substituting in lieu thereof the phrase "ten years".

ARTICLE VI

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has compiled with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this eighth day of June 1964.

For the Government of the United States of America:

JAMES P. GRANT,
Deputy Assistant Secretary, Near Eastern and South Asian Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of Iran:

MAHMOUD FOROUGHI,
Ambassador.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., May 5, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Iran Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the agreement between the United States of America and Iran which was signed on March 5, 1957, and which entered into force for a period of 5 years on April 27, 1959.

The present agreement with Iran now contains a provision in article IV that the Commission will lease uranium enriched up to 20 percent in the isotope U^{235} to Iran for fueling defined research reactors. While there is no immediate intent to change Commission policy of leasing fuel for research reactors, it is believed that, in view of the proposed 5-year extension of the agreement, flexibility to lease or sell this material should be provided. Accordingly, article I of the proposed amendment substitutes the word "transfer" for the word "lease" in article IV, paragraphs 1 and 4 of the agreement. Additionally, since the research reactor which Iran is building with U.S. assistance requires 90 percent enriched fuel, article I of the proposed amendment would revise Article IV of the agreement to provide that the Commission, upon request and at its discretion, may make available material enriched to more than 20 percent in the isotope U^{235}.

Article I of the proposed amendment also adds to article IV of the agreement provisions with respect to retention of title by the Government of Iran to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the proposed amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article II of the proposed amendment removes the limitation contained in article V of the agreement on research quantities of materials which may be

made available for defined research projects. Such materials would now be made available on an "as may be agreed" basis when they are not commercially available.

Article III of the proposed amendment provides for the extension of comprehensive safeguards to materials and facilities made available to Iran rather than minimal safeguards as are now provided in article VIII of the agreement. The change in safeguards is required because of the increase in the enrichment of material and the removal of the limitation on research quantities of material which may be provided.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements as to the transfer of safeguards to the International Atomic Energy Agency, article IV of the proposed amendment adds a new article IX(A) to the agreement which provides that the agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the agency would be accomplished without further modification to the agreement by means of a trilateral agreement to be negotiated between the United States, Iran, and the agency.

Article V of the proposed amendment provides for an extension of the agreement for a 5-year period beyond its expiration date of April 26, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of Iran. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours.

GLENN T. SEABORG.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of China Concerning the Civil Uses of Atomic Energy";

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with the Republic of China which was signed at Washington on July 18, 1955, and amended by agreements signed at Washington on December 8, 1958, June 11, 1960, and May 31, 1962.

Under articles I and II of the amendment, the word "lease" as it appears in article II–A and D of the agreement is changed to the word "transfer" and in article VI–C of the agreement the word "leased" is changed to the word "transferred" in order to permit either the lease or sale of enriched uranium for fueling defined research reactors. There is no immediate intent on the part of the Commission to change its policy of leasing fuel for research reactors. However, this change will permit the Commission flexibility to lease or sell such fuel should unforeseen circumstances require a change in that policy during the 10-year extension of the agreement.

Article I of the amendment also adds to article II of the agreement provisions with respect to the retention of title by China to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other

than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article III of the amendment provides for the Government of the United States of America and the Government of the Republic of China to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the agency would be accomplished without further modification of the agreement by means of a trilateral agreement to be negotiated between the United States, China, and the agency.

Article IV of the amendment extends the agreement for a period of 10 years beyond its expiration date of July 17, 1964.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE REPUBLIC OF CHINA CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Republic of China,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of the Republic of China Concerning Civil Uses of Atomic Energy, signed at Washington on July 18, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on December 8, 1958, June 11, 1960, and May 31, 1962;

Agree as follows:

ARTICLE I

Article II of the Agreement for Cooperation is amended as follows:

1. Substitute the word "transfer" for the word "lease" wherever said word appears in paragraph A.

2. The following new sentence is added at the end of paragraph B:

"It is understood and agreed that although the Government of the Republic of China may distribute uranium enriched in the isotope U^{235} to authorize users in the Republic of China, the Government of the Republic of China will retain title to any uranium enriched in the isotope U^{235} which is purchased from the Commission at least until such time as private users in the United States of America are permitted to acquire title in the United States of America to uranium enriched in the isotope U^{235}."

3. Paragraph C is hereby amended to read as follows:

"C. It is agreed that when any source or special nuclear material received from the United States of America requires reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel shall not be altered after its removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing."

4. Delete the word "lease" as said word appears in paragraph D and substitute in lieu thereof the word "transfer".

5. The following new paragraphs E and F are added to Article II:

"E. Special nuclear material produced in any part of fuel leased hereunder as a result of irradiation processes shall be for the account of the Government of the Republic of China and after reprocessing as provided in paragraph C of this Article, shall be returned to the Government of the Republic of China, at which time title to such material shall be transferred to that Government, unless the Government of the United States of America shall exercise the option, which is hereby granted, to retain, with appropriate credit to the Government of the Republic of China, any such special nuclear material which is in excess of the needs of the Republic of China for such material in its program for the peaceful uses of atmoic energy.

"F. With respect to any special nuclear material not subject to the option referred to in paragraph E of this Article and produced in reactors fueled with

materials obtained from the United States of America which is in excess of the needs of the Republic of China for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an agreement for cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or group of nations in the event the option to purchase is not exercised."

ARTICLE II

Article VI, paragraph C, of the Agreement for Cooperation is amended by deleting the word "leased" and substituting in lieu thereof the word "transferred".

ARTICLE III

Article VII (A) of the Agreement for Cooperation as amended is further amended to read as follows:

"1. The Government of the United States of America and the Government of the Republic of China, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VI, paragraph C, of this agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"2. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph 1 of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of the Republic of China shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of the Republic of China for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE IV

Article VIII of the Agreement for Cooperation, as amended, is amended by deleting the date "July 17, 1964" and substituting in lieu thereof the date "July 17, 1974".

ARTICLE V

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this eighth day of June 1964.

For the Government of the United States of America:

MARSHALL GREEN,
Deputy Assistant Secretary, Far Eastern Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Republic of China:

TINGFU F. TSIANG,
Ambassador.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., April 16, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of China Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend the agreement between the United States of America and China which was signed at Washington on July 18, 1955, as amended by agreements signed at Washington on December 8, 1958, June 11, 1960, and May 31, 1962.

The present agreement with China now contains a provision in article II that the Commission will lease uranium enriched in the isotope U^{235} to China for fueling defined research reactors. While there is no immediate intent to change Commission policy of leasing fuel for research reactors, it is believed that, in view of the proposed 10-year extension of the agreement, flexibility to lease or sell this material should be provided. Accordingly, articles I and II of the proposed amendment would substitute the word "transfer" for the word "lease" in article II–A and D and the word "transferred" for the word "leased" in article VI–C of the agreement.

Article I of the proposed amendment also adds to article II of the agreement provisions with respect to retention of title by the Government of the Republic of China to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the proposed amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements as to the transfer of safeguards to the International Atomic Energy Agency, provision has been made in article III of the proposed amendment that the agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the agency would be effected without further modification of the agreement by means of a trilateral agreement to be negotiated between the Government of the United States of America, the Government of the Republic of China, and the Agency.

Article IV of the proposed amendment provides for the extension of the agreement for a period of 10 years beyond its expiration date of July 17, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Republic of China. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy, Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Vietnam Concerning the Civil Uses of Atomic Energy";

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the Amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with the Republic of Vietnam which was signed at Washington on April 22, 1959.

Under articles I and II of the amendment, the word "lease" as it appears in article IV, paragraphs 1 and 4 of the agreement, is changed to the word "transfer" and in article VIII, paragraph 3 of the agreement, the word "leased" is changed to the word "transferred" in order to permit either the lease or sale of enriched uranium for fueling defined research reactors. There is no immediate intent on the part of the Commission to change its policy of leasing fuel for research reactors. However, this change will permit the Commission flexibility to lease or sell such fuel should unforeseen circumstances require a change in that policy during the 10-year extension of the agreement.

Article I of the amendment also adds to article IV of the agreement provisions with respect to the retention of title by Vietnam to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the amendment modifies article IV of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article III of the amendment provides for the Government of the United States of America and the Government of the Republic of Vietnam to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be accomplished without further modification of the agreement by means of a trilateral agreement to be negotiated between the United States, Vietnam, and the Agency.

Article IV of the amendment extends the agreement for a period of 10 years beyond its expiration date of June 30, 1964.

The amendment will enter into force when the two governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE REPUBLIC OF VIETNAM CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Republic of Vietnam,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of the Republic of Vietnam Concerning Civil Uses of Atomic Energy, signed at Washington on April 22, 1959 (hereinafter referred to as the "Agreement for Cooperation");

Agree as follows:

ARTICLE I

Article IV of the Agreement for Cooperation is amended as follows:

a. Substitute the word "transfer" for the word "lease" wherever said word appears in paragraph 1.

b. The following new sentence is added at the end of paragraph 2:

"It is understood and agreed that although the Government of the Republic of Vietnam may distribute uranium enriched in the isotope U^{235} to authorized users in Vietnam, the Government of Vietnam will retain title to any uranium enriched in the isotope U^{235} which is purchased from the Commission at least until such time as private users in the United States of America are permitted to acquire title in the United States of America to uranium enriched in the isotope U^{235}."

c. Paragraph 3 is hereby amended to read as follows:

"3. It is agreed that when any source or special nuclear material received from the United States of America requires reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel shall not be altered after its removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing."

d. Delete the word "lease" as said word appears in paragraph 4 and substitute in lieu thereof the word "transfer".

e. The following new paragraphs 5 and 6 are added to Article IV:

"5. Special nuclear material produced in any part of fuel leased hereunder as a result of irradiation processes shall be for the account of the Government of Vietnam and after reprocessing as provided in paragraph 3 of this Article, shall be returned to the Government of Vietnam, at which time title to such material shall be transferred to that Government, unless the Government of the United States of America shall exercise the option, which is hereby granted, to retain, with appropriate credit to the Government of Vietnam, any such special nuclear material which is in excess of the needs of Vietnam for such material in its program for the peaceful uses of atomic energy.

"6. With respect to any special nuclear material not subject to the option referred to in paragraph 5 of this Article and produced in reactor fueled with materials obtained from the United States of America which is in excess of the needs of Vietnam for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an agreement for cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or group of nations in the event the option to purchase is not exercised."

ARTICLE II

Article VIII, paragraph 3 of the Agreement for Cooperation is amended by deleting the word "leased" and substituting in lieu thereof the word "transferred".

ARTICLE III

Article X of the Agreement for Cooperation is amended to read as follows:

"A. The Government of the United States of America and the Government of the Republic of Vietnam, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VIII, paragraph 3, of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"B. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph A of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of the Republic of Vietnam shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of the Republic of Vietnam for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE IV

Paragraph 1 of Article XII of the Agreement for Cooperation is amended by deleting the phrase "five years" and substituting in lieu thereof the phrase "fifteen years."

ARTICLE V

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this ninth day of June 1964.

For the Government of the United States of America:

MARSHALL GREEN,
Deputy Assistant Secretary, Far Eastern Affairs, U.S. Department of State.
GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Republic of Vietnam:

PHAM KHAC RAU,
Counselor, Chargé d'Affaires ad interim.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., April 16, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Vietnam Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend the agreement between the United States of America and Vietnam which was signed at Washington on April 22, 1959.

The present agreement with Vietnam now contains a provision in article IV that the Commission will lease uranium enriched in the isotope U^{235} to Vietnam for fueling defined research reactors. While there is no immediate intent to change Commission policy of leasing fuel for research reactors, it is believed that, in view of the proposed 10-year extension of the agreement, flexibility to lease or sell this material should be provided. Accordingly, articles I and II of the proposed amendment would substitute the word "transfer" for the word "lease" in article IV, paragraphs 1 and 4 of the word "transferred" for the word "leased" in article VIII, paragraph 3 of the agreement.

Article I of the proposed amendment also adds to article IV of the agreement provisions with respect to retention of title by the Government of the Republic of Vietnam to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes.

In addition, article I of the proposed amendment modifies article IV of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements as to the transfer of safeguards to the International Atomic Energy Agency, provision has been made in article III of the proposed amendment that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this agreement. The transfer of this responsibility to the Agency would be effected without further modification of

the agreement by means of a trilateral agreement to be negotiated between the Government of the United States of America, the Government of the Republic of Vietnam, and the Agency.

Article IV of the proposed amendment provides for the extension of the agreement for a period of 10 years beyond its expiration date of June 30, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Republic of Vietnam. In compliance with section 123 c. of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG, *Chairman.*

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy, Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Thailand Concerning the Civil Uses of Atomic Energy," as amended;

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with the Kingdom of Thailand which was signed at Bangkok on March 13, 1956, and amended by agreements signed at Washington on March 27, 1957, June 11, 1960, and May 31, 1962.

Article I of the amendment provides for the Government of the United States of America and the Government of the Kingdom of Thailand to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be accomplished without further modification of the agreement by means of a trilateral agreement negotiated between the United States, Thailand, and the Agency.

Article II of the amendment extends the agreement for a period of 10 years to March 12, 1975.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE KINGDOM OF THAILAND CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Kingdom of Thailand,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of the Kingdom of Thailand Concerning Civil Uses of Atomic Energy, signed at Bangkok on March 13, 1956 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on March 27, 1957, June 11, 1960, and May 31, 1962;

Agree as follows:

ARTICLE I

Article IX (A) of the Agreement for Cooperation, as amended, is further amended to read as follows:

"A. The Government of the United States of America and the Government of the Kingdom of Thailand, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VI, paragraph B of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"B. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph A of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of the Kingdom of Thailand shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of the Kingdom of Thailand for such returned material at the current Commission's schedule of prices then in effect domestically."

ARTICLE II

Article VIII of the Agreement for Cooperation as amended, is further amended by deleting the date "March 12, 1965" and substituting in lieu thereof the date "March 12, 1975."

ARTICLE III

This Agreement shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this eighth day of June 1964.

For the Government of the United States of America:

MARSHALL GREEN,
Deputy Assistant Secretary, Near Eastern and South Asian Affairs, Department of State.
GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Kingdom of Thailand:

SUKICH NIMMANHEMINDA,
Ambassador.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., April 16, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Kingdom of Thailand Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend the agreement between the United States of America and Thailand which was signed at Bangkok on March 13, 1956, as amended by agreements signed at Washington on March 27, 1957, June 11, 1960, and May 31, 1962.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements, as to the transfer of safeguards to the International Atomic Energy Agency, provision has been made in article I of the proposed amendment that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be effected without further modification of the agreement by means of a trilateral agreement to be negotiated between the Government of the United States of America, the Government of the Kingdom of Thailand, and the Agency.

Article II of the proposed amendment provides for the extension of the agreement for a 10-year period beyond its expiration date of March 12, 1965.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Kingdom of Thailand. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 23, 1964.

HON. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "Amendment to the Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the Republic of France";

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment, and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the Agreement for Cooperation between the Government of the United States of America and the Government of the Republic of France which was signed at Washington on June 19, 1956, as amended by the agreements signed on July 3, 1957, July 22, 1959, September 30, 1960, and June 22, 1962.

The present agreement (art. VIII) limits the enrichment of uranium which may be transferred to France to a maximum of 20 percent in the isotope U^{235}, except that the Commission may, upon request and in its discretion, transfer to France uranium enriched up to 90 percent in the isotope U^{235} for use in (a) research reactors, materials-testing reactors and reactor experiments, each capable of operating with a fuel load not to exceed 8 kilograms of U^{235} contained in uranium, and (b) criticality experiments provided that not more than 100 kilograms of U^{235} in the aggregate would be available for such critically experiments. The proposed amendment would modify article VII of the agreement by eliminating the enrichment limitation of 90 percent for the purposes stated and by providing that uranium may be transferred for such purposes as material enriched to more than 20 percent when there is a technical or economic justification for such material. This modification is consistent with a recently adopted Commission policy permitting the transfer of material enriched to more than 90 percent in the isotope U^{235} for those uses which heretofore have qualified

for materials of up to 90-percent enrichment. The Joint Committee was informed of this change in policy by letter dated August 12, 1963.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AMENDMENT TO AGREEMENT FOR COOPERATION CONCERNING THE CIVIL USES OF ATOMIC ENERGY BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE FRENCH REPUBLIC

The Government of the United States of America and the Government of the French Republic,

Desiring to amend further the Agreement for Cooperation Concerning the Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the French Republic, signed at Washington on June 19, 1956 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreement signed at Washington on July 3, 1957, the Agreement signed at Washington on July 22, 1959, the Agreement signed at Washington on September 30, 1960, and the Agreement signed at Washington on June 22, 1962;

Have agreed as follows:

ARTICLE I

Paragraph C. 1. of Article VIII of the Agreement for Cooperation, as needed, is further amended by deleting the first sentence thereof and substituting the following:

"1. The Commission may, upon request and in its discretion, make available a portion of the enriched uranium supplied hereunder as material enriched to more than twenty percent (20%) in the isotope U–235, when there is a technical or economical justification for such material, for use in (a) research reactors, materials testing reactors and reactor experiments, each capable of operating with a fuel load not to exceed 8 kilograms of U–235 contained in uranium and (b) criticality experiments, provided that not more than 100 kilograms of U–235 in the aggregate will be available for such criticality experiments."

ARTICLE II

This Amendment, which shall be regarded as an integral part of the Agreement for Cooperation, as amended, shall enter into force on the day on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of this Amendment.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, in the English and French languages, both equally authentic, this twenty-second day of June 1964.

For the Government of the United States of America:

WILLIAM R. TYLER,
Assistant Secretary of State, Bureau of European Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Republic of France:

HERVÉ ALPHAND,
Ambassador, Embassy of the French Republic.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., May 18, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the Republic of France," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of France which was signed at Washington on June 19, 1956, as amended by the agreements signed on July 3, 1957; July 22, 1959; September 30, 1960; and June 22, 1962.

The present agreement (art. VIII) limits the enrichment of uranium to a maximum of 20 percent in the isotope U^{235} which may be transferred to France, except that the Commission may, upon request and in the discretion, transfer to France uranium enriched up to 90 percent in the isotope U^{235} for use in (a) research reactors, materials-testing reactors and reactor experiments, each capable of operating with a fuel load not to exceed 8 kilograms of U^{235} contained in uranium and (b) criticality experiments provided that no more than 100 kilograms of U^{235} in the aggregate would be available for such criticality experiments. The proposed amendment would modify article VIII of the agreement by eliminating the enrichment limitation of 90 percent for the purposes stated and by providing that uranium may be transferred as material enriched to more than 20 percent when there is a technical or economic justification for such material. This modification is consistent with a recently adopted Commission policy permitting the transfer of materials enriched to more than 90 percent in the isotope U^{235} for those uses which heretofore have qualified for material of up to 90-percent enrichment. This new policy benefits the promotion of the civil uses of atomic energy abroad by permitting foreign countries to obtain their uranium at the same maximum enrichment as is generally available to U.S. civil users.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Republic of France. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

THE WHITE HOUSE,
Washington, D.C., June 15, 1964.

HON. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington, D.C.

DEAR DR. SEABORG: In accordance with section 123a of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me certain amendments to agreements for cooperation between the Government of the United States of America and certain foreign countries concerning the civil uses of atomic energy and has recommended that I approve each such proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendments so submitted are listed herewith:

Amendment to Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the Republic of France (transmitted by letter of May 18, 1964).
Amendment to Agreement for Cooperation on the Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland, (transmitted by letter of May 26, 1964).

Pursuant to the provisions of 123b of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(a) Approve each of the proposed amendments listed above, and determine that the performance of each of these agreements as amended will promote and will not constitute an unreasonable risk to the common defense and security of the United States of America;

(b) Authorize the execution of each of the proposed amendments on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 9, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123c of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(a) An executed "Amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the Argentine Republic Concerning the Civil Uses of Atomic Energy";

(b) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(c) A copy of a letter from the President to the Commission containing this determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with the Argentine Republic which was signed at Washington on June 22, 1962, and which entered into force on July 27, 1962.

Article I of the amendment provides for the Government of the United States of America and the Government of the Argentine Republic to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be accomplished without further modification of the agreement by means of a trilateral agreement negotiated between the United States, Argentina, and the Agency.

Article II of the amendment extends the agreement for a period of 5 years to July 27, 1969.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG,
Chairman.

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE ARGENTINE REPUBLIC CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the Argentine Republic,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of the Argentine Republic Concerning Civil Uses of Atomic Energy, signed at Washington on June 22, 1962 (hereinafter referred to as the "Agreement for Cooperation");

Agree as follows:

ARTICLE I

Article XI of the Agreement for Cooperation is amended to read as follows:

"A. The Government of the United States of America and the Government of the Argentine Republic, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the

Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article IX, paragraph B, of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"B. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph A of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of the Argentine Republic shall, at the request of the Government of the United States of America, return to the Government of the United States of America all special nuclear material received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States of America will compensate the Government of the Argentine Republic for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE II

Paragraph B of Article XII of the Agreement for Cooperation is amended by deleting the phrase "two years" and substituting in lieu thereof the phrase "seven years".

ARTICLE III

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, in the English and Spanish languages, both equally authentic, this eighth day of June 1964.

For the Government of the United States of America:

ROBERT W. ADAMS,
Deputy Assistant Secretary, Inter-American Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the Argentine Republic:

EZEQUIEL F. PEREYRA,
Minister, Chargé d' Affaires ad interim.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., May 5, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the Argentine Republic Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend the agreement between the United States of America and Argentina which was signed at Washington on June 22, 1962, and which entered into force on July 27, 1962 for a period of 2 years.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements, as to the transfer of safeguards to the International Atomic Energy Agency, provision has been made in article I of the proposed amendment that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be effected without further modification of the agreement by means of a trilateral agreement to be negotiated between the Government of the United States of America, the Government of the Argentine Republic, and the Agency.

Article II of the proposed amendment provides for the extension of the agreement for a 5-year period beyond its expiration date of July 27, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the Argentine Republic. In compliance with section 123c of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG,
Chairman.

Senator GORE. The subcommittee will receive testimony this afternoon from representatives of the Atomic Energy Commission and the State Department. Dr. Seaborg, I understand you will be our first witness. Will you proceed, please?

STATEMENT OF DR. GLENN T. SEABORG, CHAIRMAN, THE ATOMIC ENERGY COMMISSION; ACCOMPANIED BY A. A. WELLS, DIRECTOR, DIVISION OF INTERNATIONAL AFFAIRS; COMMISSIONER JAMES T. RAMEY; COMMISSIONER JOHN G. PALFREY; AND COMMISSIONER MARY I. BUNTING; MYRON B. KRATZER, DIVISION OF INTERNATIONAL AFFAIRS; ROBERT B. WRIGHT, DIRECTOR, MUTUAL DEFENSE CONTROL STAFF, STATE DEPARTMENT; AND CHARLES W. THOMAS, OFFICER IN CHARGE, ATOMIC ENERGY, STATE DEPARTMENT

Senator GORE. I would also like to note that Dr. Smyth, U.S. representative to the IAEA is present today. I am pleased to welcome you, Mr. Ambassador.

Dr. SMYTH. Thank you, Mr. Chairman.

Dr. SEABORG. Mr. Chairman, I agree with your description of Mrs. Bunting as the most charming of us. We are happy to welcome her aboard also and to have her with us for the first hearing before this committee in which she will participate.

As you have indicated, Ambassador Smyth is with us today also. We also have present Commissioner John Palfrey, who has specialized in the area of the hearing today, and Commissioner James T. Ramey. I would like also to use this occasion to take note of the fact that Mr. A. A. Wells who is sitting on my left here and will be appearing before this committee for perhaps the last time for some period, because he will be leaving in a month or so to take up a tour of duty as the Deputy Director General for Administration of the International Atomic Energy Agency.

As you know, he has held the position of Director of the Commission's Division of International Affairs since 1958 and for nearly 3 years has acted in the capacity as Assistant General Manager for In-

ternational Activities. Prior to accepting the appointment in the Division of International Affairs, Mr. Wells served as Deputy General Counsel for the Commission and played a particularly important role in pioneering many of the then new agreements for cooperation between the United States and other nations for collaboration in the development of the peaceful uses of atomic energy.

So Mr. Wells has played a particularly important role in the area concerning the hearings today.

Mr. Chairman, I am pleased to appear before the Joint Committee today in support of amendment to several of our existing civil agreements for cooperation which recently have been submitted, or will soon be submitted, to the committee in accordance with section 123c of the Atomic Energy Act of 1954, as amended.

Amendments to our agreements with Argentina, China, Greece, Iran, Thailand, and Vietnam, and France are already before the committee. We expect to submit the pending amendments to our agreements with Israel and the United Kingdom to you in the next week or so. The amendments to the agreements with Brazil and Portugal are now being actively negotiated and we hope to complete them very shortly. (See pp. 181 and 189.)

The most notable feature of the amendments that are now before the committee is that they represent an important landmark in our efforts to strengthen the safeguard responsibility of the International Atomic Energy Agency. The amendments to the agreements with Argentina, China, Greece, Iran, Thailand, and Vietnam have in common a provision that the International Atomic Energy Agency will be promptly requested to assume the responsibility for applying safeguards to materials and facilities now subject to bilateral safeguards under the Agreement for Cooperation. The transfer of safeguards to the IAEA would be made without further modification of the agreements for cooperation by means of a trilateral implementing arrangement between the United States and the IAEA and the cooperating country involved. Other changes, minor in nature, included in these amendments are designed to update the agreements and to meet conditions which have arisen since the agreements for cooperation were last amended. All of these minor modifications are similar to changes which have been incorporated in previous agreements.

Negotiations on the trilateral safeguard arrangements with Greece and Vietnam already have been completed and ones with Argentina, China, Thailand, and Iran should be concluded over the summer. Further, during the past few weeks trilateral safeguard arrangements have been successfully concluded with Norway, the Philippines, and Austria, and our existing agreements with those countries (which do not require extension at the present time) are thus about to be placed under Agency safeguards.

Taking into account past arrangements, this means that 17 of our cooperating partners have already agreed to the application of IAEA safeguards.

The amendment to the agreement with Israel, which we expect to present to the committee very shortly, also is significant insofar as the International Atomic Energy Agency is concerned. The existing agreement for cooperation is to be extended, in its current form, for 9 months, at the conclusion of which period it will be allowed to expire.

The subsequent arrangements for the supply of fuel and safeguards will be developed by Israel with the IAEA.

The amendment to the agreement with France will permit France to receive uranium enriched to more than 90 percent in the isotope U^{235} for those uses under the existing civil bilateral agreement that heretofore have qualified for the receipt of material of up to 90 percent enrichment. This is consistent with the policy which the Commission approved and reported to the committee on August 12, 1963. It will help both our own fabricators and France by enabling us to provide to France the same maximum enrichment, currently about 93 percent, U^{235} that is now in prevalent use in this country domestically for purposes such as fueling research reactors. The material to be provided, of course, will be subject to the safeguards and guarantees in the agreement for cooperation.

The amendment to the agreement for cooperation with the United Kingdom, which will be forwarded shortly, will provide for the transfer of a net additional amount of 400 kilograms of contained U^{235} to the United Kingdom for use in its civilian research and development program. The function will be to cover some interim requirements the United Kingdom expects to have for our enriched uranium between now and the time the agreement for cooperation is due to expire in July 1965. (See p. 177.)

Mr. Wells of the Commission staff will review these amendments in detail and shall be pleased to answer any questions the committee may wish to ask.

Senator GORE. Before proceeding with Mr. Wells, are there any questions for Chairman Seaborg?

Senator PASTORE. No, only to say that we are very, very sorry to see Mr. Wells go. He has been a bulwark of strength to this Joint Committee. From a very, very personal point of view, there has been a very strong bond of friendship between him and myself which I treasury very, very much. I think he is one of the best legal minds we have in Government and I say that without any undue flattery. We of this committee wish him well. Our loss will be the gain of the International Agency. That is all I have to say.

Representative HOLIFIELD. Mr. Chairman, I want to echo the words of my colleague, Senator Pastore, and express my appreciation for the work that you have done in the past and my best wishes for this important duty that you are about to assume.

Representative HOSMER. Mr. Chairman, my views regarding Mr. Wells are identical to those of the previous members of the committee that have spoken and I wish you very well, sir.

Senator GORE. Mr. Wells.

Mr. WELLS. Thank you, Mr. Chairman. I must say I am deeply touched by these expressions of confidence. I could say a great deal, I suppose, about the many experiences we have had over the years in which some of these problems have been developed. I think one of the things that comes to my mind most vividly is the negotiation of the agency statute. Of course, that was the beginning of my acquaintance with Senator Pastore, which I am deeply honored to hear him refer to as friendship. It certainly has been on my side. Since then, we have seen many things happen and I must say that I am sure the Senator as well as the other members of the committee

feel, with the Commission, some satisfaction that today we are able to report that 17 countries have agreed to international safeguards.

Senator Pastore will recall that we were fighting desperately to even get one country to agree to the kinds of safeguards that we thought were necessary to safeguard these materials.

Thank you very much, gentlemen. I hope that the presentation we make this afternoon will not belie the kind words you have said.

Dr. SEABORG. I think it would be fair to say that this is the year of the coming of age of the IAEA.

Mr. WELLS. I think, Mr. Chairman, we could summarize the details of these agreements. It may be already apparent to you that none of them contain any new policy issues. Everything that is in these agreements has been in agreements before and have been before your committee and considered by you. The reason we have these agreements this afternoon, except for the French and United Kingdom agreement, is that the agreements are terminating.

On the occasion of their termination, we are taking the opportunity of reaching agreement with the countries involved that the agency will assume the safeguards. I think perhaps we could completely cover the substantive issues by describing the Iranian agreement. The Iranian agreement has the widest gamut of changes. These changes are as follows: First, the agreement is being extended. In the case of Iran, it is being extended for 5 years. In the case of some of the agreements, 10.

The term of 5 and 10 years was entirely at the option of the cooperating government. All of the agreements have provision for the agency to assume the safeguard responsibility. The Iranian agreement has an amendment, as well as some of the others, that would enable the United States to sell as well as lease materials.

It may seem a little odd that we would have to amend the agreement to permit this, but you may recall that hitherto the agreements had provided that research quantities would be leased. We now expect that, except for existing lease arrangements, quantities exceeding $125,000 the materials would be sold.

As a result of this change, it was necessary to make some consequential amendments, such as requiring title of the sold material to remain in the government receiving the materials. In the case of Iran the degree of enrichment, or the possibility of the degree of enrichment, has been increased from 20 percent to 90 percent. This is a customary provision in some of the later agreements, as you gentlemen know.

The final provision is one which provides that research quantities may be furnished under these agreements in such quantities as are agreed between the Commission and the country involved. This formula has also been before this committee.

The other agreements have a lesser number of these provisions. But it occurs to me, Mr. Chairman, that unless there are some particular questions with reference to these matters, I might just conclude the summary by saying that China, Greece, and Vietnam have only three of these items; Argentina and Thailand, only two; that is, the extension and the agency safeguards.

Then we might move on to the United Kingdom and French agreements which have some slightly different elements.

Senator GORE. Unless there are questions, you may proceed.

Representative HOSMER. Mr. Chairman, do you want to have all the questions at one time or do you want to finish up on everything but the United Kingdom and the French now?

Senator GORE. The Chair has no preference. Whatever the members desire.

If you have questions, proceed.

Representative HOSMER. You mentioned that these transactions will be carried on as sale rather than leases in the instances where the value involved is in excess of $125,000.

Mr. WELLS. Yes, sir.

Representative HOSMER. Is that applicable to all these countries?

Mr. WELLS. Yes, sir.

Representative HOSMER. In that instance, how does the Commission contemplate arranging to be paid? Cash on the barrelhead, installment plan, loans, or what?

Mr. WELLS. It will normally be cash; and cash, as we use the term implies payment within 60 days. However, there is one contingency we provided for. Since we thought that some of these countries may have been expecting to continue to lease we thought it would be fair to permit them to defer payment until January 1, 1966. It gives them an opportunity for their budget cycle to take into account the new policy. Thereafter it will be cash within 60 days.

Representative HOSMER. Is that to be firmly understood and firmly retained as a Commission policy?

Mr. WELLS. I believe that is currently the Commission policy, Mr. Hosmer, and I believe it is the intention of the Commissioners to maintain that policy unless some extraordinary circumstances arise.

Representative HOSMER. Perhaps Dr. Seaborg would wish to make a clarifying statement on this point so that there are no ambiguities left remaining by which somebody will come in and ask to take now and pay later, except within the limitations described by Mr. Wells.

Dr. SEABORG. That limitation being what Mr. Wells described as an extraordinary circumstance, I would think that the Commission could state that this is our intention, but I feel that on the basis of past experience there would be obviously some exceptions. Perhaps in the case of reactors where there are rather large amounts of fissionable material involved. I would just think as a matter of expectation we would have some exceptions of that sort.

Representative HOSMER. There are roughly two situations in which a large amount could be involved, that of highly enriched uranium and that of uranium of a low enrichment. I can see where some nation whose finances might not be too firm would want to defer payment in connection with the lower enrichment reactor but perhaps not in the case of a high enrichment reactor because if its finances were not firm, it would be in no position to make any useful contribution from the use of the material.

Dr. SEABORG. Yes. I think we would be less likely to make that kind of arrangement with the highest enrichment material in large amounts. But in the case of low enrichment, particularly, there might be circumstances where it would be to our advantage, because we wanted to see the reactor built for some reason or other, where we conceivably would consider a deferred payment plan.

Representative HOSMER. My questioning of you on this point and your reply, particularly where you say it might be advantageous to see the reactor built, is from the background of the program we had on the training reactors. A great deal of time, effort, substance, and expenditure was incurred. We find that the followup has been practically nil. Certainly by no stretch of the imagination have these expenditures produced any tangible developments in some of these countries.

Mr. WELLS. I wonder, Mr. Chairman, if I might answer that.

We have committed ourselves to some 19 or 20 reactors which we made up to $350,000 available to pay for one-half of this. While I can't say that our followup has been as effective as we might have liked, we have tried to follow it up within some very limited funds.

First of all, we have sent experts from time to time to help them get their program started. In one or two cases we have a definite relationship between a U.S. laboratory with a foreign laboratory. I refer particularly to one which exists between Brookhaven and the laboratory in Turkey, also the one which is being developed between Argonne and Korea. We hope that these will increase. This is costing the United States less than $25,000 a year. It is that kind of followup that we hope will enable the country to get some real benefit from these research reactors.

Representative HOSMER. Mr. Wells, to the contrary, notwithstanding I have made it my business to visit some of these installations, and I am not going to mention any countries because it would be embarrassing, but they appear to be floundering. The sister reactor relationship either with some reactor in the United States, or someone in the region of the world where this one in particular exists, has not been pursued.

I doubt that there is sufficient emphasis being given to these sister reactor relationships. It seems to me there is only a small cost involved, and they should without doubt be in being and have been in being for some time.

Dr. SEABORG. I think this is true that there are some countries where the reactor we have supported in this way hasn't been used effectively, or was used for a while and then its use stopped.

Representative HOSMER. Or shut down altogether.

Mr. WELLS. In the case of Venezuela.

Dr. SEABORG. In one case shut down altogether. In the majority of cases, they have been used effectively. I wonder whether the record shouldn't show that and whether we might not furnish that for the record.

Mr. WELLS. Yes, sir; we can do that, Mr. Chairman. There is no question that some have not been.

(The following correspondence was submitted subsequent to the hearing:)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 10, 1964.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: During the recent hearings on our agreements for cooperation, we discussed the matter of followup on the research reactor grants which had been made to developing countries. Information on these grant reactors is received from a variety of sources such as reports by our AEC scientific representatives, reports by IAEA technical teams and consultants, and reports

by U.S. scientists. From these reports we are able to obtain an idea of the extent to which these reactors are being utilized. In general, we have concluded that these reactors are making a contribution to the scientific program of the country, but, they are also capable of being used to a greater degree. It is to this end that the Commission is attempting to establish a followup program of assistance and advice.

As the committee is aware, programs of assistance to developing countries must be financed under the AID program. We have been working closely with AID and State Department in attempting to establish a program under which sustained advice and guidance could be provided to these developing laboratories to insure that they are viable. In late 1962, a prototype laboratory-to-laboratory program between the Commission's Brookhaven National Laboratory and the Cekmece Nuclear Center in Turkey was established with funding through AID. Under this sister-laboratory program, recognized scientists from BNL advise and assist the Turkish center, through correspondence and visits, in developing and initiating programs utilizing the reactor facility. Assistance is also provided in obtaining minor items of equipment and materials necessary to the program and which are not readily available in Turkey. Additional arrangements using U.S. universities as well as AEC laboratories will be undertaken within the limits of available funding. An arrangement with Korea is being developed at the present time, and we believe that additional arrangements can be established in the near future.

A total of 26 grants were made under the research reactor grant program. Of these, 12 reactors are located in countries (mainly European) in which the atomic energy programs are now well established. The remaining 14 grants were to developing countries. Of these, nine reactors have achieved criticality and five are under construction. The programs centered around the nine reactors which have been completed are described in the attached summary.

We will be happy to provide the committee with additional information on this program if desired.

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

SUMMARY OF RESEARCH REACTOR GRANTS IN DEVELOPING COUNTRIES

Brazil

Type: 5 megawatts, pool, manufactured by Babcock & Wilcox.

Status: The reactor achieved criticality in September 1957. The primary use of the reactor has been for the production of radioisotopes, particularly I^{131} and P^{32}. In addition, the reactor is being used for activation analysis experiments, cross-section measurements, materials irradiation, and for training and research in conjunction with the nuclear engineering course at the University of São Paulo.

China

Type: 1 megawatt, pool, manufactured by International General Electric Co.

Status: The reactor achieved criticality on April 13, 1961. The primary use of this reactor has been for the production of radioisotopes for agricultural, medical, and biochemical studies and for irradiation services which are made available to other Chinese institutions without charge. In addition, a limited amount of research work is being done in physics with their Van de Graaff generator and in chemistry. The reactor facility is a part of the National Tsing Hua University and is used by the university for teaching and research in reactor physics.

Greece

Type: 1 megawatt, pool, manufactured by American Machine & Foundry, Atomics Division.

Status: The reactor achieved criticality July 27, 1961. In addition to production of isotopes for use in the center, hospitals, and industry, work in activation analysis and reactor physics has been in progress. A slow chopper has been installed, a small crystal spectrometer has been built by the laboratory, and delayed neutron experiments are in progress.

Korea

Type: 100 kilowatts, TRIGA, manufactured by General Atomic.

Status: The reactor achieved criticality March 19, 1962. The reactor is being used for the production of radioisotopes for medical and agricultural applications in Korea. In addition, experiments on N-gamma reactions and radiation damage studies are in progress.

Portugal

Type: 1 megawatt, pool, manufactured by American Machine & Foundry, Atomics Division.

Status: The reactor achieved criticality April 25, 1961. The reactor has been operated at various power levels for purposes of calibration and determining operating parameters. Neutron lifetime experiments are underway and a reactor oscillator is being built to determine the transfer function of the reactor for other kinetic experiments.

Thailand

Type: 1 megawatt, pool, manufactured by Curtiss-Wright Corp.

Status: The reactor achieved criticality October 27, 1962. A neutron diffractometer has been built by the Thais for use with the reactor and is in the process of being checked out. In addition, preliminary work on preservation of rice bran and disinfestation of rice by gamma irradiation has been started.

Turkey

Type: 1 megawatt, pool, manufactured by American Machine & Foundry, Atomics Division.

Status: The reactor achieved criticality February 27, 1962. A laboratory-to-laboratory assistance program has been developed between the Brookhaven National Laboratory and the reactor center in Turkey. As a result of this program, research in neutron spectroscopy has been started, a small reactor physics program has been initiated, and radioisotopes are being produced and being made available to outside users in Turkey. In addition, Turkish universities are beginning to use the center and are expected to send selected degree candidates to the center for thesis research.

Venezuela

Type: 3 megawatts, pool, manufactured by International General Electric Co.

Status: The reactor achieved criticality July 12, 1960. In September 1961 the reactor was shut down because of the lack of adequately trained personnel to utilize the reactor. It is expected that the reactor will reopen within a year.

Vietnam

Type: 250 kilowatts, TRIGA, manufactured by General Atomic.

Status: The reactor achieved criticality February 26, 1963, and associated laboratories were completed around the middle of 1963. The primary activities around the reactor to date have been calibration and development of operating parameters for the reactor. The Vietnamese plans encompass training, food preservation studies, plant genetics, and production of radioisotopes for medical and agricultural applications.

Representative HOSMER. I do not wish on this record by exclusion to indicate dissatisfaction toward any particular nation but I do bring the matter up now because I do think it is important and I think perhaps it has not been pursued to the extent that it should be.

What about this 90-percent enrichment?

Representative HOLIFIELD. Before you leave that, will you yield on that point?

Representative HOSMER. Yes.

Representative HOLIFIELD. I think the history of this should be placed on the record at this time, the placing of these reactors in the different countries at an average cost of approximately $300,000.

Dr. SEABORG. $350,000 as our contribution. The total cost was often many times that.

Representative HOLIFIELD. At the time this policy was inaugurated, it was inaugurated with the approval of the committee in lieu of a suggested atomic peace ship that would have gone around the world. That would have been built at a cost of around $30 million and would have visited the different harbors of the world for a few days, a week, or 10 days or something like that, strictly as a good will or as a peacetime atom demonstration.

The committee did not buy this suggestion of the Commission at the time and in lieu thereof provided $10 million for the purchase of these college-type reactors and they were to be placed either in college centers or the capitals of the various nations throughout the world. Once having embarked on that program we found that it became a matter of prestige among the different nations of the world to have an atomic reactor at their university center.

We found that it was embarrassing to give to some and not to give to others. So there was, I think, some latitude exercised on the part of a few of these reactors by allowing the country to have it although we realized they did not have the trained personnel or the training program which could enable them to use it as well as it could be used in other nations.

I think we got ourselves into a little bit of a position where it was a touchy international issue if we turned down some of these less qualified nations. We did go ahead, I think, and put some reactors in areas where they have not been used properly.

Dr. SEABORG. As you indicated, it was often a prestige item. But as such, it also contributed in many instances more than would correspond to the presence of the one reactor. It gave an impetus to science in the country that went beyond this small contribution in the one area of science, namely, nuclear science.

Representative HOLIFIELD. As I say, the program was a $10 million program in lieu of a $30 million program. Looking at it from an overall standpoint, I think the committee's position was pretty well justified even if there is some one of these approximately 30 reactors, or some few, that have not been used properly.

Dr. SEABORG. I think it made a contribution to science in these countries that is more than commensurate with that amount of money.

Representative HOSMER. Let me make myself clear, Dr. Seaborg. I have no complaint about the concept itself. My complaint is about the followup. I think it could be pursued and I hope it will be.

Dr. SEABORG. Yes.

Representative HOSMER. Let us get to this 90-percent enrichment business that is now allowed. Why should we allow uranium of that enrichment to proceed to these various countries listed, and in what quantities?

Mr. WELLS. Mr. Hosmer, this came about as a result of the fact that we have discovered, and I must say we were not long in discovering it after the first agreements for cooperation were made, that it is more economical for these small research reactors to be fueled by fuel elements containing 90 percent rather than the low enriched fuel. When that came about, when the Commission took a close look at whether there was any security hazard involved, security from the standpoint of safeguarding material against military uses, the conclusion was

reached that materials for these research reactors could be furnished under the safeguards without any substantial risk—I should say without risk.

This policy was adopted sometime ago. As a matter of fact, such a provision is in most of our bilaterals and the Iranian one is just catching up because it had been in existence for quite some time. These are all small reactors.

Representative HOSMER. Let us make this inquiry: Approximately how much enriched uranium would be contained in one of these small 90-percent enrichment reactors?

Mr. WELLS. Approximately, using an average of 3 to 4 kilograms. I am sure Mr. Kratzer has more specific answers.

Mr. KRATZER. Yes, sir; the agreement provides that a maximum of 6 kilograms per core loading may be furnished. In general, as Mr. Wells has said, the quantity is smaller.

Representative HOSMER. In how many countries do we find more than one reactor of that enrichment, if any?

Mr. KRATZER. I believe I can respond to that. There are such countries. I could furnish a complete list for the record but certainly some of the European countries, Germany, France, I believe Belgium, have more than one such reactor. Japan either has more than one or is planning construction of more than one.

(See page 137.)

Representative HOSMER. But the countries specifically we are talking about, Argentina, China, Greece, Iran, Thailand, Vietnam, are they all single reactor countries?

Mr. KRATZER. Argentina is building its second reactor right now. However, one of those is limited to 20-percent enrichment by the type of reactor which it is.

Representative HOSMER. In connection with the fabrication of the elements of these reactors, is the uranium shipped to these countries for fabrication locally or is the fabrication accomplished in the United States and the enriched uranium delivered in fuel element form.

Mr. WELLS. I believe in every case, Mr. Hosmer, the fuel element has been fabricated in the United States. However, that is not a condition required by the agreement. It would be possible under the agreements that we have negotiated and presented to the committee for the materials to be fabricated in other countries, provided it was done under safeguards.

Representative HOSMER. How about the problem of stripping the enriched uranium out of the fuel elements. Is that a technical infeasibility unless the elements have not been exposed?

Dr. SEABORG. In these countries it is essentially that. I suppose if they wanted to mount a huge effort, they could.

Representative HOSMER. Very well. One further line of questions: Who pays the cost of these International Atomic Energy Agency inspectors?

Mr. WELLS. The Agency itself. Under the present policy with the Agency, the Agency itself bears the cost.

Representative HOSMER. What understanding, if any, has the United States with the IAEA relative to the increases in its budget occasioned by this additional inspection activity?

Mr. WELLS. I do not believe we have any specific understanding as such. There will have to be some increases in the budget probably, but I do not think a great deal. That will come up as an ordinary budget matter.

Representative HOSMER. Thank you, Mr. Chairman.

Senator GORE. You may proceed.

Mr. WELLS. Mr. Chairman, perhaps then I should turn to the French agreement or rather the French amendment. This is an amendment which is almost purely technical in nature in which nothing is changed about the existing arrangement which expires in the latter part of 1966, except it will permit France to get this material in an isotopic enrichment of 93 percent rather than 90 percent for test reactors capable of operating on 8 kilograms of materials. This is exactly the same principle and same kind of amendment that we have in effect with reference to Canada and with reference to Euratom, which we presented to the committee last year. (See p. 46.)

If I may just anticipate the question that may be in your mind: Why raise from 90 percent to 93? It is because, again, we found that this is the kind of isotopic enrichment that makes it economical for American fabricators to fabricate the fuel elements. It does not involve any additional strain on our safeguards system. It just seemed a sensible thing to do. This amendment is simply that.

Representative HOSMER. Under this agreement with France, how do you insure that the enriched material is being properly used?

Mr. WELLS. We have the bilateral safeguards. In addition to that, France being a member of the Euratom community, it is also subject to the safeguards of Euratom. That comes about as a result of the Euratom treaty. So we feel that the safeguards there are quite adequate.

Representative HOSMER. Does Euratom have any legal obligation to the United States to see that the French agreement with us is enforced?

Mr. WELLS. No. Euratom does not under its treaty have an obligation to the United States with reference to material which is furnished to France under this agreement. Euratom has the right under its treaty with France to look after this material and I should imagine there is considerable desire on the part of the other Euratom countries to make sure that all of its members are abiding by the treaty.

Representative HOSMER. Then the basic legal reliance is on the treaty itself?

Mr. WELLS. That is right. On our own agreement with France.

Representative HOSMER. What is our recourse in the event we discover a violation in the instance of a bilateral agreement?

Mr. WELLS. I think I need to reflect on that a minute. First of all, it is a violation of the agreement. One of the first things that we would do, it seems to me, would be to recall the material. What other sanctions we might take extraneous to the agreement itself I think would depend upon whether or not it was the kind of thing that was in bad faith or not.

The main reliance, I think, would be to declare the agreement null and void and ask the country to return the material.

Representative HOSMER. And if it did not do so?

Dr. SEABORG. Then we are in more trouble. This aspect would be minor.

Representative HOSMER. Do you want to meet that problem if and when it arises?

Mr. WELLS. I believe so. It just occurred to me that this discussion shows how difficult it would be for any country to decide to violate these agreements because it could bring down on them some very dire consequences.

Representative HOSMER. Thank you, Mr. Chairman.

Representative HOLIFIELD (presiding). Proceed.

Mr. WELLS. The United Kingdom agreement which has not yet been submitted to this committee, but which I hoped might be sent up today provides that up to 400 kilograms of materials could be furnished to the United Kingdom for experimental and development purposes in the United Kingdom. (See p. 177.)

You gentlemen may recall that our agreement with the United Kingdom has always had provisions for only a very small quantity of U^{235} because the United Kingdom was producing this material itself. It is now useful for them to acquire this material from us. We have it available and are glad to be able to sell it to them. There is nothing unusual about this amendment. It also has "up to the 93 percent" provision. The Commission will look at each transaction carefully to make sure that the use for which it is requested is reasonable.

We, as you know, have fairly close exchange of information with the United Kingdom in the areas covered by this kind of material.

Representative HOLIFIELD. It is interesting to note that there was some fear on the part of the uranium people domestically that they might come into competition with U^{235} that was exported from England to the United States in the future. It appears here that they are buying rather than selling.

Mr. WELLS. That is right, sir.

Representative HOLIFIELD. So at least this fear doesn't seem to be too well founded at the present time on the private ownership.

Dr. SEABORG. You recall that was not one of the major problems in my mind at all.

Representative HOLIFIELD. That is right.

Mr. WELLS. Then, Mr. Chairman, if I could pass on to three other agreements.

Representative HOSMER. Just a moment, please. Four hundred kilograms of contained U^{235} up to 93-percent enrichment is a rather sizable package. Can you give us some idea of what use the British are going to put it to?

Mr. WELLS. Yes, sir. In the first place, this 400 is a ceiling. I am not at all sure that they will want to buy that much. I think they will probably want to buy at least a hundred kilograms this summer. The main portion of this would probably go for some experimental fuel elements that will be used in the Dounray fast reactor, a reactor the performance of which is of interest to us.

Mr. Kratzer may have some other anticipated uses.

Mr. KRATZER. Yes, sir; I think that is the major principal use. The additional uses would be as fuel in their test reactors at both Dounray and Harwell and miscellaneous research requirements, such as preparation of fuel samples for testing.

Representative HOSMER. There are 100 kilograms involved for Dounray but there are 300 in the more or less speculative character that they can draw on as, if, and when.

Mr. KRATZER. This is to cover the period up to the expiration of the current agreement, which is 1965.

Representative HOSMER. That is next year.

Mr. KRATZER. That is correct.

Representative HOSMER. So the 300 kilograms use would have to be of some definiteness at this period of time in order to have made any reasonable calculations.

Mr. KRATZER. The material required in these fast reactor experiments can be quite sizable as can be seen from the recent arrangements we have concluded with Euratom. For example, the British have at their site near the south of Britain—Winfrith Heath—a very large critical assembly. This is fueled partially with plutonium but the basic component of the lattice for the sake of economic operation is uranium. They are not currently ordering any material from us for that purpose but that could be involved.

Representative HOSMER. This would have to develop within the next 12 or 15 months.

Mr. KRATZER. That is right.

Representative HOSMER. You must have some kind of indication from them that this is a possibility, this 300 excess kilograms not having been picked out of the air.

Mr. KRATZER. No. It was based on a rather liberal estimate of the amounts which might be required by 1965.

Representative HOSMER. Was this your estimate or their estimate or a joint estimate?

Mr. KRATZER. This is their estimate which we reviewed in light of the sort of uses which they outlined to us. Fueling the fast reactor experiments which they are undertaking, for fueling the test reactors and for the miscellaneous uses which would be very small even in the aggregate. Based on the experience with Euratom, supplying materials to other countries who have similarly advanced programs, it is not unreasonable. Of course, the material will be supplied against specific orders in which the uses will be outlined to us.

Representative HOSMER. I have one last question. In relation to any delivery date to the British under this, what is your requirement as to payment?

Mr. WELLS. It is the cash within 60 days, Mr. Hosmer.

Representative HOSMER. What about the delivery cost? Is it delivered here with the British assuming the cost and trouble of transportation, or are there arrangements that obligate us?

Mr. WELLS. The buyer assumes the cost incurred after it leaves the gaseous diffusion plant.

Representative HOSMER. How about shipping costs?

Mr. WELLS. Including the shipping costs.

Representative HOSMER. And packaging costs?

Mr. WELLS. Yes, sir.

Representative HOSMER. Thank you, Mr. Chairman.

Representative HOLIFIELD. Proceed.

Mr. WELLS. The other three agreements which we hope to submit to Congress this summer relate to the first group of agreements which

we mentioned; namely, the ones in which the safeguards will be turned over to the IAEA. Let me take first the agreement with Portugal and Brazil. We hope within a fairly short time to submit these two amendments to you. If we do Portugal will be identical to the Iran agreement, and Brazil will be precisely like the agreements with China, Greece, and Vietnam, with no unusual features. We hope also to submit to the Congress a very short extension of the Israel agreement. (See p. 186.)

I believe the committee has been informed by letter of the situation with respect to Israel; namely, Israel had asked us to give them some short period of time in which they might approach the Agency themselves, with a notion of not only having the safeguard function being performed by the Agency, but the materials themselves coming from the United States through the Agency.

Since that letter has been a feature that we have been trying to encourage, we thought that it was reasonable. In order to demonstrate that we mean for this to be done promptly, we will bring this extension to you, the shortest one we have ever submitted; namely 9 months.

With these three amendments, that will complete the negotiations we have had for this year. We hope that next year we will be able to bring back a series of others that will be expiring that will also have the safeguards turned over to the IAEA, and do this on a constant basis until they are all turned over to the IAEA.

Representative HOLIFIELD. The Chair would just like to say that I want to commend you for insisting on these safeguards arrangements through the IAEA. If we are going to have IAEA we want it to be effective and we want it to be used by all of the nations that are involved, if we are going to have any kind of control of inventory as to where it is and what it is being used for.

I think we ought to have it under these arrangements of safeguards. I strongly commend the Commission for maintaining that policy because I believe it is a very definite policy of the committee and the Congress that these safeguards be established wherever possible.

Representative HOSMER. Mr. Chairman, the record is going to be bare of any testimony relative to why it is preferable that these safeguards be carried out by the IAEA rather than on a bilateral basis.

I suggest that perhaps the Commission would wish to submit a memorandum on this point for inclusion in the record which explains also why in the specific instance of France this is either not practical or not desirable or not attainable at this time.

Mr. WELLS. We would be glad to submit a memorandum for the record, Mr. Hosmer, or, if you wish, I will comment now.

Representative HOLIFIELD. Representative Hosmer's point is well made. You may proceed.

Mr. WELLS. Yes, sir; I would like, if the committee has time, to give you our thinking on the French case. Before I do that, however, let me say, Mr. Holifield, in view of your remarks concerning the committee's support of turning the safeguards over to the IAEA, we in the Commission ought to let you know that we couldn't have done this without the State Department providing for us the foreign policy assistance that was required.

We in the Commission basically provide the technical information, and since the statute charges us with submitting these agreements to you we participate in the negotiations, but they are always done under the aegis of the Department of State. Particularly, Mr. Charles Thomas, who has been the special officer concerned with atomic energy matters, has helped us to bring these about.

Of course Ambassador Smyth has worked with us. With respect to the French arrangement the problem here relates to the long-range problem we have and the fact that we have two separate multinational organizations who are doing safeguards. The IAEA is a large body. It has a number of members now almost as large as the United Nations.

Euratom is a small one; it has only six nations, but it is still multinational. Euratom was the "sooner" in the game.

They got their safeguards system going. They were in business before the agency adopted its safeguards system. You gentlemen know the problem we had at that time as to how the Euratom situation affected the IAEA safeguards. I am happy to tell you that there is even now some relationship on an informal basis between the safeguards staff of Euratom and the safeguards staff of IAEA.

We, on our side, of course, are in close contact with both institutions, and we are convinced that they have comparable safeguards. We look forward to the time that if all the safeguards are not turned over to the IAEA—I think a complete turnover to IAEA would be ideal—at least there would be such a close relationship between Euratom and IAEA that any country in the world would feel that they were secure in the kinds of safeguards that were being carried out.

The French amendment neither extended the term of the agreement nor increased the amount of materials. Therefore, it was unlike the others that we talked about. It simply raised the possibilities from 90 to 93 percent. This simply did not give us the kind of consideration on which we could ask Euratom and France to go against the tradition on this thing by asking IAEA to do the safeguards.

I don't think the long-range objective of trying to solve this problem would have been served by trying to make an issue at this particular time. To put it quite bluntly this was not the ground on which to fight the battle. Someday there may come a time when there is a ground on which to fight the battle.

But I am convinced that this is not the one.

Representative HOLIFIELD. I think your explanation is very good for the record at this point because there is a difference of treatment here and we might as well have it on the record as to the background of why this difference exists.

A proposed modification concerning the agreements with Iran provides for comprehensive safeguards rather than minimal safeguards. Would you please explain what is meant by these terms and why this change is desirable at this time?

Mr. WELLS. The term "comprehensive" is contrasted to what was the very simple kind of safeguards we had in the early research agreement. Comprehensive are designed to protect material even if it was such large quantities as necessary for power reactors. I think that is the best way of expressing it, Mr. Chairman.

Representative HOLIFIELD. Would you describe the nature of a safeguard inspection as performed by the U.S. inspectors, and if there is a

difference give us the difference between the U.S. inspectors' standards and that of IAEA personnel?

Mr. WELLS. Let me answer it in a general sense and then if the committee desires more information we have Mr. Kratzer's statement who has already responded to some of the questions, who has taken part in the development of the agency system to give more details.

In general it can be said they are precisely the same. The inspector goes to these reactors. They use whatever means they can to become assured in a way that is most economical in terms of time and money that the materials are in fact being used in that reactor.

This consists first of carefully checking the records. A check of records which is very similar to that which any prudent businessman would make to assure that highly expensive materials were being accounted for. If they find something in the course of this that causes them to go further they can do anything they feel is necessary.

Representative HOLIFIELD. Is it a fact that we are training the inspectors for both organizations?

Mr. WELLS. Yes, sir; because we made four reactors available for the IAEA for inspection. They have been able to use these as laboratories, if you will, for their inspectors to learn these techniques.

Representative HOLIFIELD. Now we are going to use Piqua and Yankee?

Mr. WELLS. Yankee is the new one. Piqua had been one of the reactors. I must say we are very glad that Yankee was willing to have the safeguards applied to it because it will give agency inspectors a chance to practice on a large operating reactor.

Representative HOSMER. In connection with these inspectors for the IAEA, I presume that they work in teams?

Mr. WELLS. Yes, sir. I think in every case the IAEA will send at least two men. In the beginning we sent two men. Sometimes now we send only one because you can do that, we feel, without undue risk. I suspect that the IAEA will nearly always have two men, if not always.

Representative HOSMER. Would the balance of the team be equal between East and West, or is there any established policy in that regard, and is it possible that a team might be composed entirely of inspectors entirely from the East or entirely from the West?

Mr. WELLS. Mr. Hosmer, I think it is probably too early to say. First of all I am certain there is no policy written down on this yet. What seems to be happening is the trend seems to be toward having inspectors from neutral countries. No one has said that will be the only way it will be done. I suspect it will tend in that direction.

I don't think there will be a necessity, except maybe in unusual cases, to make sure you are balancing off East and West. It may be possible that Ambassador Smyth would like to comment on this question.

Representative HOSMER. Yes; and also he might wish to comment upon the qualifications of the inspectors in addition to anything you said.

Ambassador SMYTH. First of all, on your particular point of the nationalities for the inspectors, there is no general rule. But there is a provision that the recipient country can object to particular inspec-

tors. The nationalities of the present inspectors include United States, United Kingdom, U.S.S.R., Mexico, Sweden, Argentina, Hungary, Burma, and Pakistan. The inspectors have actually been for the most part scientists. I think there needs to be a change in this because really the question of going over records requires a certain amount of training in accounting.

It is a somewhat curious thing that an adequate inspection does need careful review of records and this is as much an accounting job as it is a scientific job. I think as the numbers of inspections increase the number of trained inspectors obviously will have to be increased. As you have a larger and larger pool it will be easier and easier to provide inspectors to whom the recipient country cannot possibly object, I believe. Does that answer your question?

Representative HOSMER. Yes; I think so. I was looking for some answers to questions if asked of me by other Congressmen relating to the dependability of these teams. I think you have answered them as well as possible.

Representative HOLIFIELD. Do you feel that the IAEA teams are competent teams?

Ambassador SMYTH. Yes; I believe they are, Mr. Holifield. At least the experience we have had on the four reactor systems has been very satisfactory, I would say.

Representative HOLIFIELD. The President recently announced the making available of the Yankee reactor for international inspection. He expressed the hope that the Soviets would do likewise. Has there been any indication from the Soviets that they are contemplating making one of their reactors available for international inspection?

Dr. SEABORG. None that I know of.

Representative HOLIFIELD. You have no knowledge on that point to offer the committee?

Ambassador SMYTH. No; I haven't, Mr. Holifield.

Representative HOLIFIELD. Would it be possible for you to provide us a typical safeguards report sheet well—so we can see the points that you check on?

Dr. SEABORG. Yes; I am sure we can do that.

(The material referred to follows:)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 13, 1964.

Mr. JOHN T. CONWAY,
Executive Director,
Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: During the hearings of June 30, 1964, on several proposed amendments to our agreements for cooperation we agreed to supply certain material relating to safeguards aspects of these agreements for the record. This material, which is attached, consists of (*a*) a typical safeguards report sheet, (*b*) a list of countries where two or more reactors employing 90 percent enriched uranium are located; and (*c*) a statement of the reasons why we regard IAEA safeguards as preferable to bilateral safeguards. We understand that Ambassador H. D. Smyth intends to submit a letter for the record [1] which may also contain information on the latter point.

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

[1] See p. 141.

COUNTRY SUMMARY REPORT ON

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1. Responsible authority (name and address):----------
2. Case file number:----------
   CF-----------
3. Inspection date:----------
4. Facilities inspection:

	Individual results	Page
Research reactors		
Power reactors		
Fuel fabrication facilities		
Fuel processing facilities		
Other		

5. Material inspected:

Facility	Uranium				Plutonium	Other
	Natural	Below 10 percent	Approximately 20 percent	Approximately 90 percent		

6. Overall result of inspection:
   Satisfactory------
   Unsatisfactory------
7. Recommendations:

This inspection was conducted to implement the responsibilities of the Director of the Division of International Affairs contained in manual chapter 0706–042. The specific activities carried out during the inspection conform to the safeguards, principles, and procedures approved by the Commission in AEC 997/32 as the specific safeguards to be applied bilaterally where appropriate.

The physical inspection and records audit indicate satisfactory compliance with the safeguards articles contained in the agreement for cooperation.

8. Submitted by:

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(Date)

---------- ----------
(Date)

9. Approved by:

---------- ----------
(Assistant Director for Safeguards) (Date)

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(Director, Division of International Affairs) (Date)

FACILITY INSPECTION REPORT ON

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1. Responsibility authority (name and address) :_____
2. Inspection date :_____
3. Facility inspection (name and name plate data of facility) :_____
4. Reasons for safeguards :
   A. Material supplied_____
   B. Facility supplied_____
   C. Other_____
5. Safeguarded materials at the facility :_____
6. Result of this inspection :
   Based on the information contained in the inspection work papers on file in the Division of International Affairs, the conditions at this facility are considered :
   Satisfactory_____
   Unsatisfactory_____
7. Type of inspection :
   Initial_____
   Nominal_____
   Normal_____
   Special_____
8. Present recommendations :_____
9. Results of previous inspection :_____
10. Recommendations of previous inspections :_____

Submitted by : _____

_____

Date_____

These reports are supported by a detailed narrative describing the activities by which the inspector verifies: (*a*) the types and amounts of materials at the facility; (*b*) the presence of equipment subject to safeguards; and (*c*) that the use of the materials and equipment is in accordance with the safeguards provisions of the agreement. This narrative serves the purpose of enabling the inspector to describe, in as much detail as he observes it, the status of the facility in relation to the peaceful uses guarantees of the agreement, as well as to record the steps actually taken to verify the inventory and to ascertain that the peaceful use conditions are being complied with.

An inspection consists of—

A records audit to establish that both parties are in agreement as to the quantities of material transferred.

A materials inventory to verify the presence and current use of the materials transferred. This is accomplished by piece count, weighting and visual observation of the material where it is used or stored. The inspector ascertains how much of the inventory is in a reactor, stored prior to reactor use or stored in cooling basins awaiting reprocessing.

A facility use check to establish what the program of utilization is for a given facility. Reactors are subject to safeguards if they: (*a*) were transferred under an agreement; (*b*) use nuclear fuel supplied under the agreement; or (*c*) use heavy water supplied under safeguards provisions. The check consists of consulting reactor instrumentation and log books and, where appropriate, radiation records. The program is discussed in detail with responsible facility personnel and the inspectors frequently obtain reports of the experimental work performed at the facility as backup to the conclusions reached in these discussions.

Countries with 2 or more reactors using 90-percent enriched uranium

Country	Reactor	Type	Power level	Remarks
Australia	HIFAR	Test	5 megawatts	Uses 90 percent material for irradiation specimens.
	Moata	Research	10 kilowatts	
Belgium	BR-2	Test	50 megawatts	
	BR-0-2	Research	Zero	
France	Proserpine	do	Negligible	
	Ulysse	do	100 kilowatts	
	Minerve	do	100 watts	
	Triton	do	1 megawatt	
	Melusine	do	do	
	Siloe	do	15 megawatts	
	Siloette	do	Zero	
	Cabri	do	Varies	Spert type.
	Peggy	do	Zero	
	Pegase	Test	30 megawatts	Under Euratom safeguards.
Germany	Dido	do	10 megawatts	Uses 90 percent for irradiation studies.
	Merlin	do	do	
	FRM	Research	1 megawatt	
	FRG	do	5 megawatts	
	FR 2	do	12 megawatts	Uses 90 percent as spikes.
Italy	CAMEN	do	5 megawatts	
	RANA	do	Negligible	
	Ispra I	do	5 megawatts	Under Euratom safeguards.
	ROSPO	do	Negligible	Do.
Japan	Kyoto	do		Under IAEA safeguards.
	JRR-2	Test	10 megawatts	Do.
	KINKI	Research	do	Do.
Netherlands	BARN	do	100 kilowatts	
	HOR	do	5 megawatts	
	LFR	do	10 kilowatts	
	HFR	Test	20 megawatts	Under Euratom safeguards.
	KEMA	Research	Negligible	
Sweden	R-2	do	30 megawatts	
	R-2-0	do	Zero	
Switzerland	AGN 211	do	100 watts	
	DIORIT	do	20 megawatts	Uses 90 percent as spikes.
	Saphire	do	1 megawatt	

IAEA SAFEGUARDS

The United States has favored replacement of bilateral safeguards with International Atomic Energy Agency safeguards in view of the following:

1. The most effective safeguards, the United States believes, are those carried out by an international organization. While bilateral safeguards provide adequate assurances to the supplier against diversion of materials supplied by them, only internationally applied safeguards are capable of giving equivalent assurances to the world at large that nuclear material supplied by one country to another is not being diverted to military uses.

2. Application of safeguards by an international organization develops the experience and competence in an international staff which can serve as an important precedent for international inspection in connection with any future disarmament agreement.

3. International safeguards would be uniformly applicable and, therefore, would minimize tendencies toward discriminatory treatment which might reduce all arrangements to the level which the least strict bilateral arrangements required.

4. Relying upon the IAEA to carry out the safeguards function enhances the prestige and increases the responsibilities of the IAEA and thereby makes it a more effective instrument in all of its fields of endeavor.

5. Many supplying countries will probably find it difficult if not impossible to undertake bilateral safeguards on nuclear materials which they supply. Effective safeguards on these exports can be realized only if an international organization has developed a capability for applying safeguards and recipient nations are prepared to accept them.

(A letter from Dr. Smyth, received subsequent to the hearing, follows:)

THE REPRESENTATIVE OF THE
UNITED STATES OF AMERICA TO THE
INTERNATIONAL ATOMIC ENERGY AGENCY,
Princeton, N.J., July 16, 1964.

Senator ALBERT GORE,
Joint Congressional Committee on Atomic Energy,
The Capitol, Washington, D.C.

DEAR SENATOR GORE: At the hearings of the Subcommittee on Agreements for Cooperation under your chairmanship on June 30, 1964, a number of questions were raised to which answers were promised. After the meeting I discussed this matter with Mr. Conway, and also later with Mr. Wells of the AEC, and Mr. Thomas of the State Department. We concluded that the most useful thing to do would be for me to write you a letter covering a number of topics relevant to the questions raised. I am, therefore, writing you this letter both in my capacity as U.S. Representative to the International Atomic Energy Agency, and as adviser to the Department of State and the AEC on matters relevant to the IAEA.

One specific question that was raised was the advantages of international safeguards versus bilateral safeguards. I believe I can answer this most succinctly by quoting a statement that I made in the Administrative and Legal Committee of the Seventh General Conference of the IAEA in Vienna on September 27, 1963. The statement is reproduced in the Department of State Bulletin, vol. XLIX, No. 1279, December 30, 1963. The relevant part reads as follows:

"Our reasons for believing that international safeguards implementation by this Agency are better than bilateral safeguards are numerous. I intend here to mention only a few of those reasons.

"First of all, we believe that international safeguards may be viewed as more credible than bilateral safeguards. That is, if the U.S. Government, or any other government, for that matter, is conducting safeguards inspections in the nuclear installations of a very close ally, some question might arise in the minds of people at large as to the thoroughness and efficacy of such inspections. If, on the other hand, those same inspections are conducted by an international inspectorate in which a variety of countries is represented, no one in the world can doubt their thoroughness and objectivity.

"Second, we believe that it is important that the safeguards applied to various countries be uniform. If 10, 11, or more countries set up their own individual inspection systems, it may well turn out that one country has a rigorous system and that another country has a lenient one. If transferred materials and equipment, whatever their source, are subjected to the same inspection under an international organization, there will be complete uniformity of safeguards standards.

"Third, we believe it is far more expensive for many different countries to establish inspection systems than if one international secretariat representing the governments both of the supplying countries and the receiving countries undertakes this whole job."

In the spring of 1962 a committee of which I was chairman reviewed the whole role of the IAEA and embodied our conclusions in a report to Harlan Cleveland dated May 19, 1962. Copies of this report were of course sent to the Joint Committee. One of the conclusions of that study was: "The answer to the safeguards problem lies in a vigorous and technically competent international organization."

Further study of the question led to a formulation of U.S. policy on safeguards, agreed upon by the Department of State and the AEC in January 1963. This policy recognized "the many advantages of the safeguards system administered by an international organization." It recommended that (*a*) the United States confer with its bilateral partners with the intent of transferring safeguards to the Agency, (*b*) urge the IAEA to amend its safeguards system by removing the limit of 100 megawatt thermal, and (*c*) include in new bilateral agreements, either an arrangement for IAEA safeguards or a provision making it possible to arrange for a transfer of safeguards to the IAEA at a later date.

In pursuance of this policy the State Department, in cooperation with the AEC, has worked very hard to effect transfers of the administration of safeguards to the IAEA. I would like to take this opportunity to express appreciation of the vigor and persistence with which Mr. Thomas of the State Department and Mr. Wells of the AEC and their collaborators have carried out necessary negotiations.

At the present time 17 countries which have received U.S. assistance bilaterally or through the IAEA, have agreed in one manner or another to the application

of IAEA safeguards. Two of these countries, Japan and India, involve potentially large amounts of material while the remainder are concerned only with research quantities of material. We believe that it is a great step forward to have obtained so general acceptance of the principle of IAEA safeguards.

For the sake of completeness let me also note that the 100-megawatt power limit has now been lifted so the IAEA has a system applicable to power reactors.

Turning to a specific question which was raised and which I answered in the meeting, let me reiterate the nationalities of the present corps of inspectors. They are as follows: Yugoslavia, United States, Pakistan, Hungary, United Kingdom, Argentina, Burma, U.S.S.R., Sweden, and Mexico.

As the number of inspections that the IAEA must carry out increases, the staff of inspectors will undoubtedly be enlarged. Such enlargement should make it easier to nominate inspectors who will be acceptable to the Agency and its membership as objective and independent and at the same time not objectionable to the recipient country for political reasons.

With regard to this question of acceptability, there is a specific provision in the statute which reads as follows: "* * * to send into the territory of the recipient state or states inspectors, designated by the Agency after consultation with the state or states concerned * * *." This provision is reflected in appropriate provisions of the Agency's safeguards system.

I should point out that not only does this provision make it possible for any country to object formally to particular inspectors but good administrative practice such as has been pursued in the Agency so far will ascertain informally ahead of time whether there is any objection to specific inspectors so that the Agency can take this into account in designating inspectors for a particular assignment.

There is one point that came up in the hearings on which I would like to comment but which has nothing to do with safeguards or inspection. There was considerable discussion as to the use which has been made in various countries of the research reactors which they obtained under the AEC's research reactor grant program. I agree with the committee that followup on the programs of these reactors to see that they are being effectively used is essential. I should like to point out that in many instances the IAEA has been able to assist these countries in utilizing their facilities. This assistance has been made possible under the IAEA technical assistance program which is financed from voluntary contributions of which the United States is the major contributor and from in-kind contributions of the United States in the form of cost-free experts and equipment. I believe this assistance is one of the significant contributions of the IAEA and is a good example of the United States and the IAEA working in concert in the coordination and administration of a technical assistance program.

Hoping this letter may be a useful supplement to the record of the hearings on June 30.

Sincerely yours,

H. D. SMYTH.

Representative HOLIFIELD. There have been many agreements for cooperation negotiated over a number of years. Are we approaching what might be termed a standard agreement or at least two or three forms of agreement, depending upon the extent of the cooperating nations' involvement in nuclear energy?

Mr. WELLS. Mr. Chairman, I think we very definitely are. Of course, on the research reactors they will be very much like the ones we presently have. As we go into the agreements on large reactors, I believe they will follow by and large the agreement we have with India.

Not with reference to the safeguards only but with respect to the other provisions of the agreement.

Representative HOLIFIELD. I believe that is all the questions we have, gentlemen. Thank you for your appearance and information. We will adjourn the meeting at this point.

Dr. SEABORG. Thank you very much.

Mr. WELLS. Thank you, Mr. Chairman.

(Whereupon, at 3:30 p.m., Tuesday, June 30, 1964, the subcommittee adjourned subject to call.)

APPENDIXES

APPENDIX 1

REPORT BY GAO AND RELATED CORRESPONDENCE

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., April 30, 1964.

B–153500.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CHAIRMAN: Further reference is made to your letter dated February 6, 1964, regarding the proposed nuclear powerplant to be constructed at Tarapur, India. In your letter you expressed the interest of the Joint Committee in determining whether the estimated costs of the project are reasonable and requested that we look into this matter from the standpoint of (1) the reasonableness of the costs based on a comparative evaluation with any other competitive proposals that may have been received for the project and (2) the reasonableness of the costs of the Tarapur project compared with the recently announced Jersey Central nuclear power project at Oyster Creek, N.J.

Our letter to you dated February 27, 1964, dealt with item (1) above. We have now completed our work with respect to item (2) in accordance with the understanding reached in a meeting on March 19, 1964, with members of the Joint Committee staff. The attached statement contains a reconciliation between the announced costs of the projects and the proposed contract prices of the two power stations. It also contains our analysis of the factors furnished to the Joint Committee by the General Electric Co. in explanation of the cost differences between the two power stations. We are unable to reach an overall conclusion as to the reasonableness of the estimated costs of the Tarapur project compared with the estimated costs of the Oyster Creek project. In addition to the technical engineering aspects to be considered, in order to reach such a conclusion we believe it would be necessary to make a side-by-side comparison of the estimated costs of the two projects. The General Electric Co. furnished us with a copy of the cost estimate for the Tarapur power station, but the company advised us that estimated cost data on the Oyster Creek station was not yet available.

As a matter of information, the Agency for International Development engaged a firm of engineers to review the reasonableness of the costs of the Tarapur project. In its report to the Agency, dated April 15, 1964, the engineering firm concluded that, based on its cost analysis, "* * * the price contracted for the Indian Government is fair and equitable for the project as proposed."

The attached statement contains company private information furnished us by the General Electric Co. in pursuance of this inquiry. In accordance with the company's wishes and the instructions contained in your February 27, 1964, letter to us, we have kept this information confidential and have bracketed the portions of the report containing company private information.

We trust you will find this report responsive to your inquiry.

Sincerely yours,

JOSEPH CAMPBELL,
Comptroller General of the United States.

STATEMENT OF FINDINGS ON REVIEW OF COST DIFFERENCES BETWEEN NUCLEAR POWER PROJECTS AT TARAPUR, INDIA, AND OYSTER CREEK, N.J.

In reviewing the cost differences between the proposed nuclear power projects at Tarapur, India, and Oyster Creek, N.J., our efforts were directed toward two principal areas. First, it was necessary to reconcile the publicly announced costs of the two projects with the General Electric Co.'s proposed contract prices for the two power stations. Second, we reviewed the data furnished to the Joint Committee on Atomic Energy by the General Electric Co. in explanation of the differences between its proposed contract prices for the two power stations—two 190,000-kilowatt units at Tarapur compared with one 515,000-kilowatt unit at Oyster Creek.

Differences between announced project costs and proposed contract prices for power stations

The publicly announced costs for the Tarapur and Oyster Creek projects were $114 million and $68 million, respectively. The dollar costs of the Tarapur project in an amount up to $80 million are being financed under a loan from the Agency for International Development (AID). At the time of our review, the proposed contract prices for the two power stations were $84.3 million for Tarapur and $58.5 million for Oyster Creek. A reconciliation of these amounts to the announced project costs follows.

Reconciliation between announced project costs and proposed contract prices for nuclear power stations in Tarapur, India, and Oyster Creek, N.J.

	Tarapur [1] (note a)	Oyster Creek [2] (note b)
Total announced project costs	$114,000,000	$68,000,000
Deduct items not contained in proposed contract prices for power stations:		
Amount of AID loan to cover cost of fuel fabrication allowance	10,800,000	[3]
Amount in AID loan and Oyster Creek estimate reserved for costs and contingencies over and above proposed contract prices for power stations	9,900,000	8,000,000
Estimated local costs to be incurred by Government of India over and above proposed contract price for power station	9,000,000	
Price reduction of power station following selection of single-cycle reactor		1,500,000
Total of items not contained in proposed contract prices for power stations	29,700,000	9,500,000
Proposed contract prices for power stations	84,300,000	58,500,000

[1] AID development loan paper, dated June 19, 1963, justifying and recommending authorization of the loan and proposed contract between International General Electric and Government of India.

[2] Jersey Central Power & Light Co., "Report on Economic Analysis for Oyster Creek Nuclear Electric Generating Station" and related transmittal letter, dated Feb. 17, 1964, to Chairman, Joint Committee on Atomic Energy.

[3] Footnote deleted due to proprietary nature of information.

The proposed contract price between GE and the Government of India in the amount of $84.3 million provides that $59.3 million will be payable in dollars and the equivalent of $25 million will be payable in rupees. The loan made to India by the Agency for International Development will be used to finance the dollar portion of this contract. This loan will also be used to finance the fuel fabrication costs of $10.8 million. In addition, AID estimates that about $1.7 million of the loan proceeds will be used in financing purchases of uninstalled spare equipment, and about $2.4 million of the loan proceeds will be used in financing costs to train personnel, purchase miscellaneous equipment, and provide consulting engineering services. About $5.8 million of the loan is uncommitted but is being reserved for contingencies and escalation.

The Indian Government plans to finance all rupee costs of the GE contract. In addition to the rupee costs of the contract, AID's estimates show that the Indian Government will incur rupee costs equivalent to about $9 million for site investigation and land acquisition, access roads, salaries of personnel, and consulting services.

Price differences between Tarapur and Oyster Creek power stations

In response to a request from the Joint Committee on Atomic Energy, on January 29, 1964, GE transmitted to the committee a comparison of the estimated costs of the Tarapur power station with the estimated costs of the Oyster Creek power station. The differences in the costs of the two power stations were stated in dollars per kilowatt. Subsequently, by letter dated February 20, 1964, GE also transmitted to the Government of India an analysis of the cost differences between the two power stations. This analysis was prepared in more detail than the one transmitted to the Joint Committee on Atomic Energy (JCAE), and the differences were shown in total dollar amounts rather than in dollars per kilowatt.

We observed that the valuation of the cost differences contained in the two analyses was not the same in all cases. GE officials at the Atomic Power Equipment Department (APED) who prepared these analyses informed us that they differed principally because the later estimate prepared for the Government of India was a more refined estimate; the estimates of cost differences transmitted to the committee were only intended to be approximate estimates; the numbers were rounded off; and some of the items were prepared primarily on the basis of broad knowledge of the two projects by APED officials.

A summary of the two analyses, prepared by the APED and our comments thereon, follow.

Summary of price differences between Tarapur and Oyster Creek power stations

	Analyses furnished by GE	
	To JCAE (in dollars per kilowatt)	To Indian Government
Difference in cost resulting from difference in size	[1] $56	[1] $3,920,000
Additional costs applicable to Tarapur:		
Indian customs duties and taxes on U.S. equipment imported into India	11	4,450,000
Oversea freight, insurance, port handling, and transportation costs	10	4,000,000
Housing colony and construction labor camp	4	660,000
Additional plant equipment due to utility requirements, remote site location, and dual-cycle design	14	6,040,000
Additional project costs due to weather and site conditions and oversea location of U.S. personnel	12	5,230,000
Total	107	[2] 24,300,000

[1] According to the APED analyses, the 56 per kw. represents the incremental costs between one 190,000-kw unit and a 510,000-kw. unit, whereas the $3,920,000 represents the difference between two 190,000-kw. units and a 515,000-kw. unit if both power stations were to be built at the same location.

[2] The proposed contract prices for the 2 power stations as shown on p. 2 actually differ by $25,800,000 because the proposed price for the Oyster Creek station was reduced by $1,500,000 when a single-cycle reactor was decided upon instead of a dual-cycle reactor.

Difference in size

As indicated on the previous table, GE considered the difference in the unit sizes at the two plants to be a most significant factor in accounting for the difference in cost per kilowatt between Tarapur and Oyster Creek. APED officials informed us that the cost-size curve is used to determine prices and that this curve represents a consistent price-cost relationship between plants of various sizes. APED officials also stated, that the cost-size curve plotted for GE projects for both the domestic and the oversea market demonstrated that the Tarapur basic plant was priced comparably with the plant at Oyster Creek. A copy of the cost-size curve and related information furnished us is included as an appendix to this report.[1] We were also informed that the use of a cost-size curve is a generally accepted method of estimating or determining prices in the industry. Moreover, GE furnished us with a copy of a press release issued on February 27, 1964, wherein GE announced that it planned to issue a price schedule for basic nuclear powerplants based on the size of the plant.

[1] Price curve deleted in this publication due to proprietary nature of information contained therein.

In a letter to the Agency for International Development, dated March 11, 1964, the Atomic Energy Commission (AEC) stated that the cost per kilowatt of installed power decreases significantly as the size of the reactor increases. AEC also prepared a graph plotting unit costs versus size of several nuclear plants that had been constructed or were being proposed. It is apparent that the AEC position coincides with the GE position in respect to the effect of size on unit costs per kilowatt.

We believe it is reasonable to conclude that the cost per kilowatt of the Tarapur station would be more than the cost per kilowatt of the Oyster Creek station because of the difference in size of the units involved; however, without the benefit of a side-by-side comparison of detailed cost estimates for the two plants, we are unable to determine whether the estimated difference, as shown in the GE analysis to the committee, falls within a reasonable range. Also, without the benefit of a side-by-side comparison of the two estimates, we are unable to ascertain the reasonableness of GE's statement that it would cost more to construct two 190,000-kilowatt units compared with one 515,000-kilowatt unit. GE furnished us with a copy of the cost estimate prepared for the Tarapur station, but the company advised us that the estimated cost data on the Oyster Creek station was not yet available.

Indian customs duties

The estimate of customs duties and taxes on equipment imported into India was contained in the GE cost estimate for Tarapur and was prepared by calculating the amount of tariff payable on each piece of equipment to be imported into India. The tariff rates were obtained from an Indian Government custom tariff manual. On the basis of our tests, we conclude that the reported difference made for custom duties is reasonable. As a matter of information, it should be noted that the duties are payable in rupees and do not constitute a part of the costs to be financed by the AID loan to India.

Oversea freight, insurance, port handling, and transportation costs

For the most part, APED estimated these costs by applying percentages to the value of equipment to be imported into India. The APED estimated also that additional costs of [deleted] would be incurred in renting a barge or LST to transport large pieces of equipment from Bombay to Tarapur because adequate transportation facilities were not available in India to handle equipment of this size.

APED officials stated that the percentage factors used were based upon information the division obtained from one of its consultant engineering firms that had experience in building steel, aluminum, and cement plants in India. In answer to our inquiry, APED officials stated that the total amounts shown in its cost estimate for these items was over and above the costs for Oyster Creek because the cost of freight and insurance incurred on equipment within the United States was included as part of the equipment cost. On a limited test basis, we found that the cost of freight to dockside was included as part of the equipment cost estimate. We believe that the cost estimates for these items were developed in adequate detail and that inclusion of additional costs for this factor are reasonable although not subject to exact verification.

Housing colony and construction labor camp

The costs of construction of a permanent housing colony for American personnel who will reside in the Tarapur area during the construction period were estimated to be about $1 million and are provided for in a separate contract between GE and the Government of India. This contract provides for repayment in rupees and is not being financed by the AID loan. Other costs relating to the colony; such as, air conditioners, furniture, and teachers' salaries, and the costs of construction of a labor camp for the local labor force were estimated to be about $660,000 and are included as part of the cost of the Tarapur station contract.

The housing colony was included by GE as a factor in explaining cost differences between Tarapur and Oyster Creek in its letter to the committee but was excluded in GE's letter to the Government of India. The total cost of Tarapur, discussed in the information GE furnished to the committee, was $85.3 million, including the cost of the separate contract for the housing colony. The total cost discussed in the letter to the Government of India was $84.3 million, excluding the cost of the housing colony. Thus, in the context in which the figures were used, both explanations are properly stated.

It is apparent that these types of expenses will not be incurred at Oyster Creek. We found that the estimated amounts for these expenses were adequately supported and we believe that the reported difference is reasonable.

Additional plant equipment

The APED estimated cost of this factor represents equipment required for Tarapur that will not be required for Oyster Creek and additional costs of similar equipment for Tarapur compared with Oyster Creek. We were informed that the estimate of $14 per kilowatt provided to the committee was not supported in detail but was prepared primarily on the basis of broad knowledge of the two projects by APED officials. These estimates were developed in more detail for purposes of the letter subsequently transmitted to the Government of India, as follows:

Spare and standby equipment, including additional condensate and feed pump capacity, higher generator voltage, and additional circulating water pump capacity	$854,000
Additional cost for 50-cycle service at Tarapur, including effects on turbine generators, transformers, electric motors, and other rotating equipment	1,399,000
Export packing for components imported into India	1,300,000
Additional buildings, offices, and shop facilities	500,000
Dual-cycle reactors at Tarapur compared with single-cycle reactors at Oyster Creek	1,990,000
Total	6,043,000

With respect to the first three items listed above, we reviewed the bases used for establishing the estimates and concluded that they appeared to be reasonable. With respect to the $500,000 item for additional buildings, offices, and shop facilities, it appears that some additional costs for such items may be necessary at Tarapur; however, the basis for the estimate was one of judgment nature and not subject to verification.

We were informed by APED officials that the additional costs of $1,990,000 for a dual-cycle reactor was arrived at by using the $1.5 million reduction allowed for a single-cycle reactor at Oyster Creek, together with an estimate of $490,000 representing the additional cost due to the difference in size of the units at the two stations. The basis for the estimates is subject to question as discussed below. In the information GE transmitted to the committee and the Government of India, the total costs used for both the Tarapur and the Oyster Creek stations were for dual-cycle reactors; therefore, inclusion of an item of additional cost for dual-cycle reactors at Tarapur would be in error. We also do not believe it is proper to claim a cost difference because of size because we understand that the cost difference attributed to the difference in size was accounted for in explaining the $3,920,000 item discussed on page 5.

Since no cost estimates were available for Oyster Creek, we could not ascertain whether the Oyster Creek station would contain equipment costs that would not be applicable to Tarapur.

Additional project costs

APED informed us that the estimate for this factor of $12 per kilowatt provided to the committee was not supported in detail but was prepared primarily on the basis of broad knowledge of the two projects by APED officials. The estimate prepared for the Government of India was subdivided into two categories totaling $5.2 million. We were subsequently furnished the following detailed listing in support of the estimate.

Travel and living costs, additional costs of Bombay office, additional post operations (warranty costs)	$950,000
Special docking facilities, 7-month longer construction schedule, additional construction equipment, circulating water canal	4,460,000
Total	5,410,000

NOTE.—The above table has been modified in this record and shows a consolidation of cost items requested by General Electric in order to protect the company private information furnished to GAO.

With respect to the special docking facilities, travel and living costs, and additional costs of Bombay office we were able to satisfy ourselves that the bases on which they were established appeared to be reasonable and could be related to the Tarapur cost estimate. We believe it is reasonable to expect that, for the 7-month longer construction schedule, the additional construction equipment, and the additional post operations (warranty costs), some additional costs would be incurred; however, the estimates were of a judgment nature and not subject to verification.

The inclusion of [deleted] for the circulating water canal appears to be in error. We were informed that the estimated cost of the canal at Oyster Creek was [deleted] compared with [deleted] at Tarapur. On this basis no additional dollar costs should be attributable to Tarapur; however, insofar as the cost per kilowatt of capacity is concerned, the cost per kilowatt at Tarapur would be about [deleted] on the basis of the figures furnished.[1]

Since no cost estimates were available for Oyster Creek, we could not ascertain whether the Oyster Creek station would incur project costs that would not be applicable to Tarapur.

(See also p. 155 for GAO comments on additional information furnished by GE.)

GENERAL ELECTRIC CO.,
ATOMIC POWER EQUIPMENT DEPARTMENT,
San Jose, Calif., March 6, 1964.

Mr. T. GORDON,
Mr. L. SELKOWITZ,
General Accounting Office.

GENTLEMAN: Attached is a pricing curve[2] which we have discussed with you previously, showing the relation of size versus cost for various size nuclear powerplants. We have plotted on this curve the price of plants which we have recently bid in both the domestic and oversea market, and we are also attaching a short explanation of some of these bids.

The main point in presenting our pricing curve and a history of recent bidding is to exemplify our position that pricing is consistent with the curve and that smaller plants have a considerably higher unit price in dollars per kilowatt than larger ones.

As we have mentioned to you previously, our price curve represents to us a consistent price-cost relationship between plants at various sizes. In other words, if we were to price a plant from the price curve at 500 megawatts, and price a plant from the curve at 200 megawatts, even though the 500-megawatt plant would be priced at a considerably lower dollar per kilowatt level, we would expect, assuming that both plants are standard and on the same siting basis, etc., to have the same amount of profit or loss on either plant. In other words, our pricing curve reflects the inherent unit cost differences between large and small plants. We have further attempted to illustrate this point by giving you a few items of physical comparison between the Jersey Central and the Tarapur projects, pointing out that it costs as much or more to build two 190-megawatt units as it does to build one 500-megawatt unit.

Again with respect to our pricing curve, we have mentioned that this is a dynamic curve that is consistently adjusted for new inputs. We continually make cost estimates of our projects after we have accumulated enough design information to make a meaningful cost estimate and apply these points to our curve as a test of the curve. In this way we can make adjustments to the curve as we see fit in terms of the latest information.

Our final pricing on Tarapur, which was submitted in late 1962, was based on consideration of price-cost relationships very similar to that shown on the attached curve. We had more information on a two 150-megawatt arrangement, and it was necessary to extrapolate from this to the two 190-megawatt arrangement in order to come up to our final price. Of course, the price from the curve does not reflect any of the nonstandard arrangements involved in a project like Tarapur, and, therefore, all of these items, such as the import duties, transportation, the extra equipment, the longer schedule, etc., were made as adjustments to the base pricing schedule. We also, of course, obtained other cost data, including vendor quotations on major equipment and were thereby able to prepare by the time of final pricing a preliminary cost estimate of the project. A copy of this cost estimate, dated September 6, 1962, has been furnished to you.

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[1] See p. 153.
[2] Price curve deleted in this publication due to proprietary nature of information contained therein.

All of this information is used as a check of our basic pricing structure with, of course, the additions for the nonstandard items mentioned previously. Our final pricing, then, is based on such considerations and also our best feeling in the competitive factors in a given job.

As we mentioned before, we considered the Tarapur project to be one which was highly competitive and one which we felt was very important in terms of our future nuclear program. We, therefore, established an original price, which was, we think, highly competitive, and which was lowered in final negotiations with the Indian Government by about [deleted] percent. We also mentioned to you that in final negotiations with the Indian Government, we were compelled to increase the rupee portion of our price with the consequent lowering of the dollar portion of the price. The amount involved here was of a magnitude of about [deleted] percent of the total price. The objective of the Indians was to reduce the foreign exchange requirements in order to reduce the amount of money that they would have to apply for under the AID program. We hope this information has given you a better understanding of our pricing methods and the manner in which the size-cost relationship is factored into our final pricing.

Very truly yours,

G. J. STATHAKIS, *Manager-Marketing.*

Tarapur-Jersey Central cost comparison

[Data provided to GAO by GE][1]

		Tarapur	Jersey Central
I.	Station prices	[2] $84.30	[2] $60
II.	Items not required for Jersey Central:		
	(1) Customs duties	4.45	
	(2) Oversea freight, insurance, and port costs	4.00	
	(3) Labor camp	.66	
	(4) Additional equipment costs [3]	6.04	
	(5) Additional project costs	5.23	
		[2] 20.38	
III.	Normalized station price, U.S. basis	[2] 63.92	[2] 60
IV.	Station output, at 2½" Hg and 0.5 percent makeup	380	488
V.	Equivalent dollar per kilowatt unit price III÷IV=V	[4] $168	[4] $123
VI.	Equivalent dollar per kilowatt for a single 190,000 kilowatts unit (6)	[4] $176	
VII.	Cost differential between 190,000 kilowatts and 488,000 kilowatts (7)	[4] $51–$59	
VIII.	Comparable dollar per kilowatt costs	[4] $125–$117	[4] $123

[1] See page 151, June 19, 1964, letter by General Electric modifying these data.
[2] In million dollars equivalent.
[3] These equipments are not normally required by U.S. utility practice.
[4] Per kilowatt.

GENERAL ELECTRIC CO.,
ATOMIC PRODUCTS DIVISION,
Palo Alto, Calif., June 19, 1964.

Mr. J. T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
U.S. Capitol Building, Washington, D.C.

DEAR MR. CONWAY: During the discussions held with members of the Joint Committee on Atomic Energy Staff on May 8, 1964, a number of questions were raised concerning the General Accounting Office report on cost differences between the Tarapur and Jersey Central plants. These questions were later confirmed with Mr. John Barnard of our Washington office. We have outlined below our answers to these questions as well as provided a few general comments on the GAO report.

As you recognize, there are extreme differences between the Tarapur and Jersey Central plants with respect to the utility systems, the plant size, number of reactors, reactor system type, site access, site conditions, climate, labor skill and availability, equipment availability, and a myriad of other important distinctions. These factors make a detailed item by item comparison between these two plants largely a matter of approximation, the significance of which must be appraised in light of the assumptions and practical estimating methods necessarily employed, and the margin of error inherent therein. It remains, therefore,

that the costs of certain of the differences can only be assessed by the judgment of qualified individuals.

In our opinion, no discrepancies not readily explained below were reported in the analysis by the GAO. Further, there were no undue profits associated with the Tarapur project, nor was the Tarapur plant price inconsistent with the many other plant prices shown on the curve contained on page 15 of the GAO report, including the Jersey Central published plant price. The comments in the GAO report arise mainly because of slightly different approximations at different points in time in our attempt to assess cost differences of difficult comparisons.

Answers to the specific questions contained in the memorandum dated May 26, 1964, as forwarded by Mr. John Barnard (copy attached) are provided below:

1. As Mr. J. F. Young stated to you in his letter of June 9, 1964,[1] it now appears that it will be August before we have the opportunity to report the details of the Jersey Central cost estimate to the Joint Committee on Atomic Energy. To date, General Electric has not quoted any installed spares or stock spares to Jersey Central Power & Light for the Oyster Creek plant, so that our cost estimate will not reflect these items. With respect to the latter portion of question 1, there is no need to provide complete sets of spares for both duplicate units at Tarapur—one complete set is generally sufficient. However, the primary need for a complete set of spare equipment to service either unit is the fact that any equipment breakdown would entail a long shutdown of the plant while replacement parts were being shipped half-way around the world from the United States, not to mention the local transportation difficulties to this relatively inaccessible site. This compares with the immediate availability in a matter of hours of spare equipment from General Electric service centers or repair shops along the Atlantic coast which can provide replacement parts or repair equipment in the Jersey Central plant—thus not necessitating such complete prepurchase of spare equipment. The additional spare equipment at Tarapur is a simple economic solution to a major distance-time problem.

2. The cost difference of $1.990 million has been given to the GAO as our best estimate of the difference in cost of building the Tarapur plant as two single cycle units versus building it as two dual cycle units. In other words, by deducting the $1.990 million from the Tarapur price, we have attempted to put Tarapur on a single cycle basis and to, therefore, make a comparison with the Jersey Central plant on a single cycle basis. The cost difference between single cycle and dual cycle on one size plant will be different than the cost difference between these two types of cycles on a different size plant. For example, on the approximately 500-megawatt Jersey Central plant, we estimated the cost difference between the two cycles at $1.5 million, or $3 per kilowatt. On the other hand, on the Tarapur plant, we estimated the cost difference between the two cycles to be about $1 million, or $5 per kilowatt, which gives a total difference of about $2 million for the two units; i.e., the $1.990 million which we used in our estimates. Once having brought the Tarapur plant back to a single cycle basis, we could then make a comparison on a size basis to Jersey Central, first, of course, having removed the other extras on Tarapur, as can be noted in the GAO Report.

The second part of the question concerns itself with the confusion which arose over the use of different numbers to represent the Jersey Central price. I should first point out that all of our prices we have reported to the Joint Committee on Atomic Energy and to the Indian Government in connection with the Jersey Central-Tarapur comparison were on the basis of single cycle for Jersey Central. Any indefiniteness with respect to the Jersey Central price was based on lack of final agreement with Jersey Central on scope of supply. To clarify, let me briefly explain the time sequence of events. In the comparative cost data furnished the Joint Committee dated January 27, 1964, the contract price to General Electric was estimated at $61.2 million. As of that time, we had not received any indication from Jersey Central as to final scope of supply, and we merely estimated the price by subtracting 10 percent (which is normally considered to be the utility's cost on a powerplant of this type) from the $68 million figure which had been released by Jersey Central as of that date.

As of February 20, 1964, when additional cost data were furnished to the Government of India, we reflected in the report to Mr. Jain in a footnote as follows: "The final Jersey Central contract price will be between $58.5 million and about $61 million (U.S.), depending on final scope arrangements between General Electric and Jersey Central." At that time, the scope of supply agreement and related contract price were progressing toward final understanding with Jersey Central. As of today, we have not completely agreed on the final scope

[1] Not reproduced in this record since it deals principally with identification of proprietary information.

of supply; however, the $58.5 million reflects our best current estimate of the final contract price.

The cost data furnished to the Joint Committee on Atomic Energy, dated January 27, 1964, are essentially consistent with the cost data furnished to the Indian Government as reported on page 4 of the GAO report, considering that both columns of figures are, at best, approximations. We suggest that the cost data submitted to the Indian Government are slightly more accurate due to the additional study permitted by their later release. We therefore consider the cost data in the January 27, 1964, memorandum to be more preliminary in nature to satisfy the needs at that point in time, but essentially superseded by the cost data as given to the Indian Government.

I should like to point out that we mentioned to the GAO on several occasions that the cost data furnished to the Indian Government were merely an updating of the previous information given to the Joint Committee.

3. With respect to the circulating water canals, we indicated to the GAO that the difference in canal construction costs between Jersey Central and Tarapur was to be deducted from the Tarapur price in order to arrive at a price for the Tarapur-sized units built under Oyster Creek conditions. The method used, admittedly, is somewhat inexact. However, the point that we want to make is that the Tarapur canals, if built under Jersey Central conditions, would cost considerably less than they will cost under the conditions they will be built at Tarapur. Because of the monsoon storms and the approximately 18-foot tides in the Tarapur locale, two breakwater dikes must be constructed about 0.6 miles out to sea at an elevation of over 20 feet above low tide levels. Furthermore, these two breakwater dikes must be faced with multi-10-ton rocks or concrete tetrahedrons to withstand the battering of the monsoon storms. The mere problem of bringing equipment into India capable of transporting rocks or manufacturing the tetrahedrons of this weight is a costly item. No such conditions exist at the Jersey Central site. We gave to the GAO our best estimate of the cost of the Tarapur canals. However, actually when final cost estimates are available, we believe the Tarapur canals may cost considerably more.

4. As you know, agreement on the release of proprietary information contained in the GAO report will be covered separately.

5. The data entitled, "The Tarapur-Jersey Central Cost Comparison," dated May 5, 1964, was taken directly from the document submitted to the Government of India dated February 20, 1964. In February, when this cost comparison was prepared, all numbers contained therein were our best prudent judgment. In the light of subsequent negotiations with Jersey Central, we can now substitute a more accurate price for the Jersey Central plant. Specifically, we now desire to change four numbers in this tabulation: In items I and III, we would change the Jersey Central price to $58.5 million; in items V and VIII, we would change the Jersey Central unit price to $120 per kilowatt. As noted in item VIII, as corrected, the unit cost comparison between Tarapur and Jersey Central remains completely valid, with the Jersey Central price ($120 per kilowatt) approximately half way between the estimated comparable unit cost for the Tarapur plant ($117 to $125 per kilowatt).

6. Some confusion, but no inaccuracies, has arisen on the cost to be associated with the housing colony and the construction labor camp. This confusion arises because the housing colony, which is a permanent community initially for American personnel and later for Indian plant operation personnel, was negotiated under a separate contract of approximately $1 million. This contract price was included in some of the comparisons and excluded from other comparisons, but as stated in the GAO report, page 8, "* * * in the context in which the figures were used, both explanations are properly stated." The approximate $1 million contract covers the cost of construction of permanent housing and associated community structures. Included are streets, water distribution line, street lighting, and power distribution to houses, plus other recreational facilities and a commissary building. This permanent housing colony is located several miles from the site.

The balance of costs in the amount of $660,000 covers the following:

(*a*) A construction labor camp at the site, including the housing barracks, furnishings, and commissary building.

(*b*) Furnishings for the permanent colony in the way of furniture, appliances, and air-conditioning units.

(*c*) The furnishing of a teaching couple for children of Americans working on this project.

(*d*) Cost of water and power to both the permanent colony and the construction labor camp.

In reading the several documents discussing these cost comparisons, care must be exercised as to whether the separate contract of the housing colony was included in the comparison or not. However, the cost comparisons are accurate as stated in each document.

7. The second page of the May 26 list of questions contains unnumbered questions relating to the procurement of subsequent reactor cores for the Tarapur, Jersey Central, and Niagara Mohawk plants. The initial core loads for the Tarapur plant will be manufactured in the United States by General Electric and shipped to the plant site.

During the early discussions with the Government of India, they expressed desire to develop the manufacturing capability for subsequent core loads for the Tarapur plant. At that time, General Electric Co. offered to enter into a licensing arrangement with the Government of India which would provide them with manufacturing know-how and technical assistance in the manufacture of fuel assemblies for the second and subsequent cores of the Tarapur plant. At the present time, we anticipate that most all of the second core and all the subsequent cores will likely be fabricated by the Indians in India.

With respect to the Jersey Central and Niagara Mohawk plants, the initial core loads for both reactors will be manufactured in the United States by General Electric. In the case of Niagara Mohawk, a commitment has been made to also procure the second reload core for that station from General Electric. Jersey Central, on the other hand, has made no such commitment.

In conclusion, I would like to emphasize that the GAO report presents an analysis which we consider to be quite fair and generally an accurate reflection of the facts. We would hope that the Joint Committee would be able, based on the information presented, to determine that the Tarapur price was reasonable, particularly in light of the competitive bidding situation on Tarapur as it has been reported to us.

We trust that the above answers are satisfactory to you. We would appreciate having the additional questions and our answers herein included in any release of the GAO report.

Very truly yours,

G. J. STATHAKIS,
Manager—Marketing, Atomic Power Equipment Department.

SUMMARY OF DISCUSSION HELD ON MAY 26, 1964, AMONG JOHN BARNARD, GENERAL ELECTRIC, E. J. BAUSER, AND J. B. GRAHAM, JCAE STAFF

Mr. Barnard inquired concerning what information was requested of the General Electric Co. represented by George Stathakis and Brian Webster on May 8, 1964. The following is a summary of the questions on which information is desired:

1. Jersey Central plant cost breakdown which is scheduled to be available in July 1964. Also include spares, both installed and in stock, to justify additional costs claimed for these items for the Tarapur plant. Comment on relative need for spares between a plant with two duplicate units (Tarapur) and a plant with only one unit (Jersey Central).

2. Clarify cost differential associated with single cycle and dual cycle plants versus cost differential due to the size of the plants. (Refer to page 9 of the GAO report.) Also correct comparative cost data supplied to the Joint Committee in the document delivered by Mr. Mullaney on January 29, 1964. Note that this document referred to a single cycle Jersey Central plant while apparently the cost data was for a dual cycle plant.

3. Rectify apparent discrepancy concerning water canal costs for the Jersey Central and Tarapur reactor referred to on page 10 of the GAO report. Note that the data presented in the table on page 10 indicates the Tarapur canal costs more than the Jersey Central canal while the data in the text indicates the opposite.

4. Designate the specific items in the GAO report which are proprietary information. It appears that GAO may have classified too many items as proprietary information to be on the safe side.

5. Review sheet entitled, "Tarapur-Jersey Central Cost Comparison" compiled from data provided to GAO by GE, dated May 5, 1964, and comment on any entries considered to be inaccurate.

6. Include an explanation of the construction camp and permanent colony costs to clarify data on camp costs in documents furnished to the Joint Committee, GAO and to the Indians.

In discussion with Mr. John Barnard on May 26, 1964, we requested that if the information could now be released, General Electric should supply the Joint Committee with the plans for procurement of Tarapur reactor cores subsequent to the initial installation.

The committee would also like to have, if the preceding situation also obtains, what the core procurement order will be for the Jersey Central type of core if the Niagara Mohawk plant is included in order to permit comparison with the Tarapur core procurement.

In the discussions with Mr. Barnard on May 26, we also informed him that publication of the GAO report with proprietary information deleted is planned. We suggested that any comments his organization may have on the report should be made available in writing as soon as possible so that they may be taken into consideration for the publication of the report.

GENERAL ELECTRIC CO.,
ATOMIC PRODUCTS DIVISION,
San Jose, Calif., July 23, 1964.

Mr. JOHN T. CONWAY,
Executive Director,
Joint Committee on Atomic Energy,
Washington, D.C.:

This letter is in response to your request for further clarification of the comparison of circulating water canals for the Tarapur and Jersey Central power stations.

Our explanation of the cost difference between the two water canal systems has consistently referred to an $860,000 reduction required in the Tarapur price to place the two plants on a comparable basis. The attached diagram (fig. I) illustrates the use of this number. It shows that the $860,000 is the estimated additional cost of constructing Tarapur size canals under Tarapur conditions rather than at the Jersey Central conditions.

For example, you will note that the Jersey Central canals are estimated to cost approximately $4.2 million to construct at the Oyster Creek site. Figure I further shows that because the conditions at the Tarapur site are more severe than the Oyster Creek conditions, our initial estimate was that these Tarapur canals could be constructed for $4 million. Now, these absolute numbers cannot be directly compared, since they apply to plants of different size, and we have to eliminate the effect of plant size in the comparison and compare cost differences in canal construction between plants at comparable sizes. (It is necessary and logical to eliminate the size effect since we take credit for size differences separately.) Therefore, the comparison that is needed is the cost difference in constructing the Tarapur-size canals under Tarapur conditions and the cost of constructing the Tarapur-size canals under the Jersey Central conditions. This difference is indicated on figure I and was calculated (on a rather approximate basis) to be $860,000.

Eliminating the size effect, there is not the slightest doubt in our mind that the Tarapur canals will cost much more to construct under Tarapur conditions than they would under Jersey Central conditions, notwithstanding the weather conditions which exist at the Jersey Central site. As we indicated in our letter of June 19, 1964, two breakwater dikes must be constructed at Tarapur approximately 0.6 mile out into the Arabian Sea at an elevation of more than 20 feet above low-tide levels to protect the intake canal from sea and weather conditions including monsoon storms and approximate 18-foot tides in that locale. Furthermore, these two breakwater dikes must be faced with multi-10-ton rocks or concrete tetrahedrons to withstand the battering of the monsoon storms. No such conditions exist at the Jersey Central site. The canals there will be designed to accomodate peak tides in the order of 6 feet compared to 18 feet in the Arabian Sea and of course, the wave and storm action in a small body of water such as Barnegat Bay cannot be compared with the Arabian Sea conditions.

The canal construction at Jersey Central is essentially a cutting and dredging operation whereas the canals at Tarapur in addition require extensive breakwater dikes. It is important to note that no breakwater dikes are required at Jersey Central.

As also mentioned in our letter of June 19, present indications are, now that design and subcontracting efforts are further along on Tarapur, that the actual costs for the cooling water canals will be substantially over our previous estimate, perhaps by as much as $1 to $3 million.

We are firmly convinced that the $860,000 estimated additional costs is a very modest claim to comparison with the probable actual cost difference between the canals at Tarapur and Jersey Central.

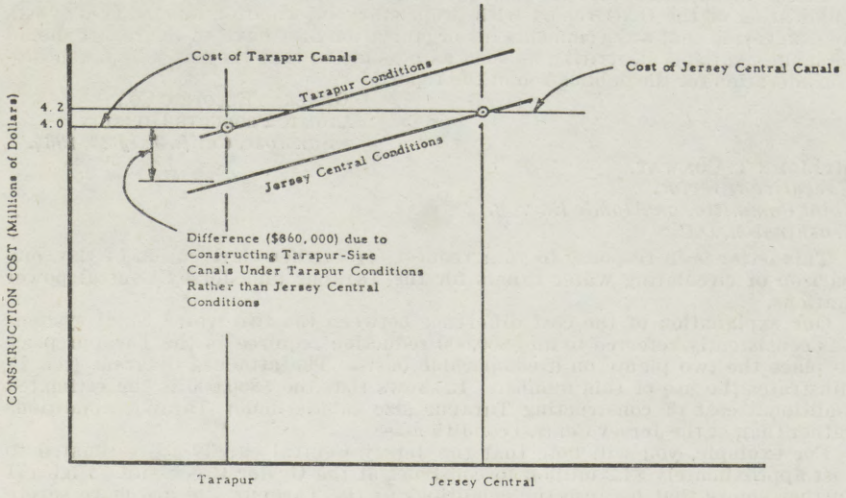
I trust this information will clarify our position on this subject.

Very truly yours,

G. J. STATHAKIS, *Manager, Marketing.*

FIGURE 1

COMPARISON OF CANAL CONSTRUCTION COSTS AT TARAPUR AND JERSEY CENTRAL PLANTS



CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C., August 31, 1964.

Hon. JOSEPH CAMPBELL,
Comptroller General of the United States,
General Accounting Office, Washington, D.C.

DEAR MR. CAMPBELL: Senator Pastore, in a letter to you dated February 6, 1964, requested that your office study the estimated costs of the Tarapur reactor to be built in India, in the context of estimated costs for the Jersey Central plant to be built at Oyster Creek, N.J. On April 30, 1964, you furnished to the Joint Committee a detailed report concerning the reasonableness of the Tarapur costs compared to those for the Jersey Central plant.

Since that time there have been a series of meetings between General Electric and the Joint Committee staff personnel which have resulted in several letters from the General Electric Co. furnishing additional information on specific items. These additional letters were discussed with Messrs. Milgate and Selkowitz of your office during an informal meeting with the committee staff on August 21.

Attached are copies of General Electric's letters to me dated June 19, July 23, and July 24.

I would appreciate it if your office would consider the additional information which has been provided and inform the Joint Committee if this information causes any change in the comments which you have already expressed on this matter.

Please regard the enclosed letters as proprietary information of the General Electric Co. and protect the information accordingly.

Thank you for your assistance in this matter.

Sincerely yours,

JOHN T. CONWAY, *Executive Director.*

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., September 22, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CHAIRMAN: On August 31, 1964, Mr. John Conway, executive director of your committee, furnished us copies of General Electric Co.'s letters to him dated June 19, July 23, and July 24, 1964,[1] relating to the reasonableness of the estimated costs of the Tarapur, India, nuclear powerplant compared with the Oyster Creek, N.J., nuclear powerplant, and requested that we inform the Joint Committee on Atomic Energy if the information contained in the letters causes any change in the comments previously expressed on this matter in our report dated April 30, 1964.

We have concluded that the information contained in General Electric's letters, which is largely explanatory or deals with subsequent revisions in its estimates of costs of the two nuclear powerplants, does not require any change in the comments contained in our report. It should be noted that our review was directed principally to an analysis of the factors explaining the cost differences between the two nuclear powerplants that General Electric furnished the Joint Committee on Atomic Energy by letter dated January 29, 1964, and the Government of India by letter dated February 20, 1964. Although we commented on the reasonableness of some of these factors, we could not, as stated in our report, come to an overall conclusion as to the reasonableness of the estimated costs of the Tarapur project compared with the Oyster Creek project because of the technical engineering aspects involved and other considerations.

We do, however, have certain comments to make on some of the factors and other items contained in General Electric's letters dated June 19, July 23, and July 24, 1964.

In its letter of June 19, 1964, the company presented additional information in support of its explanation of the cost difference of $1,990,000 between a dual-cycle reactor at Tarapur and a single-cycle reactor at Oyster Creek. General Electric stated that all prices the company had reported to the Joint Committee on Atomic Energy and to the Indian Government in connection with the comparison of costs between the Oyster Creek and Tarapur powerplants were on the basis of a single-cycle plant at Oyster Creek. This statement is contrary to the Jersey Central Power & Light Co.'s report, dated February 17, 1964, on the economic analysis for the Oyster Creek plant which indicated that General Electric's base bid price of $60 million was for a dual-cycle plant and that its base bid price of $58.5 million was for a single-cycle plant. The fact that General Public Utilities Corp. (the parent company of Jersey Central), in transmitting the Jersey Central report to the Joint Committee on Atomic Energy, stated its understanding that the $60 million price quoted by General Electric was for a dual-cycle plant and the further fact that it stated that General Electric had reviewed and concurred in the Jersey Central report and its release, tend to support the view expressed in our report that the $60 million price was for a dual-cycle reactor, and therefore, the inclusion by General Electric of an item of additional cost for the dual-cycle reactors at Tarapur was inappropriate.

General Electric's letter of July 23, 1964, in response to a request of the Joint Committee on Atomic Energy for a clarification of the cost differences between the water canal system at Tarapur and at Oyster Creek, contains additional data relating to the cost differences. The letter also indicated that it was inappropriate to directly compare estimated costs of the canals of the two plants because they apply to plants of different sizes. We believe, however, that the comparison of estimated costs is appropriate in the context of explaining dollar cost differences because General Electric's estimates of the cost of canals were made in dollars; the estimates showed that the cost of the water canal at Oyster Creek would be higher than the cost at Tarapur.

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[1] The GE letter of July 24, 1964, is not reproduced in this record since it deals solely with identification of proprietary information.

We also have noted that the estimates of other items comprising the explanation of additional project costs were based upon dollar cost differences contained in the two estimates. Moreover, General Electric's statement in its letter of July 23, 1964, that its estimate for an additional cost of the water canal at Tarapur is modest, is based on the company's higher estimated dollar cost of the water canal in Tarapur. We are not in a position to evaluate General Electric's higher estimate for the water canal at Tarapur.

General Electric's letter of July 24, 1964, deals with the classification of various data contained in our report dated April 30, 1964. We do not object to the deletion from any publication which may be made of any items in our report that are classified as proprietary information. However, we believe that any revision to material in our report as originally released should be appropriately indicated and we would want to assure ourselves that such revisions did not alter the sense of our report.

We appreciate the opportunity to review and comment on General Electric's letters relating to our report.

Sincerely yours,

JOSEPH CAMPBELL,
Comptroller General of the United States.

APPENDIX 2

CORRESPONDENCE CONCERNING INSTALLATION COSTS FOR NUCLEAR POWER REACTORS

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., February 19, 1964.

Mr. JOHN T. CONWAY,
Executive Director,
Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: Thank you for your letter of February 7, 1964, with which you furnished us a copy of Senator Pastore's letter to the Comptroller General of the United States requesting a review of the Tarapur reactor project.

You also stated that you had been informed that the Commission is compiling data on the Tarapur project for the U.S. Agency for International Development (AID). We have been asked, informally, to furnish AID some data on installation costs of nuclear power reactors in the United States and abroad. We understand that AID plans to use this information in responding to several inquiries which it has received concerning the price of the Tarapur reactor project. When we have developed the information which AID has requested, we will be pleased to furnish it to you also.

Sincerely yours,

DWIGHT INK,
Assistant General Manager.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., March 18, 1964.

Mr. JOHN T. CONWAY,
Executive Director,
Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: This is in further reference to our letter of February 19, 1964, concerning an informal request which we had received from the Agency for International Development for data on installation costs of the nuclear power reactors in the United States and abroad and the Tarapur project. We have attached, for your information, a copy of a letter which we recently sent to the Agency for International Development on this subject. A copy of Chairman Seaborg's letter also has been provided to the General Accounting Office.

Sincerely yours,

A. A. WELLS,
Director, Division of International Affairs.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., March 11, 1964.

Mr. WILLIAM S. GAUD,
Deputy Administrator,
Agency for International Development,
Department of State,
Washington, D.C.

DEAR MR. GAUD: In response to your request, I have considered the questions which have been raised regarding the capital cost of the Tarapur station. The first question concerns how the capital cost of the Tarapur station compares with other nuclear power plants or with other proposals that were considered at the time General Electric's proposal was selected. The second concerns whether the cost of the proposed Tarapur project is reasonable when compared with the cost of the recently announced Jersey Central plant.

I am enclosing information which shows that the capital cost of the Tarapur plant compares favorably with several other foreign reactors including the KRB plant being built in Germany, which is very similar in design to Tarapur. This information, which has been prepared by our Division of Reactor Development, explains some of the variables considered in estimating the capital costs of nuclear powerplants. Table 1 contains a comparison of plant design parameters of several boiling-water reactors. Figure 2 (p. 160) presents information on how the capital costs of several reactors vary with size.

Insofar as the question of Jersey Central is concerned, there are many factors that would make the Tarapur plant more expensive. The factors identified in the attached analysis prepared by the General Electric Co. help to explain why there is a difference.

Several of the factors identified by the General Electric Co. appear to us to be especially significant. As you know, the cost per kilowatt of installed power decreases significantly as the size of the reactor increases. The Jersey Central reactor is almost three times as large as each of the two Tarapur reactors. The Indian system could not use a single 380-megawatt reactor as their reserve could not take the load if this amount of power went off the line. They are able to back up 190 megawatts so they chose two 190-megawatt reactors to insure reliable power. Another factor is that the Jersey Central plant is a "single cycle system", whereas the Tarapur reactors are "dual cycle." The latter is more costly but is justified in the Tarapur case because of its better load-following capability and its better performance at partial load. The Tarapur system, therefore, will involve proportionately more equipment than the Jersey Central reactor. Since the Tarapur plant will be built outside the United States it is obvious that it will be more expensive than one built in this country such as the Jersey Central plant.

The General Electric Co. submitted their bid to the Indians about 2 years ago on a purely commercial basis and, insofar as we are aware, their bid was the lowest of any submitted by a number of U.S. and foreign firms. The Jersey Central project also was awarded to General Electric on a competitive basis. This is a strictly commercial venture and the Comission essentially will be involved only to the extent of providing the fuel and in evaluating the safety of operation at that site. We were, of course, impressed with the low price quoted for Jersey Central since it represents a significant development in enhancing the competitive attractiveness of nuclear power. I think this is a good illustration of the American competitive system in operation, as competition increases prices decrease.

We hope that this information will be of value to you. As you know, the Joint Committee on Atomic Energy has requested the Commission to furnish it with information on this matter, and accordingly, we are providing the committee with a copy of this letter, as well as the enclosures.

Sincerely,

GLENN T. SEABORG, *Chairman.*

CONSIDERATIONS IN COMPARING TARAPUR ATOMIC POWER STATION WITH SOME CURRENTLY PROPOSED U.S. PROJECTS

Significant differences exist between the Tarapur atomic power station in India and currently proposed atomic power projects in the United States. Examples of some of the more important differences between Tarapur and, as an example, Jersey Central's Oyster Creek unit No. 1 are attached.

1. Tarapur consists of two 190 megawatt electric units; Oyster Creek consists of one 510-megawatt electric unit—unit costs are significantly lower at higher ratings.

2. Tarapur is a dual-cycle plant; Oyster Creek is single cycle, a design which contains less major equipment.

3. Tarapur is on a remote site in India; Oyster Creek site is in the United States with access to a skilled labor market and transport facilities.

4. Tarapur schedule is 7 months longer than the Oyster Creek schedule and covers five monsoon seasons.

5. Tarapur costs include the following; Oyster Creek does not:

(*a*) Oversea freight and insurance to transport a major portion of plant equipment from the United States to India—halfway around the world.

(*b*) Port handling in the United States and India and overland transportation in India for all U.S. equipment.

(*c*) Indian customs duties payable on all U.S. equipment.

(*d*) Oversea transportation, living, and salary premium costs for U.S. project personnel and families.

(*e*) Complete U.S. colony; including utilities, commissary and recreational facilities for U.S. personnel and families, and complete construction labor camp for local labor.

6. Tarapur station, because of its remote location in India, includes the following; Oyster Creek does not:

(*a*) Higher degree of spare and standby equipment.

(*b*) Fifty-cycle power requirements for turbine generator and plant equipment.

(*c*) More effective cooling control supply system because of site and monsoon weather conditions.

(*d*) More effective training program in the United States and in India for a somewhat larger staff.

7. Equipment following and technical warranty service will be performed by U.S. personnel traveling to India.

COMPARISON OF TARAPUR COSTS WITH THOSE OF JERSEY CENTRAL'S OYSTER CREEK STATION

The Tarapur and Jersey Central stations and their respective scopes of work are vastly different. A direct comparison of costs is not meaningful without taking these differences into consideration.

Some of the major differences between Tarapur and Oyster Creek are listed along with the approximate dollar per kilowatt cost of each category in order to illustrate some of the major considerations in comparing related costs of these two projects.

The difference in dollar per kilowatt between the Tarapur and Oyster Creek stations, approximately $104 per kilowatt, is made up of the difference in rating of the two plants, technical differences, and project and operating differences as shown on the following page.

Major differences:	*kilowatt cost per kilowatt*
1. Difference in rating from 190 to 510 megawatt incremental cost	$56
2. Indian customs duties and taxes on U.S. equipment imported into India	11
3. Oversea freight insurance, port handling and transportation costs	10
4. Housing colony and construction labor camp	4
5. Additional plant equipment due to utility requirements, remote site location, and dual-cycle design	14
6. Additional project costs due to weather and site conditions and oversea location of U.S. personnel	12

Jersey Central

Plant rating.—510 megawatts (net) at corrected conditions similar to Tarapur.

Price.—In announcing the price of $68 million for the plant, Jersey Central indicated that this price included cost of land and other utility costs. Assuming that the amount is approximately 10 percent, the plant price may be estimated at $61.2 million. The plant cost in dollar per kilowatt would then be $120 per-kilowatt.

Tarapur

Plant rating.—2 times 190 megawatts (net).

Price.—$85,300,000, including housing facilities but excluding utility costs. The plant cost in dollar per kilowatt is $224 per kilowatt.

TARAPUR NUCLEAR POWER STATION—SOME TECHNICAL AND ECONOMIC CONSIDERATIONS

Division of Reactor Development, February 1964

INTRODUCTION

Questions have recently been raised in regard to the capital cost of the Tarapur nuclear power station which is in the final stages of negotiation between the Government of India (GOI) and the International General Electric Co. (IGE). This paper attempts to present factual technical and economic data for the Tarapur station and for other U.S. types of power reactors, both here and abroad, such that the reader can draw his own conclusions as to whether or not the Tarapur costs are reasonable.

SUMMARY

The Tarapur nuclear power station consists of two 190 megawatt (net) dual-cycle boiling water reactors, giving a station rating of 380 megawatt net. The characteristics of the load demand from the station led to the decision to use two independently operable units at 190 megatwatts rather than a single unit 380 megawatt station.

The contract price[1] for a complete, operable plant through the step-up transformer, to be paid by the GOI to IGE for installation of the station is reported to be:

	U.S. dollar equivalent
IGE-India (Rs 119,057,000)	25,012,000
IGE-United States	59,300,000
Total	[1] 84,312,000

[1] $222/net kw.

Excluded from the above costs are: (1) cost of first cores (uranium cost and fabrication cost[2]; (2) land; (3) arrangements for the delivery of water and power to the site during construction; (4) access roads and rail siding; (5) collection of basic site and environmental data such as may be required to comply with GOI licensing requirements; (6) salaries and expenses of GOI personnel assigned to test and initial operation of the station (IGE will train the personnel); (7) housing colony to shelter workers during plant construction; (8) escalation and interest during construction; and (9) general and administrative expenses by GOI in administering the contract.

In comparing the capital cost of Tarapur with other U.S. reactors, appropriate recognition must be made of such special costs as customs duties and taxes, oversea freight and insurance, and any other special cost items as may be pertinent to a specific comparison. The above items are included in the overall contract price.

[1] Contractual data set forth herein are based on a draft contract document dated Dec. 12, 1963.

[2] The cost of the 1st cores [a] are reported to be:

Total fabrication cost	$10,768,000
Contained uranium charges	13,616,000
Total	24,384,000

[a] Including 30 spare fuel assemblies.

DISCUSSION

Economic considerations

In order to provide a comparison of the capital cost of Tarapur with other U.S. power reactors, a number of reactor capital costs are plotted in figure 1. The data plotted are the total reported (or estimated) unit capital costs of nuclear powerplants (including customer costs) as a function of station net electric rating. In the case of the data point representing Tarapur cost, the turnkey price of $84 million has been increased by 10 percent to roughly put the Tarapur cost on a comparable basis with the other plants shown in figure 1. It should be appreciated that plant ratings and costs frequently change during the course of negotiating and building a plant. We have attempted to use current cost and power rating information, but there is always a possibility that some of the data shown in figure 1 may be somewhat outdated. Most of the plants are shown by two points connected by a dotted line. The uppermost point reflects the unit cost of the plant at its initial nominal rating and the lower point is the unit capital cost at the expected increased rating. Except for Tarapur, all the stations shown are single unit stations. No attempt has been made to compensate for the special costs peculiar to placing the plant in operation in India (taxes, duties, transport, etc.) in the comparative data shown in figure 1.

Technical considerations

Table 1 indicates some of the principal design parameters which influence the capital cost of several boiling water reactors. It may be noted that the Tarapur design parameters are quite similar to those of the KRB plant. The KRB plant is somewhat more costly than the estimated single unit 190 megawatt Tarapur station.

FIGURE 2

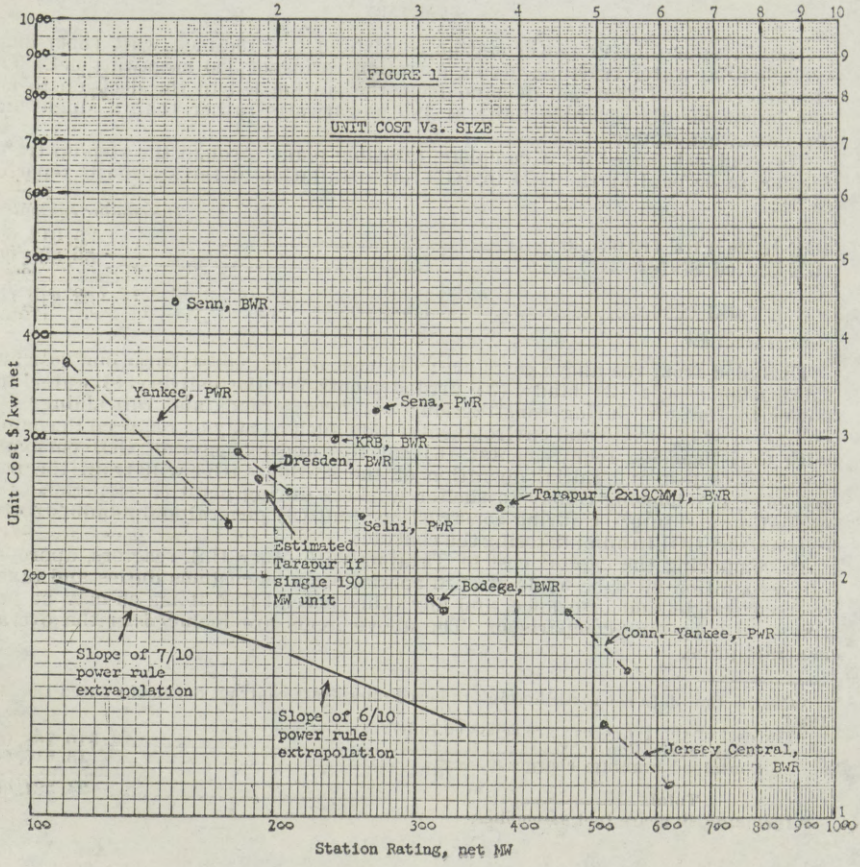

TABLE 1.—*Plant design parameters, initial operation, and boiling water reactors*

	SENN	KRB	Tarapur (each unit)	Jersey Central	Bodega	Dresden
Rated thermal power, megawatts	506	801	661	1,600	1,008	680
Rated electric power, net megawatts	150	237	190	515	313	208
Primary steam separation	(1)		(2)		(2)	(1)
Steamflow, 10^3 pounds per hour:						
Primary	1,660	2,182	1,900	5,880	4,174	
Secondary	444	435	800			
Coolant operating pressure, pounds per square inch, absolute	1,015				1,075	1,000
Coolant operating temperature (degrees Fahrenheit)	545				553	544
Feedwater return temperature (degrees Fahrenheit)	405	370	400	310	402	
Power density, total active core, kilowatt per liter	28.6	36.9	30.4	34.5	33	
Minimum burnout safety factor	2.0	1.6	1.5	1.5	1.5	2.0
Number of control assemblies	89			129	145	80
Control blade material	B_4C					
Type of reactor enclosure	(3)	(3)	(4)	(4)	(4)	(3)

[1] External.
[2] Internal.
[3] Container.
[4] Dry well.

DEPARTMENT OF STATE,
AGENCY FOR INTERNATIONAL DEVELOPMENT,
OFFICE OF THE ADMINISTRATOR,
Washington, March 21, 1964.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States, Washington, D.C.

DEAR MR. CONWAY: In response to your oral request to Mr. Malley of my staff, attached please find an estimated cost breakdown of the Tarapur nuclear power project in India.

You will note that the total estimated cost of the project is the equivalent of about $114 million—$80 million of this is in dollars, and the remainder in rupees (about 162 million rupees, equivalent to about $34 million). The AID loan will fund the dollar costs. The Government of India will fund the rupee cost from the budgets of its Department of Atomic Energy.

These cost estimates include both dollar and rupee payments to be made to General Electric plus dollar and rupee costs of work to be done by India outside the scope of the GE contracts. This is made clear by the footnote contained in the cost breakdown.

I understand that Messrs. Malley and Vieregg already have discussed these figures with you. They stand ready to do so again and in detail if and when you or members of your staff desire.

Permit me to stress a point that my people already have made to you: That these figures are not directly comparable with cost figures for other nuclear plants unless appropriate adjustments are made.

Sincerely yours,

WILLIAM S. GAUD,
Acting Administrator.

Tarapur nuclear power project—Estimated cost breakdown

Purpose	In thousands of dollars			In thousands of rupees		
	Dollars	Rupees	Total	Dollars	Rupees	Total
1. Station:						
(a) Contract price for station	59,300	25,012	84,312	282,268	119,057	401,325
(b) Capital spares and allowances	1,680	420	2,100	7,997	1,999	9,996
Total	60,980	25,432	86,412	290,265	121,056	411,321
2. Contingencies	5,488	2,289	7,777	26,123	10,896	37,019
3. Site preparation and administrative costs:						
(a) Site investigations, land acquisition, water, access road, sidings, township, etc	420	3,780	4,200	1,999	17,993	19,992
(b) Salaries	----------	1,785	1,785	----------	8,497	8,497
(c) Training, experts, inspection, etc	840	----------	840	3,998	----------	3,998
(d) Miscellaneous equipment, vehicles, office supplies, etc	210	315	525	1,000	1,499	2,499
Total	1,470	5,880	7,350	6,997	27,989	34,986
4. Fuel fabrication	10,768	----------	10,768	51,256	----------	51,256
5. Consulting services	1,000	500	1,500	4,760	2,380	7,140
6. Total	79,706	34,101	113,807	379,401	162,321	541,721
7. Rounded to	80,000	34,000	114,000	----------	----------	----------

NOTES

1. The data estimate the total cost of the Tarapur project, including the work to be done by General Electric and the work to be done by the Government of India outside the scope of the GE contract.
According to the GE-Indian draft contract, the prices to be paid to GE by India are as follows:

Dollar price for station	$59,300,000
Rupee price for station (rupees)	[1] 119,057,000
Dollar price for fabrication of the first charges of nuclear fuel for the reactors	$10,768,000

These prices are circled in the tabulation.
The draft GE–Indian contract also provides for adjustments in both the dollar and rupee portions of the price due to such reasons as changes in the cost of materials and labor. Procedures are set down for determining these adjustments. Monetary bonus and penalty provisions also are contained in the contract.
2. Totals may not add due to rounding.
3. Dollar rupee conversions made at 1:4.76.

APPENDIX 3

Agency Comments on GAO Report

Congress of the United States,
Joint Committee on Atomic Energy,
Washington, D.C., May 15, 1964.

Gen. A. R. Luedecke,
General Manager,
U.S. Atomic Energy Commission,
Washington, D.C.

Dear General Luedecke: Enclosed are two copies of a report on the Tarapur reactor project which was prepared by the General Accounting Office at the request of the chairman of the Joint Committee. The committee would appreciate receiving any comments you may have on the points in the enclosed report.

The committee plans to publish the report, along with the record of the September 5, 1963, and April 22, 1964, hearings on the Tarapur project. If there are any portions of the attached report which contain information you believe it is not in the best interests of the United States to make public, please let me know. Also, indicate the reasons for such belief.

The items set off in brackets in the attached report contain information which the General Electric Co. considers to be proprietary. The chairman of the Joint Committee has assured the General Electric Co. that proprietary information will not be disclosed and before the attached report is published such information will be deleted. The General Electric Co. has advised that it has no objection to making this information available to the Atomic Energy Commission

and the Agency for International Development provided the proprietary information is not utilized to place the company at a competitive disadvantage. The report is being made available to you with the understanding that the proprietary information will be maintained in confidence.

A copy of the attached report has also been made available to the General Electric Co. and to the Agency for International Development.

Please sign the attached receipt for the enclosed report and return it to the Joint Committee.

Thank you for your cooperation in this matter.

Sincerely yours,

JOHN T. CONWAY,
Executive Director.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 10, 1964.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy, Congress of the United States.

DEAR MR. CONWAY: In your letter of May 15, 1964, you asked for our comments on the GAO report on the Indian Tarapur nuclear power project.

You also inquired whether we found in the GAO report any information which, in the best interests of the United States, should not be made public. We agree that the General Electric proprietary information shown in brackets should be deleted before the report is published. Aside from this, we find no other parts of the report which, in the best interest of the United States should not be made public.

We have no comments to make on the report, but would be interested in being informed of any comments which GE might furnish.

Sincerely yours,

(Signed) A. R. LUEDECKE,
General Manager.

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington D.C., May 15, 1964.

Mr. DAVID E. BELL,
Administrator, Agency for International Development, Department of State, Washington, D.C.

DEAR MR. BELL: Enclosed are two copies of a report on the Tarapur reactor project which was prepared by the General Accounting Office at the request of the chairman of the Joint Committee. The committee would appreciate receiving any comments you may have on the points in the enclosed report.

The committee plans to publish the report, along with the record of the September 5, 1963, and April 22, 1964, hearings on the Tarapur project. If there are any portions of the attached report which contain information you believe it is not in the best interests of the United States to make public, please let me know. Also, indicate the reasons for such belief.

The items set off in brackets in the attached report contain information which the General Electric Co. considers to be proprietary. The chairman of the Joint Committee has assured the General Electric Co. that proprietary information will not be disclosed and before the attached report is published such information will be deleted. The General Electric Co. has advised that it has no objection to making this information available to the Atomic Energy Commission and the Agency for International Development provided the proprietary information is not utilized to place the company at a competitive disadvantage. The report is being made available to you with the understanding that the proprietary information will be maintained in confidence.

A copy of the attached report has also been made available to the General Electric Co. and to the Atomic Energy Commission.

Please sign the attached receipt for the enclosed report and return it to the Joint Committee.

Thank you for your cooperation in this matter.

Sincerely yours,

JOHN T. CONWAY, *Executive Director.*

DEPARTMENT OF STATE,
AGENCY FOR INTERNATIONAL DEVELOPMENT,
Washington, D.C., July 6, 1964.

MR. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States, Washington, D.C.

DEAR MR. CONWAY: Thank you for your letter of May 15 and the copies of the report on the Tarapur nuclear project in India prepared by the General Accounting Office.

My staff now has carefully reviewed this report, and we find no portions of it that in our opinion could not be made public.

We will, of course, treat in confidence the proprietary information made available by the General Electric Co.

We understand that the General Electric Co. has made comments on the report. We would be interested in receiving a copy of these comments if possible.

Sincerely yours,

WILLIAM B. MACOMBER, Jr.,
Assistant Administrator, Bureau for Near East and South Asia.

APPENDIX 4

RESPONSES BY THE AGENCY FOR INTERNATIONAL DEVELOPMENT TO QUESTIONS POSED DURING APRIL 22, 1964, HEARING

DEPARTMENT OF STATE,
AGENCY FOR INTERNATIONAL DEVELOPMENT,
Washington, D.C., May 4, 1964.

HON. JOHN O. PASTORE,
U.S. Senate, Washington, D.C.

DEAR SENATOR PASTORE: The Joint Committee on Atomic Energy asked the Agency for International Development and the U.S. Atomic Energy Commission certain questions regarding the Tarapur nuclear power project at hearings held on April 22, 1964.

The answers are contained in the enclosure to this letter. They have been prepared by this Agency, with the assistance of the Atomic Energy Commission where appropriate.

We would be pleased to receive any comments or observations that the Joint Committee might wish to make regarding these answers or other aspects of the Tarapur project.

Sincerely yours,

WILLIAM B. MACOMBER, Jr.,
Assistant Administrator,
Bureau for Near East and South Asia.

RESPONSES TO "SUGGESTED QUESTIONS ON PROPOSED TARAPUR REACTOR PROJECT" MADE BY THE JOINT COMMITTEE ON ATOMIC ENERGY TO AID AND AEC AT HEARINGS ON APRIL 22, 1964

The Joint Committee on Atomic Energy asked AID and AEC certain questions at hearings held regarding the Tarapur nuclear power project on April 22, 1964. The responses, prepared by AID with the assistance of AEC where appropriate, follow.

1. *Question.*—Loan negotiation. What conditions listed in AID's September 7, 1963, letter [to the Joint Committee] have been met relative to the loan?

Answer.—All of the conditions have been met to the satisfaction of AID. The comments on the conditions made below are in the same order as the conditions themselves as listed in the September 7 letter.

The agreement for cooperation concerning the civil uses of atomic energy between the Governments of the United States and India was executed on October 25, 1963.

Negotiations between the AEC and the Government of India for conclusion of a nuclear fuel sales contract are proceeding in a satisfactory manner.

Funds for the Tarapur project will be budgeted to the Indian Department of Atomic Energy by the Government of India. The station's commercial accounts will be maintained separately from other accounts of the Indian Department of Atomic Energy. They will be maintained in similar manner to those of other electricity generating units in India, and will bring out operating and maintenance expenses in detail and indicate the total revenues derived from power sales. This arrangement is satisfactory to AID.

The arrangements in the contract between the Government of India and General Electric for protection against nuclear and nonnuclear risks and with regard to safety and hazard aspects of the project are satisfactory to AID. These are covered in articles XIV and XV of the contract.

India has agreed to contract with an independent consulting firm to assist on the project. A broad scope of services has been agreed to by the Indian Department of Atomic Energy and AID. The Indian Department of Atomic Energy representatives now are negotiating with several possible U.S. consulting firms regarding the job. It has been agreed that the consultant will be selected by the Government of India and approved by AID no later than August 1, 1964. AID will get appropriate assistance from AEC in its review of the qualifications of this firm and the contract.

General Electric was selected by India as the prime contractor for the Tarapur project following international competitive bidding in which firms from the United States, Canada, the United Kingdom, and France participated. The GE proposal was lowest priced. AID is satisfied that the procedure whereby GE was selected was fair and reasonable.

AID is satisfied that the contract between India and GE will permit the Tarapur project to be carried out in an effective, efficient, and orderly manner, and that it is fair and equitable to both parties.

AID will review and approve the contract between India and the independent consulting firm after it is negotiated in draft form. AID will, as previously noted, approve the consulting firm selected, and will have the assistance of AEC in its review.

AID is satisfied that the Government of India has made and is making adequate provisions to meet all essential requirements of the project that are not the direct responsibility of the prime contractor. For example, import licenses are issued, procedures are agreed upon for procuring controlled materials within India, access roads, railroad spurs and sidings have been constructed, and the housing colony is under construction.

The Government of India is integrating both the separated electric grid systems within the States of Maharashtra and Gujarat and the systems between these two States.

The Government of India now is actively studying the feasibility of electrically linking the Sharavethi hydroelectric development in the State of Mysore with the electric grid system in Maharashtra.

The loan agreement executed between the United States and Indian Governments on December 7, 1963, provides that all of the equipment, materials, and services to be financed under the loan will be procured from the United States. None of the loan funds will be expended outside the United States.

The loan agreement provides that the principal of the loan and the credit fee will be repaid by India to the United States in U.S. dollars.

The loan agreement provides that the loan will be repaid by India to the United States within 40 years from the date of the first disbursement under the loan, including a grace period of not to exceed 10 years.

The loan agreement provides that a credit fee of three-fourths of 1 percent per annum will be paid on the disbursed balance of the loan.

Three copies of the loan agreement are enclosed for the committee's use.

2. *Question.*—Burns & Roe study. [Questions 1, 2, and 3 asked by the Joint Committee are concerned with the recommendations and summary made by Burns & Roe on p. 27 of their report. We have elected to comment on all 11 of the points made by Burns & Roe.]

Answer.—

The Tarapur plant has been designed for two units, each with a net electrical output of 190 megawatts. This has been done because of the relatively small size of the electrical system in western India of which Tarapur will become a part, plus the need for adequate plant reliability.

It is recognized by the parties concerned that after operating experience with the Tarapur reactors is accumulated, it may be possible to increase the reactor output by increasing the core power densities. The output of the generators can be increased to reach the higher reactor output by the use of static capacitors and synchronous condensers.

Consideration has been given to increasing the hydrogen pressure of the generators to increase their output rating. However, an increase in generator hydrogen cooling pressures is not contemplated at this time since utility system load requirements do not indicate the need for additional capacity. In the interim between initial operation of the reactor and the need for higher capacity, experience will be gained on operation of the plant as designed without attempting to achieve higher reactor or electric plant output. As experience is gained, and additional capacity is indicated, consideration will then be given to increasing hydrogen cooling pressures. The increase of hydrogen pressure, within equipment design limits, can achieve added generator capacity and raise the overload limits such that increased capacity can be achieved without reducing generator lifetime.

A dual-cycle arrangement for the Tarapur plant was decided on some time ago. This decision was made not only to take advantage of the proven technology of the Dresden and SENN designs, but also because the dual-cycle arrangement has operational flexibility which fits in better with requirements of the electric grid system in India. AID and AEC are satisfied with the dual-cycle reactor plant for India since the dual system has been previously proven in the Dresden and SENN reactors. The system, though introducing added costs for piping and heat exchangers, has the benefit of excellent load following characteristics, an advantage to India's utility requirements. The dual cycle also introduces operating simplicity, which is desirable since Tarapur will be the country's first nuclear plant.

AID and AEC are satisfied that the number of control rods and drives in the Tarapur plant will permit ample shutdown, that flexibility is inherent, and that an additional safety factor is assured. This is similar to the case at Dresden. In contrast to the Oyster Creek plant, which has a lower number of control rods and drives, the Tarapur reactors rely on proven core physics and reactivity data, thus eliminating any doubt as to successful achievement of a control rod and drive reduction program in the interests of cost reduction. Furthermore, General Electric's price is a lump-sum price for the entire scope of the work and services for the plant as designed, and this price has been incorporated into the draft contract that has been negotiated over the past year. No reduction in price would be possible without time-consuming renegotiation and technical discussions, and any reduction that was in fact possible would in all likelihood reflect only incremental costs rather than average unit costs of the control rods and drives.

Our conclusion is that the considerable flexibility that exists in the present design is more valuable than the potential reductions in price and maintenance that might be possible by decreasing the number of control rods and drives. The present design represents a proven technology that is very desirable since Tarapur will be India's first nuclear power station.

Burns & Roe's comment regarding possible increase in the generator output voltage has been noted. Voltages and frequencies in India are in line with European standards and not with American. Tarapur's voltage will be in line with that of other generating units in India. Furthermore, voltages much above 12,000 have not been used in generating stations in India up to the present time, and it is considered prudent to continue with voltages to which India is accustomed. Also, it is generally recognized that operation at lower voltage has advantages because insulation problems are simplified considerably.

The warranties for net electrical output and net heat rate are contained in sections A and B of article IX of the India–GE contract. We agree that these warranties should be for each reactor unit. However, we have examined the language carefully and feel that this is the case. The article visualizes that there could be some marginal difference between the two units, the extreme limits being 10,000 kilowatts in the net electrical output and 600 British thermal units in the net heat rate. Marginal differences may arise between the units because of slight mismatch between differing components making up the units. AID, and AEC, the Government of India, and General Electric agree that there is no ambiguity in the language.

We have examined the warranty on the condenser temperature difference, and have concluded that this warranty serves a useful purpose in that it has the effect of prescribing the maximum variation in the temperature of the condenser water between intake and discharge. It has the further advantage of setting the size of the condenser as it relates to the overall heat balance. Limited water velocity is desirable because of site conditions, and deletion of the warranty would mean that higher velocities might be used.

Article XI of the India-General Electric contract is concerned with fuel exposure. The parties agree on certain principles regarding fuel exposure. They do not set down a detailed procedure at this time since the detailed design of the core and fuel management will be developed only after execution of the contract. A detailed procedure will be arrived at between the two parties as soon as possible.

It is noted that Burns & Roe considers that the "price contracted for [Tarapur by] the Indian Government is fair and equitable for the project as proposed." This also is the view of the Government of India and AID.

Burns & Roe recommends that AID approve the contract between India and General Electric, "with consideration given to possible changes" recommended by Burns & Roe. Consideration has been given to each of the points raised by Burns & Roe, as outlined above.

3. *Question.*—The Burns & Roe report estimates that ocean freight and marine insurance will cost approximately $10 per net electrical kilowatt. (*a*) Have you evaluated the reasonableness of this estimate? (*b*) Will the ocean shipping be done on American or foreign bottoms?

Answer.—(*a*) The $10 estimate has been evaluated by the Government of India and AID and found reasonable. It compares reasonably with similar data for other major powerplant projects in India. Actually the Indians estimate the same figure slightly higher, at about $10.5 to $13 per net electrical kilowatt. Burns & Roe says that its $10 estimate "is probably low." It should be noted that ocean freight rates and marine insurance charged in the case of Tarapur will be related to freight rates and marine insurance charged for other projects, and are of course generally determined on a competitive basis.

(*b*) Under section 7.4 of the AID-India Loan Agreement, at least 50 percent of the gross tonnage of goods financed by the AID loan must be shipped on privately owned U.S.-flag commercial vessels. The remainder may be shipped on free world foreign bottoms, except that vessels listed by the United States as having traded with Cuba since January 1, 1963, are not permitted to carry any of the cargo financed by the loan. AID loan funds can be used to finance only shipments made on U.S.-flag vessels.

4. *Question.*—The Burns & Roe report states that import duties and taxes will amount to approximately $8 per kilowatt. The report also notes that duties and taxes will be paid out of the rupee portion of the contract and does not involve the AID loan. (*a*) Have you estimated the reasonableness of the estimates for import duties and taxes? (*b*) Although duties and taxes are being paid out of the rupee portion of the contract, this nevertheless diverts Indian funds which might otherwise be used to reduce the dollar costs of the plant itself. Have you explored with India the possibility of waiving import duties and taxes and possibly using the rupee savings toward the construction of the plant?

Answer.—(*a*) The estimates for import duties and taxes have been reviewed by AID and the Government of India and found to be generally reasonable. The Government of India estimates are somewhat higher, being $11 or $12 per kilowatt. Burns & Roe suggests that its $8 estimate probably is low.

(*b*) The dollar portion of the cost of the Tarapur project is funding essential dollar costs, for which rupees could not substitute since General Electric or other U.S. suppliers would not accept rupees in payment for work performed in the United States. Thus, elimination of import duties and taxes would not reduce the dollar cost of the project. In any event, it is normal policy in most if not all countries, including India, to levy normal duties and taxes on imported materials and equipment. Duties and Indian taxes in the case of Tarapur will not be funded from AID loan funds.

5. *Question.*—The Burns & Roe report states that labor costs in India will be about 20 percent higher than on a similar domestic project. This figure seems remarkable in view of the low wages in India. Have you made any

independent check to verify that labor costs would be 20 percent higher than on a similar domestic project?

Answer.—The estimate for labor costs refers to total labor costs on the project including both Indian and U.S. labor components. The Burns & Roe assumption is reasonable, especially since on the Indian side low wage rates are offset by low productivity. Another factor entering the picture is the greater expense involved for General Electric in supervisory and specialist construction personnel for construction of a plant in India as compared to one in the United States.

6. *Question.*—The Burns & Roe report notes that part of the training program costs include the transportation of Indian personnel to this country and payment of their living allowances. How much of the cost of the Tarapur project is attributable to this factor?

Answer.—General Electric will provide and bear the cost of extensive training and training facilities in the United States for Indian operating and maintenance personnel. The transportation and living costs of these personnel will be borne by the Government of India. Out of the total project cost, it is estimated that $500,000 in dollars can be directly attributed to internal U.S. transportation and living costs, while rupees in all likelihood will be utilized for the bulk of transportation costs to and from India. It is difficult to segregate precisely the training costs since most of the people involved, in addition to being trained in the United States, also will be performing liaison, review, and inspection services in the United States at the same time.

7. *Question.*—In comparing the costs of the Tarapur plant with Oyster Creek and a comparable Tarapur plant built in the United States, Burns & Roe assumes a Tarapur plant of 380,000 kilowatts net in India and plant of 391,000 kilowatts net in the United States. Can you explain the reason for these different assumptions?

Answer.—The difference in the capability of a given reactor between Oyster Creek and Tarapur conditions is due to the lower cooling water temperature in the former case. Assuming no limitation of the generating plant, with the same reactor output, it is possible to generate more power with lower cooling water temperatures due to the higher steam cycle efficiency resulting from lower condenser pressure. The difference assumed by Burns & Roe is reasonable.

8. *Question.*—Under the arrangements for Tarapur, will the Indian Government provide indemnity protection for the General Electric Co.? Will any indemnity be provided during the shipment of fuel to the Tarapur plant?

Answer.—The indemnity provisions of the India-General Electric contract may be summarized as follows:

(*a*) The Government of India will indemnify GE and its suppliers against any liability and against any damage to property, including damage to the plant being built at the site, arising out of any nuclear incident in connection with the plant, or its fuel, or any of the contract work. With respect to fresh fuel, the indemnity would begin to apply when the fuel is delivered free alongside ship vessel in a U.S. port. The indemnity would not apply to liability of GE or its suppliers to non-Indian employees. The Indian Government waives recourse against GE and GE's suppliers for damage to the plant or to property of the Government arising out of a nuclear incident for which the indemnity referred to above would apply.

(*b*) Before the plant is turned over to India, GE will be responsible for nonnuclear loss, destruction, or damage to the plant and the related work. After the plant is turned over, GE will be responsible for nonnuclear loss, destruction, or damage caused by GE in the course of finishing any of the incomplete work or in the course of making good any defects under the GE warranties. Otherwise, India is responsible.

(*c*) The above indemnity arrangements have been agreed to by General Electric.

(*d*) After delivery at the U.S. port of export the Government of India bears all responsibility insofar as the U.S. Atomic Energy Commission is concerned for safe handling and use of any materials supplied by the AEC. This is consistent with AEC's normal practice of not requiring an indemnity provision on material which has been sold.

(*e*) If special nuclear material is delivered at the AEC plant site to a transporter engaged by the Government of India who is not an AEC special nuclear material lessee, the Government of India holds the AEC harmless from any and all liability during transport to the port, subject to the Government of India and

any other person retaining such rights as they may have under section 170 (Price-Anderson) of the U.S. Atomic Energy Act. If the special nuclear material is delivered to a U.S. contractor engaged by India who is also an AEC special nuclear materials lessee, the latter bears responsibility for any liabilities under its lease with the AEC until the material is delivered to the port of export.

9. *Question.*—What is the status of the negotiations on the fuel supply contract for the Tarapur plant?

Answer.—AEC began negotiations with India on the deferred payment sales contract for the fuel for the Tarapur reactors in Washington recently. The contract will be generally similar in its principles to the deferred payment contract for the SENN and SELNI reactors, and AEC does not anticipate that any difficulties will be encountered in finalizing this contract.

The value of the fuel inventory on which payments may be deferred will be approximately $16 million, repayment will commence in 1973. Interest at the AEC domestic use charge rate (currently 4.75 percent per annum) will be charged on the unpaid amount of principal outstanding at any time; interest will accrue and be paid from the time fuel is first delivered. The contract is scheduled to terminate on October 24, 1993, and the value of fuel (based upon AEC current prices) to be sold to India during the term of the contract is estimated to be between $100 and $145 million. The first shipment of fuel (one-third core) is tentatively scheduled for November 1966.

10. *Question.*—What is the current position of the Indian Government with respect to the implementation of safeguards by the International Atomic Energy Agency?

Answer.—India voted in favor of the extension of the Agency's safeguards system to large reactors which was approved by the Agency's Board of Governors on February 26, 1964. We expect to initiate discussions with India in the near future regarding the implementation of safeguards by the Agency in accordance with the provision of the agreement which provides that after the Agency has adopted a system of safeguards for reactors the size of those of the Tarapur station, and at a time to be mutually agreed upon, the parties will request the Agency to enter into a trilateral agreement for implementation of the safeguards by the Agency. Such discussions will probably take place this fall when appropriate United States and Indian officials are in Vienna.

11. *Question.*—Cost estimates. Please explain the differences in the various cost estimates for the Tarapur project. For example, explain the relation between the cost estimates in the March 21, 1964, AID letter to the Joint Committee, the Burns & Roe study of April 15, 1964, and the proposed contract between India and GE for the project. Please identify dollar costs and rupee costs and the dollar costs which are to be met from the funds obtained under the proposed $80 million AID loan.

Answer.—The estimated capital cost of the Tarapur project, broken down into dollar and rupee components, is contained in the attachment to AID's March 21 letter to the Joint Committee. A copy of this attachment is shown in the following table. The estimated total capital cost of the project is the equivalent of about $114 million. Eighty million dollars of this is in dollars, and the remainder in rupees (about 162 million rupees, equivalent to about $34 million). The AID loan will fund the dollar costs. The Governmnt of India will fund the rupee cost from the budgets of its Department of Atomic Energy.

The Burns & Roe study makes a cost analysis only of the price in the draft India-General Electric contract and not of the project as a whole. This study was performed independently, its purpose being to arrive at a judgment as to whether or not the GE price is reasonable.

12. *Question.*—Construction permit: (*a*) Does a construction permit have to be granted by the Indian Government? (*b*) When will it be granted?

Answer.—Unlike the case in the United States, no separate construction permit is needed in India. In India, the planning, construction, and operation of nuclear powerplants is the direct responsibility of the Department of Atomic Energy. The land upon which and around which the Tarapur plant will be built has been purchased by the Department. Future development in the general neighborhood long ago was frozen by the Government of the State of Maharasthra.

13. *Question.*—Safety: (*a*) Has the proposed design been reviewed by ACRS or another equivalent group? (*b*) What were the results of the review?

Answer.—The design of the Tarapur plant incorporates the proven technology of the Dresden and SENN designs. It has not been reviewed by ACRS, but the been reviewed in detail by the responsible Indian health and safety group, which is the Health Physics Division of the Director of Radiation Protection of the Indian Department of Atomic Energy. The staff of the Health Physics Division has been trained in Canada, the United Kingdom, and the United States, and has been associated with the Tarapur project since the beginning. This group participated in preparation of the health and safety aspects of the request to tender for Tarapur, reviewed appropriate portions of the proposals received, analyzed GE's design for the station, and participated in the selection of the Tarapur site. It will continue to be associated with the project, and will approve the plant as built from safety and hazards aspects prior to authorizing operations. It should be noted that these personnel are responsible for all health and safety aspects of India's three existing nuclear reactors.

In addition, the AEC, at the request of India in 1962, commented on the hazard and safety aspects as follows: "The U.S. AEC staff believes that the boiling water reactors and pressurized water reactors under consideration are well-proven reactor types. A review of the designs contemplated indicates that there are no design innovations which would raise any question as to the technical feasibility of either type plant." The AEC has indicated to the Indians that from time to time the staff was prepared to attempt to answer any specific questions pertaining to hazards evaluations problems put to it by the Government of India, but that the Government of India would make whatever judgments are necessary as to how U.S. experience and standards should be modified to make them meaningful in an Indian context.

Finally, it should be noted that Article VII.D.1. of the India-GE contract reads, "The design of the station is consistent with the design practices followed by IGE-United States on nuclear stations built in the U.S.A. which must be approved from the standpoint of nuclear hazards and safety by the U.S. AEC. The detailed design of the Station shall accordingly be consistent with the standards acceptable to the U.S. AEC for boiling water reactors of simlar type located at a comparable site." We feel that GE will take exceptional care to make certain that Tarapur is fully adequate with respect to all health ad safety aspects.

14. *Question.*—Procurements in India: (*a*) Why must GE procure such items as demineralized resins, chemicals, etc., in India? (*b*) Are AID funds to be used for these procurements in India? (*c*) Doesn't the question of "Buy America" apply in the cases of these procurements?

Answer.—Article III.D.1. of the India-GE contract reads: "Operating Supplies: IGE-India shall procure operating supplies, such as lubricants, dimineralizer resins, chemicals, gases, and similar items necessary for the start-up, testing, and operation of the station, to the extent such items are available in India at the times required."

The intent of this is to insure that such operating supplies as are available in India at the proper time in reasonable quality and quantity are procured in India rather than imported. Such procurements will be funded from the rupee portion of the price, and not from AID loan dollars. "Buy America" does not apply to items not purchased with AID funds.

15. *Question.*—Fuel fabrication base price: (*a*) Are the fuel fabrication costs to be paid for with AID funds? (*b*) How do the cost estimates quoted on page IV–1 (of the India-General Electric contract) compare with fuel fabricated for U.S. power reactors?

Answer.—(*a*) GE will charge India $10,768,000 for fabrication of the fuel for the first core loads for the reactors plus 30 spare fuel assemblies. This amount will be funded from the AID loan. Fabrication costs for future core loads will not be financed by AID, but by the Indians direct.

(*b*) The two first cores including 30 spare fuel assemblies have a total of 83,930 kilograms of uranium. With a total first core cost of $10,768,000, the unit cost per kilogram is $128.30. This cost compares favorably with domestic boiling water reactor fuel prices. For example, Dresden first zircaloy core cost $166 per kilogram and the most recent Dresden zircaloy core cost $131 per kilogram. It is also of interest that the Tarapur cores include the cost of insurance and freight to the site.

16. *Question.*—Program direction and administration: (*a*) Are there any commitments for such people as the Indian project administrator to continue with the project until it is completed? (*b*) What are the commitments from IGE-India and IGE-United States managers concerning continuity? (*c*) How does the proposed Indian consultant fit into the picture? (*d*) When is the consultant to be selected by India?

Answer.—Regarding (*a*) and (*b*), there is no commitment for any given individuals, either Indian or American, to continue on the Tarapur project until it is completed. The project is an undertaking of the Department of Atomic Energy and General Electric as organizations. Because of the importance of the project, however, both organizations no doubt will see to it that competent and experienced employees continue in positions of responsibility concerning the project.

Regarding (*c*) and (*d*), AID as a condition of its loan requires that India employ an independent consulting firm to assist the Department of Atomic Energy in implementation of the project. This has been agreed to by India. and a broad and acceptable scope of services for such consultant has been agreed upon. The Indians now are negotiating with several potential firms for this contract. Both the firm and the contract must be approved by AID, and under our agreement this matter must be consummated by August 1, 1964.

17. *Question.*—Security. What "security clearances" of the U.S. Government does India have to comply with as set forth in the proposed contract on page VI–5?

Answer.—Article XVIII.E.6. of the India-GE contract reads as follows: "AID approval of personnel: IGE shall comply with AID regulations for security clearance of U.S. citizens employed to perform services outside of the United States of America." Under the Foreign Assistance Act of 1961, as amended, and AID regulations, U.S. citizens performing work abroad under contracts financed by AID must be cleared for security purposes by AID. This applies to personnel of General Electric and GE's subcontractors on the Tarapur project. GE submits certain information on such individuals to AID to initiate clearances. The procedure for handling this was worked out by AID with GE some time ago, and several GE and Bechtel people already have been cleared.

18. *Question.*—Responsibility during operating phase: (*a*) Will the GE Co. have any responsibility to inspect for safe operation of the plant? (*b*) Who will requalify operating personnel to assure that safety requirements are met?

Answer.—(*a*) GE will have complete responsibility for inspection until the plant is turned over to India. Thereafter, the Government of India will assume responsibility for inspection and operation of the plant. However, the contract envisages a continuing relationship between the parties even after turnover, with GE providing assistance and information to India regarding operation of the plant at the request of India, under terms to be agreed upon.

(*b*) The selection, training, and retraining of operating personnel for the Tarapur plant is the responsibility of the Indian Department of Atomic Energy, who may be assisted by GE. The importance of the project and the fact that the department already operates two research reactors and a 40-megawatt test reactor gives reasonable assurance that such personnel will be carefully selected and trained.

19. *Question.*—Procurement with rupees: Why doesn't the Government of India pay GE for operating supplies in dollars in lieu of rupees?

Answer.—Dollars for the Tarapur project will be used only to finance purchases made in the United States. Rupees will be used to fund purchases made in India. Therefore, operating supplies purchased in India will be financed with rupees.

20. *Question.*—Patents. (*a*) What rights does the U.S. Government have to patents conceived under the Tarapur project? (*b*) What does the following statement in the contract mean relative to patents: "Nothing contained in this section D shall prejudice the rights of Government [of India] under the Atomic Energy Act, 1962"?

Answer.—(*a*) The Government of the United States would have no rights to patents conceived under the Tarapur project. In normal commercial practice the financing institution is not of course entitled to patents derived from projects which it finances. It should be noted that the India-GE contract is not a research and development contract, and GE's price is not predicated on any research and development being performed, although of course new discoveries still conceivably could accrue. The Government of India will be held harmless by GE against claims for patent infringement.

(*b*) The Indian Atomic Energy Act of 1962 contains a broad provision to the effect that the Government of India gets title to inventions made under a contract with the Government of India. General Electric was concerned that this might be read to have extraterritorial effect; i.e., that inventions conceived in the United States by GE would also fall within the intent of the statute. GE has been assured in writing by the Indian Department of Atomic Energy that

India does not consider the statute as having extraterritorial effect. GE therefore is satisfied with the language of the contract on this point.

21. *Question*—Supply of fuel. If India elects to buy fuel from some other supplier than General Electric, what effect will this have on safeguards against the diversion of uranium for other than power purposes?

Answer.—Article II–A of the agreement for cooperation provides that during the period of the agreement (30 years) the Government of India will purchase from the United States all requirements for nuclear fuel at the Tarapur plant, it being understood that the plant shall be operated on no other nuclear material than that made available by the AEC and special nuclear material produced therefrom. Article VI of the agreement accords the United States safeguards rights on any material, equipment, or device made available to the Government of India for use in the Tarapur plant. Accordingly, if special nuclear materials furnished India by the United States were fabricated into fuel elements by a supplier other than a supplier licensed by IGE–US, it would not affect the safeguards accorded the United States against the diversion of the uranium for other than peaceful purposes.

22. *Question.*—Liability and indemnity due to nuclear incidents. (*a*) The Indian Government waiver does not apply to nuclear incidents in the United States. Comment. (*b*) What is the Indian Government's limit on indemnity protection? (*c*) Explain the statement concerning the Indian Government's waiver of liability for fresh fuel after delivery of the fresh fuel f.a.s. vessel, U.S. port.

Answer.—(*a*) We do not believe that it would be reasonable or appropriate for India's waiver to apply to nuclear incidents in the United States.

(*b*) There is no specific limit on the indemnity protection of the Government of India.

(*c*) This provision, which is stated in article XIV.B.1. of the contract and conforms with the related provision of article XIV.A.1., means that the Government of India will be responsible for the consequences of a nuclear incident that might occur with respect to fresh fuel after the fuel is delivered f.a.s. vessel, U.S. port.

APPENDIX 5

PRESS RELEASE PUBLISHED BY JERSEY CENTRAL POWER & LIGHT CO., DATED DECEMBER 12, 1963

Subject: Selection of General Electric Co. to build JCPL nuclear generating station.

MORRISTOWN, N.J.—Jersey Central Power & Light Co., a subsidiary of General Public Utilities Corp., today announced the selection of General Electric Co. to construct a $68 million nuclear-fueled electric generating station to be built on a company-owned, 800-acre site in Lacey Township, Ocean County, N.J. The minimum initial capability of the station will be 515,000 kilowatts, but it is scheduled to attain a capacity in excess of 600,000 kilowatts.

William H. McElwain, president of Jersey Central Power & Light Co. and New Jersey Power & Light Co., said the award was made on the basis of competitive proposals. General Electric Co., which selected Burns & Roe, Inc., of New York, as its architect and engineer for the station, will supply the complete plant, including the nuclear reactor, turbine generator, and all other equipment. The $68 million total cost of the plant includes land costs, civil works, interest during construction, licensing costs, employee training, and contingencies.

Before construction can begin, Jersey Central must receive a construction permit from the U.S. Atomic Energy Commission. Mr. McElwain said preparation of the application for the permit has already been started. The plant is scheduled for completion in 1967. It will be the first nuclear-fueled electric generating station in New Jersey and, when completed will be the largest privately owned nuclear station in the world. The reactor will be of the "boiling water" type which is already operating satisfactorily in several other locations.

Mr. McElwain said the decision to build this nuclear-fueled station was made after detailed studies over a period of several years and was based entirely on economic and engineering considerations. He stated that, after a reasonable break-in period, the total cost of power from the station will be less than from any other type of plant which the company could install at this location. He added that no Government financial assistance would be sought.

The site, which is 10 miles south of Toms River, Dover Township, and 40 miles north of Atlantic City, lies between Route 9 and the Garden State Parkway and is bounded on the south by Oyster Creek and on the north by the south branch of the Forked River.

Mr. McElwain pointed out that this project represents a careful balancing of its generating resources. Its existing plants located in New Jersey are supplied by coal, oil, and natural gas. In its quest for the lowest possible source of reliable electric power, Jersey Central is participating with several other utilities to the large two-unit 1,800,000-kilowatt mine-mouth coal-fired Keystone Generating Station project now underway in the coal region of west-central Pennsylvania. Electric power from the Keystone station will be transmitted east via two new 500,000-volt transmission lines to be owned by other partners in the Keystone project. It is expected that the first 900,000-kilowatt Keystone unit will be in operation in 1967 and the second unit in 1968.

The company is now constructing with Public Service Electric & Gas Co. the first stage of a large pumped storage hydroelectric project in Warren County, N.J. This project, scheduled for completion in 1973, is expected to include facilities with a total capability of more than 1,300,000 kilowatts. The first stage, which will be completed in 1965, involves 330,000 kilowatts. The balance of this project requires approvals by various Government agencies and an application for the first such approval has been filed with the Delaware River Basin Commission.

Mr. McElwain stated that the company has been preparing for its nuclear project for more than a decade. Initially, it participated in a series of research and feasibility studies. Beginning in 1959, the company and its affiliates in the General Public Utilities Corp. system constructed a multimillion-dollar developmental reactor at Saxton, Pa., which has operated satisfactorily for almost 2 years. He said that this experience of the company and the availability of the personnel trained at the Saxton project has given the company confidence in the reliability, satisfactory operation, and economic performance of the selected nuclear powerplant.

This very large increase in electric generating capacity reflects Jersey Central's rapid growth and also reflects the company's confidence in the growth of population and industry in New Jersey.

GENERAL PUBLIC UTILITIES CORP. AND
SUBSIDIARY ELECTRIC POWER COS.,
New York, N.Y., February 17, 1964.

HON. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Washington, D.C.
HON. GLENN T. SEABORG,
Chairman, Atomic Energy Commission,
Washington, D.C.

MY DEAR MESSRS. CHAIRMEN: We are herewith delivering to you copies of Jersey Central Power & Light Co.'s report on economic analysis for its Oyster Creek Nuclear Electric Generating Station.[1] We hope you will find the report informative and helpful. Of course, if the Joint Committee or the Commission have any questions with respect to the report, we will be happy to answer them.

Jersey Central and its affiliated companies prepared and are responsible for all aspects of the report. However, we submitted the report to General Electric Co. for comments and GE has asked us to advise you of its concurrence in the report and in its release.

You will note from the foreword to the report that (1) when the preparation of the report was undertaken, Jersey Central had not made a final decision between a single-cycle station with an expected maximum capability of 640,000 electrical kilowatts and a dual-cycle station with an expected maximum capability of 620,000 electrical kilowatts; (2) in order to make substantial progress on the report while the selection between the single- and dual-cycle stations was being made, it was decided to prepare the report on the basis of the dual-cycle proposal, since that involved both higher investment and higher operating costs; (3) after the report had been completed but was being checked and veri-

[1] For complete report see p. 851 of Joint Committee print AEC Authorizing Legislation, Fiscal Year 1965, pt. 2.

fied, the single-cycle station was selected, with the consequence that the report overstates the investment and operating costs of the selected station; and (4) revision of the report to reflect this decision would delay release of the report by about 5 weeks. It was concluded that the benefits of early release of the report outweighed the advantages of revision to incorporate the results of this decision, since the only effect would be to increase the economic margin in favor of the nuclear station, particularly since we are in a position to furnish the Joint Committee and the Commission with the following supplemental data relating to the single-cycle station.

The base bid for the single-cycle station was $1,500,000 less than for the dual-cycle station. As a result, the estimated cost for the single-cycle station is $66,397,000; i.e., all the components of the estimated cost of the station set forth on page 4 of the report remain the same, except that the contract price (item (a)) is $58,500,000 and, as a result, the related interest during construction (item (c)) is $4,203,000.

At the bottom of page 1 of tables 6, 7, and 8 there is given a summary of the expense per core for the dual-cycle station at each of the three levels of capability investigated. For convenience in reference, that information is given (in a little more detail) in appendix A to this letter. Similar information for the single-cycle station at its expected maximum capability of 640,000 electrical kilowatts is set forth in appendix B to this letter.

The most time-consuming portion of the studies underlying the enclosed report relates to the determination of the nuclear working capital. In view of the fact that revision of the report to incorporate therein the data applicable to the single-cycle station would serve no purpose for Jersey Central and would be expensive and require manpower which, from our point of view, can be more usefully employed on other assignments, it is not our present intention to undertake such a revision. However, if the Joint Committee and Commission would like us to do so, we will be glad to reconsider the matter.

We look forward keenly to the opportunity to work with the Joint Committee and the Commission on this project.

Respectfully,

A. F. TEGEN, *President.*

APPENDIX A

OYSTER CREEK NUCLEAR ELECTRIC GENERATING STATION, DUAL-CYCLE STATION

Output 620,000 kilowatts (net)—Summary of expense per core

Core calculations	Total cost (in thousands of dollars)				Cost per kilowatt-hour (mills)			
Core No	I	II	III	IV	I	II	III	IV
Kilowatt-hour by 10^6	11,174.3	14,788.8	15,062.6	15,167.2	11,174.3	14,788.8	15,062.6	15,167.2
Fabrication	8,828.1	8,028.3	7,461.0	7,461.0	.790	.543	.495	.492
Depletion	10,264.0	11,565.1	11,170.6	11,225.5	.919	.782	.742	.740
Shipping	377.8	377.8	377.8	377.8	.034	.026	.025	.025
Reprocessing and losses	3,184.5	3,134.3	2,920.7	2,862.2	.285	.212	.195	.188
Plutonium credit	(3,062.8)	(3,296.5)	(3,312.0)	(3,312.0)	(.274)	(.223)	(.220)	(.218)
Use charge	1,075.9	1,274.9	441.0		.096	.086	.029	
Total	20,667.5	21,083.9	19,068.1	18,614.5	1.850	1.426	1.266	1.227

Output 515,000 kilowatts (net)—Summary of expense per core

Core calculations	Total cost (in thousands of dollars)			Cost per kilowatt-hour (mills)		
Core No	I	II	III	I	II	III
Kilowatt-hour times 10^6	11,174.3	14,788.8	15,062.6	11,174.3	14,788.8	15,0626.
Fabrication	8,828.1	8,028.3	7,461.0	.790	.543	.495
Depletion	10,152.9	11,292.5	11,188.9	.909	.764	.743
Shipping	377.8	377.8	377.8	.034	.026	.025
Reprocessing	3,184.5	3,066.8	2,862.2	.285	.207	.190
Plutonium credit	(3,062.8)	(3,296.5)	(3,312.0)	(.274)	(.223)	(.220)
Use charge	1,231.2	1,326.0	140.8	.110	.090	.009
Total	20,711.7	20,794.9	18,718.7	1.854	1.407	1.242

Output 565,000 kilowatts (net)—Summary of expense per core

Core calculations	Total cost (in thousands of dollars)				Cost per kilowatt-hour (mills)			
Core No.	I	II	III	IV	I	II	III	IV
Kilowatt-hours×10^6	11,174.3	14,788.8	15,062.6	15,167.2	11,174.3	14,788.8	15,062.6	15,167.2
Fabrication	8,828.1	8,028.3	7,461.0	7,461.0	.790	.543	.496	.492
Depletion	10,210.5	11,426.3	11,188.9	11,225.5	.913	.773	.743	.740
Shipping	377.8	377.8	377.8	377.8	.034	.025	.025	.025
Reprocessing	3,184.5	3,134.3	2,862.2	2,862.2	.285	.212	.190	.188
Plutonium credit	(3,062.8)	(3,296.5)	(3,312.0)	(3,312.0)	(.274)	(.223)	(.220	(.218)
Use charge	1,150.3	1,313.2	290.0	----------	.103	.089	.019	----------
Total	20,688.4	20,983.4	18,867.9	18,614.5	1.851	1.419	1.253	1.227

APPENDIX B

OYSTER CREEK NUCLEAR ELECTRIC GENERATING STATION, SINGLE-CYCLE STATION

Expected maximum output 640,000 kilowatts (net)—Summary of expense per core

Core calculations	Total cost (in thousands of dollars)				Cost per kilowatt-hour (mills)			
Core No.	I	II	III	IV	I	II	III	IV
Kilowatt-hour by 10^6	13,009.7	17,180.8	17,525.1	17,662.9	13,009.7	17,180.8	17,525.1	17,662.9
Fabrication	10,342.7	8,669.4	8,445.6	8,445.6	.795	.504	.482	.478
Depletion	12,084.9	13,586.8	13,368.9	13,390.6	.929	.791	.763	.758
Shipping	457.6	457.6	457.6	457.6	.035	.027	.026	.026
Reprocessing and losses	3,688.0	3,518.0	3,357.4	3,357.4	.284	.205	.192	.190
Plutonium credit	(3,811.2)	(4,086.2)	(4,100.8)	(4,100.8)	(.293)	(.238)	(.234)	(.232)
Use charge	1,394.0	1,568.7	307.4	----------	.107	.091	.017	----------
Total	24,156.0	23,714.3	21,836.1	21,550.4	1.857	1.380	1.246	1.220

[From U.S. Atomic Energy Commission, Washington, D.C., December 16, 1964]

PERMIT ISSUED FOR CONSTRUCTION OF NUCLEAR PLANT BY JERSEY CENTRAL POWER & LIGHT CO.

The Atomic Energy Commission's Division of Reactor Licensing has issued a permit to Jersey Central Power & Light Co. for construction of a nuclear powerplant at Oyster Creek, Ocean County, N.J. The site is about 35 miles north of Atlantic City.

Issuance of the provisional construction permit follows a public hearing October 14–16 at Toms River, N.J., and a decision by an Atomic Safety and Licensing Board, dated December 4. The Licensing Board's decision included provisions for submittal at a later date of detailed design of a number of reactor features. Jersey Central proposes a plant with an initial capacity of 515,000 electrical kilowatts. The permit and the Board's decision are subject to further review by the Commission and to any order the Commission may make on or before January 4, 1965.

Under the permit, the latest date for completion of the boiling water reactor is July 1, 1968. General Electric Co. will construct the plant and Burns & Roe, Inc., of New York is the architect-engineer. Estimated cost of the project is $66.4 million.

APPENDIX 6

CORRESPONDENCE BETWEEN JCAE AND GENERAL ELECTRIC CONCERNING REVIEW BY GENERAL ACCOUNTING OFFICE

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C., February 8, 1964.

Mr. FRED J. BORCH,
President, General Electric Co.,
New York, N.Y.

DEAR MR. BORCH: As you may know, questions have been raised concerning the costs associated with the General Electric Tarapur nuclear power project in India, particularly in comparison with the costs of other current large-scale reactor projects, such as the proposed GE Jersey Central plant.

In response to the Joint Committee's request, representatives of General Electric were most cooperative in furnishing to the committee a summary of the reasons for the cost differential between the Tarapur and Jersey Central projects. I wish to thank them for their cooperation in this regard.

I am enclosing for your information a copy of a letter which I have sent to the Comptroller General requesting that his office look into the reasonableness of the costs associated with the Tarapur project. In the course of its review, I'm certain the General Accounting Office will need to obtain information from the General Electric Co. I would appreciate it if the General Electric Co. will fully cooperate with the General Accounting Office in connection with this matter.

Your assistance will be appreciated.

Sincerely yours,

JOHN O. PASTORE,
Chairman.

GENERAL ELECTRIC CO.,
New York, N.Y., February 19, 1964.

Hon. JOHN O. PASTORE,
U.S. Senate, Washington, D.C.

MY DEAR SENATOR PASTORE: This will refer to your letter of February 8 regarding the reasonableness of prices associated with the General Electric Tarapur nuclear power project for India and their comparison with large-scale domestic reactor projects such as the one recently awarded to General Electric by Jersey Central.

It is a pleasure for me to note that representatives of General Electric have been helpful to your committee in summarizing some of the underlying reasons for the price differentials between these two projects, and I shall be sure to pass on to them your thanks for their cooperation in this connection.

Regarding your request that General Electric cooperate with the General Accounting Office's study of this matter, as outlined in your February 6 letter to the Comptroller General, we, of course, will be glad to assist in any way we can. The only limitation we would expect the General Accounting Office to respect is such cost information and terms and conditions of sale which are proprietary to the General Electric Co. and whose disclosure would serve to put the General Electric Co. at a competitive disadvantage.

By copy of this letter to Mr. James F. Young, General Manager, Atomic Products Division, 701 University Avenue, Palo Alto, Calif., I am bringing your correspondence to his attention, and I am asking him to cooperate with representatives of the General Accounting Office on this matter. It would be appreciated if you would inform the Comptroller General that their contact with General Electric should be through Mr. Young's office.

Sincerely,

FRED J. BORCH.

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
February 26, 1964.

Mr. FRED J. BORCH,
President, General Electric Co.,
New York, N.Y.

DEAR MR. BORCH: Thank you for your February 19 letter stating your willingness to cooperate in the General Accounting Office's review of the costs of the General Electric Tarapur nuclear power project for India.

I intend to comply with your request not to disclose proprietary information which would put your company at a competitive disadvantage.

As indicated in my letter to the Comptroller General, a copy of which is attached, I have asked that in his report to me on this matter, he clearly identify the specific items which fall into the category of "proprietary" information in order that we may treat it accordingly.

Again, I would like to thank you for your cooperation in this matter.

Sincerely yours,

JOHN O. PASTORE, *Chairman.*

APPENDIX 7

AEC LETTER CONCERNING ISSUANCE OF EXPORT LICENSE TO GENERAL ELECTRIC

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 21, 1964.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: This is to inform the Joint Committee that the Atomic Energy Commission has issued license No. XR–54 to General Electric Co., authorizing export of two boiling water nuclear power reactors to the Government of India for a nuclear power station near Tarapur, Maharashtra State, India.

This export to India is within the purview of the present agreement for cooperation between the Governments of the United States and India.

Sincerely yours,

HAROLD L. PRICE,
Director of Regulation.

APPENDIX 8

AMENDMENTS TO AGREEMENTS FOR COOPERATION WITH THE UNITED KINGDOM, THE GOVERNMENT OF PORTUGAL, THE GOVERNMENT OF ISRAEL, AND THE GOVERNMENT OF THE UNITED STATES OF BRAZIL

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 1, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123 c. of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Agreement for Cooperation on the Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland;

(*b*) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(*c*) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, approving the amendment, and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise in certain respects the agreement for cooperation between the United States and the United Kingdom which was signed at Washington on June 15, 1955, as amended by the notes signed October 20, 1955, and November 3, 1955, the agreement signed at Washington on June 13, 1956, as modified by the agreement signed at Washington on July 3, 1958, and as amended by the agreement signed at Washington on June 5, 1963.

The amendment to article IV of the agreement for cooperation would permit the sale to the United Kingdom, during 1964–65 and under such terms and conditions as may be agreed, up to a net quantity of 400 kilograms of U^{235} contained in uranium enriched in the isotope U^{235} to satisfy the United Kingdom's requirements for fueling reactors in its civil research and development program. Of this quantity, the United Kingdom has indicated that it would wish to purchase 100 kilograms for delivery this summer.

The amendment also provides that the uranium to be transferred can be enriched to more than 20 percent in the isotope U^{235} when there is a technical or economic justification in a particular case for the higher enrichment. Such provisions are included in our agreements for cooperation with Canada and Euratom. On the basis of conversations with representatives of the United Kingdom Atomic Energy Authority, it is anticipated that the predominant need will be for material of such higher enrichment.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements for entry into force of the amendment have been fulfilled.

Sincerely,

GLENN T. SEABORG, *Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION ON THE CIVIL USES OF ATOMIC ENERGY BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

The Government of the United States of America (including the United States Atomic Energy Commission) and the Government of the United Kingdom of Great Britain and Northern Ireland, on its own behalf and on behalf of the United Kingdom Atomic Energy Authority,

Desiring to amend further in certain respects the Agreement for Cooperation on the Civil Uses of Atomic Energy (hereinafter referred to as the "Agreement for Cooperation") signed between them at Washington on June 15, 1955, as amended by the Notes signed October 20, 1955, and November 3, 1955, the Agreement signed at Washington on June 13, 1956, as modified by the Agreement signed at Washington on July 3, 1958, and as amended by the Agreement signed at Washington on June 5, 1963;

Have agreed as follows:

ARTICLE I

Article IV of the Agreement for Cooperation, as amended, is further amended by adding the following paragraph:

"(d) The Commission will sell to the Government of the United Kingdom in such quantities and under such terms and conditions as may be agreed up to a net quantity of 400 kilograms of U^{235} in uranium enriched in the isotope U^{235} to satisfy United Kingdom requirements for fueling reactors in its civil research and development programs. This net amount shall be the gross quantity of contained U^{235} in enriched uranium sold to the United Kingdom under this paragraph during the period of this Agreement less the quantity of such contained U^{235} in recoverable uranium which has been returned to the Government of the United States of America or transferred to any other nation or group of nations with the approval of the Government of the United States of America during the term of this Agreement. The enriched uranium so supplied may contain more than twenty percent (20 percent) U^{235} upon request and at the discretion of the Commission if there is a technical or economic justification in a particular case for higher enrichment."

ARTICLE II

This Amendment, which shall be regarded as an integral part of the Agreement for Cooperation, shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of this Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington this twenty-ninth day of June 1964, in two original texts.

For the Government of the United States of America:

WILLIAM R. TYLER,
Asst. Secretary of State, Bureau of European Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of the United Kingdom of Great Britain and Northern Ireland:

HARLECH,
Ambassador, British Embassy.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs,
U.S. Atomic Energy Commission.

MAY 26, 1964.

The PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation on the Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the agreement for cooperation between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland which was signed at Washington on June 15, 1955, as amended by the notes signed October 20, 1955, and November 3, 1955, the agreement signed at Washington on June 13, 1956, as modified by the agreement signed at Washington on July 3, 1958, and as amended by the agreement signed at Washington on June 5, 1963.

At the time our agreement for cooperation with the United Kingdom was originally negotiated, it was anticipated that the United Kingdom would wish to satisfy its requirements for enriched uranium through the use of its own gaseous diffusion facilities. Accordingly, our existing agreement for cooperation with United Kingdom only provides for the transfer of limited amounts of enriched uranium to the United Kingdom for research and development purposes. With the recent cutback in the level of the United Kingdom's production program, however, the United Kingdom has requested that our agreement for cooperation be modified to permit the transfer of additional quantities of enriched uranium. These additional quantities are primarily to cover needs for enriched uranium that are expected to arise in the United Kingdom's research and development program over the next 2 years.

In particular, the proposed amendment to article IV of the agreement for cooperation would permit the sale by the Government of the United States to the Government of the United Kingdom under such terms and conditions as may be agreed, of up to a net quantity of 400 kilograms of U^{235} contained in uranium enriched in the isotope U^{235} to satisfy the United Kingdom's requirements for fueling reactors in its civil research and development program. This uranium

may be enriched to more than 20 percent in the isotope U^{235} when there is a technical or economic justification in a particular case for the use of material of higher enrichment.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland. In compliance with section 123c. of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG, *Chairman.*

THE WHITE HOUSE,
Washington, June 15, 1964.

HON. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington.

DEAR DR. SEABORG: In accordance with section 123 a. of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me certain amendments to agreements for cooperation between the Government of the United States of America and certain foreign countries concerning the civil uses of atomic energy and has recommended that I approve each such proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendments so submitted are listed herewith:

"Amendment to Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the Republic of France" (transmitted by letter of May 18, 1964).

"Amendment to Agreement for Cooperation on the Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland" (transmitted by letter of May 26, 1964).

Pursuant to the provisions of 123 b. of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) Approve each of the proposed amendments listed above, and determine that the performance of each of these agreements as amended will promote and will not constitute an unreasonable risk to the common defense and security of the United States of America;

(*b*) Authorize the execution of each of the proposed amendments on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 13, 1964.

HON. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123 c. of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Portugal Concerning Civil Uses of Atomic Energy;

(*b*) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(*c*) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, modifies and extends the Agreement for Cooperation with Portugal which was signed on July 21, 1955, as amended by the agreements signed on June 7, 1957, June 11, 1960, and May 28, 1962.

Under article I of the amendment the word "lease" as it appears in paragraphs A and D of article II of the agreement is changed to the word "transfer" in order to permit either the lease or sale of enriched uranium for fueling defined research reactors. There is no immediate intent on the part of the Commission to make further modifications to its policy regarding the lease of fuel for research reactors beyond those described in our press release (G–157) of June 30, 1964. Under this revised policy the Portuguese research reactor at Lisbon will continue to qualify for lease. The amendment would, however, permit the sale of enriched uranium fuel for that reactor if the Portuguese should desire and would enable Portugal to purchase such material for a reactor project to the extent that it would not qualify for lease under the Commission's policy.

Article I of the amendment also permits the Commission to furnish material enriched to more than 20 percent in the isotope U^{235} for purposes of fueling defined research reactors.

In addition, article I of the amendment adds to article II of the agreement provisions with respect to retention of title by Portugal to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. Additionally, article I of the amendment makes provision in article II of the agreement for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article II of the amendment removes the limitation on quantities of research materials which may be provided under article III (A) of the agreement and makes such materials available on an "as may be agreed" basis.

Article III of the amendment provides for comprehensive safeguards to be substituted for the minimal safeguards now contained in article VI of the agreement.

Article IV of the amendment provides for the Government of the United States of America and the Government of Portugal to promptly request the International Atomic Energy Agency to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be accomplished by means of a trilateral agreement to be negotiated between the United States, Portugal, and the Agency.

Article V of the amendment would extend the agreement for a period of 5 years to July 20, 1969.

When the agreement expired on July 20, 1964, the Department of State obtained assurances from the Embassy of Portugal that during the interim period between the lapse of the agreement and the entry into force of the amendment, Portugal would continue to adhere to its obligations under the agreement. The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GERALD F. TAPE, *Acting Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF PORTUGAL CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of Portugal,

Desiring to amend the Agreement for Cooperation Between the Government of the United States of America and the Government of Portugal Concerning Civil Uses of Atomic Energy, signed at Washington on July 21, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on June 7, 1957, June 11, 1960, and May 28, 1962;

Agree as follows:

ARTICLE I

Article II of the Agreement for Cooperation is amended as follows:

1. Substitute the word "transfer" for the word "lease" wherever said word appears in paragraphs A and D.

2. The following new sentence is added at the end of paragraph B:

"It is understood and agreed that although the Government of Portugal may distribute uranium enriched in the isotope U–235 to authorized users in Portugal, the Government of Portugal will retain title to any uranium enriched in the isotope

U–235 which is purchased from the Commission at least until such time as private users in the United States of America are permitted to acquire title in the United States of America to uranium enriched in the isotope U–235."

3. Paragraph C is deleted in its entirety and the following substituted therefor:

"C. The Commission may, upon request and in its discretion, make available all or a portion of the enriched uranium supplied hereunder as material enriched to more than twenty percent (20%) in the isotope U–235 for use in research reactors capable of operating with a fuel load not to exceed six (6) kilograms of the isotope U–235 contained in such uranium."

4. The following new paragraphs E, F and G are added to Article II:

"E. It is agreed that when any source or special nuclear material received from the United States of America requires reprocessing, such reprocessing shall be performed at the discretion of the Commission in either Commission facilities or facilities acceptable to the Commission, on terms and conditions to be later agreed; and it is understood, except as may be otherwise agreed, that the form and content of any irradiated fuel shall not be altered after its removal from the reactor and prior to delivery to the Commission or the facilities acceptable to the Commission for reprocessing.

"F. Special nuclear material produced in any part of fuel leased hereunder as a part of irradiation processes shall be for the account of the Government of Portugal and, after reprocessing as provided in paragraph E of this Article, shall be returned to the Government of Portugal, at which time title to such material shall be transferred to that Government, unless the Government of the United States of America shall exercise its option, which is hereby granted, to retain, with appropriate credit to the Government of Portugal, any such special nuclear material which is in excess of the needs of Portugal for such material in its program for the peaceful uses of atomic energy.

"G. With respect to any special nuclear material not subject to the option referred to in paragraph F of this Article and produced in reactors fueled with materials obtained from the United States of America which is in excess of the needs of Portugal for such material in its program for the peaceful uses of atomic energy, the Government of the United States of America shall have and is hereby granted (a) a first option to purchase such material at prices then prevailing in the United States of America for special nuclear material produced in reactors which are fueled pursuant to the terms of an Agreement for Cooperation with the Government of the United States of America, and (b) the right to approve the transfer of such material to any other nation or group of nations in the event the option to purchase is not exercised."

ARTICLE II

Article III (A) of the Agreement for Cooperation, as amended, is hereby amended to read as follows:

"Materials of interest in connection with defined research projects related to the peaceful uses of atomic energy undertaken by the Government of Portugal, including source material, special nuclear material, byproduct material, other radioisotopes, and stable isotopes, will be exchanged for research purposes in such quantities and under such terms and conditions as may be agreed when such materials are not available commercially."

ARTICLE III

Paragraphs A, B, and C of Article VI of the Agreement for Cooperation, as amended, are amended to read as follows:

"A. The Government of the United States of America and the Government of Portugal emphasize their common interest in ensuring that any material, equipment, or device made available to the Government of Portugal pursuant to this Agreement shall be used solely for civil purposes.

"B. Except to the extent that the safeguards provided for in this Agreement are supplanted, by agreement of the Parties as provided in Article VII (A), by safeguards of the International Atomic Energy Agency, the Government of the United States of America, notwithstanding any other provisions of this Agreement, shall have the following rights:

"1. With the objective of ensuring design and operation for civil purposes and permitting effective application of safeguards, to review the design of any

(i) reactor and

(ii) other equipment and devices the design of which the Commission determines to be relevant to the effective application of safeguards,

which are to be made available to the Government of Portugal or persons under its jurisdiction by the Government of the United States of America or any person under its jurisdiction, or which are to use, fabricate, or process any of the following materials so made available: source material, special nuclear material, moderator material, or other material designated by the Commission;

"2. With respect to any source or special nuclear material which is to be made available to the Government of Portugal or any person under its jurisdiction by the Government of the United States of America or any person under its jurisdiction and any source or special nuclear material utilized in, recovered from, or produced as a result of the use of any of the following material, equipment, or device so made available:

(i) source material, special nuclear material, moderator material, or other material designated by the Commission,

(ii) reactors,

(iii) any other equipment or device designated by the Commission as an item to be made available on condition that the provisions of this subparagraph B 2 will apply,

(*a*) to require the maintenance and production of operating records and to request and receive reports for the purpose of assisting in insuring accountability in materials; and

(*b*) to require that any such material in the custory of the Government of Portugal or any person under its jurisdiction be subject to all of the safeguards provided for in this article and the guarantees set forth in Article VII;

"3. To require the deposit in storage facilities designated by the Commission of any of the special nuclear material referred to in subparagraph B 2 of this article hich is not currently utilized for civil purposes in Portugal and which is not purchased or retained by the Government of the United States of America pursuant to Article II of this agreement, or otherwise disposed of pursuant to an arrangement mutually acceptable to the Parties;

"4. To designate, after consultation with the Government of Portugal, personnel who accompanied, if either Party so requests, by personnel designated by the Government of Portugal, shall have access in Portugal to all places and data necessary to account for the source and special nuclear materials which are subject to subparagraph B 2 of this Article to determine whether there is compliance with this Agreement and to make such independent measurements as may be deemed necessary;

"5. In the event of non-compliance with the provisions of this Article, or the guaranties set forth in Article VII, and the failure of the Government of Portugal to carry out the provisions of this Article within a reasonable time, to suspend or terminate this Agreement and require the return of any materials, equipment, and devices referred to in subparagraph B 2 of this Article;

"6. To consult with the Government of Portugal in the matter of health and safety.

"C. The Government of Portugal undertakes to facilitate the application of the safeguards provided for in this Article."

ARTICLE IV

Article VII (A) of the Agreement for Cooperation, as amended, is further amended to read as follows:

"A. The Government of the United States of America and the Government of Portugal, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is contemplated that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be negotiated between the Parties and the Agency which may include provisions for suspension of the safeguard rights accorded the Commission by Article VI of this

Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities.

"B. In the event the Parties do not reach a mutually satisfactory agreement on the terms of the trilateral arrangement envisaged in paragraph A of this Article, either Party may by notification terminate this Agreement. In the event of termination by either Party, the Government of Portugal shall, at the request of the Government of the United States, return to the Government of the United States all special nuclear materials received pursuant to this Agreement and in its possession or in the possession of persons under its jurisdiction. The Government of the United States will compensate the Government of Portugal for such returned material at the current United States Commission's schedule of prices then in effect domestically."

ARTICLE V

Article VIII of the Agreement for Cooperation, as amended, is further amended by deleting the date "July 20, 1964" and substituting in lieu thereof "July 20, 1969".

ARTICLE VI

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, this eleventh day of August 1964.

For the Government of the United States of America:

ROBERT C. CREEL,
Deputy Assistant Secretary, European Affairs, U.S. Department of State.

GERALD F. TAPE,
Acting Chairman, U.S. Atomic Energy Commission.

For the Government of Portugal:

VASCO VIEIRA GARIN,
Ambassador, Embassy of Portugal.

Certified to be a true copy:

W. M. FULLERTON,
Division of International Affairs,
U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 15, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Portugal Concerning Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise the agreement between the Government of the United States of America and the Government of Portugal which was signed at Washington on July 21, 1955, as amended by the agreements signed on June 7, 1957, June 11, 1960, and May 28, 1962.

The present agreement with Portugal now contains a provision in article II that the Commission will lease uranium enriched up to 20 percent in the isotope U^{235} to Portugal for fueling defined research reactors. While there is no immediate intent to change Commission policy regarding lease of fuel for research reactors, it is believed that, in view of the proposed 5-year extension of the agreement, flexibility to lease or sell this material should be provided. Accordingly, article I of the proposed amendment substitutes the word "transfer" for

the word "lease" in article II, paragraphs A and D of the agreement. Additionally, article I of the proposed amendment would revise article II of the agreement to provide that the Commission upon request and at its discretion, may make available material enriched to more than 20 percent in the isotope U^{235}.

Article I of the proposed amendment also adds to article II of the agreement provisions with respect to retention of title by the Government of Portugal to fuel purchased under the agreement, and with respect to rights in special nuclear material produced as a result of the irradiation processes. In addition, article I of the proposed amendment modifies article II of the agreement to make provision for the reprocessing of source or special nuclear material received from the United States to be performed in other than Commission facilities. These same provisions are contained in agreements for cooperation with other countries.

Article II of the proposed amendment removes the limitation contained in article III (A) of the agreement on research quantities of materials which may be made available for defined research projects. Such materials would now be made available on an "as may be agreed" basis when they are not commercially available.

Article III of the proposed amendment provides for the extension of comprehensive safeguards to materials and facilities made available to Portugal rather than minimal safeguards as are now provided in article VI of the agreement. The change in safeguards is required because of the increase in the enrichment of material and the removal of the limitation on research quantities of material which may be provided.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with those countries with which we have agreements as to the transfer of safeguards to the International Atomic Energy Agency, article IV of the proposed amendment would revise article VII (A) of the agreement to provide that the Agency will be promptly requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be accomplished without further modification to the agreement by means of a trilateral agreement to be negotiated between the United States, Portugal, and the Agency.

Article V of the proposed amendment provides for an extension of the agreement for a 5-year period beyond its expiration date of July 20, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of Portugal. In compliance with section 123 c. of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG, *Chairman.*

THE WHITE HOUSE,
Washington, August 3, 1964.

Hon. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington.

DEAR DR. SEABORG: In accordance with section 123 a. of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me certain amendments to agreements for cooperation between the Government of the United States of America and certain foreign countries concerning the civil uses of atomic energy and has recommended that I approve each such proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendments so submitted are listed herewith:

"Amendment to Agreement for Cooperation Between the Government of the United States of American and the Government of Israel Concerning the Civil Uses of Atomic Energy," (transmitted by letter of July 8, 1964).

"Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Portugal Concerning Civil Uses of Atomic Energy," (transmitted by letter of July 15, 1964).

Pursuant to the provisions of 123 b. of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) Approve each of the proposed amendments listed above, and determine that the performance of each of these agreements as amended will

promote and will not constitute an unreasonable risk to the common defense and security of the United States of America;

(*b*) Authorize the execution of each of the proposed amendments on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 19, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123 c. of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of Israel Concerning the Civil Uses of Atomic Energy, as amended;

(*b*) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(*c*) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, extends the Agreement for Cooperation with the Government of Israel which was signed at Washington on June 22, 1962, for a period of 9 months until April 11, 1965. At the conclusion of the extension, the agreement will expire. Israel intends to make subsequent arrangements with the International Atomic Energy Agency for fuel supply and safeguards covering the materials now supplied under our agreement for cooperation. This is in keeping with U.S. policy to have bilateral safeguards replaced with Agency safeguards.

The amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG, *Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF ISRAEL CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of Israel,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of Israel Concerning Civil Uses of Atomic Energy, signed at Washington on July 12, 1955 (herein after referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on August 20, 1959, June 11, 1960 and June 22, 1962;

Agree as follows:

ARTICLE I

Article VIII of the Agreement for Cooperation, as amended, is further amended by deleting the date "July 11, 1964" and substituting in lieu thereof the date "April 11, 1965".

ARTICLE II

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized have signed this Amendment.

Done at Washington, in duplicate, this nineteenth day of August 1964.

For the Government of the United States of America:

JAMES P. GRANT,
Deputy Asst. Secretary, Bureau of Near Eastern and South Asian Affairs, U.S. Department of State.

GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission.

For the Government of Israel:

AVRAHAM HARMAN,
Ambassador, Embassy of Israel.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., July 8, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed "Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Israel Concerning the Civil Uses of Atomic Energy," determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would extend for 9 months until April 11, 1965, the agreement between the United States of America and Israel which was signed at Washington on June 22, 1962. At the conclusion of the extension, the agreement will expire. Israel intends to make subsequent arrangements with the International Atomic Energy Agency for fuel supply and safeguards covering the materials now supplied under our Agreement for Cooperation. This is in keeping with U.S. policy to have bilateral safeguards replaced with Agency safeguards.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of Israel. In compliance with section 123 c. of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GLENN T. SEABORG, *Chairman.*

THE WHITE HOUSE,
Washington, August 3, 1964.

Hon. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington.

DEAR DR. SEABORG: In accordance with section 123a. of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me certain amendments to agreements for cooperation between the Government of the United States of America and certain foreign countries concerning the civil uses of atomic energy and has recommended that I approve each such proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The amendments so submitted are listed herewith:

"Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Israel Concerning the Civil Uses of Atomic Energy" (transmitted by letter of July 8, 1964).

"Amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of Portugal Concerning Civil Uses of Atomic Energy" (transmitted by letter of July 15, 1964).

Pursuant to the provisions of 123b. of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) Approve each of the proposed amendments listed above, and determine that the performance of each of these agreements as amended will promote and will not constitute an unreasonable risk to the common defense and security of the United States of America;

(*b*) Authorize the execution of each of the proposed amendments on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., September 1, 1964.

Hon. JOHN O. PASTORE,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR PASTORE: Pursuant to section 123 c. of the Atomic Energy Act of 1954, as amended, there are submitted with this letter:

(*a*) An executed amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the United States of Brazil Concerning the Civil Uses of Atomic Energy;

(*b*) A copy of a letter from the Commission to the President recommending approval of the amendment; and

(*c*) A copy of a letter from the President to the Commission containing his determination that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and approving the amendment and authorizing its execution.

The proposed amendment, which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, amends and extends the Agreement for Cooperation with the Government of Brazil which was signed at Rio de Janeiro August 3, 1955, as amended by agreements signed at Washington July 9, 1958, June 11, 1960, and May 28, 1962.

Article I of the proposed amendment provides that the International Atomic Energy Agency will be requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this repsonsibility to the Agency would be effected without further modification of the agreement by means of a trilateral agreement to be concluded not later than August 2, 1965, between the Government of the United States of America, the Government of the United States of Brazil, and the Agency.

Article II of the proposed amendment provides for an extension of the agreement for a 1-year period beyond its expiration date of August 2, 1964. In this respect, when it became apparent that the agreement would expire prior to completion of negotiations on its extension, the Department of State obtained assurances from the Embassy of Brazil that during the interim period between the lapse of the agreement and the entry into force of the amendment, Brazil would continue to adhere to its obligations under the agreement.

The proposed amendment will enter into force when the two Governments have exchanged written notifications that their respective statutory and constitutional requirements have been fulfilled.

Sincerely,

GLENN T. SEABORG, *Chairman.*

AMENDMENT TO AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE UNITED STATES OF BRAZIL CONCERNING CIVIL USES OF ATOMIC ENERGY

The Government of the United States of America and the Government of the United States of Brazil,

Desiring to amend the Agreement for Cooperation between the Government of the United States of America and the Government of the United States of Brazil Concerning Civil Uses of Atomic Energy, signed at Rio de Janeiro on August 3, 1955 (hereinafter referred to as the "Agreement for Cooperation"), as amended by the Agreements signed at Washington on July 9, 1958, June 11, 1960, and May 28, 1962.

Agree as follows:

ARTICLE I

Article VII(A) of the Agreement for Cooperation is amended to read as follows:

"The Government of the United States of America and the Government of the United States of Brazil, recognizing the desirability of making use of the facilities and services of the International Atomic Energy Agency, agree that the Agency will be requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under this Agreement for Cooperation. It is agreed that the necessary arrangements will be effected without modification of this Agreement, through an agreement to be concluded, not later than August 2, 1965, between the Parties and the Agency which agreement may include provisions for suspension of the safeguard rights accorded the Commission by Article VI, paragraph C, of this Agreement during the time and to the extent that the Agency's safeguards apply to such materials and facilities."

ARTICLE II

Article VIII of the Agreement for Cooperation, as amended, is further amended by deleting the date "August 2, 1964" and substituting in lieu thereof the date "August 2, 1965".

ARTICLE III

This Amendment shall enter into force on the date on which each Government shall have received from the other Government written notification that it has complied with all statutory and constitutional requirements for the entry into force of such Amendment and shall remain in force for the period of the Agreement for Cooperation, as hereby amended.

In witness whereof, the undersigned, duly authorized, have signed this Amendment.

Done at Washington, in duplicate, in the English and Portuguese languages, both texts being equally authentic, this first day of September 1964.

Em testemunha do que os abaixo-assinados, devidamente autorizados, firmaram a presente Emenda.

Feito em Washington, em duplicata, nos idiomas inglês e português, sendo ambos textos igualmente válidos, em primeiro de setembro de 1964.

For the Government of the United States of America:
Pelo Governo dos Estados Unidos da America:

ROBERT W. ADAMS,
Deputy Asst. Secretary, Bureau of Inter-American Affairs, U.S. Department of State.

JOHN GORHAM PALFREY,
Acting Chairman, U.S. Atomic Energy Commission.

For the Government of the United States of Brazil:
Pelo Governo dos Estados Unidos do Brasil:

JURACY BEGAL——,
Ambassador, Brazilian Embassy.

Certified to be a true copy:

EARLE W. COOK,
Division of International Affairs, U.S. Atomic Energy Commission.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., August 13, 1964.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: The Atomic Energy Commission recommends that you approve the enclosed proposed amendment to the Agreement for Cooperation Between the Government of the United States of America and the Government of the United States of Brazil, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution. The Department of State supports the Commission's recommendation.

The proposed amendment which has been negotiated by the Atomic Energy Commission and the Department of State pursuant to the Atomic Energy Act of 1954, as amended, would revise and extend, as indicated below, the agreement between the United States of America and Brazil which was signed at Rio de Janeiro on August 3, 1955, as amended by agreements signed at Washington on on July 9, 1958, June 11, 1960, and May 28, 1962.

In keeping with U.S. policy that it is timely for us to arrive at an explicit understanding with countries with which we have agreements for cooperation as to the transfer of safeguards to the International Atomic Energy Agency, provision has made in article I of this proposed amendment that the Agency will be requested to assume responsibility for applying safeguards to materials and facilities subject to safeguards under the agreement. The transfer of this responsibility to the Agency would be effected without further modification of the agreement by means of a trilateral agreement to be concluded not later than August 2, 1965, between the Government of the United States of America, the Government of the United States of Brazil, and the Agency.

Article II of the proposed amendment provides for the extension of the agreement for a 1-year period beyond its expiration date of August 2, 1964.

Following your determination, approval, and authorization, the proposed amendment will be formally executed by appropriate authorities of the Government of the United States of America and the Government of the United States of Brazil. In compliance with section 123 c. of the Atomic Energy Act of 1954, as amended, the proposed amendment will then be placed before the Joint Committee on Atomic Energy.

Respectfully yours,

GERALD F. TAPE,
Acting Chairman.

THE WHITE HOUSE,
Washington, August 20, 1964.

HON. GLENN T. SEABORG,
U.S. Atomic Energy Commission,
Washington.

DEAR DR. SEABORG: In accordance with section 123a of the Atomic Energy Act of 1954, as amended, the Atomic Energy Commission has submitted to me by letter of August 13, 1964, a proposed amendment to Agreement for Cooperation Between the Government of the United States of America and the Government of the United States of Brazil Concerning Civil Uses of Atomic Energy, and has recommended that I approve the proposed amendment, determine that its performance will promote and will not constitute an unreasonable risk to the common defense and security, and authorize its execution.

Pursuant to the provisions of 123b, of the Atomic Energy Act of 1954, as amended, and upon the recommendation of the Atomic Energy Commission, I hereby:

(*a*) approve the proposed amendment, and determine that its performance will promote and will not constitute and unreasonable risk to the common defense and security of the United States of America;

(*b*) authorize the execution of the proposed amendment on behalf of the Government of the United States of America by appropriate authorities of the Department of State and the Atomic Energy Commission.

Sincerely,

LYNDON B. JOHNSON.

APPENDIX 9

CORRESPONDENCE PERTAINING TO CONSTRUCTION OF TARAPUR REACTOR STATION

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., February 26, 1965.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: This is to advise you that the Indian Atomic Energy Commission has advised the Agency for International Development at New Delhi of the selection of the Kuljian Corp., in association with Nuclear Utility Services and McLain Associates, to provide consulting engineering services to the Indian Government with respect to the Tarapur project.

It is estimated that the total expenditure under the contract will be about $500,000, of which $300,000 will be paid in U.S. dollars, the balance in rupees.

A draft contract is under review by the Indians and they are hopeful that they will be able to furnish copies of it to AID for AID's approval. As soon as the scope of services and the draft consulting contract are received by AID/Washington, they will be furnished to the AEC for our review and comments.

Sincerely yours,

JOHN V. VINCIGUERRA,
(For John A. Hall)
Assistant General Manager for International Activities.

ATOMIC ENERGY COMMISSION,
Washington, D.C., April 8, 1965.

Mr. JOHN T. CONWAY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. CONWAY: This is to inform you of the USAEC's activities in assisting the Agency for International Development in the Tarapur nuclear power project.

Two committees on which AEC participates with AID have been established to monitor the project in detail. Commissioner James T. Ramey represents the USAEC on the Tarapur Senior Staff Committee and the AID representative on this committee is William B. Macomber, Jr., Assistant Administrator for Near East and South Asia, AID. The Senior Committee has met several times with the objective of assuring that all of the parties involved in the project are taking whatever steps are required to assure the successful completion on time of the project.

A joint AEC–AID Staff Level Committee also has been established on which AEC is represented by senior staff members of our Division of Reactor Development and Technology, Division of International Affairs, Division of Construction, and Office of the Controller.

The Staff Level Committee has met on a quarterly basis since the IGE-Government of India contract was signed in May 1964 to review the progress of the project and to offer recommendations on any aspects of the project which the committee believes are appropriate. AEC's participation, therefore, is not limited to the technical aspects of the reactor itself, but to the total project.

The Division of International Affairs, in addition, maintains liaison with the AID/Tarapur Development Loan Officer and with the AID/Tarapur Engineer on a day-to-day basis. We also are making arrangements for an AEC reactor expert to establish direct liaison with the General Electric Co. at San Jose and with the Bechtel Corp. at San Francisco.

One of the aspects of the project which we have been following closely is that of IGE's obtaining import permits. We have been advised by IGE's representative that although some problems have been encountered in this regard IGE has not had a request for a permit turned down and that they feel that this is under control.

We understand that M. N. Chakravarti, project administrator, Tarapur project, may be in Washington during the month of April and we intend to thoroughly review the project with him.

Based on the information developed as a result of our various monitoring activities, we conclude that the Tarapur project is proceeding on schedule.

Sincerely yours,

JOHN A. HALL,
Assistant General Manager for International Activities.

INDEX