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HEARING

BEFORE THE

COMMITTEE ON FOREIGN RELATIONS

UNITED STATES SENATE

NINETY-SIXTH CONGRESS

FIRST SESSION

ON

THE UNITED STATES-AUSTRALIAN AGREEMENT ON THE
PEACEFUL USES OF NUCLEAR ENERGY

OCTOBER 5, 1979

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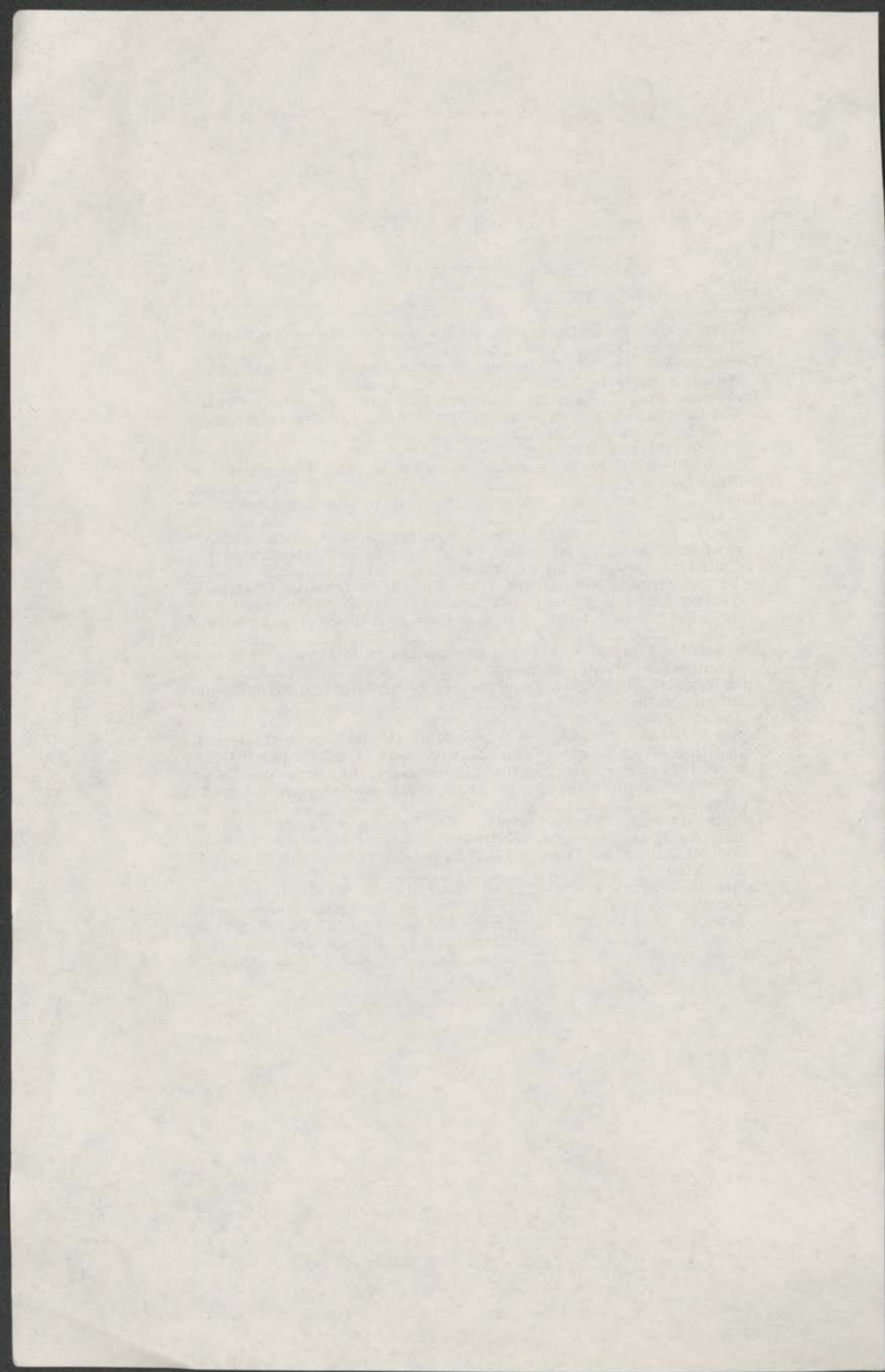
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UNITED STATES-AUSTRALIAN AGREEMENT

FRIDAY, OCTOBER 5, 1979

UNITED STATES SENATE,
COMMITTEE ON FOREIGN RELATIONS,
Washington, D.C.

The committee met, pursuant to notice, at 10:20 a.m., in room 4221, Dirksen Senate Office Building, Hon. John Glenn presiding.

Present: Senators Glenn and Javits.

Senator GLENN. The hearing will come to order.

OPENING STATEMENT

Today we are considering the first Nuclear Cooperation Agreement to be negotiated under the 1978 Nuclear Non-Proliferation Act. The Australia agreement, being the forerunner of other agreements, is of great precedential importance. We want to be sure that we are proceeding on the right track in furthering our nonproliferation objectives.

After we received the agreement, Senator Church sent letters to industry requesting views and comments. We recognize that these agreements will have an impact on U.S. industry.

We have received some replies and expect more, and all of the replies will be entered into the record. I would characterize the replies we have received so far as perhaps "cautious endorsement" of the Australia agreement. Industry does raise some important concerns which we need to address today.

I understand that copies of these letters have been made available to the witnesses, so I assume they are prepared to address the issues raised therein.

I think it is important that we note today that the context in which this agreement has been negotiated is the context in which it is held as far as our whole nonproliferation policy is concerned. We are trying a dual-track approach to the control of nuclear weapons in this country and, hopefully, around the world. We are trying to negotiate, to get ratified, and to get a satisfactory SALT agreement as the first step in controlling nuclear weapons now, weapons that are existent in powers around the world. Hopefully, some time in the future we can expand the SALT agreements to nations other than the two superpowers, the United States and Soviet Union, which are involved in the present SALT II agreement.

At the same time we are trying to get a cap on those nuclear weapons and get them under control, we are also going the other route of trying to prevent the spread of additional weapons around the world. We are trying to set up arrangements under this act and through

other activities of the Government which will prevent the spread of more nuclear weapons to ever and ever smaller countries around the world. That is the area with which we are dealing today.

Our whole attack on proliferation of nuclear weapons around the world and existing stockpiles has this dual-track approach or effort as a means of controlling it.

I think it is appropriate that the very first agreement under the Nuclear Non-Proliferation Act should be with Australia, a country with, perhaps, the most stringent nonproliferation policy in the world. This helps underscore the very fundamental purpose of these agreements to permit the peaceful and beneficial uses of nuclear energy while lowering the risks of nuclear weapons proliferation.

Our first witness this morning is the Honorable Thomas R. Pickering, Assistant Secretary, Bureau of Oceans and International Environmental Affairs of the Department of State.

Mr. Pickering, we are very glad to have you and your associates with us today. We are happy to receive any statement you wish to make. If you summarize it, your entire statement, of course, will be included in the record.

Please proceed as you wish.

STATEMENT OF HON. THOMAS R. PICKERING, ASSISTANT SECRETARY, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS, DEPARTMENT OF STATE, ACCOMPANIED BY HON. CHARLES VAN DOREN, ASSISTANT DIRECTOR, NONPROLIFERATION BUREAU, ARMS CONTROL AND DISARMAMENT AGENCY; THOMAS GABBERT, INTERNATIONAL POLICY ANALYST, OFFICE OF NUCLEAR AFFAIRS, DEPARTMENT OF ENERGY; AND MICHAEL GUHIN, DIRECTOR, OFFICE OF NONPROLIFERATION AND EXPORT POLICY, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS, DEPARTMENT OF STATE

Ambassador PICKERING. Thank you, Mr. Chairman. Thank you for the opening statement which I believe puts into perspective the agreement which we are to consider and on which we are to answer questions for you today.

I would like to introduce my associates. On my right is Mr. Tom Gabbert of the Office of Nuclear Affairs in the Department of Energy; next is Ambassador Charles Van Doren of the Arms Control and Disarmament Agency; and on my left is Mr. Michael Guhin, who is from my bureau in the Department of State and who has special responsibility for negotiations.

I would also like to say that we appreciate your willingness to have this hearing. We know of the precious time constraints on you. I am sorry at this point that the gentleman who played a major role in negotiating this agreement unfortunately is elsewhere in the world, continuing to negotiate agreements. But we will do our best to fill you in on the negotiating history of this agreement and to answer your questions.

I am extremely happy to have this opportunity to discuss with the committee the Agreement Between the United States and Australia Concerning Peaceful Uses of Nuclear Energy which was signed by Secretary Vance on July 5 in Canberra and forwarded by President Carter to the Congress on July 27.

As you remarked, this is the first peaceful nuclear cooperation agreement which we have brought before the committee to incorporate the new provisions for such agreements set forth in section 123 of the Nuclear Non-Proliferation Act of 1978. Conclusion of this agreement involved extensive negotiations over many months. It included a visit by a U.S. team to Canberra in June 1978, and an Australian team visit to Washington in late January 1979. The agreement was initialed on February 3.

At the outset, I would like to underline our view that the agreement before you meets all statutory requirements for new or amended agreements. This conclusion is shared by the Department of Energy and the Arms Control and Disarmament Agency, both of which have representatives with us here this morning to answer any questions you may want to put to them. The Nuclear Regulatory Commission has also concurred in the agreement. We are also particularly pleased, as the President highlighted in his transmittal to the Congress, to have this first renegotiated agreement with Australia, an exceptionally strong supporter of the Nuclear Non-Proliferation Treaty and of international nonproliferation efforts in general.

Before focusing on some of the major aspects of the agreement, I would like to take this opportunity to bring you up to date on where we stand currently in our efforts to renegotiate existing agreements for cooperation, as well as on our efforts to negotiate agreements with countries interested in entering into new nuclear cooperation agreements with the United States. The President's report to the Congress in January 1979 detailed our negotiating activity up until that time. This included discussions with over 15 countries between March 1978 and January 1979 on the provisions of our law and the proposed new agreements. Prior to that negotiating activity, considerable effort was dedicated to planning the renegotiation program and preparing a model agreement text.

Activity in this program has continued at a priority pace during 1979. Besides the initialing and signing of the agreement with Australia being discussed with you today, the Board of Governors of the International Atomic Energy Agency [IAEA] approved an amendment to the agreement for cooperation between the United States and the IAEA that will bring that agreement into conformity with the provisions set forth in the Nuclear Non-Proliferation Act for new agreements. We expect that the amendment will be forwarded to the Congress in the very near future.

Also, a revised agreement for cooperation with Norway was initialed in Oslo in May, and a new agreement between the United States and the Kingdom of Morocco was initialed in Washington last week.

In addition to the above, this year has so far marked either initial or further negotiations with the following countries: Japan, South Korea, Greece, Finland, Sweden, Switzerland, the European Communities, Egypt, and Colombia. Some of these negotiations are in advanced stages, particularly those for a new agreement with Colombia

and a renegotiated agreement with Finland. We hope to have further texts completed before the end of the year. We also anticipate further negotiating activity during the last quarter of this year which will be reported to the Congress in January.

Not surprisingly, there has been a fairly wide similarity of concerns expressed by various cooperating partners in our negotiations. Thus, with the exception which I will note later, the provisions and approaches taken in the United States-Australia agreement are substantively identical to those being taken in many other negotiations.

This emphasizes, I believe, the importance of these hearings and of having a clear understanding of how we have met the applicable legal requirements and other issues which arose in the negotiations. The documents accompanying the President's submission to the Congress demonstrate in detail the basis for our conclusion that the agreement meets all applicable statutory requirements. I will, therefore, focus my comments this morning not on those requirements, but rather on a few other basic matters which arose in our negotiations.

The first that I would like to address is the question of reciprocity.

One of the first issues which arose in the negotiation of this agreement with Australia concerned reciprocity, that is, the degree to which the undertakings should apply to both parties. Our existing agreements for cooperation have, in varying degree, contained some reciprocal provisions such as those pertaining to retransfer consent rights and no military or no explosive application. Therefore, in developing the model text for consideration by other countries in our negotiating program, some additional reciprocity was incorporated after consultations with the interested agencies. Early on in our negotiation effort, however, we found that most cooperating countries still considered the proposed model draft too one-sided and, in this respect, unacceptable to them.

The fact is that many countries either have their own export requirements and conditions for cooperation or political requirements which must be considered in negotiating such agreements. While such countries as Australia and Canada may be particularly noteworthy in this regard, it applies in one way or another to most of our cooperating partners. As a general rule, reciprocity is indispensable to successful negotiations, and we expect a similar degree of reciprocity in new or amended agreements. I would note, however, that there is a distinct exception to this expectation.

The proposed agreement and agreed minute reflect Australia's policy of requiring the application of International Atomic Energy Agency safeguards in all nations receiving Australian-origin material, regardless of whether they are non-nuclear weapon or nuclear-weapon states. In general, we expect this application of reciprocity to safeguards will only be in cases in the future where such countries are major suppliers of the United States. This will thus be the first U.S. agreement for cooperation in which the safeguards undertakings are reciprocal between the parties. It requires the application of IAEA safeguards in Australia and in the United States and provides for backup safeguards arrangements in the remote event the IAEA is not or will not be applying safeguards in either country.

This matter was, as you know, highlighted in the memorandum from the Secretary of State and the Secretary of Energy, forwarding

the agreement for the President's consideration. I would reiterate that the agreement makes clear that implementation of the United States-IAEA safeguards agreement, which is now before the Senate, awaiting its advice and consent to ratification, would satisfy the requirements for safeguards in the United States. We continue, of course, to urge early favorable action on that safeguards agreement by the Senate.

I would also note again that the provisions of that agreement and, thus, of the United States-Australia Agreement for Cooperation apply only to peaceful nuclear energy activities in the United States and do not relate to or in any way affect any U.S. activities which are of direct significance to national security.

We do not, at this stage, expect reciprocal safeguards to become a general rule in our negotiating effort. This is particularly so with respect to fallback bilateral safeguards rights. We recognize, however, that such provisions are likely to prove necessary in those few cases where, as I remarked earlier, the United States is a recipient of significant quantities of material or equipment under an agreement.

The second issue that I would like to address is the question of so-called proportionality.

"Proportionality" concerns the extent to which our rights to consent to storage, retransfer, reprocessing, alteration in form or content, and enrichment will in practice apply to material which is produced in a non-U.S. supplied reactor using both U.S.-supplied and other material. This concept is in contrast to what has come to be called the "contamination" concept.

Both of these concepts are somewhat complex, and I would like to put them in perspective by an explanation and provide some examples.

"Contamination" would mean that the United States would have the consent rights noted above with respect to the disposition of all fuel used in a non-U.S.-supplied reactor at a time that any portion of U.S.-supplied material was present. That would be true even if we provided only gram quantities of material, for example in neutron detectors or fission chambers necessary for the safe operation of a power reactor. This approach is patently unacceptable to most of our trading partners.

"Proportionality," in contrast, would mean that if the United States supplied 50 percent of the fuel for a non-U.S.-supplied reactor, such consent rights, as were noted above, would apply to 50 percent of the special nuclear material produced in the core of that reactor, including that same proportion of any special nuclear material produced in a blanket of the reactor.

The manner of applying our storage, retransfer, and other consent rights with respect to such produced material has not been previously spelled out in our agreements with other countries. The need to do so simply did not arise, since our trading partners using any U.S.-supplied material or fuel have normally used such material or fuel exclusively. That situation has changed, as reactors both here and abroad may now use uranium and/or enrichment services from various sources. This changed situation has led Australia and other co-operating countries to request that our agreements spell out the extent to which such consent rights apply to "produced material."

After a careful review of the technical, policy, and legal aspects by the interested agencies, and after numerous exchanges with Australia, the understanding set forth in the agreed minute was reached.

This understanding provides that our rights with respect to special nuclear material produced in a non-U.S.-supplied reactor will be exercised in proportion to the percentage relationship which the U.S. material used in the production of that special nuclear material bears to the total amount of material so used. It is important to understand, or to underline, that this proportionality applies only with respect to consent rights of the type which were discussed above. It does not apply with respect to the central guarantees concerning no explosive or military applications and the safeguards which cover fully all of the materials.

There are, no doubt, other aspects of the agreement of interest to the committee, and I would like to leave as much time as possible for addressing any questions and concerns the committee may have.

In summary, I would like to note that we are not only pleased to have this agreement before you, but also hope to complete several more in the coming year. None of the negotiations to date have been easy; nor do we expect that any of them will be in the future. Each of them will also reflect individual circumstances. However, we believe that some of the initial reluctance on the part of our cooperating partners has been overcome through a series of consultations and discussions, and we look forward to a year of extraordinarily active negotiations.

Thank you very much, Mr. Chairman.

Senator GLENN. Thank you very much, Mr. Pickering.

AUSTRALIAN AGREEMENT MAY SET UNDESIRABLE PRECEDENT ON SAFEGUARDS

There is one area on safeguards on which I would like to make a short statement, and then I will ask for your comment.

I am very concerned that the Australian agreement may be setting an undesirable precedent, and that is in the area of safeguards. The agreement seems to depart dramatically from safeguards arrangements in prior agreements, and appears to weaken substantially the U.S. rights to apply bilateral safeguards in the event that IAEA safeguards prove unsatisfactory.

It may be somewhat troubling that at the very time we are learning that some serious weaknesses exist in the IAEA system, we are seriously reducing our right to apply our own bilateral safeguards in the event that IAEA turns out to be inadequate in a given case.

I know that we are working very hard to improve IAEA safeguards. Nevertheless, now that we know more than we did some time ago about the shortcomings of IAEA, we find the weakening of U.S. bilateral backup safeguards somewhat disturbing.

The Australian agreement seems to weaken backup safeguards rights in two respects: First, in our previous agreements, the absolute right of the United States itself to safeguard all of its exports is stated in the agreement. This is suspended in favor of the IAEA only to the extent that the United States "agrees that the need to exercise such rights is satisfied by a safeguards agreement" with the IAEA.

In the Australian agreement, however, there is no U.S. bilateral safeguard right. All the agreement says is that the United States and Australia would enter into arrangements comparable to agency safeguards if these were unworkable, and some additional detail on the subject is given in the minute to the agreement.

The process of entering into an arrangement in the event something goes wrong looks a lot weaker than having U.S. rights already spelled out in advance of an agreement.

Second, in our older agreements, such as that signed with Austria in 1974, our safeguards rights were triggered at any time the United States did not agree that the need to exercise such rights was satisfied by IAEA safeguards.

Under the Australian agreement, according to ACDA's assessment and to DOE-State Department's memo to the President, U.S. bilateral safeguards would come into play only in the event the IAEA is not, or will not be, applying safeguards.

This implies strongly that no matter how ineffective the safeguards were, as long as the IAEA were applying them, we would not have any right to step in and apply our own safeguards.

I would like to have your comments on why this agreement departs from this longstanding practice of clearly stating that the United States has definite backup safeguards rights; and, second, why this agreement seems to rule out our applying such rights upon a finding that IAEA safeguards are ineffective.

Let me add that I appreciate the unique circumstances of this agreement and that its provisions for reciprocity raise questions as to how Australia might exercise its bilateral safeguards rights here. It may necessitate some special arrangement, but I am concerned about the precedent which we may be setting.

What would be your comment on that statement?

Ambassador PICKERING. I would like to comment on that, and then I will call on my colleagues to see if there are any additional points they would like to make, particularly with respect to some of the specific issues.

Perhaps by giving you a few general points, I can set the matter in perspective. Then my colleagues can address the specific points in greater detail, where that is required.

The new agreement with Australia takes a different approach to safeguard matters. I would certainly not agree that we have weakened or relinquished any of our fall-back safeguards rights in that agreement.

First, under article 9 of the agreement, it is provided that if the United States or Australia becomes aware of circumstances which demonstrate that the IAEA, for any reason, is not, or will not be, applying safeguards in accordance with the appropriate safeguards agreement referred to in the basic agreement for cooperation, to insure effective continuity of safeguards, the parties shall immediately enter into arrangements which conform with the IAEA safeguards principles and procedures and which conform to the coverage of the safeguards agreements which the IAEA has, and which provide assurance equivalent to that intended to be secured by the system which they replace.

So, I believe the triggering question with the second portion of what you raise is covered adequately there.

Second, the agreed minute provides that any safeguards arrangements referred to in article 9 of the basic cooperation agreement shall include several characteristics defined in the agreed minute. These are, in fact, essentially the characteristics of fall-back safeguards, as provided for in the existing agreement.

Thus, while on its surface the agreement may be apparently less explicit in terms of identifying specific U.S. rights, as such, it is far clearer on what must happen in the event that either party becomes aware of circumstances referred to in article 9, that the IAEA is not, or will not be, able to apply safeguards.

Mike, would you like to cover some additional points?

Mr. GUHN. I would like to say just two things, Senator, if I may.

As you know, our existing agreements have varying language, and I could not agree with you more that, although the language is not precisely the same in each of them, we view these as providing rights whenever we come to a conclusion that safeguards are not adequately being performed.

In this regard, I would particularly like to focus on the provision in the agreement with Australia and the words which say "in accordance with the agreement as provided," or "safeguards in accordance with safeguards agreements."

Our interpretation of that, and an interpretation that is explained to all of our negotiating partners, is that obviously this provides room for us so, if we have information that the agency is not meeting standards provided in those safeguards agreements and a judgment of inadequacy is thereby made, this would enable us, under this provision, to come to the cooperating country and thereby trigger that article.

So, under that article, once we had made that decision, it would be incumbent upon both parties to enter immediately into arrangements for the application of safeguards.

As Mr. Pickering pointed out, the agreed minute makes clear that those arrangements will include all of the steps which are normally included in our safeguards arrangements.

Senator GLENN. Reviewing the agreement that has been submitted to us and the message from the President transmitting it, in the agreement itself it is stated:

Thus it requires the application of IAEA safeguards in the United States and Australia and provides for bilateral safeguards arrangements in the event the IAEA is not or will not be applying safeguards.

Is that the same thing you are saying? It appears on page 33.

Mr. GUHN. It is, sir. What I added to that is as it reads in the agreement: "Is not or will not be applying safeguards in accordance with the appropriate agreement," and "in accordance with the appropriate agreement" is a key phrase. It is understood by our cooperating partners to be a key phrase.

I think that answers it. If there is a question that the agreement is not meeting the standards and objectives that are set forward in those agreements, we then would have a right and obligation to come under this paragraph and bring these to the attention of the cooperating partner.

So, the room for subjective judgment, if you will, or information which calls to our attention special problems, lets us still have flexibility under this formulation to act on that basis.

Ambassador PICKERING. In order to make sure that you understand what we are relying on here, the submission of the President on page 15, paragraph 3 of article 9 contains those words that Mr. Guhin referred to.

Mr. GUHIN. Senator, if I could, I would like to add that paragraph 6 of that very same article underlines that the parties shall consult and assist each other in, and shall facilitate the application of safeguards required by this agreement. That applies both to IAEA or to any bilateral fall-back arrangements.

Ambassador PICKERING. The other point I would make, which I think is germane to the question of having any diminution or possible diminution in rights, is this. Even under the automatic arrangements, it is clearly obvious to all of us who deal in practical diplomatic problems that you would have to enter into immediate consultation with the party to exercise your automatic rights to enter into their territories with the inspectors.

I believe we have fully protected that. We have done it with different language. The language is the product of negotiation.

The point which you made about the reciprocal application of this is, indeed, very germane.

Perhaps Ambassador Van Doren has an additional comment on this question.

Ambassador VAN DOREN. Sir, very briefly, the characterization of our earlier agreement with Austria was entirely accurate.

In Australia we did not have the same right. As I am sure you are aware, in the nonproliferation assessment statement, we came to the conclusion that, in the case of Australia this was satisfactory, but we thought we should look closely at this in future cases where it might be less appropriate to have exactly this way of handling the backup safeguards.

Ambassador PICKERING. There is one further point that I think we should make clear.

We all recognize that this agreement, as the first one, has precedential value. However, we wanted to make clear in our opening statement that there would not be an absolutely slavish adherence to particular formulations in all agreements.

The one with Australia has a particularly important reciprocal character and, therefore, in my judgment, one is not likely always to see the same working or formulation in each successive agreement in some of these areas.

APPROACH TO BE USED IN FUTURE AGREEMENTS

Senator GLENN. Is this approach one that you are going to try to follow as closely as possible in your other agreements with other countries?

Ambassador PICKERING. I think the implication of what I just said is, we want to look very carefully at each country as this arises and to try to take into account the points that are unique.

Senator GLENN. Well, could you try to attain about this same type of approach? I realize that you may not be able to get exactly the same agreement.

Ambassador PICKERING. We could, obviously, like to have each agreement be the best that possibly can be worked out, and that depends upon the balance of advantages in negotiations.

Senator GLENN. Let us move on to the matter of proportionality.

MECHANICS OF "PROPORTIONALITY" CLAUSE

Mr. Pickering, I think it is extremely important that we pin down precisely how some of the terms of this agreement, in particular that dealing with proportionality, would operate here in the United States for commercial concerns which used uranium imported from Australia.

As I understand it, if uranium were imported from Australia and enriched in U.S. facilities, it would be necessary for purchasers of this enriched uranium to obtain Australia approval before (1) having this material reprocessed, or (2) transferring this material to another country.

The latter Australian approval right could be important for U.S. reactor fuel fabricators making fuel rods, who wanted to sell them abroad.

Let us assume that a quantity of Australian uranium arrives at our enrichment facilities and gets enriched. How would the proportionality concept work? Would it be assumed that all the enriched uranium that came out of the plant during that time contained a certain fraction of Australian material and, therefore, every fuel rod made out of that uranium later was partly Australian and approval rights? Or, would only a fraction of the enriched uranium coming out the plant be declared to be Australian in origin while the other fraction of enriched material that came out during this period would clearly be non-Australian?

Let me ask you to follow this chain of events one or two steps further.

What would happen at a fuel fabrication plant where some Australian enriched uranium was going in along with some non-Australian enriched uranium and where what was coming out was going to be sold to many different customers?

Finally, what would happen at a reprocessing plant where some of the irradiated fuel rods going in had Australian-origin uranium in them but some did not? How would we figure out what proportion of the resulting plutonium was subject to Australian control?

I know that this is a lot of detail. It is a lot of "what if" and "where as" questions. But it seems to me that we have to get at some of these things if we are to see how this will work.

Ambassador PICKERING. Right. "what if" and "where as" clauses are obviously always important in any document of this sort and we do not want to address those.

First, I would say as a matter of general interest that reprocessing, as you know, is not going ahead in the United States. It is not part of our policy. I know that you were careful to distinguish between that and the other possible changes in form and content.

We have developed a basic series of accounting principles which Mr. Guhin would like to explain and put before you. They relate directly

to the question of how proportionality might be carried out in the United States.

Mr. GUHIN. Thank you.

I think in general terms when you are talking about fresh fuel under this agreement or under our existing agreement—we mentioned the fuel fabricator—in practice, he will take uranium from various sources and put it through his plant. He will not be counting atoms, as such, but will be counting the percentages of material which are going through his plant which are from various origins. Consequently, at the end of his process, if 30 percent of the material were of Australian origin at the beginning, he will come out with 30 percent Australian origin material as well.

I think the same kind of principle would apply to any front end operation on the fuel cycle, ultimately getting identified as assemblies, but before which the batches are mixed and the accounting principles deal with applicable percentages rather than counting atoms as such.

When we get into fresh fuel assemblies, I think they are readily identifiable items, and in this regard the accounting would be fairly straight-forward and simple. The 30 percent which was identified as Australian origin would retain and remain Australian origin throughout that process.

If, after being irradiated, they were to come into a question of whether or not they would be reprocessed, then approval would need to be sought under this agreement for that 30 percent.

Senator GLENN. Does the same thing apply in the other direction? Let's say that sometime we would export uranium to Australia?

Ambassador PICKERING. Yes; we would expect the same rules to apply. Those fuel assemblies that were identified as U.S. origin in the fabrication process would continue to be associated with us and the plutonium produced as a result of that would continue in that same percentage to be subject to our control.

Senator GLENN. Let's say U.S.-origin fuel, along with fuel from another country, were exported to Australia and used in a reactor, but we had not supplied that reactor. How would we keep track of the plutonium which was originally made from our fuel? For example, what would happen if Australia wanted to have all the fuel from this particular reactor reprocessed? How could we tell at any particular time if the plutonium in our fuel was still in fuel rods or was now separated? How would we know when we were entitled to claim control over some of the output of that reprocessing plant?

Ambassador PICKERING. Under the accounting procedures, if our initial contribution to the fuel were 30 percent, then 30 percent of the plutonium produced in the spent fuel would be subject to our control and they would have to seek our consent rights for that particular amount of fuel.

Mr. GUHIN. Senator, let me add one thing to that.

As I said, once we have fuel assemblies as such, they are readily identifiable. Consequently, in this 30 percent you are always going to have two things. You are always going to have U.S.-origin fuel and you are always going to have some produced material. It is a very clear-cut case that this material cannot be reprocessed, both because it contains transferred material and because it contains produced material.

Senator GLENN. In a situation such as I mentioned, who has priority as to what comes out first? This occurs over a period of time. Do you have any rule governing this? Do we get the first 10 percent out or the last 10 percent out, or is this worked out on an individual case basis?

Ambassador PICKERING. I think we would have to say that you would apply the rule of reason and that nobody can hoard one particular country's material to the end. So it comes out, it should be evenly distributed.

Senator GLENN. I know that we could carry this hypothetical situation to a ridiculous extreme, so let me put one more "what if" to you. What if they only reprocessed half of that? Could we claim a percentage of that or would we wait?

Ambassador PICKERING. Do you mean to have ours reprocessed last?

Senator GLENN. Grab it quick. [General laughter.]

Ambassador PICKERING. I think we would have to claim, since our fuel assemblies were there, that those particular fuel assemblies identified as United States could not be reprocessed without our consent. Other produced material in the reactor, if it were a breeding type reactor, would certainly also be subject to our control.

In cases where it is easily identifiable, then there should be no mistake. No fuel assembly for U.S. origin would be subject to reprocessing without consent.

Senator GLENN. The situation that I am setting up is not entirely hypothetical.

Ambassador PICKERING. I understand that.

Senator GLENN. This is the very problem we had with India when the Indians used our heavy water in their reactor to make plutonium for their bomb. As I understand it, they were able to claim that it was not our heavy water in their reactor but it was heavy water from a different source, and we had no way of verifying whether or not this was true.

Ambassador PICKERING. I don't believe it is quite the same, Senator. We are not talking about no explosives and no military use pledges, which cover everything, and contamination, if you want to use that word. Everything in a reactor where U.S. material is used is subject to those kinds of pledges.

The case with India was obviously under an early agreement which did not provide in as precise terms as we have now provided for the terms of no explosive pledges and safeguards.

Senator GLENN. True. But the principle still applies. India had mixed materials from various sources together. We had no way of knowing what percentage of the whole was of U.S. origin. How would the proportionality concept work in a situation like that?

Ambassador VAN DOREN. Sir, the proportionality concept here does not apply to the provisions on no explosive uses and safeguards. Therefore, if the proportionality applied to heavy water and if one small bit of heavy water were in a foreign reactor, then the no explosive pledge and the safeguards would apply to everything, to the whole output of that reactor.

Ambassador PICKERING. Similarly, all of the plutonium that might be produced in a non-U.S. reactor which contained U.S. fuel would be subject to those same pledges, which is the analogous situation to India.

Ambassador VAN DOREN. So we would have been much better off if we had had this kind of control in the Indian case.

Senator GLENN. I know that industry is very interested in the next question I will ask. It involves reprocessing controls. Even though the United States is deferring its work on breeder reactors because we just do not seem to have an urgent need for commercializing this technology at the moment due to the non-proliferation problems, I think we all recognize plutonium someday may represent a very valuable fuel resource. As I understand the agreement, we would not be able to reprocess spent fuel which was of Australian origin without Australia's approval.

Do we have any idea how they would exercise that approval right, assuming some day the United States decided that going forward with reprocessing was necessary? In the Non-proliferation Act we have general criteria as to how we will exercise our reprocessing controls. Is there any kind of comparable guidance that the Australians have given?

Ambassador PICKERING. I would like to answer a number of points in that question because there are several implications. Of course, we do not have early commercialization of breeders as a policy. Continued R. & D. work does go ahead in the United States on that area. You are quite right about the deferral of reprocessing in this country.

We have criteria in the law which are general criteria which the administration, through certain policy judgments has spelled out pending the results of the INFCE. Having spelled those out pending the results of INFCE, it is my anticipation that those general criteria will be the subject of what I hope can be some kind of harmonization of nuclear fuel cycle policies around the world, including in Australia, in the period after that. I would expect that it is in the process of that kind of harmonization that we will then understand more fully how each of us will expect to apply these criteria in the future as against the general criteria in our own law.

At this point I have no indication, though maybe my colleagues do, that Australia has spelled out any criteria at all with respect to the question of consent to reprocessing.

ANTICIPATION OF ANY CHANGES IN AGREEMENT

Senator GLENN. Well, in as you put it, harmonizing with Australia, would you anticipate any changes in the agreement that has been worked out?

Ambassador PICKERING. I would not anticipate any changes. I think the framework of the agreement is more than adequate to cover the process of harmonization. I would not anticipate as well the question of changes in our basic criteria within the law. If that is necessary, obviously we will have to change the law. But I do not anticipate that at this point.

COMPLICATED SITUATION ARISING FROM THIRD COUNTRIES

Senator GLENN. Article 10 of the agreement addresses the very complicated situation which would arise if a third country were using uranium which was mined in Australia and enriched in the United States, and then wanted to retransfer or reprocess that material. In

such a case, the country would have to obtain the approval, as I understand it, from both the United States and Australia. Obviously, this is getting a bit complex.

Under article 10, it appears that the United States and Australia agree that neither one would give its approval to such a retransfer or reprocessing request unless the other party also agreed.

The article then goes on to say, however, that this promise not to grant an approval until the other party has granted an approval would only apply if the third country has advised the country where it is seeking approval that the other party to the United States-Australia agreement also has such approval rights. This is a bit complex, obviously.

If I understand this correctly, we will not give an approval if Australia does not, but this holds true only if the third country tells us that Australia has this approval right.

If that country does not happen to notify us, then it seems we are not obliged to work in tandem with Australia, although we are supposed to consult with them. I consider it somewhat surprising that our agreement to back up the Australians, and vice versa, is apparently dependent upon a third country coming forward and advising us that both the United States and Australia have approval rights in this particular case. Obviously, it would be in the interest of any such country not to notify us. Then, so it appears, this whole arrangement would not be triggered. Could you shed some light on this?

Ambassador PICKERING. I would like to add one or two points which will come directly to the issue. It is a complicated area, as your opening portion of this question made clear.

Senator GLENN. First of all, have I stated the hypothetical situation correctly as to what could occur?

Ambassador PICKERING. I think the hypothetical situation is correctly stated, but the presumption about how the response would take place needs a little additional information. I would like to supply that to shed some light. It is a complicated area and the language is complicated. The intention has been to try to simplify the procedures and I think we have achieved some simplification here. Overlapping controls have been of serious concern to user nations and the question was included in London supplier group consultations.

Article 10 of the agreement embodies the procedure which we had worked out previously with Australia as well as Canada in an exchange of notes to cover this question. It is particularly appropriate since, as you remarked, much feed material for enrichment is expected to come from these countries to the United States on its way, after enrichment, to third countries.

Let me give you a hypothetical case falling under article 10. Let us take a case of fuel for another country, say, Japan. Article 10 would mean that Japan would only have to come to the United States for consent for reprocessing, retransfer, and so on, and we then, in turn, would consult with the Australians. If Japan informed us that Australia had the same veto right as the United States, we would certainly not grant approval without Australian approval. If Japan did not so inform us, but if we knew the materials to be of Australian origin, we then would consult with Australia under the final language of article 10, paragraph 1, and would certainly do so prior to taking any action on a request for subsequent approval by Japan.

Senator GLENN. Why did we set it up in that way? It seems a rather strange way to construct an agreement. Why would we have to wait for a complaint before anything would be triggered?

Ambassador PICKERING. Obviously, we do not want to have a tri-lateral negotiation over the application of these particular consent rights but, rather, in a sense, the highest common denominator consent rights among the suppliers should apply. Therefore, the state which hands the material to the using state in whatever form, in enriched form, is the primary one with which the receiving state should deal.

In addition to that, clearly there is a presumption that when the uranium sale originally is made by the basic party it will contain in that uranium sale contract the obvious requirement that the enriching state be notified so that the chain is completed. The chain is completed also by the fact that if there is prior knowledge by an enricher of where the uranium came from, it would also include that enricher in consultations. That seems to me inescapably to be the case. You do not enrich uranium without knowing from where it has come.

So, while it does seem inordinately complicated, it puts between the receiving party and the enriching party, in this case, the major action. The enriching party undertakes an obligation to consult the original supplier and make certain his requirements are ultimately met.

Ambassador VAN DOREN. Let me add one brief note, which is that there is a very strong motivation on the part of Japan to notify us of the Australian rights because it saves them going to two different capitals and having two negotiations on consent. In a sense, if they get our consent, then we will take care of the consultations, and they only have to ask once.

Senator GLENN. It is like a central complaint bureau.

Ambassador VAN DOREN. Essentially, it was a simplification procedure that we had in mind.

Senator GLENN. Article 10 also goes on to say that it does not apply to material transferred before August 7, 1978. I assume this would refer principally to material transferred to the United States before that date.

Does this mean that the Australians would not have any controls over that material or only that the promise not to make an approval where a third country is involved until the United States had made an approval would not apply?

Ambassador PICKERING. Since the article applies to overlapping controls, I would assume it relates to a third party issue and not to a direct issue.

Perhaps Mr. Guhin can talk about that further.

Mr. GUHIN. All of these are related to third party issues, when there is a third party involved between the United States and Australia.

In terms of why the supply is only from that date. I think one reason is involved with accounting and tracking procedures and so on that were instituted some time ago, but I am not sure were instituted throughout the life of supply of Australia to the United States in terms of ultimate destinations. But I think there is a broader explanation which Mr. Van Doren could address.

[The following information was subsequently supplied:]

ARTICLE 10—OVERLAPPING CONTROLS

[Supplied by Department of State]

Paragraph 2 of article 10 provides that the undertakings in that article apply only to material transferred after August 7, 1978, except as the parties agree otherwise. As indicated in the analysis submitted to the Congress along with the Agreement, August 7, 1978 is the date on which an agreement between the United States and Australia containing corresponding undertakings entered into force by exchange of notes (TIAS 9191). The agreement for cooperation incorporates the provisions of the earlier agreement. The article does not affect rights or controls which either party may have over material transferred prior to that time.

Senator GLENN. I know we are getting into a lot of hypothetical situations this morning, but that may be the best way to bring out how this agreement applies. Let me set up another "what if" situation, this one on proportionality.

Let us suppose that a country with which we have an agreement buys a steam supply system and all other reactor components from a non-U.S. vendor, but purchases one U.S. pump to be installed in the system. Is it then true that under the agreement with the United States that safeguards would have to be applied to the entire reactor and all of the fuel going into it?

Ambassador PICKERING. That appears to be my reading of the situation.

Senator GLENN. OK. Let me follow that up.

Ambassador PICKERING. If it uses U.S. fuel in that reactor—I presume that this is the basic assumption.

Senator GLENN. No.

Ambassador PICKERING. Just the pump?

Senator GLENN. I am referring to a situation where a very limited number of American components are used. You can make it six pumps or one. The principle is the same. Let us say that there is some U.S. equipment in the plant. It could even be 20 percent of the plant.

If there is some U.S. equipment in that plant, would the safeguards be applied to the whole reactor?

Ambassador PICKERING. I understand that if that pump is on the NRC's licensing list, then it is.

Senator GLENN. OK, as long as it is on the licensing list.

Let me follow up on that.

PROPORTIONALITY CONCEPT FOR FUEL

This means the contamination principle applies to hardware. Why, then, are we supporting a proportionality concept for fuel that does not apply the other way? Does it make sense for proportionality to be triggered for fuel in a non-U.S. reactor when one U.S. pump in the reactor negates the proportionality concept anyway?

Ambassador PICKERING. I would ask Mr. Guhin to answer.

Mr. GUHIN. Senator, may I clarify that slightly?

I think if we use the term "contamination," it is not that it applies to a component. It is that it applies to safeguards and that it applies to no military or explosive applications under article 8 and article 9. So, consequently, what we are saying is under those central guarantees we know no such principle as proportionality. It simply does not apply.

Those two guarantees are different in our trading partners' minds and are in their minds also more central than when we get down to things like how we consent to certain rights. What they are saying there is that those consent rights can be separated and can be considered somewhat differently because it involves foreign control over material which is not our material. So I think the distinction is not between a component and material but the central guarantees that are in the agreement.

Senator GLENN. The point is if the one pump goes in, we have consent rights over the whole operation, don't we?

Ambassador PICKERING. No, sir—only over the safeguards and the nonexplosive pledge.

Mr. GUBIN. Let me clarify slightly what I said, Mr. Chairman.

First of all, the agreement says that there has to be full scope safeguards in a cooperating country, so there is no question about the application of full scope safeguards.

What it says under article 9 is it doubly insures that anyplace where our component is going to be used, the material going through that facility will always be subject to safeguards. This is consistent with the formulation in the Non-Proliferation Treaty, in fact, and draws upon that.

So, it says, with the contamination under article 8 on no military explosives. Wherever our material or components are, whatever is used in or produced through them will not be used for that. But those are separable from how our consent rights are exercised with respect to reprocessing, retransfer, alteration in form and content.

Let me clarify this somewhat further, Mr. Chairman, because it is a very complex area.

As you know, under current NRC regulations, if it were a primary coolant pump, I understand this would be defined as equipment, in effect, be defined as a reactor. Therefore it would carry with it consent rights as would a full reactor, or, as we define it, equipment.

Senator GLENN. I think we should not get bogged down in a lengthy discussion of minutiae. It would be best to submit this to you for reply in writing. We will then include that in the record. That will enable us to move along more quickly this morning.

Ambassador PICKERING. We would be happy to respond.

[The information referred to appears in question 7 on p. 37.]

NO CEILING ON U.S. URANIUM IMPORTS

Senator GLENN. I understand that this agreement does not set a ceiling on the amount of uranium that the United States can import or would export. Is this intended to serve as a precedent for other agreements that you are negotiating under which the United States will be doing all of the exporting? If so, I am not sure that this is a good precedent.

In the past we would set ceilings at a rather high level, but when the ceiling was reached, the country involved would have to return to us. We could use that occasion to discuss any outstanding nonproliferation issues and make sure that they were agreeing with us before we raised the ceiling.

Is it your intent to abandon this approach?

Ambassador PICKERING. There are a number of comments that I could make to try to put that into perspective for you.

To begin with, I think ceilings arose in large measure because as we made agreements, we wished to be able to preserve our domestic capacity to enrich. Certainly, we saw the ceilings as useful for planning purposes in terms of things like enrichment sales. And, as you remarked also, it tended to bring countries back to us for renegotiation at various times.

In Australia's case, as we noted in the ACDA nonproliferation assessment, there arose no need to address the question of the ceiling on enrichment services as it is contained in most of our existing agreements as Australia had no plans and has no plans for a nuclear power program.

In other cases as well, ceilings have certainly proven to be awkward and, we believe, unnecessary, either because the countries have no plans at this stage or because their plans are in a state of flux or because they would wish to insure that any ceiling cover at all of their prospective plans.

Under these circumstances, we made a careful interagency review of ceilings. While recognizing that there likely will be some exceptions, it generally was concluded that high ceilings covering all prospective plans really provided no firm basis for planning purposes, which enrichment contracts now do provide for, and that pushing for low ceilings would serve no useful purpose and would be likely to work against our interest in undermining the reliability of the United States as a supplier at a time when we are also seeking upgraded controls for such a supply.

So, it has involved a sophisticated trade off. We do not expect many of our future agreements to have ceilings for the reasons I have set out for you.

TERM OF TREATY

Senator GLENN. What is the term of this treaty? Is it a 30-year treaty?

Ambassador PICKERING. Yes; 30 years.

POLITICAL CHANGES AND ITS EFFECT ON THE TREATY

Senator GLENN. A lot of things can happen during a 30-year period. Governments can change, for example.

We know that Australia has a very strong Labor Party. If the Labor Party came into power in Australia, might there be changes in policy that could rather drastically alter how this agreement would be administered, particularly as it relates to reciprocity.

This gets into a rather sensitive political international diplomatic area. I am trying to be careful in what I say. Will this agreement only work satisfactorily if we have a very pro-American Government in power? That would be bottom line.

Ambassador PICKERING. Steering away from the yawning elephant trap of any comments on internal politics in Australia or elsewhere—

Senator GLENN. Your State Department background is coming through in great form now. [General laughter.]

Ambassador PICKERING. Let me just say that you have to look at this agreement, in a sense, as a piece of authorizing legislation internationally. The actual obligations and the actual efforts take place under

this or in terms of contracts. So, we clearly have another stage to go through. This particular question of the supply of uranium, for example, with all of the attendant controls, takes place under this authorizing legislation, but is clearly subject to reexamination at the time and under the circumstances under which that is actually provided.

We believe that this is a good agreement. I think we all are satisfied with our political relationships with Australia. We believe indeed that it is an ideal or model country in terms of its application of nonproliferation measures. We have every expectation and hope that this will continue.

Nevertheless, as I said, we look at these agreements as authorizing rather than being an absolute and final answer to all aspects of future cooperation. We can continue to reexamine, as we provide for supply, what is necessary. However, we would like to be a reliable supplier. We would like to do this on a regular basis, particularly with good partners such as Australia. I think that the agreement is a safe one and a certain one in those circumstances. It appears to me, in every respect, to be entirely consonant with the law which, as you well know, was worked out between the executive branch and the legislative branch with a great deal of care and which, I think, has tried to look carefully and circumspectly at the future in the light of the sort of point you have made.

Senator GLENN. I do not want anything I have said here this morning to intimate anything but the greatest of confidence and the closest of relationship and appreciation for the long-term nature and close working relationship that we have had with the Australians. We want to continue that forever. But in 30-year treaties, we have to look at a broad spectrum eventualities to see whether they will be just as applicable, whatever might happen in either country. The Australians could look at the United States through the eyes of the international press and have their doubts about us as a reliable partner over a 30-year period.

I would hope that we would continue to be as close to each other over the long term as we have been in the past.

Ambassador PICKERING. Senator, I appreciate your statement.

I do not know whether it is contamination or proportionality, but I happen to be a graduate of an Australian university. [General laughter.]

FUTURE TRANSFERS OF SENSITIVE NUCLEAR TECHNOLOGY

Senator GLENN. Article 3, paragraph 4, states:

Sensitive nuclear technology shall not be transferred under this agreement unless specifically provided for by an amendment to this agreement or by a separate agreement.

At the present time, the United States does not export such technologies to any nations. Changing this policy would be directly contradictory to our present efforts to limit the spread of weapons and usable materials throughout the world. For this reason any change in our arrangement with Australia, or any other country, to permit such exports would be a matter of considerable importance.

Would it be the intention of the Department of State, and is it the understanding of Australia that any agreement to enter into such

arrangements will be submitted to the Congress as though it were a new agreement for cooperation, and thus subject to congressional review under the terms of the Non-proliferation Treaty?

Ambassador PICKERING. Yes. Indeed, that is the reason why this particular language is placed in the agreement.

ACDA'S NONPROLIFERATION ASSESSMENT STATEMENT

Senator GLENN. ACDA has prepared a nonproliferation assessment statement on this agreement in accordance with section 401 of the Non-Proliferation Act. This section states that the nonproliferation assessment statement is supposed to address the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation.

The nonproliferation assessment statement in this case, however, offers very little by way of analysis of safeguards effectiveness, and seems only to make conclusory statements that, in view of ACDA, safeguards will be effective.

Given all of the new information that we have received regarding IAEA safeguards, I am somewhat concerned about this limited discussion of the subject. In this case, only two research reactors are found in Australia, but in the next agreement that comes along, there may be a very large nuclear program in another country. I do not believe a cursory analysis of this kind would really meet the statutory intent in such a case.

Does ACDA intend to limit its discussions in the future on safeguards to the kind that is presented here?

Ambassador PICKERING. Let me make a general comment and then ask Ambassador Van Doren to speak with respect to ACDA.

The agreement itself in article 9 makes specific reference to the IAEA standards for safeguards and leaves open, obviously, the opportunity that they may be revised. It has the agreement adhering in all particulars to the current standards and any revision of those that is agreed to by the two parties. I believe that this is the highest standard of safeguards that we have achieved.

We all recognize, and we are working for improvements everywhere, and the agreement leaves that open so that improved safeguards also can apply by agreement of the parties.

Ambassador VAN DOREN. Mr. Chairman, we will take into account these concerns in future nuclear proliferation assessment statements. As we looked at our statutory mandate, we thought that the principal concern of the Congress was to examine the provisions with respect to safeguards and to make sure that all of the provisions were tight enough and provided a framework within which we could insure that the safeguards would be adequately applied.

This has to do with the legal framework. With respect to our continuing monitoring of the improvement of safeguards, it is presupposed that we would do that. With respect to taking second looks along the way in the implementation of this agreement, the licensing process and the subsequent arrangements provisions in the statute allow us to continue to look at the adequacy of the safeguards along the way.

We thought, for a framework, the main consideration should be: Are the legal rights there that the Congress wanted us to have in the agreement? We also looked at the background of this particular coun-

try concerning which we did not think there was any serious safeguards problem because of the nature of the cooperation that has been carried out so far.

In the future, that will be judged again when we look at individual exports.

Senator GLENN. Gentlemen, thank you.

We could go on with questions and hypothetical situations all day. We will have additional questions to which we ask that you respond in writing. We will keep the record open until we get your responses. I would hope that we could get them back soon so that we can complete our hearing record.

We have other witnesses today. Dr. Hendrie, Chairman of the Nuclear Regulatory Commission and Peter Bradford, Commissioner of the Nuclear Regulatory Commission appear next.

If you gentlemen wish to remain at the witness table, you would be welcome to stay.

I have no objection to it. What would be your preference?

Ambassador PICKERING. Mr. Chairman, I would think at least one of us might remain to answer any additional questions. I would like to ask Commissioner Bradford and Chairman Hendrie take the table, if that is agreeable to you.

Senator GLENN. Yes; I do want them to be our principal witnesses. I just did not want to exclude anyone else who might be able to shed further light on these very complex matters.

Gentlemen, I thank you all very much for your appearance here today.

Ambassador PICKERING. Thank you, Mr. Chairman.

Senator GLENN. Mr. Hendrie, Mr. Bradford, we are glad to have you with us again.

I apologize for our late start this morning. I know you have had to wait. We apologize.

Do either of you have an opening statement to make this morning? If you do have a statement, we will certainly welcome it at this time. If not, we will get right on to our questions.

STATEMENT OF HON. JOSEPH HENDRIE, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, AND HON. PETER BRADFORD, COMMISSIONER, NUCLEAR REGULATORY COMMISSION

Mr. HENDRIE. Mr. Chairman, I do not have a statement, but we are glad to be here. I don't know whether Commissioner Bradford would like to start out with a few remarks or not.

Mr. BRADFORD. I just have a few remarks based on the letter we have already sent you. I should indicate at the outset that while Commissioner Gilinsky and I have agreed in our comments in the letter that we sent to the executive branch, I have not cleared these comments with him, so they should be taken only as my own.

Senator GLENN. Very well.

Mr. BRADFORD. My concern is not with this particular agreement nor with the workings of the proportionality approach as applied to an NPT signatory nation with a strong nonproliferation record. That is why I have concurred in his agreement. However, should the proportionality approach be applied to a non-NPT country that was inclined to take a less firm view of proliferation, while asserting its

own legal rights to the fullest, a number of results could occur in two or three steps, involving U.S. material, that the United States would not approve of in a single step.

For example, a U.S. export to a non-NPT signatory could be blended with fuel from another country in a non-U.S. reactor. Although irradiated by U.S. fuel, the non-U.S. segment of the reactor fuel could be reexported to a third non-NPT country arguably free of safeguards, free of no explosive pledges, and free of the retransfer and reprocessing assurances that we would require.

In short, in that third country it could be made into an explosive with no violation of the Non-Proliferation Treaty or of the assurances required by the Non-Proliferation Act of 1978.

This is only slightly more remote than the sequence of events that caused the enactment of the NNPA, following the Indian explosion, using material produced in a research reactor moderated in part with U.S. heavy water.

If the congressional objection to the use of U.S. material to further an explosive program is to be carried out, proportionality in this form cannot be applied in an agreement for cooperation with a nation that has not signed the Non-Proliferation Treaty. The signing of the Non-Proliferation Treaty, I should add, is important here because it would commit an exporting nation to apply safeguards with the resulting pledge against nuclear explosive uses to its exports.

In response to a line of questioning this morning, the witnesses stated correctly that the no explosives pledge of the cooperating country would apply to the non-U.S. fuel produced in the non-U.S. reactor in that country. This statement is correct, but only as long as the non-U.S. fuel remains in the country with the agreement with the United States. The concern that I am raising has to do with carrying that sequence one step further, with the export of the non-U.S. material to a third non-NPT signatory country.

Senator GLENN. We addressed that to some extent this morning, as I think you are aware.

Mr. BRADFORD. Yes. I think your sequence stopped with the non-U.S. fuel still remaining in the second country. The concern I am raising is the possibility that it could then be reexported.

Senator GLENN. Yes. You are carrying that one step further. That is a good point.

NRC'S ROLE IN ADMINISTERING U.S.-AUSTRALIAN AGREEMENT

Mr. Chairman, what would be the NRC's role in administering the United States-Australian agreement? Will you be responsible for keeping track of which uranium in the United States is of Australian origin, for instance?

How would you verify, before issuing export licenses, whether Australian origin uranium is involved?

What will your role be in administering the whole agreement?

Mr. HENDRIE. If they come up, we will deal with export and import licenses for material or equipment going to or from Australia. I would expect we also then have some consultation duties under some of the retransfer possibilities that can occur, where the executive branch would consult with us about some of those proposed steps.

We would not be in a direct implementation line, however, with regard to this.

Senator GLENN. Well, who will keep track of uranium of Australian origin in the United States? Will that be primarily your job?

Mr. HENDRIE. I expect if there is material here we will have had to license, we will make some attempt to keep track of it.

I think our primary source of information will be the executive branch of the Government. The NRC is just not set up to, independently of the executive branch, verify all of these arrangements.

Senator GLENN. Is it yet understood who will do that kind of book-keeping and tracking of these materials?

Mr. HENDRIE. I will have to turn to either Mr. Stoiber of the Counsel's office, who keeps track of international matters, or to the International Programs people at the agency for this answer.

I wonder if Commissioner Bradford knows? I do not.

Senator GLENN. Commissioner Bradford?

Mr. BRADFORD. As far as I know, it has not been worked out in any detail. To the extent that we regulate facilities through which it might move, we would not necessarily know the origin, but we would simply know the precautions being taken at those facilities.

Senator GLENN. Is there anyone from the State Department here who can comment on that?

Mr. GUHIN. Senator, there has been extensive work between the Department of Energy, the Department of State, and the Nuclear Regulatory Commission staff over the past 18 months to 2 years on instituting a tracking system. Years ago, with the Canadian assistance, it was said that this should be tracked before it comes in under existing agreements. They have instituted both the procedures and the mechanisms which should identify a foreign origin material as it moves through the system.

Consequently, what I think Chairman Hendrie is saying is, when it comes to us for an export, it should be combined under the Department of Energy and Nuclear Regulatory Commission computer bases. We should thus be able to be aware of the origin of this material, and will take this into account as to what must be done.

RESPONSIBILITY FOR TRACKING FUEL

Senator GLENN. Somebody has to be responsible. We cannot say simply that computer X has it on tape someplace. Either the State Department or NRC or somebody else is charged with the responsibility of keeping track of this fuel.

Who is responsible?

Mr. GUHIN. I think the basic responsibility for notifying would fall on the executive branch.

Senator GLENN. I am not talking about just notifying. I am talking about to whom I can go to get a list of where the fuel is, who is responsible, what are the percentages, and so on. Somebody has to have that responsibility or nobody will have it.

Now who has it?

Mr. GUHIN. That will indeed be in the nuclear material tracking system in this country.

Senator GLENN. He just gave you the responsibility. Do you understand that you have it? [General laughter.]

Mr. GUHIN. I am not sure I can handle all of that, Senator.

Senator GLENN. Well, at the moment you have it.

Seriously, is it your understanding that the State Department will be the agency keeping track of this?

Mr. GUHIN. Senator, in one respect yes, and in another respect no.

The first respect is a country obviously would ask us for assurances that it will be coming in under the agreement. In this case, it will be the Department of State that provides the assurance. However, in terms of tracking that material through our own system, there is a material tracking system in the United States today, and what has been changed is that the reporting requirements are in standard form and now include the origin of materials moving through the system. So there is a tracking kept of that material.

Senator GLENN. Who runs the tracking system?

Mr. GUHIN. I understand that this tracking system is a joint Department of Energy-NRC tracking system.

Mr. HENDRIE. It is a computer based system.

Senator GLENN. Who is in charge of it?

Mr. HENDRIE. We supply some financial support for it and it is a DOE installation and they supply the rest of the support. It is a joint system to try to keep track of the material. Over the years we have had our ups and downs with it, I guess.

Senator GLENN. Let's say that 2 years from now there is a shipment of material in the United States which has been here for a while. Let's say I am having another hearing and want to get some background information. Who do I call? Who is responsible for tracking this? Somebody has to have that responsibility. I have not yet gotten an answer to that question.

Maybe you are going to have to have a meeting to find out who has the responsibility, but somebody has the prime responsibility. If not, then we had better get somebody to have that prime responsibility.

Now who has it?

Mr. HENDRIE. I think that, pretty clearly, it is the executive branch of the Government, Senator. These are international agreements with other countries. We have international trade. I think it would be a little presumptuous of me to step forward on behalf of the NRC and say that we are the agents of the U.S. Government in charge of this.

Senator GLENN. I would agree with you.

Does State agree with that, however?

Mr. GUHIN. Yes, I would agree with that. I think the prime responsibility will be with the executive branch on that.

Mr. HENDRIE. Senator, if you want to know where the material came from or how much it is and so on, you might get just as speedy an answer from us back from that same computer center as you would from DOE. We would be glad to have the call, too.

Senator GLENN. Yes, but during our committee hearings and in Senate floor debate yesterday on another matter we find very tangled webs of authority in the Government. We are trying to straighten out the tangles within the bureaucracy.

I don't want to make a big, philosophical statement today. I made one lasting about an hour on the Senate floor yesterday, during the

debate on the Energy Mobilization Board. What is happening is a splitting of authority from and an emasculation of what little authority the Department of Energy has had to get things done. At present, we are not giving the authority to the proper parties to see that jobs get done.

I don't want to prolong our hearing this morning with another hour's speech on that particular subject. But I think we would be well advised to straighten out some of the lines of authority so that we do not have one bureaucracy replacing another bureaucracy because the first was not able to do the job it was supposed to because we did not give it enough authority to do it.

I am trying to find out this morning just who has the authority so that we will know where to go in the future.

In your letter to the President, you stated that it would have been desirable to have had more detail in the agreement on safeguards with Australia. What specifically did you have in mind? Were you referring to IAEA safeguards implementation?

Mr. HENDRIE. Yes, and to the Australian state system of accounting and control, which is under the IAEA system, a part of the overall package. I think an expression of our interest in having more detailed information of that kind, more provisions in the agreement which would allow more detailed information of that kind to be available to us, reflects not any reluctance about the Australian agreement but, rather, the NRC's continuing difficulties and, in some cases, frustrations with having to operate on the basis of less than totally satisfactory information bases in some of these export actions.

So, as we go down the line, we continue to press the executive branch to improve the information flow and prompt them in these directions on most all occasions. This was one.

Senator GLENN. Mr. Spector of our staff has a question to ask of you.

Mr. SPECTOR. Thank you, Mr. Chairman.

Did the Nuclear Regulatory Commission have specific language that it proposed for inclusion in the agreement?

Mr. HENDRIE. Not that I know of. But let me ask if anyone else does.
[Pause.]

Mr. HENDRIE [continuing]. It was not that we felt the agreement was in any sense defective in that we had language we wanted to see used to correct it. Rather, it was a reflection of a general pressure that we tried to keep up to improve the information situation.

I think the operative language in our paragraph here is really the hope that the executive branch will seek such language in negotiating new or amended agreements with other countries.

Mr. SPECTOR. Was the Commission unanimous in this position?

Mr. HENDRIE. Yes.

This was a letter in which everybody managed to get his views separately identified. That paragraph reflects the unanimous view—the first two paragraphs reflect the unanimous statement of the Commission.

Senator GLENN. Let me get back momentarily to our previous question about tracking uranium of Australian origin in this country.

Mr. Guhin, let me have your attention on this, please.

I would like to have a letter, for our record, clearly stating who has authority for such tracking so that the matter will not be left in any

doubt and so that you will not be put on the spot here with your statement that the authority will be in the State Department.

If we could have a letter, spelling out clearly who has the authority, I would very much appreciate it. I don't care if you include the contributors to it, but somebody has to be responsible, and I want to have just who it is clearly defined.

Mr. GUHIN. Yes, Mr. Chairman, we would be happy to oblige.

[The information referred to follows:]

TRACKING FOREIGN-ORIGIN MATERIAL

[Supplied by Department of State]

The United States-Australia peaceful nuclear cooperation agreement incorporates a national undertaking for tracking Australian-origin material. Responsibility for fulfilling this tracking undertaking resides with two agencies in the following respects: the Nuclear Regulatory Commission is responsible for the tracking of foreign-origin material in the licensed sector, and the Department of Energy is responsible for tracking such material when it is present in a DOE facility.

As noted during the October 5 hearing, the Departments of State and Energy and the NRC have worked closely to ensure establishment of a tracking system to enable fulfillment of this undertaking. The data on foreign-origin material will be entered into a single computer-based information system maintained by the Department of Energy and contributed to by the NRC.

Senator GLENN. NRC's letter to the President does not comment on how our bilateral safeguard rights in this agreement stack up against those in previous agreements.

What is your view on this? Is the new agreement better or worse? In what direction are we moving?

Mr. HENDRIE. It seems to me that they are comparable. I listened to the discussion you had a little earlier with Mr. Pickering. I guess they are stated in a little bit different way here than they have been in some other agreements. But I think they are pretty decent here.

Senator GLENN. I would gather from your reply that you are rather lukewarm on the whole thing.

Mr. HENDRIE. Well, I would guess not quite lukewarm, Senator.

Senator GLENN. Above or below?

Mr. HENDRIE. Among the assorted responsibilities of the Nuclear Regulatory Commission and the chairman thereof, while I hold the export responsibilities in high regard as an important responsibility, there have been a number of other matters connected with our domestic responsibilities which have seemed to me a good deal more urgent over the past months and likely to be a good deal more urgent over the coming months. I must say that the Australian agreement came along and staff had a look at it and I simply have not spent a great deal of time thinking about it.

It seemed to me that the staff recommendations touched on some of these points.

The Commission negotiated among its members a letter which allowed the various shadings of point of view to come out. I must say that I have not devoted a great deal of time to the matter in the last 6 months.

Senator GLENN. There has certainly been a priority on your time on some of the domestic problems in the industry. We are aware of that.

But I would certainly want to have any NRC comments on problems with the new agreement, because NRC will be charged with much of its execution. If NRC has some unhappiness or areas of concern, you had sure better come out with them and come out soon, before we approve the agreement. If not we may do something you do not agree with.

Mr. HENDRIE. I totally agree with that, Senator. I must say that, for myself, I have no reservations about the agreement. But my comment was just to provide the caveat that I must say I have been thinking largely about other things.

Senator GLENN. Yes, I know. But meanwhile, the world goes on.

Mr. HENDRIE. Yes, it does indeed.

AREAS OF CONCERN OVER AGREEMENT

Senator GLENN. Commissioner Bradford, do you have any comments? Do you have any particular areas of concern about the agreement?

Mr. BRADFORD. I indicated one this morning, and also Commissioner Gilinsky and I, in our letter to the executive branch indicated a variant of that concern. Also, at the end of the letter I touched on the question of cooperation in environmental matters.

Let me say with regard to the question of comparative safeguards that I have not done that analysis and I think the best thing we could do would be to have our staff take a look at that question and supply you within a few days with any concerns that we have.

Senator GLENN. But I thought we already had that. We have the letter of June 8 from the Nuclear Regulatory Commission addressed to the President, going along completely with the treaty, with some reservations expressed therein.

I would ask that this letter be made a part of the record at this point.
[The letter referred to follows:]

JUNE 8, 1979.

The President,
The White House,
Washington, D.C.

DEAR MR. PRESIDENT: The Nuclear Regulatory Commission concurs in the proposed Agreement for Cooperation with Australia and the proposed "Agreed Minute" accompanying the Agreement as forwarded to the Commission by the Department of State on April 23, 1979.

The Commission believes, however, that it would have been desirable to include more specific language in the Agreement concerning the provision of information concerning safeguards implementation and the Australian state system of accounting and control, and hopes that the Executive Branch will seek such language in negotiating new or amended agreements with other countries.

Commissioner Kennedy notes that in his view it is inappropriate for the Commission to insert itself, directly or indirectly, into the process of negotiating Agreements for Cooperation. Negotiation is the responsibility of the Secretary of State acting on behalf of the President, with the assistance and concurrence of the Secretary of Energy and the Director of the Arms Control and Disarmament Agency. The Commission's statutory role is one of consultation, not concurrence in the negotiated agreement. Thus, it should comprise views as to whether the agreement in question includes those provisions specifically required by the Nuclear Non-Proliferation Act which affect matters requiring specific Commission decisions under the NNPA. As to the agreement with Australia, the Commission has made that affirmative determination by concurring in the proposed agreement. The inclusion of such matters as more specific language on safeguard implementation, not specifically required by the Nuclear Non-Proliferation Act, are properly

matters for decision by the Executive Branch Agencies within the roles assigned them by the NNPA.

Commissioners Gilinsky and Bradford have the following comment on that provision of the agreed minute which sets forth the parties' rights with respect to storage and retransfer (Article 5), reprocessing and enrichment (Article 6), and physical security (Article 7).

With regard to the foregoing rights, the agreed minute stipulates that they shall be applied to a fraction of plutonium produced in a foreign reactor, that fraction being determined by the ratio of U.S.-supplied uranium fuel (used in the production of plutonium) to the total amount of uranium fuel so used in the foreign reactor.

The so-called "proportionality" approach contrasts with the way the parties' rights would be applied under the other articles of the Agreement which implement Section 123(a) of the Atomic Energy Act. In the latter cases, the so-called "contamination" approach would be applied. Under this approach, relevant U.S. controls would apply to *all* the plutonium produced when any U.S. uranium is used with foreign uranium in a foreign facility. This approach takes account of the fact that if any U.S. fuel is used in a reactor core, it will contribute to every kilogram of produced plutonium.

It is unclear whether the proportionality approach in the proposed Agreement is fully consistent with the intent of the Atomic Energy Act, specifically those provisions of Section 123(a) which require guarantees governing "all special nuclear material used in or produced through" materials and equipment transferred from the U.S. Applying this principle to the retransfer and reprocessing articles is particularly troublesome since the U.S. might not even have reprocessing control over U.S.-supplied spent fuel assemblies if the other party chose to give U.S. reprocessing control over an equivalent number of other fuel assemblies. Additionally, if produced plutonium is permitted to be retransferred and reprocessed without prior U.S. approval (which requires non-explosive and safeguards assurances), the U.S. may no longer have assurances that plutonium produced from U.S. material will not be used for explosive purposes.

In the case of Australia, the concerns we express are largely academic. Australia is an acknowledged leader in worldwide non-proliferation efforts and has no immediate plans for nuclear power reactors or reprocessing. Nevertheless, the precedential importance of this first Agreement for Cooperation under the NNPA is considerable. The potential implications of the proportionality approach for parties with less firm non-proliferation principles than Australia should receive close examination—in particular as there is apparently no expression of Congressional intent on the subject either in the legislative history of the Atomic Energy Act of 1954 or the Nuclear Non-Proliferation Act of 1978.

This proportionality provision is an uncomfortable reminder of past concerns about the production of bomb-grade plutonium from U.S. material which first arose in a different context some years ago: the provision to India of heavy water used in developing its nuclear explosive device. In that instance, it was argued that since U.S.-supplied heavy water was only an unidentifiable part of India's inventory, no effective U.S. controls existed.

Commissioner Ahearne has the following comments on the argument that the U.S. might not even have reprocessing control over U.S. supplied spent fuel assemblies if the other party chose to give U.S. reprocessing control over an equivalent number of other fuel assemblies as a result of the proportionality theory.

First, he agrees the concerns are largely academic. In light of Australia's current nuclear power program and its outstanding non-proliferation efforts, there is neither a practical question, nor a real problem. However, as a theoretical matter, acceptance of the proportionality theory does not require the United States to lose reprocessing control over U.S. supplied spent fuel assemblies.

There are two potential bases under the Agreement for Cooperation for U.S. control over spent fuel assemblies: first, they may contain U.S. material, and second, they may contain special nuclear material "produced through the use of" U.S. material.

Proportionality is directed towards the second basis. If half of a reactor core consists of U.S. fuel assemblies and half consists of other fuel assemblies, the U.S. will assert control over only half of the resulting spent fuel assemblies even though arguably all of it could be subject to U.S. control as containing special nuclear material produced through the use of U.S. supplied material.

However, acceptance of the proportionality theory does not require a change in the right to control U.S. material. A typical fresh fuel assembly contains

source and special nuclear material. During use in the reactor, less than 10 percent of the original material is "burned up" producing other material.

Thus, as a theoretical matter we could still require control over U.S. supplied spent fuel assemblies since they would consist largely of the original U.S. supplied material. The main impact of the proportionality theory is we would not have control over other assemblies from a core if the U.S. assemblies are designated as the appropriate proportion of "produced" material.

Consequently, Commissioner Ahearne does not share Commissioners Gilinsky and Bradford's concern that proportionality causes a loss of control over U.S. supplied material, although he agrees close examination of the proportionality issue is appropriate.

Commissioner Bradford has the following comment on the implementation of Section 407 of the NNPA.

Section 407 requires the President to endeavor to provide in all new agreements provisions for cooperation between the parties in protecting the environment from adverse impacts from peaceful nuclear activities. The only attempt to fulfill this requirement is a general statement that the parties "will continue to engage actively in international cooperation or international environmental considerations relevant to peaceful nuclear activities." This perfunctory language does not seem to be in keeping with the spirit behind Section 407. In future agreements, he would hope that a more comprehensive provision could be negotiated.

Sincerely,

JOSEPH M. HENDRIE.

Senator GLENN. Do either of you gentlemen or do the other Commissioners have reservations in addition to those that were expressed in that letter of June 8 to the President?

Mr. BRADFORD. There are none that I have. What I am saying is that I have not done a specific comparison of the safeguards in this agreement with previous bilateral safeguards rights along the line that you were questioning this morning.

If you would like to have an NRC analysis of that, rather than give you one off the top of my head, I am willing to supply it for the record.

Senator GLENN. That is very important because I have been taking as gospel the letter to the President as NRC's signoff on this matter. I would appreciate receiving the additional document.

I thought the hearings this morning, as far as NRC was concerned, were a rather pro forma procedure to put your stamp of approval on this agreement in addition to the letter.

However, I gather that there is a little reluctance on the part of both of you gentlemen to do that. Is that correct?

Mr. HENDRIE. No, Senator, certainly not on my part. What you detected as a lack of enthusiasm was derived more from lack of attention to the matter on my part due to the press of other matters than lack of confidence in the agreement. No.

For me the letter represents a full statement of the issue.

Senator GLENN. Let me be very blunt about this because we will keep the record open for a week or so.

When you gentlemen return to the NRC, I would counsel you very strongly to get together with your staffs and whoever is going to work on this issue for you. If you have any objections or concerns whatsoever, we would wish to be so informed. We will keep this record open for 2 weeks. If you wish to make any comments or if there is anything at all with which you disagree or if you have any views in addition to those expressed in your letter of June 8, please get them to us because you are signing off on this agreement. Your signing off on it is a very important part of our procedure. I do not want to put this agreement through without your giving us your very heart-felt approval of it.

Your letter spelled out some concerns and we have taken those into consideration. If there is anything additional, please speak now or forever hold your peace. I guess that would be my admonition.

Mr. HENDRIE. We will indeed get to you within the 2 weeks, Senator. That is a very generous time period and we appreciate it.
[The information referred to follows:]

U.S. NUCLEAR REGULATORY COMMISSION,
Washington, D.C., October 23, 1979.

HON. JOHN GLENN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR GLENN: During Commissioner Bradford's and my appearance at the Senate Foreign Relations Committee's October 5 hearing, you requested the Commission to re-examine the text of the proposed U.S.-Australia Agreement for Cooperation to determine whether my June 8, 1979 letter to the President on the proposed Agreement continues to reflect the NRC position.

On the basis of this re-examination, I would like to reiterate Commission concurrence in the proposed Agreement. However, during your hearing, you requested further comment on the question of whether the Agreement's provision dealing with U.S. "fall-back" safeguards is sufficiently stringent. Our conclusion is as it was when we provided our comments to the President on June 8 that the provision is sufficiently stringent for purposes of our Agreement with Australia.

The proposed Agreement requires the parties to enter immediately into new safeguards arrangements, if those provided for by the Australia-IAEA Agreement of 1974 are not and will not be applied. The net effect of this provision is generally consistent with certain of our existing agreements for cooperation. One notable exception, however, is our agreement with Japan, the counterpart article of which triggers U.S. fall-back safeguards rights upon determination that IAEA safeguards acceptable to the U.S. are not being applied.

One might argue, therefore, that if the Japanese language is the standard against which others are to be measured on this point, the Australian Agreement falls short, in that the notion of "acceptability" to the U.S. is, at a minimum, diluted.

In response to this argument, proponents of the language in the Australian Agreement would point to the detailed provisions of the Australia-IAEA Agreement and assert that serious problems of non-implementation, e.g., with respect to material control and accounting, scope of inspections, inventory and design information, etc., could be used by the U.S. as a basis for insisting on new safeguards arrangements. They would also maintain that the proposed U.S.-Australia Agreement represents an improvement over current agreements in that framework of such new arrangements, i.e., conformance "with agency safeguards principles and procedures," etc., is specifically provided for.

I noted earlier that the Commission continues to concur in the proposed Agreement with Australia, notwithstanding deficiencies perceived by certain Commissioners with regard to those matters addressed in my June 8 letter to the President (and in related Congressional testimony) and the adequacy of the language dealing with fall-back safeguards rights. In no small measure, this unanimous position reflects Australia's acknowledged non-proliferation credentials. It is not possible to forecast whether, in the case of another agreement involving a nation whose credentials are less impeccable than those of Australia, our position would be the same. At this juncture, I can assure you that we will consider each future proposed Agreement on its merits and forward our recommendations to the President.

Commissioner Bradford notes that unlike prior agreements, the Australian Agreement for Cooperation does not give the United States the automatic right to impose bilateral safeguards if IAEA safeguards are not acceptable or are not applied. Instead, it calls for the parties to enter into arrangements conforming to IAEA safeguards principles and procedures and providing equivalent assurance. He also notes that the newer Agreements for Cooperation, signed before the NNPA, provided to the U.S. the right to impose bilateral safeguards if the IAEA safeguards were no longer satisfactory to the U.S. The clearest example of this right is the U.S.-Japan Agreement which would permit the U.S. to impose bilateral safeguards upon a determination that IAEA safeguards acceptable

to the U.S. are not being applied. The Australian Agreement for Cooperation, on the other hand, would permit safeguards arrangements other than IAEA safeguards only if safeguards are not applied. This standard in the Australian Agreement is generally equivalent to the older Agreements for Cooperation negotiated before the NNPA.

He feels that the rights of the parties must be set forth with sufficient clarity to avoid misunderstandings on this important issue. Accordingly, he would suggest that the safeguards provision unambiguously provide the U.S. right to impose bilateral safeguards in the event that it determines that IAEA safeguards are no longer acceptable. The nature of these bilateral safeguards should also be clearly set forth.

I hope that you will find these comments useful in connection with the Committee's consideration of the proposed Australian Agreement.

Sincerely,

JOSEPH M. HENDRIE.

SAFEGUARDS EFFECTIVENESS CONSIDERED IN EXPORT LICENSING

Senator GLENN. ACDA's assessment states that safeguards effectiveness is adequately considered in the export licensing process. Does NRC agree with this view? Where in the export licensing process is safeguard effectiveness considered?

Mr. HENDRIE. In the sense that we try to keep track with whatever the executive branch is able to tell us about the effectiveness of safeguards from all standpoints, in terms of the formal details of where it is considered, we have some differences of opinion on the Commission. My own view is that it comes in in determining that an export is not inimical to the interests of the United States. Some of my colleagues, and Mr. Bradford may be among them, would include it under criterion one, I believe.

As I indicated to some extent earlier, we continue to have a certain amount of difficulty with the question of how independently and how fully we could deal with the question of adequacy of safeguards in a system in which, for what I think are very good reasons, to get into national agreements we have allowed a large degree of confidentiality about the details of how those safeguards are implemented.

So, we do the best we can, and I guess I would be unable to assure you that I am 100 percent confident that all possible measures are being taken in the best possible ways.

On the other hand, I think, from everything I know, that they are reasonably good, and we try to encourage them to be better. We try to aid the State Department and DOE in their efforts to help IAEA along. I think they are adequate as a basis for licensing at the present time.

Senator GLENN. I believe there is a letter coming to us from you spelling out once again the lines of authority on who has the responsibility in this area. Is that correct?

I believe it deals with whether you are getting sufficient information from the State Department and other sources to allow you to perform the function with which you are charged with regard to IAEA. Will that letter be forthcoming shortly?

Mr. HENDRIE. I would hope so, Senator. The answer is circulating among the Commissioners at the moment. As a matter of fact, my understanding is that Commissioner Bradford and I have already signed off and we still have a colleague to go. Then you will have an answer directly.

Senator GLENN. Can you give us a date by which we can expect to have that letter?

Mr. BRADFORD. This is the first I have realized that you did not yet have it.

Mr. HENDRIE. My goodness, giving dates on release times for congressional correspondence may be the most difficult challenge you could put to me, Mr. Chairman. But I would hope that we could have it to you in 1 week.

Senator GLENN. Thank you. We will look forward to receiving it within 1 week. We will start making phone calls if we don't have it within that week.

[The information referred to is classified and in committee files.]

Once again, we are trying to line up the lines of authority so that we know what we are doing in this field. We do not want to have multiple authorities with no one designated as the primarily responsible party. The object of many hearings on Capitol Hill these days is to straighten out the bureaucracy. That is what we are trying to do in this case. So, we would appreciate receiving that letter as soon as possible.

Senator Javits, do you have any questions?

Senator JAVITS. Thank you, Mr. Chairman.

I hurried over here because I recognize this as the first of the agreements renegotiated in light of the bill sponsored by two of our colleagues from another committee—Senators Glenn and Percy. I thought it was such a monumental job and so critical that I wanted to be a party to its first consideration, and I wanted to assist in any way that I could in the excellent precedent which I hope will be set through this consideration and experience. I would express what I know would be the gratitude of other members to Senator Glenn and Senator Percy for undertaking such a highly critical responsibility as a specialized task.

Senator GLENN. Senator Javits, thank you very much for your comments and for your support in this area. I know that you, too, have worked many hours on this very problem.

When we started out this morning we were discussing the two-pronged approach on nuclear matters. We are trying to get SALT for control of existing weapons. By the other means, which we are addressing this morning, at least in part, we are trying to control the spread of nuclear weapons around the world while we get control of the larger existing problem.

Mr. Bradford, you state that the language in the minutes accompanying the agreement regarding cooperating in the protection of the international environment is perfunctory and not in keeping with the spirit of section 407 of the Non-Proliferation Act. What language would you have preferred?

Mr. BRADFORD. Well, I have not undertaken a drafting effort, Senator. But it seems to me—and this is clearer in the wake of the Three Mile Island incident than it was before—that the whole area of international cooperation on nuclear safety and nuclear environmental matters is going to need an increasing amount of attention. It, for example, should be an active obligation on countries engaged in nuclear cooperation that there be a full and complete sharing of reactor safety data.

Senator GLENN. I want to interrupt, here, to be sure to mention that Senator Percy was sorry he could not be here. He is trying to take

care of things this morning on an even higher plane than the rest of us. He is in Chicago with the Pope and could not be here this morning. Maybe his efforts at nuclear nonproliferation in Chicago will get more results this morning than our own.

Senator JAVITS. He is appealing to a higher authority.

Senator GLENN. Yes, he is. [General laughter.]

TRANSFERS OF SPECIAL NUCLEAR MATERIAL

I have just a few more questions, gentlemen.

On page 9 of the printed text of the agreement, in article 4, paragraph 3, we allow transfers of special nuclear material, HEU or plutonium, if the parties agree that such transfers would be "technically and economically justified" or "justified for the development and demonstration of reactor fuel cycles to meet energy security and nonproliferation objectives."

This could be interpreted as setting up grounds for possible approval of reprocessing and transfers of plutonium that could have great repercussions on our nonproliferation policy if applied across the board to all countries.

There has been no review of these criteria by the Congress or the NRC in a general context. Would you agree that this provision should not be considered precedential until such a review occurs?

Mr. HENDRIE. I must say for myself, Senator, that I do not find it to be a very unusual or upsetting sort of provision. There is the general cooperation between most of the Western powers who have major programs in things like fuel research and related matters. As a matter of fact, some of the NRC's safety research work, some of the more valuable stuff in terms of fuel behavior in extreme conditions, is going on in the Halden Research Reactor in Norway. We have occasion then to send back and forth fuel pins and then get the irradiated pin capsules back so that the examinations can go on in our laboratories, and so on.

As I read it, it is that sort of activity between the two countries that would be contemplated by this paragraph. I think it is useful in the agreement to recognize that in addition to what one might call the bulk commercial traffic in reactor fuels, there are also these specialized exchanges which involve typically rather small amounts of material that are very valuable for everybody's uses.

It isn't all that long ago that we were trying to make it easier to get some of the analysis samples or the plutonium to allow those to move more easily back and forth to help our overall accounting and nonproliferation goals. That is not quite what this is about, of course, but I think it is a perfectly reasonable sort of provision.

Senator GLENN. Len Weiss, who has been deeply involved in this issue, has a question to ask, gentlemen.

Mr. WEISS. Thank you, Mr. Chairman.

I would like to ask Mr. Bradford if he has anything to say on that point.

Mr. BRADFORD. I think I would urge that you get a clear idea of what technical and economic justification might consist of.

Senator GLENN. If there are no further questions, gentlemen, let me say that we thank you very much. We have asked that several docu-

ments to be submitted for the record. We would appreciate those being submitted as rapidly as possible.

As I have indicated a couple of times this morning, we feel that these hearings were very, very important because this agreement sets a precedent for renegotiation with many nations. Whether we do this properly from the beginning, starting out as we are now, and whether we cover all bases may well determine a good portion of our nuclear nonproliferation policy for many, many years down the road.

So, I think it is important that we examine this first agreement and try to get as many problems worked out as possible.

Mr. Hendrie, I would hope that you and the Nuclear Regulatory Commission, if you harbor any doubts about any part of this agreement and how it will be administered or how workable it will be, get those thoughts to us at the earliest possible date. I do not think that there is any doubt at this point, unless we have serious objections, that we will approve this agreement. It would be precedent setting as we have mentioned several times this morning. It may have an impact on us for many, many decades.

Mr. HENDRIE. Yes, sir. We understand that. We will indeed get the information to you if there are any further thoughts or comments people would like to make.

Senator GLENN. Thank you all very, very much.

This hearing is adjourned, subject to the call of the Chair.

[Whereupon, at 12 p.m., the committee adjourned, subject to the call of the Chair.]

[Additional questions and answers follows.]

AMBASSADOR CHARLES VAN DOREN'S ANSWERS TO ADDITIONAL QUESTIONS
SUBMITTED BY SENATOR JOHN GLENN

Question 1. At page 20 of the transcript, you agree with my characterization that the bilateral U.S. safeguards right in the U.S.-Austria agreement of 1974 is stronger than in the renegotiated Australia agreement. Why has the U.S. accepted a lesser right in this latter agreement?

Answer. The existing agreement for cooperation with Australia does not contain a provision of the same type as our agreement with Austria regarding bilateral U.S. safeguards rights. One of the principal issues in the negotiation of that earlier agreement was the unwillingness of the Australians to incorporate provisions that they believed would signal a lack of confidence in the IAEA, which had been given the safeguards task by the NPT. In the renegotiation leading to the recently signed agreement, this remained one of the principal issues, and the fact that the safeguards were reciprocal was also a factor. While the way in which it is resolved is not recommended for all future cases, it did not strike us as a fatal defect in the case of Australia.

Question 2. Is it the view of ACDA that the approach to U.S. bilateral safeguards rights in the U.S.-Australia agreement should not be followed in other renegotiated U.S. agreements?

Answer. Yes, as a general rule. It is our understanding that most of the other agreements currently under negotiation do not follow exactly this pattern.

Question 3. ACDA has stated it intends to expand its discussion of safeguards adequacy in future Nuclear Proliferation Assessment Statements. In what respects, specifically, will this be done?

Answer. This will vary with respect to the nature and scope of the existing nuclear program in the cooperating country and of the cooperation contemplated. Thus, for example, if the country has no existing nuclear activities, it could not be expected to have an existing state system of accounting and control. In other cases we will attempt to give a fuller explanation of the basis for our conclusions.

Question 4. In the Nuclear Proliferation Assessment Statement, ACDA says that licensing procedures under the Atomic Energy Act are "adequate to ensure . . . exports will be made only if the United States is satisfied with the adequacy of safeguards and other control mechanisms."

At what stage in the export licensing process is safeguards adequacy analyzed now? Isn't this subject a matter of dispute between the NRC and the Executive Branch agencies, with the Executive Branch stating that safeguards adequacy is not to be part of the licensing process?

Does the Administration now concur with the notion that safeguards adequacy must be considered before export licenses can be issued?

Answer. The Executive Branch review of each license application provides an opportunity to examine the safeguards situation and to consider the adequacy of the safeguards coverage that will be applied to the particular transaction being licensed. In arriving at such judgments, the Executive Branch considers a variety of factors including the nature of the export, the scope of the recipient's program, the recipient's position on international safeguards, information that relates to evaluating the effectiveness of IAEA safeguards on a generic basis, and other data relevant to the particular license in question. We believe that this is an important supplement to any initial general judgment, such as in the Nuclear Proliferation Assessment Statement, as to the adequacy of safeguards provisions that will be applied to the full range of activities that may occur under the authority of an agreement for cooperation.

The IAEA was designated in the NPT and by our trilateral safeguards agreements to perform the safeguards function. Assessing the adequacy of IAEA safeguards in the licensing process does not require a duplication of IAEA effort by the United States nor does it necessitate disclosure by the IAEA information protected by the IAEA Statute. Such actions would be unacceptable to our trading partners and would tend to undermine the IAEA safeguards system. We believe that our intimate familiarity with the IAEA and its activities, as well as increased critical examination by the IAEA Board of Governors of safeguards implementation, enables us to make this assessment without such duplication of effort, and without seeking from the IAEA the disclosure of proprietary or other properly privileged information, the compromise of which would lessen the future ability of the IAEA to obtain the necessary cooperation from those nations in which it undertakes safeguards.

HON THOMAS R. PICKERING'S RESPONSES TO ADDITIONAL QUESTIONS FOR THE RECORD

Question 1. Is it the intention of the Department of State to use the approach for applying bilateral safeguards found in the U.S.-Australia agreement in other renegotiated agreements? Has it been used in the agreements initialed with Morocco and Norway?

Answer. The Department anticipates that the language found in paragraph 3 of article 9 of the agreement with Australia will generally serve as a model for other negotiations. As noted in the testimony of October 5, this paragraph clearly sets forth certain obligations of the parties, in the event either of them becomes aware that the IAEA is not or will not be applying safeguards in accordance with the appropriate safeguards agreement.

However, as also noted, there may be variations to reflect particular situations in the accompanying agreed minute. In this regard, because of the reciprocal nature of the fallback safeguards rights set forth in the agreement with Australia, the agreed minute provides simply that any safeguards arrangements pursuant to paragraph 3 of article 9 shall include certain characteristics as enumerated in that minute.

Since the Department further anticipates that reciprocal fallback safeguards rights will not become the norm in the renegotiation of agreements, and are expected to be incorporated in only a few agreements, other agreements generally are expected to incorporate a more explicit reference to United States bilateral safeguards rights. This is, for example, the case in the agreements which have been initialed with Norway, Morocco, and Indonesia.

Question 2. Under the provisions of the U.S.-Australia agreement concerning the application of bilateral U.S. safeguards, would the United States have the right to apply such safeguards if it determined that, notwithstanding the fact that the IAEA were applying its safeguards "in accordance with the appropriate agreement", those safeguards were ineffective as a practical matter, for example, because of repeated equipment failure, measurement uncertainties, or too infrequent inspections or inventories?

Answer. The United States believes that the agreement between Australia and the IAEA for the application of safeguards in connection with the NPT, signed on July 10, 1974, provides for the application of effective safeguards. In light of the current and prospective nature of United States cooperation, it is difficult at best to see how all the terms and objectives of that safeguards agreement

could be met and safeguards still be ineffective. The examples postulated above, if determined to have a significant effect on safeguards, would result in circumstances that were inconsistent with the terms and objectives of the safeguards agreement. It would be on this basis that action under the U.S.-Australia agreement would be taken.

As noted in the testimony of October 5, ineffective application of safeguards would almost certainly be the result of safeguards not being applied strictly in accordance with the terms and objectives of the safeguards agreement. Under these circumstances, the United States would clearly have the right and obligation to bring these circumstances to the attention of the cooperating party and, in this way, "trigger" paragraph 3 of article 9. This has been made clear to countries with which we are negotiating agreements. Further, in such a situation, we would no doubt need to consult with the IAEA.

Question 3. At page 24, Mr. Guhin described how the proportionality principle would be applied at a fuel fabrication facility noting that "at the end of (the) process, if 30 percent of the (input) material were of Australian origin, (the operator) will come out with 30 percent Australian origin material as well."

If not, how long would it be before some of the output from the facility were tagged as "Australian" or "non-Australian"; is this done weekly, monthly, or yearly?

Answer. Mr. Guhin's statement referred not to how the "proportionality principle" set forth in the agreed minute would apply, as this is not applicable to the example discussed, but rather to how the accounting and labelling system would work in practice in situations, like fuel fabrication plants, where material of various origins may be mixed in the process. While we have yet to develop some of the details of the tracking and labelling of foreign material, it is our intention that labels would be applied as such material moves throughout the system, including to Australian uranium supplied for enrichment. It is anticipated that all output material from a plant would be labelled as it emerges from the plant.

Finally, as noted in the October 5 testimony, the United States expects other countries to follow the same kind of procedures with respect to material supplied from this country.

Question 4. At page 26, you discuss a rule of reason for accounting for U.S.-origin material under the proportionality approach. How has this practice been implemented at existing reprocessing plants in France and the United Kingdom? How much time passes between the time that U.S. fuel (say from Sweden or Spain) goes into reprocessing and the time the resulting separated plutonium is identified as being of U.S. origin? How does the U.S. learn the status of its spent fuel/plutonium in such circumstances?

Answer. As in the response to question 3, it is not the "proportionality principle" in the agreed minute which applies to this circumstance, but rather the tracking and labelling practices associated with the material.

The United States controls the transfer of U.S.-origin spent fuel to foreign countries (for example, from Sweden or Spain to France or the United Kingdom for reprocessing) through the retransfer approval process (MB-10) as set forth in the Nuclear Non-Proliferation Act of 1978. Transfers for the reprocessing of spent fuel which have been made under the Act have involved distinctly identifiable fuel bundles in which all contained and produced special nuclear material was of U.S. origin.

While we do not ourselves track the material through the reprocessing plant, the reprocessors are obligated not to transfer that material without the consent of the owner (that is, the Swedish or Spanish utility) and the owner, in turn, has certified to the United States that it will not authorize the transfer of the material without the consent of the United States. As noted above, any separated material resulting from this spent fuel would be identified as belonging to a specific owner and consequently subject to U.S. controls over further disposition.

Question 5. If U.S.-origin fuel were used in a breeder reactor as the core (assume the needed plutonium were supplied by the U.S. or had been separated from U.S.-origin spent fuel), would U.S. controls under the proportionality principle follow plutonium produced in the blanket material if this were not U.S.-origin uranium?

Answer. Yes. As noted in the testimony of October 5, if 50 percent of the fuel in a reactor were of U.S. origin, then 50 percent of the material produced in the reactor, whether in the core or the blanket, would be considered U.S. origin. It follows that, if all the fuel were supplied by the United States or of U.S.-origin, all produced material in the reactor, whether in the core or blanket, would be considered U.S. origin.

Question 6. At page 28, you suggest that under the U.S.-Australian agreement, U.S. rights under the proportionality approach would differ from the situation that obtained in India with respect to U.S. heavy water there. Isn't it true, however, that the cases are in fact similar because in each it would be difficult to determine whether U.S.-origin material, specifically, were being used in a particular case by the other country involved?

Answer. We do not believe that U.S. rights under the proportionality approach are in any way analogous to the situation that obtained with respect to U.S. origin heavy water in India. As noted in the October 5 testimony, the proportionality principle is not applicable when it comes to the guarantees on safeguards and no explosive or military application as set forth in articles 8 and 9 of the agreement. All special nuclear material produced in a non-U.S.-supplied reactor which used any U.S. material would be subject to these guarantees without exception. This is, as you know, much different from the situation that obtained with respect to U.S. supplied heavy water in India.

In addition, we would note that the proportionality approach as such has little, if any, relationship to the question of how easy or difficult it may be to determine whether U.S.-origin material is being used in a particular case by another country. That "proportion" of special nuclear material produced would necessarily have to be tracked and labelled in the same manner as supplied material.

Question 7. With respect to the discussion at pages 37-38 of the transcript concerning the contamination principle, it appears from article 5(2) and article 6(1) that even if U.S. exported "equipment" constituted a tiny fraction of a foreign nuclear power plant, U.S. reprocessing and retransfer controls (as well as safeguards and no explosive requirements) would attach to all plutonium produced in that facility. Yet if no U.S. equipment were involved and 10 percent U.S.-origin fuel were used, only 10 percent of the resulting plutonium would be subject to U.S. reprocessing and retransfer controls. What is the basis for this different result? Why shouldn't the contamination principle policy apply in both cases?

Answer. The question proceeds from an incorrect assumption. As used and defined in the U.S.-Australia agreement and in other agreements, the term "equipment" generally means a facility or very important parts (such as the pressure vessel or primary coolant pumps) which are identified in international trigger lists and the export of which would carry with it the same controls as the export of a facility. As noted in our testimony, those very important parts are included in the definition of equipment in the NRC's export regulations. By definition, therefore, "equipment" does not mean a "tiny" fraction of a foreign nuclear power plant.

The term "component" is used in the agreement to mean those parts which are less than a facility or, more specifically, which are considered less than a facility. As required by law, the agreement provides for reprocessing and retransfer controls over non-U.S.-origin material used in or produced through the use of equipment as referred to above. It does not provide such controls for non-U.S.-origin material used in or produced through the use of "components." Thus, the different results as suggested by the question do not obtain.

Question 8. What percentage of uranium used in this country or processed here for export is currently of Australian origin; how large will Australian exports to the U.S. be in the future under the agreement in terms of our overall needs?

Answer. Australian uranium currently imported for domestic use amounts to about 1 percent of the total uranium being processed through U.S. enrichment plants, whereas that currently imported for foreign users makes up about 4 percent of the total uranium processed through these plants. The amount of future exports can only be estimated. Based upon projected likely expansion plans of the Australian uranium supply industry in relation to the projected uranium supply capability throughout the rest of the world, in the mid-1980's Australia could be supplying about 10-15 percent of the uranium to be processed in the United States for both domestic and foreign use. This percentage could be as high as 15-20 percent in the late 1980's.

Question 9. Under the agreement, Australia will not sign any more contracts for the export of uranium to us until the U.S. ratifies the U.S.-IAEA treaty. What will be the practical impact of further delay in our ratifying that treaty or, in other words, how soon do our existing contracts with Australia run out?

Answer. Australia may sign new contracts for the delivery of uranium to the United States but, as provided in the agreement and noted above, will not export such uranium to the U.S. until the safeguards agreement with the IAEA comes into force.

We are aware of only one current contract between a domestic utility and an Australian uranium supplier. This concerns a contract with Commonwealth Edison which we understand currently runs through 1984 and calls for Australian supply of 235 short tons of uranium per year. This annual amount is roughly what is required to produce the low enriched uranium fuel for the annual reload requirement of a large (1000 megawatt) power reactor.

The practical impact of Australia's export requirements, reflected in the agreement, does not affect exports under this contract but, as noted above, possible exports under new contracts.

Question 10. Article 1 of the proposed agreement with Australia states that the parties shall cooperate in the nuclear area in accordance with the provisions of this agreement and in accordance with the parties' "applicable treaties, national laws, regulations, and license requirements." This does not state whether the laws and treaties and regulations which cover the agreement are the ones that are *applicable today* or rather ones that might be enacted *in the future* from time to time. In some of our early agreements, however, such as that with Austria (1969), the relevant language of this provision states explicitly that the laws which apply are those which are in force "*at the time of any cooperative activity.*"

Was it the intention of this provision in the Australian agreement to rule out any subsequent changes of U.S. law which might control cooperation? What do the Australians understand by this provision?

Answer. Article 1(1) has been revised from that contained in many earlier agreements, including that with Australia, in order to avoid any possible ambiguity about this matter and to make clear that cooperation activities under the agreement would be subject to treaties, national laws, regulations and licensing requirements applicable at the time of the cooperative activity. We believe that this is the clear meaning of Article 1(1) and that the Australian Government shares this view.

Question 11. Article 4, paragraph 3 refers to special nuclear material other than low-enriched uranium, which apparently means high enriched uranium and plutonium. The paragraph then goes on to state that such materials could be transferred to Australia by the U.S. if the parties agree that its use were justified for the "development and demonstration of reactor fuel cycles to meet energy security and nonproliferation needs." This appears to suggest that we would contemplate exporting plutonium for an Australian breeder program. If it is the U.S. policy to discourage the use of high-enriched uranium and plutonium in non-nuclear-weapon states and if, in any event, the Australians have no plans at this time to develop advanced reactors which would use these materials, why does the agreement contemplate we would make such exports? Doesn't this give the wrong signal to other nations by suggesting the U.S. is prepared to support breeder programs generally?

Answer. The U.S.-Australian agreement provides the framework for long-term cooperation between our two countries in research and power applications.

We cannot now predict what the situation may be some years from now (for example, with respect to fuel cycle research) and believe that the agreement should not preclude the United States from cooperating in programs necessary to meet energy security and non-proliferation needs. Other aspects of this provision include the possible need for interim supply of high enriched uranium use in fueling research reactors pending the availability of lower enriched fuel for such reactors.

APPENDIX

INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT,
October 5, 1979.

HON. FRANK CHURCH,
*Chairman, Committee on Foreign Relations, U.S. Senate, Russell Building,
Washington, D.C.*

DEAR SENATOR CHURCH: Thank you for your letter of September 6 inviting comment from the Institute of Nuclear Materials Management on the U.S.-Australian Agreement on Peaceful Uses of Nuclear Energy, currently under consideration by the Senate Committee on Foreign Relations, and pending advice and consent to ratification by the U.S. Senate. Your staff has very kindly provided, upon my request, a copy of the proposed agreement to members of the INMM Executive Committee. Pursuant to our review and assessment of the Agreement, the following comments and observations are offered.

Despite significant concerns and reservations about practical implementation, commercial impact, and precedents that might be established by the agreement, the Executive Committee of the INMM, on balance, unanimously supports the U.S.-Australian Agreement as a necessary step toward achieving effective international safeguards and nonproliferation goals. Some of the more frequently expressed concerns and reservations are summarized below. Not surprisingly, a major concern of many in the INMM is the possible negative impact that the stringent provisions of the proposed Agreement may have on the U.S. nuclear industry's posture as a reliable nuclear supplier in an increasingly competitive world market. Many industry people are well aware of the importance of strong national safeguards systems as essential components of an effective overall international safeguards regime, but they are also quick to point out the need for implementation of more uniform and equitable safeguards standards among all nations—both suppliers and recipient nations alike. Such standardization would help alleviate industry concerns about safeguards inequities while also contributing to the overall effectiveness of the IAEA's mandated function of Independent Inspection and Verification.

The concept of "proportionality," set forth under the "Coverage of the Agreement" section of the Agreed Minute, has elicited a spectrum of opinion ranging from significant support for the proportionality approach to the suggestion that it be essentially replaced with a stipulation that IAEA safeguards be applied to all special nuclear material produced from materials or equipment supplied by others, when used in conjunction with U.S. supplied materials. Due to its reciprocal nature the U.S.-Australian agreement covers not only U.S. exports but also imports, so the principle of proportionality clearly applies, e.g., to Australian uranium undergoing enrichment in the U.S. whether intended for U.S. domestic or foreign use. In this connection it has been pointed out that potential problems could arise in the interpretation of "coverage of the agreement" in terms of lingering "contamination" in U.S. process facilities, e.g., very small amounts of Australian feed material that may remain from previous enrichment runs. In actual practice such problems (and hypotheticals) could perhaps be avoided if some de minimus quantity of foreign-origin material could be established below which formal coverage under the agreement ceases.

Other expressed concerns have included certain details of implementation (e.g., selection of facilities for IAEA inspection, and specific reporting requirements), the expense and some degree of intrusion into plant operations that inspection and verification must inevitably involve.

Another indicated concern involves the potential restrictions that certain reciprocity provisions of the proposed agreement could place on future U.S. policy options regarding fuel cycle alternatives, particularly with respect to

the back end of the LWR fuel cycle. Some apprehension was also expressed that the actual implementation of Articles 5, 6 and 10, requiring approval of each country involved in a series of successive transfers of nuclear materials (e.g., from fabrication to reactor to reprocessing to refabrication—each process occurring in a different country) could in practice result in such a bureaucratic morass as to completely bog down the peaceful uses of nuclear energy.

Also in this connection it has been pointed out that the principle of fungibility (replacement with material of like kind) has been largely ignored in the formulation of the agreement. If this is intentional, the rationale for so doing should be clarified; if unintentional, the matter should probably be addressed briefly.

From the standpoint of some safeguards specialists, the subject agreement appears quite general and even vague on certain practical aspects of implementation, and it has been suggested that this be appropriately factored into future negotiations of new or amended agreements with other countries.

It has been suggested that the Committee on Foreign Relations should obtain assurances from DOE that the periodic review of physical security measures (cf. Article 7, paragraph 3) can be accomplished without compromising sensitive technology or information related to national security (NB in enrichment facilities).

Finally, I would like to address the interaction, as many in the Institute view it, between the subject U.S.-Australian Agreement, and the proposed safeguards agreement between the U.S. and the International Atomic Energy Agency (IAEA). As you may be aware, in my letter of July 20 to Senator Claiborne Pell, I have already provided INMM commentary and input on the draft U.S.-IAEA agreement. The proposed agreement for cooperation with Australia in effect requires that the U.S.-IAEA agreement be brought into force before any uranium can be exported from Australia to the U.S. under new or recent contracts. Such a provision, we believe is extremely important to the future energy outlook for the United States, and other countries as well.

As you know, the U.S. has been the principal source of U-235 enrichment services for both U.S. and foreign utilities, and plans to further increase its enrichment capacity. However, it also appears clear that other nations (e.g., in Western Europe, and the Soviet Union) will be providing an increasing share of needed enrichment services for the most common types of nuclear power reactors. Implementation of the proposed agreement with Australia will not, by itself, permit the U.S. to enrich Australian uranium purchased by U.S. or foreign utilities under new or recent contracts. In order for the U.S. to maintain that option, which is important to our balance of trade, as well as national energy needs and foreign policy objectives, the U.S.-IAEA safeguards agreement must also be ratified and implemented. Otherwise, the principal benefit to the U.S. of the proposed agreement with Australia would not be realized.

Ratification of the U.S.-IAEA safeguards agreement must, of course, stand on its own (worthy) merits, but we in the INMM also believe that practical considerations such as those just cited provide additional compelling reasons for giving favorable consideration to both of these important agreements now pending before the U.S. Senate.

As further indicated of the broad spectrum of opinion in the U.S. technical and industrial community on the issues of nonproliferation, safeguards and international nuclear trade, I am taking the liberty of enclosing herewith copies of individual letters of response I have received to date from INMM officials and members. Others will be forwarded when and as they are received. Please let me know if the Institute can be of further service in this matter.

Very cordially yours,

G. ROBERT KEEPIN,
Chairman, Institute of Nuclear Materials Management.

NUSAC, Inc.,
McLean, Va., October 4, 1979.

Dr. ROBERT G. KEEPIN,
*Nuclear Safeguards Program Director,
Los Alamos Scientific Laboratory, Los Alamos, N. Mex.*

DEAR BOB: Pursuant to your request, I have reviewed the proposed agreement between the United States and Australia concerning the peaceful uses of nuclear energy, together with the comments of the State Department, the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission.

I believe that the Institute of Nuclear Materials Management should heartily

endorse the proposed agreement as being in the best interests of the United States and representing no threat to our national security.

I do have a few comments which the Committee on Foreign Relations might wish to consider during its deliberations. The concept of "proportionality" which is presented in the penultimate paragraph of that section entitled "Coverage of the Agreements" in the agreed minute is different from past U.S. policy as Commissioners Gilinsky and Bradford remark in the comments of the Nuclear Regulatory Commission. Their principle thrust appears to be concern over the impact on the U.S. prerogatives with regard to material supplied to other nations. However, it should be recognized that the principle applies to material supplied to the U.S., and particularly in the case of the Australian agreement, to materials which will be introduced to the gaseous diffusion plants for enrichment. The principle of "contamination" is especially difficult to apply in these circumstances, for who can say when the last atom of Australian uranium has left the diffusion plant either in the form of product or tails. At the very least, the concept of contamination would require that, upon introduction of Australian uranium, the agreement would apply to the total inventory of the gaseous diffusion plant, and potentially could apply to all of the product and tails produced over an extensive time period. Proportionality is certainly a more rational approach in these circumstances, and in my opinion, a more rational approach to all normal commercial activities.

Paragraph 3 of Article 7 provides for the periodic review of physical security measures. This would provide for the review of physical security measures at the gaseous diffusion plants when Australian uranium was being processed. I believe that the Committee on Foreign Relations should obtain assurances from the Department of Energy that such review can be accomplished in a manner satisfactory to the Australians without compromising sensitive information related to the role of the gaseous diffusion plants in national security.

Articles 5, 6, and 10 perpetuate current policy which requires that the recipient country must obtain approval prior to storage, transfer, or reprocessing of materials supplied or produced from materials and or equipment supplied by the U.S. I can contemplate a scenario whereby Australian uranium is enriched in the United States and transferred to country A for fabrication into fuel for reactors in country B. The irradiated fuel would then be transferred to country C for reprocessing and the plutonium therefrom would go to country D for fuel fabrication for irradiation in country E, while the recovered uranium would get transferred to country F for enrichment and then transferred to country A for fabrication which would then be transferred to country E, and so forth, ad infinitum. Each such transfer could potentially be covered by a provision such as Article 10 in the proposed agreement. It is difficult for me to contemplate normal commercial activities when country E, for example, would have to obtain permission for the next transfer back through the bureaucratic organizations of each of the intervening countries to ultimately obtain the permission of the United States and Australia for the proposed transfer. I believe that the Committee on Foreign Relations should satisfy itself that the implementation of this policy will not result in such a morass as to completely bog down the peaceful uses of nuclear energy.

I trust that the foregoing comments will be useful to you.

Best personal regards.

Sincerely,

RALPH F. LUMB, *President.*

E. R. JOHNSON ASSOCIATES, INC.,
Vienna, Va., September 27, 1979.

Dr. G. ROBERT KEEPIN,
Chairman, Institute of Nuclear Materials Management, Los Alamos Scientific Laboratory, Los Alamos, N. Mex.

DEAR BOB: I appreciate your arranging for me to receive a copy of the United States-Australia Agreement on Peaceful Uses of Nuclear Energy from Senator Church's office. I would have responded to you with my comments sooner had I not been absent from the office until late last week, and the agreement arrived during my absence.

After reviewing the agreement, I have the following comments to offer:

(1) Although there are at least two major concerns raised by the agreement, it otherwise represents an improvement over the terms of earlier bilateral agreements and, in my opinion, should be consented to by the Senate. Moreover, the

agreement has been negotiated and it would further weaken the influence of the U.S. in world nuclear matters to disapprove it and attempt renegotiations. Rather, I would prefer to see consent to the agreement followed by careful attempts to amend it after ratification—with a clear warning to the Administration that the major concerns be satisfied in subsequent similar agreements.

(2) I find myself in a rather unique position of agreeing with NRC Commissioners Gilinsky and Bradford regarding their concern with respect to the "proportionality" approach to the control of U.S. supplied material—particularly for the precedent it sets for the negotiation of other similar agreements with nations having a more active nuclear power development program. This concern is somewhat allayed by the fact that Australia is a party to the NPT and, presumably, any nuclear material which might be produced from materials or equipment supplied by others as a result of its use in conjunction with U.S. supplied materials would fall under IAEA safeguards. However, it would have been better to stipulate that all special nuclear material produced from materials or equipment supplied by others (including Australia), when such were employed in conjunction with U.S. supplied materials, would be subject to IAEA safeguards under the agreement. Clearly this should be done in subsequent agreements of this type.

(3) I am seriously concerned with the inclusion of the provision of the agreement that material transferred to the U.S. shall not be reprocessed. I see no basis for excluding the prospect of reprocessing imported fuel in the U.S.; neither do I see any reason for excluding such prospect for exported fuel, provided that the following stipulations are accepted:

(a) such reprocessing and the products thereof remain under IAEA safeguards control (particularly when such are in residence in non-nuclear weapons states, NNWS),

(b) the countries in which the reprocessing and subsequent use of the reprocessed material are parties to the NPT (if they are NNWS) and

(c) reprocessing is accomplished in countries which have a reasonable need for reprocessing facilities.

The existing provision in the agreement makes it necessary to obtain Australia's agreement for reprocessing of materials of Australian origin even if the U.S. should change its current reprocessing policy—thus possibly extending a no-reprocessing policy in the U.S. past the point that the U.S. decides to adopt a reprocessing policy. This could prevent the U.S. government from returning to a reprocessing policy with respect to material of Australian origin without the consent of the Australian government.

This type of provision should not be included in subsequent agreements of this type—and it would be desirable to seek Australian's agreement of reprocessing under Article 6(1) of the agreement at an early date.

I am fully aware that INMM was not constituted to interfere with foreign policy activities, but I believe that INMM, through its expertise in safeguards, could provide a valuable public service by drafting a model Agreement for consideration by the Administration and by the Senate. My fear is that the Administration will negotiate a series of these agreements with countries which have significant uranium resources and the Senate will have the undesirable choice of (1) consent to preserve our badly needed influence in world nuclear affairs with the possible attendant loss of the reprocessing option or (2) non-consent, with the attendant serious damage to that influence and the possible loss of the availability of the affected materials.

Very truly yours,

E. R. JOHNSON.

INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT,
September 26, 1979.

Dr. G. ROBERT KEEPIN,
*Chairman, Institute of Nuclear Materials Management, Los Alamos Scientific
Laboratory, Los Alamos, N. Mex.*

DEAR BOB: In response to a request from the office of Senator Frank Church, I have reviewed the proposed United States-Australia Agreement on the Peaceful Use of Nuclear Energy. Based on this assessment, I have the following comments:

Speaking as an individual member of the nuclear safeguards community, I cautiously support endorsement of the agreement. It represents a logical and

needed extension of the Nuclear Non-proliferation Treaty. Implementation of an agreement of this type and quality will clearly result in a needed tightening of U.S.-Australia nuclear materials controls and will support worldwide safeguards and non-proliferation objectives. However, as an individual member of the industry sector involved in the design and sale of nuclear steam supply and related nuclear fuel systems throughout the free world, I have serious concerns about the total commercial impact of this agreement. For example, it sets forth a precedent which may have a potentially negative impact on U.S. nuclear commerce with other nations. To the extent that this is the case, the United States commercial nuclear industry may be penalized in the world market by such an agreement.

I fully understand the need for the U.S. to set a good example in this area. However, the commercial consequences of this approach may have significant negative impacts on the ability of domestic nuclear suppliers to compete with foreign sources operating without such restrictive agreements. I, therefore, suggest that Senate endorsement of the agreement be predicated on two additional considerations:

(1) A detailed assessment of the full commercial impacts of the proposed agreement. This assessment should include specific consideration of alternative implementation schedules for the proposed agreement.

(2) Continued pressure at all levels by the U.S. Government to bring about the implementation of similarly restrictive agreements by foreign governments with whom the U.S. nuclear industry competes in the world market.

Thank you for this opportunity to contribute these comments.

Sincerely yours,

DENNIS M. BISHOP,
General Electric Co., Nuclear Energy Business Group.

INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT,
September 26, 1979.

G. ROBERT KEEPIN,
*Los Alamos Scientific Laboratory,
Los Alamos, N. Mex.*

DEAR BOB: I have read the U.S.-Australian Agreement on Peaceful Uses of Nuclear Energy and have discussed this with Bill DeMerschman, Dennis Wilson and John Jaech. The agreement is as clear and specific as one can expect considering that Australia is a non-weapon state which has entered into a NPT safeguards agreement with the IAEA, and the U.S. is a weapon state which has a pending NPT safeguards agreement with the IAEA.

Under the provisions of the NPT and INFCIRC/153 (corrected) IAEA Safeguards are applied on all source or special fissionable materials in all peaceful nuclear activities within a state. Given these provisions and given the strong support that Australia gives to nuclear safeguards, the probability of Australia diverting source or special fissionable material to military purposes or developing a nuclear explosive device is very low.

Implementing the first safeguards agreement under the Nuclear Non Proliferation Act of 1978 (NNPA) will be difficult. We are not privy to the details of applying IAEA safeguards in the United States, nor is this the forum for such a discussion. Problems will arise, however, and the United States must be prepared. For example, will IAEA inspectors enter United States facilities upon approval of the U.S.-Australia Agreement even if the U.S.-IAEA agreement has not yet been approved? Will the United States be subject to reporting transfers and inventories to the IAEA as a result of the U.S.-Australia Agreement? If so, will only those facilities which export from or import to Australia be required to report, or may the IAEA choose any one from the list of eligible facilities?

In spite of the difficulty and expense involved in complying with the NPT and INFCIRC/153 (corrected), the United States has little choice but to "share the misery" of international safeguards. Since the U.S.-Australia Agreement is the first to be negotiated after NNPA and since the agreement is with a supplier state that has stringent safeguards supporting the NPT, the United States is in the position of demonstrating to the rest of the world that it not only espouses international safeguards but submits to them as well.

Y. M. FERRIS.

INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT,
Columbus, Ohio, October 8, 1979.

Re United States-Australian treaty.

Dr. G. ROBERT KEEPIN,
Los Alamos Scientific Laboratory,
Los Alamos, N. Mex.

DEAR BOB: Those of us in the Central Region Chapter of the Institute who have examined the United States-Australia Agreement on peaceful uses of nuclear energy have concluded that the Agreement should be endorsed; however, there are several major reservations which persist. This letter will address the substance of these reservations, which are elaborated upon in the enclosed comments. The appropriateness of some of these comments may be questionable, because some suggest correcting deficiencies in the Agreement, such as some of the definitions and uses, which may or may not be possible at this time. However, all of these comments should be worthy of consideration in future agreements and future negotiations to modify this proposed Agreement.

The major concerns center around three points. These are:

1. The presumption that a United States-Agency Agreement is in force;
2. The inclusion of certain United States nuclear operations in the United States-Australian Agreement; viz., requirements for Agency inspection at gaseous diffusion enrichment plants; and
3. The requirement that future decisions regarding the back end of the fuel cycle will be subject to the approval of Australia.

These latter two points bring up serious constraints to commerce and the operation of the nuclear industry in the United States. In addition, all three of these points raise serious questions about the ability of the United States to be a "reliable trading partner" to interested foreign nations. An especially bothersome point in this regard is the legislation, through bilateral agreements, of safeguards standards more stringent than those required by IAEA safeguards. This practice will have two undesirable side effects. The first of these is the implicit weakening of IAEA safeguards derived from the suggestion that IAEA safeguards alone may not be sufficient. The second follows from this and concerns the effect of such requirements on nuclear commerce. It is anticipated that this could have the effect of putting United States suppliers at a competitive disadvantage with their foreign counterparts.

The proposed Agreement between the United States and Australia is predicated upon the existence of an agreement between the United States and the IAEA for the application of Agency safeguards domestically. While it is recognized that the United States has the intention to enter into such a safeguards agreement with the Agency for the application of safeguards in the United States, it is not, at the present time, a foregone conclusion that this will occur in the near future. Thus, restrictions, as in Article 9 and the Agreed Minute, which affect contracts after December 2, 1972, could force the suspension of nuclear trade between the United States and Australia, severely restricting United States commercial opportunities, as well as affecting supplies of enriched uranium to the Australians. Failure of the United States Senate to promptly enact the United States-Agency Agreement could, with the language in this Agreement, be construed as limiting of supplies and the United States being considered an "unreliable trading partner". If this were to be the case, it is felt that this Agreement, and any others patterned after this, should be deferred until ratification of the United States-IAEA Agreement by the United States Senate.

Throughout this proposed Agreement, it is indicated (i.e., Article 6, Article 9, Article 10, and the Annex on Safeguards) that all material covered by this Agreement will be subject to Agency inspection and "shall not . . . be altered in form or content" without the expressed approval of the other party. The assumption inherent in these statements is that: first, each atom of the Australian material will be uniquely identified and separately handled throughout the rest of its lifetime. This, in fact, is not the case, and a more standard practice with such material would be to operate under the principle of fungibility in which the uranium feed stocks from Australia might be mixed with others from other countries or domestic sources. This would, in essence, mean that the material furnished by the Australians may not be the same as that returned to them. In short, the Agreement ignores the principle of fungibility. Second, many of the operations, particularly those associated with gaseous diffusion plants, are specifically exempted from the United States-Agency Agreement for the application of Safe-

guards in the United States. Thus, in the sections indicated, the requirements of the United States-Australian Agreement would, in fact, be in conflict with the proposed United States-Agency Agreement.

Several places (particularly Article 6; Article 10; and Agreed Minute, Return of Material, Equipment or Components) specifically preclude future energy options based on decisions regarding the "back end" of the nuclear fuel cycle without the expressed approval of Australia. Such agreements are, in fact, confining and, if many such agreements are executed, could well preclude certain future decisions by the United States on the transfer, enrichment, and processing of any materials. If a series of such agreements are negotiated, the reluctance of a single signatory could prevent such decisions by the United States for all time.

Finally, there are certain terms, such as "equipment," "facilities" and "peaceful purposes" or "military purposes", which are used that need better definition. A clarification is also required in Article 13 regarding confidentiality in the handling of classified, proprietary, or otherwise sensitive information.

Certain of these changes could be effected in future revisions to this Agreement. Some may be sufficient of themselves to raise serious doubts about the advisability of ratifying such an Agreement at this time.

Very truly yours,

F. A. O'HARA,
Executive Committee.

COMMENTS ON THE UNITED STATES-AUSTRALIA AGREEMENT OF PEACEFUL USES OF NUCLEAR ENERGY

In general, the treaty appears to be very well written and generally includes the items that need to be covered. Some points, however, are somewhat indefinite and could be greatly clarified. These are listed by the order in which they appear in the document and not in order of importance.

Page 3, Article 1, "Scope of Cooperation"

3b. This presumes the United States will sign an agreement with IAEA.

Page 4, Article 2, "Definitions"

a. This definition of "byproduct material" should reflect the most recent CFR update, which includes uranium mine tailings.

c. The definition of "equipment" is very poor when defined as components or facilities; preferred definition—"Equipment" means any operational unit within a facility.

It is suggested that a definition of "facility" be provided.

Page 5, Article 2, "Definitions"

h. The implication of the present definition of "moderator" material is that light water may need to be controlled.

j. "Any military purpose" and the definition of "peaceful purposes" should be elaborated. Would a mobile power system operated by the military constitute military purposes?

Page 8, Article 2, Paragraph 2

This statement is somewhat indefinite. Perhaps the following wording should be added to the end, " * * * by law, regulation, or proprietary or confidential designation."

Page 9, Article 4, Paragraph 1

Delete "facilities"; replace with "equipment" or "components".

Page 9, Article 4, Paragraph 3

Perhaps some adjective, such as "experimental", "nonstandard", "unusual", "prototype", etc. should modify "reactor fuel cycle".

Page 9, Article 4, Paragraph 4

This would be more definite if changed to read, " * * * loading of specified reactor or use in defined reactor experiments. (It is assumed that the "efficient and continued operation" includes sufficient ex-core inventories to permit same.)

Page 12, Article 6, Paragraph 2

The intent of this section is very clear; however, there is a problem with the language in this paragraph. This statement violates the principle of fungibility.

If natural uranium is sent to the Portsmouth Gaseous Diffusion Plant for enrichment, there is no assurance that the atoms in that material will stop at some given enrichment. The reason for this is that the material cannot be distinguished as unique, and the origin of atoms cannot be isolated. The principle of fungibility (i.e., the return of like kind) needs to be reflected here.

Page 12, Article 6, Paragraph 3

"* * * or further irradiation" is superfluous.

Page 14, Article 8

Again, the use of the term, "any military purpose", is unclear. This could be construed to preclude the participation by the military in the use of nuclear energy, as defined in the Treaty; i.e., the wording of this article should allow use as mobile power service, military as security agents for transfer, etc.

Page 14, Article 9, Paragraphs 2 and 4

Regarding Agency inspection of material and facilities, Article 2 requires Agency inspection, but until a United States-Agency Agreement is in force, wording of this section could restrict domestic nuclear business and other commerce that is not intended to be excluded.

Paragraph 4 particularly allows for Agency examination of facilities in which transferred material is utilized or processed. Current enrichment plants are not intended to be available to the Agency, and it is expected that most Australian material would be processed in these facilities.

Otherwise, it is felt that Paragraph 4 is adequate; i.e., we do not agree with Hendrie's comments for the NRC (Paragraph 2) on the need for a state system of accounting and control. It is felt that the Agency system must be relied upon; otherwise, the use of bilateral (or unilateral) agreements could be construed as "meddling in the systems of other countries".

Page 16, Article 10, Paragraph 1

The content of this paragraph seems superfluous to Article 5, Paragraph 2, and does not need to be included. Also, this paragraph again violates the principle of fungibility. In addition, the wording on reprocessing seems to preclude the United States from making such a decision without renegotiating this agreement.

Page 17, Article 11, Paragraph 3

Add, "* * * but in no case shall such reimbursement exceed the original compensation paid by the recipient for such materials, equipment, or components."

Page 18, Article 13, Paragraph 4

Delete, "* * * as allowed by law within the jurisdiction of the recipient party." Add the sentence, "If such protection is prohibited by law or regulation of the recipient party, then such protective measures, as agreed upon by consultation of the parties, shall apply."

Page 22, Annex, Category I

This should read, "* * * and which is under constant surveillance by guards * * *". As stated this allows less stringent security measures for Category I material than for other less sensitive items.

Page 24, Agreed Minute, Transitional Arrangements

The restrictions on contracts approved after December 2, 1972, may be of great concern to the continuation of nuclear commerce between the United States and foreign countries. Is this really intended, since it is indicated that such commerce cannot be conducted until the "entry into force of the agreement between the United States and the Agency"? This could be misinterpreted as the United States being an "unreliable" trading partner.

Page 25, Agreed Minute, Return of Material, Equipment or Components

This paragraph could preclude possible future decisions on the transfer, enrichment, and reprocessing of any material by the United States.

Page 28, Safeguards, Items c and f

There is a problem with the implementation of these items if the gaseous diffusion plants are considered.

NATURAL RESOURCES DEFENSE COUNCIL, INC.,
Washington, October 18, 1979.

HON. FRANK CHURCH,
Chairman, Senate Foreign Relations Committee,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This letter sets forth the views of the Natural Resources Defense Council concerning the proposed agreement for nuclear cooperation between Australia and the United States. NRDC is a non-profit organization dedicated to enhancement of environmental quality and prudent use of natural resources both in the United States and throughout the world. Our work is supported by members in the United States and 21 foreign countries. For several years, NRDC has been a vocal proponent of improved controls on worldwide commerce in nuclear equipment and materials to prevent their diversion to the production of nuclear explosives.

The theme underlying the Nuclear Nonproliferation Act of 1978 is that the United States will be a reliable nuclear trading partner, but only with countries which adhere to prescribed nonproliferation practices. Among other measures, the Act directs the President to renegotiate the terms of international nuclear agreements to which the United States is a party, and it provides explicit objectives and criteria for such negotiations.

The renegotiated agreement for cooperation with Australia is the first presented for Congressional approval under the 1978 Act. It is unfortunate in one sense that the first renegotiated agreement should be with Australia, a strong supporter of nuclear proliferation controls and a country without a nuclear power construction plan at present. Uniform and even-handed treatment of nuclear trading partners by the U.S. is important to the acceptability of its controversial nonproliferation controls. Yet, Australia's strong nonproliferation credentials and the reciprocal nature of nuclear trade between Australia and the United States appear to have persuaded the Administration to accept certain provisions in the Agreement which would be decidedly unwise in the case of other countries.¹ Unfortunate precedents may thus be established, weakening U.S. nonproliferation policies overall.

Whether other nations will be able to successfully exploit these precedents depends in part upon this Committee's reaction to the pending agreement for cooperation. We strongly recommend that the Committee identify with particularity the provisions in this agreement which it deems of questionable merit in the broader context of the world nuclear marketplace. We think the Committee should advise the Executive Branch of changes it would expect to see in future agreements.

Among the provisions meriting special scrutiny by the Committee, we would list the following:

1. ENVIRONMENTAL PROTECTION

Section 407 of the Act instructs the President, in negotiating agreements for nuclear cooperation, to endeavor to obtain commitments for cooperation in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear activities. That directive is given particular substance by the recent Presidential Order which provides for the preparation of environmental assessments as a part of the approval process for export of nuclear production, utilization or waste management facilities (E.O. 12114, Jan. 4, 1979). Assessing the impacts of such facilities in a foreign environment cannot be accomplished without the active cooperation of the recipient country.

The Australia agreement goes no further than to permit (not require) transfer of information relevant to health, safety, and the environment. The Agreed Minute merely recites that the parties will continue to cooperate on international environmental considerations relevant to nuclear power.

These provisions are woefully inadequate to meet the intent of Congress in Section 407. That Section was inserted to assure that the U.S. and recipient nations agree in any nuclear export agreement on specific provisions to protect the environment from the kinds of hazard which have been experienced in the extensive U.S. nuclear program. These include problems such as proper handling,

¹ Even in the case of Australia the lenient terms of the agreement discussed in this letter are predicated on policies in Australia which may alter radically over the thirty-year term of the agreement.

storage and disposal of nuclear wastes; accidental releases of radiation accompanying, for instance, loss of cooling accidents; and factors related to environmentally sound siting and management of nuclear facilities.

These problems have yet to be satisfactorily resolved in the United States, the country most experienced in nuclear power. Solutions will be even more elusive in countries lacking such extensive technical and regulatory experience. To delay discussion and agreement on appropriate environmental protection measures until completion of general negotiations on the sale of the technology would be to lose the most effective bargaining period for achieving such protection. To wait to address the environmental problems until after they occur is to assure that they will not be adequately resolved.

We therefore recommend that the Congress provide additional guidance to the Executive Branch concerning environmental protection provisions which should be negotiated in subsequent agreements for cooperation. At a minimum, cooperating countries should be obligated to:

- (1) Cooperate with and facilitate analyses to be undertaken by the United States, pursuant to the Executive Order, of the environmental impacts of any nuclear facility proposed to be transferred under the agreement for conjunction;

- (2) Cooperate with the United States in identifying and utilizing the best technology for the control of radioactive or nonradioactive discharges from such facilities to the general environment;

- (3) Identify methods and cooperate in the implementation of a plan for disposal of radioactive wastes from such facilities which would minimize their long- and short-term impacts. Agreements should explicitly forbid disposal measures which could contaminate the global commons, such as the oceans, and should require observance of all relevant requirements of the Nuclear Energy Agency, the International Atomic Energy Agency, and the International Marine Consultative Organization, including the procedures prescribed by those bodies to ensure and verify compliance.

Whatever objections the Executive Branch agencies may once have had to the negotiation of such explicit provisions for protection of the environment is now mooted by the Executive Order. It cannot be maintained that such provisions encroach upon national sovereignty more than any of the other voluntarily-accepted obligations in the agreements for cooperation.

2. NONPROLIFERATION ASSESSMENT STATEMENT

Section 401 of the Nuclear Nonproliferation Act requires the Arms Control and Disarmament Agency (ACDA) to provide the President and the Congress with an unclassified nuclear proliferation statement, "regarding the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose." Section 401 also requires the Department of State, in negotiating agreements for cooperation, to consult with the Director of ACDA.

These provisions are meant to guarantee an affirmative and independent voice for ACDA, free from the geopolitical considerations which color the judgments of other Executive Branch agencies involved in the negotiation and approval. That ACDA has fulfilled its intended role should appear from the nuclear proliferation assessment statement and its recommendations. This document is one of the most important checks in the process of negotiating bilateral nuclear reforms. Since this is a process which Congress enters only at the end, it is essential that it scrutinize the adequacy of ACDA's participation.

The nonproliferation assessment statement accompanying the Australian agreement is not a satisfactory model for future negotiations. The document amounts almost entirely to a demonstration that the proposed agreement complies with the strict letter of the criteria of the nonproliferation act, thus accepting uncritically the adequacy of that statutory framework. It would be far more instructive to analyze the agreement from the standpoint of the broader dynamics of nuclear weapons proliferation, in ACDA's expert view, with specific indications of where improvements are possible or desirable. For instance, the nonproliferation assessment statement for Australia should analyze the adequacy of IAEA safeguards or other applicable safeguards for the types of facilities which may be acquired or constructed by Australia during the life of the agreement.

The Australian nonproliferation agreement statement does concede doubt that certain provisions would not be entirely satisfactory in the context of other

countries. It does not, however, indicate the modifications that it thinks would be desirable for such broader purposes. Too often, the statement takes refuge in the fact that Australia, without a current nuclear construction program, is a special case. We note, however, that the term of the agreement for cooperation is 30 years, during which time the energy needs of Australia, its internal politics, and the stability of the region, may change drastically.

The statement does not reflect the extent of consultations between the ACDA and the State Department in the negotiation of this agreement, or the points in the process where it occurred. Without this information, it is difficult for Congress to ascertain whether ACDA has exercised the degree of influence which Congress contemplated.

The statement treats only superficially the question of whether and to what extent the precedents set by particular provisions of the agreement should be followed in other agreements. Provisions of special concern in this regard are discussed below.

3. PROPORTIONALITY

The Agreed Minute stipulates that rights of approval for certain activities relating to fuel imported under the agreement, including storage, retransfer, reprocessing, enrichment, alteration, and physical security, extend only to the proportion of the fuel in use in a country which was actually imported from the other party to the agreement. In practice, the importing country would determine which fuel rods or other derivatives it wishes to treat as within the proportion that would be subject to rights of consent. Thus, a supplier's control over the conversion of fuel to forms which pose a weapons proliferation danger could become quite ineffectual.

An important predicate on the Nuclear Nonproliferation Act is that the United States can best influence global nuclear policy by providing nuclear materials and technology subject to strict controls. This predicate would be seriously undermined as the world enters the era of diversified supply of fuel and fuel services, if the U.S. permits its controls to be apportioned by recipient countries. Importing nations with diversified sources would be enabled to allocate U.S. imposed controls to its most benign nuclear activities, while treating the remainder of its fuel and waste in a manner quite inconsistent with U.S. intentions. The leverage which the U.S. exerts over global nuclear policies by virtue of its role as a supplier could become negligible.

This is a matter calling for particular vigilance on the part of the ACDA. At a minimum, future nonproliferation agreement statements should contain detailed criteria and analyses of the acceptability of proportional controls. As the characteristics of the world nuclear marketplace evolve, so, presumably, will these criteria.

4. EXPORT OF WEAPONS-USABLE MATERIAL

The agreement for cooperation specifically contemplates export of weapons-usable material from the United States to Australia for the latter's two research reactors where economic and technical justifications exist (Article 4 (3) and 4(4)).

The Non-proliferation Assessment Statement fails to analyze the adequacy of such criteria, the extent to which the criteria can be met in the case on Australia or most significantly, the alternatives to the use of highly enriched fuels for the research reactors.

The provisions of the agreement and omissions of the assessment statement are particularly notable in view of the conclusions of the July 1979 draft Report of the Nonproliferation Alternative Systems Assessment Program (U.S. Department of Energy). According to the Report, research suggests that most research reactors can be adapted to use less highly enriched uranium with little effect on overall performance. It concludes that implementation of such technical measures would substantially diminish the proliferation risk associated with research reactors (Pp. 2-75-76).

The Australia agreement is deficient for failing to obligate the parties to investigate and implement these technical solutions as soon as practicable.² In all future agreements, export of highly enriched uranium should be permitted on a temporary basis only and conditional upon progress toward adapting research reactors to use less enriched fuels.

² While Australia is informally examining with the U.S. the feasibility of using lower enriched fuel, these discussions should not be regarded as a substitute, but as an additional stimulus, for formal commitments.

5. STEPS TO PROMOTE UNIFORM NUCLEAR POLICY REFORMS

Section 403 of the Nuclear Non-proliferation Act directs the President to take immediate and vigorous steps to seek agreement of all nations to certain nuclear export policies. Those policies are similar to the criteria for U.S. exports which are embodied in the Act but go further by covering all civilian nuclear activities in nations and by establishing, as a negotiating objective, the commitment that fuel cycle activities with special relevance for production of explosive materials will be conducted only in facilities "under effective international auspices and inspection."

It seems apparent that the renegotiation of agreements for cooperation provides an important occasion for the President to seek commitment to the broader reforms of Section 403 within a nation. This missed opportunity in the case of the negotiation of the agreement for cooperation for Australia, presumably one of the most receptive nations, does not bode well for subsequent negotiations.

This serious omission is one which we would have expected ACDA to call to the attention of the parties during the negotiating process. Whether it did so does not appear in the nonproliferation assessment statement. It therefore rests with this Committee to seek assurance from the Executive Branch that Section 403 will not be neglected in future negotiations.

CONCLUSION

NRDC strongly urges the Committee to provide additional instruction to the Executive Branch for future negotiations in the form of a statement of principles or objectives derived from the legislative intent behind the Nuclear Nonproliferation Act. We believe that the defects in the pending agreement, described above, are among the most important to reflect in such a statement of principles.

Respectfully submitted,

GREGORY A. THOMAS,
Senior Staff Attorney,
International Project.

OAK RIDGE NATIONAL LABORATORY,
UNION CARBIDE CORP.,
NUCLEAR DIVISION,
Oak Ridge, Tenn., October 25, 1979.

HON. FRANK CHURCH,
Chairman, Committee on Foreign Relations, U.S. Senate, Russell Building,
Washington, D.C.

DEAR SENATOR CHURCH: Thank you very much for the opportunity of commenting on the U.S.-Australian Agreement on Peaceful Uses of Nuclear Energy. My comments were included with those submitted to G. R. Keepin by F. A. O'Hara and are indicated by an (*) in the attached.

If I can be of any further service, please call on me.

Very truly yours,

ROY G. CARDWELL,
Member Executive Committee,
Institute of Nuclear Materials Management.

Attachment.

COMMENTS ON THE UNITED STATES-AUSTRALIA AGREEMENT ON PEACEFUL USES OF NUCLEAR ENERGY

In general, the treaty appears to be very well written and generally covers the items that need to be covered. Some points, however, are somewhat indefinite and could be greatly clarified. These are listed by the order in which they appear in the document and not in order of importance. A major deficiency appears to be the lack of recognition of the "principle of fungibility." (c.f., the following comments, especially, Pages 12, 14, and 16).

Page 3, Article 1 "Scope of Cooperation"

3b. This presumes the U.S. will sign an agreement with IAEA.

Page 4, Article 2 "Definitions"

a. This should reflect the most recent CFR update, which includes uranium mine tailings.

c. The definition of "equipment" is very poor as defined in terms of components or facilities. Preferred definition: "Equipment" means any operational unit within a facility.

It is suggested that a definition of "facility" be provided.

Page 5, Article 2 "Definitions"

h. The implication of the present definition of "moderator material" is that light water may need to be controlled.

j. "Any military purpose" and definition of "peaceful purposes" should be elaborated. Would a mobile power system operated by the military constitute military purposes?

Page 7, Article 2 "Definitions"

t. "Abundance" could be deleted.

Page 8, Article 3, paragraph 2

This statement is somewhat indefinite. Perhaps the following wording should be added at the end, "* * * by law, regulation, or proprietary or confidential designation."

Page 9, Article 4, paragraph 1

Delete "facilities"; replace with "equipment" or "components".

Page 9, Article 4, paragraph 3

Perhaps some adjective, such as "experimental", "non-standard", "unusual", "prototypes", etc., should modify reactor fuel cycle.

Page 9, Article 4, paragraph 4

This would be more definite if changed to read, "* * * 1. loading of specified reactor or use in defined reactor experiments. (It is assumed that the "efficient and continuous operation" includes sufficient ex-core inventories to permit same.)

Page 12, Article 6, paragraph 2

The intent of this section is very clear; however, there is a problem with the language in this paragraph. This statement violates the principle of fungibility. If natural uranium is sent to the Portsmouth Gaseous Diffusion Plant for Enrichment, there is no assurance that the atoms in that material will stop at some given enrichment period. The reason for this is that the material cannot be distinguished if unique and the origin of atoms cannot be isolated. The principle of fungibility (i.e., the return of like kind) needs to be reflected here.

Page 12, Article 6, para. 3

"* * * or further irradiation" is superfluous.

Page 14, Article 8

Again, the use of the term, "any military purpose", is unclear. This could be construed to preclude the participation by the military in the use of nuclear energy, as defined in the Treaty; i.e., it should allow use as mobile power service, military and security agents for transfer, etc.

Page 14, Article 9, para. 2 & 4

Regarding Agency Inspection of Material and Facilities, Article 2 requires Agency inspection, but until a U.S.-IAEA Agreement is concluded, wording of this section could restrict business and commerce that is not intended to be excluded.

Para. 4 particularly allows for Agency examination of facilities in which transferred material is utilized or processed. Current enrichment plants are not intended to be available to the Agency and it is expected that most Australian material would be processed in these facilities.

Otherwise, it is felt that para. 4 is adequate; i.e., we do not agree with Mr. Hendrie's comments for the NRC (para. 2) on the need for a state system for accounting and control. It is felt that the Agency system must be relied upon; otherwise, the use of bilateral (or unilateral) agreements could be construed as "meddling in the systems of other countries."

Page 16, Article 10, para. 1

The content of this para. seems superfluous to Article 5, para. 2, and does not need to be included. Also, this para. again violates the principle of fungibility. In addition, the wording on reprocessing seems to preclude the U.S. from making such a decision without renegotiating this agreement.

Page 17, Article 11, para. 3

Add, " * * * but in no case shall such reimbursement exceed the original compensation paid by the recipient for such materials, equipment, or components."

Page 18, Article 13, para. 4

Delete, " * * * as allowed by law within the jurisdiction of the recipient party." Add the sentence, "If such protection is prohibited by law or regulation of the recipient party, then such protective measures, as agreed upon by consultation of the parties, shall apply".

Page 22, Annex, Category I

This should read, " * * * and which is under constant surveillance by guards * * *"

Page 24, Agreed Minute Transitional Arrangements

The restrictions on contracts approved after Dec. 2, 1972, may be of great concern to the continuation of nuclear commerce between the U.S. and foreign countries. Is this really intended, since it is indicated that such commerce cannot be conducted until the "entry into force of the agreement between the United States and the Agency"? This could be misinterpreted as the U.S. being an "unreliable" trading partner.

Page 25, Agreed Minute, Return of Material, Equipment or Components

This para. could preclude possible future decisions on transfer, enrichment, and reprocessing of material.

Page 28, Safeguards Items c and f

There is a problem with the implementation of these items if gaseous diffusion plants are to be involved.

